

**HOUSING PREFERENCES OF RESIDENTS IN STELLENBOSCH,
SOUTH AFRICA**

--- An application of the Hedonic Price Model

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Declaration

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

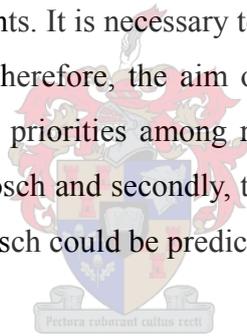
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Abstract

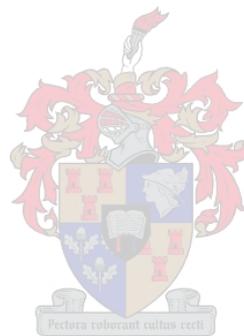
The issue of housing choice and preferences has been and still is the subject of much academic attention from researchers in many different disciplines. Stellenbosch, the oldest town in South Africa second to Cape Town, is undoubtedly the most scenic and historically well-preserved town in Southern Africa. With this plurality of attractive features, the housing market in Stellenbosch has become one of the most active and expensive housing markets in South Africa. In this specifically booming housing market, it is indispensable to conduct a housing preference and priorities study to determine residents' tastes and preferences, in order to help those concerned, residents, real estate agents or people related to housing, to make better housing decision. At the same time, considering the affluent housing market in Stellenbosch, sellers and real estate agents are facing the problem of appraising the actual market value of houses. There is an apparent lack of a normative method to evaluate houses, and it is noteworthy that assessments almost always depend on the subjective experience of sellers and real estate agents. It is necessary to explore a convenient and effective way to value the market price of houses. Therefore, the aim of this research was two-fold: firstly, to determine the housing preferences and priorities among residents in different socio-demographic and socio-economic groups in Stellenbosch and secondly, to explore a functional formula by which the market price of housing in Stellenbosch could be predicted.



These objectives were addressed in two phases, a survey study and a secondary data analysis study. In phase one, a telephone survey was conducted throughout six selected neighbourhoods, among a representative sample of 205 respondents. In phase two, a secondary data analysis of actual housing transactions was conducted. The data was derived from real estate transactions from a local real estate company, Anna Basson Properties. The sample was 220 transactions within the years of 2002, 2003 and 2004.

The main finding of the telephone survey showed that dwelling related attributes were found to be more important than neighbourhood and location-related attributes in Stellenbosch residents' home purchase decisions. Kitchens turned out to be the housing feature that was regarded as the most important attribute that influenced respondents' housing choice. "Social status - related attributes", such as air-conditioning and swimming pools were found to be the least important. Further, factors such as family income, age, education, and housing values held by the home owners were found, in varying degrees, to have affected housing preference attitude amongst the respondents.

In the secondary data analysis (housing transaction), a hedonic price formula for Stellenbosch was achieved. From the formula, it can be concluded that the size of the building, the number of bedrooms, the number of bathrooms, the amount of garage spaces, the availability of a swimming pool, the availability of a security alarm, and the location of the house are significant determinants of residential housing prices in Stellenbosch. Finally, it is recommended that the hedonic models estimated in the present study can be applied to many other same sized towns with only minor modification in South Africa.



Opsomming

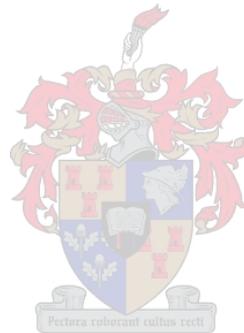
Die kwessie van behuisingskeuse en –voorkeure was en is nog steeds die onderwerp van heelwat akademiese aandag van navorsers in verskillende dissiplines. Stellenbosch, naas Kaapstad die oudste dorp in Suid-Afrika, is sonder twyfel die mooiste en histories die bes bewaarde dorp in Suider-Afrika. Binne hierdie meervoud van aantreklike eienskappe het die behuisingsmark in Stellenbosch gegroei tot een van die mees aktiewe en welvarendste behuisingsmarkte in Suid-Afrika. In hierdie spesifiek florerende behuisingsmark is dit onontbeerbaar dat ‘n studie gedoen behoort te word om die behuisingsvoorkeure en –prioriteite van verbruikers te bepaal. Sodoende kan alle betrokkenes by die behuisingsmark; inwoners én eiendomsagente gehelp word om meer ingeligte behuisingsbesluite te maak. Binne die welvarende behuisingsmark in Stellenbosch, ondervind eiendomsagente en verkopers dikwels probleme om die realistiese markwaarde van huise te bepaal. Daar is ‘n duidelike gebrek aan ‘n normatiewe metode om eiendom te evalueer, en baie dikwels word die evaluasie beïnvloed deur die subjektiewe waarnemings van die verkopers of eiendomsagente. Dit is noodsaaklik om ‘n geskikte en effektiewe manier te vind om eiendom te waardeer. Die doel van die studie was dus tweërlei: eerstens om die behuisingsvoorkeure en prioriteite van inwoners binne verskillende sosio-demografiese en sosio-ekonomiese groepe in Stellenbosch te bepaal, en tweedens om ‘n funksionele formule te ontwikkel waarvolgens die markprys van eiendomme in Stellenbosch bepaal sou kon word.

Die oorkoepelende doelwitte van die studie is in twee fases aangepak, ‘n opnamestudie en ‘n sekondêre data analise studie. In fase een is telefoononderhoude met ‘n verteenwoordigende steekproef van 205 inwoners binne ses geselekteerde woongebiede onderneem. In die tweede fase is ‘n sekondêre data analise van werklike behuisingstransaksies gedoen. Die data is bekom uit werklike behuisingstransaksies wat by die plaaslike eiendomsagentskap, Anna Basson Eiendom, gedoen is. ‘n Steekproef van 220 transaksies wat binne die jare 2002, 2003 en 2004 gedoen is, is gebruik.

Die hoof bevinding van die telefoononderhoude het aangedui dat die eienskappe van die fisiese behuisingstruktuur vir die Stellenbosse inwoner belangriker is as woongebied en ligging wanneer behuisingsbesluite geneem is. Daar is bepaal dat kombuise die behuisingselement was wat die belangrikste geag is en die grootste invloed gehad het op die inwoners se behuisingskeuses. Items wat “sosiale status” mag aandui, soos byvoorbeeld lugversorgers en swembaddens is gevind om

weinig belang te hê. Faktore soos die gesin se inkomste, ouderdom, opvoedingspeil en behuisingswaardes het die behuisingsbesluite in 'n meerdere of mindere mate by alle respondente beïnvloed.

In die sekondêre data analise (behuisingstransaksie) is 'n hedoniese prys formule vir Stellenbosch bepaal. Van hierdie formule kan afgelei word dat die oppervlakte van die gebou, die getal slaapkamers, die aantal badkamers, die hoeveelheid motorhuis spasie, die beskikbaarheid van 'n swembad, 'n sekuriteitsalarm en die ligging van die huis, faktore is wat residensiële behuisingspryse bepaal. Ten slotte word dit voorgestel dat die hedoniese model wat in hierdie navorsingstudie gebruik is, met baie geringe aanpassings gebruik sou kon word in studies van die behuisingsmarkte in ander dorpe in Suid-Afrika, wat rofweg die grootte van Stellenbosch is.



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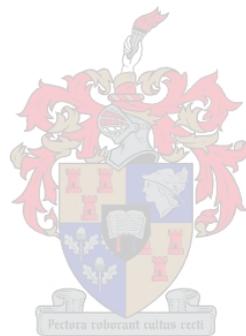
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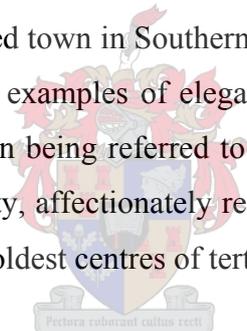
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CHAPTER 1: INTRODUCTORY PERSPECTIVES

1.1. INTRODUCTION

The issue of housing choice and preferences has been and still is the subject of much academic attention from researchers in many different disciplines. Both research topics have been studied from different theoretical perspectives (Mulder, 1996:209). Additionally, even when taking the same perspective, different researchers focus on different aspects of housing choice and housing preferences. Some researchers specialize in the preferences for houses, whereby houses are typically seen as bundles of attributes while others look at the process of housing choice. Still other researchers focus on the outcomes of the housing choice process.

Stellenbosch, the oldest town in South Africa second to Cape Town, is undoubtedly the most scenic and historically well-preserved town in Southern Africa.¹ Oak-lined streets next to water furrows compliment the many fine examples of elegant Cape Dutch, Victorian and Georgian architecture – attributing to the town being referred to as the "Town of Oaks". Stellenbosch is also home to Stellenbosch University, affectionately referred to as “Maties”, a world-renowned academic institution and one of the oldest centres of tertiary education in South Africa.



With this plurality of attractive features, the housing market in Stellenbosch has become one of the most active and expensive housing markets in South Africa. Recently, one of the most popular real estate companies composed an article on their official website concerning the housing market in Stellenbosch. They stated that “Stellenbosch property prices are escalating tremendously since many parents are now investing in homes for their children to occupy while studying at Maties and there are 20 000 students that need accommodation in the area.”²

In terms of why this kind of study, determining the type of housing that people want, is important, several reasons are offered by Shlay (1998:481). First of all, residential preferences are economically important, because housing expenditure is extensive, representing a significant proportion of household income. Furthermore, the housing industry is a major source of employment and stimulates other types of consumption as well, some of the most obvious being

¹ See <http://www.istellenbosch.org.za/>

² See http://www.seeff.com/news/detailed.asp?news_id=89

the purchase of furniture and appliances. The fact that housing is central to economic development at a number of levels, ranging from the household to the nation-state, adds to the value of the study of residential preferences as an important economic enterprise. As a commodity that is largely produced in the private sector, housing is developed to appeal to different consumers' taste and preferences. Hence, there is a need to determine whether there is a correspondence between the types of housing supplied on the market and the types of housing that people want.

Secondly, residential preferences are relevant to policy. Certain types of housing are supported and even promoted by public policy through, for example, tax policy, land use planning techniques, and direct and indirect subsidies (Shlay, 1998:481).

Thirdly, residential preferences have a social relevance. Since residents, through housing, can access important life-sustaining amenities, housing becomes a locus of family life and a critical key by which a member's progress to socio-economic mobility is determined. Whether people's desire for housing situations correspond to those that will enable them to optimize the quality of their lives, turn out to be a very crucial question, particularly for single parents, minority groups and poor households (Shlay, 1998:481).

Finally, residential preferences are politically important. Housing is alleged to be a major source of political stability through engendering satisfaction with the political and economic system undertaking the production of housing. In South Africa, the National Housing Programme strives to provide housing that is adequate in meeting occupant needs and requirements and thereby meet its objective of creating housing that is satisfactory and uplifting to the occupant's quality of life (Moja, 2004: 1). Therefore, whether people's housing situations reflect what they want, is regarded as a fundamental political issue (Shlay, 1998:481).

In this specifically booming housing market, it is indispensable to conduct a housing preference and priorities study to discover residents' tastes and preferences, in order to help those concerned; residents, real estate agents or people related to housing, to make better housing decisions. An important distinction in this context is made between *stated* and *revealed* preferences. *Revealed preferences* are based on actual housing choices. In contrast, *stated preferences* are based on intended choices or hypothetical choices. In this research, the main concern is with stated preferences. Stated housing preferences have been studied extensively; indeed, the literature on this subject is vast (Mulder, 1996). In explaining this type of housing

preferences researchers have shown the influence of macro-level factors such as housing market, housing system and economic situation, compared to micro-level factors such as age, household composition, income and current housing situation (Tremblay & Dillman, 1983:70).

As is the case in the majority of other South African towns, the town of Stellenbosch is deeply divided, with great social disparities (PPT Pilots Project in Southern Africa, 2004:2). The housing preferences pursued are based on the different socio-demographic and socio-economic characteristics and housing values held by particular individuals.

At the same time, considering the affluent housing market in Stellenbosch, sellers and real estate agents are facing the problem of appraising the actual market value of houses. There is an apparent lack of a normative method to evaluate houses, and it is noteworthy that assessments almost always depend on the subjective experience of sellers and real estate agents. It is necessary to explore a convenient and effective way to value the market price of houses. In this research, the *Hedonic Price Model* will be used in an attempt to explore a functional method through which housing prices could be predicted. The hedonic price model, derived mostly from Rosen's Hedonic Price Theory (1974:35), posits that a good possesses a myriad of attributes that combine to form bundles of utility-affecting attributes that the consumer values. Applications of the model have been conducted in countries such as Canada, Korea, China and Nigeria (Ogwang & Wang, 2003: 285; Yang, 2001: 50; Huh & Kwak, 1997:989; Megbolugbe, 1989:486) to predict the market price of houses or to compile a housing price index. More detail of the model will be given in the literature review.

The research will explore the relationship between two groups of housing choice variables, namely housing status and dwelling quality. These two terms are derived from Phe and Wakely's (2000:7) theory of residential location, which states that in the housing choice decision making process there are two groups of decisions that need to be taken into account by each household, namely housing status and dwelling quality. Households have to make a trade-off between these two groups of decisions. The research will also retest the authenticity of the residential location theory of housing status and dwelling quality trade-off (SQTO). The data from a telephone survey and actual transaction records from a local real estate company, Anna Basson Properties, will be used in the study.

The research problems are therefore as follows: What are the housing preferences of different socio-demographic and socio-economic groups in Stellenbosch? What is the functional formula

by which the market price of housing can be accurately predicted in Stellenbosch?

1.2. OBJECTIVES OF THE RESEARCH

The research problems will be addressed through pursuing the following research objectives.

1.2.1. Main objectives

- To determine the housing preferences and priorities among residents in different socio-demographic and socio-economic groups in Stellenbosch.
- To explore a functional formula by which the market price of housing in Stellenbosch could be predicted.

1.2.2. Secondary objectives

The following secondary objectives were derived from the main objectives of the research:

- To gain background knowledge of Stellenbosch.
- To determine the relationship between the housing preferences and socio-demographic and socio-economic characteristics of respondents.
- To determine the relationship between housing preferences and housing values held by respondents.
- To determine a functional formula by which current house prices could be accurately predicted. (Hedonic Price Model)
- To explore the relationship between two groups of housing choice variables, namely housing status and dwelling quality.
- To make recommendations for further research and application of the Hedonic Price Model in the housing market in South Africa.

1.3. RESEARCH VARIABLES

The following variables will be analyzed in the research.

1.3.1. Independent variables

- The socio-demographic and socio-economic profile of respondents including:
Education; Income level; Occupation; Age; Stages of the life cycle; Size of household; Marital status.
- The values held by the household: Personal; Family; Economy and Social Prestige.
- The characteristics of housing:
Housing status: Neighbourhoods status
Dwelling quality: Physical measurable characteristics such as floor area, number of bathrooms, number of bedrooms, etc.

1.3.2. Dependent variables

- The residents' housing preferences
- The market price of housing

1.4. DEFINITION OF TERMS



This section defines the most commonly used terms of the research.

1.4.1. Housing preferences

Preferences are expressions of values but an expressed preference may not directly relate to a single or obvious value (Roske, 1983:106). Preferences are temporary states of mind about what kind of housing is desired and feasible at the current moment given the current constraints (included is the idea that preferences involve the choice of one option over another). Preferences are inherently unstable and can be expected to change for a specific household whenever significant changes in the constraints occur (Morris and Winter, 1978: 26, 40).

1.4.2. Housing values

Housing values are the underlying criteria for all choices in housing and all aspects of life.

Values are concepts we have about what is desirable, what ought to be (Roske, 1983: 106).

1.4.3. Housing norms

Housing norms are the social pressure on individuals and households to live in housing with prescribed characteristics. Norms are not merely characteristics of households; they are characteristics of societies and segments within societies. Housing norms are societal phenomena but are implemented by households (Morris and Winter, 1998:287).

1.4.4. Dwelling quality

According to the location theory of housing status and dwelling quality trade-off (SQTO), dwelling quality is defined to include physically measurable characteristics such as floor area, number of bathrooms, number of stories, etc. To these can be added indicators of product quality, such as durability, compatibility with a given construction technology, etc (Phe & Wakely, 2000: 10).

1.4.5. Housing status

Housing Status is a further crucial parameter in the SQTO theory. It is defined to be a measure of the social desirability attached to housing in a particular locality. It can represent wealth, culture, religion, environmental quality, etc., depending on the current value system of a given society and, as such, is closely related to concrete historical conditions, i.e. the temporal dimension (Phe & Wakely, 2000: 10).

1.4.6. The hedonic price model

The Hedonic Price Model predominantly derived from Rosen's (1974:35) hedonic price model and Lancaster's consumer theory (1966: 132), suggests that an object has a myriad of attributes that combine to form bundles of utility-affecting attributes that influence consumer values. Numerous studies have utilized this technique to examine the relationship between attributed preference and the price of property. More detail on this model will also be presented in the study.

1.4.7. Characteristics of housing

Characteristics of housing are the subset of the attributes possessed by housing or other goods that enter into consumer preference development and consumer decision making. Consumers may differ in terms of how highly they value given characteristics but agree about what the characteristics are (Morris and Winter, 1978: 143).

1.4.8. Implicit price of characteristics

The assumed or estimated cost; the price that a particular characteristic (e.g., the amount of insulation measured in centimetres in the attic) is worth, although the actual cost is simply some unknown proportion of the total price of this dwelling. (Morris and Winter, 1978:144)

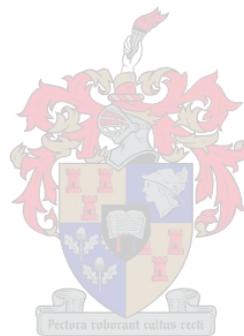
1.5. CONCEPTUAL FRAMEWORK OF THE RESEARCH STUDY

Figure 1.1 depicts the conceptual framework developed for this research study. Housing preferences are influenced by the type of household, which is determined *inter alia* by the ages of household members and the size of the household. Age, marital status, and the presence and age of children determine the household's stage in the life cycle which subsequently impacts on housing choice preferences. Social class also influences housing preferences and can be determined by analysing data on household income, education, and occupation. Finally, housing preferences are impacted by the values held by key members of a household. Values are internalized standards, which materially affect the way a person will react when confronted with a situation permitting alternative reactions. Four different groups of values were identified that are specific to housing choices, namely family, personal, economy and social prestige groups (Beamish, Goss and Emmel, 2001:10; Beyer, Mackesey and Montgomery, 1955:55).

Housing needs (impacted by socio-economic and socio-demographic variables), and housing values held by the homeowner, as well as housing norms determined by culture and background, determine the housing needs of the home owner. Subsequently, housing needs will determine housing choices. Two categories mark housing choices; Housing Status (HS) which includes location of housing and neighbourhood, and Dwelling Quality (DQ) including number of bedrooms, number of bathrooms, garage, size of living rooms etc.

The impact of socio-economic and socio-demographic variables on housing preferences are filtered by the housing norms that are present in a culture. Morris and Winter (1978:83)

identified six housing norms prevalent in the United States of America. Three of these norms seem to be essential in determining the housing choice of most people today: structure-type, space, and tenure. The single-family detached house that is owned by the occupants and has adequate sleeping space for all household members is the dominant form of housing and incorporates all three these norms. The other three norms (quality, neighbourhood, and expenditure), have more varied outcomes depending on the different backgrounds of households. The latter three components of housing choice is the emphasis in this research. Eventually, all of the above determine what people are prepared and willing to pay for housing.



HOUSING PREFERENCES IN THE TOWN OF STELLENBOSCH

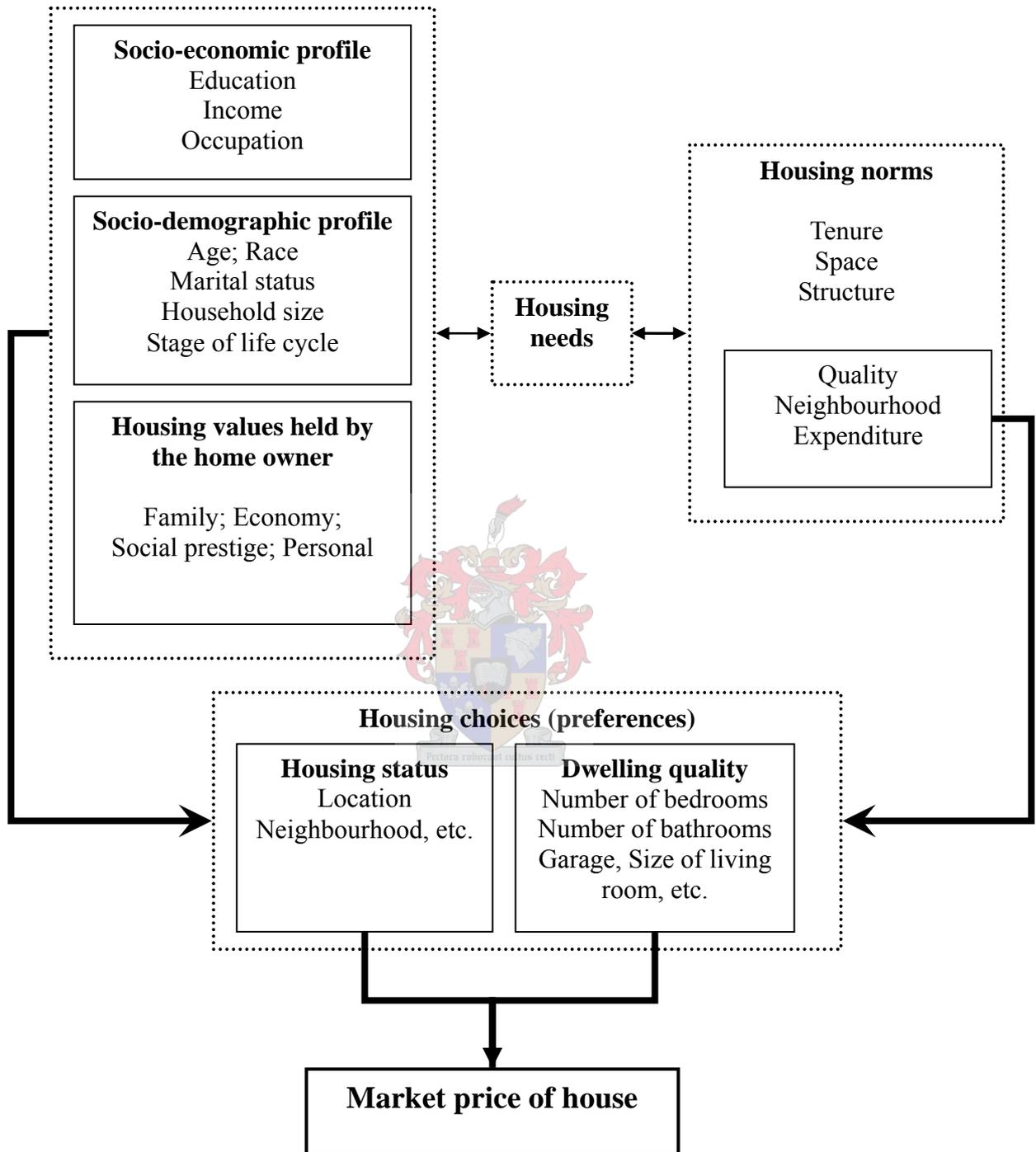


FIGURE 1.1: CONCEPTUAL FRAMEWORK OF THE RESEARCH

1.6. OUTLINE OF THE THESIS

The following outline serves as a brief summary of each of the chapters of the research.

Chapter 1 – introductory perspectives

This chapter provides an introduction to the research. It includes the problem statement and objectives of the research. Descriptions of the research variables are also given. The relevant terms, used in the thesis, are defined, followed by the conceptual framework of the research. An outline of the research report, as it is covered in each chapter, follows.

Chapter 2 – literature review

This chapter provides an overview of relevant literature relating to the research. The chapter is divided into four sections. The first section concerns social aspects of housing, which includes topics such as housing and human needs, housing norms, etc. The second part refers to housing preference. The third section covers the housing choice preference relationship between dwelling quality and housing status, which was mainly sourced from Phe and Wakely's theory of residential location (2000:11). The last part relates to the literature review on the *Hedonic Price Model*, and its application in studies previously conducted in other countries.

Chapter 3 - Methodology

Chapter 3 discusses the research methodology used to obtain and analyze the data for this research. The research method, sampling, research techniques and procedures are discussed in detail in order to show the validity, reliability and representativeness of the data obtained. The chapter is divided into two sections as the research was conducted in two phases. The methodology for each phase is discussed separately.

Chapter 4 – Results and discussion: the telephone survey

This chapter is divided into two sections. The first section presents the data obtained during the document study. Through this study, the researcher achieved the background knowledge about Stellenbosch, which laid a foundation for the design of the rest of the research. It includes statistics on population, gender, occupation, education level, income level, telephone facility, home language, mode of travel to school or work, type of dwelling and number of rooms

occupied by the household in the town of Stellenbosch.

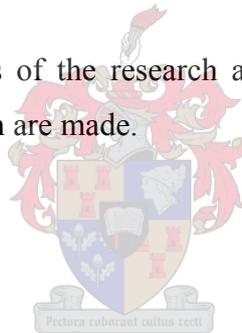
The second section discusses the data analysis results of the telephone survey conducted in Stellenbosch. The most important features that influence households' housing choices and the relationship with households' socio-demographic and socio-economic profiles will be presented in this chapter.

Chapter 5 – Results and discussion: the secondary data analysis

In this chapter, the results of the data analysis of 200 housing transaction extracted from a local real estate agency, Anna Basson Properties, is presented, by using the *Hedonic Price Model*. Subsequently, the housing choice relationship, developed by Phe and Wakely (2000:7), between housing status and dwelling quality is re-tested.

Chapter 6 – Conclusions and recommendations for further research

The conclusions and shortcomings of the research are presented in this chapter and finally recommendations for future research are made.



CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The aim of this chapter is to present an overview of relevant literature relating to the research. This chapter will also serve to define the key areas of focus and concepts used in the research as well as to place them in context. The chapter is divided into the following three sections:

- ✚ Social aspects of housing including housing needs, norms, preferences and housing values.
- ✚ The residential location theory of housing status and dwelling quality trade-off (SQTO)
- ✚ An overview of the hedonic price model

Each of these sections will aim to provide the necessary context for the section to follow, as well as further clarify the conceptual framework of the research, presented in Figure 1.1.

2.2 SOCIAL ASPECTS OF HOUSING

In discussing social aspects of housing, the interaction between society and housing is of extreme importance. The most commonly studied terms in this field are: housing values, norms, preferences, satisfactions, needs, wants and acceptability (Purcell, 1999; Shlay, 1998; Bell, Greene, Fischer & Baum, 1996; Morris & Winter, 1978; and Beyer, Mackesey, Montgomery, 1955).

Taking the conceptual framework into consideration, social aspects of housing are reviewed from four perspectives in this study, namely housing and human needs, housing norms and housing preferences, and housing values. Each of them will consecutively appear in the following sections in order to demonstrate the rational of the conceptual framework of this research.

2.2.1 Housing and human needs

We are all human beings, and subsequently we all have needs. According to Newmark and Thompson (1977: 8), Maslow presented a theoretical structure for understanding human needs in

his studies of human motivation. This hierarchy of human needs, explain human motivation and has been adapted by many disciplines, including Housing. According to Maslow's framework, there are five levels of needs that humans are trying to satisfy. Those needs are ranked from lowest to highest, starting with physiological needs and culminating in the need for self-actualization. The lower level of needs must be satisfied before higher level needs can be addressed.

Physiological needs are the most basic and lowest level of needs. These are needs that must be met for human survival: food, protection from the elements, and maintenance of body temperature. Basic shelter is essential for humans in most climates and geographical areas. Unless biological needs are at least minimally met, the individual can not survive. The second level is security and safety needs. These needs reflect a need to protect oneself and control one's own life. Housing can help meet these needs at this level by offering a space that is healthy and free of hazards. The third level of the hierarchy represents social needs, which include feelings of belonging, acceptance, and being loved. People need people. Family socialization in the home environment is an important focus of this level of needs. The fourth level is self-esteem or egocentric needs. Each human being needs to feel confident about him or herself. At this level, housing could be regarded as one's image of self to demonstrate the owners' social status. The final level is self-actualization, or a person's ability to meet his or her full potential. The housing can provide a setting that allows for self-expression. In this final level, housing is not just a place to live, but is the place "to become what each person alone or as part of a group is uniquely capable of becoming. This means that housing needs become distinctly individualized and personalized as we move up in Maslow's hierarchy" (Roske, 1983: 133; Lindamood & Hanna 1979: 80; Newmark & Thompson 1977: 8).

Finally the effect of housing plays a role in each different level of human needs, beginning with physiological and culminating in full self-actualization. As Roske (1983: 137) wrote, housing provides us with satisfaction of our basic needs, in addition to providing us with shelter. The basic biological needs of humans, that for security and safety needs, social needs, self-esteem and self-actualization can be identified and related to specific aspects of housing.

According to Morris and Winter (1978:31), housing needs may be seen equally as cultural norms for housing. Housing needs derive from cultural standards against which actual housing conditions are judged. In the following section, special attention will be given to housing norms, which forms an important part of the conceptual framework of this study.

2.2.2 Housing norms

The Oxford Advanced Learner's Dictionary (Hornby, 1997:998) defines a norm as a “standard or pattern that is typical of a group, etc”. Housing norms, like other norms, are culturally defined standards for behaviour. Each society establishes what it considers desirable behaviour related to housing people, and most members of that society strive to meet or conform to this behaviour. Housing norms can be regarded as an explanation of why particular types, or components of housing achieve needs of different types of households and how housing helps accomplish the needs. (Morris and Winter 1998:287; Lindamood & Hanna, 1979: 81)

In *Housing, Family and Society*, Morris and Winter (1978:74) developed a theoretical framework of housing adjustment and adaptation, which is based on cultural norms. In their theory, they explain the concept that the housing norms of the society determine what is considered necessary in housing for families and the community. Housing norms are the fundamental concept in the housing adjustment theory, and are the social pressures on individuals and households to live in housing structures which adhere to prescribed characteristics of societies and segments within societies. However, although the norm is a societal phenomenon, it is implemented by households. The importance of the concept of housing norms could be seen from the statement that, on the one hand, all motivation for households to engage in adjustment or adaptation results from a perceived normative deficit or imbalance in their housing, on the other hand, that households living in non-normative housing usually are dissatisfied with it (Morris and Winter 1998: 287). Housing norms are also influenced by culture differences. Preferences of the style of housing are influenced by experiences of different cultures and geographic location (Purcell, 1998:374).

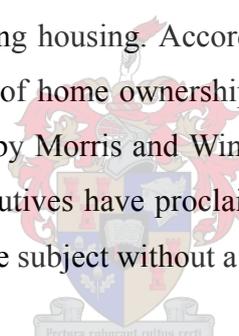
Many research studies, based on the housing norms theory of Morris and Winter, have been conducted (Crull, Eichner & Morris, 1991:53; Morris, Winter, Whiteford & Randall, 1990:1; Cho, Morris & Winter, 1990: 45; Lodl & Combs, 1989:13; Morris & Jakubczak, 1988: 41). Among these, Keller, Farr, Kirby, and Rusco (1997:15) notes that housing norms, values, and cultural background shape housing preferences and housing satisfaction. Internationally, Ukoha and Beamish (1996: 26) applied the theory to examine housing satisfaction in the developing country of Nigeria. Yust, Hadjuyanni, and Ponce (1997:59) explored housing quality measures in a rural area of the Philippines. In the following section, the six housing norms identified by Morris and Winter is presented in detail.

2.2.2.1 Six identified housing norms

In their theoretical framework, Morris and Winter (1978:83) have identified six housing norms, namely, tenure, space, structure type, quality, neighbourhood, and expenditures. Most people aspire to fulfil the first three housing norms in the form of a single-family home that is owned by the occupants and contains an adequate number of bedrooms or sleeping areas for all household members. However, the last three housing norms are not as clear and unequivocal as those for the first three, and are much more dependent upon the conditions and status of the household, and will vary more widely among households (Morris and Winter: 1978:121,143). As we examine housing norms today by using the data from the world, we may see that some of these norms have changed somewhat over the years to meet the needs of today's population. A detailed explanation of each norm follows.

2.2.2.1.1. *Tenure norms*

Tenure norms relate to owning or renting housing. According to Morris and Winter (1978:107), it was found that strong norms in favour of home ownership have existed through the history of the United States. Charles Abrams quoted by Morris and Winter (1978:107) refers to home ownership as America's tradition. "Our chief executives have proclaimed it as a vital link in democracy. Any congressman can deliver a homily on the subject without a minute's preparation and often does."



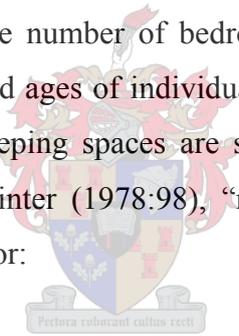
According to Morris and Winter (1978:109,110), home ownership, as well as structure type discussed in the next section, are influenced not only by economic factors, but also demographic factors, political factors and other factors, such as psychic security, family security and ego satisfaction, living pattern goals, and status and prestige goals. In many different cultures, owning a place to live can be seen as an achievement. According to Beamish, Goss and Emmel (2001:15), referring to the United States (US) Department of Housing and Urban Development, in 1999 home ownership in the U.S reached a record high of 66.8%. This increase was enhanced by the favourable economy at the time and the lowest mortgage interest rates in three decades. In Australia, the ownership rate in 1995 ranged between 67% and 71%. Homeownership is an important goal and is also commonly referred to as "the great Australian dream" (Bourassa, 1995: 161). Socio – economic and demographic factors were found having significant role in household tenure decisions in Singapore and China (Tu, Kwee & Yuen, 2005: 521; Fu, Tse & Zhou, 2000: 61). Boehm and Schlottmann (2004: 128) stated that lower income and minority families achieved homeownership more slowly and they were less likely to maintain this status. Research conducted by Boehm and

Schlottmann (1999: 217) found that children of homeowners were significantly more likely to achieve a higher level of education and earn more, and were more likely to become a homeowner in the future.

2.2.2.1.2. *Space norms*

The amount and the type of space that families desire and need are influenced by cultural space norms and are important aspects of selecting a residence. Different lifestyles may require, or establish a desire for certain types of space, whereas the family's size, composition, and stage in the life cycle may most directly influence the amount of space needed (Beamish, Goss & Emmel, 2001:16; Morris and Winter, 1978: 103).

According to Morris and Winter (1978:87), the most reasonable method for measuring space norms would not only be to consider the number of persons, but also the age, sex, and family role of each person. Lindamood and Hanna (1979:83) state that the space characteristic of housing that is of primary concern to most families is the number of bedrooms. However, different cultures have different norms concerning the sexes and ages of individuals who may share a sleeping room. For most U.S households, norms about sleeping spaces are still fairly well defined (Beamish *et al*, 2001:16). According to Morris and Winter (1978:98), "no more than two people may share a bedroom and that a bedroom is needed for:

- 
- ✚ The parental couple (or single parent);
 - ✚ Each child aged 18 or over;
 - ✚ Each pair of same sex children, at least one between the ages of 9 and 17, whose ages differ by 4 years or less;
 - ✚ Each pair of children of any sex, both under age 9, whose ages do not differ by more than 4 years;
 - ✚ Each additional adult or couple" (Morris & Winter, 1978:98)

Rapoport (2001: 153) stated that space use within dwellings reflects norms, and different groups of people may continue to use space differently even after acculturation. According to the research results of Beamish *et al* (2001:16), referring to the Joint Centre for Housing Studies, in America, overcrowding and lack of space were not critical during the 1990s in America because of smaller families and larger homes. According to Rapoport (2001:150), more recently in America, as household size has decreased, dwelling size has been going up. In the year of 1996, 14% of new

houses in the USA had an area of 3000 sq. ft or more. It was also determined that people's choice relating to the type of space has also changed. More people are looking for bigger kitchens, open multi-purpose areas, additional bedrooms and bathroom, and more space overall. Some people even are willing to acquire more housing space, while giving up amenities and lot size. Some people, however, ranked amenities and open space highly in their housing decisions. Vogt and Marans's research (2004:256) revealed that households with high incomes and those living in rural township tended to rate natural and open spaces higher than others.

Moreover, overcrowding and lack of space can affect people's health and overall quality of life. Goux and Maurin (2005: 801) refer to Gove, Hughes and Galle who stated that there was a very clear correlation between the number of persons per room and individual's mental and physical health. They also revealed that children in small families perform much better than children in large families, and suggested this was mostly due to that they live in less overcrowded homes.

2.2.2.1.3 Structure norms

According to Beamish *et al* (2001:17), the type of dwelling we choose to live in is influenced by structural norms. The predominant housing structure is the single-family detached home amongst the residents today, and this has traditionally been the housing choice of most households.

In recent years alternative housing forms have increased in popularity, such as town houses, condominiums, and other multifamily structures. It is mainly because of cost and demographic factors. According to Beamish *et al* (2001:17), referring to the National Association of Home Builders, the desire to live in a single-family detached house is still very strong in the USA, 82% of home buyers preferred a single-family home farther from work and shopping facilities rather than a similarly priced townhouse near employment or city activities. In Russia, the same housing structure norms were identified amongst the residents living in the suburbs of Moscow, who also preferred living in single-family detached houses (Rapoport, 2001:153).

2.2.2.1.4. Quality norms

The definition of quality norms given by Beamish *et al* (2001:24) is, "culturally accepted standards for the structural condition of a structure and the amenities that should be present. The quality level should be related to family social status".

As stated by Morris and Winter (1978:126), the most conceptually difficult of the six areas of housing norms is quality. According to Lindamood and Hanna (1979:85), the measurement of the quality of a dwelling unit involve the subjective reactions of people to attributes of a dwelling unit, for example, equipped kitchens, central heat, and complete indoor plumbing, as well as the soundness of the structure. Thus, the definition and measurement of housing quality requires knowledge of the objective attributes that contribute to quality through the subjective reactions of families to those attributes.

According to Morris and Winter (1978:126), to some extent the degree which people react to attributes of the dwelling can be measured by how much they are willing to pay for a particular combination of such attributes. The price that people are willing to pay for a particular type of dwelling unit is a reflection of how much they assess the combination of characteristics they perceive in that type of dwelling. It gives rise to the concept of implicit prices of characteristics; the sum of all implicit prices of characteristics therefore current house prices.³

In terms of measurement of quality, Morris and Winter (1978:132) identified three dimensions of quality:

- ✚ **Structural quality**, which refers primarily to durability of the shell;
- ✚ **Service quality**, which is concerned with the kinds of equipment, facilities, and conveniences the dwelling provides; and
- ✚ The state of **maintenance and caretaking**.

Recently, in addition to these three dimensions, Beamish *et al* (2001:18) referring to Parrott suggests that there is also a conscious need at all income levels of households to deal with environmental issues that could impact their health and the safety of their home, which chiefly include the presence of lead paint, radon, and asbestos, as well as problems with indoor air and water quality. Home inspections and/or testing may be performed to identify such problems.

It also should be noted that in many households in the low-income bracket, especially those with a large family-size, the family will sacrifice quality in order to obtain the space norm expectations (Beamish *et al*, 2001:18; Lindamood and Hanna 1979:85). In 1995, according to Beamish *et al* (2001:18), referring to the Joint Centre for Housing Studies, some 1.1 million very low-income homeowners in American still lived in undesirable quality housing. This may imply that to a certain

³ More detail about implicit price see chapter 2 section of hedonic price model.

extent quality norms are of less importance than space norms to families with limited resources.

2.2.2.1.5 Neighbourhood and location norms

The location of the dwelling unit and the nature of its immediate area are prime determinants of the family's ability to accomplish non-housing goals. For example, when most people consider buying a home, their real estate agent will tell them that the three most important considerations are: location, location and location. Neighbourhood norms indicate that we not only choose a safe and attractive area in which to live, but also a neighbourhood that is appropriate to a household's social and economic status (Beamish, *et al*, 2001:18).

According to Lindamood and Hanna (1979:86), the quality and desirability of a house is affected by its physical surroundings and by the services and amenities available in the location. Within this norm, households are looking for neighbourhoods that could provide for the entire household, most likely to be a neighbourhood that is close to work, shopping, school and recreation and is quiet, clean, safe, and stable. A home that has locational advantages is more valuable and desirable than the same home without these.

According to Morris and Winter (1978:138), referring to Foote *et al*, there are three aspects of the location of the dwelling that potentially could be considered by households:

- ✚ Location as a **site**, which indicates the distance between the location of the home and work, shopping, schools, recreation facilities and the locations of the homes of friends and relatives.
- ✚ Location as **physical environment**, referring to the individual aspects of the physical environment (the density, light, air, and condition of the other dwellings surrounding the housing unit), the quality of the community facilities (schools, libraries, and stores), and the quality of the municipal services and utilities (fire and police protection, garbage collection, water, and sewer).
- ✚ Location as **social environment**, referring to the characteristics of the people in the area.

Housing play an important role in communicating status, especially in contemporary societies (such as the USA, Australia), and it can be also seen increasing rapidly in India (Rapoport, 2001: 158). Usually, people only require that the location of the house be within commuting distance from the place of work. It is quite obvious that the quality of the physical and social environment is more

important in the choice of a dwelling unit, which better represents the household's socio-economic status. Colwell, Dehring and Turnbull (2002:428) showed that the stronger the desire for recreation, the greater the attraction of living close to a recreational site, and that a higher wage lowers the range of consumers who opt to live near the recreational sites.

According to Hanssen and Danielsen (2004: 22), you can signal to others who you are through the neighbourhood and the house that you live in. However, if you want to be part of the upper class, you need more than just money to buy an expensive house. Hanssen and Danielsen (2004:22) determined that if one wants to live in a neighbourhood with a lower status than the group where one belong to, one has to clarify to oneself and others why one has done this, and this decision of location of the house will influence one's status.

2.2.2.1.6 *Expenditure norms*

Expenditure norms, like quality norms, have a very strong relationship with the household's socio-economic status. The amount of money a household spends on housing is typically related to income and wealth, but housing norms also expect individuals to spend according to their wealth. "Society would not look favourably upon a family neglecting the necessities of life to live in a home beyond their means, nor would it be expected to see a person of extreme wealth living in a substandard dwelling" (Beamish *et al*, 2001:20). Morris and Winter (1978:134) referring to Crull's research, also stated that the amount of money the family spends on housing is related to norms according to income and tenure.

The problem of affordability of housing that is still faced by people these days mainly include the initial cost of purchasing or renting a dwelling, the long-term cost of energy, utilities, and maintenance and other housing-related expense. Moreover, renters and people with very low incomes are most vulnerable by housing expenditures (Beamish *et al*, 2001:20). In the study of expenditure patterns in among rural areas in South Africa, Hendriks and Lyne (2003:105) discovered that wealthier households have a greater propensity for increased expenditure on transport, while poorer households show a greater propensity for increased expenditure on housing and durables.

2.2.2.2 Constraints

Lindamood & Hanna (1979: 81) explain that, because of various constraints which prevent people

from attaining the level expected by the norms, the housing of some persons differs from the dominant cultural norms and this cannot be ascribed to differing desires for housing or different attitudes about what constitutes desirable housing.

What are constraints? Constraints were defined by Morris and Winter (1978:80) as “factors that restrict a family’s ability to engage in housing adjustment behaviour. Constraints may involve interfamilial strengths and weaknesses in problem solving, economic, social, and political barriers, and unattractive features of the current dwelling”. According to Crull *et al* (1991:54), constraints may interrupt the household’s ability to engage in successful housing behaviour through their effects on the perception of deficits⁴: the determination of salience⁵, the development of dissatisfaction, the development of a tendency to adjust, and the actual occurrence of adjustment behaviour⁶.

Morris and Winter (1978: 273-274) identified that, over and above income, education and occupation, extrafamilial and interfamilial constraints can determine housing choice. In America, if the family happens to be black, they collide with social barriers in trying to obtain the best housing available within their income level. It made it much harder for them to live in a house than if they were white; or they may simply be prevented from gaining information about housing availability. I propose this is not just the case in America, but in South Africa too.

2.2.2.3 How housing norms have influenced housing choices

Housing norms are often used as a guide when individuals and families assess and make decisions about their housing (Beamish, *et al*, 2001: 14). According to the conceptual framework used in this study, housing norms takes on the function of a filter for housing choice. Based on the literature review presented above, it can be concluded that in light of these six housing norms, namely, tenure, space, structure type, quality, neighbourhood and expenditures, the first three housing norms seem to be essential in determining housing choices. The single-family detached conventional housing with reasonable size of private outside space that is owned by the occupants and has adequate sleeping space for all household members is the dominant preferred form.

⁴ Deficit is a deficiency or imbalance created when a limit is exceeded by some aspects of the environment.

⁵ The concept of salience is the level of importance placed on perceived housing deficits by the family. Morris and Winter (1978:81)

⁶ Adjustment is behaviour that alters some aspect of the environment of the household such as housing. There are two adjustment behaviours: move to a different dwelling or alter the present dwelling. Adaptation is a relatively permanent structural change in response to stress. Included are changes in norms or changes in the means used to meet the norms that appear when the stress of housing dissatisfaction is great. Morris *et al* (1990: 3) Morris and Winter (1978:16)

The other three norms for quality, expenditures and neighbourhoods, however, are not as clear and explicit as those for the first three norms, and have more varied results. According to Morris and Winter (1978:143), these three norms are related to class and income through variations in family norms, which often differ according to social and economic status. Depending on the other factors that can influence the household, such as, appearing in the conceptual framework, household income level, education, marriage status, life cycle, and housing value, etc, quality, expenditure and neighbourhood norms turn out to be “contingent norms”. Consequently, in this research, the variables in these later three perspectives of housing, namely quality, expenditures and neighbourhood, are the most important variables that need to be analyzed.

The literature study revealed that most of the research studies on housing norms were conducted in the United States of America. Due to the fact that the general social and economic conditions in Stellenbosch are relatively high and comparable to the USA, it seems reasonable to assume that the six housing norms, namely space, tenure, structure, quality, expenditure and neighbourhood, can be applied to the town of Stellenbosch. That is to say, individuals and families in Stellenbosch aspire to fulfil the first three housing norms of tenure, space and structure in the form of a single-family home that is owned by the occupants and contains an adequate number of bedrooms or sleeping areas for all household members. Thus, the last three housing norms of quality, expenditure and neighbourhood are the emphasis of the present research study. How they influence housing preference and what the relationship between housing preference and personal characteristics are, are the most important questions in this research study.

2.2.3 Housing preference

Through the literature review on housing preferences, the following questions will be discussed. What is housing preference? How are housing preferences identified? What are influences on housing choice preferences? What kind of research techniques were used in previous research studies?

According to Morris and Winter (1998:287), it is crucial to the understanding of housing norms to distinguish preferences from norms. This distinction is especially important because preferences can differ enormously among different segments of society, whereas the norms that apply to specific households are quite homogeneous. It is important not to confuse preferences and norms in household decision making.

Housing preferences reflect desired types of housing situations and encompass many dimensions of housing (Shlay, 1998:481). Morris and Winter (1978:40) provide a reasonable explanation of preference, where they state that “preference is a relaxed norm; the norm applied by a social system to itself in light of actual conditions and extenuating circumstances. Preferences, by definition, make the permissible deviation permissible.” It should be noted that preference development happens quickly, is temporary and is produced by the constraints of circumstances, while norms are not altered by preference development, but are produced by socialization (Morris and Winter, 1978: 26).

There is still some controversy over what constitutes housing preferences. Tremblay and Dillman (1983:7) indicate that residential preferences are guided by a set of normative principles that are the socially prescribed mix of housing bundle characteristics. These alleged housing norms are argued to be social laws governing the types of housing situations that people ought to live in. “Thus, a preference for owning a conventional single family detached house may be an expression of the norms for home ownership and conventional single family detached dwelling” (Tremblay & Dillman, 1983:7-8). Shlay (1998: 482) disagrees with this statement: she argues that, in this sense, housing norms are regarded as explanations for housing preferences, which can not be empirically proven because it is tautological.

2.2.3.1 Personal characteristics and housing preferences

The importance of launching an investigation into the relationship between housing preferences and personal characteristics is due to the consequent ability to identify variations of housing preferences between different groups of the population. If it is determined that groups of the population differ in their housing preferences, this finding would have significant implications for housing design and research (Tremblay & Dillman, 1983: 59). For instance, hypothetically, it is assumed that elderly people would more likely want to live in a place close to open space and far from shopping centres. Then, the housing designer should take this into consideration when building a flat or a building for senior citizens.

From the perspective of socio-demographics, there are several factors that can influence a household’s housing choice decision. Initially, **household composition** is an important variable to consider with regard to housing preferences. The size of the household creates a differing demand on housing, which in turn leads to particular housing preferences. Michelson (1977:138) found that, single houses and suburban location are both positively related to family size. Secondly, **age** is

another important household composition variable to consider, for as people move through the life cycle they may need different kinds of housing environments. Furthermore, it is also possible that **marital status** affects housing preferences.

According to Michelson (1976: 110), different aspects of environments are salient to people in different stages of the life cycle, which integrate the above variable aspects into one. An example of the stages of the life cycle based on Duvall's work, quoted by Beamish *et al* (2001:6) is:

- Single stage – under 35, no children
- Couple stage – married, no children
- Childbearing family stage – married, birth of first child
- Pre-school family stage – married, young child
- School-age family stage – married, older children
- Launching family stage – married, oldest child has left home
- Middle-age family stage – head over 45, no children at home, empty nest
- Aging family stage – retirement to death

Obviously, this only includes the traditional stages of the life cycle and does not include delayed marriage, divorce, remarriages, multigenerational families, and same sex unions, which are getting more prevalent and acceptable today. However, the stage of the life cycle plays a very important role in the household's housing decision making process. Housing needs and norms change as the stage of life cycle shifts. Housing norms regularly parallel the stage of life cycle (Beamish *et al*, 2001: 6). As the children grow older, from young children to teenagers, and require more activity and storage space, the housing norms for space change.

According to Tremblay & Dillman (1983: 59), there are three socio – economic factors that could influence a household's housing preference. Firstly, it may be the case that those people who have high **incomes** prefer housing options involving ownership more so than those with lower incomes. Lower income people may adapt their preferences based on their recognized inability to purchase a home. The second socio-economic variable is the level of **education**, which to some extent reflects “the internalization of the society's norms.” As educational attainment increases, people tend to internalize more of the housing norms. Thus, those with higher education should prefer single family home ownership to a greater extent than those with lower education. The last variable in this category is **occupational prestige**, which could also influence housing preferences. For instance, blue collar workers who may be forced to live close to their workplace, because of cost of

commuting and long time of work, will prefer to live in multiple family homes in the city. While white collar workers would more likely prefer to reside in a housing environment with single family homes situated in the suburbs.

Roske (1983: 98) used the concept of social class to combine these three socio-economic variables into one. From his perspective, social class is not just about income, it is a combination of these three variables. A person who probably earns less than others, but has a more desirable occupation, puts the person in a higher level of social class. There are generally four levels of social class: lower class, working class, middle class and upper class. Additionally, the middle class has been further divided into lower middle class and upper middle class (Roske, 1981:98; Michelson, 1976:112). People in different social classes have differing views of their houses. An example given by Roske (1981:100) about the attitude towards housing improvement and maintenance is as follows: a lower level household would postpone the expenditure until they are going to move in order to increase the reselling price. Middle class people would improve and maintain their house occasionally, in order to satisfy their own expectations for their home. The highest social class person, however, would pay for the improvement and maintenance, or directly choose to move to a nicer new place over improving the existing one, in order to maintain the family's social status. With totally different intentions, different groups of people choose different ways to improve their housing environment.

Different factors that influence housing choice have been identified as discussed above. They include demographic profile, economic and social status, cultural norms, and the stage in the family life cycle. One should be aware that most of the studies were conducted in America, and that the result of the studies might only be applicable in an American context; recently however, research in this field is attracting more attention from the rest of the world (Vogt and Marans, 2004:255; Wang and Li, 2004:69; Arifina and Daleb, 2003: 10; Prinsloo and Cloete, 2002:276; and Dokmeci, Berkoz, Levent, Yurekli and Cagdas, 1996: 241).

A concise literature review of the relationship between housing choice and personal characteristics was provided by Tremblay and Dillman (1983:69), in which they collected 18 studies conducted before the 1980's concerning the relationship between housing preferences and personal characteristics (Table 2.1, following page). The major finding from this study was that there is a great deal of inconsistency in the results of previous research. In some studies several of the personal characteristics were found to be related to housing preferences. No evidence was found that there was a relationship between housing preferences and household size, age, and sex. Only

tenure status was found to be related to housing preferences by all studies which considered that variable. The personal characteristics of residences, structure type, income, education, and occupation received mixed support in terms of their relationships with housing preferences. The socio-economic profile variables of income, education, and occupation appear to have been studied to the greatest extent and have been found to be related to housing preferences in several instances (Tremblay and Dillman, 1983:72).

More recently, these issues gradually attracted the attention of other housing researchers around the world. In the study of migrant women's housing choices in Indonesia, Arifina and Daleb (2003: 10) discovered that the main factors that influenced housing choice were not related to housing price. Instead, the choice was found to be much more influenced by a desire to respect norms and behaviours to which the women were socialized to accept at home without excluding themselves from exploiting new opportunities in their present urban environment. In the biggest developing country in the world, China, housing choices are influenced by many factors. Wang and Li (2004:69) stated that in the capital city of Beijing, neighbourhood variables are more important than dwelling variables in the choice of housing. Associated with this is the importance attached to districts with a good reputation and the concern for dwelling and neighbourhood security. In another big city, Guangzhou, Wang and Li (2004:1) determined that neighbourhood and location-related attributes were found to be more important than dwelling-related attributes in home purchase decisions. Further, factors such as family income, age, education, nature of employment organization, etc. were found, in varying degrees, to have affected housing preference.

In the residential preferences study of Istanbul, the largest city in Turkey, Dokmeci, Berkoz, Levent, Yurekli and Cagdas (1996: 241) determined that some of the modern districts have become comparatively more attractive, while the historic districts have lost popularity due to the deterioration of their neighbourhoods. Additionally, proximity to relatives, the cleanliness and quietness of the neighbourhood and a stable social environment are common factors for all income groups. This demonstrates the traditional social values that transcend income levels, as well as the universal desire to escape the environmental pollution and social deterioration of a large city.

A research study conducted by Asberg (1999: 137) among young Swedish people, revealed that demographic factors were found to significantly affect young adults' housing tenure decisions, while economic factors were found to be of less importance.

TABLE 2.1: PERSONAL CHARACTERISTICS FOUND TO BE RELATED TO HOUSING PREFERENCES IN PREVIOUS RESEARCH⁷

Study	Personal characteristics										
	Residence	Tenure status	Structure type	Household size	Age	Sex	Marital status	Income	Education	occupation	Socio status
Montgomery and Kivlin (1962)	O							O			
Michelson (1966)					O			O	O	O	
Michelson (1967)	O				O	O			O	O	
Rushing (1970)								X			
Belcher (1970)								X	X		
Williams (1971)	X	X	X	O	O	O		X	X	X	
Ladd (1972)			O								
Canter and Thome (1972)			O								
Hinshaw and Allott (1972)			O					O			
Montgomery and McCabe (1973)	X				O			X	X		
Thornburg (1975)			O								
Morris and Winter (1976)										O	
Winter and Morris (1976)								O			
McCray and Day (1977)	O										
Gerardi (1976)								X			
Asberg (1999)		X	X		X	X	X				
Arifina and Daleb (2003)											X
Wang and Li (2004)					X			X	X	X	
Voget and Marans(2004)								X			
Yu, Kwee and Yuen (2005)		X			X			X			

Source: The research conducted before 1990s' was adapted from Tremblay and Dillman. 1983:7

⁷ An X indicates that the relevant study found a significant relationship between a particular personal characteristic and housing preferences. An O means no relationship was found.

In Hong Kong, Chau, Yung, Leung and Law (2005: 11) revealed that neither the environmental quality of neighborhood area nor the housing estate design had a significant influence on the hierarchical order of importance considered by the residents. It was found that the nature of environmental attributes exerted a significant impact. The residents were generally found to have placed greater importance on those environmental attributes that would pose a threat to themselves rather than to the environment.

In America, Vogt and Marans (2004:255) in their study of the impact of natural resources and open space on the residential decision making process showed that preferences for natural and openness of features were not universally important across homeowners in urban fringe areas. While respondents with high household incomes and those living in rural townships tended to rate natural and openness features higher than other income and geographic groups, as a preference factor in home buying decisions natural and openness features were generally overshadowed by considerations for neighbourhood and housing design, schools, and access.

Lastly, in South Africa only a limited number of literature was available with regard to this subject. Among these, Prinsloo and Cloete (2002:276) conducted a housing relocation study among the residents in two major cities of South Africa, namely Johannesburg and Pretoria. They indicated that the socio-economic status and the affordability levels of the home-buyer influenced the process of relocation. The most popular areas for black purchasers are those residential areas between the previously black residential areas and the central business districts. In addition to these areas, the high-density residential areas in or close to the central business districts attracted a high number of black purchasers.

According to the conceptual framework of the research, besides socio-demographic and socio-economic characteristics of the household, another very important variable that can influence housing choice is housing values. In the following section, literature on housing values and its relationship with housing choice preferences is presented in detail.

2.2.3.2 Housing values and housing preferences

Housing values were very popular in the early stages of housing research, and were frequently regarded as an essential concept in explaining the preferences and choices of people in selecting different types of housing (Beamish *et al* 2001: 10). Roske (1983: 106) stated that housing values have been often confused with preferences and defined that housing values are “the underlying

criteria for our choices in housing and all aspects of life ... values can also be abstract goals. Personal dignity and equality are examples of these.” An individual’s values are the standard for the way he wants to live, and they are primary, but more superficial preferences are not (Beyer, Mackesey and Montgomery, 1955: 49).

The study of Beyer *et al* (1955: 50) on nine personal values relating to housing was the pioneer research in this field. It included the values of family centrism, equality, physical health, economy, freedom, aesthetics, prestige, mental health, and leisure. In the same study, Beyer *et al* (1955: 55) pointed out that a hierarchy of values were determined that clustered around four main values: economy, family (including physical and mental health, and family centrism), personal (aesthetics, leisure, and equality), and social prestige. There were two kinds of values that needed to be paid more attention to, namely freedom and social prestige, in Beyer *et al*’s housing value study. The first, freedom; had been ranked highly by everyone and was not included in further studies. The second, social prestige was ranked low by the majority of respondents. The reason for this was explained by Beyer *et al* (1955:55) as an unwillingness to acknowledge this value in their own lives. They stated that, it would, however, be inappropriate to fail to take its importance into consideration, even though there was not a large amount of evidence found for it. Beyer *et al* (1955:55) describes the four values as follows:

- ✚ *Economy* – the families in this cluster emphasize the economic uses of goods and services. They base choices on selling price and what they consider sound business judgment. They are conservative and take only calculated risks.
- ✚ *Family* – the emphasis in this cluster is on factors that hold the family together and improve family relationships. They are alert to influences that affect the physical and mental well-being of family members.
- ✚ *Personal* – families in this cluster take a personal view of their physical and social environment. They are more individualistic and desire independence and self-expression.
- ✚ *Social* – the families in this category are considered upwardly mobile and view housing in terms of its effect on their social standing.

Most households do not hold just one housing value, but a hierarchy of values. Even in one household, different members might hold different kinds of housing values. When making housing decisions, families have to make a trade-off between different housing values (Lindamood & Hanna, 1979: 91).

2.2.3.3 Congruence

The influence of varying factors on housing choice, such as social class, stage of life cycle, housing values, have been apparent throughout the discussion in the above two sections. They are important in our understanding of the many factors that make up housing decisions. They are closely connected with each other. Michelson (1976: 228-232) explored a new theory of congruence. In this theory, he did not see these different factors separately, but jointly as behaviour, which takes place in the housing environment. The physical environment should fit the behaviour patterns of individuals and families that derive from, directly or indirectly, all four concepts, namely, the stage of the life cycle, lifestyle, social class, and values of a given family. In the current research study, three of these factors are used, excluding lifestyle.

2.2.3.4 Methodological approaches used in previous studies

In this section, methodological approaches used in previous studies on housing choice and housing preferences will be reviewed from two perspectives, namely data sources and unit of study, and research techniques used.

2.2.3.4.1 Data sources and unit of study

Most studies of housing choices and housing preferences are made at the micro level with the household being the unit of study. In terms of information sources, some theorists used workable data obtained from specifically designed surveys, (Wang and Li, 2004), but the majority (predominantly American) used large housing censuses (Tremblay and Dillman, 1983; Morris and Winter, 1978; Michaelson, 1977). The large and systematic database allowed the authors to carry out time-series studies in order to obtain more accurate results.

The studies of home choice and housing preferences in developing countries mainly used surveys, primary data with varied levels of detail depending on the willingness of the respondents to answer. There is an exception, in the study of housing choices among immigrant women in Indonesia (Arifina & Daleb, 2003:10) information was gathered through the life story research method.

2.2.3.4.2 Research techniques used

Currently, there are normally two kind of research techniques used in housing choice studies. Firstly,

while most discrete choice-based housing studies use revealed preference data (i.e., housing choice data from the real market), an increasing number of applications adopt the Stated Preference (SP) method and use experimental data (Wang & Li, 2004a; Wang & Li, 2004b). The stated preference method has proved to be particularly useful where there is an absence of actual market information from which preferences can be revealed (Walker, March, Wardman & Niner, 2002: 667). Housing choice is a multi-dimensional exercise, involving the choice of tenure, housing type, neighbourhood, location, etc. Most studies examine only one or maximally two choice dimensions. In particular, the stated preference method, almost as a rule, is applied to model a single choice dimension.

Secondly, many housing choice studies have adopted the hedonic approach to analyze how the marginal value of housing attributes is priced (Ogwang & Wang, 2003:285; Yang, 2001:50). In this research, the hedonic price approach will be adopted for calculating the implicit price of certain housing attributes of housing in order to explore a functional formula with which housing price can be predicted. Consequently, in the subsequent section, an overview of the hedonic price approach and how it can be applied in the housing market is provided.

2.3 THE RESIDENTIAL LOCATION THEORY OF HOUSING STATUS AND DWELLING QUALITY TRADE-OFF (SQTO)

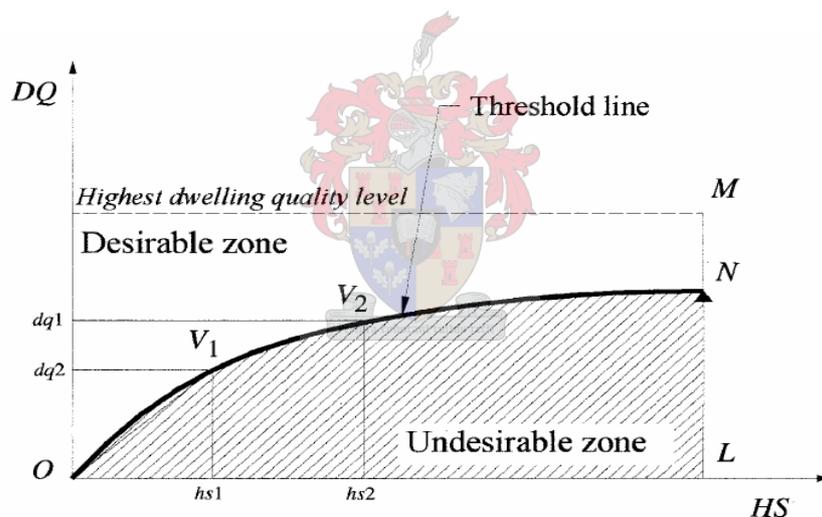
In this section, the relationship between housing status and dwelling quality in housing choice is investigated, using a new residential location theory, named the housing status and dwelling quality trade-off theory (SQTO). It was developed by Phe and Wakely (2000:7). This theory shifted the keystone of conventional theory of residential location from the city centre(s) and distance(s) to two other categories of parameter: **housing status and dwelling quality**. It is also suggested that the theory builds mainly on the social aspects of residential location, which are believed to be capable of offering a more appropriate explanation, while acknowledging the need to incorporate the methods and techniques that make it easier to quantify and describe patterns of urban residential location.

The main focus of this new theory can be summed up as follows:

- 1) Residential areas in cities make up largely continuous and overlapping rings around the status pole or poles. The ring pattern is the outcome of a trade-off between the desirable status and an acceptable level of dwelling quality (explained below).

- 2) House value for any social group consists of two components: housing status (HS) and dwelling quality (DQ). Housing status is a combination of attributes, often non-physical, that distinguish different levels of housing desirability, or status, which are accepted by certain social groups, sometimes irrespective of the actual physical state of the dwelling. Dwelling quality embodies the physical, measurable elements that constitute the basis for the normal use of a dwelling.

- 3) At any level of housing status there exists an acceptable level of dwelling quality, or point, below which houses are considered as sub-standard. The locus of these points forms a line called the dwelling quality threshold (Figure 2). This threshold divides the whole housing stock in question into two zones: the zone above the threshold is called 'desirable'; the zone below it is called 'undesirable'. Each housing situation (of a country or city) has a uniquely characteristic quality threshold that can be compared with others.



Source: Phe and Wakely. 2000: 15

FIGURE 2.1: THE RELATIONSHIP OF HOUSING STATUS AND DWELLING QUALITY

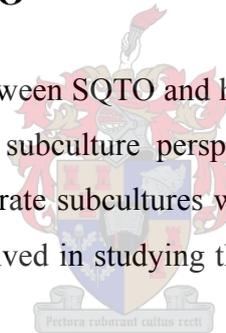
- 4) At the lower price levels, dwelling quality is the dominating component, while at the higher price levels, housing status predominates. With a certain degree of simplification, it can be said that housing units at the lower price levels are mainly characterized by their utility as shelter, i.e. by their use value, while houses at the higher price levels are characterized more by the attributes that make them commodities and favourable investments, i.e. by their exchange value.

- 5) Other trade-offs. Basically, in making decisions about their housing, any household can have two types of trade-off. The first is that of fixed dwelling quality. In this type of trade-off, when the quality levels of housing unit are kept fixed, a household may choose between different locations. Another type is the one with predetermined level of status. That is to say, a household makes decisions about its residential location with a predetermined level of status in mind, such as looking for a good local school for the children. It is also stated that the trade-off occurring in the decision making process is essentially social rather than economic, and complex rather than mechanistic.

Due to the limitation of time and availability of data, among these five hypotheses, only hypothesis two, three and four will be tested in this study. That is to say, to explore whether there is a relationship between housing status and dwelling quality in housing choice among households in Stellenbosch.

2.3.1 Housing norms and SQTO

When talking about the relationship between SQTO and housing norms, it is necessary to start with knowledge of housing norms from a subculture perspective. According to Morris and Winter (1978:271), the idea that there are separate subcultures with regard to housing norms is not a new idea. Many researchers have been involved in studying the differences in housing needs according to socioeconomic status.



As Morris and Winter (1978:289) claim, socioeconomic status produces greatly differing sets of extrafamilial constraints, such as the level of household income. Those constraints, in turn, produce differences in interfamilial constraints such as hopelessness and apathy in response to reduced opportunity and to economic deprivation. The extrafamilial constraints and the interfamilial constraints together lead to poorer achieved housing conditions⁸ for people of lower social and minority status in the USA. Most importantly, it is also stated that there is a strong connection between quality and expenditure norms and socioeconomic status. There is very little evidence supporting the hypothesis that the socioeconomic status differs with respect to space, tenure, structure-type, or neighbourhood norms.

⁸ Achieved housing condition is defined as the actual conditions of the dwelling in which the family lives (Morris and Winter, 1978:291).

In the SQTO theory, the main idea is that at any level of housing status there exists an acceptable level of dwelling quality, or point, below which houses are considered as sub-standard. The pattern that results from the arrangement of these points is a line called the dwelling quality threshold (Figure 2.1). These points, in the theory of housing adjustment, could be coincidentally explained as the quality norm differential according to different households' socioeconomic status.

This threshold, or quality norm differential, divides the whole housing stock under consideration into two zones: the zone above the threshold is called 'desirable'; the zone below it is called 'undesirable'. The households who are living undesirably are supposed to experience normative housing deficits. When a household's deficits become salient, dissatisfaction occurs, which would then finally lead to "other trade-offs"⁹ defined in SQTO.

2.4 AN OVERVIEW OF THE HEDONIC PRICE METHOD

There are several approaches used to model housing prices, for example, multinomial logit model, hierarchical linear model (HLM), and Hedonic price model (Brown, & Uyan, 2004:15) . Amongst them, the hedonic regression model was most widely used. According to Freeman (1979: 154), the hedonic price model, derived mostly from Rosen's work, posits that a good possesses a myriad of attributes that combine to form bundles of utility-affecting attributes that the consumer values. Numerous studies have utilized this technique to examine the relationship between attribute preference and the price of properties (Walden, 1990:221; Li & Brown, 1980:125). This is because the market price of a housing unit can be determined by the buyers' evaluations of the housing unit's bundle of inherent attributes, such as locational, structural, or neighbourhood attributes (Freeman, 1979:156). Most of these studies were inclined towards housing markets in the West, America and Europe in particular, while only a few were conducted in the rest of the world such as in Hong Kong (Chau, Ma, & Ho, 2001:31; Chau, Ng, & Hung, 2001:26) However, to date, no empirical work has been conducted to investigate preferences with respect to locational, structural, and neighbourhood attributes amongst home buyers in South Africa, popularly known as "the rainbow country". This research study endeavours to address this gap.

Rosen (1974:34) formalized the structural interpretations of the hedonic method. He hypothesised that heterogeneous "goods are valued for their utility-bearing attributes or characteristics" where the hedonic price is the implicit price of each attribute associated with that good. Each characteristic contributes to the value of the accommodation, but cannot be separated and traded individually.

⁹ A more detailed discussion of other trade-offs is provided by Hoang, Huu phe and Patrick Wakely (2000:16-19).

Rosen's interpretation purports that the price paid for a particular property is the sum of the implicit prices that the market gives to the different characteristics associated with that property. Hence, with information on property prices and attributes it is possible, using regression analysis, to derive the implicit price of each attribute, the hedonic price, and the relative importance each attribute has in determining the overall price of the property. Prices of these characteristics are implicit because there is no direct market for them. Since its publication, Rosen's theoretical model has been the standard for almost all hedonic empirical estimates.

Suppose that some good is composed of Z, an n attribute bundle of characteristics provided by this good. The price of the good will generally depend on the quantities of the various attributes of which it is composed; therefore this price can be expressed as:

$$P(Z) = P(Z_1, Z_2, \dots, Z_n) \quad (2.1)$$

An implicit market is in equilibrium when the marginal bid price of Z_i equals the marginal offer price of Z_i for all i in z at the equilibrium, and these two marginal values equal to $P_i(Z)$, where:

$$P_i(Z) = \partial P / \partial Z_i \quad (2.2)$$

A major empirical issue pertaining to the hedonic price model is the choice of the functional form. There are several basic functional forms such as linear, semi-log, and log-log forms that can be applied to the hedonic price model. An incorrect choice of functional form may result in mismatched estimates. Despite having a long history, the theory of hedonic price provides very little guidance on the choice of the proper functional form (Butler, 1982:97).

Another controversial issue is that of market segmentation. Feitelson, Hurd, and Mudge (1996:4) noted that in theory, hedonic price studies do not require the segmentation of housing markets. However, in practice, several types of market segmentation are likely to exist in most markets. This is because housing markets are not uniform (Fletcher, Gallimore, & Mangan, 2000: 94). Hence, it is unrealistic to treat the housing market in any geographical location as a single entity. Unfortunately, the definition, composition, and structure of sub-markets have not been given much attention in the hedonic-price literature, although it is an important empirical issue.

2.4.1 The Hedonic Price Model – Application to the Housing Market

The application of the hedonic price model to the housing market rests on several key assumptions. First, homogeneity of the housing product is assumed. This assumption, however, is arguable. It would be more accurate to view housing products as heterogeneous because they can be differentiated in terms of locational, structural, or neighbourhood attributes, or based on some other criteria as well, such as type of dwelling (bungalow, terrace house, high rise apartment, or condominium).

Another underpinning assumption is that the market operates under perfect competition, and there are numerous buyers and sellers. This assumption is justified as there are many buyers seeking housing in the market, and there are also many housing developers that supply the housing. Thus, no individual buyer or supplier can significantly affect the price of the properties because the purchases or sales of each individual unit constitute a negligible portion of the market.

Finally, the hedonic price model only works under the assumption of market equilibrium, and that there are no interrelationships between the implicit prices of attributes (Dusse & Jones, 1998: 301). Market equilibrium is not plausible because there are imperfections in the real world property market. It is idealistic to assume that the price vector will adjust instantaneously to changes in either demand or supply at any point in time. The notion that there are no interrelationships between the implicit prices of attributes is also fallacious because it implies that the implicit price of an attribute does not vary throughout all areas and property types. It is not necessarily true that all attributes will give the same level of utility or identical levels of disutility to all buyers.

Despite these disputable assumptions, which involve substantial simplification and abstraction from a complex reality, the hedonic price model has been deployed extensively in housing market research. As astutely observed by Freeman (1979: 170), the data may be inadequate; variables are measured with error; and the definitions of empirical variables are seldom precise, but these do not make the technique invalid for empirical purposes.

The hedonic price approach does have its merits. Its main advantage is that one only needs to have certain information, such as the property price, the composition of housing attributes, and a proper specification of the functional relationships. The marginal attribute prices are obtained by estimating the parameters of the hedonic price function. It is a straightforward approach because only the coefficients of the estimated hedonic regression are needed to indicate the preference

structure. No information whatsoever about individual characteristics or personal particulars of either the house buyers or the suppliers are required.

2.4.2 How to use the hedonic price method in a housing market

Residential properties are multidimensional commodities characterized by durability, structural inflexibility, and spatial fixity (Chau, Ma & Ho, 2001: 32; So, Tse & Ganesan., 1996: 41). Typically, the housing attributes are classified into locational attributes (L), structural attributes (S), and neighbourhood attributes (N). These attributes encompass both quantitative and qualitative attributes.

The market prices (P) of the property can, therefore, be expressed as:

$$P = f(L, S, N) \quad (2.3)$$

The partial derivative of the above hedonic function with respect to any attribute is the implicit marginal attribute price. This implicit price of the housing attribute is revealed in the regression coefficient. All buyers perceive the amounts of attributes embodied in the housing product to be identical, but their subjective valuations of each component attribute may differ. The price of the house, then, is the sum of the implicit prices for the attributes that are contained in it. Thus, the hedonic price approach enables the possible influence of each of the many attributes on the house price to be tested and analyzed.

There are normally two main steps in using the hedonic price method in data analysis¹⁰

Step 1:

The first step is to collect data on residential property sales in the region for a specific time period (usually one year). The required data include:

- selling prices and locations of residential properties
- property characteristics that affect selling prices, such as lot size, number and size of rooms, and number of bathrooms
- neighbourhood characteristics that affect selling prices, such as property taxes, crime rates, and quality of schools

¹⁰ http://www.ecosystemvaluation.org/hedonic_pricing.htm Retrieved 03-Jun-05

- accessibility characteristics that affect prices, such as distances to work and shopping centres, and availability of public transportation
- environmental characteristics that affect prices

Step 2:

Once the data are collected and compiled, the next step is to statistically estimate a function that relates property values to the property characteristics. The resulting function measures the portion of the property price that is attributable to each characteristic.

2.4.3 Advantages and limitations of the hedonic price method

The advantages and limitations of this method is summarised as follows:

Advantages of the hedonic price method:

- The method's main strength is that it can be used to estimate values based on actual choices.
- Property markets are relatively efficient in responding to information, so can be good indications of value.
- Property records are typically very reliable.
- Data on property sales and characteristics are readily available through many sources, and can be related to other secondary data sources to obtain descriptive variables for the analysis.
- The method is versatile, and can be adapted to consider several possible interactions between market goods and environmental quality.

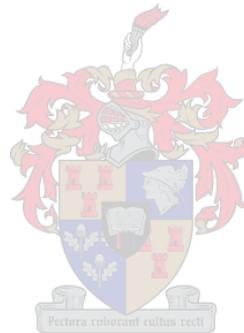
Limitations:

- The scope of environmental benefits that can be measured is limited to things that are related to housing prices.
- The method will only capture people's willingness to pay for perceived differences in environmental attributes, and their direct consequences. Thus, if people aren't aware of the linkages between the environmental attribute and benefits to them or their property, the value will not be reflected in home prices.

- The method assumes that people have the opportunity to select the combination of features they prefer, given their income. However, the housing market may be affected by outside influences, like taxes, interest rates, or other factors.
- The method is relatively complex to implement and interpret, requiring a high degree of statistical expertise.
- The results depend heavily on model specification.
- Large amounts of data must be gathered and manipulated.
- The time and expense to carry out an application depends on the availability and accessibility of data.

2.5 SUMMARY

In this chapter an overview of the relevant literature, pertaining to the research study, was given. In the next chapter the research methodology used to obtain the data for this study is explained. The research method, sampling for the survey research, data analysis techniques and research procedure is explained.



CHAPTER 3: METHODOLOGY

3.1. INTRODUCTION

This chapter presents the research methodology used during the research. The different sources of data for the study and the methodology used for the analysis thereof are also discussed. In the first section the document study is presented. The sources of data include identification of official sources of information, such as the national census, Stellenbosch maps, and local newspapers. The second section of the chapter concerns the telephone survey with a sample of 205, which was conducted in Stellenbosch in March, 2005 by the researcher with the help of fifteen final year students from the Department of Consumer Science, University of Stellenbosch. The third section of the chapter presents the secondary data analysis. The data was derived from real estate transactions from a local real estate company, Anna Basson Properties. The sample was 220 transactions within the years of 2002, 2003 and 2004.

3.2. THE DOCUMENT STUDY

A document study was conducted in order to obtain a general profile of background information on Stellenbosch. The data source was mainly derived from the official website of Statistics South Africa on Census 2001. It included population, gender, occupation, education level, income level, telephone facility, home language, mode of travel to school or work, type of dwelling and number of rooms in a household. Other sources of data, such as local real estate newspapers, magazines, and Stellenbosch maps, were also used. The results of the document study played an important role in the design of the rest of the research, for instance, the majority of Afrikaans language speakers meant that telephone interviews mainly had to be conducted in Afrikaans.

3.3. THE TELEPHONE SURVEY

In order to achieve the following two study objectives, a telephone survey was conducted by the researcher.

- To determine the relationship between housing preferences and socio-demographic and

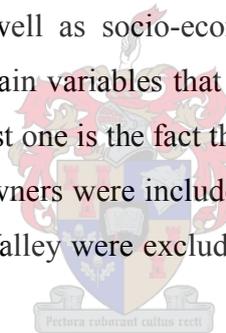
socio-economic variables.

- To determine the relationship between housing preferences and housing values held by homeowners.

The telephone survey was conducted in March, 2005 by 15 final year Consumer Science students. A structured questionnaire was developed and served as research instrument for the telephone survey. Because of time and resource constraints, the survey in Stellenbosch was based on set criteria, which were limited in number but strict as guiding principles:

- Neighbourhood representativeness:

Since the purpose of the study was to determine the housing preferences of the Stellenbosch residents, the neighbourhood representativeness had to be taken into account in choosing neighbourhoods for the survey. The different neighbourhoods in Stellenbosch are characterised by different physical patterns as well as socio-economic composition. Stellenbosch has 18 neighbourhoods. There were two main variables that determined the choice of neighbourhoods to be included in the survey. The first one is the fact that telephones were required for the survey. The second one is that only homeowners were included in the sample. Neighbourhoods such as Kayamandi, Cloeteville and Idas Valley were excluded because of a lower prevalence of these two variables.



- Price coverage:

Due to the fact that housing prices in Stellenbosch have great disparities, the survey covered different price ranges, from the very expensive to the relatively affordable. Through consultation with the principle of Anna Basson Properties, it was decided that three price categories would be used namely, high priced, medium priced and affordable priced.

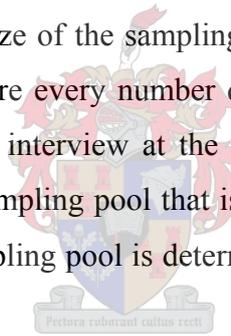
- Manageability:

Manageability of the survey required an appropriate size of sample and a level of complexity which allowed it to be conducted within a short period of time.

3.3.1. Sampling procedure

Based on the above-mentioned criteria, a multi-step sampling method was chosen. The universe was defined as all owner-occupied dwellings with a telephone in the dwelling in 15 neighbourhoods in Stellenbosch. As a first step the neighbourhoods were divided into three clusters based on different housing price categories: high, medium, and affordable. According to the principle of Anna Basson Properties, the housing prices in Mostertsdrift were prominent and much higher than that of the other neighbourhoods. Accordingly, it was decided to choose only one neighbourhood in the high priced area. Secondly, in the medium priced category three neighbourhoods were chosen, because the estate agent indicated that the majority of neighbourhoods belonged to this category. Lastly, the two neighbourhoods of Jamestown and La Colline were included in the affordable priced category for the survey. Therefore, six neighbourhoods were chosen for the purpose of the survey study. They were as follows: Mostertsdrift (high), Uniepark, Rozendal, Paradyskloof (medium), Jamestown and La Colline (more affordable).

The second step was to calculate the size of the sampling pool. According to Lavrakas (1993:54), there is no ideal telephone survey where every number dialled would be working, every selected respondent would be available for the interview at the time of the first call, and no respondent would refuse. This reality requires a sampling pool that is far larger than the number of completed interviews desired. The size of the sampling pool is determined by a formula provided by Lavrakas (1993:55):



$$\text{ESTIMATED SIZE OF SAMPLING POOL} = (\text{FSS}) / (\text{HR}) (1-\text{REC}) (1-\text{LE})$$

The final sample size (FSS) is the number of completed interviews the surveyor has determined is needed for the purpose of the survey. In this study, FSS was 200. This number was confirmed by a statistician who suggested that more than 10 per cent of the total number of household per area should be interviewed.¹¹ The hit-rate (HR) is an estimate of the proportion of telephone numbers in the sampling pool that is likely to be working and that will ring at appropriate locations. The respondent exclusion criteria (REC) value represents the proportion of households that will be excluded due to a priori selection criteria. The loss of eligibility (LE) due to non-response is the final factor one must consider when estimating the size of the sampling pool. The purpose of the survey was to determine households' housing preferences, so only home owners were used as respondents.

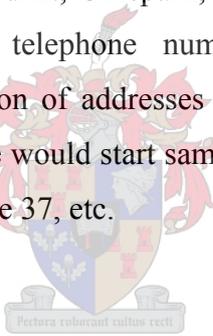
¹¹ For further detail regarding the number of household per area and number of households interviewed see Table 4.10

Because of the relatively small area of Stellenbosch, it was decided that .80 would be taken as the HR. Because the researcher had no knowledge of previous surveys done in Stellenbosch, this study adopted safe estimations for the REC and LE in accordance to Lavrakas (1993: 56-57). Therefore, this study took .50 as the value of LE, and .15 for REC, using the abovementioned formula.

$$\text{ESTIMATED SIZE OF SAMPLING POOL} = (200) / (.80) (1-.15) (1-.50) \approx 600$$

The third step was to generate a sampling pool. The Stellenbosch section in the Boland and West Coast local directory had 50 pages, with four columns of numbers on each page. Three sub-steps were used to generate the sampling pool:

1. Allocating random numbers to each page
2. Randomly selecting pages from 50 pages
3. On selected pages, choosing the addresses that are in one of the six identified neighbourhoods (Mostertsdrift, Uniepark, Rozendal, Paradyskloof, Jamestown and La Colline) until 600 telephone numbers had been chosen. To increase randomization the selection of addresses on each page was started in a different column. For example, one would start sampling in the first column on page 23, and the second column on page 37, etc.



3.3.2. Design of questionnaire

It is suggested by Lavrakas (1993:6) that when conducting a telephone survey the interview should not exceed 20 minutes. Only questions within the manageability parameters of the survey were covered. Only after the pre-test had been conducted successfully the questionnaire was finalized. The questionnaire consisted of dichotomous, multiple choice, scaled, matrix-type, open-ended and follow-up questions.

The survey used a structured questionnaire as the research technique (see *Addendum B*). The questionnaire consisted of 2 sections, namely:

1. Household background
2. Housing preferences.

The first section of the questionnaire dealt with the socio-demographic, and socio – economic

profiles of the respondents. These included population group, respondent's age, educational level, marital status of the respondents, employment of respondents, size of household, stage of life cycle, housing values held by respondents, and household income. In the second section of the questionnaire, the respondents were asked to indicate how important different features were in their choice of a new home. Very important, important, unimportant, and very unimportant were the degrees of the scale that was used.

The list of the main variables in the structured questionnaire is presented as follows:

List of the main variables

CODING	DESCRIPTION
Household characteristics:	
POPULA	Population group
AGE	Respondent's age
EDUCA	Education level
MARST	Marital status of the respondents
EMPLY	Employment of respondents
SIZEH	Size of household
STAGE	Stage of life cycle
VALUE	Housing values held by respondents
INCOME	Household income
Housing preferences	
APPEAR	Appearance of the house
PRENBD	Number of bedrooms
PRENBT	Number of bathrooms
PRELIV	Number of living rooms
PREKICH	Quality of kitchen
PRECUB	Quality of built in cupboards
PRESTU	Study room
PREOUTS	Outside room

✚ PREGARD	Established garden
✚ PRESW	Property have swimming pool
✚ PREAIRC	Air conditioning
✚ PRESECU	Existing Security system
✚ PREFIRP	Fireplace
✚ PREBRAI	Covered barbeque (braai) area
✚ PREHA	Handicap accessibility
✚ PRESZH	Overall size of the house
✚ PRESG	Garage size or parking spaces
✚ PRESCHOL	Distance from schools
✚ PREDISS	Distance from shopping
✚ PREDISF	Distance from family or close friends
✚ PREDISW	Distance from work
✚ PRECH	Distance from churches (religious place)
✚ PREVIEW	Nice view
✚ PRESIZP	Size of the plot
✚ PRENSTA	Neighbourhood status
✚ PREREC	Racial or ethnic composition of the neighbourhood
✚ PREOT	Anything else

3.3.3. Selection and training of interviewers

Because the interviewers were paid, the researcher had the opportunity of enlisting the most qualified individuals: “those most likely to follow the procedures which are instituted to minimize total survey error.” (Lavrakas, 1993:127) The recruitment and hiring process was structured with this goal in mind. Fifteen final year students from the Department of Consumer Science (Housing) were chosen as interviewers to conduct the survey.

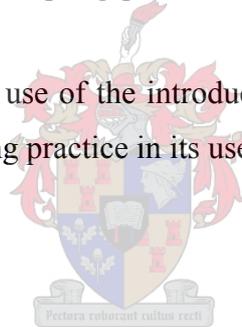
All the prospective interviewers were required to attend a training programme before the survey commenced. The purpose of the training was to provide interviewers with enough background information and experience with regard to survey procedures and materials. The information that was conveyed to the interviewers in the training sessions was of two types:

- a) General information about standard work practices and expectation
- b) Specific information about the particular survey (See *Addendum A*)

The main purpose of the general information training is to make the trainees realize that “there is considerably more to quality telephone interviewing than merely reading questions in a standardized fashion and recording answers,” and to be aware of “speaking in a pleasant manner, without also biasing certain types of responses.” Simultaneously, interviewers should be warned against becoming an ‘on-the-phone therapist’ when respondents want to go beyond the specifics of the questionnaire to discuss their own opinions or problems in detail. “Interviewers must understand that they constantly must strive to retain control of the pacing and flow of the survey process.” (Lavrakas, 1993:132)

The second part of the training programme, training for specific information, was structured as follows:

- a) An explanation of the purpose of the survey
- b) A review of how the sampling pool was generated and how to complete the call record.
- c) An explanation of the use of the introduction sheet; a detailed explanation of the questionnaire, including practice in its use.



3.3.4. Selection of respondents

The respondents for this research were the owners or the spouses of the owners of the houses selected in the sample. Accordingly, before starting to ask the survey questions, interviewers were required to ask the question “Are you the owner, or spouse of the owner of the house you are living in? (If not) May I speak to the owner/spouse of the owner of the house?”

3.4. SECONDARY DATA ANALYSIS

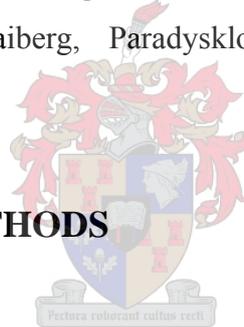
A secondary data analysis, which was derived from the local real estate agency Anna Basson Properties, was conducted. The purpose of this study was to achieve the following three objectives:

- To determine a functional formula by which current housing prices could be accurately predicted.

- To explore the relationship between two groups of housing choice variables, namely housing status and dwelling quality.
- To make recommendations for further research and application of the hedonic price model in the South African housing market.

The secondary data source was 220 housing market transaction records, which were sourced from Anna Basson Properties, one of the professional real estate agencies in Stellenbosch. The purpose of this study was to determine whether the hedonic price model is applicable in Stellenbosch. Information that would affect the price of housing were collected, such as, number of bedrooms, number of bathrooms, neighbourhood, location, etc. The selection of relevant information was based on an interview with the principle of the real estate agency. The sampling period for these 220 records of sales transactions was for the year 2002, 2003 and 2004. The sampling area was determined by the availability of records from Anna Basson Properties and included 15 neighbourhoods, namely, Brandwacht, Dalsig, DieBoord, Die Weides, Karindal, Krigeville, La Colline, Mostertsdrift, Onderpapagaaiberg, Paradyskloof, Rozendal, Sentraal, Simonswyk, Uniepark and Jamestown.

3.5. DATA ANALYSIS METHODS



The raw data from the research questionnaire and the transaction data from the real estate agent were captured in Microsoft Excel, where it was verified, coded, and corrected. Data processing and analysis were conducted with SPSS software; therefore all the corrected data needed to be transferred into the SPSS database.

The data collected from the telephone survey were used to determine the views held by respondents about their housing preferences and housing choice priorities. Furthermore, the relationship between respondents' housing choice and their general background and housing values were determined. Several basic data analysis tools provided in SPSS were used to help the researcher to achieve these objectives, such as Cross-tabulation, ML- Chi square, Measure of association and ANOVA.

Data collected from the real estate agency were used to explore a functional formula by which the market value of housing can be predicted. In this section a hedonic price regression for Stellenbosch

was estimated. In light of the lack of consensus regarding the appropriate functional form of a hedonic price function, a linear model was estimated and a goodness of fit of the model was performed. The model that was estimated is as follows:

$$PRICE = a_0 + a_1Variable_1 + a_2Variable_2 + + a_nVariable_n + \varepsilon$$

Where *PRICE* is the only dependent variable, which is the transaction price (*PRICE*) in Rand, *Variable₁* is the first variable that has a significant influence on resident's housing decision making, and so on until *Variable_n*. The selection of variables conformed to the principle of involving more variables, but also depended on the record availability from Anna Basson Properties. α_n is partial regression coefficients to be estimated and ε is the stochastic term.¹²

In the next step, the researcher sorted all significant variables into two groups, namely housing status (HS) and dwelling quality (DQ). Based on the predictable price formula mentioned above, the predicted weighted values of HS and DQ were plotted. According to Phe and Wakely (2000:28) the logarithmic curve could be accepted as the threshold line, which represents the housing choice relationship between housing status and dwelling quality.

3.6. RESEARCH PROCEDURE

The research had four major components: an initial document study of Stellenbosch and its housing market, a telephone survey study, and secondary data analysis with the purpose of exploring a formula to predict housing price, and finally determining the relationship of two groups of housing choice variables, namely housing status and dwelling quality.

Time allocated for the different stages in the research process, is therefore presented in Table 3.1. (See next page)

3.7. SUMMARY

This chapter focused on the empirical methodology used in the research in order to determine housing preference amongst the residents in Stellenbosch. The following chapter is a documentary study and provides background of Stellenbosch and its housing market.

¹² For more detail about hedonic price model go to chapter 2 literature review section 2.3

TABLE 3.1: RESEARCH STUDY TIME TABLE

Activity	2004 Oct	2004 Nov	2004 Dec	2005 Jan	2005 Feb	2005 Mar	2005 April	2005 May	2005 June	2005 July
Develop research objectives										
Prepare the research proposal										
Preliminary consultation										
Design the questionnaire										
Prepare the proposal presentation										
Train interviewers including pre-testing										
Collect the data from real estate agency										
Conduct the telephone survey										
Code the data from the telephone survey										
Data analysis and interpretation										
Integrating results and writing the thesis										

CHAPTER 4: RESULTS AND DISCUSSION: HOUSING

PREFERENCES IN STELLENBOSCH

4.1. INTRODUCTION

The results of the documentary study and survey study will be compiled in this chapter. The document study was mainly conducted via Internet. Local newspapers and real estate magazines were also used as resources in the study. The aim of the documentary study was to gain background knowledge about Stellenbosch, which served as background for the design of the telephone survey questionnaire.

The second part of this chapter presents and discusses the data obtained from the telephone survey with the owners or the spouses of the owners of the houses included in the sample in six neighbourhoods of Stellenbosch. The results are presented in the order of the objectives of the research and in accordance with the questionnaire. The following two study objectives were achieved through the survey:

- To determine the relationship between the housing preferences and socio-demographic and socio-economic characteristics of respondents.
- To determine the relationship between housing preferences and housing values held by respondents.

Before discussing the results of the survey, background information on Stellenbosch is presented in the following section.

4.2. BACKGROUND INFORMATION ON STELLENBOSCH

According to the Stellenbosch Tourism and Information Bureau (2005), the location and geographical circumstances of the historical town of Stellenbosch are what gives it its unique position as an ideal destination from which to explore the Wine lands, Cape Town, the Peninsula and the many tourists' attractions that the area has to offer. It is also a well known educational and

industrial centre.

Stellenbosch is famous as an export quality wine producing area as well as a premier tourism and day-trip destination. Tourism is one of the main industries in Stellenbosch. According to the PPT Pilots Project in Southern Africa¹³ (2004 : 1) the contribution of tourism to the Stellenbosch economy was estimated to be around R690m or approximately 15% of total Gross Regional Product (GRP), which indicates the extent to which the local tourism sector, catering mainly for an upper income tourism segment, is developed. The Stellenbosch region, including the towns and rural surrounds of Franschoek, Stellenbosch, Pniel and associate farm estates, is amongst the fastest growing medium sized town economies in South Africa, averaging 7.5% real Gross Regional Product (GRP) growth per annum over the past years, mostly due to tourism.

In terms of development indexes the PPT study (PPT Pilots Project in Southern Africa, 2005:1) reveals the following statistics: The population of the greater Stellenbosch area is approximately 117,705 (South Africa Census, 2001) and has a Gross Regional Product of R4.6 billion (in 2000). The income distribution, nominally at R1091 per head, is highly unequal, with the township of Kayamandi averaging around R500 per month (SA census ,1996). Crime levels and social problems are particularly pronounced in Ida's Valley and Cloeteville and distinct settlement patterns have developed, i.e. the central and northern parts of Stellenbosch are poor and overcrowded, while the South of Stellenbosch is rich. This is exacerbated to an extent by the growth of the agricultural and tourism sectors which traditionally benefit the upper classes.

In terms of housing, Stellenbosch has seen an increase in investment, partly due to lower prices than in nearby Cape Town, partly because of an increase in tourist arrivals. Stellenbosch has been able to attract wealthy residents and it is particularly attractive to retired and/or semi-retired individuals. Development is focused on either the centre or the southern and western suburbs. The townships have however shown the greatest increase where overcrowding is in stark contrast to the much lower housing density in the suburbs.

In the following sections, the data extracting from the Census 2001 section for the greater

¹³ Pro-Poor Tourism Pilots in Southern Africa is a three-year programme (May 2002 – April 2005), run by Mboza Tourism Projects and the UK-based Overseas Development Institute. Pro-Poor Tourism (PPT) is tourism that results in increased net benefits for poor people. More detail see: <http://www.pptpilot.org.za/>

Stellenbosch will be presented and discussed. Some document studies concerning Stellenbosch housing market were also conducted by the researcher, and will be presented in section 6.2.

4.2.1. Population distribution

Table 4.1 shows the population distribution of the greater Stellenbosch.

TABLE 4.1: THE POPULATION DISTRIBUTION OF GREATER STELLENBOSCH

Population Group	Persons	%
Black African	24188	21
Coloured	67519	57
Indian or Asian	239	0.2
White	25759	22
Total Population	117705	

Source: Statistics South Africa, Census 2001.

From the Table 4.1, it is clear that the total population in Stellenbosch was 117705 in the year 2001 and the majority were Coloured people, being 57% of the whole population. They were followed by White people and Black African people, with 22% and 20.5% respectively. Additionally, only 0.2 % of the total population were Indian or Asian people.

4.2.2. Home language distribution

Table 4.2 (see next page) shows the home language distribution of the residents in Stellenbosch, which had an impact on the language considerations when designing the questionnaire.

Table 4.2 shows that Afrikaans is the most prevalent language in Stellenbosch, 87258 persons (74.1% of the total population) regard Afrikaans as their first language. It is followed by IsiXhosa, with a population of 20230 (17.1 % of the total population). English speaking people number 8080 (6.8% of the total population). Since the large Xhosa population group lives predominantly in Kayamandi (PPT Pilots Project in Southern Africa, 2004:2), and Kayamandi was excluded from the research, the survey questionnaire was produced in Afrikaans and English.

TABLE 4.2: HOME LANGUAGE DISTRIBUTION IN STELLENBOSCH

Home Language	Persons	Percentage (%)
Afrikaans	87258	74.13
Is Xhosa	20230	17.19
English	8080	6.86
Sesotho	1146	0.97
Other	633	0.54
Is Zulu	135	0.11
Sepedi	61	0.05
Setswana	55	0.05
Xitsonga	34	0.03
Is Ndebele	24	0.02
SiSwati	28	0.02
Tshivenda	23	0.02

Source: Statistics South Africa, Census 2001.

4.2.3. Type of dwelling and telephone facilities

In Table 4.3 the four categories of dwelling found in Stellenbosch, namely formal, informal, traditional, and others, are shown.

TABLE 4.3: TYPES OF DWELLING IN STELLENBOSCH

Type of Dwelling	Households	Percentage
Formal	23355	80 %
Informal	4555	20 %
Traditional	736	
Other	97	
Total	28743	100%

Source: Statistics South Africa, Census 2001.

Table 4.3 indicates that most of the dwellings (80%) in Stellenbosch are formal structures, while there are quite a few informal houses (20%), such as shacks.

Table 4.4 shows the prevalence of telephone facilities in Stellenbosch. As the survey was conducted by telephone, it was necessary to be aware of the number of houses that had a local telephone line.

TABLE 4.4: TELEPHONE FACILITIES IN STELLENBOSCH

Telephone Facility	Households	Percentage
Telephone in dwelling and Cell phone	9375	51 %
Telephone in dwelling only	5161	
Cell phone only	4608	49 %
At a neighbour nearby	2281	
At a public telephone nearby	6334	
At another location nearby	632	
At another location, not nearby	206	
No access to a telephone	147	
Total	28744	100%

Source: Statistics South Africa, Census 2001.

Table 4.4 shows that the number of houses with local telephone lines and those without local lines are approximately equal.

4.2.4. Religion

Table 4.5 presents the religious distribution in Stellenbosch. It was adopted from the original table from StatsSA concerning religion. The table only categorizes people who have religion and those who do not, regardless of what kind of religions are followed.

TABLE 4.5: RELIGIOUS DISTRIBUTION

	Number	Percentage
Religious people	108375	92%
Non-religious people	9326	8%
Total	117701	100%

Source: Statistics South Africa, Census 2001.

It is very clear from Table 4.5 that the majority of people (92%) in Stellenbosch say that they are religious, regardless of what kind of religion is followed. Therefore, “distance from a church” was included as a variable in the questionnaire in determining residents’ preferences when making

housing decision. This will be discussed later in section 4.4.

4.2.5. Number of persons per household

Table 4.6 shows the distribution of number of persons per household in Stellenbosch.

TABLE 4.6: NUMBER OF PERSONS PER HOUSEHOLD

Number of Persons per Household	Households	Per cent (%)
1	5481	19.1
2	5064	17.6
3	4188	14.6
4	5105	17.8
5	3685	12.8
6	2164	7.5
7	1210	4.2
8	759	2.6
9	450	1.6
10 and Over	636	2.2
Total	28742	100

Source: Statistics South Africa, Census 2001.

Table 4.6 indicates that most of the households had less than 5 people living together (81.8%), while a smaller number of households had more than 7 people (6.4%). The University of Stellenbosch is located in the town, and therefore many of the big households could probably be student accommodations. However not all 1845 households with 8 or more people can be of this kind. This indicates that overcrowding could be experienced in some households in Stellenbosch.

4.2.6. Education level

Table 4.7 shows the education level of all persons aged 20 years and older in Stellenbosch. It is categorized by gender and population group, which are Black African, Coloured, Indian or Asian, and White.

TABLE 4.7: EDUCATION LEVEL AND POPULATION GROUP (%)

	Black African	Coloured	Indian or Asian	White
No schooling	8.6%	7.1%	1.9%	0.5%
Some primary	21.5%	21.9%	7.6%	0.5%
Complete primary	9.3%	10.7%	5.7%	0.3%
Some secondary	40.9%	38.5%	22.8%	7.0%
Std 10/Grade 12	15.9%	16.6%	22.2%	37.6%
Higher	3.8%	5.3%	39.9%	54.1%

Source: Statistics South Africa, Census 2001.

Table 4.7 shows a sharp differentiation in educational level obtained by residents of Stellenbosch. It is shown that only 19.7 % of Black African and 21.8% of Coloured people received education higher than some secondary education. However, 91.7 % of White people achieved this educational level.

4.2.7. Occupation

Table 4.8 (see next page) shows the occupational distribution of all employed persons aged 15 to 65 years in Stellenbosch, which is cross-tabulated with gender and population group.

Table 4.8 shows that Black African males are mostly employed as service workers (33%) or craft and related trades workers (34%). Black African females (38%) are mostly employed as service workers. The highest percentage of Coloured males is employed as craft and related trade workers, where as the highest percentage of Coloured females are employed as clerks and service workers. In contrast to this, table 4.8 shows that the largest percentage of White male and female residents are professionals (Male 39%, Female 33%)

TABLE 4.8: OCCUPATIONAL DISTRIBUTION IN STELLENBOSCH

	Black African	Coloured	White	Indian
Male				
Legislators; senior officials and managers	65	343	1043 (24%)	8
Professionals	48	379	1696 (39%)	10
Technicians and associate professionals	70	671	449	3
Clerks	119	800 (15%)	172	0
Service workers;	544 (33%)	854 (16%)	479	11
Skilled agricultural and fishery workers	249	417	238	0
Craft and related trades workers	566 (34%)	2037 (37%)	237	8
Total	1661	5501	4354	40
Female				
Legislators; senior officials and managers	37	200	494	3
Professionals	53	302	1215 (33%)	12
Technicians and associate professionals	110	852	595	0
Clerks	141	1549 (33%)	795 (22%)	8
Service workers;	351 (38%)	1234 (26%)	470	5
Skilled agricultural and fishery workers	132	197	64	0
Craft and related trades workers	104 (11%)	384 (8%)	43	0
Total	928	4718	3676	20

Source: Statistics South Africa, Census 2001.

4.2.8. Mode of travel to school or work

Table 4.9 shows the situation of how people in Stellenbosch travel to school or work every day, which is cross tabulated by population group.

TABLE 4.9: MODE OF AND POPULATION GROUP

	Black African	Coloured	Indian or Asian	White
On foot	8245(66.3%)	20138(50.5%)	55 (35.9%)	7000(36.3%)
By bicycle	163	445	0	1158
By motorcycle	117	113	9	320
By car as a driver	375	3382	48 (31.4%)	7411(38.5%)
By car as a passenger	1269 (10.2%)	5582 (14.0%)	26	2908(15.1%)
By minibus/taxi	1662 (13.4%)	6247 (15.7%)	10	222
By bus	602	4007	5	249

Source: Statistics South Africa, Census 2001.

Table 4.9 reports that the majority of Black African (66.3%) and Coloured people (50.5%) rely on foot for travelling to work or school. In contrast, it also shows that a car was the major transport vehicle for White people, 53.6% of them travel to work or school either as driver or as a passenger.

The above section provided background on Stellenbosch. It included a document study mainly via the official website of Stats SA. In the next section, the survey research results will be presented and discussed.

4.3. PROFILE OF THE RESPONDENTS

This section consists of three components. Firstly, the socio-demographic and socio-economic profile of the respondents, secondly the relationship between housing preferences and respondents' socio-demographic and economic variables, and thirdly, the relationship between housing preferences and housing values held by respondents are presented and discussed.

4.3.1. Sample realisation

Table 4.10 presents the number of respondents per area (categorised according to price) in the study area of Stellenbosch. The table illustrates the representation of the sample drawn for the survey. Data on the number of households per area was obtained by referring to the map provided by Anna Basson Properties.

TABLE 4.10: RESPONSES PER AREA IN STELLENBOSCH

Area	Number of households per area	Number of households interviewed	Percentage %
High price area (Mostertsdrift)	330	45	13.6
Medium area (Uniepark, Rzndl, Prdsklf)	881	106	12.0
More Affordable area (La Colline, Jamestown)	471	54	11.5
Total	1682	205	12.2

Table 4.10 shows that from each area more than 10 % of the households were chosen for the research. The percentages were 13.6 % for the high priced area, 12% for the medium priced area, and 11.5 % for the more affordable area.

4.3.2. Socio-demographic profile of the respondents

This section presents the socio-demographic profile of the respondents, which serves as basis for the following sections. The research was restricted to interviewing only owners or spouses of the owners of the houses drawn for the sample, depending on their availability and willingness to participate.

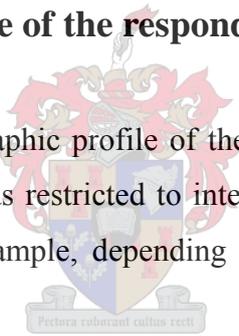


Table 4.11 shows the race and gender representation of the respondents.

TABLE 4.11: GENDER AND POPULATION GROUP OF THE RESPONDENTS

Population group		Gender of respondent		Total
		Male	Female	
White	Count	70	84	154
	% of Total	34.1%	41.0%	75.1%
Black	Count	2	1	3
	% of Total	1.0%	.5%	1.5%
Coloured	Count	26	20	46
	% of Total	12.7%	9.8%	22.4%
Refused	Count	1	1	2
	% of Total	.5%	.5%	1.0%
Total	Count	99	106	205
	% of Total	48.3%	51.7%	100.0%

Table 4.11 shows that the majority of the respondents were White (75.1%), while 22.4% were Coloured. Only three respondents were Black people. The table also indicates that there was an

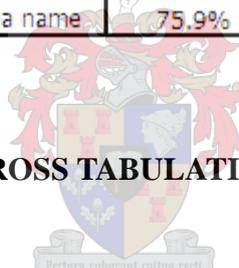
even representation of male and female respondents in the telephone survey.

The population group of the respondents White and Black (Black African, Coloured and Indian)) and the neighbourhood where they were living is tabulated in Table 4.12. Table 4.13 is the Chi-square test for the relationship between these two variables.

TABLE 4.12: POPULATION GROUP AND NEIGHBOURHOOD

Area name		population group		Total
		White	Black	
Expensive area	Count	43	2	45
	% within area name	95.6%	4.4%	100.0%
Medium area	Count	105		105
	% within area name	100.0%		100.0%
Affordable area	Count	6	47	53
	% within area name	11.3%	88.7%	100.0%
Total	Count	154	49	203
	% within area name	75.9%	24.1%	100.0%

TABLE 4.13: CHI-SQUARE FOR CROSS TABULATION OF NEIGHBOURHOOD AND POPULATION GROUP



Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	163.506 ^a	2	.000
Likelihood Ratio	170.582	2	.000
Linear-by-Linear Association	103.189	1	.000
N of Valid Cases	203		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.86.

It's very clear from table 4.12, and 4.13 that there is a significant difference between White people and Black people (Black, coloured, and Indian) regarding where they were living. The majority of the Black people (88.7%) were living in the relatively cheaper area, while the medium and expensive areas were occupied mainly by White people, with 99.1% and 95.6% respectively.

The respondents were required to provide their age at the beginning of the interview, which is presented with the gender of the respondents in Table 4.14.

TABLE 4.14: GENDER AND AGE OF RESPONDENTS

Age	Gender of respondent		Total	
	Male	Female		
21-30	Count	2	3	5
	% of Total	1.0%	1.5%	2.4%
31-40	Count	20	10	30
	% of Total	9.8%	4.9%	14.6%
41-50	Count	23	33	56
	% of Total	11.2%	16.1%	27.3%
51-60	Count	20	28	48
	% of Total	9.8%	13.7%	23.4%
61-70	Count	18	20	38
	% of Total	8.8%	9.8%	18.5%
71-80	Count	13	11	24
	% of Total	6.3%	5.4%	11.7%
80+	Count	3	1	4
	% of Total	1.5%	.5%	2.0%
Total	Count	99	106	205
	% of Total	48.3%	51.7%	100.0%

Table 4.14 shows that, of the 205 respondents interviewed, 99 (48.3%) respondents were male while 106 (51.7%) were female.

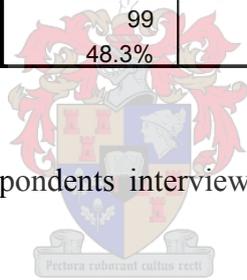


Figure 4.1 shows the age distribution of the respondents.

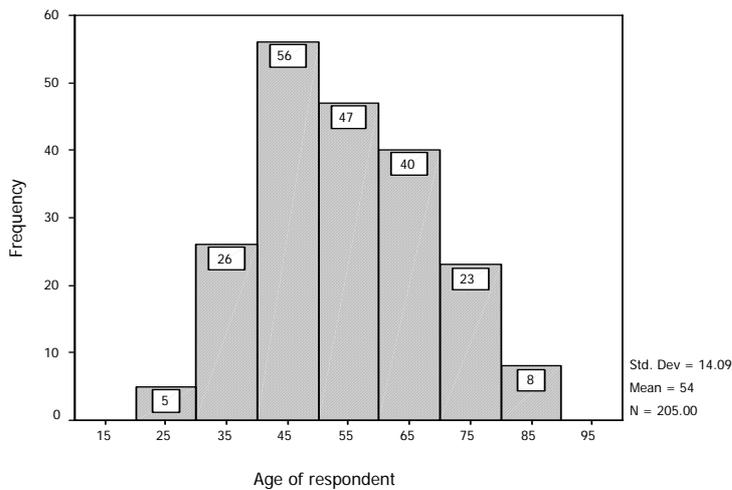


FIGURE 4.1: AGE DISTRIBUTION OF THE RESPONDENTS

It is evident from the Figure 4.1 that the majority of the respondents were between the ages of 41 and 60 years (50.7%), and the mean age of the 205 respondents interviewed was 54 years. The majority of home owners in study area in Stellenbosch therefore seem to be middle aged.

Table 4.15 shows the marital status of the respondents, which was cross-tabulated with the gender of the respondents.

TABLE 4.15: MARITAL STATUS AND GENDER OF THE RESPONDENTS

Matiral status of the respondent		Gender of respondent		Total
		Male	Female	
Married	Count	91	83	174
	% of Total	44.4%	40.5%	84.9%
Widowed	Count	1	13	14
	% of Total	.5%	6.3%	6.8%
Divorced	Count	1	6	7
	% of Total	.5%	2.9%	3.4%
Never married	Count	4	4	8
	% of Total	2.0%	2.0%	3.9%
Living together	Count	2		2
	% of Total	1.0%		1.0%
Total	Count	99	106	205
	% of Total	48.3%	51.7%	100.0%

Table 4.15 shows that the majority of the respondents (84.9%) were married, while 6.8% were widowed, 3.4% were divorced, 3.9% were never married and only 1% were living together.

4.3.3. Socio-economic profile of the respondents

This section attempted to explore the socio-economic profile of the interviewed residents in Stellenbosch. This section could be used to gain insight into the respondent's education, occupation and income level.

Table 4.16 provides information on the frequency of the level of schooling of the respondents.

TABLE 4.16 LEVEL OF EDUCATION OF THE RESPONDENTS

Educational level of the respondent

Educational level of the respondent	Frequency	Percent	Valid Percent	Cumulative Percent
Primary school	12	5.9	5.9	5.9
High school	42	20.5	20.5	26.3
Degree/Diploma	86	42.0	42.0	68.3
Post graduate education	64	31.2	31.2	99.5
Refused	1	.5	.5	100.0
Total	205	100.0	100.0	

Table 4.16 shows that in the areas represented in the sample, the literacy level was high, with 73.6% of the respondents holding a diploma or higher qualification. Only 5.9% of the respondents had only primary school education.

Table 4.17 shows the relationship between the educational levels of respondents in the different population groups.

TABLE 4.17: EDUCATIONAL LEVEL AND POPULATION GROUP (WHITE AND BLACK)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	106.501 ^a	3	.000
Likelihood Ratio	104.035	3	.000
Linear-by-Linear Association	87.234	1	.000
N of Valid Cases	202		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 2.85.

Table 4.17 shows that in the research areas, the education level between the two groups of people, White and Black (Black, Coloured, and Indian), were significantly different, with the Chi-Square value of 104.035 ($P < 0.05$). Combined with Table 4.16, it is evident that White residents are associated with much higher levels of education than Black people. The result was very similar to the result of Table 4.7 from the SA census 2001, which also showed the huge difference between population groups with regard to educational level. Moreover, no significant relationship was found between educational level of the respondents and their gender.

Table 4.18 provides the information on the employment status and the gender of the respondents.

TABLE 4.18: EMPLOYMENT STATUS AND GENDER OF THE RESPONDENTS

Employed or not		Gender of respondent		Total
		Male	Female	
Yes	Count	67 32.7%	54 26.3%	121 59.0%
No	Count	32 15.6%	52 25.4%	84 41.0%
Total	Count	99 48.3%	106 51.7%	205 100.0%

Table 4.18 shows that 59% of the respondents were employed, while 41% were not. The majority of male respondents (67.7%) were employed, while half of the female respondents were employed. The respondents who were employed were asked the nature of their employment. This data is tabulated in Table 4.19.

TABLE 4.19: NATURE OF EMPLOYMENT OF RESPONDENTS

Type of employment	Frequency	Percent	Valid Percent
Legislators;senior officials and managers	16	13.2	13.2
Professionals	28	23.1	23.1
Technicians and associate professionals	21	17.4	17.4
Clerks	26	21.5	21.5
Service workers;shop and market sales workers	8	6.6	6.6
Craft and related trades workers	3	2.5	2.5
Others	19	15.7	15.7
Total	121	100.0	100.0

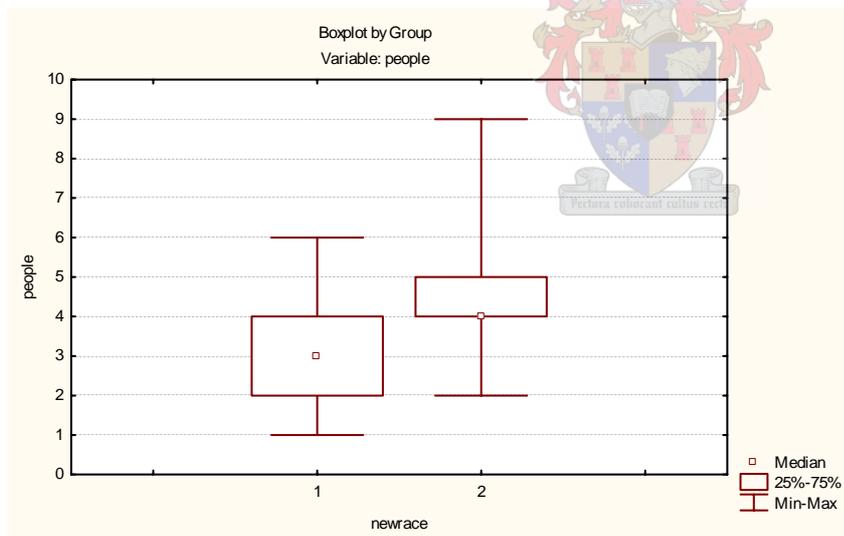
Table 4.19 shows that amongst people who were employed, professionals formed the largest category at 23.1 %. It is supposed that the fact that the University of Stellenbosch is located in the centre of the town is the main reason for this high percentage. Other jobs like clerks (21.5 %) and technicians (17.4%) were also quite prevalent.

Table 4.20 indicates the number of people living in the 205 homes that formed part of the survey.

TABLE 4.20: THE NUMBER OF PEOPLE LIVING IN THE HOUSE

Number of people living in the house	Frequency	Percent	Cumulative Percent
1	9	4.4	4.4
2	65	31.7	36.1
3	43	21.0	57.1
4	54	26.3	83.4
5	25	12.2	95.6
6	5	2.4	98.0
7	2	1.0	99.0
8	1	.5	99.5
9	1	.5	100.0
Total	205	100.0	

Table 4.20 indicates that most households had 2 (31.7%) or 4 (26.3%) people, while very few households (4.4%) had 6 or more people living together. Moreover, the relationship between the number of people living in the house and the population group of the respondents and the area where respondents were found to be living is presented in Figure 4.2.



1=White people, 2= Black people (Black, Coloured and Indian)

FIGURE 4.2: SIZE OF THE HOUSEHOLD IN DIFFERENT POPULATION GROUPS

Figure 4.2 indicates that there was a significant difference in the size of the household in different population groups, which were categorized as White and Black people (Black, Coloured, and Indian) (Mann-Whitney U test, $P < 0.05$). From the above Box plot, it is clear that White households were more likely to have a smaller number of people (Median=3) living in the house than Black people

(Black, Coloured and Indian) (Median=4).

For the correlation between the number of people living in a house and the area where the house is located, a Kruskal-Wallis ANOVA test and Non-parametric multiple comparison was conducted to explore which two areas were significantly different from each other. The results are presented in Table 4.21 to Table 4.23.

TABLE 4.21: SIZE OF HOUSEHOLD IN DIFFERENT AREAS

Number of people living in the house

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
High priced area	45	2.98	1.252	.187	2.60	3.35
Medium priced area	106	2.97	1.117	.108	2.76	3.19
Affordable area	54	4.09	1.557	.212	3.67	4.52
Total	205	3.27	1.362	.095	3.08	3.46

TABLE 4.22: KRUSKAL-WALLIS ANOVA TEST FOR SIZE OF THE HOUSEHOLD AND AREA

Test Statistics ^{a,b}

	Number of people living in the house
Chi-Square	22.857
df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: area name

TABLE 4.23: MULTIPLE COMPARISON P VALUES (2-TAILED) FOR THE SIZE OF HOUSEHOLD AND AREA

Area name	Area name	P
High priced area	Medium area	1.000000
	Cheaper area	0.000886
Medium priced area	Expensive area	1.000000
	Cheaper area	0.000032
Affordable area	Expensive area	0.000886
	Medium area	0.000032

Table 4.21, 4.22 and 4.23 show that there was a statistically significant difference at the $p < .05$ level in number of people living in the houses in the three areas [$H(2, 205) = 22.875, p < .05$]. A non-parametric multiple comparison test indicated that the mean score for the high priced areas ($M = 2.98, SD = 1.25$) was significantly different from the more affordable areas ($M = 4.09, SD = 1.57$), the mean score for the medium priced areas ($M = 2.97, SD = 1.12$) was also significantly different from the more affordable area. The expensive area did not differ statistical significantly from medium priced areas.

Figure 4.3 shows the stages of the life cycle in which the respondents found themselves. The stages of the life cycle for this research were categorized as follows:

- Young couple without children
- Couple with young children
- Couple with adolescents
- Launching children and moving on
- Family in later life – retirement to death

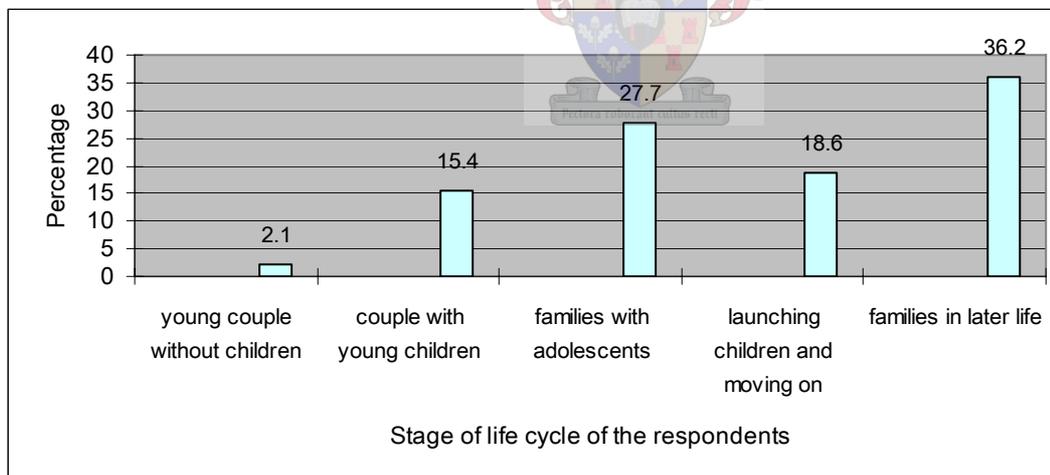


FIGURE 4.3: STAGE OF LIFE CYCLE OF THE RESPONDENTS

It is evident from Table 4.3 that 36.2 % of the respondents were in the later life stage, which was the highest percentage of all the stages. It was followed by families with adolescents, with 27.7%. From these result it seems as if the majority of the homeowners in Stellenbosch are older people. The PPT Pilots Project in Southern Africa (2004: 2) in this regard stated, “Stellenbosch has been able to attract wealthy residents and it is particularly attractive to retired and/or semi-retired

individuals.”

At the end of questionnaire, the respondents were required to provide their monthly households income level. Figure 4.4 shows respondents’ monthly household income distribution.

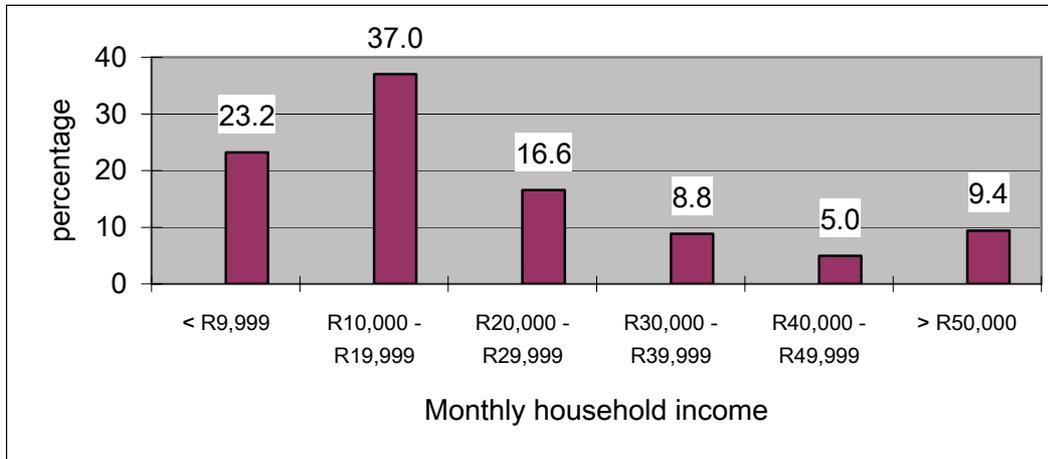
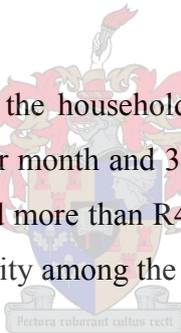


FIGURE: 4.4 RESPONDENTS’ MONTHLY HOUSEHOLD INCOME

Figure 4.4 indicates that the majority of the households (60.2%) were in two income categories namely 23.2% in the less than R9, 999 per month and 37% in the R10, 000 to R19, 999 categories. However, 14.4% of the households earned more than R40, 000 per month. Accordingly, it could be stated that there was a great income disparity among the respondents.



In Table 4.24 the household’s monthly income was compared to the area variable, and Table 4.25 shows the Chi-Square test for these variables.

TABLE 4.24: HOUSEHOLD INCOME AND AREAS

Area name	Monthly household income						Total
	< R9,999	R10,000 - R 19,999	R20,000 - R29,999	R30,000 - R39,999	R 40,000 - R49,999	> R50,000	
High priced area	8	11	8	6	1	6	40(22%)
Medium priced area	12	36	20	9	7	10	94(92%)
Affordable area	22	20	2	1	1	1	47 (26%)
Total	42 (23%)	67 (37%)	30 (16.5%)	16 (8.8%)	9(4.9%)	17 (9.3%)	181 (100%)

TABLE 4.25: CHI-SQUARE TEST FOR HOUSEHOLD INCOME IN DIFFERENT AREAS

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Likelihood Ratio	35.856	10	.000

Table 4.24 and Table 4.25 indicate that the income level of respondents living in the different areas were statistically significantly different (ML-Chi Square = 35.856, $P < .05$). The majority of the respondents living in the high priced area and the medium priced area had a monthly household income between R10, 000 – R 30,000, while the majority of the respondents living in the more affordable area had a monthly household income less than R20, 000. However, surprisingly, contrary to what the researcher expected, it was found that there was no significant relationship between household income level and educational level of the respondents.

4.3.4. Housing values held by respondents

In this section the housing values held by respondents are presented. During the telephone interview, the interviewer explained that he/she would read descriptions of homes, and then respondents had to make a choice between the two homes described in each pair. The respondent had to indicate whether he/she chose the first or second option. There were twelve pairs of trade off descriptions representing four groups of housing values. Amongst these four housing values, namely, economy,

family, personal and social prestige, the one most frequently chosen by the respondent, was deemed to be the dominant housing value orientation for such respondent. However not all people have a definite hierarchy of values (Beyer, *et al*, 1955:55), for example, a respondent may equally choose personal and economic housing values. Those respondents, who chose more than one housing value equally frequent, were categorized into the group of “Not classified”, which means they had no clear hierarchy of values. The distribution of respondents, by housing value group, is shown in Figure 4.5.

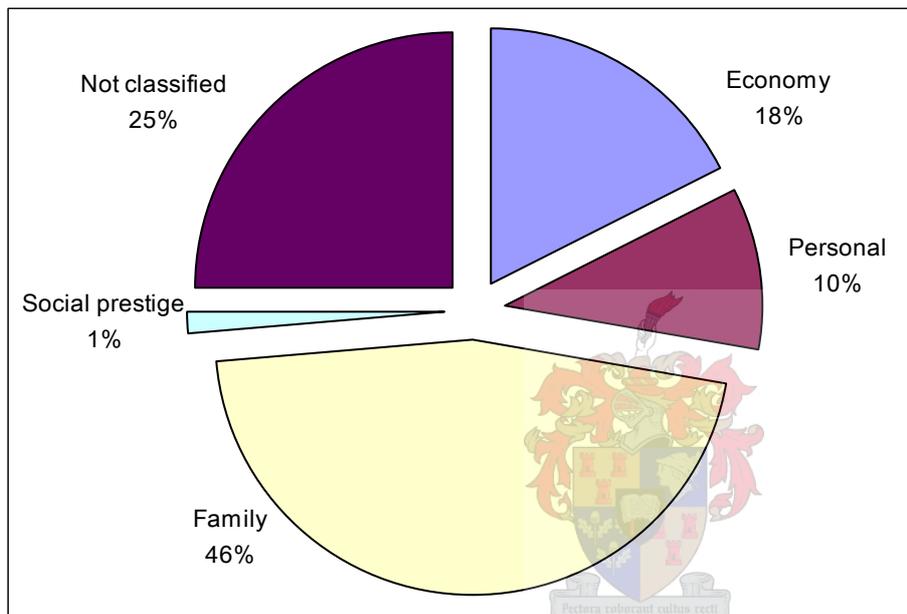


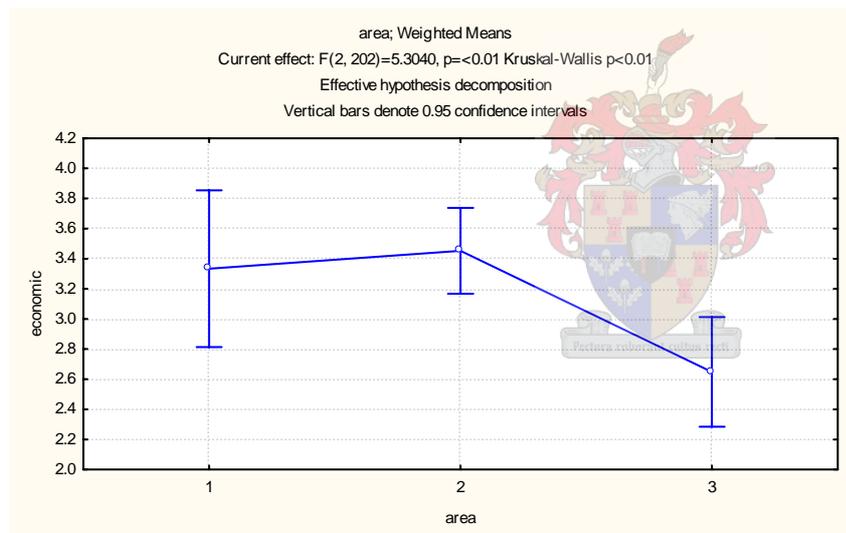
FIGURE 4.5: HOUSING VALUES HELD BY THE RESPONDENTS

It is evident from Figure 4.5 that for 46% of the respondents, family housing values were the dominant value orientation, while 18% rated economic values and 10% personal housing values highest. Only 1% of the respondents indicated that social prestige was their dominant housing value. This is similar to Beyer *et al*'s research result. In their research, almost all ranked social prestige low, and they stated that “it was felt that accurate answers concerning the value of social prestige were not obtained because people are reluctant to acknowledge this value in themselves” (Beyer *et al*, 1955:55). Additionally, 25 % of the respondents were categorized into “Not classified”, because no clear dominate housing value orientation was found from their values trade-off. The correlation between housing values and socio-economic and socio-demographic variables is presented in Table 4.26.

TABLE 4.26: P VALUES OF ML CHI SQUARE TEST FOR HOUSING VALUES AND SOCIO-DEMOGRAPHIC AND SOCIO-ECONOMIC VARIABLES

	Economy	Family	Personal	Social
Educational level	0.07	0.2	0.08	<0.01
Area	< 0.01	0.49	<0.01	<0.01
Population group	<0.01	0.37	<0.01	< 0.01
Age	0.79	0.22	0.16	0.97
Number of people living in the house	0.4	0.38	0.11	0.02

Table 4.26 indicates that the variables of educational level, area, and population group of respondents had their influence on the housing values of the respondents. The details of these influences are presented in the following figures.

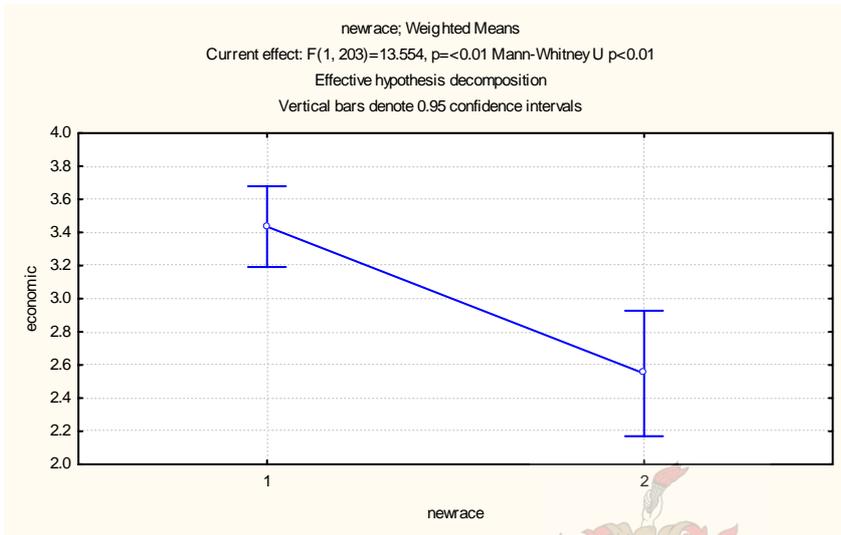


1= High priced area; 2=Medium priced area; 3=More affordable area

FIGURE 4.6: RELATIONSHIP BETWEEN AREA AND THE ECONOMY HOUSING VALUE

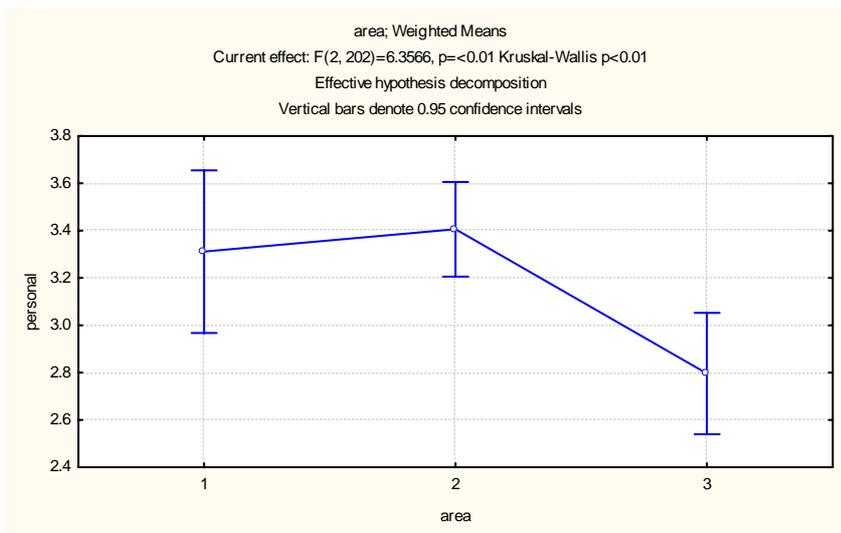
Figure 4.6 indicates that respondents who were living in the high priced area and medium priced area ranked the economy housing value higher than those living in the affordable area. The Bonferroni test indicated that the mean score for respondents in the medium priced area ($M=3.45$) was significantly different from those in area 3, the more affordable area ($M=2.65$). Area 1, the high priced area ($M=3.33$) did not differ statistically significantly from either area 2 or 3.

Figure 4.7 indicates that there was a statistically significant difference at $p < 0.01$ level in the Economic housing value score for the different population groups [F (1,203) =13.55, P=0.0003]. White respondents (M=3.44) were more likely to rank the economy housing value higher than Black (Black, Coloured, and Indian) respondents (M=2.55).



1= White people; 2 = Black people (Black, Coloured, Indian)

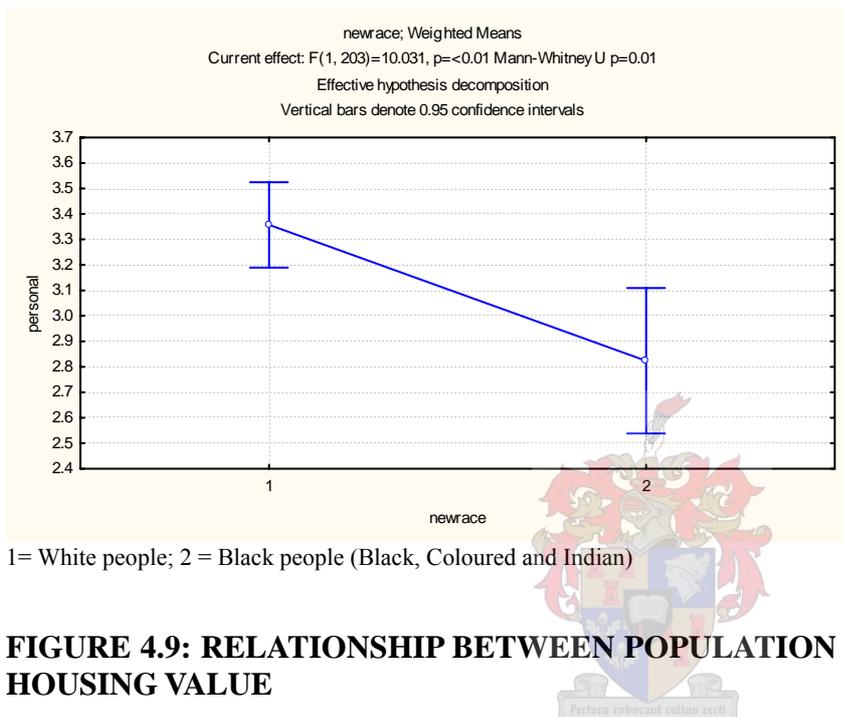
FIGURE 4.7: RELATIONSHIP BETWEEN POPULATION GROUP AND THE ECONOMY HOUSING VALUE



1= High priced area; 2=Medium priced area; 3=More affordable area

FIGURE 4.8: RELATIONSHIP BETWEEN AREA AND THE PERSONAL HOUSING VALUE

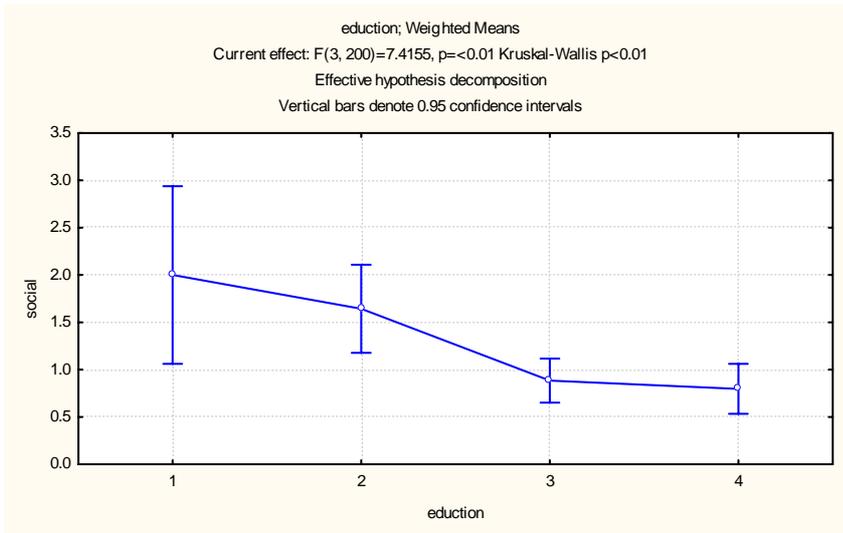
Figure 4.8 indicates that respondents who were living in the high and medium priced areas ranked the personal housing value higher than those living in the more affordable area. The Bonferroni test was used to explore the ranking difference between the three areas. It indicated that the mean score for the respondents in the high price area (M=3.31) was significantly different from those living Area 3, and that the mean score for Area 2 (M=3.40) was also significantly different from area 3 (M=2.79). Area 1 and Area 2 did not differ statistically significantly.



1= White people; 2 = Black people (Black, Coloured and Indian)

FIGURE 4.9: RELATIONSHIP BETWEEN POPULATION GROUP AND THE PERSONAL HOUSING VALUE

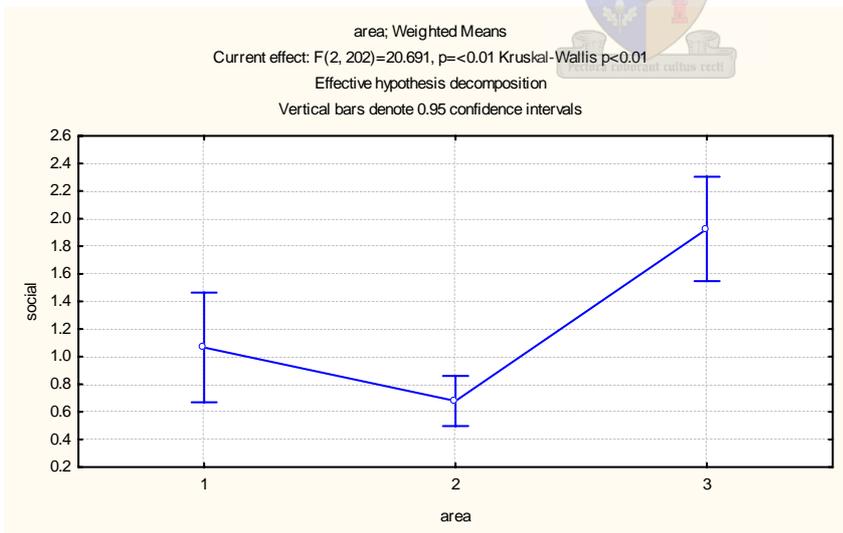
Figure 4.9 indicates that there was a statistically significant difference at $P < 0.01$ level in Personal housing value scores of the different population groups [$F(1, 203) = 10.03, P = 0.0018$]. White respondents (M=3.36) were more likely to rank personal housing values higher than Black (Black, Coloured and Indian) respondents (M=2.82).



1=Primary school; 2=High school; 3=Degree/Diploma; 4=Post graduate education

FIGURE 4.10: RELATIONSHIP BETWEEN EDUCATIONAL LEVEL AND THE SOCIAL PRESTIGE HOUSING VALUE

Figure 4.10 indicates that there was a statistically significant difference in Social prestige housing value scores for different educational levels [F (3,200) = 7.41, P < 0.01]. The correlation between these two variables appeared to be in inverse ratio. In other words, the higher the educational level of respondents, the less the chance was for such a person to choose the social prestige housing value.

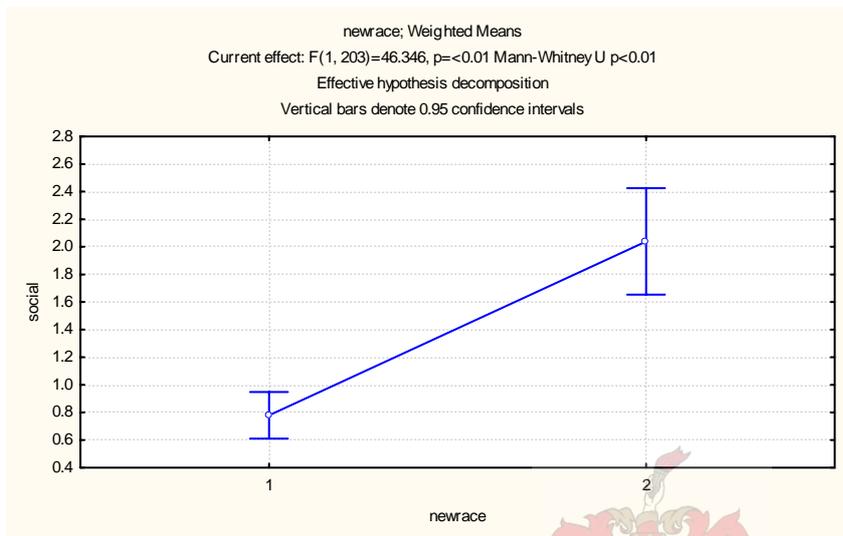


1= High priced area; 2=Medium priced area; 3=More affordable area

FIGURE 4.11: RELATIONSHIP BETWEEN AREA AND THE SOCIAL PRESTIGE HOUSING VALUE

Contrary to above two figures (4. 6 and 4.8), which indicated that people living in the higher priced area ranked Economic and Personal housing value higher than those living in the more affordable

area, Figure 4.11 indicates that respondents who lived the more affordable area ranked the Social prestige housing value higher than those living in the other areas. The Bonferroni test was used to explore the detail of ranking difference between the three areas. It indicated that the mean score for respondents in Area 1 (M=1.07) was significantly different from those in Area 3 (M=1.93), and that the mean score for Area 2 (M=0.68) was also significantly different from area 3 (M=1.93). Area 1 and Area 2 did not differ statistically significantly.



1= White people; 2 = Black people (Black, Coloured and Indian)

FIGURE 4.12: RELATIONSHIP BETWEEN POPULATION GROUP AND THE SOCIAL PRESTIGE HOUSING VALUE

Figure 4.12 indicates that there was a significant difference in the mean scores of the Social prestige value between the two population groups. Black respondents (M=2.04) ranked the social prestige housing value much higher than White respondents (M=0.78).

From the above figures, it can be conclude that the socio-economic status (S.E.S) of the respondents had an influence on the responses to housing values. Respondents with a high S.E.S placed more emphasis on the Economy and Personal housing values than respondents with a lower S.E.S. On the contrary, respondents with a low S.E.S were more likely to rank the Social prestige housing value higher than those with a higher S.E.S.

4.4. HOUSING PREFERENCES

The housing preferences of the respondents were determined by examining a variety of preference indicators relating to the housing features. The respondents were asked to indicate how important different features were in their choice of a new home. Preference were indicated on a scale where a

rating of four indicated that the feature was very important, three indicated important, two indicated unimportant, and one indicated very unimportant. The respondents were also given the opportunity to name more housing features that affected their housing choice decisions and that did not appear in the questionnaire.

It has always been accepted that the results derived from scale ratings can be used to determine the perceived importance respondents place on e.g. different housing features (Chau, *et al* 2005:10). The means scores of 26 housing attributes being perceived by the respondents are shown in Table 4.27 (see next page). The larger the mean value, the more important the housing attribute is perceived. To calculate the mean of the respondent's preference with different housing features, 205 response values were computed as scale ratings of 1 to 4. 1= very unimportant, 2= unimportant, 3=important and 4= very important. The added averages were divided by 205 to get the mean rating.

Table 4.27 indicates the respondents' mean preference rating concerning the different housing features in the order of importance. Figure 4.13 shows a visual illustration.

Table 4.27 and Figure 4.13 show that the quality of the kitchen (M=3.48, STD=0.65), a security system (M=3.34, STD=0.82) and the appearance of the house (M=3.16, STD=0.58) were the three most important features ranked by the Stellenbosch respondents. It was followed by the number of bedrooms and quality of built in cupboards, with the mean value of 3.10 and 3.09 respectively. That the quality of the kitchen and built in cupboards both appeared in the top five undoubtedly indicates the high ranking position of kitchens in residents' housing decisions making. The high ranking of a security system suggests that the safety issue is still very indispensable in housing decisions. On the other side of the Figure, it can be found that swimming pools, outside rooms, and air-conditioning systems were the three most unimportant features ranked by respondents. It meant that residents did not put much emphasis on the presence of such luxury articles and gave a higher value to more practical concerns.

The location variables, such as distance from different facilities, were in the middle of the ranking list.

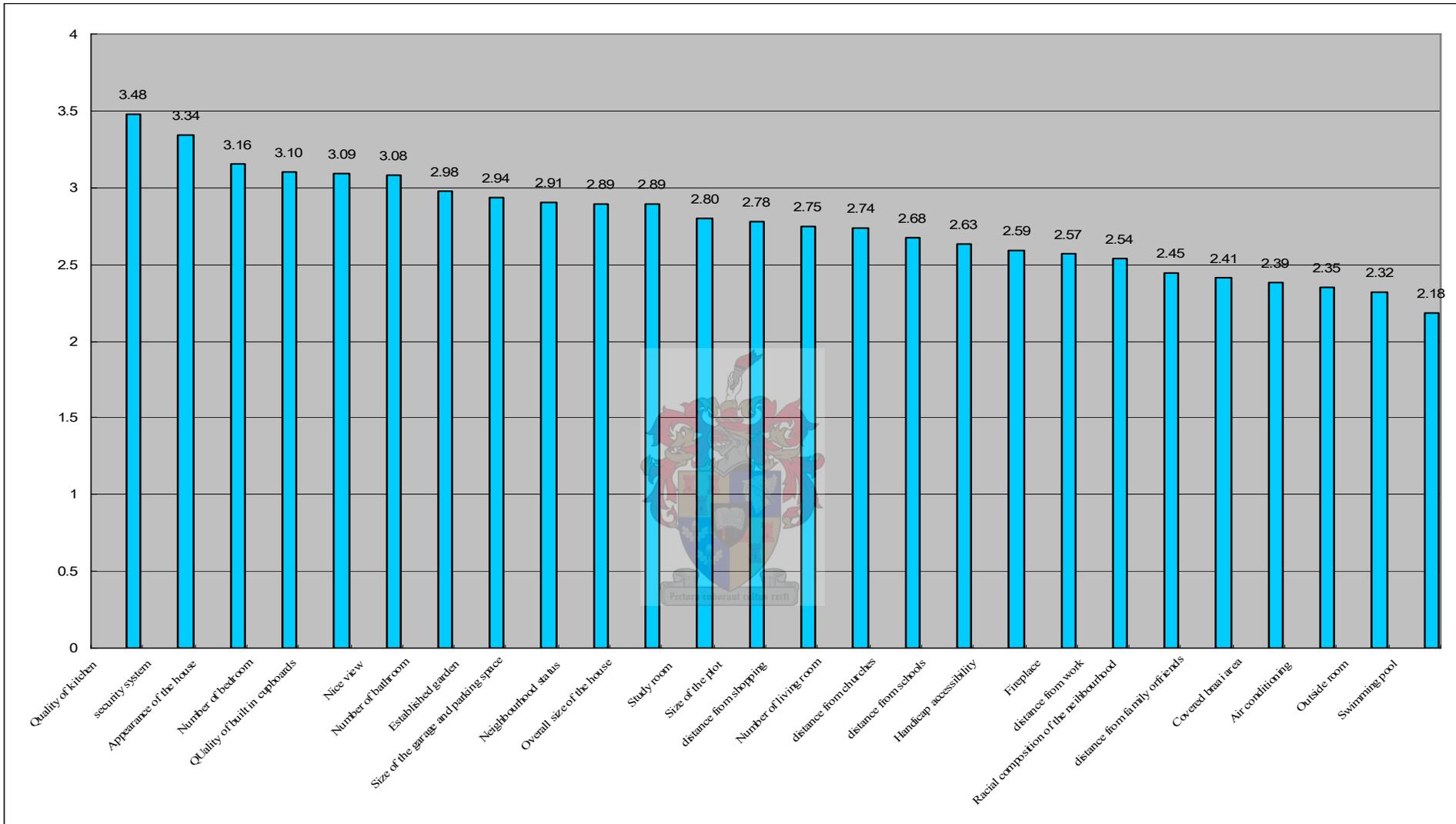
In addition to the housing features appearing in the questionnaire, the respondents were also encouraged to provide more housing characteristics that had an influence on their housing decisions.

The following features were named; accessible for caravan; clean environment; water tank; internet connection; quietness of the neighbourhood; close to nature/open field; resale ability; sound proofing; space for animals; street must be child friendly; sun in winter etc.

TABLE 4.27: MEAN PREFERENCE RATINGS WITH ORDER OF IMPORTANCE

Housing features	Mean	Std. Deviation
Quality of kitchen	3.48	0.65
Security system	3.34	0.82
Appearance of the house	3.16	0.58
Number of bedrooms	3.10	0.64
Quality of built in cupboards	3.09	0.81
Nice view	3.08	0.80
Number of bathrooms	2.98	0.63
Established garden	2.94	0.80
Size of the garage and parking space	2.91	0.66
Neighbourhood status	2.89	0.85
Overall size of the house	2.89	0.63
Study room	2.80	0.86
Size of the plot	2.78	0.69
Distance from shopping	2.75	0.79
Number of living rooms	2.74	0.68
Distance from churches	2.68	0.88
Distance from schools	2.63	1.04
Handicap accessibility	2.59	0.93
Fireplace	2.57	0.87
Distance from work	2.54	0.95
Racial composition of the neighbourhood	2.45	0.93
Distance from family or friends	2.41	0.82
Covered braai area	2.39	0.90
Air conditioning	2.35	0.90
Outside room	2.32	0.84
Swimming pool	2.18	0.92

1=very unimportant; 2=unimportant; 3=important; 4=very important



1= Very unimportant; 2= Unimportant; 3=Important; 4=Very important

FIGURE 4. 13: MEAN HOUSING PREFERENCE FOR DIFFERENT FEATURES

In summation, quality of housing features was considered the most important by respondents, followed by location features. Given the prevalence of the use of vehicles to travel to and from work and the relatively small size of Stellenbosch this is not surprising. Finally the failure of respondents to rank luxury features highly is also noticeable.

In the following sections, the relationship between housing preferences and households' socio-demographic and socio-economic profiles are presented.

4.4.1. Relationship between housing preferences and socio-demographic variables.

In this section the relationship between housing preferences and the socio-demographic profile of the respondents will be presented. During the data analysis process of the housing preference variables, very important and important were combined into important, and unimportant and very unimportant were combined into unimportant, in order to decrease the number of cells and thus increase the validity of the results.

Table 4.28 (see next page) shows the relationship between housing preferences and respondents' population group. The variable of population group was also simplified from four categories into two categories; that of White and Black (Black, Coloured and Indian) for the same reason as explained before.

Table 4.28 shows that there was a statistically significant relationship between the population group variable and responses to the Handicap accessibility and Location variables. It is evident that the majority of Black people (Black, Coloured and Indian) respondents (84.3%) placed high importance on the handicap accessibility feature, compared to 45.5% of the White residents. A statistically significant relationship between distances from different facilities and population groups was also found. For Black respondents, the variables of distance were more important than for White respondents. This situation might be explained by Table 4.9 of mode of travel to school or work; where it is shown that the majority of Black (Black, Coloured and Indian) residents in Stellenbosch travel to school or work by foot, which made the issue of distance more important to them. All the differences are significant at the 0.01 level.

TABLE 4.28: POPULATION GROUP AND HOUSING PREFERENCES SCORES

Housing features	Population group		
	ML – Chi square	Scored response: “very important” and important” frequency %	
		White	Black (Black, Coloured, Indian)
Handicap accessibility	25.509 (0.00000)**	45.5	84.3
Distance from schools	17.833 (0.00002)**	50.0	82.4
Distance from shopping	26.339 (0.00000)**	55.8	92.2
Distance from family and friends	7.838 (0.00512)**	42.2	64.7
Distance from work	16.558 (0.00005)**	51.3	82.4
Distance from churches	23.299 (0.00000)**	52.6	88.2

** P < 0.01

Table 4.29 (see next page) shows the relationship between housing preferences and the variable of area where the respondents live.

Table 4.29 indicates that the relationship between the area variable and housing preference was very similar to that of the population group and housing preference. Handicap accessibility and distance from different facilities were associated with the area variable. From the Table 4.29, it can be seen that a fireplace was related more important in the higher priced area than the lower priced area.

TABLE 4.29: AREA VARIABLE AND SELECTED HOUSING PREFERENCES

Housing features	Area			
	ML Chi-square	Scored response: “very important” and important” frequency %		
		High priced area	Medium priced area	More affordable area
Handicap accessibility	18.250 (0.00011)**	37.8	50.9	77.8
Fireplace	6.739 (0.03441)*	66.7	53.8	40.7
Distance from schools	14.991 (0.00056)**	48.9	50.9	79.6
Distance from shopping	41.912 (0.00000)**	48.9	57.5	92.6
Distance from family and friends	12.180 (0.00227)**	33.3	44.3	66.7
Distance from work	30.360 (0.00076)**	46.7	53.8	79.6
Distance from churches	20.496 (0.00000)**	60.0	50.0	85.2

* P < 0.05

** P < 0.01

In terms of stage of life cycle, no strong evidence was found of any relationship between housing preferences and the stage of the life cycle. There was one exception, however, the difference in opinion regarding the distance from schools between households with school aged children and households without, which is presented in Table 4.30 and Table 4.31.

TABLE 4.30: SCHOOL – AGED CHILDREN AND DISTANCE FROM SCHOOLS

School aged children or not		Distance from schools		Total
		important	unimportant	
School aged children	Count	65	16	81
	% within school kid or not	80.2%	19.8%	100.0%
No school children	Count	54	70	124
	% within school kid or not	43.5%	56.5%	100.0%
Total	Count	119	86	205
	% within school kid or not	58.0%	42.0%	100.0%

TABLE 4.31: CHI-SQUARE FOR THE ASSOCIATION BETWEEN HOUSEHOLDS WITH SCHOOL AGED CHILDREN AND DISTANCE FROM SCHOOLS

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	27.096 ^b	1	.000		
Continuity Correction ^a	25.610	1	.000		
Likelihood Ratio	28.517	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	26.964	1	.000		
N of Valid Cases	205				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.98.

Table 4.30 and Table 4.31 show that there was a statistically significant difference (Chi square= 28.517, $P < 0.01$) in the importance placed on distance from schools in their house buying decisions between households with school aged children and households without. In Table 4.30, 80.2% of households with school-age children regarded distance from school as an important feature, while only 43.5% of households without school-age children ranked it important.

Table 4.32 shows the correlation between the number of people living in a house and housing preferences.

TABLE 4.32: NUMBER OF PEOPLE LIVING IN THE HOUSE AND HOUSING PREFERENCES

Housing features	Number of people living in a house					
	ML Chi Square	Scored response: "very important" and important" frequency %				
		1	2	3	4	5+
Number of bedrooms	22.202 (0.00018)**	44.4	81.5	83.7	92.6	100
Number of living rooms	18.898 (0.00082)**	11.1	64.6	51.2	77.8	67.6
Distance from school	36.922 (0.00000)**	22.2	35.4	55.8	77.8	82.4

** $P < 0.01$

Table 4.32 shows that in different sized households there were significant difference in the importance placed on bedrooms and living rooms and distance from schools (Chi square =22.202, 18.898, 36.922 respectively, n=205, $P < 0.05$). Obviously, the more people living in a house, the more important the number of rooms turns out to be in housing decisions. 100% of the respondents of the households with 5 or more people living together ranked the number of bedrooms very important or important. From the table, it can be seen that with more people living in the house, the household would consider distance from schools more important when making their housing decisions. This could probably be because of the number of children in bigger households.

There was no evidence that marital status had a significant relationship with the importance placed on different housing features.

4.4.2. Relationship between housing preferences and respondents' socio - economic profile

In this section, the relationship between housing preferences and respondents' socio-economic profile will be discussed. The socio-economic profile includes educational level, income level and occupation.

Table 4.33 shows the relationship between the educational level of the respondents and the importance placed on selected of housing features.

Table 4.33 shows that there was a statistically significant relationship between the education level of the respondents and response to four housing features, namely whether the house has a study room (Chi square=8.974, $P=0.02999$), distance from shopping (Chi-square=27.506, $P=0.00000$), distance from family and friends (Chi-square=16.896, $P=0.00074$), and distance from church (Chi-square=21.561, $P=0.00001$). In terms of the study room, the respondents with a higher level of education regarded the presence of a study room more important in their housing decisions. Table 4.33 also indicates that the respondents with a higher level of education did not see the distance from shopping, family and friends, and church as important as the respondents with lower educational level. An explanation for this could be because the respondent with a higher level of education more likely have a higher income, and therefore they can afford the transport cost.

TABLE 4.33: THE RELATIONSHIP BETWEEN EDUCATION LEVEL AND THE SELECTED HOUSING FEATURES

Housing features	Educational level of the respondents				
	Chi - square	Scored response: “very important” and important” frequency %			
		Primary school	High school	Degree/ Diploma	Post graduate education
Study room	8.947 (0.02999) *	33.3	52.4	66.3	71.9
Distance from shopping	27.506 (0.00000) **	91.7	90.5	60.5	48.4
Distance from family and friends	16.896 (0.00074) **	91.7	57.1	46.5	34.4
Distance from church	21.561 (0.00001) **	100	78.6	54.7	51.6

* P < 0.05

** P < 0.01

Table 4.34 shows whether there were significant differences between the respondents of different income levels with regard to the importance placed on distances from facilities.

TABLE 4.34: THE RELATIONSHIP BETWEEN INCOME LEVEL AND THE DISTANCE FROM FACILITIES

Housing features	Income level of the respondents						
	Chi - square	Scored response: “very important” and important” frequency%					
		< 9,999	10,000 – 19,999	20,000 – 29,999	30,000- 39,999	40,000 – 49,999	> 50,000
Distance from shopping	28.281 (0.00000) **	90.5	70.1	46.7	43.8	44.4	41.2
Distance from family and friends	13.212 (0.02147) *	66.7	50.7	43.3	25.0	33.3	29.4
Distance from church	29.386 (0.00000) **	90.5	62.7	56.7	50.0	33.3	29.4

* P < 0.05

** P < 0.01

Table 4.34 indicates that the importance placed on the distance from facilities was influenced by the income level of the respondents. The higher the income of a household, the less important the variables of distances from different facilities were in the households' housing decisions. This result supports the explanation given for the relationship between educational level and importance of distance from different facilities.

In summation, the socio – economic status (S.E.S) of families, especially, educational level and income level had an influence on the importance placed on the distance from different facilities. The lower the S.E.S of a respondent, the more important the distances from facilities are in such a person's housing decision. The educational level of the respondents had an influence on the response to the importance of a study room. The higher the education level the respondents achieved, the more important the presence of a study room appeared to be.

No significant relationship was found between the importance placed on different housing features and respondents' occupation. In the following section, the relationship between the different housing features and housing values are presented.

4.4.3. Relationship between different housing features and housing values

In this section, the impact of four different kinds of housing values, namely economy, personal, family, and social prestige on the importance placed on various housing features, are assessed.



Table 4.35 shows the relationship between the family housing value orientation and the importance placed on selected housing features.

TABLE 4:35: FAMILY HOUSING VALUES AND SELECTED HOUSING FEATURES

Housing features	Family housing value		
	Chi – square (P)	Scored response: “very important” and important” frequency %	
		Family value holder	Respondents with other three values
Size of plot	8.529 (0.00349)**	57.4	77.5
Neighbourhood status	9.500 (0.00205)**	60.6	81.1

** P < 0.01

Table 4.35 indicates that there was a statistically significant relationship between the family housing value orientation and response to two housing features, namely size of plot (Chi-square = 8.529, P = 0.00349) and neighbourhood status (Chi-square = 9.5000, P = 0.00205). It was found that the respondents with a family housing value orientation did not give a lot of thought to neighbourhood status in their housing decisions, or at least not as much as those who held other housing values. It is also shown that 60.6 % of all respondents holding the family housing values ranked neighbourhood status very important or important, compared to 81.1% of respondents holding other housing values. The same illustration of relationship is applicable to the size of plot (Chi-square = 8.529, P =0.00349).

Table 4.36 shows the relationship between the personal housing value orientation and the size of the plot.

TABLE 4.36: PERSONAL HOUSING VALUE AND SIZE OF THE PLOT

	Personal housing value		
	Chi-square (P)	Scored response: “very important” and important” frequency %	
		Respondents holding personal housing value	Otherwise
Size of plot	4.237 (0.03955) *	90.5	65.8

* P < 0.05

Table 4.36 indicates that there was a statistically significant correlation (Chi-square=4.237, p=0.03955) between the importance placed on the size of the plot and the personal housing value orientation. It was found that residents who regarded the personal housing value as their dominant housing value orientations (90.5%) were more likely to live in a house with a bigger size of plot than respondents holding other housing values (65.8%).

With the Chi-square analysis, no evidence was found of any significant relationship between economic and social prestige value orientations and housing preferences.

Another data analysis tool, ANOVA, was used to test the relationship between housing values and

housing preferences. From the analysis results, it was found that respondents with different housing value orientations had different attitudes to the overall size of the house, which is shown in Tables 4.37 and Table 4.38.

TABLE 4.37: IMPORTANCE OF SIZE OF AND HOUSING VALUE ORIENTATIONS

Overall size of the house						
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Economy	36	2.17	.737	.123	1.92	2.42
Personal	21	1.71	.644	.140	1.42	2.01
Family	94	2.19	.592	.061	2.07	2.31
Social prestige	3	1.67	.577	.333	.23	3.10
Others	51	2.12	.553	.077	1.96	2.27
Total	205	2.11	.628	.044	2.03	2.20

TABLE 4.38: ANOVA TEST FOR OVERALL SIZE OF THE HOUSE AND HOUSING VALUES

Overall size of the house					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.620	4	1.155	3.047	.018
Within Groups	75.800	200	.379		
Total	80.420	204			

Tables 4.37 and 4.38 show that there was a statistically significant difference at the $p < .05$ level in the importance placed on the overall size of the house between the five housing values groups [$F(4,200) = 3.05, p = .018$]. The result was confirmed with the Kruskal – Wallis test with $p = 0.0225$. The effect size, calculated using eta squared, was .06, which was a medium effect size. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the personal values group ($M = 1.71, SD = .644$) was significantly different from the family values group ($M = 2.19, SD = .592$). The personal values group wants significantly more space than the family values group. Other pairs of groups were not significantly different from each other.

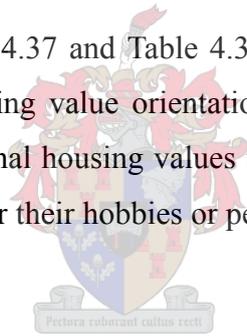
TABLE 4.39: THE POST-HOC TEST FOR THE OVERALL SIZE OF THE HOUSE AND HOUSING VALUES

Dependent Variable: Overall size of the house
Tukey HSD

(I) housing value held by home owner	(J) housing value held by home owner	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Economy	Personal	.45	.169	.061	-.01	.92
	Family	-.02	.121	1.000	-.36	.31
	Social prestige	.50	.370	.659	-.52	1.52
	Others	.05	.134	.996	-.32	.42
Personal	Economy	-.45	.169	.061	-.92	.01
	Family	-.48*	.149	.013	-.89	-.07
	Social prestige	.05	.380	1.000	-1.00	1.09
	Others	-.40	.160	.089	-.84	.04
Family	Economy	.02	.121	1.000	-.31	.36
	Personal	.48*	.149	.013	.07	.89
	Social prestige	.52	.361	.594	-.47	1.52
	Others	.07	.107	.959	-.22	.37
Social prestige	Economy	-.50	.370	.659	-1.52	.52
	Personal	-.05	.380	1.000	-1.09	1.00
	Family	-.52	.361	.594	-1.52	.47
	Others	-.45	.366	.732	-1.46	.56
Others	Economy	-.05	.134	.996	-.42	.32
	Personal	.40	.160	.089	-.04	.84
	Family	-.07	.107	.959	-.37	.22
	Social prestige	.45	.366	.732	-.56	1.46

*. The mean difference is significant at the .05 level.

A combination of findings from Table 4.37 and Table 4.39 indicate that the respondents with the personal value as their dominant housing value orientation prefer bigger sized plots. This result indicates that residents who hold personal housing values tend to attach importance to the issue of size. They want more space, possibly for their hobbies or personal possessions.



4.5. SUMMARY

In Chapter four the telephone survey results and findings were presented in order to achieve three secondary research objectives, which were mentioned at the beginning of the chapter. The data obtained was presented with the aid of tables and figures. In Chapter five the data obtained from Anna Basson Properties will be presented. The objective for this chapter is to explore a functional formula by which housing prices in Stellenbosch could be relatively accurately predicted.

CHAPTER 5: RESULTS AND DISCUSSION: THE SECONDARY DATA ANALYSIS (REAL ESTATE TRANSACTIONS)

5.1 INTRODUCTION

The aim of this chapter is to present and discuss the data obtained from actual real estate transactions (220). All the data were sourced from Anna Basson Properties, one of the professional real estate agencies in Stellenbosch. In the previous two chapters some background information about Stellenbosch and the housing preferences held by local residents were highlighted.

The study objective for this chapter is as follows:

- To determine a functional formula by which current house prices can be accurately predicted

5.2 AN OVERVIEW OF THE RESIDENTIAL HOUSING MARKET IN STELLENBOSCH



Stellenbosch is a medium-sized town, with a population of 117750 (StatsSA Census 2001). Despite the relatively small population, the level of real estate activity in Stellenbosch is very high. Situated only about 35 km from Cape Town, with Cape Town International airport about 35 minutes drive away, and about 10-30 km from some of South Africa's most beautiful beaches, with the Stellenbosch wine region on the doorstep, there are many investment considerations that would make one want to live in this town of oak trees.¹⁴

The housing market in Stellenbosch has benefited from large-scale development, mainly catering to outsiders who have been discouraged by nearby Cape Town's recent real estate price increases. The less expensive but still growing Stellenbosch property market thus provides an ideal opportunity for investment (PPT Pilots Project in Southern Africa, 2004:2).

Housing prices in South Africa, compared to other countries, has grown very fast. Table 5.1 is a

¹⁴ http://www.seeff.com/n2ews/detailed.asp?news_id19=89. Retrieved on. 11.302004

comparison of house prices worldwide provided by *Finance week* (2004:9). It is obvious that the value of homes in South Africa has surged sharply. It has increased by 25% over the year of 2003, and has doubled since 1997, which was the highest growing rate among the countries presented in the table.

The following neighbourhoods, which covered nearly all the areas of the town, were included in the study: Mostertsdrift, Onderpapegaaiberg, Die Boord, Paradyskloof, La Colline, Uniepark, Rozendal, Karindal, Brandwacht, Dalsig Krigeville, Simonwyk, and DieWeides.¹⁵ The selection of neighbourhoods were based on the data availability at Anna Basson Properties when the research was conducted.

TABLE 5.1: COMPARISON OF HOUSE PRICES WORLDWIDE

Country	Increase	
	The year of 2003 %	Since 1997 %
New Zealand	22	47
Australia	17	113
France	12	59
Italy	11	56
Britain	7	116
US	8	53
The Netherlands	7	75
Canada	6	30
Sweden	6	57
Switzerland	3	11
Denmark	3	41
Japan	6	22
South Africa	25	192

Source: Finance Week 8 September 2004: 9

¹⁵ For more detail about neighbourhoods refer to Addendum C : The map of Stellenbosch

5.3 THE MODEL AND DATA

One issue which has received considerable attention in the construction of the hedonic price function is that of appropriate functional form, which has been discussed in the literature part of the research. Given the lack of consensus among empirical researchers on this issue, a linear functional form was adopted in this study.

Another issue that had be addressed concerns which variables were to be included in the model. Ideally, the hedonic price model should incorporate as many variables as possible, which uses up degrees of freedom. The transaction record format adopted by Anna Basson Properties, which precluded the use of information on some amenities and equipment, was used for this purpose.

With these constraints in mind, the parsimonious model estimated was:

$$\begin{aligned} SALES P_i = & \\ & \beta_0 + \beta_1 PLOT + \beta_2 BUILD + \beta_3 BDRM + \beta_4 BTHRM \\ & + \beta_5 OROOM + \beta_6 GARAGE + \beta_7 MOSTER + \beta_8 OPB \\ & + \beta_9 DIEBOD + \beta_{10} PARAF + \beta_{11} LACOL + \beta_{12} URK \\ & + \beta_{13} BDK + \beta_{14} SIMDW + \beta_{15} ALARM + \beta_{16} SWPOOL + \varepsilon_i \end{aligned} \quad (1)$$

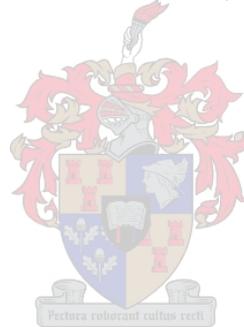
Where the full list and description of the variables are provided in Table 5.2 and ε denotes the disturbance term.

The data used in the present study were taken from real estate transactions of Anna Basson Properties. The data set contained the actual sales price and other variables representing a number of key characteristics of each residential house such as location, number of bedrooms, number of bathrooms, garage, alarm, etc. For estimation purposes, the data for 220 single-family residential houses sold in Stellenbosch during the calendar year of 2002, 2003, and 2004, for which we could extract complete information on all the key variables included in model (1) were used. It should be

noted that due to the high increase of housing prices in South Africa the buying price for 2002 and 2003 is not realistic for today's market prices. Regression would therefore lead to inappropriate or inaccurate results; therefore the prices require mathematical manipulation in order to be applicable to this study.

Based on Table 5.1 (comparison of housing prices worldwide), every year South Africa's housing prices grow approximately 25% per annum. So, if this is applied to the Stellenbosch data we should increase the housing prices of 2002 should be increased by 50% and the housing prices of 2003 by 25% to make it comparable to the prices of 2004.

Of the 17 key variables considered, 3 were continuous: housing price (SALESP), size of plot (PLOT), and overall size of building (BUILD), 3 were discrete: number of bedrooms (BDRM), number of bathrooms (BTHRM), and number of garages (GARAGE), and 11 were dummy variables representing location (CENTRAL, MOSTER, OPB, DIEBOD, PARAF, LACOL, URK, BDK and SIMDW), swimming pool availability (SWPOOL), and alarm availability (ALARM). Descriptive statistics of all the 17 key variables are presented in Table 5.2. Note that in model (1) the variable CENTRAL was omitted from the location dummy variables, which made Stellenbosch central area the reference location in the interpretation of the estimated coefficients of the location dummy variables. The other two characteristics (SWPOOL and ALARM) had 2 categories each in which only one dummy variable was included in model (1) for each characteristic in order to avoid the dummy variable trap¹⁶.



¹⁶ The dummy variable trap arises if the number of categories is equal to the number of dummy variables, which leads to perfect multicollinearity. In a later section, the test of multicollinearity will be discussed.

TABLE 5.2: DEFINITIONS OF VARIABLES IN THE HEDONIC PRICE MODEL

Variable	Definition	
SALESP	Housing Price (Rand)	
PLOT	Size of plot	
BUILD	Overall size of building	
BDRM	Number of bedrooms	
BTHRM	Number of bathrooms	
GARAGE	Number of garages	
CENTRAL (1=central town; 0= otherwise)	Location dummy variables	
MOSTER (1= Mostertsdrift; 0= otherwise)		
OPB (1=Onderpapegaaiberg; 0=otherwise)		
DIEBOD (1= Die Boord; 0= otherwise)		
PARAF (1= Paradyskloof; 0=otherwise)		
LACOL (1= La Colline; 0=otherwise)		
URK (1=Uniprk&Rozndal&Karindal; 0=otherwise)		
BDK (1=Brandwacht&Dalsig&Krigeville;0=otherwise)		
SIMDW (Simonwyk&DieWeides;0=otherwise)		
ALARM (1=alarm; 0= otherwise)		Alarm dummy variable
SWPOOL (1=swimming pool; 0= otherwise)		Swimming pool dummy variable

TABLE 5.3: DESCRIPTIVE STATISTICS OF VARIABLES IN THE HEDONIC PRICE MODEL

Variable	Mean	Minimum	Maximum	Std. Deviation
SALESP	1753665.9548	469863.0000	4955589.0000	860435.4891
PLOT	1039.2443	225.0000	2367.0000	352.0083
BUILD	259.6652	64.0000	1334.0000	112.7437
BDRM	3.6063	2.0000	7.0000	0.9360
BTHRM	2.5928	1.0000	5.0000	0.9848
ALARM	0.3710	0.0000	1.0000	0.4842
SWPOOL	0.4344	0.0000	1.0000	0.4968
GARAGE	1.5520	0.0000	3.0000	0.7587
CENTRAL	0.0633	0.0000	1.0000	0.2441
MOSTER	0.1538	0.0000	1.0000	0.3616
OPB	0.1131	0.0000	1.0000	0.3175
DIEBOD	0.1448	0.0000	1.0000	0.3527
PARAF	0.0814	0.0000	1.0000	0.2741
LACOL	0.0769	0.0000	1.0000	0.2671
URK	0.1312	0.0000	1.0000	0.3384
BDK	0.1629	0.0000	1.0000	0.3701
SIMDW	0.0452	0.0000	1.0000	0.2083

Table 5.3 shows the descriptive statistics of variable in the hedonic price model in Stellenbosch.

5.4 EMPIRICAL RESULTS

Table 5.4 to Table 5.6 show the estimates of the parameters of the model (1). Table 5.4 shows the summary of the model.

TABLE 5.4: MODEL SUMMARY

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822 ^a	.675	.652	507904.303

- a. Predictors: (Constant), Simonwyk&DieWeides, ALARM, Brandwacht&Dalsig&Krigeville, number of bedrooms, OPB, Paradyslcloof, LaColline, Uniprk&Rozndal&Karindal, swimming pool, GARAGES, DieBoord, size of plot, size of buliding, number of bathroom, MOSTER

Table 5.4 shows that as a whole, the regression does a good job in modelling housing price, while 65.2% ($r=.822$) of the variation in prices is explained by the model. The high value of the adjusted R^2 (.652) achieved with a small number of independent variables indicates that the condominium units are homogenous, which is a desirable characteristic for the application of the hedonic price model.

TABLE 5.5: ANOVA TEST OF THE MODEL (1)

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.1E+14	15	7.333E+12	28.426	.000 ^a
	Residual	5.3E+13	205	2.580E+11		
	Total	1.6E+14	220			

- a. Predictors: (Constant), Simonwyk&DieWeides, ALARM, Brandwacht&Dalsig&Krigeville, number of bedrooms, OPB, Paradyslcloof, LaColline, Uniprk&Rozndal&Karindal, swimming pool, GARAGES, DieBoord, size of plot, size of buliding, number of bathroom, MOSTER
- b. Dependent Variable: housing selling price

Table 5.5 reports a significant F statistic (28.426, $P < 0.05$), indicating that using the model is better than guessing the mean. Table 6.5 shows the regression result and collinearity test of the model.

TABLE 5.6: RESULTS OF ESTIMATING EQUATION AND COLLINEARITY TEST

Coefficients ^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	439476.9	197168.9		2.229	.027		
	size of plot	188.196	130.826	.077	1.439	.152	.553	1.809
	size of buliding	2079.612	395.777	.272	5.255	.000	.589	1.698
	number of bedrooms	95199.30	46747.83	.104	2.036	.043	.612	1.633
	number of bathroom	122374.4	47337.97	.140	2.585	.010	.540	1.853
	ALARM	228727.1	78524.73	.129	2.913	.004	.811	1.233
	swimming pool	187530.1	79150.34	.108	2.369	.019	.758	1.319
	GARAGES	141958.7	52564.23	.125	2.701	.007	.737	1.357
	MOSTER	164966.5	158790.1	.069	1.039	.300	.356	2.812
	OPB	-957351	157850.4	-.353	-6.065	.000	.467	2.142
	DieBoord	-687209	150601.0	-.282	-4.563	.000	.416	2.406
	Paradyscloof	-359955	172495.7	-.115	-2.087	.038	.524	1.907
	LaColline	-795783	176495.3	-.247	-4.509	.000	.528	1.895
	Uniprk&Rozndal&Karinda	-646768	159871.1	-.254	-4.046	.000	.401	2.496
	Brandwacht&Dalsig&Krig eville	-546208	152798.8	-.235	-3.575	.000	.367	2.727
	Simonwyk&DieWeides	-483035	204756.5	-.117	-2.359	.019	.644	1.552

a. Dependent Variable: housing selling price

Table 5.6 shows that the coefficients of all the independent variables, except those of the size of plot (PLOT) and the Mostertsdrift dummy variable (MOSTER) are significant at the 5 percent level or better. It is apparent from these results that size of building (BUILD), the number of bedrooms (BDRM), and the number of bathrooms (BTHRM), the amount of garage spaces (GARAGE), the availability of a swimming pool (SWPOOL), and the availability of an alarm system (ALARM) are significant determinants of residential housing prices in Stellenbosch. As expected, the coefficients of the aforementioned variables are positively indicating their positive contributions to residential housing prices.

In any use of the regression technique, the independent variables will not be able to fully explain the value of the dependent variable. In this case, there are characteristics other than those in Table 5.1 that will affect the predicted sales price. These effects are captured by the intercept term. The intercept for the hedonic regression equation is positive in this case, which means that the net effect of these characteristics is to increase the predicted price.

An inspection of the coefficients of the location dummy variables shows that the coefficients of OPB, DIEBOD, LACOL, URK, BDK and SIMDW are all negative and significant, indicating that the price of a residential house located in one of these neighbourhood is significantly lower than that of a residential house with identical characteristics located in the centre of town (CENTRAL),

the reference location. However, the coefficients of the dummy variables representing the neighbourhood of Mostertsdrift (MOSTER) is insignificant, indicating that there is no significant difference between the prices of a residential house located in this neighbourhood and residential housing with similar characteristics located in the centre of town. The insignificant difference in the price of a residential house with similar characteristics located in the centre of town and Mostertsdrift could be ascribed to the close proximity of the neighbourhoods (See *ADDENEUM C*, map of Stellenbosch town). The result also shows that, the availability of a swimming pool or an existing alarm has a significant positive effect on residential housing prices in Stellenbosch. In the earlier section of 4.4, these two housing preferences were also investigated, according to the survey results, swimming pool was not very important but alarm system was very important in residents' housing buying decisions.

As noted above, an important application of the hedonic price model is for the purpose of valuing specific characteristics of a residential house. The detailed valuation results, derived from Table 5.6, are provided in Table 5.7 (see next page).

The table indicates that an additional bedroom should add at least R 95 000.00 Rand to the value of a single family residential house in Stellenbosch. Likewise, an additional full bathroom is valued at about R 122 000.00 and R 141 000.00 for an additional garage. An inspection of the estimates of the coefficient of the dummy variables alarm and swimming pool, indicate that the former is valued at R 228 000.00 and the latter at about R 187 000.00.

TABLE 5.7: VALUATION OF SPECIFIC CHARACTERISTICS OF A RESIDENTIAL HOUSE IN STELLENBOSCH

Characteristic	Valuation (thousands of Rand)
PLOT (m ²)	Not significant
BUILD (m ²)	2.0796
Bedroom	95.1993
Bathroom	122.3744
Garage	141.9587
Mostertsdrift ¹	Not significant
Onderpapegaaiberg ¹	-957.3506
Die Boord ¹	-687.2091
Paradyskloof ¹	-359.9546
La Colline ¹	-795.7830
Uniprk&rozndal&karindal ¹	-646.7677
Brandwacht&dalsig&krigeville ¹	-546.2084
Simonwyk&DieWeides ¹	-483.0349
Alarm ²	228.7271
Swimming pool ³	187.5301

¹. Increase in value relative to that of a house with identical characteristics but located in Stellenbosch central.

². Increase in value relative to that of a house with identical characteristics but with no alarm.

³. Increase in value relative to that of a house with identical characteristics but with no swimming pool.

Therefore, the hedonic price model (1) for Stellenbosch can be written as follows:

$$SALESP_i =$$

$$\begin{aligned}
 &439.7769 + 2.0796BUILD + 95.1993BDRM \\
 &+ 122.3744BTHRM + 141.9587GARAGE - 957.3506OPB \quad (2) \\
 &- 687.2091DIEBOD - 359.9546PARAF - 795.7830LACOL \\
 &- 646.7677URK - 546.2084BDK - 483.0349SIMDW \\
 &+ 228.7271ALARM + 187.5301SWPOOL + \varepsilon_i
 \end{aligned}$$

5.5 RELATIONSHIP BETWEEN HOUSING STATUS AND DWELLING QUALITY

According to Phe and Wakely's theory (2000:27), there should be a relationship between housing status (HS) and dwelling quality (DQ) in a specific area. It is clear that in this study, the location dummy variables represent housing status. In order to simplify the equation 2, 14 neighbourhoods were divided into 3 area groups, namely high priced area, medium priced area, and more affordable area, based on their regression coefficients. Therefore, Mostertsdrift and central town represent higher priced areas, La Colline and Onderpapegaaiberg represent lower priced areas, and all other neighborhoods represent medium priced areas. All variables appearing in function 2 except the location dummy variable represent dwelling quality components.

For the sake of retesting the relationship between housing status and dwelling quality, using the same regression method, Table 5.8 shows the regression results for the whole sample.

TABLE 5.8: REGRESSION RESULTS FOR THE WHOLE SAMPLE

Variable	B	Std. Error	Beta	T	Sig.
(Constant)	-469266.0912	156529.6246		-2.9979	0.00
size of plot	229.9068	108.1298	0.0941	2.1262	0.03
size of building	1919.3239	369.0491	0.2515	5.2007	0.00
number of bedrooms	114022.0202	43426.0171	0.1240	2.6257	0.01
number of bathroom	99428.4435	45149.4748	0.1138	2.2022	0.03
ALARM	254133.0212	73950.4192	0.1430	3.4365	0.00
swimming pool	186286.3989	73787.7812	0.1076	2.5246	0.01
GARAGES	131723.9202	48450.2731	0.1162	2.7187	0.01
high price area	1119944.3892	115484.9760	0.5379	9.6977	0.00
middle price area	326818.2701	98692.3273	0.1870	3.3115	0.00
Multiple R		0.83153			
R ²		0.69161			
Adjusted R ²		0.67845			

From the Table 5.8, Housing status (HS) and Dwelling quality (DQ) can be indicated by the following two formulas:

$$\text{Housing status (HS)} = 1119.944 (\text{EXPENSIVE AREA}) + 326.818 (\text{MEDIUM AREA}) + 100 \quad (3)$$

$$\begin{aligned} \text{Dwelling quality (DQ)} = & 0.2299 (\text{PLOT}) + 1.9193 (\text{BUILD}) + 114.022 (\text{BDRM}) + 99.428 \\ & (\text{BTHRM}) + 254.133 (\text{ALARM}) + 186.286 (\text{SWPOOL}) + 131.723 \\ & (\text{GARAGE}) \end{aligned} \quad (4)$$

The logarithmic curve can only be valid to the data more than zero, therefore all the data of housing status (HS) were added 100 in this regard while conducting data analysis to make sure the result is valid. In Figures 5.1, the predicted weighted values of HS and DQ for the whole sample are plotted. The logarithmic line was used to explore the relationship between the housing status and dwelling quality.

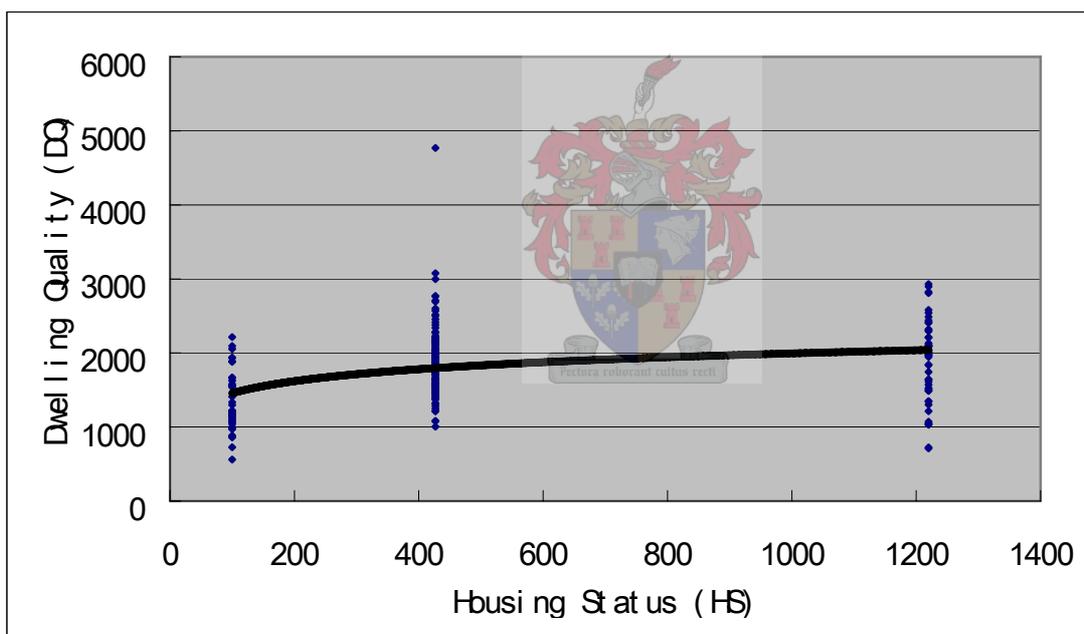


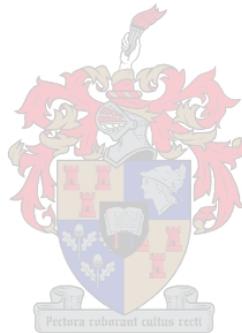
FIGURE 5.1: THE RELATIONSHIP BETWEEN DWELLING QUALITY AND HOUSING STATUS

Figure 5.1 shows that similar to the theory of Phe and Wakely (2000:13), at the lower price ranges, the increase of DQ was strong. In the higher price ranges, DQ slowed down while HS continued to rise. At the lower price level, housing was mainly characterised by its utility as shelter, for instance, by its use value, while at the higher price level housing was characterised more by its exchange value, the houses in this level were more regarded as social prestige units. In accordance with Phe and Wakely (2000:28), with some qualification, the logarithmic curve could be accepted as the

threshold line, which is the black line in Figure 5.1. It is clear that the threshold line obtained in this research study is very similar to the one Phe and Wakely (2000:29) predicted, indicating that the relationship between housing status (HS) and dwelling quality (DQ), is applicable in the housing market of Stellenbosch.

5.6 SUMMARY

In Chapter Five the results of the secondary data analysis originally sourced from housing transactions of Anna Basson properties, were presented. The hedonic price model was adopted in this chapter to explore the housing price predicting formula. The relationship between housing status and dwelling quality, established by Phe and Wakely (2000:7) was retested, and was proved applicable in the Stellenbosch area. In the following Chapter, the conclusions of the research study will be presented, as well as the limitations of the research.



CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

There were two main objectives in the research. The first one was to explore Stellenbosch residents' housing preferences, as well as the relationship between housing preferences and the household background. The second objective was to explore a formula for predicting housing prices for the residential housing market in Stellenbosch by using existing data of housing transactions between 2002 and 2004. The main objectives were achieved by setting seven secondary study objectives, which guided the research process. This chapter presents the final conclusions and recommendations of the research study.

6.2. CONCLUSIONS OF THE RESEARCH

The conclusions are formulated in terms of the research objectives of the study.

6.2.1. Greater Stellenbosch (Documentary study)

A documentary study was conducted mainly via internet in order to achieve the first research objective: to gain background knowledge of Stellenbosch. Most of the data were sourced from the South Africa census 2001 (StatsSA). Other data sources included local newspapers, local government websites, etc. The result indicated that Stellenbosch is a medium-sized town with a population of 117,705, Coloured people being the majority population group in the town with a percentage of 57.4%. Afrikaans is the first language of 74.13% of the residents of Stellenbosch, which dictated the major language use in the design of the questionnaire and the telephone interviews. Furthermore, the fact that a high percentage of houses in Stellenbosch had local telephone lines made the research more reliable.

6.2.2. Housing preferences (The telephone survey)

In order to have explored Stellenbosch residents' housing preferences, a telephone survey was conducted. The following essential conclusions were made:

6.2.2.1. Personal characteristics of the respondents

Two hundred and five telephone surveys were successfully administered with residents living in six selected neighborhoods (Mosterdrift, Uniepark, Rozendal, Paradyskloof, Jamestown and La Colline). Section 4.3.1 to section 4.3.4 indicated the personal characteristics of the respondents. Over 50% of these respondents were between 41 and 60 years old. The majority of the respondents had a high school education level, while over 73% had a university or higher education level. Arguably, these groups of respondents should have been able to generate reliable results, as it was expected that they had stronger capabilities to understand the method of the survey and the potential impact of different housing attributes. The average monthly income levels for the respondents in the six neighbourhoods were found to be between R10, 000 and R19, 999.

6.2.2.2. Housing preferences

This survey presents the relative importance and the hierarchical order of importance applied by a sample of the residents in Stellenbosch in the evaluation of different housing attributes associated with residential housing. This study reported a successful methodology of exploring how residents made decisions. Most important of all, this study helped to reveal the perception of residents about different housing features in one of the economically fastest growing towns in South Africa.

The means and standard deviations of the importance of 26 housing attributes being perceived by the respondents living in the six selected neighborhoods were shown in Table 4.27. The larger the mean value, the more important the housing attributes were perceived. The resulting rank orders for the perceived importance of different housing attributes are also shown in Table 4.27 and Figure 4.13. Quality of the kitchen ($M=3.48$, $STD=0.65$), and a security system ($M=3.34$, $STD=0.82$) were perceived by the residents to be the two most important housing attributes. These were followed by the appearance of the house, the number of bedrooms, and quality of built-in cupboards. The distance from different facilities appeared in the middle of the ranking list. On the other side, it was found that swimming pools, outside rooms, and air-conditioning systems were the three most unimportant features ranked by respondents.

Therefore, it can be concluded that dwelling-related attributes were found to be more important than neighbourhood and location-related attributes in Stellenbosch residents' home purchase decisions. Kitchens turned out to be the housing feature that was regarded as the most important attribute that influenced respondents' housing choice. "Social status - related attributes", such as air-conditioning

and swimming pools were found to be the least important. Further, factors such as family income, age, and education, were found, in varying degrees, to have affected housing preferences amongst the respondents.

6.2.2.3. The relationship between housing preferences and respondents' socio-demographic profile

The importance of the distance from different facilities, and handicap accessibility, were found to be different among the residents with regard to the population and area variable. It can be concluded that Black (Black, Coloured and Indian) residents and the residents living in the relatively cheaper area, regarded distance from different facilities and handicap accessibility, more important. As expected, it was also evident that households with school aged children regarded distance from schools more important than households without school aged children. Furthermore, it was found that the higher the number of people that lived together in a household, the more importance was placed on the availability of space in their housing choice preferences.

6.2.2.4. The relationship between housing preferences and respondents' socio-economic profile

Through the results in section 4.4.2, it can be concluded that the socio-economic status (S.E.S) of families, especially educational and income levels, had an influence on the response to the housing preference of distance from different facilities. The lower the S.E.S of a respondent, the more important the distance from different facilities are in such a person's house buying decision. The educational level of the respondents was found to have an influence on the response to the importance of a study room. The higher the education the respondents achieved, the more important a study room appeared to be. However, no significant relationship was found between the importance of different housing features and respondents' occupation.

6.2.2.5. Housing values

The result of the telephone survey indicated that most respondents (75%) had a clear hierarchy of housing values. Family housing values were found to be the most popular among Stellenbosch residents. The figure 4.5 indicated that 46 % of respondents had predominantly Family housing value orientations. It was followed by Economic housing values and Personal housing values, with

18 % and 10% of respondents being categorized into these two housing value orientation groups. With regard to the relationship between housing values and respondents' personal characteristics, it can be concluded that the socio-economic status of families had an influence on their housing value orientation. Respondents with higher socio-economic status (S.E.S) were more likely to have Economy and Personal values as their dominant housing value orientations.

Respondents who held Personal values as their dominant orientation needed much more space than respondents who rated the other three value groups as more important. Respondents who held Personal housing values as the most important therefore tended to favour bigger sized houses and plots and this tendency increased towards the higher ranges of the S.E.S. It can be concluded that there is a relationship between wealth and housing value orientation and preference. As the residential districts were divided according to housing prices, it can be concluded that Stellenbosch will continue to uphold a form of segregation, where people with a higher S.E.S. and propensity to favour Personal values, move to areas that cater for larger, more expensive properties while those in lower SES groups will remain in more affordable zones.

6.2.3. The housing market in Stellenbosch

A secondary data (housing transactions) analysis was conducted at the end of the research with the aim to achieve two study objectives. The first was to explore a functional formula by which residential housing prices in Stellenbosch could be predicted. The second was to retest the residential location theory developed by Phe and Wakely (2000:7) concerning the relationship between housing status (HS) and dwelling quality (DQ).

6.2.3.1. Application of the hedonic price formula in Stellenbosch

In this study a hedonic price function for Stellenbosch was estimated by the researcher. In the light of the lack of consensus regarding the appropriate functional form of a hedonic price function, a linear model was estimated (see function 1 in section 5.3). It can be concluded from the results that the size of the building, the number of bedrooms, the number of bathrooms, the amount of garage spaces, the availability of a swimming pool, the availability of an alarm, and the location of the house are significant determinants of residential housing prices in Stellenbosch. The coefficients of these variables, except for the location variable, were positive, which indicated that they had a direct, positive effect on the residential housing price.

The data obtained through the telephone survey and through the data provide by Anna Basson properties showed several similarities. Most notable of these were the values attributed to security systems, and number of bedrooms, both of which ranked highly in the two data sets. Differences between the two data sets were also observed. The telephone survey revealed that the number of bathrooms were valued more highly than the presence of a swimming pool, however, the data from the estate agent indicated that a swimming pool was highly valued.

6.2.3.2. Relationship between housing status (HS) and dwelling quality (DQ)

A retest of Phe and Wakely's location theory, in other words, the relationship between housing status (HS) and dwelling quality (DQ), was conducted at the end of the research. The housing data sourced from Anna Basson Properties were divided into two groups, HS (neighborhood variable) and DQ (number of bedrooms, number of bathrooms, number of garages, availability of swimming a pool, and availability of an alarm). Based on the predicting formula 2, in section 5.4, these two groups of data were plotted, and the logarithmic curve was accepted as the threshold line. From figure 5.1, it can be concluded that the relationship between housing status (HS) and dwelling quality (DQ), predicted by Phe and Wakely (2000: 7) can be applied in the Stellenbosch housing market. That is to say in terms of the theory, in the higher priced area in Stellenbosch, housing was characterized more by its exchange value, while in the lower priced area in Stellenbosch, housing was mainly characterised by its utility as shelter, its use value. It can be concluded that in the lower priced areas the impact of a change in the quality of the dwelling, for example in number of rooms from three to four, is greater than for those in the higher priced areas, where the environment and inherent perceptual values are greater determinants.

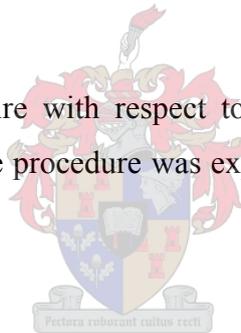
6.3. RECOMMENDATIONS FOR FUTURE RESEARCH

- More applications of the hedonic price model should be conducted in South Africa. The success of the Hedonic model applied in the present study implies that it can be applied to other equal-sized towns in South Africa. The hedonic price analysis is very useful in that the implicit prices generated can potentially facilitate decision making by urban planners and policy-makers about where to locate residential buildings, commercial buildings, schools, and so forth. Additional applications would therefore improve the applicability of the model to the South African context and become a useful tool. The incorporation of additional variables that were not included in this study would also improve the model's accuracy and applicability to decision making.

- The results of chapter 4 indicated that the lower socio-economic respondents placed a greater emphasis on handicap accessibility in their house buying decisions. The reason behind why the respondents with lower S. E. S ranked the handicap accessibility higher than others could only be speculated upon by the researcher. Further research in this regard is needed to determine the true reasons. Should a correlation be found it would have important repercussions for the design of properties in areas which the lower socio-economic respondents would use and especially for State subsidised housing delivery.

6.4. RESEARCH LIMITATIONS

- Because of the inability of the researcher to speak Afrikaans, he was not able to function as a telephone interviewer in the actual surveys. He therefore had no direct interaction with respondents.
- The design of the questionnaire with respect to the housing value trade-off questions, received a few complaints. The procedure was experienced as being a bit tedious by some respondents.



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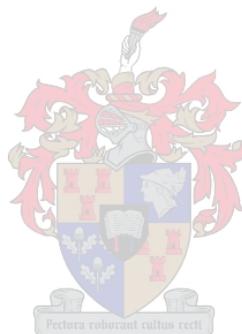
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ADDENDUM A

INTERVIEWER TRAINING MANUAL



INTRODUCTION SHEET

Inleiding Afrikaans:

Hallo, my naam is _____, Ek skakel van die Departement Verbruikerswetenskap, Universiteit van Stellenbosch. Is u die eienaar, of eggenoot van die eienaar van die huis waarin u tans woon? Indien nie, mag ek met die eienaar of eggenoot van die eienaar praat, asseblief?

Ons is tans besig met 'n kort opname onder Stellenbosch inwoners. U telefoonnommer is ewekansig geselekteer vir deelname aan die opname en u neem anoniem deel. Die doel van die opname is om te bepaal wat die behuisingsvoorkeure van die inwoners is. Hierdie oproep sal nie langer as 10 minute duur nie. U deelname is vrywillig, maar ons sal u hulp opreg waardeer.

Is u bereid om 'n paar vrae te beantwoord?

Indien Ja: Baie dankie!

Voor ons voortgaan, kan ek asseblief net u telefoon nommer bevestig as _____? (bevestig telefoon nommer).

Indien Nee: Baie dankie, geniet u aand!



Introduction English:

Hello, my name is _____, I am calling from the Department of Consumer Science, University of Stellenbosch. Are you the owner, or spouse of the owner of the house you are living in? (If not) May I please speak to the owner/spouse of the house?

We are conducting a short survey among Stellenbosch residents. Your telephone number was randomly selected for participation in the survey. The survey is anonymous. The purpose of the survey is to determine what the housing choice preferences of residents are. The interview will not take more than 10 minutes. Your cooperation is voluntary, but we'd greatly appreciate your help.

Are you willing to answer a couple of questions?

If Yes: Thank You!

Before I continue, may I please verify that this is _____? (Verify telephone number).

If No: Thank you and enjoy your evening!



INTERVIEW TRAINING MANUAL

HOW TO ASK AND RECORD RESPONSES

Section a: household data

This section comprises of questions that are to gain an insight into the backgrounds of the respondent.

Question 1: Race of the respondent

The interviewer will ask this question. Then circle the appropriate response category in the appropriate box

Question 2: Age of the respondent

The interviewer will ask this question. Then record the response in the blank provided.

Question 3: Education level of the respondent

The interviewer will ask the question. Then circle the response in the appropriate box.

Question 4: Marital status of the respondent

The interviewer is to ask the question, wait for the response, and then circle the response in the appropriate box.

Question 5 (a): Are you currently employed?

The interviewer is to ask the question, wait for the response, and then circle the response in the appropriate box.

If the answer is **YES**, ask question **5 (b)**

If the answer is **NO**, ask question **6**

Question 5 (b): What is your current employment?

The interviewer must ask question, wait for the response, and then write out the answer in full in the space provided.

Question 6 (a): How many people are living in the house?

The interviewer will ask this question. Then record the answer on the line provided.

Question 6 (b): What are their relationships to you?

The interviewer must ask the question then indicate the answer by placing an X in the appropriate box.

Example: If the respondent's father is living in the house you place an X in the first column.

Ask each one's relationship to the house owner. The total must correspond with the answer provided for question 6 (a).

Question 6 (c): Age and Gender of the children

Only when there are children living in the house, will this question be asked. The interviewer will ask the question then circle the appropriate box for gender and then record the age.

Housing values held by respondents

The following values held by people will be investigated in this research. For each housing value two corresponding statements have been formulated.

Economic: E1. A house with good resale value

E2. A house that suits our family income

Personal: P1. A house where personal needs can be satisfied

P2. A house with plenty of rooms for recreation

Family: F1. A house where family members can spend their time together

F2. A house that protects the health and safety of the family

Social S1. A house that you would be proud to have your friends see

prestige: S2. A house that will help you in your social contacts

Question 7:

The interviewer will explain that he/she will read descriptions of homes, and then respondents have to make a choice between the two homes in each pair. The respondent must indicate whether he/she chooses the first or second option. The interviewer then records the answer by circling the appropriate option.

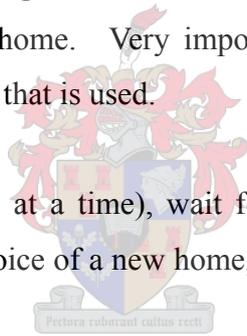
Example: For the first pair of homes, if the respondent chooses a house where personal needs can be satisfied over a house with good resale value, the interviewer will record the answer by circling “P1”

Section 2: housing preferences

Question 13: Housing choice preferences of residents

The interviewer must first explain that respondents will be asked to indicate how important different features are in their choice of a new home. Very important, important, unimportant, and very unimportant are the degrees of the scale that is used.

13.1. – 13. 27. Read the features (one at a time), wait for the answer about how important the feature would be in the respondent’s choice of a new home, and then record on the questionnaire by circling the appropriate number.



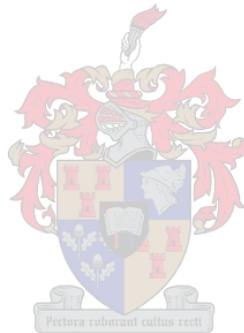
Question 14: Income level

The interviewer is to ask the question, wait for the response, and then circle the response in the appropriate box.

- To simplify this question ask:
- Less than R10, 000?
 - Between R10,000 and R20,000?
 - Between R20,000 and R30,000?
 - Between R30,000 and R40,000?
 - Between R40,000 and R50,000?
 - More than R50,000?

ADDENDUM B

QUESTIONNAIRE USED FOR THE RESEARCH



Questionnaire No.	
M	F

Deel 1: Huishoudelike data

1. Aan watter populasiegroep behoort u?

Wit	1
Swart	2
Kleurling	3
Indiër	4
Weier	9

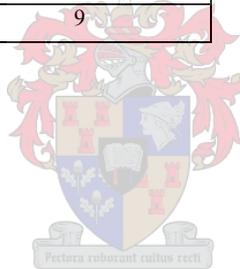
2. Wat is u ouderdom? _____

3. Wat is u hoogste vlak van opleiding?

Primêre skool	1
Hoër skool	2
Graad/Diploma	3
Nagraadse opleiding	4
Weier	9

4. Wat is u huwelikstatus?

Getroud	1
Weduwee/Wewenaar	2
Geskei	3
Vervreemd	4
Nooit getroud	5
Woon saam	6
Weier	9



5. (a) Het u tans 'n betrekking?.

Ja	1
Nee	2

Indien Nee, gaan na 6

(b) *Indien Ja,*

Wat is u huidige beroep? _____

Slegs vir kantoor gebruik	
Wetgewers; senior amptenare en bestuurders	1
Professionele persone	2
Tegniese en verwante professionele	3
Klerke	4
Indiens werkers; winkel en mark verkope werkers	5
Vaardige landbou en vissery werkers	6
Vakmanskap en verwante handel werkers	7
Ander	8
Nie van toepassing	9

6. (a) Hoeveel mense woon in die huis? _____

(b) Wat is hul verband met u?

(c) Watter ouderdom en geslag is die kinders?

	J			
Vrou/Man	1			
Moeder	1			
Vader	1			
Eerste kind	1	M	V	Ouderdom:
Tweede kind	1	M	V	Ouderdom:
Derde kind	1	M	V	Ouderdom:
Vierde Kind	1	M	V	Ouderdom
Vyfde Kind	1	M	V	Ouderdom
Ander	1	M	V	
	1	M	V	
	1	M	V	
	1	M	V	
	1	M	V	
	1	M	V	
	1	M	V	

Lewens stadium? (slegs vir kantoor gebruik)

7. Ons stel belang in die voorkeure van verbruikers wanneer hulle besluite neem oor behuising. Ek gaan die beskrywings van huise aan u lees en wil graag hê dat u telkens 'n keuse moet maak tussen twee wonings wat in elke paar beskryf is. U moet dan aandui of u die eerste of tweede opsie kies.

Wat verkies u?



7.1

- E1. 'n Huis met goeie herverkoop waarde **óf**
P1. 'n Huis waar persoonlike behoeftes bevredig kan word

7.2

- E2. 'n Huis wat ons inkomste pas **óf**
P2. 'n Huis met baie ruimte vir ontspanning/rekreasie.

7.3

- E1. 'n Huis met goeie herverkoop waarde **óf**
F2. 'n Huis wat die gesondheid en veiligheid van die gesin beskerm

7.4

- E2. 'n Huis wat ons inkomste pas **óf**
F1. 'n Huis waar familieledede tyd saam kan spandeer

7.5

- E1. 'n Huis met goeie herverkoop waarde **óf**
S1. 'n Huis wat u met trots aan vriende kan wys

7.6

- E2. 'n Huis wat ons inkomste pas **óf**
- S2. 'n Huis wat u sosiale kontakte kan opbou.

7.7

- P1. 'n Huis waar persoonlike behoeftes bevredig kan word **óf**
- F1. 'n Huis waar familieledede tyd saam kan spandeer

7.8

- P2. 'n Huis met baie ruimte vir ontspanning/rekreasie **óf**
- F2. 'n Huis wat die gesondheid en veiligheid van die gesin beskerm

7.9

- P1. 'n Huis waar persoonlike behoeftes bevredig kan word **óf**
- S2. 'n Huis wat u sosiale kontakte kan opbou.

7.10

- P2. 'n Huis met baie ruimte vir ontspanning/rekreasie **óf**
- S1. 'n Huis wat u met trots aan vriende kan wys.

7.11

- F1. 'n Huis waar familie lede tyd saam kan spandeer **óf**
- S2. 'n Huis wat u sosiale kontakte kan opbou.

7.12

- F2. 'n Huis wat die gesondheid en veiligheid van die gesin beskerm **óf**
- S1. 'n Huis wat u met trots aan vriende kan wys.



Deel 2 Behuising voorkeure

8. Hoe belangrik sal elk van die volgende eienskappe wees in u keuse van 'n nuwe huis?:
Baie belangrik, belangrik, onbelangrik, of baie onbelangrik?

	Baie belangrik	Belangrik	Onbelangrik	Baie onbelangrik
Voorkoms/aansig van die huis	1	2	3	4
Getal slaap kamers	1	2	3	4
Getal badkamers	1	2	3	4
Getal woonkamers	1	2	3	4
Kwaliteit van kombuis	1	2	3	4
Kwaliteit van ingeboude kaste in die huis	1	2	3	4
Studeerkamer	1	2	3	4
Buitekamer	1	2	3	4
Gevestigde tuin	1	2	3	4
Swembad	1	2	3	4
Lugversorging	1	2	3	4
Sekuriteitstelsel	1	2	3	4
Kaggel	1	2	3	4
Onderdak braai-area	1	2	3	4
Toeganlikheid vir gestremdes	1	2	3	4

Algehele grootte van die huis	1	2	3	4
Grootte van Motorhuis en parkeer ruimte	1	2	3	4
Afstand na skole	1	2	3	4
Afstand na winkels	1	2	3	4
Afstand na familie en vriende	1	2	3	4
Afstand na werk	1	2	3	4
Afstand na kerk	1	2	3	4
Mooi uitsig	1	2	3	4
Grootte van die erf	1	2	3	4
Status van woongebied	1	2	3	4
Rasse samestelling van woongebied	1	2	3	4
Enigiets anders wat u dink baie belangrik is en wat nie genoem is nie?				

9. Kan u asseblief vir my 'n aanduiding gee van u gemiddelde huishoudelike inkomste per maand? Is dit?

< R9,999	1
R10,000-R19,999	2
R20,000-R29,999	3
R30,000-R39,999	4
R40,000-R49,999	5
> R50,000	6
Weier	9

Baie Dankie vir u deelname! Geniet u aand!



Questionnaire no.	
M	F

Section 1: household data

10. To which population group do you belong?

White	1
Black	2
Coloured	3
Indian	4
Refused	9

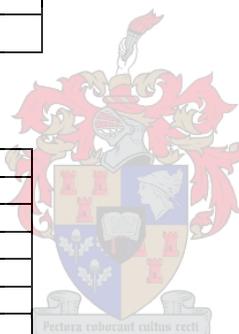
11. How old are you? _____

12. What is the highest level of education you have completed?

Primary school	1
High school	2
Degree/Diploma	3
Post graduate education	4
Refused	9

13. What is your marital status?

4.1 Married	1
4.2 Widowed	2
4.3 Divorced	3
4.4 Separated	4
4.5 Never married	5
4.6 Living together	6
Refused	9



14. (a) Are you currently employed?

Yes	1
No	2

IF NO, GO TO 6.

(b) *IF YES*, what is your current employment? _____

Office use only	
Legislators; senior officials and managers	1
Professionals	2
Technicians and associate professionals	3
Clerks	4
Service workers; shop and market sales workers	5
Skilled agricultural and fishery workers	6
Craft and related trades workers	7
Other	8
Not applicable	9

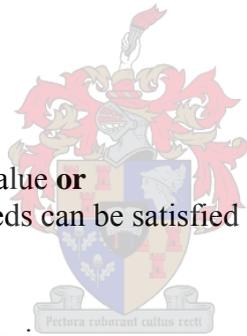
15. (a) How many people are living in the house? _____
 (b) What are their relationships to you?
 (c) Age and gender of the children?

--	--

Wife/husband				
Mother				
Father				
First Child		F	M	Age
Second child		F	M	Age
Third child		F	M	Age
Fourth child		F	M	Age
Fifth child		F	M	Age
Others: specify		F	M	
		F	M	
		F	M	
		F	M	
		F	M	
		F	M	

16. We are interested in the preferences of consumers when making housing choices. I will read descriptions of homes to you and I would like you to make a choice between the two homes in each pair described and indicate whether you choose the first or the second option.

What do you prefer?



7.1.

- E1. A house with good resale value **or**
 P1. A house where personal needs can be satisfied

7.2.

- E2. A house that suits our family income **or**
 P2. A house with plenty of rooms for recreation.

7.3.

- E1. A house with good resale value **or**
 F2. A house that protects the health and safety of the family

7.4.

- E2. A house that suits our income **or**
 F1. A house where family members can spend their time together

7.5.

- E1. A house with good resale value **or**
 S1. A house that you will be proud to have your friends see

7.6

- E2. A house that suits our income **or**
 S2. A house that will help you in your social contacts.

7.7

- P1. A house where personal needs can be satisfied **or**

F1. A house where family members can spend their time together

7.8

P2. A house with plenty of room for recreation **or**

F2. A house that protects the health and safety of the family

7.9

P1. A house where personal needs can be satisfied **or**

S2. A house that will help you in your social contacts.

7.10

P2. A house with plenty of room for recreation **or.**

S1. A house that you will be proud to have your friends see

7.11

F1. A house where family members can spend their time together **or**

S2. A house that will help you in your social contacts.

7.12

F2. A house that protects the health and safety of the family **or**

S1. A house that you will be proud to have your friends see

Section 2 Housing preferences



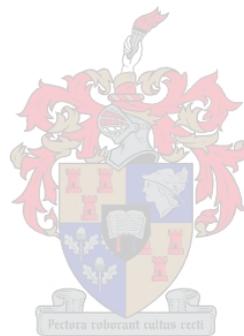
8 How important would each of the following features be in your choice of a new home? Use: **very important, important, unimportant, and very unimportant.**

	Very important	Important	Unimportant	Very unimportant
13.1 Appearance of the house	1	2	3	4
13.2 Number of bedroom	1	2	3	4
13.3 Number of bathroom	1	2	3	4
13.4 Number of living room	1	2	3	4
13.5 Quality of kitchen	1	2	3	4
13.6 Quality of built in cupboards	1	2	3	4
13.7 Study room	1	2	3	4
13.8 Outside room	1	2	3	4
13.9 Established garden	1	2	3	4
13.10 Swimming pool	1	2	3	4
13.11 Air conditioning	1	2	3	4
13.12 Security system	1	2	3	4
13.13 Fireplace	1	2	3	4
13.14 Covered barbeque (braai) area	1	2	3	4
13.15 Handicap accessibility	1	2	3	4
13.16 Overall size of the house	1	2	3	4
13.17 Size of the Garage and parking space	1	2	3	4
13.18 Distance from schools	1	2	3	4
13.19 Distance from shopping	1	2	3	4
13.20 Distance from family or friends	1	2	3	4
13.21 Distance from work	1	2	3	4
13.22 Distance from churches	1	2	3	4
13.23 Nice view	1	2	3	4
13.24 Size of the plot	1	2	3	4
13.25 Neighbourhood status	1	2	3	4
13.26 Racial composition of the neighbourhood	1	2	3	4
13.27 Anything else that you think is very important and that was not mentioned?				

9 Would you please give me an indication of your average household income per month? Is it...

< R9,999	1
R10,000-R19,999	2
R20,000-R29,999	3
R30,000-R39,999	4
R40,000-R49,999	5
> R50,000	6
Refused	9

Thank you so much for your participation. Have a good night!



ADDENDUM C

A MAP OF STELLENBOSCH

