COMPARATIVE ODDS OF VARIABLES CONTRIBUTING TO NON-SUBSIDISED HOMEOWNERSHIP IN SOUTH AFRICA

By

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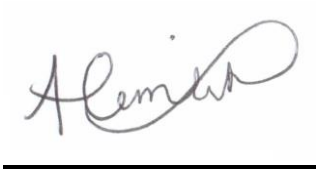
COMPARATIVE ODDS OF VARIABLES CONTRIBUTING TO NON-SUBSIDISED HOMEOWNERSHIP IN SOUTH AFRICA

I declare that the above dissertation/thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.



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04 July 2017
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Ms Antoinette Combrink

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"…Prepare your work without, and make it fit for yourself in the field; and afterwards build your house…" (Proverbs 24:27, Holy Bible: American King James Version).

Owning a home is important, however trust in the Lord to provide your daily bread first.

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ABSTRACT

Homeownership is widely advocated and believed to contribute towards economic activity, employment, wealth creation, economic, political, and neighbourhood stability and financial independence. Despite government's interventions to advance homeownership there is currently a declining trend in homeownership and an increase in renting experienced in South Africa. As the government does not have the resources to provide adequate housing to all South Africans, identifying the factors which attribute to non-subsidised homeownership will assist in implementing interventions and strategies to increase access to non-subsidised homeownership and reduce reliance on government subsidised housing.

The main objective of this study was to determine the comparative odds of variables contributing to non-subsidised homeownership in South Africa from secondary data obtained from a South African household survey. Compared to the heuristic model, the following variables were found to align closely with the expectation created; non-subsidised homeownership attainment was most likely for households within high-income groups and least for households within the low-income groups, more likely for households who have access to credit than those without, more likely for households with no accounts in arrears than those with accounts in arrears, more likely for households with an ability to save than those without, most likely for households consisting of seven or more household members and least likely for single member households, most likely for households where FKP (Financially Knowledgeable Person) has completed a tertiary education level and least likely for households with primary not completed education levels, most likely for households where the FKP is older (aged 65 and older) and least likely for young FKP households (aged between 18 and 24), most likely for households residing in rural areas and least likely for households residing in metropolitan areas, most likely for female FKP households and least likely for male FKP households. Unexpectedly the regression model indicated that non-subsidised homeownership is most likely for households where the Financially Knowledgeable Person (FKP) is not economically active (for example pensioners) and least likely for employed households, most likely for households from the African population group and least likely for Indian households, most likely where the FKP is never married or single and least likely for separated or divorced FKP households (which is expected) and most likely for households residing in Limpopo (which is expected) and least likely for households residing Western Cape.

KEY TERMS

- Tenure status
- Homeownership
- Owner occupancy
- Renting
- Tenancy
- Non-subsidised
- Housing
- South Africa
- Household
- Financial considerations (advantages and disadvantages)
- Non-financial considerations
- Influential factors
- Heuristic model
- Comparative odds

TABLE OF CONTENTS

DECLARATION i
ACKNOWLEDGEMENTS ii
ABSTRACT iii
LIST OF TABLES x
LIST OF FIGURES xi
LIST OF ABBREVIATIONS AND ACRONYMS xv

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION 1
1.2 PROBLEM STATEMENT 2
1.3 BACKGROUND 3
1.4 PURPOSE AND SIGNIFICANCE OF THE STUDY 4
1.5 RESEARCH OBJECTIVES 5
1.5.1 MOST ADVANTAGEOUS TENURE STATUS 6
1.5.2 IDENTIFYING INFLUENTIAL FACTORS AND DEVELOPING THE HEURISTIC MODEL 10
1.5.3 SUITABILITY OF THE DATA SET 12
1.5.4 DATA ANALYSIS 12
1.6 RESEARCH DESIGN AND METHODS 14
1.7 LIMITATIONS OF SCOPE 15
1.8 ETHICAL CONSIDERATIONS 15
1.9 CHAPTER OUTLINE 15

CHAPTER 2

CONTEXTUALISATION OF HOUSING TENURE STATUS

2.1 INTRODUCTION 20
2.2 DEFINING HOUSING TENURE STATUS 21
2.3 HOUSING TENURE STATUS TRENDS 25
2.3.1 MACRO-LEVEL 27
2.3.2 MICRO-LEVEL 29
2.4 SOUTH AFRICAN HOUSING HISTORY AND LEGAL FRAMEWORK 30

2.5 CONSIDERATIONS FOR HOUSING TENURE STATUS 37
2.5.1 FINANCIAL CONSIDERATIONS 38
2.5.1.1 Short-term financial considerations 39
2.5.1.2 Long-term financial considerations 41
2.5.1.3 Practical application 45
2.5.2 NON-FINANCIAL CONSIDERATIONS 75
2.6 CONCLUSION 79

CHAPTER 3

FACTORS INFLUENCING HOMEOWNERSHIP STATUS

3.1 INTRODUCTION 80
3.2 FINANCIAL INFLUENTIAL FACTORS 82
3.2.1 INCOME LEVEL 83
3.2.2 CREDIT RISK 85
3.2.3 SAVINGS ABILITY 86
3.2.4 CONCLUDING REMARKS ON FINANCIAL INFLUENTIAL FACTORS 87
3.3 NON-FINANCIAL INFLUENTIAL FACTORS 88
3.3.1 SOCIO-ECONOMIC DEMOGRAPHICS 89
3.3.1.1 Employment status 89
3.3.1.2 Occupation and skill level 91
3.3.1.3 Education level 93
3.3.1.4 Socio-economic demographics summary 94
3.3.2 LIFE STAGES DEMOGRAPHICS 95
3.3.2.1 Age 96
3.3.2.2 Relationship status 97
3.3.2.3 Family structure 99
3.3.2.4 Life stages demographics summary 101
3.3.3 CULTURAL HERITAGE DEMOGRAPHICS 102
3.3.3.1 Population group 102
3.3.3.2 Location 104
3.3.3.3 Gender 107
3.3.3.4 Cultural heritage demographics summary 109
3.4 CONCLUSION 110

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION 113
4.2 RESEARCH DESIGN 114
4.3 DATA SUITABILITY 114
4.3.1 EVALUATION OF SUITABILITY OF DATA SOURCE 115
4.3.2 SAMPLE DESCRIPTION AND PARAMETER IDENTIFICATION 117
4.3.2.1 Tenure status 120
4.3.2.2 Income level 122
4.3.2.3 Credit risk 124
4.3.2.4 Savings ability 131
4.3.2.5 Employment status 134
4.3.2.6 Education level 136
4.3.2.7 Age 138
4.3.2.8 Relationship status 140
4.3.2.9 Family structure 141
4.3.2.10 Population group 143
4.3.2.11 Location (province and area) 144
4.3.2.12 Gender 147
4.3.2.13 Summary of parameter identifications 149
4.3.3 RELIABILITY AND VALIDITY 149
4.4 DATA ANALYSIS METHODS 150
4.4.1 VISUAL INSPECTION 152
4.4.2 CHI-SQUARE TEST FOR INDEPENDENCE 152
4.4.3 LOGISTIC REGRESSION AND ODDS RATIO 153
4.4.4 SUMMARY OF STATISTICAL METHODS 155
4.5 ETHICAL CLEARANCE 156
4.6 DATA LIMITATIONS 156
4.7 CONCLUSION 157

CHAPTER 5

ANALYSIS OF DATA

5.1 INTRODUCTION 158
5.2 INSPECTION OF POSSIBLE ISOLATED RELATIONSHIPS 159
5.2.1 INCOME LEVEL 160
5.2.2 CREDIT RISK 162
5.2.2.1 Access to credit 163
5.2.2.2 Arrear accounts 164
5.2.3 SAVINGS ABILITY 166
5.2.4 EMPLOYMENT STATUS 168
5.2.5 EDUCATION LEVEL 169
5.2.6 AGE 171
5.2.7 RELATIONSHIP STATUS 173
5.2.8 FAMILY STRUCTURE 175
5.2.9 POPULATION GROUP 177
5.2.10 LOCATION 179
5.2.10.1 Province 180
5.2.10.2 Area 181
5.2.11 GENDER 183
5.2.12 SUMMARY ISOLATED RELATIONSHIPS 184
5.3 REGRESSION MODEL 185
5.3.1 INCOME LEVEL 192
5.3.2 CREDIT RISK 192
5.3.2.1 Access to credit 192
5.3.2.2 Arrear accounts 193
5.3.3 SAVINGS ABILITY 193
5.3.4 EMPLOYMENT STATUS 193
5.3.5 EDUCATION LEVEL 194
5.3.6 AGE 194
5.3.7 RELATIONSHIP STATUS 195
5.3.8 FAMILY STRUCTURE 196
5.3.9 POPULATION GROUP 196
5.3.10 LOCATION 197
5.3.10.1 Province 197

5.3.10.2 Area 197
5.3.11 GENDER 198
5.3.12 COMPARATIVE ODDS OF VARIABLES CONTRIBUTING TO NON-SUBSIDISED HOMEOWNERSHIP IN SOUTH AFRICA 198
5.4 CONCLUSION 202

CHAPTER 6

SUMMARY AND CONCLUSION

6.1 INTRODUCTION 203
6.2 SUMMARY OF KEY FINDINGS 203
6.2.1 MOST ADVANTAGEOUS TENURE STATUS 203
6.2.2 CONSTRUCTING THE HEURISTIC MODEL 206
6.3 LIMITATIONS OF THE STUDY 215
6.4 SUGGESTIONS FOR FUTURE RESEARCH 216
6.5 CONCLUDING REMARKS AND RECOMMENDATIONS 217

REFERENCES 219

LIST OF TABLES

Table 2.1: South African housing legal framework 30
Table 2.2: Programmes, subsidies, finance solutions, and purpose 32
Table 2.3: Strategies, plans, frameworks, institutions, and purpose 35
Table 2.4: General assumptions 48
Table 2.5: Homeownership assumptions 49
Table 2.6: Renting assumptions 52
Table 2.7: Short-term alternative assumptions 61
Table 2.8: Effect of return rate changes on NPEV of renting and optimal tenure status 72
Table 4.1: Unweighted sample distribution based on various demographic factors 117
Table 4.2: Tenure status data coding 120
Table 4.3: Income level data coding 123
Table 4.4: Access to credit variables data coding 125
Table 4.5: New variable: Access to credit data coding 127
Table 4.6: Arrear accounts data coding 129
Table 4.7: New variable: Arrear accounts data coding 130
Table 4.8: Savings ability data coding 132
Table 4.9: New variable: Savings ability data coding 134
Table 4.10: Employment status coding 135
Table 4.11: Education level data coding 137
Table 4.12: Age groups data coding 139
Table 4.13: Relationship status data coding 140
Table 4.14: Family structure data coding 142
Table 4.15: Population group data coding 143
Table 4.16: Province data coding 145
Table 4.17: Area data coding 146
Table 4.18: Gender data coding 148
Table 4.19: Homeownership status data coding 151

Table 5.1: Homeownership status distribution 159
Table 5.2: Income level data recoding 160
Table 5.3: Chi-square test for homeownership status and household income level 162
Table 5.4: Chi-square test for access to credit and homeownership status 164
Table 5.5: Chi-square test for arrear accounts and homeownership status 166
Table 5.6: Chi-square test for savings ability and homeownership status 167
Table 5.7: Chi-square test for employment status and homeownership status 169
Table 5.8: Chi-square test for education level and homeownership status 171
Table 5.9: Chi-square test for age and homeownership status 173
Table 5.10: Chi-square test for relationship status and homeownership status 175
Table 5.11: Chi-square test for family structure and homeownership status 177
Table 5.12: Chi-square test for population group and homeownership status 179
Table 5.13: Chi-square test for province and homeownership status 181
Table 5.14: Chi-square test for area and homeownership status 182
Table 5.15: Chi-square test for gender and homeownership status 184
Table 5.16: Summary of isolated relationships with homeownership status 185
Table 5.17: Classification Table 186
Table 5.18: Categorical variables codings 187
Table 5.19: Regression model results 190

LIST OF FIGURES

Figure 1.1: Summary of purpose of each section in Chapter 1 2
Figure 1.2: Homeownership status attainment or non-attainment 3
Figure 1.3: Considerations (financial and non-financial) summary 7
Figure 1.4: Optimal tenure status per the theoretical financial framework 8
Figure 1.5: Homeownership NPEV equations 9
Figure 1.6: Renting NPEV equations 9
Figure 1.7: Influential factors summary 11
Figure 1.8: Suggested framework for a non-subsidised homeownership

heuristic model 12
Figure 1.9: Summary of main purpose of each chapter 16
Figure 1.10: Summary of purpose of Chapter 1 16
Figure 1.11: Summary of purpose of Chapter 2 17
Figure 1.12: Summary of purpose of Chapter 3 18
Figure 1.13: Summary of purpose of Chapter 4 18
Figure 1.14: Summary of purpose of Chapter 5 19
Figure 1.15: Summary of purpose of Chapter 6 19
Figure 2.1: Summary of purpose of each section in Chapter 2 20
Figure 2.2: Housing tenure status classification evolvement 24
Figure 2.3: South African tenure status trends 26
Figure 2.4: South African RDP houses status trends 26
Figure 2.5: South African tenure status trends per dwelling type 28
Figure 2.6: Financial considerations: short-term and long-term 39
Figure 2.7: Phases determining the optimal financial tenure status 46
Figure 2.8: Optimal tenure status per the theoretical financial framework 47
Figure 2.9: Homeownership NPEV equations 53
Figure 2.10: Homeownership NPEV equation applied to the case study 56
Figure 2.11: Renting NPEV equations 56
Figure 2.12: Renting NPEV equation applied to the case study 59
Figure 2.13: Optimal tenure status of the case study 59
Figure 2.14: Short-term affordability NPEV equation applied to homeowner household 62
Figure 2.15: Short-term affordability NPEV equation applied to renter household 63
Figure 2.16: Optimal short-term tenure decision 64
Figure 2.17: Short-term monthly cash-flow predictability 65
Figure 2.18: Most advantageous based on short-term financial considerations 66
Figure 2.19: Long-term financial considerations sensitivity analysis 67
Figure 2.20: House price depreciation influence on optimal tenure status 69
Figure 2.21: Homeownership status remained optimal despite selling cost 71
Figure 2.22: Renting tenure status becomes optimal at an investment return rate of 19.5% 73
Figure 2.23: Long-term financial critical advantages 74

Figure 2.24: Non-financial considerations 75
Figure 2.25: Most advantageous non-financial considerations 78
Figure 3.1: Summary of purpose of each section in Chapter 3 81
Figure 3.2: Suggested framework for a non-subsidised homeownership heuristic model 81
Figure 3.3: Identified financial influential factors 82
Figure 3.4: Heuristic model categorising financial influential factors 88
Figure 3.5: Identified non-financial influential factors 89
Figure 3.6: Heuristic model categorising socio-economic demographic influential factors 95
Figure 3.7: Heuristic model categorising life stages demographics influential factors 101
Figure 3.8: Census 2011 homeownership and renting distribution per province 106
Figure 3.9: Heuristic model categorising cultural heritage demographics influential factors 109
Figure 3.10: Summary of identified financial and non-financial influential factors 111
Figure 3.11: A South African non-subsidised homeownership heuristic model 112
Figure 4.1: Summary of purpose of each section in Chapter 4 113
Figure 4.2: Suitability of Wave 5 data set 116
Figure 4.3: Data sets comparison of tenure status 121
Figure 4.4: Data sets comparison of total household income level 123
Figure 4.5: Data sets comparison of access to credit 128
Figure 4.6: Wave 5 data set household response to arrear accounts 131
Figure 4.7: Data sets comparison of savings ability 134
Figure 4.8: Data sets comparison of employment status 136
Figure 4.9: Data sets comparison of education level 138
Figure 4.10: Data sets comparison of age groups 139
Figure 4.11: Data sets comparison of relationship status 141
Figure 4.12: Data sets comparison of family structure 142
Figure 4.13: Data sets comparison of population groups 144
Figure 4.14: Data sets comparison of province 145
Figure 4.15: Data sets comparison of area distribution 147
Figure 4.16: Data sets comparison of gender 148

Figure 4.17: Homeownership status attainment or non-attainment 151
Figure 4.18: Summary of main purpose of statistical methods 156
Figure 5.1: Summary of statistical data analysis in Chapter 5 158
Figure 5.2: Homeownership attainment and total household income level visual inspection 161
Figure 5.3: Homeownership attainment and access to credit visual inspection 163
Figure 5.4: Homeownership attainment and accounts in arrears visual inspection 165
Figure 5.5: Homeownership attainment and savings ability visual inspection 167
Figure 5.6: Homeownership attainment and employment status visual inspection 168
Figure 5.7: Homeownership attainment and education level visual inspection 170
Figure 5.8: Homeownership attainment and age visual inspection 172
Figure 5.9: Homeownership attainment and relationship status visual inspection 174
Figure 5.10: Homeownership attainment and family structure visual inspection 176
Figure 5.11: Homeownership attainment and population group visual inspection 178
Figure 5.12: Homeownership attainment and province visual inspection 180
Figure 5.13: Homeownership attainment and area visual inspection 182
Figure 5.14: Homeownership attainment and gender visual inspection 183
Figure 5.15: Comparative odds of variables contributing to non-subsidised homeownership in South Africa 199
Figure 6.1: Summary of concluding phases in Chapter 6 203
Figure 6.2: Optimal tenure status of the case study 204
Figure 6.3: Long-term financial critical advantages 205
Figure 6.4: Most advantageous non-financial considerations 206
Figure 6.5: A South African non-subsidised homeownership heuristic model 207
Figure 6.6: Odds ratios and heuristic model comparison 212

LIST OF ABBREVIATIONS AND ACRONYMS

AMPS	All Media and Products Survey
BMR	Bureau of Market Research
FKP	Financially Knowledgeable Person
GHS	General Household Survey
NCA	National Credit Act
NPC	Net Present Cost
NPEV	Net Present Equity Value
NPV	Net Present Value
QLFS	Quarterly Labour Force Survey
RDP	Reconstruction and Development Programme
SAARF	South African Audience Research Foundation
WACC	Weighted Average Cost of Capital

CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

Homeownership attainment is an ancient aspiration which was recognised by renowned Greek philosopher and scientist Aristotle (Anagnostopoulos, 2013). The reason for homeownership aspiration could be ascribed to the numerous well-documented benefits to the economy, society and households by creating wealth and independence (National Association of Realtors, 2006). Despite the benefits associated with homeownership, a declining homeownership and increasing renting trend is experienced internationally and in South Africa (see Section 2.3).

The South African constitution gives all South Africans the right to adequate housing (South Africa, 2005a). Homeownership is no longer believed to be the only tenure status providing adequate housing. It could be argued that the importance of homeownership benefits have deteriorated or perhaps the adequacy of renting is sufficiently meeting households' housing needs. This study, therefore, compares the advantages and disadvantages of tenure status in a South African context (see Section 2.5). Alternatively, it is argued that households are unable to attain their aspired homeownership status and other factors are influencing their tenure outcome (see Chapter 3). Thus, this study firstly determines if homeownership is still the most advantageous tenure status in South Africa, and secondly it evaluates which factors influence South African non-subsidised homeownership.

This chapter introduces the study, describes the problem statement, purpose and significance of the study, formulates the research objectives and questions, and provides the chapter outline as indicated in Figure 1.1.

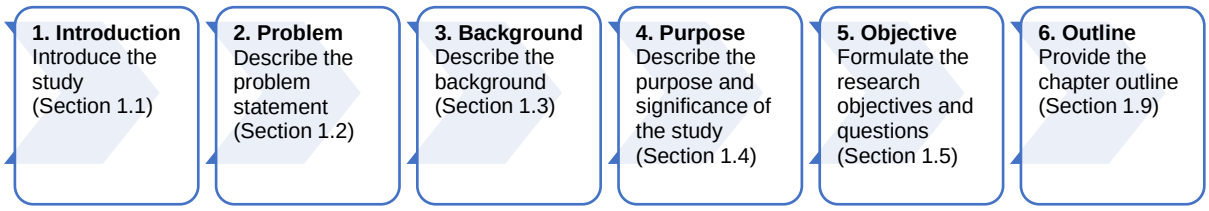

Figure 1.1: Summary of purpose of each section in Chapter 1

1.2 PROBLEM STATEMENT

A multitude of international and local studies found homeownership attainment to contribute towards economic activity, employment, wealth, stability and a higher sense of safety and well-being (Coulson & Fisher, 2002; Hargreaves, 2002; Reed & Greenhalgh, 2002; Dickerson, 2009; Tshitereke, 2009; Turner & Luea, 2009; Grinstein-Weiss, Key, Guo, Yeo & Holub, 2013; Rohe, Van Zandt & McCarthy, 2013; South Africa. Officials of the Presidency and other government departments, 2014; Property24, 2016).

With the declining homeownership trend experienced internationally and in South Africa (see Section 2.3) with an already increasing housing backlog (Aigbavboa & Thwala, 2014), concerns are raised that households will become increasingly reliant on governments to provide subsidised adequate housing. Therefore, the problem statement is that additional pressure will be placed on the South African government's resources to provide subsidised housing. This study will focus on gaining a better understanding of those households who do not qualify for subsidised housing and form part of the housing market and can only choose between homeownership or renting as tenure status (respectively referred to as non-subsidised homeownership and non-subsidised renting). By focussing on non-subsidised homeownership, determining the influential factors this study is able to make recommendations (see Section 6.5) to alleviate some of the potential pressures placed on government housing support as encouraging households to attain non-subsidised housing has macro- and micro-economic growth potential.

1.3 BACKGROUND

As stated before, extensive research has been conducted on tenure status of which homeownership attainment is of interest to researchers and governments worldwide. The reason for their interest could be ascribed to homeownership that is found to contribute to the economy at large by providing households employment, stability, wealth, independence, and other social benefits (National Association of Realtors, 2006; Reed & Mills, 2007; Turner & Luea, 2009; Grinstein-Weiss *et al.,* 2013; Rohe *et al.,* 2013). Figure 1.2 illustrates how non-subsidised homeownership attainment is determined from the housing tenure status options with more detail provided in Section 4.4

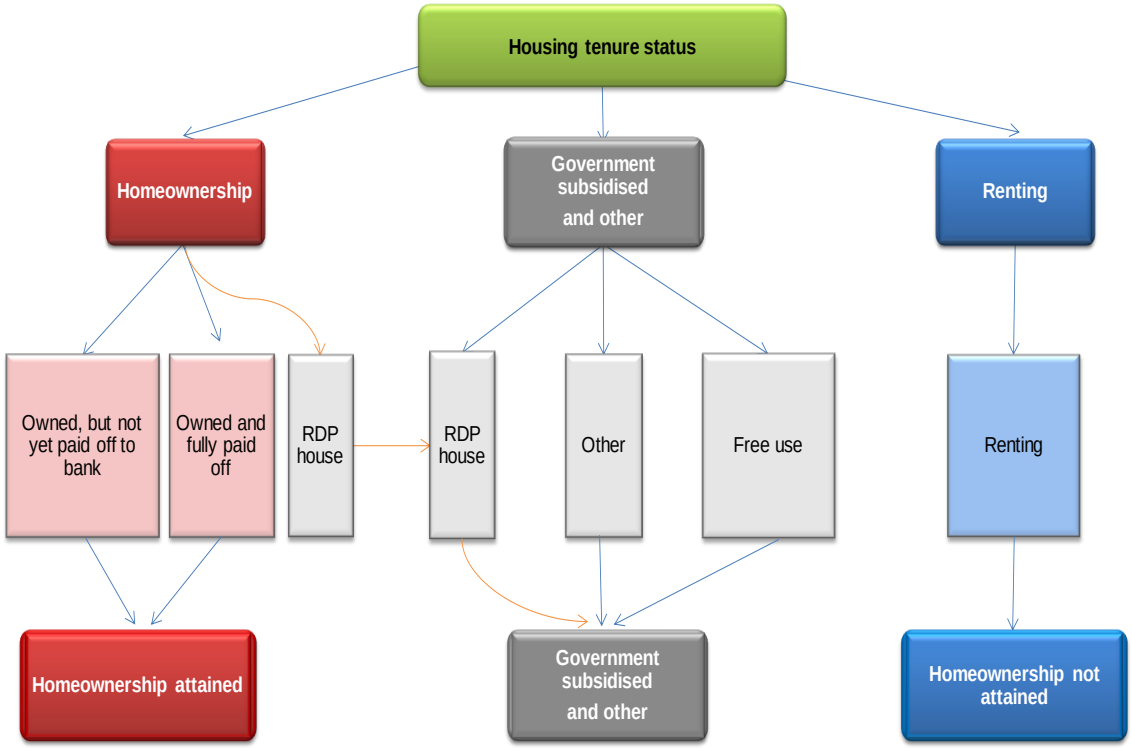

Figure 1.2: Homeownership status attainment or non-attainment

Source: Author

Since the implementation of the South African Constitution in 1996, various government subsidies have been implemented to increase adequate housing, especially through homeownership for all South Africans (see Section 2.4). However, due to a lack of resources, an increasing housing backlog is experienced. As in several other countries, despite its advantages homeownership attainment is declining in South Africa (see Section 2.3). The reduction on homeownership could indicate a reduction in wealth accumulation, resulting in increased levels of poverty which has significant implications for the government's support, social and economic programmes (Reed & Greenhalgh, 2002; Coulson & Fisher, 2009; Carter, 2011).

Aiming to alleviate government support and empower households to become independent of government support by making the optimal tenure status decisions, this study focusses on non-subsidised homeownership. Benefiting South African households, the literature review firstly identifies the financial and non-financial considerations (advantages and disadvantages) associated with homeownership and renting from an international and national perspective. This enables households to make an informed tenure decision based on all the considerations applicable to their household. The literature review secondly identifies financial and non-financial factors which are anticipated to influence the households' non-subsidised homeownership outcome, irrespective of their tenure status preference. The analysis of these factors and the interpretation of the logistic regression and odds ratios determine the odds of variables contributing to non-subsidised homeownership in South Africa. This study aims to benefit the South African government and policy makers by providing insight on which household attributes to focus on to increase non-subsidised homeownership and provide adequate housing for all.

1.4 PURPOSE AND SIGNIFICANCE OF THE STUDY

To alleviate poverty and the strain on government housing subsidy schemes creates a great need for updated research into factors influencing non-subsidised homeownership in South Africa. Although research has been conducted on South African housing (including homeownership), no recent study has been performed distinguishing between subsidised and non-subsidised homeownership to this extent. This study, therefore, focuses predominantly on non-subsidised homeownership in

South Africa. The research results provide insight to regulatory bodies such as the Department of Human settlements, and the National Housing Finance Corporation. It also allows for policy and strategy inclusion in the Integrated Urban Development Framework and Breaking New Ground (a comprehensive plan for the development of sustainable human settlements). With these insights, the government can realistically assess and assist South African households in attaining homeownership and gaining financial independence. These insights will allow the South African government to make well-founded and informed decisions, possibly introducing and expanding on policies to encourage non-subsidised homeownership.

It is further critical for information to be disseminated to individuals, or households where they can make informed tenure decisions and fully comprehend the long-term implications of their tenure decision. Despite the advantages associated with homeownership, it should be encouraged with caution as not all households will be able to afford homeownership in the long-term, which will have a negative influence on the household and society at large (Rohe *et al.,* 2013). This can be done by educating households about the financial and non-financial considerations (advantages and disadvantages) of each tenure status and providing them with the necessary tools to make sound tenure status decisions. An example of such a tool is the practical case study which is applied in Chapter 2 (see Section 2.5.1.3). Households should be educated how to apply such a tool to their own unique circumstances and assumptions to determine their optimal tenure status.

1.5 RESEARCH OBJECTIVES

The main research objective of this study is to:

Determine the comparative odds of variables contributing to non-subsidised homeownership in South Africa.

In order to achieve the main research objective, the following research question is formulated:

What are the comparative odds of variables contributing to non-subsidised homeownership attainment in South Africa?

To answer the research question, several sub-questions are formulated which are now discussed in turn.

1.5.1 Most advantageous tenure status

First, sub-research objective 1 is established to:

Determine the optimal tenure status (homeownership or rent) for South African households.

In order to achieve sub-research objective 1, the following sub-question is formulated:

Sub-question 1:
Which is the most advantageous tenure status (homeownership or rent) for South African households?

The answer to this sub-research question is determined in Chapter 2. First a literature review determines the financial and non-financial considerations (advantages and disadvantages) of each tenure status, and then a South African practical (financial) case study is applied to determine the optimal tenure status. The considerations identified from the literature review in Chapter 2 (see Section 2.5) are summarised in Figure 1.3.

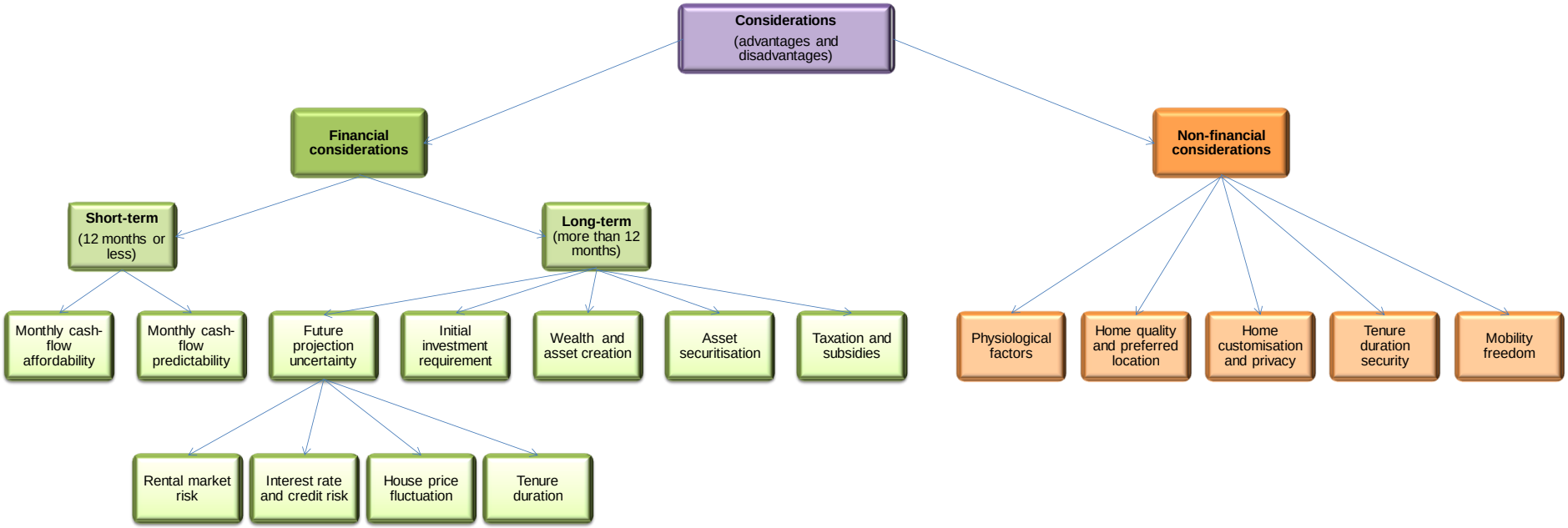

Figure 1.3: Considerations (financial and non-financial) summary

Source: Author

Considerations are primarily categorised between financial and non-financial considerations. The most advantageous tenure status is determined through a South African practical application (see Section 2.5.1.3), and to determine the optimal tenure status requires the establishment of a theoretical framework as illustrated in Figure 1.4.

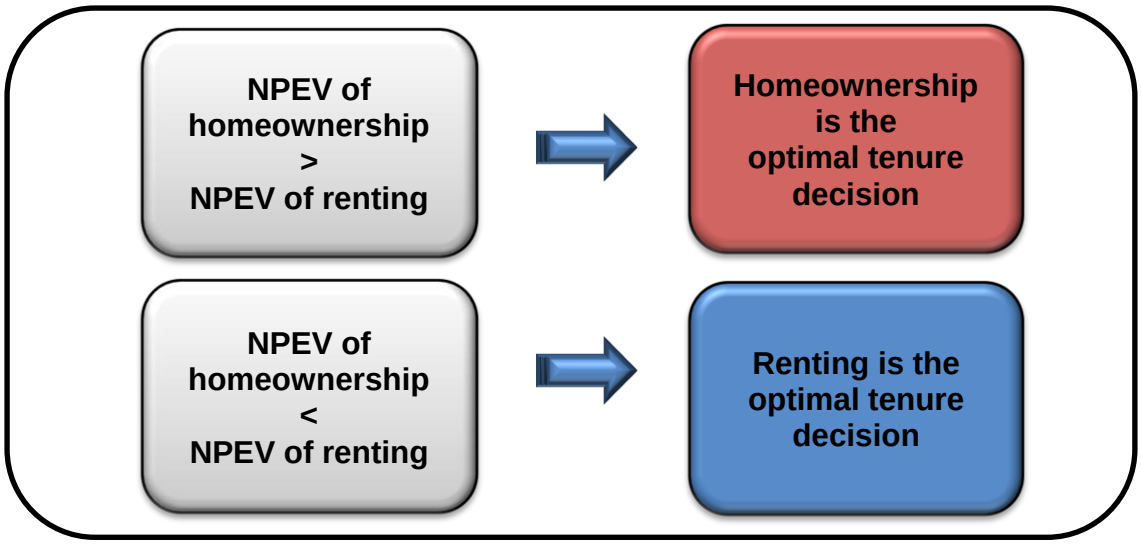

Figure 1.4: Optimal tenure status per the theoretical financial framework

Source: Author

The optimal tenure status is determined by comparing the Net Present Equity Value (NPEV) of homeownership with that of renting, based on the case study. The tenure status with the highest NPEV will determine the optimal tenure status. Determining the NPEV consists of Net Present Value (NPV) of assets less Net Present Cost (NPC) of liabilities of each tenure status (see Section 2.5.1.3). The homeownership NPEV calculation method is illustrated in Figure 1.5.

The NPV of the asset consists of the house price discounted at the Weighted Average Cost of Capital (WACC). The NPC of liabilities consists of mortgage associated cash-flows (discounted at finance rate) plus homeownership associated cash-flows (discounted at WACC).

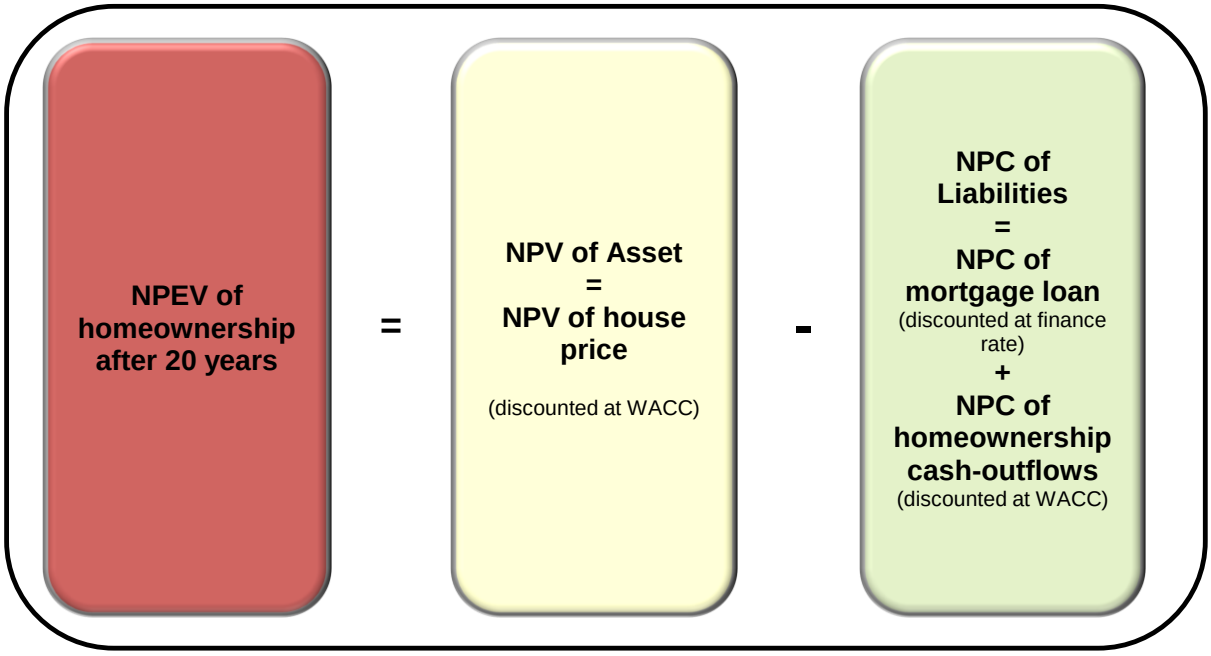

Figure 1.5: Homeownership NPEV equations

Source: Author

Figure 1.6 illustrates the renting NPEV equations (see Section 2.5.1.3).

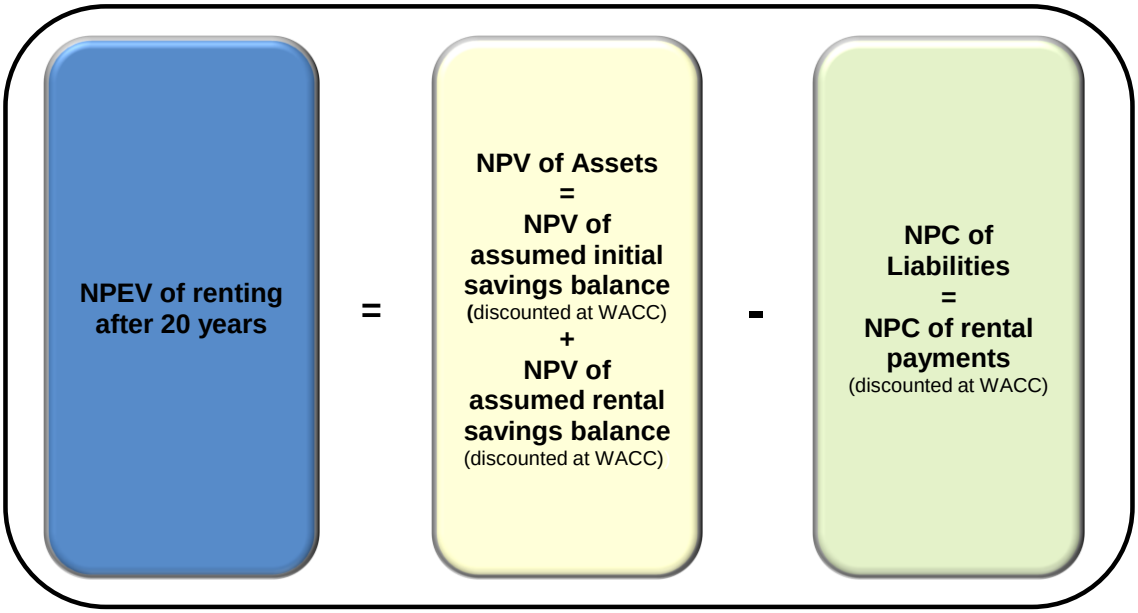

Figure 1.6: Renting NPEV equations

Source: Author

Determining the NPEV of renting consists of the NPV of assets which is the sum of the assumed initial savings balance plus the assumed rental savings balance, both discounted at WACC. The NPC of liabilities consists of the NPC of rent also discounted at WACC. By utilising the theoretical financial framework and applying the NPEV equations, the most financially advantageous tenure status is determined. Determining the most advantageous non-financial tenure status is more subjective, as discussed in Chapter 2 (see Section 2.5.2).

1.5.2 Identifying influential factors and developing the heuristic model

Secondly, it is necessary to establish sub-research objective 2:

Develop a South African non-subsidised homeownership heuristic model based on the most prevalent factors identified from a literature review.

In order to achieve sub-research objective 2, the following sub-question is formulated:

Sub-question 2: Which identified financial and non-financial influential factors are expected to influence the non-subsidised homeownership outcome?

The answer of sub-research question is answered by developing a South African non-subsidised homeownership heuristic model based on the most prevalent factors identified from a literature review (see Section 3.4). The factors identified from the literature are summarised in Figure 1.7.

Influential factors are primarily categorised as financial and non-financial influential factors. The identified influential factors are used to develop a heuristic model which anticipates the non-subsidised homeownership outcome per influential factor of South African households. The intricate relationships between the financial and non-financial influential factors are included in the heuristic model (which distinguishes between underlying, non-proximate, and proximate influential factors).

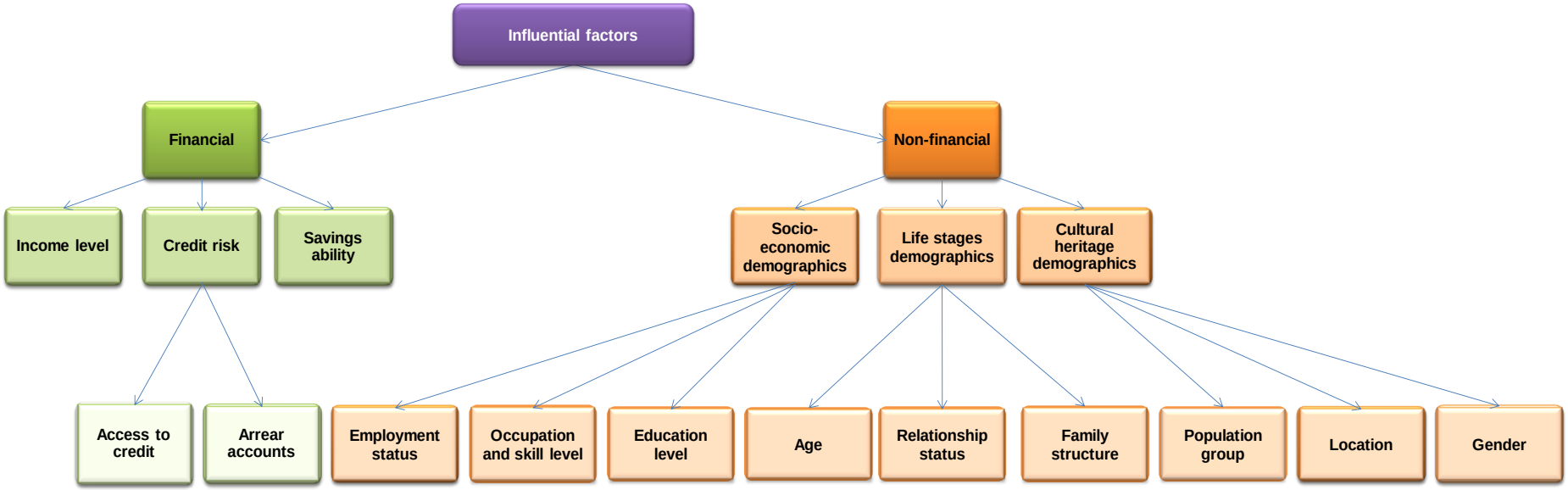

Figure 1.7: Influential factors summary

Source: Author

The suggested framework for the non-subsidised homeownership heuristic model derived from influential factors is illustrated in Figure 1.8.

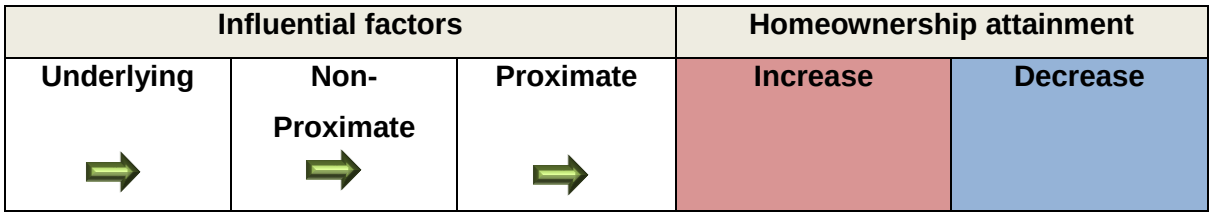

Figure 1.8: Suggested framework for a non-subsidised homeownership heuristic model

Source: Author

1.5.3 Suitability of the data set

After developing the heuristic model it is necessary to establish sub-research objective 3:

Determine the suitability of the Wave 5 household survey data set for the purpose of this study

In order to achieve sub-research objective 3, the following sub-question is formulated:

Sub-question 3: Is the Wave 5 household survey data set suitable, reliable, and valid for the purpose of this study?

This sub-research question is answered in Chapter 4 by comparing the Wave 5 survey questions to the financial and non-financial factors identified per the heuristic model. The Wave 5 data set is further compared to other data sets to determine national representation, reliability and validity (see Section 4.3).

1.5.4 Data analysis

The data analysis is performed in Chapter 5 determining two sub-research objectives. The first data analysis sub-research objective 4 is established as follows:

Determine which identified influential factors indicate an isolated relationship with non-subsidised homeownership in South Africa.

To achieve sub-research objective 4, the following sub-question is formulated:

Sub-question 4: Which identified influential factors indicate isolated relationships with non-subsidised homeownership in South Africa?

This sub-research question is firstly illustrated through visual inspection. Secondly, Pearson's Chi-square determines the significance of the isolated relationships between each of the influential factors and non-subsidised homeownership status as screening test.

Only after determining the isolated statistically significant relationships per sub-research objective 4, can the combined statistically significant relationship be determined. Therefore, the second data analysis sub-research objective 5 is established as follows:

Determine which influential factors have a significant influence on non-subsidised homeownership in South Africa when taking other identified factors into consideration.

To achieve sub-research objective 5, the following sub-question is formulated:

Sub-question 5: Which identified influential factors have a significant influence on non-subsidised homeownership in South Africa when taking other identified factors into consideration?

This sub-research question is answered by performing a binary logistic regression, which includes odds ratios.

The interpretation of the logistic regression, including comparative odds ratios, answers the main research question:

What are the comparative odds of variables contributing to non-subsidised homeownership attainment in South Africa?

The main research question is answered in Chapter 5 by interpreting the significance and the odds ratios of the logistic regression, which indicates likelihood of each of the variables contributing to non-subsidised homeownership in South Africa.

1.6 RESEARCH DESIGN AND METHODS

This study consists of two key phases. A literature review is performed in the first key phase. The literature review answers the first two sub-research questions. Chapter 2 addresses the first sub-research question by determining the most advantageous tenure status from a South African context. The second sub-research question identifies the financial and non-financial influential factors expected to influence non-subsidised homeownership outcome. From this literature review a heuristic model of non-subsidised homeownership in South Africa is developed (see Chapter 3).

The second key phase in achieving the main research objective is done by performing quantitative research methods. This study analyses the secondary Wave 5 data obtained by the Momentum/UNISA South African Households' Financial Wellness Survey for the year 2015. The data from the Wave 5 data set relating to non-subsidised homeownership status, as well as financial and non-financial influential factors, is extracted. The research design and methods, namely the research design, and data suitability, is discussed in Chapter 4. Determining the data suitability answers the third sub-research question (see Section 4.3). In Chapter 5 the statistical data analysis is performed identifying isolated statistically significant relationships between identified influential factors and non-subsidised homeownership status, and determining the influence of identified factors on non-subsidised homeownership in South Africa when all identified factors are taken account of. The influence of identified factors is analysed by utilising a logistic regression to determine the South African households' non-subsidised homeownership attainment. Subsequently an analysis of odds ratios per

variable found to contribute to non-subsidised home-ownership answers the main research question: What are the comparative odds of variables contributing to non-subsidised homeownership attainment in South Africa?

1.7 LIMITATIONS OF SCOPE

This study identifies four data limitations, namely: self-reporting, inaccessibility to high-income FKP households, expansive literature availability, and a lack of identified factors contained in the secondary data (see Section 6.3).

1.8 ETHICAL CONSIDERATIONS

Ethical clearance was obtained to perform the Momentum/UNISA South African Households' Financial Wellness Survey for the year 2015 (Wave 5) prior to conducting the survey in accordance with UNISA's Policy on Research Ethics and other research policies. The secondary data from Wave 5 was provided to the researcher after approval in compliance with the UNISA Policy on Research Ethics by the College of Accounting Science Research Ethics Committee was received (see Section 4.5).

1.9 CHAPTER OUTLINE

This study consists of six chapters, namely: Introduction, Contextualisation of housing tenure status, Factors influencing homeownership status, Research design and methodology, Analysis of data, and Summary and conclusion. The main purpose of each chapter is illustrated in Figure 1.9.

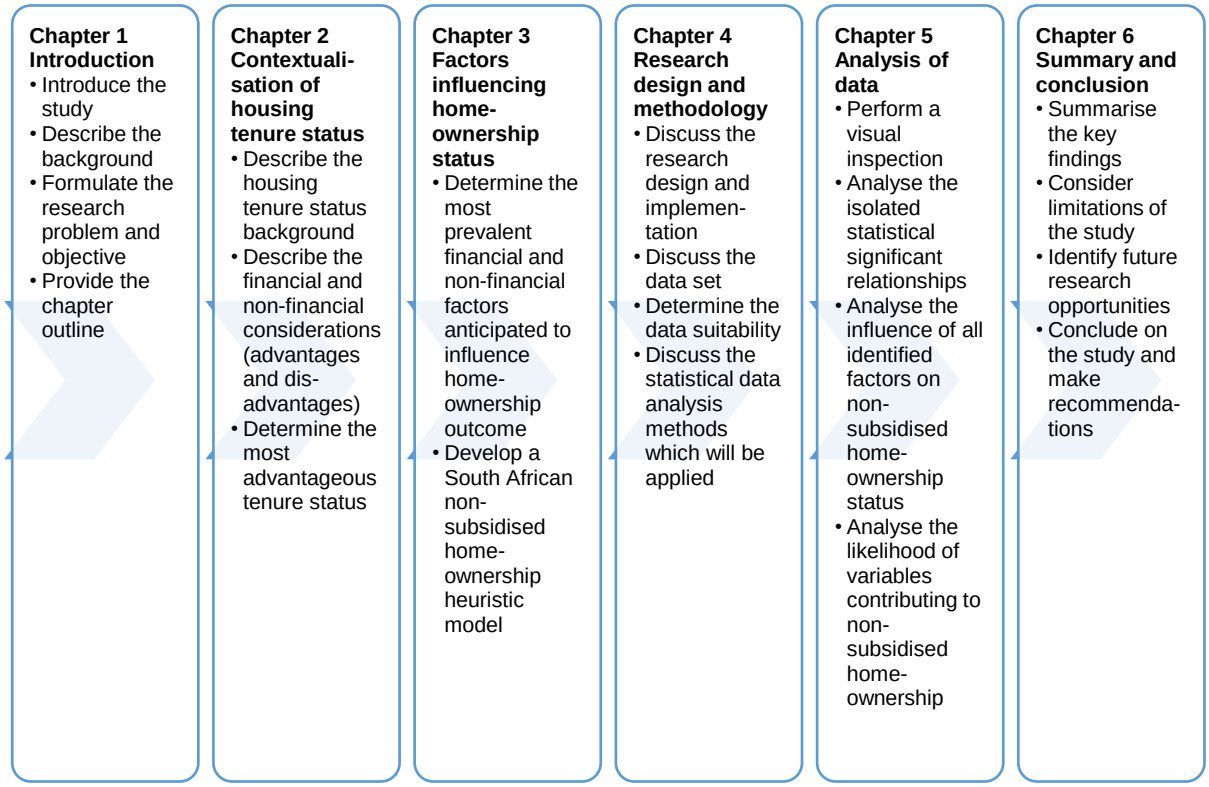

Figure 1.9: Summary of main purpose of each chapter

CHAPTER 1: INTRODUCTION

In this chapter the study is introduced, and the problem statement, background, purpose and significance of the study are described. The research objectives and research questions are formulated, and finally, the chapter layout is provided in this section. Figure 1.10 illustrates the primary purpose of Chapter 1.

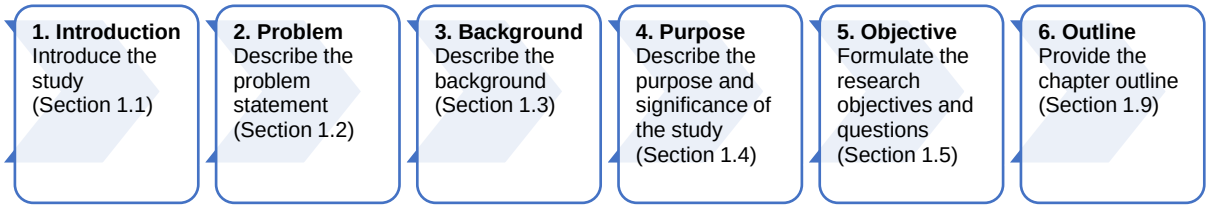

Figure 1.10: Summary of purpose of Chapter 1

CHAPTER 2: CONTEXTUALISATION OF HOUSING TENURE STATUS

The literature of this study is reviewed in Chapters 2 and 3. Chapter 2 will contextualise housing tenure status which requires two phases. The housing tenure status background is firstly provided. In this phase 'tenure status' is defined, changes in tenure status trends are discussed, as well as the South African housing history and legal framework are provided. The second phase identifies financial and non-financial considerations (advantages and disadvantages) associated with homeownership and renting. In this phase, a South African practical application of financial considerations is performed in an effort to determine the impact of considerations in a South African context. Figure 1.11 illustrates the main purpose of Chapter 2.

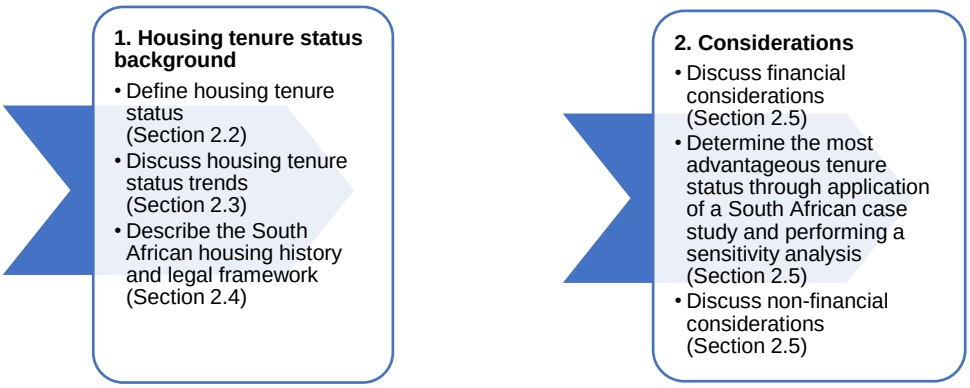

Figure 1.11: Summary of purpose of Chapter 2

CHAPTER 3: FACTORS INFLUENCING HOMEOWNERSHIP STATUS

The second part of the literature review is done in Chapter 3. This chapter identifies financial and non-financial influential factors expected to influence homeownership outcomes. From this literature review a South African non-subsidised homeownership heuristic model, based on the most prevalent financial and non-financial factors, is developed. Figure 1.12 illustrates the main purpose of Chapter 3.

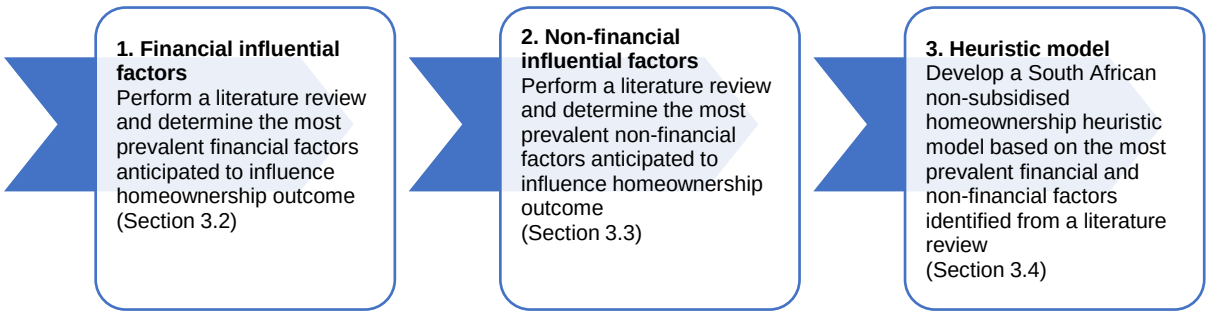

Figure 1.12: Summary of purpose of Chapter 3

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

Chapter 4 consists of three phases, namely: research design, data suitability, and data analysis methods. The first phase discusses the research paradigm and implementation of quantitative secondary data analysis to the Wave 5 data. The second phase determines the suitability of the Wave 5 data. Finally, the statistical methods used to analyse the Wave 5 data in Chapter 5 are discussed. Figure 1.13 illustrates the main purpose of Chapter 4.

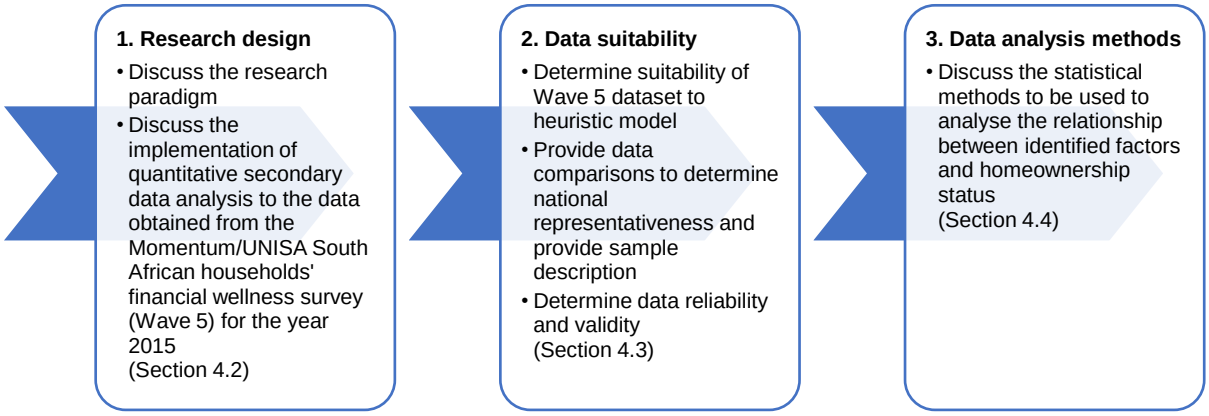

Figure 1.13: Summary of purpose of Chapter 4

CHAPTER 5: ANALYSIS OF DATA

Chapter 5 consists of three main phases. The first two phases – visual inspection and Pearson's Chi-square – determine if an isolated relationship appears between non-subsidised homeownership status and each of the influential factors. The third phase

determines if a significant relationship between non-subsidised homeownership and all identified influential factors exist when all identified factors are taken account of.

Finally, in answer to the main research question, an odds ratio analysis is performed to determine the comparative odds of variables contributing to non-subsidised homeownership attainment in South Africa. Figure 1.14 illustrates the main purpose of Chapter 5.

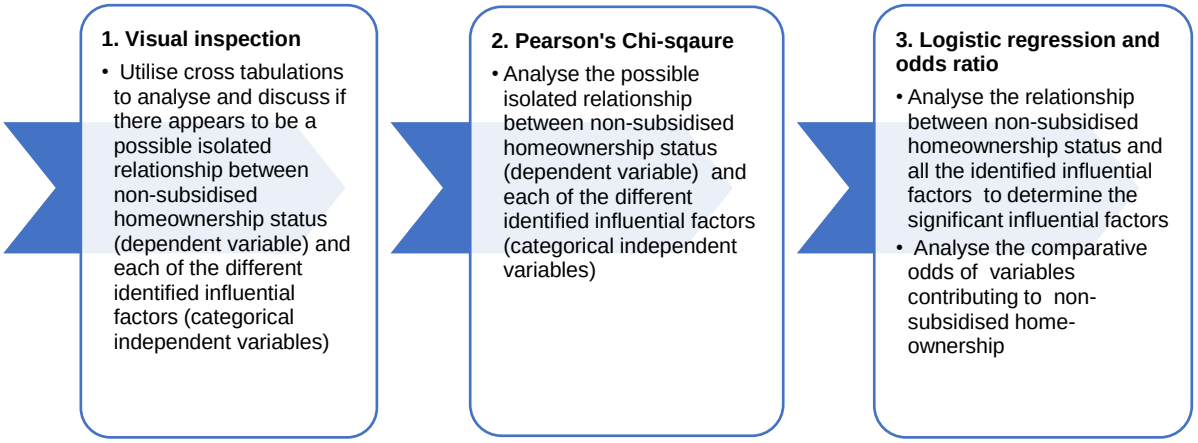

Figure 1.14: Summary of purpose of Chapter 5

CHAPTER 6: SUMMARY AND CONCLUSION

This chapter summarises the key findings, considers limitations to the study, identifies future research opportunities, concludes on the research and makes recommendations. Figure 1.15 illustrates the main purpose of Chapter 6.

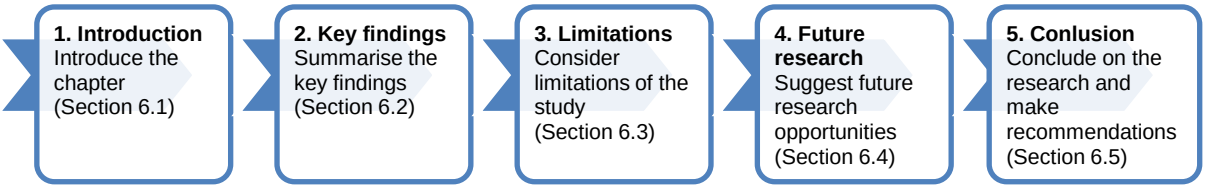

Figure 1.15: Summary of purpose of Chapter 6

CHAPTER 2
CONTEXTUALISATION OF HOUSING TENURE STATUS

2.1 INTRODUCTION

Housing tenure status was traditionally and is predominantly classified as either homeownership (sometimes referred to as owner occupancy) or rent (sometimes referred to as tenancy) (Boehm, 1981; Ellaway & Macintyre, 1998; Diaz, 2009; Gonzales, 2010). The main research objective of this study is to:

Determine the comparative odds of variables contributing to non-subsidised homeownership in South Africa.

To achieve this objective, the South African housing tenure status is contextualised in this chapter through multiple phases. In this chapter the first phase of contextualisation will define 'housing tenure status', followed by an overview of international and South African tenure status trends. Thereafter, the South African housing history and legal framework will be described. The second phase will discuss financial considerations (advantages and disadvantages) whilst determining the most advantageous tenure status through the application of a South African case study and performing a sensitivity analysis, before non-financial considerations (advantages and disadvantages) will be discussed. Figure 2.1 illustrates the purpose of each section in this chapter.

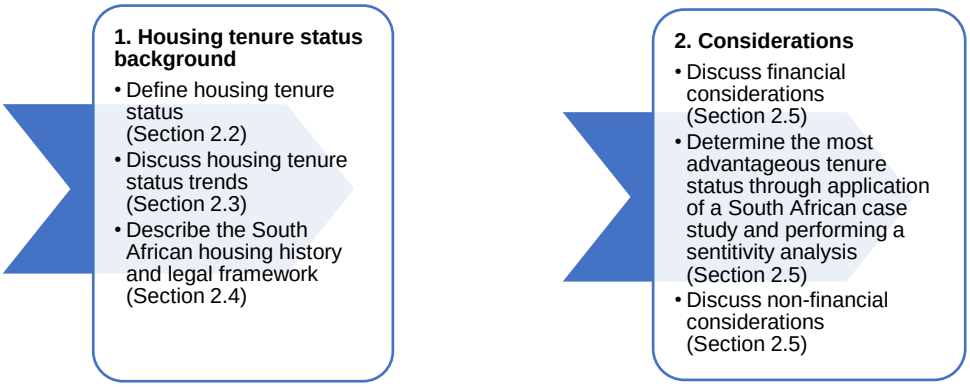

Figure 2.1: Summary of purpose of each section in Chapter 2

Chapter 3 will conclude the literature review by developing a heuristic model based on the housing tenure status influential factors identified from international literature and the South African context. The first phase of the housing tenure status background, defining housing tenure status, will be discussed in the following section.

2.2 DEFINING HOUSING TENURE STATUS

As part of the contextualisation of the study it is essential to define the concept of 'housing tenure status'. In this section, the various definitions that exist in relation to housing tenure status are analysed. As no generally accepted definition for 'housing tenure' exists in the dictionary (Oxford or Cambridge), it necessitated an analysis of each of the two components of the definition, namely 'housing' and 'tenure' (Barlow & Duncan, 2007).

The Oxford Dictionaries (2015b) defines the first of these terms - 'housing' - as "…Houses and flats considered collectively…the provision of accommodation…" or the Cambridge Dictionaries Online (2015b) as "…buildings for people to live in…". These dictionaries further define the second term 'tenure' as "…The conditions under which land or buildings are held or occupied…" (Oxford Dictionaries, 2015e) or as "…being the legal *owner* of land, … or the period of time during which you own it…" (Cambridge Dictionaries Online, 2015e). In South Africa, Statistics South Africa (2010a) defines 'tenure' as "arrangement under which a household occupies its dwelling". Based on a combined analysis of the dictionary definitions and limited previous studies, it is submitted that for purposes of the current study 'housing tenure' is defined as:

> *"the legal status or right under which accommodation is held or occupied"* (Statistics South Africa, 2010a; Gonzales, 2010; Diaz, 2009).

Studies classify the third term 'status' predominantly as either homeownership or rent (Boehm, 1981; Ellaway & Macintyre, 1998; Diaz, 2009; Gonzales, 2010). The first tenure status classification, namely 'homeownership', is not defined in the dictionary (Oxford, or Cambridge). However, it consists of a combination of two concepts 'home' and 'ownership'. The dictionary defines 'home' as "…the place where one lives

permanently, especially as a member of a family or household… the family or social unit occupying a permanent residence… a house or flat …" (Oxford Dictionaries, 2015a) or as "…the house, apartment, etc. where you live, especially with your family…" or as "…a house, apartment, etc. when it is a property that you can buy or sell…" (Cambridge Dictionaries Online, 2015a) and 'ownership' as "…the act, state, or right of possessing something…" (Oxford Dictionaries, 2015c) or as "the fact that you own something…" (Cambridge Dictionaries Online, 2015c). For the purposes of the current study 'homeownership' is defined as:

"the legal right (or status) whereby a residence is owned".

The dictionary defines the second tenure status classification, namely 'rent', as "…a fixed amount of money that you pay regularly for the use of a room, house, car, television, etc. that someone else owns…" (Cambridge Dictionaries Online, 2015d) or as "…a tenant's regular payment to a landlord for the use of property or land…" (Oxford Dictionaries, 2015d). Statistics South Africa (2010a) defines 'rent' as "payment for use of property of another as living quarters" (Statistics South Africa, 2010a). The current study similarly defines 'rent' as:

"the tenant's right to occupy a residence in exchange for payment without obtaining legal ownership rights (or status)".

Another issue complicating the housing tenure status debate is the fact that internationally it was found that classifying tenure status as either homeownership or rent (see Section 2.2) was often unclear as tenure status is found to be complex and varied between countries and legal systems (Ruonavaara, 1993; Barlow & Duncan, 2007; Australian Bureau of Statistics, 2012). This complex tenure status classification conundrum includes, amongst others, housing cooperatives, condominiums, public housing, squatting, co-housing, property under a rent-buy scheme, property occupied rent free, and property occupied under a life tenure scheme (Barlow & Duncan, 2007; Gonzales, 2010).

In South Africa the same classification conundrum is experienced. In an effort to obtain more insight into the housing market, Statistics South Africa evolved tenure status classification from the two main tenure status classifications, Homeownership and Rent, firstly into six tenure status classifications per the 2002 to 2008 General Household Survey. These were then reclassified and merged into eight tenure status classifications from 2009 to the current General Household Survey. The Wave 5 study contained six tenure status categories namely; Owned not fully paid off, Owned and fully paid off, Reconstruction and Development Programme (RDP) house, Other, Free use, and Rented. Although Statistics South Africa commenced RDP houses data collection since 2009, this form of fully paid off homeownership classification was not treated as an individual tenure status category. However, the Wave 5 survey does classify RDP house as a separate tenure status category as illustrated in Figure 2.2.

Statistics South Africa (2010a) defines a RDP house as a "house that was constructed for households with low income through the Reconstruction and Development Programme". Despite RDP housing being classified as homeownership, it is government subsidised and thus aimed at low, vulnerable income households unable to otherwise participate in the housing market. It therefore associates closer with the free use and other tenure categories. Although owners of RDP houses become the legal owners of the house as a title deed is transferred, classifying a RDP house as a tenure status category is complex. Some RDP house ownership classification complications include that it may not be sold for eight years; there is a delay in receiving title deeds; improper registration restricting its transfer; death of beneficiaries before title deed has transferred; and extended repayment terms between private sellers. Another RDP house complication is that it cannot serve as collateral without the title deed (Crown Publications, 2016). In this study, there will be a distinction between homeownership status and RDP house ownership status due to the subsidising effect. This distinction will allow further insight into the South African housing market. There are also other complex classifications which were not distinguished as separate tenure statuses in this study.

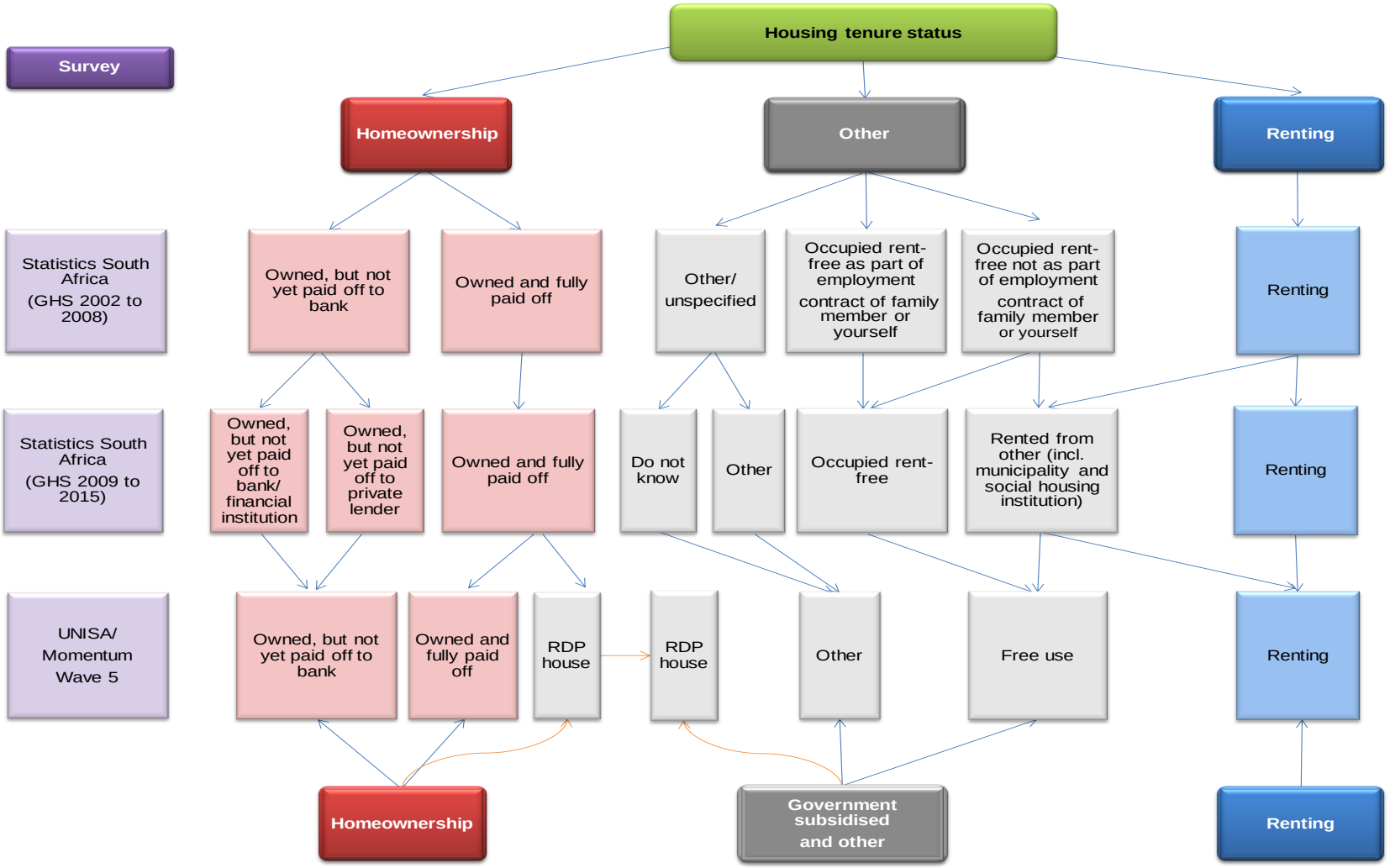

Figure 2.2: Housing tenure status classification evolvement

Source: Author

One such complex classification is sectional titles which include ownership of the interior of the house, but excludes the exterior structures which are collectively owned by the body corporate. Also, share blocks where a company owns the building and the purchaser obtains shares in the company and user rights to occupy the unit. A complex renting example is the 99-year lease of land where ownership of the building or land never transfers (SA Home loans, 2014). After illustrating the main housing tenure status classifications in Figure 2.2, the next section will provide further insight into the housing tenure status background by discussing international and South African housing tenure status trends.

2.3 HOUSING TENURE STATUS TRENDS

In various countries the homeownership ideology (namely to own your home) remains an important dream with authors often referring to this dream as the Australian, the American, the Japanese, and the Chinese Dream, or as the British Property Owning Democracy (Dickerson, 2009; Turner & Luea, 2009; Ball, 2010; Carter, 2011; Aigbavboa & Thwala, 2014; Barth, Levine & Sau, 2015; Forrest & Hirayama, 2015; Huang, Du & Yu, 2015). Despite households' dreams of attaining homeownership status, in reality this dream is diminishing for many households. Instead, a declining homeownership status and an increasing renting trend is emerging internationally and in South Africa (Reed & Greenhalgh, 2002; Sewnunan & Green, 2015).

In support of the recent literature, a data comparison of Statistics South Africa general household survey data over a 14 year period (2002 to 2015) found that renting status has increased by 9 percentage points over time (from 19% in 2002 to 28% in 2015), and homeownership attainment has decreased by 12 percentage points (from 68% in 2002 to 56% in 2015). Free use and other increased by two percentage points and one percentage point respectively over the 14-year period. This phenomenon is visually illustrated in Figure 2.3**.**

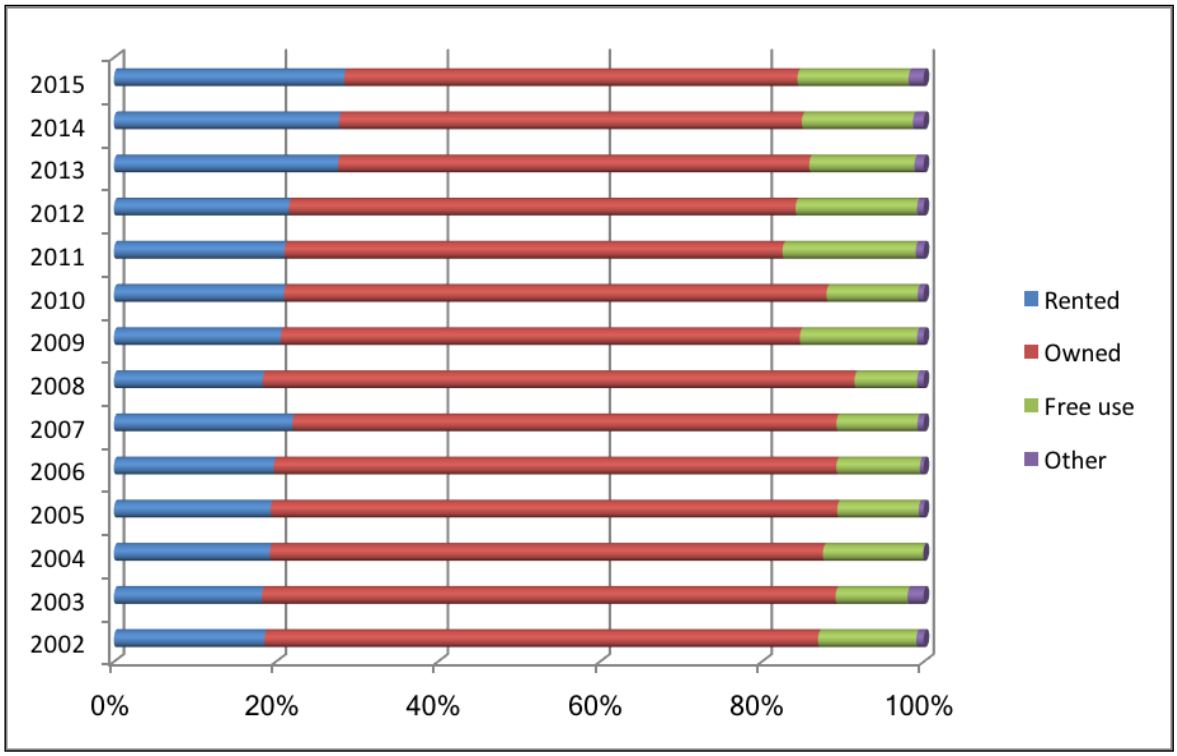

Figure 2.3: South African tenure status trends

Source: Statistics South Africa (2002 - 2015); Author

The classification conundrum of RDP housing, which has not been dealt with separately in Figure 2.3, complicates the above tenure status trend analysis. An overall increasing RDP houses trend was experienced from 2009 to 2015 as indicated in Figure 2.4.

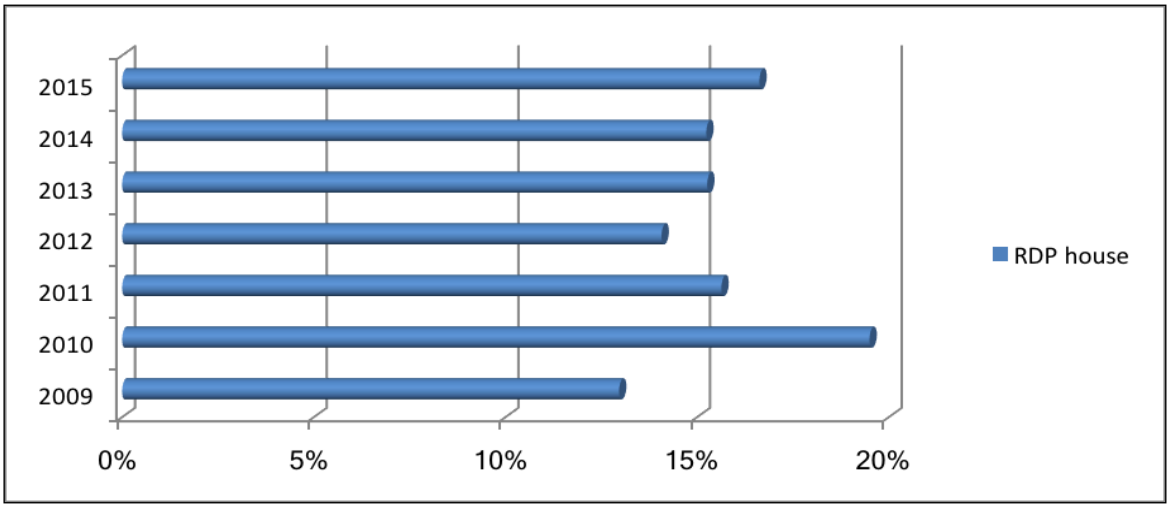

Figure 2.4: South African RDP houses status trends

Source: Statistics South Africa (2002 - 2015); Author

A change in tenure status trend is apparent in South Africa and reasons for the change will be investigated on macro- and micro- (household) levels hereafter.

2.3.1 Macro-level

On a macro-economic level, the international and South African economy and housing market experienced turmoil (Drew, 2015; Lennartz, Arundel & Ronald, 2015). In South Africa, homeownership was initially found attractive and increased by five percentage points from 2002 to 2008. After the 2008 global financial crisis, obtaining finance during the "credit crunch" restricted access to the housing market for many, and a substantial declining homeownership trend of 17 percentage points was experienced from 2008 to 2015 (see Figure 2.3). Subsequent to the credit crunch, renting increased by 10 percentage points (from 2008 to 2015) (see Figure 2.3). Marais and Cloete (2015) ascribes this trend shift to rising unemployment, causing many South Africans to either redeem their mortgages or revert from homeownership to renting. Combined with high unemployment rates, increasing debt levels and poor savings ability, housing affordability is deteriorating for South African households (Le Roux, 2015; Statistics South Africa, 2016d).

When the decline in South African homeownership status (which consists of owned and fully paid off and owned not fully paid off) is analysed further, the largest decrease is due to the eight percentage point decline in the owned but not fully paid off category (from 2002 to 2015). This is mainly as a result of the mortgage restricting criteria implemented by the National Credit Act (NCA) (Cloete, 2013). In addition, the owned and fully paid off category also decreased by four percentage points from 2002 to 2015 (Statistics South Africa, 2016b; Statistics South Africa, 2016c). Increased urbanisation, where households moved to larger cities, has also led to households living in areas where they are unable to afford homeownership. Therefore, renting has increased as an affordable alternative (Statistics South Africa, 2016d).

In some countries where the rental market is well-developed, renting is an acceptable alternative (Elsinga & Hoekstra, 2005). This shift has led to the traditional homeownership dream diminishing with renting becoming an acceptable tenure status, and sometimes even the preferred alternative (Reed & Greenhalgh, 2002;

Ball, 2010; Chan, 2014; Herbers, Mulder & Mòdenes, 2014; Loos, 2016). Similar to other countries, South Africa has experienced an increasing renting trend. From 2008 to 2015 the rental market has increased by 10 percentage points (see Figure 2.3). This is most likely the result of South African households' high debt levels and restrictions on finance (debt) extensions introduced by the NCA (Goslett, 2011; Cloete, 2013; Marais & Cloete, 2015; Melzer, 2015; Loos, 2016; Rust, 2016; Statistics South Africa, 2016d). Tenure status trends of different types of dwellings, based on Statistics South Africa data, is illustrated in Figure 2.5 (Statistics South Africa, 2016d).

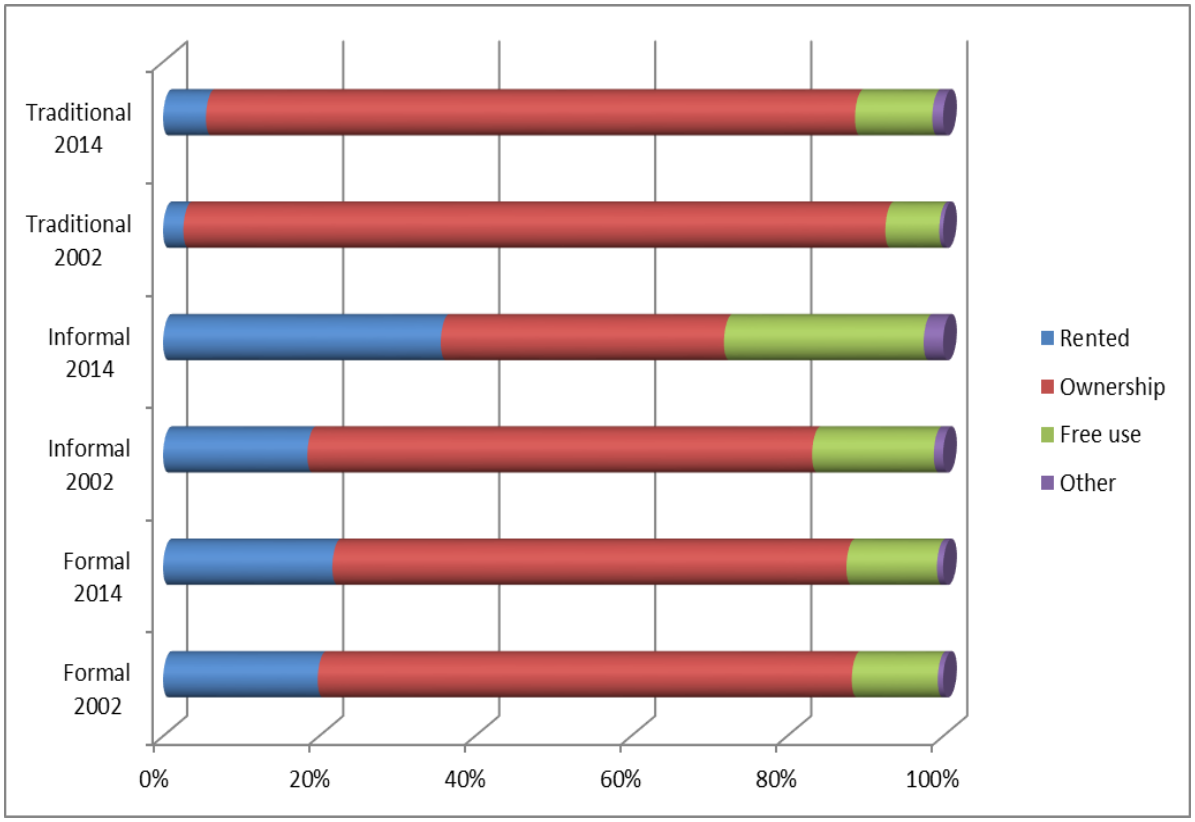

Figure 2.5: South African tenure status trends per dwelling type

Source: Statistics South Africa, 2016d

For all dwelling types, homeownership showed a decreasing trend and an increasing renting trend. The traditional homeownership trend decreased by seven percentage points whereas the renting trend increased by three percentage points. The informal homeownership trend decreased by 28 percentage points whereas the renting trend increased by 17 percentage points, and the free use trend increased by 10 percentage points. The formal homeownership trend decreased by two and a half percentage points whereas the renting trend increased by two percentage points.

Interestingly, when interpreting the effect of housing finance and the changes due to the NCA on the tenure status trend, the formal dwelling types owned not yet paid off tenure status decreased the most at five percentage points, whereas the less formal dwelling types experienced the largest trend shift from ownership to rent, despite having limited access to housing finance. Not only has the housing market changed but with it societal changes such as household demographics and perceptions of housing occurred, which will now be discussed.

2.3.2 Micro-level

Despite many households retaining their homeownership dream, attainment has in recent times become unaffordable with increased unemployment rates and the mortgage associated finance risk considered too high for many. It has resulted in a necessitated increase in the renting tenure status trend for many previous homeowners (Dickerson, 2009; Ball, 2010; Goslett, 2011; Cloete, 2013; Herbers *et al.,* 2014; Property24, 2016). In addition to macro-economic conditions influencing the housing market, international studies identified micro-economic or household level changes in demographics and lifestyle preference as the probable cause for the recent change in the tenure status trend.

Locally and internationally demographic changes include marital status and family formation (increased single-parent households and single person households). Lifestyle preferences include a desire to remain debt free, residing in a preferred location, mobility freedom associated with renting, short-term predictability and affordability associated with renting, such as spending excess cash on holidays and motor vehicles instead of saving for a deposit (Hargreaves, 2002; Reed & Greenhalgh, 2002; Hargreaves, 2003; Goslett, 2011; Cloete, 2013; Smith, 2014; Drew, 2015). All of these micro-level changes influenced the South African housing market and tenure status trend, for example, the number of households increased whereas the number of household members per household decreased. Thus, less people are living together therefore increasing the number of homes required (Statistics South Africa, 2016d). To gain a better understanding of the current South African housing market, Section 2.4 will discuss the South African housing history in more detail.

2.4 SOUTH AFRICAN HOUSING HISTORY AND LEGAL FRAMEWORK

The right to adequate housing can be explained through Maslow's (1943) theory of human motivation as one of the basic human needs for safety (shelter from wild animals, extremes of temperature, criminals, assault and murder, tyranny, etc.). Before the 1990's the apartheid regime restricted and segregated residential property ownership according to population group (race) and area, whereby the majority of South African households were confined to living in unsustainable, poor service areas, and unable to participate in the economy (National Planning Commission, 2012). South Africa has made remarkable progress in the transformation to democracy. Since the abolishment of apartheid, all South Africans gained the constitutional right of access to adequate housing (also referred to as sustainable human settlements) which resulted in previously disadvantaged South African households gaining access to the housing market (South Africa, 2005a; National Planning Commission, 2012).

Subsequently, several acts, programmes, subsidies, finance solutions, strategies, plans, frameworks and institutions have been implemented by the South African government to improve the adequacy of housing and to safeguard households in their tenure status. The acts provide the legal framework of tenure status and Table 2.1 indicates the implementation dates of some of the key acts, as well the main purpose of each act.

Table 2.1: South African housing legal framework

YEAR	ACT	MAIN PURPOSE OF THE ACT[1]
2011	The Sectional Titles Schemes Management Act (Act No. 8 of 2011).	Sectional titles schemes governance.
2011	The Community Schemes Ombud Service Act (Act No. 9 of 2011).	Dispute resolving within community schemes.

[1] Colour coding:

Tenure status classification	Homeownership	General/ Government subsidised housing	Rented

YEAR	ACT	MAIN PURPOSE OF THE ACT[1]
2008	Social Housing Act (Act No. 16 of 2008).	Sustainable social housing promotion.
1999 (latest amendment 2007)	Rental Housing Act (Act No. 50 of 1999). The Rental Housing Amendment Act (Act No. 43 of 2007).	Adequate rental housing promotion.
1997 (latest amendment 2005)	The Housing Act (Act No. 107 of 1997). The Housing Amendment Act (Act No. 4 of 2001). Notice of Expropriation (Government Notice No. 932 of 2005).	Sustainable social housing promotion.
1997 (latest amendment 2011)	Extension of Security of Tenure Act (Act No. 62 of 1997). Land Affairs General Amendment Act (Act No. 61 of 1998). Land Affairs General Amendment Act (Act No. 11 of 2000). Land Affairs General Amendment Act (Act No. 51 of 2001). Rural Development and Land Reform General Amendment Act (Act No. 4 of 2011).	Security of long-term tenure promotion.
1996 (latest amendment 2005)	Constitution of the Republic of South Africa (Section 26, 1996 Constitution Eleventh Amendment Act of 2003).	Adequate housing and security of tenure promotion for all households.

Source: Author

From Table 2.1 it can be seen that the South African housing legal framework is predominantly focussed on promoting social housing for the poor and renting or other general aspects not specifically related to non-subsidised homeownership. In addition to the introduction of several new legislations, the South African government's Department of Human Settlements has introduced various support programmes,

subsidies and finance solutions to increase adequate housing and homeownership in South Africa. Some of the main programmes, subsidies and finance solutions are summarised in Table 2.2.

Table 2.2: Programmes, subsidies, finance solutions, and purpose

PROGRAMMES, SUBSIDIES AND FINANCE SOLUTIONS	GOVERNMENT ASSISTANCE MAIN PURPOSE[2]
Human Settlements Capacity Grant (South Africa. Department of Government Communication and Information System, 2015; South Africa. Department of Government Communication and Information System, 2016).	National Human Settlement Development Grant to develop capacity for municipalities and metros that have received accreditation (not a household grant).
Integrated Residential Development Programme (South Africa. Department of Government Communication and Information System, 2016).	Based on local planning and need assessments land is acquired, stands are serviced for a variety of purposes (not limited to housing) integrating all income groups.
Reconstruction and Development Programme Housing (South Africa. Department of Government Communication and Information System, 2016).	Provides low-cost housing and services to poor households earning below R3 500 per month.
Community Residential Unit (CRU) Programme (South Africa. Department of Government Communication and Information System, 2016).	Promotes affordable, secure and stable rental housing for poor households earning between R800 and R3 500 per month who are unable to enter the private rental market.
Housing subsidies (South Africa. Department of Government Communication and Information System, 2015; South Africa. Department of Government Communication and Information System, 2016).	Grant to promote homeownership for the poor households earning below R3 500 per month.

[2] Colour coding:

Tenure status classification	Homeownership	General/ Government subsidised housing	Rented

PROGRAMMES, SUBSIDIES AND FINANCE SOLUTIONS	GOVERNMENT ASSISTANCE MAIN PURPOSE[2]
Individual subsidies (South Africa. Department of Government Communication and Information System, 2016).	Provides households with access to housing subsidies to acquire ownership of improved residential properties or to finance the purchase of a serviced site linked to a house-building contract not part of a housing subsidy project. Promote homeownership for households with access to housing credit. The subsidy amount of R84 000, comprises R6 000 for the raw land cost, R22 162 for internal municipal engineering services and R55 706 for the cost of constructing the top structure.
Consolidation subsidies (South Africa. Department of Human Settlements, 2004; South Africa. Department of Government Communication and Information System, 2016).	Promotes homeownership for the poor households earning below R3 500 per month who previously received serviced stands from the former housing dispensation.
Institutional subsidies (South Africa. Department of Government Communication and Information System, 2016).	The community or institution must form a Section 21 Company and apply through the municipality for this kind of subsidy. Promote homeownership for the poor households (earning below R3 500 per month) through institutions.
Subsidies for people with disabilities (South Africa. Department of Government Communication and Information System, 2016).	Improves housing safety and access for disabled persons.
Rural subsidies (South Africa. Department of Government Communication and Information System, 2016).	Promotes service or allows to build a house occupied on state owned, or traditional governed land without obtaining ownership rights.
Discount Benefit Scheme	Promotes homeownership for households of state-financed rental housing prior to March 1991.

PROGRAMMES, SUBSIDIES AND FINANCE SOLUTIONS	GOVERNMENT ASSISTANCE MAIN PURPOSE[2]
(South Africa. Department of Government Communication and Information System, 2016).	
Farm resident subsidies (South Africa. Department of Government Communication and Information System, 2016).	Providing to the variety of housing needs of the farm residents.
Finance Linked Individual Subsidy Programme (National Housing Finance Corporation, 2016; South Africa. Department of Government Communication and Information System, 2016).	Promotes homeownership by reducing the mortgage bond for households earning between R3 501 and R15 000 per month.
Rural Housing Loan Fund (RHLF) (South Africa. Department of Government Communication and Information System, 2016).	Provide rural households with housing micro-loans to address their individual housing needs.
Mortgage Default Insurance (South Africa. Department of Government Communication and Information System, 2016).	Promotes homeownership by providing Mortgage Default Insurance to financiers providing access to finance to households earning income between R3 501 and R15 000 per month.

Source: Author

From Table 2.2 it is clear that the government programmes and subsidies are mainly focussed on the housing needs of the extremely poor, whereas the finance solutions are aimed primarily at the upper end of the low-income households or rural areas. As a result of these programmes, subsidies and finance solutions, an increase in formal dwellings was experienced, which indicates an improvement in adequate housing (Statistics South Africa, 2016d). In 2014 the estimated value of the government subsidised housing market was approximately R300 billion, which is significantly higher than in 1994 (Rand comparative), and there were approximately 3.7 million households in the subsidy category. Government housing constitutes 24% of the total

formal housing stock. More than 10 739 communities and 968 towns and cities benefited from the national housing programmes. Other housing advancements made since 1994 to 2014 includes 2.8 million completed houses, and 876 774 serviced sites, giving 12.5 million people access to accommodation and a fixed asset. In addition, the majority (56%) of subsidies were provided to female-headed households (South Africa. Officials of the Presidency and other government departments, 2014). This restoration of homeownership and property rights vision of the South African government has largely contributed to the housing transformation experienced in South Africa since the mid-1980's (Marais & Cloete, 2015). Table 2.3 indicates the main strategies, plans, frameworks and institutions related to the South African housing vision.

Table 2.3: Strategies, plans, frameworks, institutions, and purpose

STRATEGIES, PLANS, FRAMEWORKS AND INSTITUTIONS	MAIN PURPOSE[3]
The National Rental Housing Strategy (South Africa. Officials of the Presidency and other government departments, 2014)	Promote rental housing for the poor from private and public rental sectors.
Comprehensive Housing Plan (CHP) (South Africa. Officials of the Presidency and other government departments, 2014)	Development of Integrated Sustainable Human Settlements (Breaking New Ground) is aimed at eradicating informal settlements in South Africa in the shortest possible time.
Integrated Urban Development Framework (South Africa. Department of Government Communication and Information System, 2016).	Designing inclusive urban areas and community building.
Social Housing Regulatory Authority (South Africa. Department of Government Communication and Information System, 2016).	Promote good quality rental or cooperative housing to the upper end of the low-income market households earning R1 500 to R7 500 per month by accredited social housing institutions.

[3] Colour coding:

Tenure status classification	Homeownership	General/ Government subsidised housing	Rented

STRATEGIES, PLANS, FRAMEWORKS AND INSTITUTIONS	MAIN PURPOSE[3]
National Housing Finance Corporation (NHFC) (South Africa. Department of Government Communication and Information System, 2015).	Provide effective finance solutions between financial institutions and low- to middle income households.
Department of Human settlements (formerly the Department of housing) (South Africa. Department of Trade and Industry, 2015; South Africa. Department of Government Communication and Information System, 2016).	To deliver suitably located housing opportunities and security of tenure through collaborative partnership, legislative planning process and empowerment of women in construction.

Source: Author

Table 2.3 indicates that the government strategies, plans, frameworks and institutions are mainly focussed on the housing needs of the poor. Although the government's aim to support the poor is an important aspect of advancing homeownership attainment in South Africa, limited acts, policies, subsidies, plans or strategies are focussed on households who fall beyond the extremely poor and vulnerable households. Part of the shortfall group is known as "Gap housing" (South Africa. Department of Government Communication and Information System, 2015) and represents 20 - 25% of South Africans (Murray, 2014). These households typically earn between R3 501 and R15 000 per month which is too high to 'qualify' for state assistance and too low to 'qualify' to participate in the private housing market sector (South Africa. Department of Government Communication and Information System, 2015; South Africa. Department of Government Communication and Information System, 2016). This study focusses on non-subsidised tenure status categories and aims particularly to uplift households whose total household income is too high to qualify for government subsidised housing and too low to be eligible for a mortgage loan (such as the Gap housing). By providing government and policy makers with insight into factors to be targeted to increase non-subsidised housing, it will reduce the strain on subsidised housing and contribute to the understanding of the South African housing market.

Studies investigating tenure status were divided into two distinct groups. The first group of studies investigated the considerations (advantages and disadvantages) of each category, whereas the second group of studies investigated factors influencing

the households' tenure status. The shift in households' tenure status aspirations necessitated an investigation of the advantages and disadvantages associated with each tenure status, namely homeownership and rent to determine which could be the most advantageous. A provisional analysis of studies investigating the advantages and disadvantages identified two main groups of considerations, namely financial and non-financial considerations. The remainder of Chapter 2 focusses on the financial (see Section 2.5.1) and non-financial considerations (see Section 2.5.2) associated with tenure status, whereas influential factors will be discussed in Chapter 3.

2.5 CONSIDERATIONS FOR HOUSING TENURE STATUS

On a societal and macro-level homeownership status is generally believed to contribute to economic activity as it creates employment, increases demand for goods and services, and creates wealth and stability (Coulson & Fisher, 2002; Hargreaves, 2002; Reed & Greenhalgh, 2002; Dickerson, 2009; Turner & Luea, 2009; Grinstein-Weiss *et al.,* 2013; Rohe *et al.,* 2013; South Africa. Officials of the Presidency and other government departments, 2014; Property24, 2016).

In South Africa the formal housing market has increased from R321 billion in 1994 to R4.036 trillion by 2014, indicating that homeownership creates substantial wealth (South Africa. Officials of the Presidency and other government departments, 2014). Similarly, in the United States of America it was found that despite the housing crisis and depreciated house values experienced, wealth creation remained superior for homeowners compared to renter households (Grinstein-Weiss *et al.,* 2013). In addition to creating an asset, homeownership creates a sense of being a full South African citizen (South Africa. Officials of the Presidency and other government departments, 2014). Internationally this sense of citizenship has led to superior stability as homeowner households are more committed to community and improvement projects and maintaining property values compared to renter households (Hargreaves, 2002; Rossi & Weber, 2010; Rohe *et al.,* 2013; Huang *et al.,* 2015). The South African government's capital investment in housing has created 1.29 million jobs (South Africa. Officials of the Presidency and other government departments, 2014).

Thus, on a macro-level homeownership was found to have the ability to improve households' situation. For this reason, in line with various international governments, homeownership forms an integral part of the South African government's housing vision and homeownership is therefore promoted and subsidised (Reed & Greenhalgh, 2002; Aigbavboa & Thwala, 2014; Barth *et al.,* 2015).

Homeownership status is therefore found more advantageous than renting on a macro-level.

However, despite homeownerships' superiority on a macro-level, as seen from Section 2.3 a tenure status trend favouring rent is experienced which necessitates further investigation of financial and non-financial considerations in the sections to follow.

2.5.1 Financial considerations

The international and local literature identified a myriad of financial considerations associated with each tenure decision. The disadvantage of one tenure status is simultaneously considered an advantage of the other tenure status, for not having to deal with the particular disadvantage. This study categorised financial considerations of tenure status based on the duration, namely short-term or long-term. Short-term financial considerations were based on a period of twelve months or less, whereas long-term financial considerations were based on a period exceeding twelve months (International Accounting Standards Board, 2014a). Figure 2.6 visually illustrates financial considerations identified from the literature which comprises short-term and long-term financial considerations.

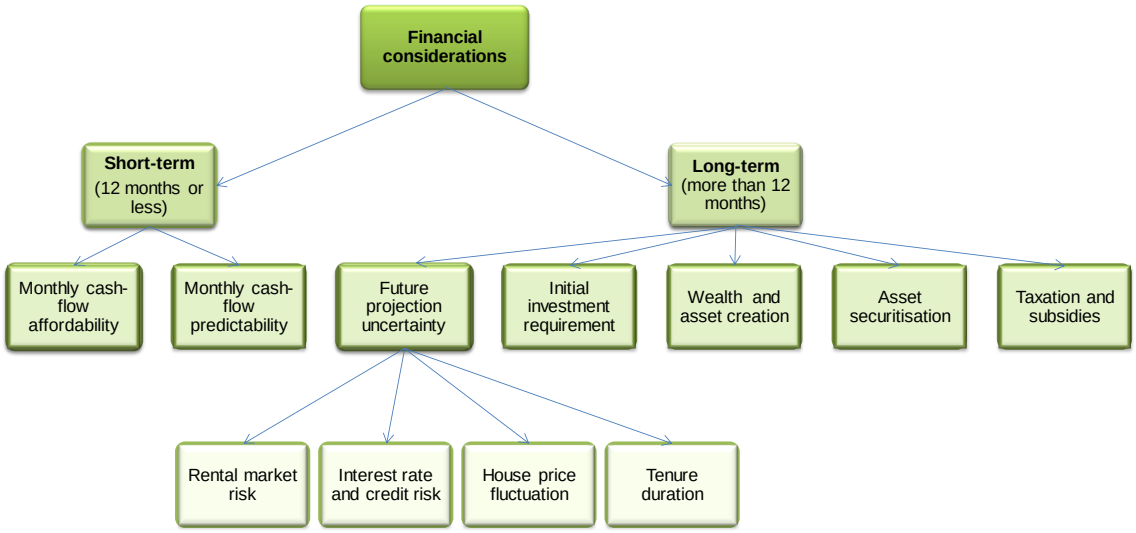

Figure 2.6: Financial considerations: short-term and long-term

Source: Author

As illustrated, the short-term financial considerations identified from the literature were monthly cash-flow affordability and predictability (Hargreaves, 2002; Van Zandt & Rohe, 2011). The long-term financial considerations identified from the literature were future projection uncertainty, initial investment requirements, wealth and asset creation, asset securitisation and taxation and subsidies (Alba & Logan, 1992; Hendershott & White, 2000; Reed & Greenhalgh, 2002; Ben-Shahar, 2007; Campbell & Cocco, 2007; Reed & Mills, 2007; Andersen, 2011; Campbell & Cocco, 2015; Property24, 2016).

2.5.1.1 Short-term financial considerations

Many South African households are living from hand to mouth and therefore determine their tenure decision based on short-term financial considerations, which consist of monthly cash-flow affordability and monthly cash-flow predictability (Hargreaves, 2002; Van Zandt & Rohe, 2011).

- **Monthly cash-flow affordability**

Homeownerships' short-term monthly cash-flows are often considered unaffordable as it includes mortgage repayment, repairs and maintenance, property rates and taxes, estate levy and mortgage bank charges, when compared to the renter

household who only pays the monthly rent, which is usually less. As a result, renting is generally considered the more affordable short-term tenure decision (Hargreaves, 2002; Reed & Greenhalgh, 2002; Dickerson, 2009; Ball, 2010; Andersen, 2011; Cloete, 2013; Seeff, 2013). Short-term affordability can be described as how much a household can afford to pay, or alternatively, as the household's residual income. Residual income refers to the household's monthly cash-inflows (income) less its monthly housing and non-housing cash-outflows (expenses). In order to determine if a household can afford a bond to purchase a house, the financier must also consider its residual income in terms of the National Credit Act No. 34 of 2005 (South Africa, 2005b; Sewnunan & Green, 2015; South Africa. Department of Trade and Industry, 2015).

In addition to short-term cash-flow affordability, households also consider short-term predictability of monthly cash-flows as being important. This is due to the fact that predictability represents an excellent budgeting advantage for households, which will be discussed in the following section.

- **Monthly cash-flow predictability**

A household's short-term financial planning (budgeting) is greatly assisted by being able to predict future cash-flow, hence monthly cash-flow predictability is an important advantage to consider. Homeowners are faced with two types of cash-outflows. The first of these being predictable recurring cash-outflows (expenses) such as rates and taxes, homeowners' insurance, and mortgage installments. The second group of cash-outflows (expenses) are, however, unpredictable, such as repairs and maintenance (Hargreaves, 2002; Reed & Greenhalgh, 2002; Van Zandt & Rohe, 2011; Property24, 2016). Due to the nature of rental agreements, which is typically entered into for a fixed period, for example six months or one year, the renter will have more certainty over expected cash-outflows during the duration of the lease agreement. Renters thus have the advantage of short-term monthly cash-flow predictability as they are not exposed to the risks associated with owning and maintaining a property (Reed & Greenhalgh, 2002; Mulder, 2006; Andersen, 2011; Property24, 2016).

Despite short-term financial considerations predominantly favouring rent, households' financial decisions, such as purchasing a home, is a long-term financial investment

decision which should not solely be based on short-term considerations, as long-term financial considerations could lead to increased wealth for the household (Turner & Luea, 2009; Seeff, 2013).

2.5.1.2 Long-term financial considerations

Studies identified several long-term financial considerations which were for the purpose of this study categorised and discussed as:

- Future projection uncertainty.
- Initial investment requirements.
- Wealth and asset creation.
- Asset securitisation.
- Taxation and subsidies.

- **Future projection uncertainty**

In the long-term both the homeowner and renter households are exposed to economic factors impacting the supply and demand of the homeownership and rental markets respectively, which make future projections difficult. Although the monthly ownership and renting cash-outflows (expenses) are predictable in the short-term, these cash-outflows are also subject to unexpected changes due to external shocks such as economic growth, and change in inflation and interest rates in the long-term, which causes long-term future projection uncertainty (Hargreaves, 2002; Reed & Greenhalgh, 2002; Campbell & Cocco, 2007; Campbell & Cocco, 2015; Property24, 2016).

For the homeowner, long-term future projection uncertainty includes the interest rate and associated credit risk, house price appreciation or depreciation fluctuation, tenure duration uncertainty, and other inflationary cost increases, whereas the renter is mainly exposed to the rental market risk. Each of these will now be discussed in turn (Reed & Greenhalgh, 2002; Ben-Shahar, 2007; Campbell & Cocco, 2007; Andersen, 2011; Campbell & Cocco, 2015; Property24, 2016).

Rental market risk

Exposed to increasing rental housing demand and rental housing shortage, renters are internationally exposed to increasing monthly rent (Chan, 2014). In South Africa, as in other countries, demand in certain locations such as Cape Town are ever-increasing and, combined with supply shortages, renter households thus experience substantial rent increases (Smith, 2014). Results from a study by Ben-Shahar (2007) indicated that if faced with rental market risk, the majority (57%) of Israeli freshman student participants (studying business or law) preferred homeownership, whereas 19% preferred rent.

Interest rate risk and credit risk

Despite the mortgage payment's predictability when a fixed interest rate is applied, the mortgage payment becomes unpredictable when linked to a variable or prime interest rate. The risk associated with a variable interest rate is referred to as the interest rate risk (Campbell & Cocco, 2015). Campbell and Cocco (2015) found that mortgage homeowners with a variable mortgage interest rate are more likely to default when interest and inflation rates increase. This mortgage default and resulting credit risk (finance risk) is a commitment which renters do not face and is, therefore, an important advantage of renting (Dickerson, 2009; Melzer, 2015; Property24, 2016).

House price fluctuation

One of the most prevalent advantages and disadvantages associated with homeownership related to the change in the capital value of the property through capital appreciation or depreciation (Alba & Logan, 1992; Seeff, 2013; Property24, 2016). In addition to the influence of the housing market's supply and demand functions and overall economic conditions on house prices, change in capital value is greatly influenced by the home's condition and location (Alba & Logan, 1992).

Traditionally, homeowner households owned their property for several years and therefore attained the capital appreciation advantage. The property provided a wealth creation opportunity which also acted as a hedge against inflation (Goodman, 1988; Alba & Logan, 1992; Hargreaves, 2002; Reed & Greenhalgh, 2002; Brounen, Eichholtz, Staetmans & Theebe, 2013; Tabner, 2015). However, the uncertainty associated with changes in the future capital value of a home raises concerns about

the reasonableness of homeownership as a financial investment. Thus, the absence of the house price fluctuation risk was found to be an important advantage for renter households (Ben-Shahar, 2007).

As wealth creation for the homeowner was found to increase with tenure duration, tenure duration uncertainty will now be discussed in more detail (Turner & Luea, 2009; Brounen *et al.,* 2013; Tabner, 2015).

Tenure duration uncertainty

Shelton (1968) found predicting house price appreciation or depreciation too difficult and found tenure duration a more important and reliable variable to consider when determining the optimal tenure decision (Hargreaves, 2002). Homeowners sometimes justify paying the large initial investment required as they intend to stay in the home in the long-term (Ben-Shahar, 2007). The next section will, therefore, discuss the renter households' advantage of not having to save the substantial investment required to enter the housing or rental market.

- **Initial investment requirement**

Aspiring homeowners find saving for the substantial initial investment required (which consists of a deposit, South African Revenue Service (SARS) transfer fees, and legal fees) difficult and a barrier to entering the housing market, especially as deposit saving is normally a prerequisite to obtaining a mortgage loan. In contrast, the renter households does not require such a large initial investment as the renter household generally only has to save for one to two month's rental deposit which is significantly less than the initial investment required for homeownership (Hargreaves, 2002; Reed & Greenhalgh, 2002; Dietz & Haurin, 2003; Hargreaves, 2003; Andersen, 2011; News24, 2012; Cloete, 2013; Seeff, 2013; Lennartz *et al.,* 2015; South Africa. Department of Government Communication and Information System, 2016). Not surprisingly, the substantial initial savings requirement associated with homeownership has lead 42% of Israeli respondents to prefer rent, however no South African studies has explored this fact (Ben-Shahar, 2007). Although not saving for the initial investment may present an advantage to the renter household, deposit saving is also a form of wealth and asset creation for the homeowner household, which will now be discussed in more detail.

- **Wealth and asset creation**

Theoretically, renting allows for greater wealth creation opportunities under the assumption that the initial investment required and monthly rental saving is invested in high return investments such as equity shares (Reed & Greenhalgh, 2002; Moodley-Isaacs & Arde, 2011; Cloete, 2013; Seeff, 2013). For this reason, Ben-Shahar (2007) found 71% of Israeli respondents were concerned that purchasing a residential property is not merited as a financial investment.

Despite the theory, in reality renter households seldom have the discipline to utilise their monthly savings to invest in higher return investment options. Instead of saving, renters tend to dissipate additional cash resources for consumption such as holidays, expensive motor vehicles and luxury goods, and many are unwilling to downgrade their lifestyle to attain homeownership (Reed & Greenhalgh, 2002; Ben-Shahar, 2007; Andersen, 2011; Moodley-Isaacs & Arde, 2011; Seeff, 2013; Jacobs, 2016). It is this financial irrationality which indicates that buying and saving for a home is not merely a financial decision but includes non-financial (psychological) reasoning (Rode, 2015a). South African households, in particular, are highly indebted, are finding it difficult, and lack the discipline, to save for the initial investment required, especially from their monthly rental saving (Moodley-Isaacs & Arde, 2011; Seeff, 2013).

In essence, a mortgage loan forces a homeowner household to save by reducing the capital balance of the loan and through possible house price appreciation (Reed & Greenhalgh, 2002; Ben-Shahar, 2007; Moodley-Isaacs & Arde, 2011; Seeff, 2013). For this reason, studies found homeowner households to create greater wealth than similar renters, thereby alleviating poverty (Van Dam, Geurts, & Pannecoucke, 2003; Ben-Shahar, 2007; Turner & Luea, 2009).

- **Asset securitisation**

The home of homeowners represents a tangible asset which can be used as security (or collateral) for finance purposes (Andersen, 2011). This is known as asset securitisation which reduces financiers' (normally banks) risk exposure, which in turn improves the asset holder's credit rating (risk) and reduces their finance cost

(Lauridsen & Skak, 2007; Cloete, 2013; Aigbavboa & Thwala, 2014; Acolin, Bricker, Calem and Wachter, 2016). Despite the advantage of utilising the home to obtain current and future finance and reduce finance cost, many South Africans are not aware of this advantage or are unwilling to use their home as security in fear of losing their home (Aigbavboa & Thwala, 2014). Thus, asset securitisation was deemed to be a non-critical advantage for the homeowner.

- **Taxation and subsidies**

Internationally homeownership is usually a taxation favoured asset (Hendershott & White, 2000). Many countries allow a homeownership mortgage interest deduction with a limitation for higher income households (Hendershott & White, 2000). Similar to Israel and certain American states, South African homeowners do not receive such a mortgage interest deduction (Ben-Shahar, 2007; Coulson & Fisher, 2009). Remarkably, in Denmark homeowners even receive a tax deduction for capital expenses (Andersen, 2011). Despite South African homeowners obtaining a Capital Gains Tax (CGT) exclusion for a primary residences below two million Rand, internationally homes are untaxed capital gains assets (Hendershott & White, 2000; Hargreaves, 2002). Internationally and in South Africa, transfer duties (or taxes) are payable by homeowner households when buying a home and is considered a homeownership disadvantage (Ben-Shahar, 2007; Fisher & Gervais, 2010).

Similar to other international governments, the South African government incentivises households to attain homeownership and focuses especially on vulnerable groups by providing a myriad of subsidies. These grants include, for example, once-off upfront grants, regular housing allowances, and even provide rental subsidies as an alternative to providing adequate housing (see Section 2.4).

2.5.1.3 Practical application

To demonstrate the practical implications of financial considerations when determining the optimal tenure status, a case study and sensitivity (risk) analysis will be applied. In order to apply the case study and sensitivity (risk) analysis to determine the optimal tenure status, the process illustrated in Figure 2.7 will be followed.

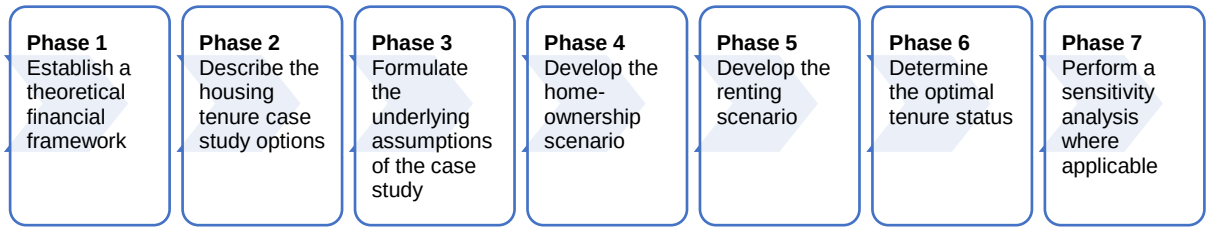

Figure 2.7: Phases determining the optimal financial tenure status

Phase 1: Establishment of the theoretical financial framework

According to Skae, Vigario, Benade, Combrink, De Graaf, Esterhuyse, Jonker, Klopper, Ndlovu, Nobyati, Plant, Steyn and Steyn (2014), the ownership versus rent tenure status classification decision is one of the most controversial topics in the investment and financing sphere. Although households often include finance related cash-flows such as mortgage and interest in their Net Present Value (NPV) calculations, this application is flawed. The investment decision principle states that cash-flows of an investment decision should exclude finance related cash-flows, since financing was already incorporated in the Weighted Average Cost of Capital (WACC) discount rate (Skae *et al.,* 2014). The Net Present Cost (NPC) of a finance decision, therefore, utilises cost of new debt (finance rate) as the discount rate (Skae *et al.,* 2014).

For the homeownership versus rent decision, mortgage finance represents an exceptionally inexpensive form of finance, which is directly linked to the acquisition of the home and financing thereof forms part of the homeowners' tenure decision. Applying these principles, the NPV of investment (or assets) and the NPC of financing (or liabilities) were determined separately and discounted at their respective discount rates.

The value of each tenure status was calculated by determining the Net Present Equity Values (NPEV). The NPEV equation of this study complies with the basic accounting equation, also termed the balance sheet equation, where equity is the residual of assets after deducting liabilities (International Accounting Standards Board, 2014b).

The optimal tenure status was determined by calculating the highest NPEV per the theoretical financial framework as illustrated in Figure 2.8.

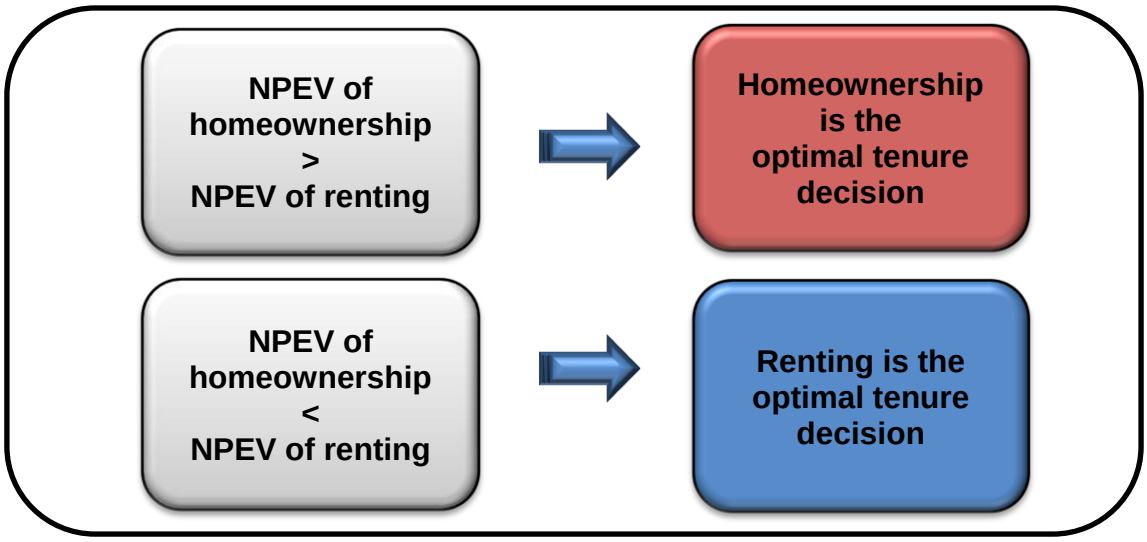

Figure 2.8: Optimal tenure status per the theoretical financial framework

Source: Author

After establishing the theoretical financial framework for calculating the optimal tenure status, phase 2 will provide a brief description of the housing tenure case study options.

Phase 2: Description of the housing tenure options

The factual information related to two identical townhouses, both medium sized (171m^2) sectional title units situated in Wonderboom, Pretoria, South Africa. Both houses comprise of 3 bedrooms, 2 bathrooms, a double garage, dining area, lounge, kitchen, and garden. Despite the complex classification associated with sectional title schemes (see Section 2.2) households residing in sectional titles are either classified as homeowner or renter households. The assumptions utilised for this case study will now be discussed.

Phase 3: Formulating the underlying assumptions of the case study

The case study provides logical reasoning and utilises plausible assumptions when determining the most advantageous (optimal) tenure status category. Intended at limiting subjectivity, the case study is based on factual information available to the researcher as far as possible and assumptions are based on future and historic data

available from literature reviews and sources dated as close as possible to April 2015. The case study assumptions are illustrated respectively in Table 2.4 (General assumptions), Table 2.5 (Homeownership assumptions) and Table 2.6 (Renting assumptions).

Table 2.4: General assumptions

GENERAL ASSUMPTIONS	ASSUMPTIONS MADE	DESCRIPTION/ SOURCE
Financial means	Identical for both households	To allow comparability.
Risk profile (including credit risk)	Identical for both households	To allow comparability.
Risk preference	Identical for both households	To allow comparability.
Nominal WACC discount rate	8.0%	(Rode, 2015a).
Average inflation growth rate	4.5%	Target inflation rate set between 3% and 6% (South African Reserve Bank, 2014).
Cash-flows: salary income, telephone costs, entertainment costs, fuel costs, medical costs, grocery and other non-housing costs	Identical for both households and thus irrelevant	To allow comparability.
Initial required savings	Both homeowner and renter households have saved the initial deposit, transfer fees and bond cost	To allow comparability (see Table 2.5).
Tenure duration	20 years	The general mortgage duration (Just Money, 2016).
Taxation and subsidies	Not applicable	There is no interest deduction or capital gains taxation applicable and the case study does not qualify

GENERAL ASSUMPTIONS	ASSUMPTIONS MADE	DESCRIPTION/ SOURCE
		for a government subsidy as a mortgage was obtained.

Source: Author

Table 2.5: Homeownership assumptions

HOMEOWNERSHIP ASSUMPTIONS	ASSUMPTIONS MADE	DESCRIPTION/ SOURCE
Home purchase price	R950 000	Actual (Author's own).
Annualised nominal house price appreciation rate	10.514%	ABSA house price index over a 19 year period for medium sized homes (from R173 693 in 1995 to R1 160 599 in 2014) (ABSA, 2016).
Capital Gains Tax	Excluded	Primary residence house price is below the R2 million threshold (South African Revenue Service, 2015).
Initial required saving		
Deposit (10%)	R95 000	10% is the general non-refundable deposit percentage required (Mhlanga, 2013a).
Transfer fees	R23 387	ABSA's New home loan costs and transfer fees calculator as at 26 June 2015 (ABSA, 2015).
Bond costs	R14 458	ABSA's New home loan costs and transfer fees calculator as at 26 June 2015 (ABSA, 2015).
Initial required saving	R132 845	To allow comparability it is assumed that both homeowner and renter households have saved the initial deposit, transfer fees and bond cost. Initiation fee is capitalised.
Mortgage loan assumptions		

HOMEOWNERSHIP ASSUMPTIONS	ASSUMPTIONS MADE	DESCRIPTION/ SOURCE
Initiation fee	R5 700 capitalised to the outstanding loan balance at inception	ABSA's New home loan costs and transfer fees calculator as at 26 June 2015 (ABSA, 2015).
Mortgage interest rate	Fixed at prime rate of 9.25% as at April 2015	Households' mortgage interest rates will depend on the South African Reserve Bank's repo rate, their mortgage affordability, deposit percentage paid, credit record and assets secured (Mhlanga, 2013a). The mortgage interest rate can either be fixed or variable and is normally based on the prime rate. (South African Reserve Bank, 2016b). Application of a variable rate falls beyond the scope of this study.
Number of monthly mortgage payments	12 times per year	n/a.
Duration of mortgage loan	20 years	The general mortgage duration (Just Money, 2016).
Monthly mortgage payment	R7 882.87	Calculation based on a Present Loan Value of R860 700 [R950 000 house price less 10% deposit plus R5 700 capitalised loan initiation fee] over a 240-month (20 year) period at a fixed annual mortgage interest rate of 9.25%.
Monthly mortgage bank charge	R57	Bank charge in terms of the National Credit Act (NCA). (Mhlanga, 2013b).

HOMEOWNERSHIP ASSUMPTIONS	ASSUMPTIONS MADE	DESCRIPTION/ SOURCE
Annual mortgage bank charge increase	Inflationary increase	(see Table 2.4).
Unpredictable cash-flows		
Annual maintenance	R5 500	Actual (Author's own).
Monthly provision for repairs and maintenance	R458	Although repairs and maintenance is an unpredictable expense, it is one that is likely to occur and a monthly provision should thus be made [R5 500/12].
Annual increases in repairs and maintenance	3.40%	Annual increase percentage in repairs and maintenance in all urban areas from April 2014 to April 2015 (Statistics South Africa, 2015a).
Predictable cash-outflows		
Monthly mortgage payment	R7 883	Refer to Monthly mortgage payment calculation. Fixed interest rate assumed.
Property rates and taxes	R461	Actual (Author's own).
Annual increase in property rates and taxes	10.00%	Recent increases are as high as 10% in Pretoria (Mudzuli, 2015).
Upfront monthly estate levy	R1 594	Actual (Author's own).
Annual estate levy increase	Inflationary increase	(see Table 2.4).
Insurance and water	Excluded from both households as incorporated in the levy or rent.	The upfront monthly estate levy cost included building insurance and water as there was a central water meter utilised by the estate.
Long-term growth/ change		
Expected annual increase in estate levy	4.50%	Increase is assumed to align with inflation.

Source: Author

Table 2.6: Renting assumptions

ASSUMPTION RELATING TO RENTING		
RENTING ASSUMPTIONS	**ASSUMPTIONS MADE**	**DESCRIPTION / SOURCE**
Rental deposit	R0	The rental refundable deposit usually represents one to two months' rent. This upfront rental deposit was excluded from the case study as it is refunded when the home is vacated in a reasonable condition at the end of the lease.
Monthly rental payment	R7 500	Actual information available to researcher.
Number of rental payments per year	12 times per year	n/a.
Expected annual increase in monthly rental payment	9.00%	In Gauteng growth percentages of 8% to 10% was reached per the rental property index for the first quarter of 2015. An average is therefore utilised (PayProp, 2015).
Long-term growth/ change		
Assumed initial savings balance interest rate	Monthly fixed rate of 0.67% [8.01%/12]	Average annual long-term deposit savings interest rate which ranged between 4.05% and 11.97% on 30 June 2015 range (Deposits.org, 2015).
Assumed rental savings balance interest rate	Monthly compounded fixed rate of 0.5% [6/12]	Based on medium-term savings rate which depends largely on the investment period and ranged between 0.35% to 5.95% for short-term savings and between 4.05% and 11.97% for long-term savings as on 30 June 2015 (Deposits.org, 2015).

Source: Author

The next phase is the development of the homeownership scenario which includes the calculation of the NPEV of homeownership and incorporates the assumptions of this phase.

Phase 4: Development of the homeownership scenario

This phase develops the homeownership scenario based on the case study assumptions from phase 3. As part of the scenario development the NPEV equation, which will be utilised to calculate the NPEV for homeownership, is illustrated in Figure 2.9.

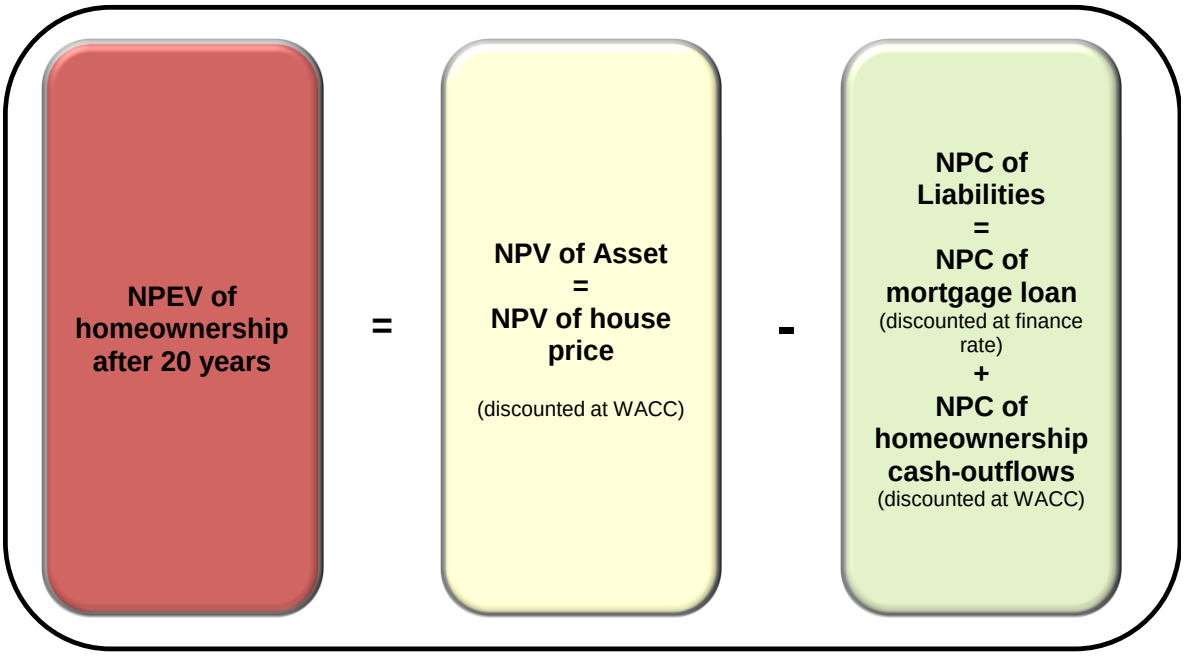

Figure 2.9: Homeownership NPEV equations

Source: Author

The homeownership NPEV equation consists of the NPV of the asset (namely the house price), less the NPC of liabilities (which consists of mortgage associated cash-outflows plus homeownership associated cash-outflows). With the exception of NPC of mortgage associated cash-outflows discounted at the finance rate, the WACC discount rate will be applied.

- **NPV of assets calculation**

The NPV of assets consists solely of the value of the house price as the initial investment saving was consumed at inception to purchase the asset. The NPV of the house price, discounted at WACC, consists of a two-part calculation. Firstly, the future value at the end of 20 years was calculated utilising the house price and appreciation rate assumptions (see phase 3) as follows:

R950 000 x (1+0.10514)^{20} = R7 015 187.

Secondly, time value for money was considered by discounting the future house price value to the present house price value at a WACC discount rate by utilising the following inputs:

Future Value (FV) = - R7 015 187; Period (N) = 20; Rate (I/YR) = 8%; Payment (PMT) = 0; Calculated Present value (PV) = R1 505 096.

The NPV house price appreciation resulted from the house price appreciation rate of 10.514%, which exceeded the WACC discount rate of 8%.

- **NPC of liabilities calculation**

The NPC of liabilities calculation consists of the sum of the NPC of the mortgage loan and the NPC of homeownership associated cash-outflows, which will now be discussed respectively.

The NPC of the mortgage loan was calculated as the sum of monthly mortgage payments and monthly mortgage bank charges, discounted at the mortgage finance discount rate. Firstly, the monthly mortgage repayment which, amounted to R7 882.87 was calculated (see phase 3 for calculation). Secondly, financiers charge a R57 monthly mortgage-related bank charge which was assumed to increase annually with inflation for the case study (see phase 3). The mortgage loan NPC was calculated by inputting 240 monthly mortgage associated cash-outflow inputs (monthly mortgage

payment plus bank charge) discounted at the monthly finance cost of 0.771% (9.25%/12) which resulted in a NPC of R869 262.

The NPC of homeownership associated cash-outflows consists of predictable and unpredictable costs. Repairs and maintenance were categorised as unpredictable cash-outflows which should be provided for on a monthly basis by the homeowner. Other cash-outflows, such as property rates and taxes and upfront estate levies, are more predictable. The NPC of homeownership associated cash-outflows consists of the sum of monthly unpredictable and predictable costs, discounted at WACC.

These cash-outflows were annually increased with respective growth percentages, as indicated in Table 2.5. This allowed the NPC of homeownership associated costs to be calculated by inputting the 240 monthly cash-outflows (plus upfront cash-outflows for month zero), discounted at a monthly WACC rate of 0.66% (8%/12). The NPC of homeownership associated costs amounted to R462 094.

Figure 2.10 illustrates that, for the case study, homeownership resulted in a positive NPEV of R173 740 after 20 years. Therefore, households should pursue homeownership as an investment decision.

Wealth for the homeowner was thus created through capital appreciation of the home in excess of all mortgage and monthly homeownership associated costs. The next phase will develop the renting scenario by incorporating the assumptions of phase 3.

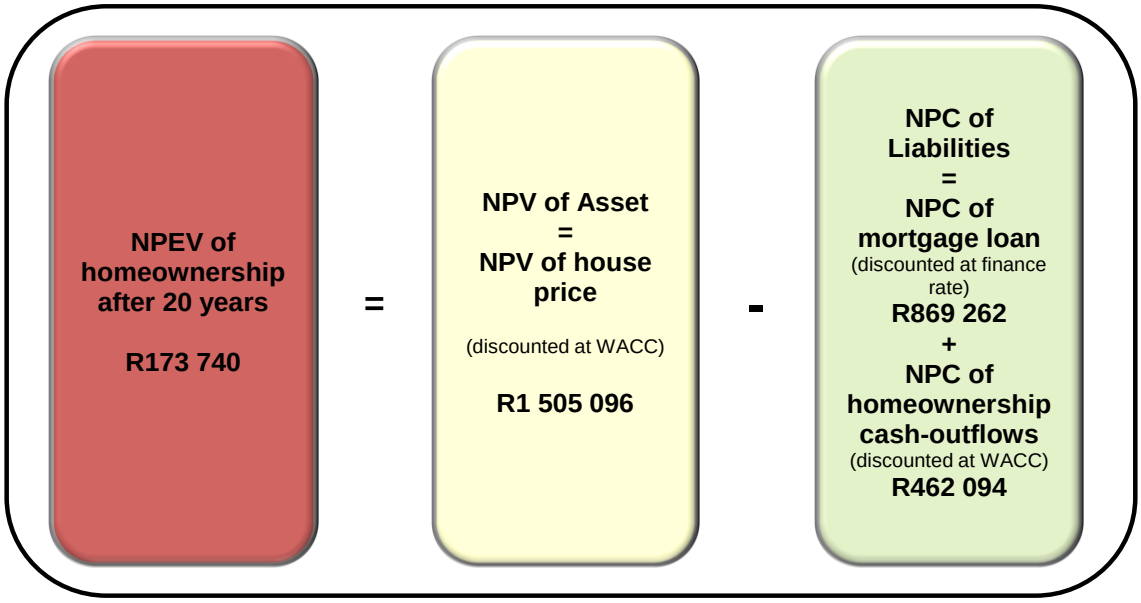

Figure 2.10: Homeownership NPEV equation applied to the case study

Source: Author

Phase 5: Development of the renting scenario

This phase develops the renting scenario based on the case study assumptions from phase 3. As part of the scenario development the NPEV equation, which will be utilised to calculate the NPEV for renting, is illustrated in Figure 2.11.

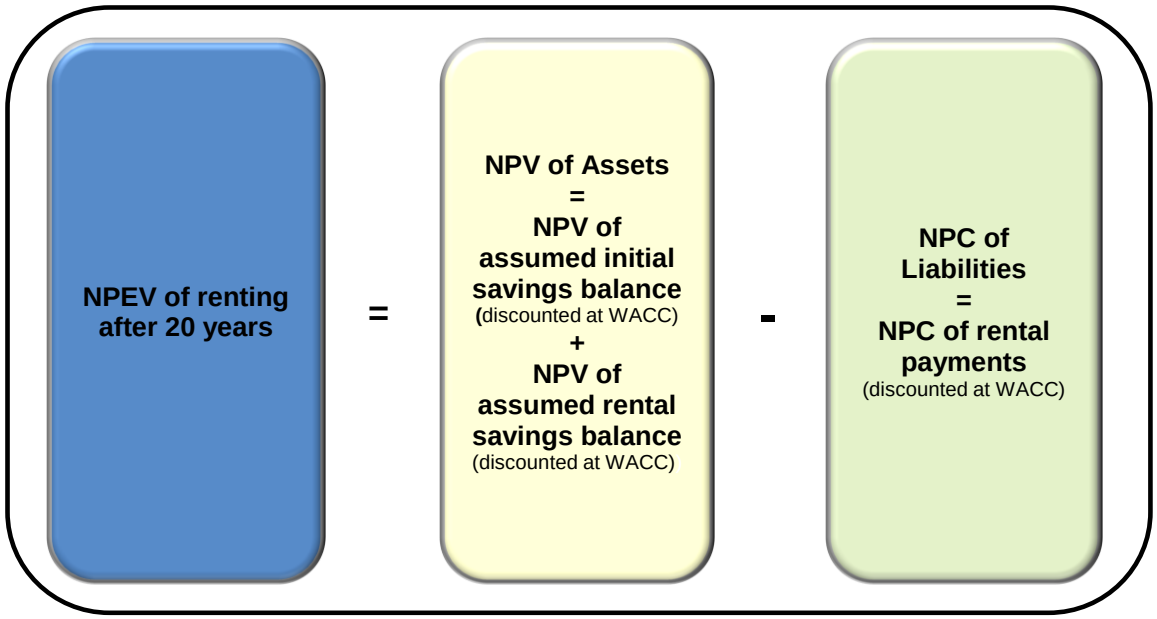

Figure 2.11: Renting NPEV equations

Source: Author

Determining the NPEV of renting consists of the NPV of assets (which is the sum of the assumed initial savings balance plus the assumed rental savings balance), less the NPC of liabilities (which consists of the NPC of rent). All of the renting present value calculations will be discounted at a WACC rate.

- **NPV of assets calculation**

The NPV of the assumed initial savings balance consists of two calculations. The first calculated the Future Value (FV) of the assumed initial savings balance after 20 years by assuming a monthly compounded interest rate of 0.6675%. The Future Value (FV) of the assumed initial savings balance amounted to R655 803 and was calculated as follows:

> *R132 845 x $(1+0.006675)^{240}$ or*
> *Present Value (PV) of initial savings balance = R132 845; Period (N) = 240; P/YR =12; Rate (I/YR) = 8.01; Calculated Future Value (FV) = R655 803.*

Secondly, the present value of the assumed initial savings balance was calculated as follows:

> *Future Value (FV)* = R655 803; *Period (N) = 20; WACC Rate (I/YR) = 8%; Calculated Present value (PV) = R140 701.*

As the 8.01% assumed monthly compounded long-term deposit savings interest rate only slightly exceeds the WACC rate of 8.00%, only a small Present Value growth of R7 856 (R140 701 - R132 845) was experienced for the assumed initial savings amount for the renter household.

Assumed monthly rental savings balance

The case study further assumes that the renter household was able to accumulate a monthly rental savings balance which is created where monthly homeownership mortgage cash-outflows plus homeownership associated cash-outflows exceed rental cash-outflows (Ben-Shahar, 2007; Property24, 2016).

Monthly assumed rental savings balance was calculated as follows[4]:

(Current month's rental saving) + (Previous month's rental savings balance X (1+ (0.06/12)))

After 20 years, the assumed rental savings balance amounted to R324 266. Taking time value for money into consideration, the NPV of the assumed rental saving balance discounted at WACC amounted to R69 571. The following inputs were utilised for this calculation:

Future Value (FV) = R324 266; *Period (N) = 20; Rate (I/YR) = 8%; Payment (PMT) = 0; Calculated Present value (PV)* = R69 571.

- **NPC of liabilities calculation**

The NPC of liabilities consists of the NPC of future rent cash-outflows discounted at WACC. This entailed a two-step calculation. The first step calculated the upfront monthly rental payment, which is annually revised in terms of the rental (lease) contract. After increasing monthly rent of R7 500 annually with 9% (refer to phase 3), the second step considered time value for money and calculated the NPC of monthly rental payments by inputting 240 monthly rental cash-outflows (plus upfront cash-outflow per month zero) discounted at a monthly WACC of 0.667% (8%/12). This resulted in the NPC of rent of R1 846 709.

Figure 2.12 illustrates that after 20 years the NPEV of renting amounts to a negative NPEV of -R1 636 437. The household should thus not pursue the rental tenure option as an investment decision based on the assumptions of the case study.

4 From a prudent perspective the case study assumed for months where no rental savings occurred that the assumed rental savings balance was not depleted and the prior month's savings balance continued to grow although R0 was added to the assumed rental savings balance in those months. This prudent assumption is in favour of the renter household, without which the renter household would have experienced a rental dissaving. For simplicity interest was only earned after the end of the first month when the assumed monthly rental saving was calculated.

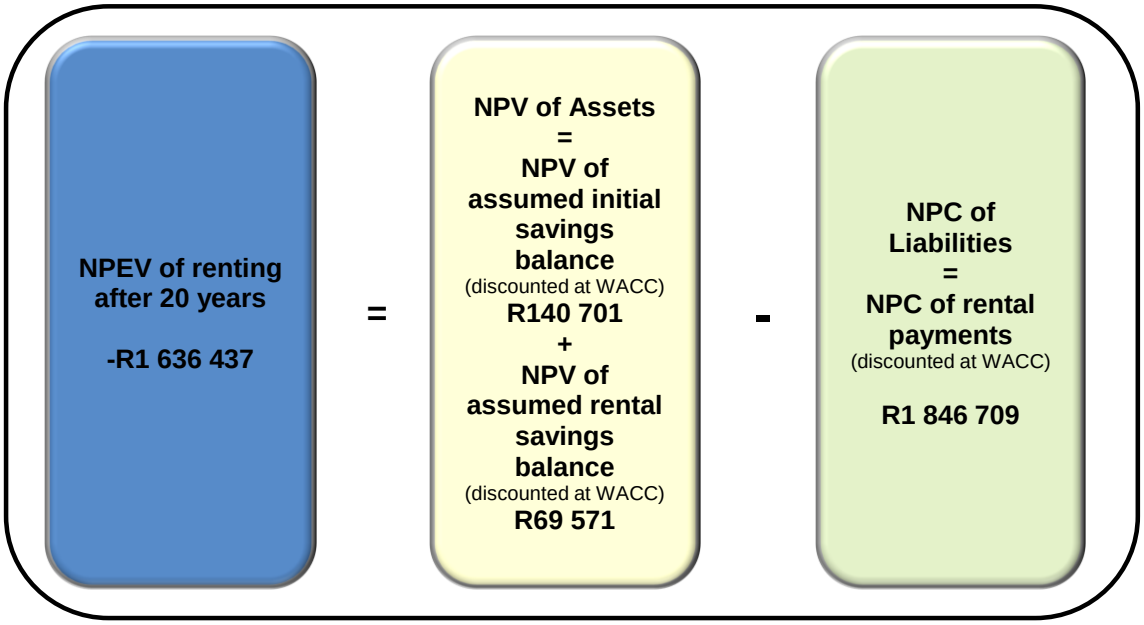

Figure 2.12: Renting NPEV equation applied to the case study

Source: Author

Phase 6: Determining the optimal tenure status

Through the application of the theoretical financial framework (see phase 1), the NPEV of homeownership is compared with the NPEV of renting, and the optimal tenure status is determined as illustrated in Figure 2.13.

Calculating the NPEV for both the homeowner (phase 4) and renter (phase 5) household was essential to determine the optimal tenure decision for the case study. Figure 2.13 illustrates that, based on the case study and its assumptions, homeownership was determined as the optimal tenure status as the NPEV of homeownership of R173 740 exceeded the negative NPEV of renting of -R1 636 437 by R1 810 177.

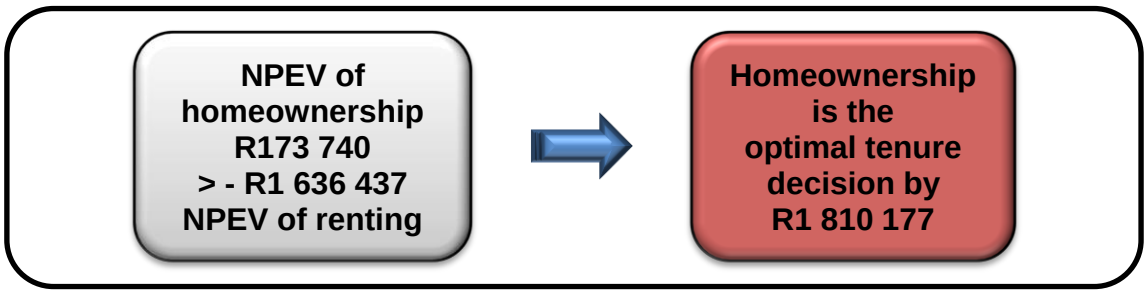

Figure 2.13: Optimal tenure status of the case study

Source: Author

Based on the case study and its assumptions, it is found that:

Homeownership status is still the optimal tenure status by R1 810 177 and households should therefore pursue homeownership attainment.

This case study was based on supported assumptions (phase 3) which were utilised to predict the future outcome of each tenure status. In reality, the NPEV should be re-performed and updated on a continuous basis throughout the tenure duration and especially where critical changes to assumptions occur or are anticipated.

The case study applied in this section aims to contribute to households determining the optimal tenure status classification as households will be able to perform similar calculations and determine their individual optimal tenure status classification by adapting the assumptions specifically to their situation. This allows households to make an informed decision and to comprehend the long-term financial advantages (and disadvantages) of their tenure status based on their individual situation.

Phase 7: Perform sensitivity analysis where applicable

The previous section determined that homeownership status should still be pursued given the case study scenario and assumptions. However, assumptions are subjective and can change at any time, making long-term predictions difficult. This phase sets out to determine the critical assumptions per financial consideration as illustrated in Figure 2.6. The sensitivity analysis will firstly be performed on the short-term financial considerations and, thereafter, on the long-term financial considerations.

- **Sensitivity analysis of short-term financial considerations**

As previously discussed, short-term financial considerations consist of two main considerations, namely monthly cash-flow affordability and monthly cash-flow predictability. These will now be analysed further based on the alternative assumptions to the case study as illustrated in Table 2.7.

Table 2.7: Short-term alternative assumptions

SHORT-TERM ASSUMPTIONS	ASSUMPTIONS MADE	DESCRIPTION/ SOURCE
Period	12 months	(International Accounting Standards Board, 2014a).
House price	a) Exclude the NPV of the house (asset). b) Include 12 months' house price appreciation.	a) The house does not represent short-term cash-inflow and is considered an illiquid asset and thus often ignored in short-term decision making as ownership only transfers when the mortgage is repaid after 20 years. b) Comparability.

Source: Author

Monthly cash-flow affordability

To determine the optimal tenure status based on short-term monthly cash-flow affordability, the NPEV after one year for the homeowner and renter household will be calculated respectively and compared.

One year's NPEV calculation for the homeowner household

Based on these short-term affordability considerations the house price (in present value terms) appreciated with R22 110, which was calculated as follows:

Future Value (FV) of house at end of year one = R950 000 X (1+0.10514)^1
= R1 049 879.

Present Value (PV) of House price at end of year one inputs was as follows:
FV = R1 049 879; Period (N) =1; Rate (I/YR) = 8%;
Calculated PV = R972 110.

House price appreciation after one year amounted to R22 110 (R972 110 – R950 000).

- Ignoring long-term loan value and considering only the first 12 months' mortgage associated cash-flow costs (loan repayments and bank charges), the NPC of the loan discounted at a monthly finance rate amounted to R90 021.
- Considering only the short-term affordability, the first 12 months' homeownership associated cash-flow costs discounted at WACC, resulted in a NPC of R31 903. Figure 2.14 illustrates the NPEV equation of homeownership after one year, as discussed above.

Based on short-term affordability the NPEV homeownership resulted in a negative value of R99 814, indicating that homeownership is not a sound short-term investment decision. After calculating the NPEV of homeownership at the end of one year, the NPEV of renting at the end of one year will now be calculated to allow for a least cost comparison.

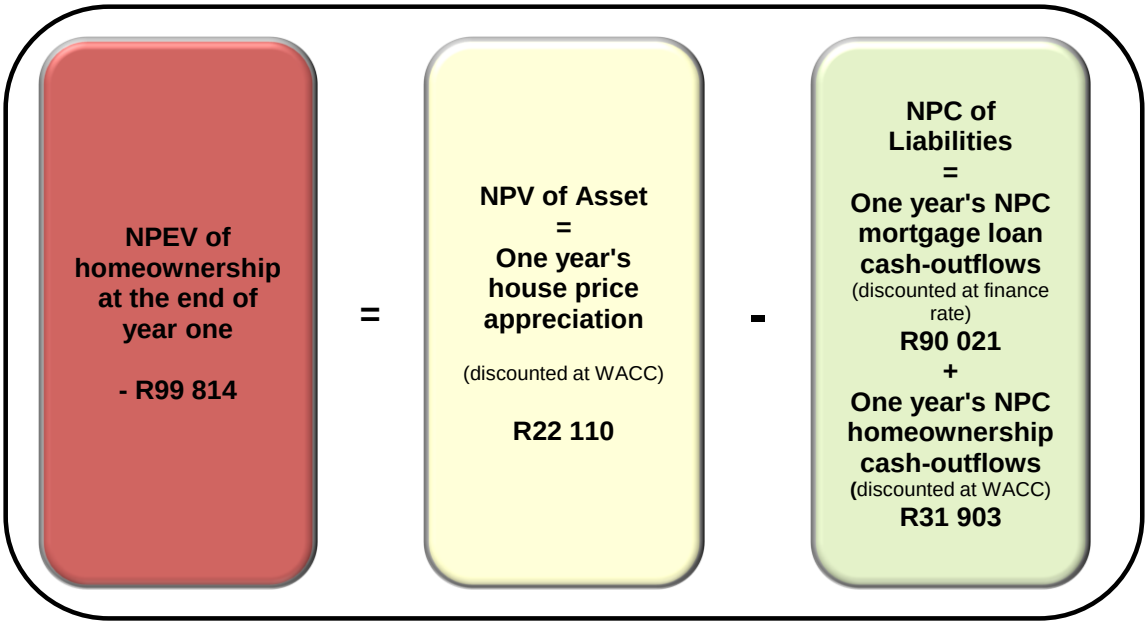

Figure 2.14: Short-term affordability NPEV equation applied to homeowner household

Source: Author

One year's NPEV calculation for the renter household

For the renter household, short-term cash-flow affordability assumptions had the following effect: The NPV of assumed initial savings balance appreciated[5] with only R382 (R133 227 less initial investments required of R132 845 (see phase 3)) over 12 months.

The NPV of assumed rental savings balance amounted to R33 731 at the end of year one. The NPC of renting cash-flow costs for one year amounted to R86 793. Figure 2.15 illustrates the NPEV equation of renting after one year, as discussed above.

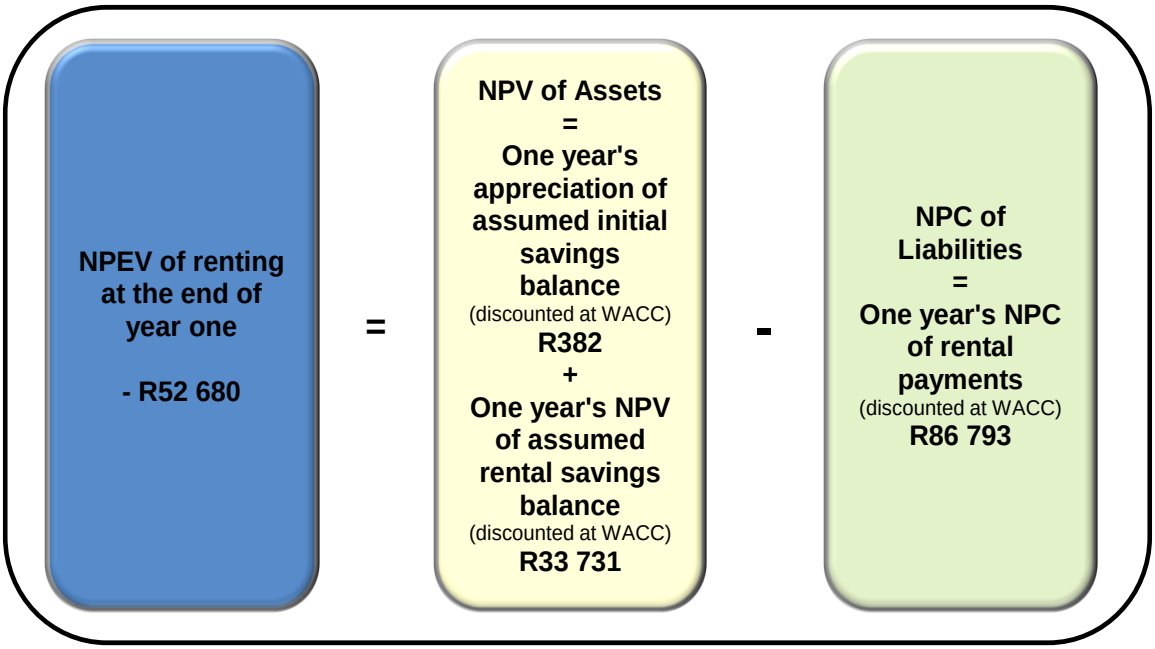

Figure 2.15: Short-term affordability NPEV equation applied to renter household

Source: Author

The renting NPEV resulted in a negative value of R52 680, which indicated that renting is not a sound short-term investment decision. Figure 2.16 illustrates the most optimal short-term cash-flow tenure status.

[5] Only the assumed initial savings appreciation is included as it could be argued that the homeowner would have accrued a similar portion of the house value as the initial investment required and is therefore assumed irrelevant.

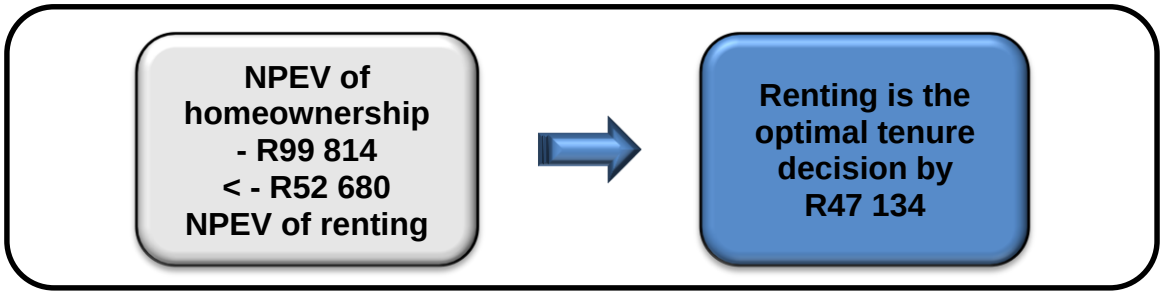

Figure 2.16: Optimal short-term tenure decision

Source: Author

Based on the short-term monthly affordability, renting is the optimal tenure status by R47 134 as the NPEV of homeownership of -R99 814 is more costly than the NPEV of renting at -R52 680.

Short-term monthly affordability is therefore deemed to be a critical advantage for the renter household.

Monthly cash-flow predictability

To determine if the short-term (first 12 months) monthly predictability cash-flows associated with renting is a critical advantage, the predictable and unpredictable monthly cash-outflows of homeownership is compared to the 100% predictable cash-outflows of renting. Homeownership has 4% unpredictable cash-outflows in the short-term (due to repairs and maintenance), whereas 96% (all other cash-flows) remain predictable as illustrated in Figure 2.17.

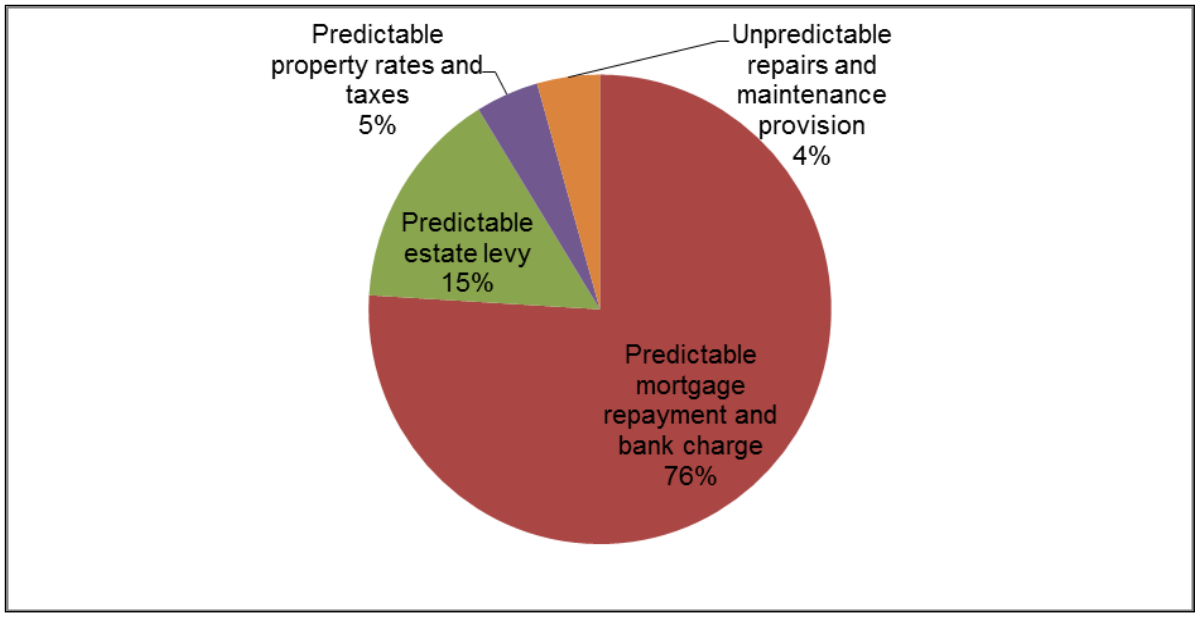

Figure 2.17: Short-term monthly cash-flow predictability

Source: Author

Due to the unpredictable nature of repairs and maintenance, it should be noted that the amount assumed in the case study may in reality vary significantly and have a potentially increasing adverse impact on the homeowner household (Van Zandt & Rohe, 2011). In addition, the case study assumed a fixed mortgage interest rate. If the rate is variable and linked to the prime interest rate the mortgage payment becomes less predictable, also referred to as the interest rate risk (Campbell & Cocco, 2015). However, both renter and homeowner households remain exposed to long-term fluctuations due to market changes.

Short-term monthly predictability of cash-flows is therefore deemed to be a critical advantage for the renter household.

Figure 2.18 illustrates which tenure status is considered most advantageous based on short-term financial considerations.

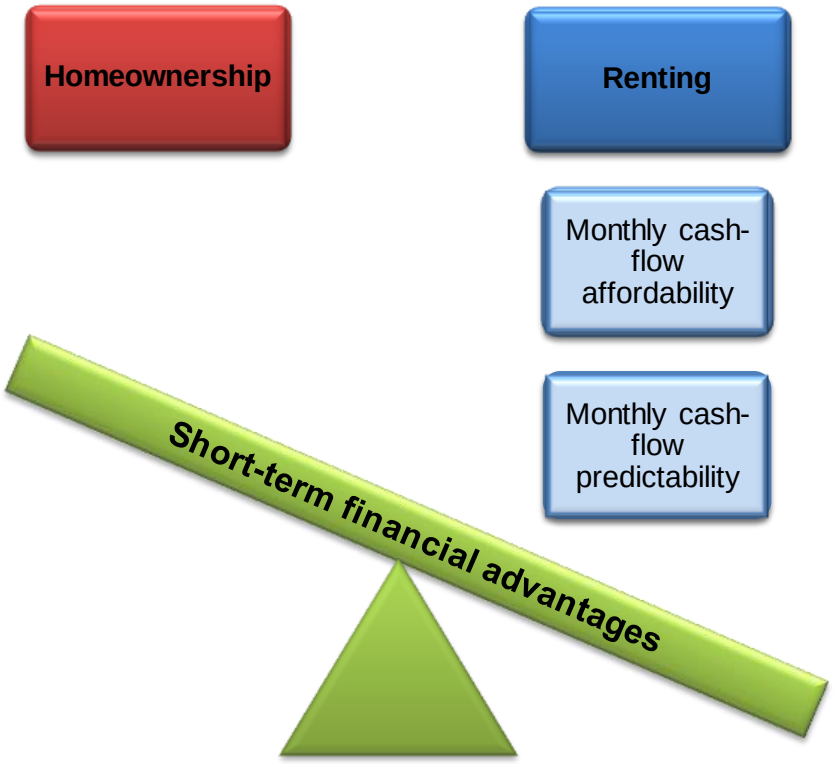

Figure 2.18: Most advantageous based on short-term financial considerations

Source: Author

Renting is deemed the optimal short-term financial tenure decision when considering short-term monthly cash-flow affordability and monthly cash-flow predictability. Although renting is the optimal short-term decision, the decision to purchase a home is a long-term investment decision and households should therefore, focus on long-term financial considerations when determining the optimal tenure status.

- **Sensitivity analysis of long-term financial considerations**

Long-term financial considerations will be analysed and discussed hereafter to determine how critical the case study assumptions in phase 3 are. The applicable long-term financial considerations will be discussed as illustrated in Figure 2.19.

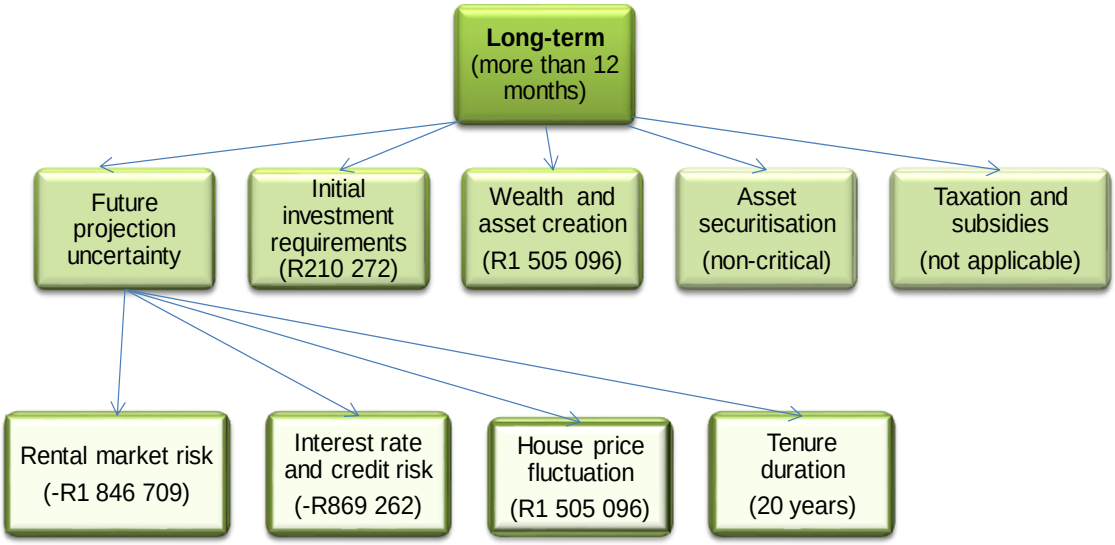

Figure 2.19: Long-term financial considerations sensitivity analysis

Source: Author

The figure above indicates the amounts or assumption per long-term financial consideration which will respectively be analysed for sensitivity to determine the critical or non-critical advantages.

Future projection uncertainty sensitivity analysis

Future projection is difficult, especially given market fluctuations and household circumstance uncertainty in the long-term. Sensitivity analysis will be performed to determine if rental market risk, interest rate and credit risk, house price fluctuation and tenure duration contain critical or non-critical advantages to the case study.

- *Rental market risk sensitivity analysis*

Based on the case study's annual rent increase assumption of 9%, homeownership was determined as the optimal tenure status. If the rent was to increase beyond the 9% rate, it would only emphasise the disadvantage of the rental market risk for the renter household, confirming that the optimal tenure status would remain homeownership. According to the sensitivity analysis, it is highly unlikely that rent will decrease annually to such an extent that renting becomes the optimal tenure status.

The advantage of no rental market risk for the homeowner household is therefore deemed to be a non-critical advantage.

- *Interest rate and credit risk sensitivity analysis*

In addition to changing the mortgage payment amount, a change to the interest rate will also change the mortgage finance discount rate (market interest rate). For this reason, very small changes are observed when performing the interest rate sensitivity analysis. An increase in credit risk and cost of debt will increase the mortgage homeowner's Weighted Average Cost of Capital (WACC) discount rate and thus decrease the overall NPEV for the homeowner. This WACC adjustment was however ignored as assigning different discount rates to each household falls beyond the scope of this study. The case study assumed two identical households with regards to risk. In addition, fluctuating the interest rate throughout the tenure duration falls beyond the scope of this study.

Assuming the homeowner households have an inferior credit rating than assumed in the case study, and are thus perceived by the financier to have a higher finance risk, the financier will charge a higher mortgage interest rate to reward the risk increase. Increasing the interest rate will undoubtedly negatively affect homeowner households' cash-flows. However, it is highly unlikely that the interest rate could increase to such an extent that renting becomes the optimal tenure status.

No interest rate and credit risk is therefore deemed to be a non-critical advantage for the renter household.

- *House price fluctuation*

To account for sensitivity of house price depreciation, the sensitivity analysis assumed a house price present value reduced from R1 505 096 to R null. This highly unlikely assumption resulted in a negative homeownership NPEV of -R1 331 356 and the individual homeownership status was rejected as a viable investment decision (Hargreaves, 2002) as illustrated in Figure 2.20.

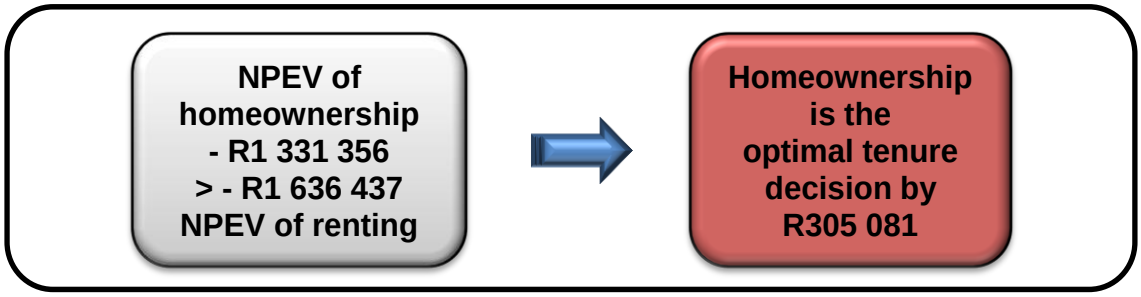

Figure 2.20: House price depreciation influence on optimal tenure status

Source: Author

However, when compared to renting NPEV on a least cost basis, homeownership remained the optimal tenure status by R305 081.

No house price depreciation risk is therefore deemed to be a non-critical advantage for the renter household.

The house price represents an advantage for the homeowner and appreciation will reinforce that. On an individual basis, homeownership remained a viable financial investment decision. Counter to that, no house price depreciation risk was identified as a non-critical advantage for the renter household as it did not change the optimal tenure status from homeownership to renting. Although house price increases are advantageous to the homeowner, it may restrict new market entrants based on affordability and renting remains the only viable alternative (Hargreaves, 2002; Carter, 2011).

- *Tenure duration uncertainty sensitivity analysis*

In line with literature (Hargreaves, 2002; Turner & Luea, 2009; Brounen *et al.,* 2013; Tabner, 2015), the case study found that, based on long-term tenure duration (20 years), homeownership is the preferred tenure status and short-term tenure duration favours renting. Deciding to purchase a home is a long-term investment decision and a short-term focus would be flawed. However, the households' financial situation may restrict the household to renting as the only viable alternative.

Tenure duration uncertainty affects other assumptions such as the perpetuity effect and selling cost effect, which will now be discussed.

The case study found that after 20 years the mortgage is repaid and the homeowner household owned their house valued at R7 015 187, whereas the renter households' assumed savings balances amounted to only R980 069 (R655 803 + R324 266).

After year 20 and onwards, the mortgage is repaid and the homeowner only has to pay homeownership associated expenses which are significantly lower than the rental payments the renter household has to continue paying. The homeowner household has thus created wealth over the 20 year period and can expect lower costs into perpetuity when compared to the renter whose monthly rental payment will continue[6]. For this reason, some households prefer to pay a mortgage installment instead of paying rent. The motivation for this is that some perceive homeownership to lead to the acquisition of an asset (house), while renting leads to nothing (Ben-Shahar, 2007; Seeff, 2013).

Forced asset creation through homeownership is therefore deemed to be a critical advantage.

Perhaps this perception is theoretically flawed, as a home may not always present the most optimal asset investment and households who prefer renting often argue that their assumed savings balances can be invested more effectively. There are other investment options available with higher risk and return rates, creating greater wealth than homeownership (see an asset creation sensitivity analysis to follow). However, in reality these assumed savings balances seldom realises for renters (Ben-Shahar, 2007; Seeff, 2013).

Renter households often indicate that contributing to their tenure preference is the advantage of limited moving cost such as selling costs, whereas homeowners justify these costs if their tenure duration is long-term (Henderson & Ioannides, 1986; Haurin, Hendershott & Wachter, 1996; Fisher & Gervais, 2010). When deciding on tenure duration, homeowners need to budget for selling costs associated with selling their home. These costs include costs such as agent commission, which ranges between

[6] The case study assumed 20 years as the tenure period, should households however be able to anticipate their infinitive tenure status a continuing value can be calculated. Predicting the expected constant growth for the various assets and liabilities beyond 20 years is highly subjective and falls beyond the scope of this study.

5% and 7% of the selling price, electrical certificate costs, estate clearance certificates, and capital gains tax if the selling price is above R2 000 000 (Cloete, 2013; News24, 2012; South African Revenue Service, 2015).

As illustrated in Figure 2.21, despite incorporating a 7% selling cost deduction from the future house price at year 20, homeownership remained a viable investment decision and the optimal tenure decision.

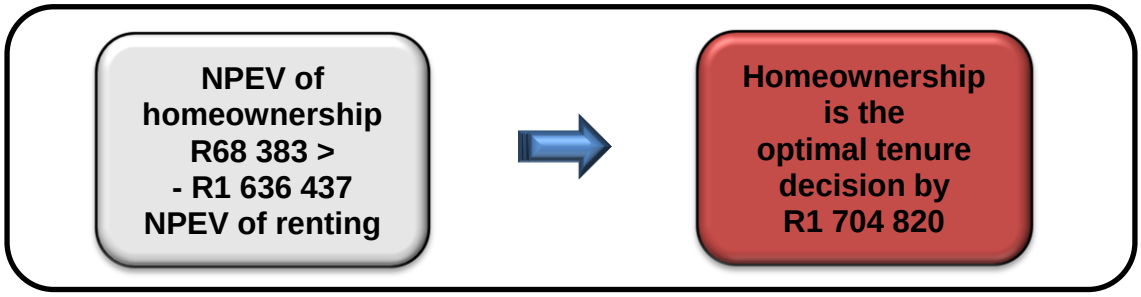

Figure 2.21: Homeownership status remained optimal despite selling cost

Source: Author

Neither tenure duration into perpetuity nor the impact of selling cost changed the optimal tenure status from homeownership to renting.

Tenure duration uncertainty is therefore deemed to be a non-critical long-term assumption as the advantage of homeownership increases with tenure duration and decreases with uncertainty.

Studies have found that the NPEV breakeven point occurs at different tenure durations in conjunction with other assumptions (Hargreaves, 2002; Moodley-Isaacs & Arde, 2011; Tabner, 2015)[7].

Initial investment requirement sensitivity analysis

The case study assumed the large initial investment required to purchase a home amounted to R132 845. In addition to the assumed initial investment balance, the renter was assumed to save additional cash-flows, creating a monthly rental savings balance. At the end of 20 years the present value of the assumed savings balances of

[7] Determining the NPEV break-even point in terms of tenure duration falls beyond the scope of this study.

the case study totaled R210 272 (see Figure 2.12). Despite renter households often being unable to save these large assumed savings balances, they only have to save one or two months' refundable deposit to allow the household access to adequate housing and any additional savings allow them to pay off existing debt and other expenses.

No initial savings requirement is therefore deemed to be a critical advantage for the renter household.

Although these assumptions are unlikely in the South African household context (Cloete, 2013; Seeff, 2013), households who prefer renting often argue that these assumed savings balances can be invested at higher return rates and thus provide greater wealth creation opportunities for the renter household, which is discussed in the following section.

Wealth and asset creation sensitivity analysis

Should the return rate of both the assumed initial savings balance and monthly rental savings increase to 19%, renting will become a viable investment at a NPEV of R123 990, and at 19.5% renting becomes the optimal tenure status by R147 754 as illustrated in Table 2.8 and Figure 2.22.

Table 2.8: Effect of return rate changes on NPEV of renting and optimal tenure status

	CASE STUDY (8.01% AND 6.00%)	18.0%	19.0%	19.5%
Initial savings balance	140,701	1,015,594	1,236,689	1,364,596
Monthly rental savings	69,571	612,370	734,010	803,607
NPC of rent	(1,846,709)	(1,846,709)	(1,846,709)	(1,846,709)
NPEV of renting	**(1,636,437)**	**(218,745)**	**123,990**	**321,494**
NPEV of homeownership (see Figure 2.10)	**173,740**	**173,740**	**173,740**	**173,740**
Optimal tenure status	**(1,810,177)**	**(392,485)**	**(49,750)**	**147,754**

Source: Author

Figure 2.22 illustrates that, given a high return rate of 19.5% and assuming that the renter households vigilantly save, renting becomes the optimal tenure status.

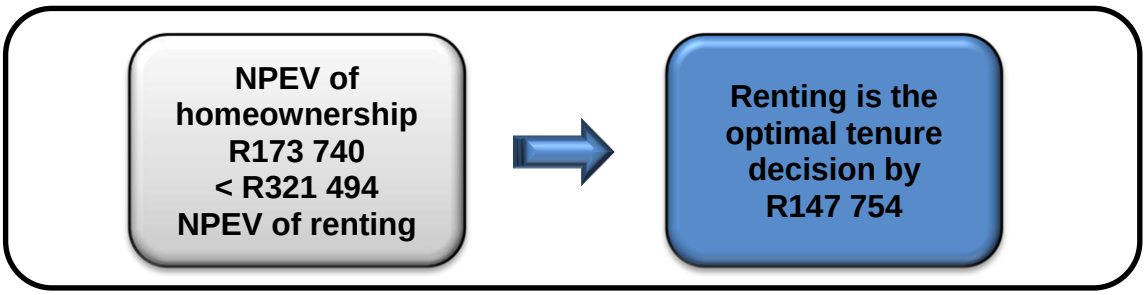

Figure 2.22: Renting tenure status becomes optimal at an investment return rate of 19.5%

Source: Author

Despite 19.5% being achievable if invested in higher-risk-higher-reward investments such as equity shares, most South Africans are risk averse and would prefer homeownership from a risk perspective. The theoretically superior renter wealth creation is, therefore, a non-critical advantage as it predominantly relates to investors and not the typical South African household (Cloete, 2013; Seeff, 2013).

Superior renter wealth and asset creation is therefore deemed to be a non-critical advantage.

- **Long-term financial advantages summary**

After calculating the respective NPEV's per the case study assumptions and performing the long-term financial advantages (and disadvantages) sensitivity analysis, Figure 2.23 visually illustrates homeownership as the optimal tenure decision based on critical advantages.

For homeowners, house price appreciation and forced asset creation were identified as critical advantages. The rental market risk and asset securitisation were identified as non-critical advantages. The only critical advantage for renters was no initial investment required as no interest and credit risk, no house price depreciation risk, no selling cost, and superior wealth creation possibilities were found to be non-critical advantages.

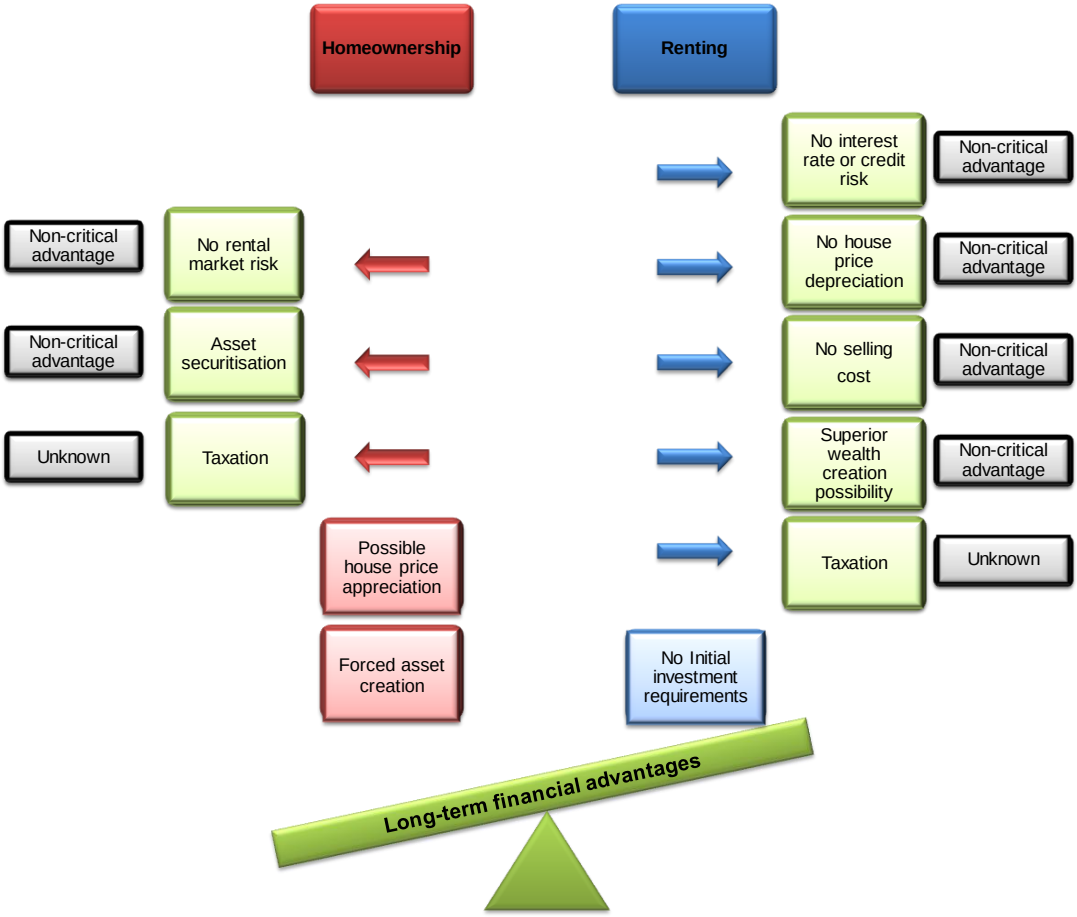

Figure 2.23: Long-term financial critical advantages

Source: Author

Although homeownership should be encouraged, it should be done with caution. Households with lower, unstable or plateaued income levels may not be able to maintain adequate housing in the long-term and will, therefore, remain the responsibility of the government (Van Zandt & Rohe, 2011). The government should implement appropriate interventions to encourage households to make sound tenure decisions based on economics and not emotions, even if these interventions include renting (Dickerson, 2009; Forrest & Hirayama, 2015).

The literature identified non-financial considerations as important (Hargreaves, 2002; Ben-Shahar, 2007; Moodley-Isaacs & Arde, 2011; Seeff, 2013; Rode, 2015b). For some households the belief, or not, in the advantages of homeownership was found to significantly influence their tenure status decision (Drew, 2014). In accordance with

the literature review, the following section investigates the non-financial considerations which households deemed important to their tenure status decision.

2.5.2 Non-financial considerations

Several households consider non-financial (such as psychological factors) considerations superior to financial considerations (Ben-Shahar, 2007; Andersen, 2011; Drew, 2014).

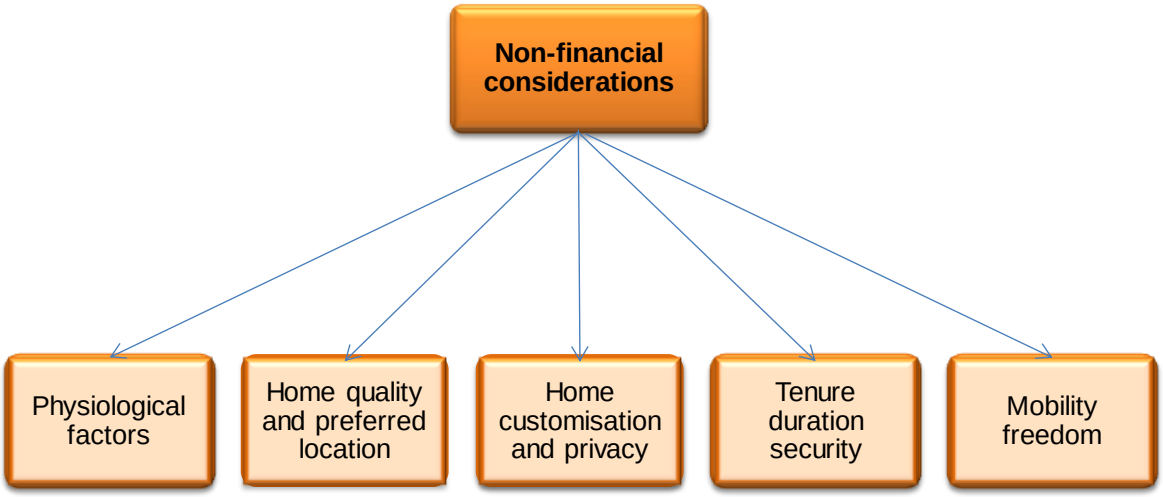

Figure 2.24: Non-financial considerations

Source: Author

As will become evident from the discussion in this section, psychological factors, home quality and preferred location, home customisation and privacy, tenure duration security, and mobility freedom were identified as the most prevalent non-financial tenure status advantages as illustrated in Figure 2.24.

Psychological factors

Psychologically homeownership status is the preferred tenure status as it attributes to superior happiness, satisfaction, sense of belonging, social status, self-confidence, success, stability, peace of mind, less depression, and an overall higher sense of well-being than renting status (Elsinga & Hoekstra, 2005; Ben-Shahar, 2007; Rossi & Weber, 2010; Huang *et al.,* 2015). Out of eight European countries, Austria was the only exception where renting provided similar satisfaction as homeownership (Elsinga & Hoekstra, 2005).

Previous experience also played a role in the tenure status decision as renters with a negative or only slightly positive previous renting experience are more inclined to become homeowners than those who experienced renting very positively (Drew, 2014). Interestingly, Ben-Shahar (2007) found psychological advantages statistically more significant than financial advantages when determining a household's tenure preference. The quality and location of housing plays a major role in determining the household's psychological housing satisfaction and is discussed hereafter (Elsinga & Hoekstra, 2005).

Home quality and location

The quality of owner-occupied homes are generally perceived higher (larger homes with more facilities), which ultimately leads to greater housing satisfaction for homeowners, unless they were unable to afford repairs and maintenance (Elsinga & Hoekstra, 2005). In contrast, households who were unable to afford ownership in their preferred locations either purchase lower quality homes or decide to rent superior quality homes at preferred locations (Goodman, 1988; Deng, Ross & Wachter, 2003; Property24, 2016). The higher quality homes of homeowners could be ascribed to homeowners' responsibility for repairs and maintenance and the overall condition of their homes, whereas renters seldom maintain or improve a property (Hargreaves, 2002; Reed & Greenhalgh, 2002; Van Zandt & Rohe, 2011; Property24, 2016). Renters partly do not maintain or improve properties because they do not have the legal right to customise the residence as discussed below.

Home customisation and privacy

Homeowners are legally entitled to unrestricted customisation of their homes according to their preferences. This is found to be important when considering whether to buy a property as they will enjoy the long-term benefit of improvements (Hargreaves, 2002; Reed & Greenhalgh, 2002; Andersen, 2011; Property24, 2016). Homeownership title provides the advantage associated with privacy rights (freedom and independence), whereas for renters their lack of title is sometimes confronted with a lack of privacy and restricted customisation which influences their lifestyle, particularly when facilities are shared and regular inspections are performed by the landlord or agent (Property24, 2016). Renters also do not maintain or customise their homes because they are uncertain if they will gain the long-term benefit derived from

improvements due to the tenure duration uncertainty discussed in the following section.

Tenure duration security

Notwithstanding the risk of foreclosure associated with mortgaged homeownership, homeownership provides the advantage of greater security over tenure duration as the homeowners cannot be forced to relocate within a relatively short notice period, whereas renters can be evicted with limited notice (Reed & Greenhalgh, 2002; Dickerson, 2009; Lemanski, 2009; Seeff, 2013). Homeowners further have the advantage of deciding when they wish to sell their property and end their tenure duration (Andersen, 2011).

Tenure duration uncertainty, as discussed earlier (see Section 2.5.1), was an important financial assumption, since the advantage of homeownership increased with tenure duration. Part of this reason was found in the high transaction costs associated with buying and selling a home. In contrast, the renters' moving costs were extremely limited, making it easier for the renter household to relocate, giving renter households the advantage of mobility freedom as discussed in the next section.

Mobility freedom

Rental agreements can usually be terminated within a relatively short time period, providing renter households the advantage of mobility freedom (Reed & Greenhalgh, 2002). Internationally and in South Africa reduced employment security necessitate many households to relocate quickly in an effort to find employment in another location, making mobility freedom increasingly advantageous for renters (Hargreaves, 2002; Property24, 2016).

In general homeowners tend to be less mobile due to mortgage commitments, the period it takes to sell a home, high transaction costs associated with moving, and possibly greater involvement in the neighbourhood and communities (Dietz & Haurin, 2003; Andersen, 2011). Interestingly, despite homeowners' lack of mobility freedom, which theoretically may hinder employment pursuit in other locations, homeowners' employment status and overall contribution to the labour market was found superior to that of renter households (Coulson & Fisher, 2002).

Non-financial considerations summary

Based on the non-financial considerations, homeownership is preferred in terms of psychological factors such as self-confidence. They have the legal right of residence customisation and privacy, therefore often leading to superior home quality as they gain the long-term advantage of repairs, maintenance, and improvements, and they have tenure duration security as they can decide how long they wish to reside. Contrastingly, the renter household is able to rent a home in their preferred location where they were unable to afford homeownership and are able to relocate freely to obtain employment in other locations.

Figure 2.25 illustrates which tenure status is considered most advantageous based on non-financial considerations, and it could be perceived that homeownership's non-financial advantages outweighed that of renting.

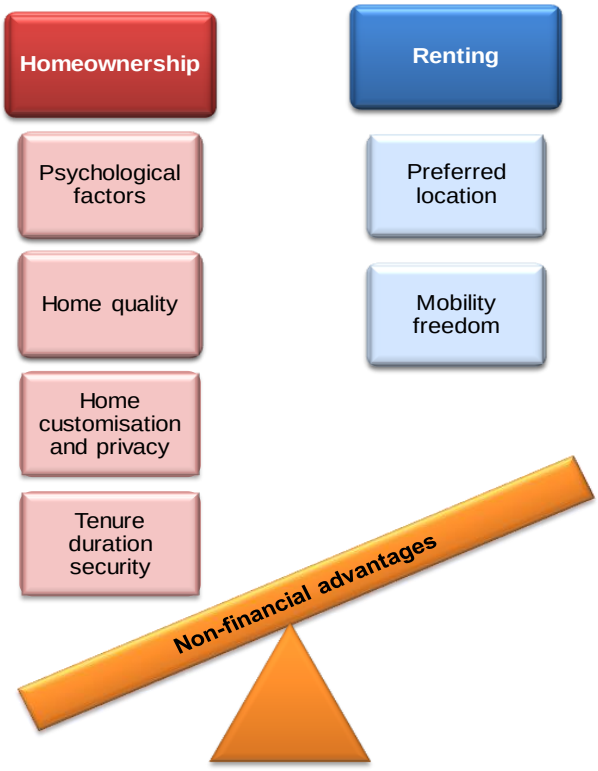

Figure 2.25: Most advantageous non-financial considerations

Source: Author

These advantages can, however, not be directly compared, as the tenure decision will be based on the household's belief or lack thereof in advantages, and some advantages may outweigh others based on the household's prior experience and preference (Drew, 2014; Huang *et al.,* 2015).

2.6 CONCLUSION

For creating wealth, stability and economic growth, homeownership is advantageous on a macro-level. Financially on a micro-level the literature, case study and sensitivity analysis found homeownership to be the optimal homeownership status in the long-term and renting in the short-term. Regarding non-financial considerations homeownership also appears more advantageous than renting, however, non-financial advantages are not directly comparable (Huang *et al.,* 2015). These findings are in line with literature and expectations and this study, therefore, advocates that homeownership is more advantageous and should be encouraged, thereby answering sub-research question 1 (see Section 1.5.1).

Homeownership is deemed to be the most advantageous tenure status.

Due to the advantages discussed in the preceding sections, a shift towards the increasing acceptance of renting and the reduction of homeownership could indicate a reduction in wealth accumulation, resulting in increased levels of poverty which has major implications for society and the government's housing incentives (Reed & Greenhalgh, 2002; Coulson & Fisher, 2009). Households are not always able to attain their preferred tenure status due to influential factors beyond their control. The next chapter will discuss these influential financial and non-financial factors with the aim of developing a South African homeownership heuristic model.

CHAPTER 3
FACTORS INFLUENCING HOMEOWNERSHIP STATUS

3.1 INTRODUCTION

The main research objective of this study is to:

Determine the comparative odds of variables contributing to non-subsidised homeownership in South Africa.

To achieve this objective, this study firstly contextualised the South African housing tenure status in Chapter 2. It was found that homeownership attainment is the most advantageous tenure status and should therefore be encouraged. Contrary to this conclusion reached, a declining homeownership trend and an increasing renting trend was observed in South Africa and internationally (Reed & Greenhalgh, 2002; Hargreaves, 2003; Drew, 2015; Acolin *et al., 2016*; Statistics South Africa, 2016d). This shift toward renting away from homeownership could indicate that households often experience restrictions in gaining access to the housing market and are not always able to attain their preferred tenure status due to influential factors beyond their control (Lauridsen & Skak, 2007; Andersen, 2011; Herbers *et al.,* 2014; Drew, 2015; Lennartz *et al.,* 2015). Therefore, this chapter focusses on sub-objective 2:

Develop a South African non-subsidised homeownership heuristic model based on the most prevalent factors identified from a literature review.

To achieve this objective three phases are required. The first and second phases respectively identify financial and non-financial factors anticipated to influence the homeownership outcome. The final phase develops a heuristic model based on the prevalent factors identified in phase 1 and 2. Figure 3.1 illustrates the purpose of each section in this chapter.

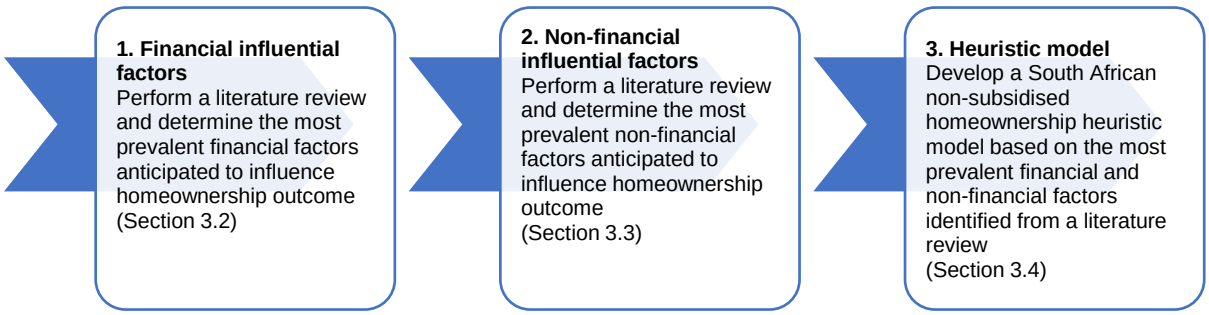

Figure 3.1: Summary of purpose of each section in Chapter 3

Numerous relationships between these influential factors are found, with the strength and direction differing depending on the particular country under review's current and historic housing background and population demographics. The heuristic model categorises the relationships amongst the financial and non-financial influential factors that affect the outcome of the homeownership status based on their magnitude and intricacies. In order to facilitate the discussion of these relationships, they are divided into three sub-categories (from weakest to strongest relationship) namely underlying, non-proximate, and proximate influential factors. By recognising these intricate relationships between the financial and non-financial influential factors and distinguishing between underlying, non-proximate and proximate influential factors, this study aims to provide insight into the outcome of South African households' homeownership status. The heuristic model will further anticipate the outcome of the homeownership status per identified influential factor as illustrated in Figure 3.2.

Influential factors			Homeownership attainment	
Underlying ⇨	Non-Proximate ⇨	Proximate ⇨	Increase +	Decrease −

Figure 3.2: Suggested framework for a non-subsidised homeownership heuristic model

Source: Author

3.2 FINANCIAL INFLUENTIAL FACTORS

The first phase identified financial factors from the literature review, namely income level, credit risk, and savings ability. Figure 3.3 illustrates the identified financial influential factors which will be discussed in this section.

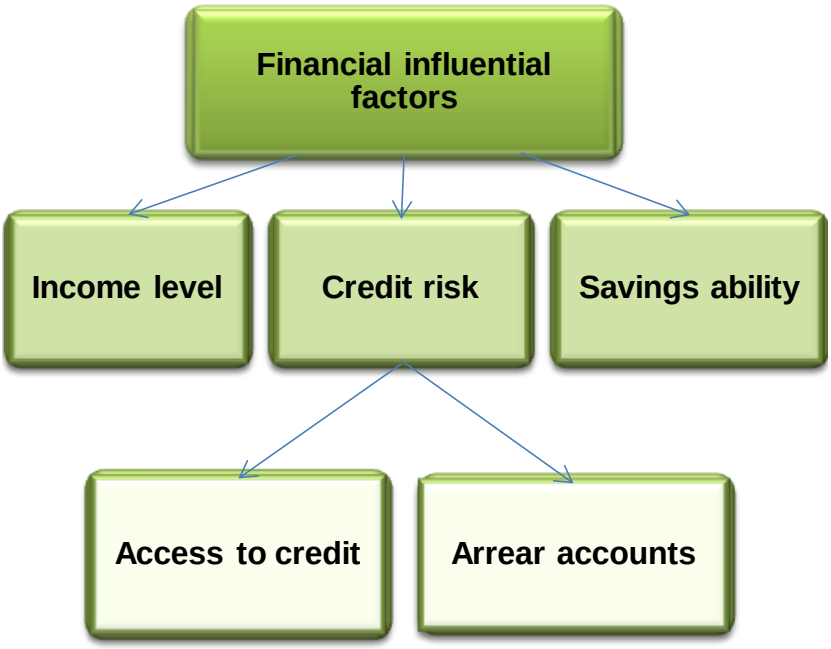

Figure 3.3: Identified financial influential factors

Source: Author

The influence of these three financial factors (as indicated in green in Figure 3.3) on affordability and homeownership attainment will now be considered.

Access to affordable finance, typically a mortgage loan, is generally a prerequisite for entering the housing market, as most households do not have sufficient cash-flow and other sources available to fund a home purchase. In South Africa, the National Credit Act (NCA), No 34 of 2005 was implemented in an effort to reduce reckless lending by financiers, mortgage defaults, and over-indebtedness (South Africa, 2005b). Subsequently, financiers have introduced more rigorous affordability assessment procedures to determine if the household will be able to afford (repay) the mortgage installments before granting mortgage loans to South African households (South

Africa, 2005b; Sewnunan & Green, 2015; South Africa. Department of Trade and Industry, 2015).

Affordability assessments include determining discretionary income *(income level),* as well as *credit risk* procedures, such as determining the current level of *access to credit* and credit repayment history, such as *arrear accounts* (South Africa. Department of Trade and Industry, 2015). In addition, although not a pre-requisite, financiers frequently require a large initial deposit *(savings ability)* which reduces the monthly mortgage repayment and improves affordability (see Section 2.5.1) (Mhlanga, 2013a; Forrest & Hirayama, 2015; Just Money, 2016).

Despite these efforts, many South Africans were found to be increasing their use of expensive debt instruments, which have led to increased default rates. For example, in 2015 the National Credit Regulator found that less than half (46%) of South Africans had a good credit history with no accounts in arrears (National Credit Regulator, 2015). Evidently, households have become increasingly over-indebted, thereby reducing their mortgage affordability, thus increasing their credit, which makes it more difficult to obtain a mortgage loan. This restricts their access to the housing market (Cloete, 2013; National Credit Regulator, n.d.; Ooba, n.d.). The influences of financial factors on affordability are therefore anticipated to have a great impact on the households' homeownership attainment. The following sections discuss each of these affordability measures: income level, credit risk, and savings ability.

3.2.1 Income level

General consensus was reached that higher income levels will lead to an increase in homeownership as it assists households to meet the affordability assessment criteria as prescribed and implemented by financiers providing access to mortgage loans (Worthington, 2009; Carter, 2011; Drew, 2015; Statistics South Africa, 2016d).

The influence of income level was further explained by a Belgium study where households with a higher income level led to an increase in homeownership status attainment. In contrast, the lower income level households experienced stagnation or even a decline in homeownership attainment. This occurrence was explained by the

average housing costs for the low-income level Belgium households, which increased faster than their average household income. This made homeownership attainment even more difficult for the low-income level households (Van Dam *et al.,* 2003). Although Coulson and Fisher (2002) initially agreed with other studies that homeowners from the United States of America (USA) have higher income levels than renters, their later study utilising new search models at a household-level (micro-level), found the opposite to be true (Coulson & Fisher, 2009).

In a study in Denmark, it was found that an increase in the breadwinner's income level increases homeownership status (Lauridsen & Skak, 2007). Interestingly, in the USA Haurin *et al.,* (1996) and Carter (2011) found an increase in income level to lead to an increase in homeownership irrespective of which household member contributed towards total household income. Similarly, a recent Statistics South Africa (2016d) study focussing on housing from a human settlements perspective based on General Household Survey data from 2002 to 2014, found that homeownership status is not necessarily influenced by the income level of the household head, but rather the total household income. For the purpose of this study, total household income level will therefore be considered.

Similar to other studies, the Statistics South Africa (2016d) study found homeownership to increase with household income level. Even though South Africa has a well-developed mortgage market, access to finance is restricted for households with low-income levels (Rust, 2016). South Africa is a poverty stricken country with many households unable to attain their preferred tenure status. The Statistics South Africa (2016d) study found that 75% of households across all income levels indicated that their housing affordability levels have deteriorated and as a result many, especially the poorest households, rely heavily on qualifying for government housing incentives.

A high-income level is expected to increase non-subsidised homeownership attainment and a low-income level is expected to decrease non-subsidised homeownership attainment. Based on the direct influence of income level on homeownership attainment, it is categorised as a proximate influential factor.

In addition to determining income level affordability, financiers perform credit risk assessments as a pre-requisite for providing a mortgage loan, which will now be discussed.

3.2.2 Credit risk

A credit risk assessment is performed by financiers as part of the prerequisite affordability assessment. Two of the most prevalent credit risk assessment procedures require the financiers to assess the households' current access to credit and credit history. The aim is to ensure that households are not over-indebted and can afford the mortgage loan repayments (South Africa. Department of Trade and Industry, 2015).

Assessing a household's current access to credit is necessary as many households are financing their increasing expenditures through short-term debt instruments such as credit cards and store accounts at high interest rates. This reduces their mortgage loan affordability and increases the household's credit risk (Reed & Greenhalgh, 2002).

Although it may seem financially wise from a credit risk perspective not to obtain any access to credit (short-term or long-term), households need access to credit accounts, such as credit and store accounts, to build up a credit history.

Financiers assess the household's credit history, which includes looking at the household's arrear accounts. A good credit history is built up over time by households who utilise their access to finance sources in a responsible manner. Examples include having no accounts in arrears and not reaching the maximum credit amount available (Equifax Inc., 2016). In reality, many households end up defaulting on their payments and their accounts fall in arrears, which increase their credit risk. This restricts their access to mortgage loans as financiers prefer financing households with a good credit history and low credit risk (Reed & Greenhalgh, 2002; Hargreaves, 2003; Lauridsen & Skak, 2007; Sewnunan & Green, 2015). Although financiers often consider the value of the home for collateral purposes, the recoupment process is too expensive and insecure and financiers, therefore, prefer to provide loans to households with good credit ratings (Lauridsen & Skak, 2007).

A low credit risk is expected to increase non-subsidised homeownership attainment and a high credit risk is expected to reduce non-subsidised homeownership attainment. A household's credit risk directly influences their homeownership attainment and is therefore categorised as a proximate influential factor.

The next section will discuss the discipline required to save and the difficulties households experience when trying to save due to high living costs, debt repayment, and the influence of savings ability on homeownership attainment.

3.2.3 Savings ability

Although not a prerequisite to obtaining a mortgage loan, becoming a homeowner normally requires a household to be able to save a substantial initial investment, including deposit and transaction fees (such as transfer duties and legal costs) (Reed & Greenhalgh, 2002; Hargreaves, 2003; Ben-Shahar, 2007; Tabner, 2015). Several researchers have found the influence of saving for a deposit important, whereas the influence of saving for transaction fees was found less important for homeownership attainment (Reed & Greenhalgh, 2002; Hargreaves, 2003; Ben-Shahar, 2007).

In South Africa, deposit saving is not a legal requirement and theoretically it is possible to obtain a 100% mortgage loan. However, in reality financiers usually require a 10% deposit saving (Mhlanga, 2013a; Statistics South Africa, 2016d). This allows financiers to mitigate their risk by ensuring that households are able to afford the remaining mortgage balance. For this reason higher deposit savings are usually required for lower income households (Forrest & Hirayama, 2015). A household's ability to save the initial deposit, therefore, often affects their access to the housing market (Hargreaves, 2003; Reed & Mills, 2007).

Traditionally, young adults are encouraged to save for a deposit to purchase a house as soon as possible, which requires a lot of social sacrifices and discipline (Reed & Greenhalgh, 2002; Reed & Mills, 2007). Renting is becoming a more acceptable tenure status alternative, partly because it does not require such a high initial investment. In addition, households' luxury expenses (such as holidays and motor

vehicles) are increasing and access to short-term finance instruments (such as credit and store cards with high interest rates) has increased. This makes saving for a deposit even more challenging (Haurin *et al.,* 1996; Reed & Greenhalgh, 2002). South Africans lack the necessary discipline, income and savings education and therefore saving for a deposit has become less important and they are saving even less than before. This makes homeownership attainment increasingly difficult (Seeff, 2013; Le Roux, 2015; Old Mutual Investment Group, 2015; South African Reserve Bank, 2016a).

Households' inability to save restricts their access to a mortgage loan and thus restricts non-subsidised homeownership attainment. This study interpreted utilisation of any savings products by a household as an indication of their savings ability.

A household with the ability to save is expected to increase non-subsidised homeownership attainment and an inability to save is expected to reduce non-subsidised homeownership attainment. A household's savings ability directly influences their homeownership attainment and is therefore categorised as a proximate influential factor.

3.2.4 Concluding remarks on financial influential factors

In South Africa and internationally, the global financial crisis in 2008 has resulted in many households experiencing foreclosure or over-indebtedness. As a result, more stringent lending criteria have been implemented (Dickerson, 2009; Drew, 2015; Lennartz *et al.,* 2015; Marais & Cloete, 2015). The more rigorous mortgage affordability criteria was internationally found to restrict access to the housing market, especially for younger households and first-time buyers entering the housing market (Lersch & Dewilde, 2015; Acolin *et al., 2016*). Thus, restricted access to a mortgage was found to significantly reduce homeownership attainment (Haurin *et al.,* 1996; Deng *et al.,* 2003; Andersen, 2011; Marais & Cloete, 2015; Acolin *et al., 2016*; Rust, 2016).

Based on the direct expected influence of financial factors on non-subsidised homeownership attainment, three financial factors, namely income level, credit risk, and savings ability are all categorised as proximate influential factors as illustrated in Figure 3.4.

Influential factors	Homeownership attainment	
Proximate ⇨	**Increase** ✚	**Decrease** ▬
Financial influential factors		
Income level	High-income level	Low-income level
Credit risk	Low credit risk	High credit risk
Savings ability	Savings ability	Savings inability

Figure 3.4: Heuristic model categorising financial influential factors

Source: Author

While financial and non-financial influential factors were found to correlate, Ben-Shahar (2007) found non-financial influential factors more significant. These non-financial factors influencing the outcome of homeownership status were categorised as socio-economic (income level) demographics, cultural heritage demographics, and life stages demographics. The non-financial influential factors are discussed next.

3.3 NON-FINANCIAL INFLUENTIAL FACTORS

Studies have identified numerous non-financial factors influencing homeownership attainment, which for the purpose of this study will be categorised into three main categories: socio-economic demographics, life stages demographics, and cultural heritage demographics, as illustrated in Figure 3.5.

The sections below discuss each of the three non-financial categories in turn, including the expected influence of their intricate relationships on homeownership attainment. The first category, socio-economic demographics, includes employment status, occupation and skill level, and education level which relates to income levels.

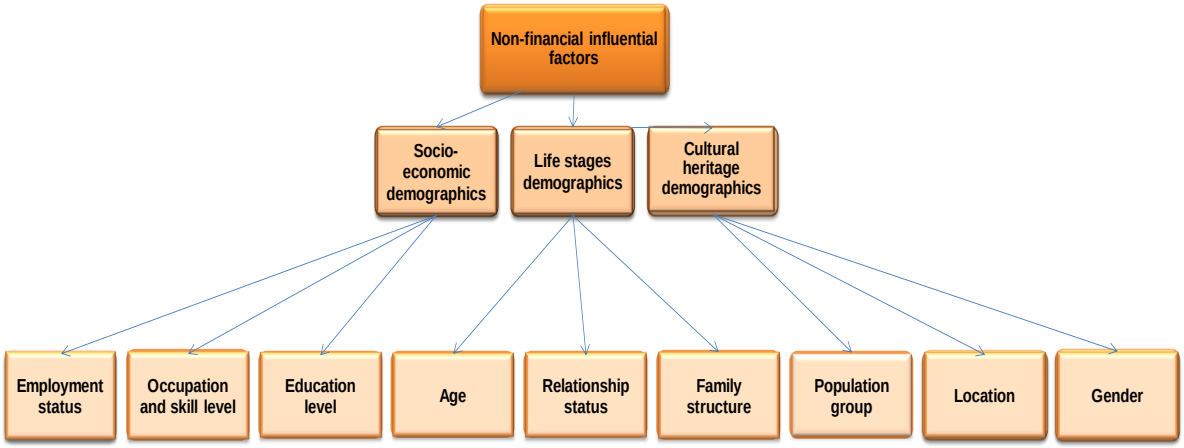

Figure 3.5: Identified non-financial influential factors

Source: Author

3.3.1 Socio-economic demographics

Following a period of economic downturn and increased mortgage restricting criteria, employment status, education level, and occupation and skill level were found to influence homeownership attainment (Painter, Gabriel & Myers, 2001; Drew, 2015; Lersch & Dewilde, 2015). As part of the mortgage affordability assessment, households applying for a mortgage loan are required to provide information on employment history, including occupation and skill level and level of education, which allows financiers to assess expected future income and affordability (Campbell & Cocco, 2015; South Africa. Department of Trade and Industry, 2015). These socio-economic demographics relate to financial influential factors, specifically the household's prospective future income level, which will now be discussed in turn.

3.3.1.1 Employment status

Homeownership is often associated with tenure stability, whereas theoretically some view its associated increase in tenure duration as leading to immobility and lower levels of employment status. This was due to homeowners not relocating to seek improved employment security as the cost associated with relocation, such as transaction costs, are considered too high (Hargreaves, 2003). Coulson and Fisher (2002; 2009) tested this theory of Oswald's (1997), and to the contrary found that

American homeowners have superior employment security and status and their unemployment periods are shorter compared to renter households.

When applying for a mortgage loan a household has to provide their employment status and history, which includes current employment and permanency of employment. This allows financiers to determine the household's employment security, and expected future income and mortgage affordability (South Africa. Department of Trade and Industry, 2015). For this reason, international studies found the reduced employment security trend (resulting from an increasing short-term (non-permanent) employment contract trend) to restrict households' access to mortgage loans and homeownership attainment (Worthington, 2009; Van Zandt & Rohe, 2011; Zhou, 2011; Lersch & Dewilde, 2015). These international studies will now be discussed in more detail.

Worthington (2009) found that in Australia unemployment negatively impacts access to mortgage and thus restricts access to the housing market. As expected, it was found that in New Zealand the majority of renters who aspire to become homeowners indicated that employment status insecurity restricts their access to the housing market (Hargreaves, 2003). In an European study, based on twenty-two cities, it was found that access to homeownership was reduced for young adults who lack employment status security (without permanent work contracts, who work less than 20 hours per week, who have experienced unemployment, and who do not work in highly skilled occupations), with the exception of Central and Eastern Europe where households rely more on their families for support to gain housing market entrance than on access through a mortgage (Lersch & Dewilde, 2015).

Also, Zhou (2011) found that in China employment uncertainty negatively affected homeownership, especially for high-income households. Similarly, the influence of unemployment is expected to have a greater restrictive influence on South African households from the higher income level groups. In contrast, households from the low-income level groups will qualify for government subsidised homeownership (such as RDP houses) based on their vulnerability characteristics, irrespective of their employment status. The recent Statistics South Africa (2016d) study (which includes

subsidised and non-subsidised homeownership) found homeownership attainment to be higher amongst the unemployed and not economically active household heads than those who were employed. This finding could perhaps be ascribed to the Statistics South Africa (2016d) study including subsidised homeownership which is aimed at the vulnerable households, such as the unemployed and not economically active households.

It is anticipated that an employed status has the ability to increase income level and thus increase non-subsidised homeownership attainment. In contrast, the unemployed and not economically active (to a lesser degree as it includes retired FKPs) will presumably reduce income level and homeownership attainment. Due to the intricate relationship between employment status, other socio-economic demographics and financial influential factors, employment status is categorised as a non-proximate influential factor.

In South Africa, the high unemployment rates are expected to influence the households' non-subsidised homeownership attainment negatively. Part of the reason for the increasing unemployment rate could be ascribed to the mismatch between the supply and demand of skill levels required by occupations, partly due to the changing nature of industries. Banerjee, Galiani, McClaren, Levinsohn and Woolard (2008) found, for example, an increase in demand for financial (high-level) skills and a decrease in demand for (low-level) agricultural skills in South Africa. Although it is expected that an employed status will increase non-subsidised homeownership attainment, being employed is insufficient in isolation, and it should coincide with occupation and skill level for which there is a demand (Combrink & Venter, 2016). The effect of occupation and skill levels on employment and labour markets will now be discussed.

3.3.1.2 Occupation and skill level

The labour market has a greater demand for high-skilled occupations such as managers, professionals or technicians. Households with scarce skills were found to attain higher occupation levels and superior employment security which increases

their income level and provides access to mortgage loans and the housing market (Banerjee *et al.,* 2008; Worthington, 2009; Lersch & Dewilde, 2015).

In a South African unemployment study conducted in 2006, investigating the increase in unemployment since 1994, it was found that higher skill levels lead to increased employment. The labour market, especially the agricultural and mining sectors, has also experienced a decrease in demand for low-skill occupations. More females are found entering the labour market, increasing the low-skill supply and thereby increasing unemployment in South Africa (Banerjee *et al.,* 2008). Higher occupation and skill levels are believed to have the ability to increase income levels (Banerjee *et al.,* 2008), thus increasing non-subsidised homeownership attainment.

Higher occupation and skill level has the ability to improve employment status and security and income level, and thus increase non-subsidised homeownership attainment. To the contrary, lower skill levels will presumably deter employment status and security, income level and homeownership attainment. Due to the intricate relationship between occupation and skill level, other socio-economic demographics and financial influential factors, occupation and skill level is categorised as a non-proximate influential factor.

To improve employment rates in South Africa requires educating and training households to obtain the necessary skills for which there is an occupational demand. These can be found in the Department of Higher Education and Training's published annual list of occupations in high demand (South Africa. Department of Higher Education and Training, 2014). Studies found relationships between higher education, occupation and skill level, and income levels. Higher education levels lead to increased employed status in occupations with higher income levels (Carnevale, Rose & Cheah, 2011; OECD publishing, 2012). The expected influence of education level is discussed in the section hereafter.

3.3.1.3 Education level

As an indication of potential earnings and forming part of the mortgage affordability assessment criteria, financiers consider the applicants' highest education level attained (Henderson & Ioannides, 1986; South Africa. Department of Trade and Industry, 2015). Studies have therefore found that an increase in education level increases homeownership status as mortgage constraints were reduced for households with higher education levels (Van Zandt & Rohe, 2011; Drew, 2015; Acolin *et al., 2016*).

Studies found that after obtaining high education levels, homeownership increases, whereas the uncertain educational expenses during the student phase reduce access to a mortgage loan and homeownership attainment (Worthington, 2009; Zhou, 2011). In an American study of young market entrants, Drew (2015) found that, despite higher education attainment delaying entrance to the workforce and homeownership, higher educated households have higher income prospects and increased homeownership attainment.

Historically, it has been established that low levels of access to quality education in South Africa negatively impacted the current high unemployment levels (Banerjee *et al.,* 2008; Andrews, 2015). It is concerning that a grade 12 education level is insufficient for many to gain labour market entrance as higher than grade 12 education levels are often required (Le Roux, 2015). Unsurprisingly, the recent Statistics South Africa (2016d) study found 47% of formal non-RDP homeowner household heads had an education level of grade 12 and higher, whereas only 24% of the subsidised formal non-RDP homeowner households had equal education levels (Statistics South Africa, 2016d). This emphasises the importance of high education levels for non-subsidised homeownership attainment.

Several studies found higher education levels to relate to an improvement in employment status, thus increasing income level and homeownership attainment (Henderson & Ioannides, 1986; Painter *et al.,* 2001; Coulson & Fisher, 2009; Turner & Luea, 2009; Andersen, 2011; National Planning Commission, 2012; Campbell & Cocco, 2015).

Higher education levels have the ability to improve employment status and income level, and thus increase non-subsidised homeownership attainment, whereas lower education levels will presumably deter employment status, income level, and homeownership attainment. Due to the intricate relationship between education level, other socio-economic demographics and financial influential factors, education level is categorised as a non-proximate influential factor.

3.3.1.4 Socio-economic demographics summary

Intricate relationships were found between socio-economic demographics such as employment status, occupation and skill level, education level, which influence homeownership attainment. A Danish study discovered that education levels which qualify for employment (job) purposes increase homeownership attainment, thus indicating that education level in isolation may not directly influence homeownership attainment if not coincided with employment (Lauridsen & Skak, 2007). Similarly in South Africa, in addition to high education levels, access to labour market entrance (employment) requires higher skill levels for which there is a demand (Banerjee *et al.,* 2008).

Higher levels of education and skills are believed to lead to an increase in occupation levels and employment security, and therefore an increase in income level which ultimately leads to an increase in non-subsidised homeownership attainment (Lauridsen & Skak, 2007; Banerjee *et al.,* 2008). The relationship of socio-economic demographics are categorised as non-proximate influential factors and the influence of each factor on homeownership attainment is illustrated in Figure 3.6.

Influential factors		Homeownership attainment	
Non-Proximate ⇨	**Proximate** ⇨	**Increase** ✚	**Decrease** ▬
Non-financial influential factors			
Socio-economic demographics			
Employment status		Employed	Unemployed and not economically active
Occupation and skill level		High occupation and skill level	Low occupation and skill level
Education level		High education level	Low education level

Figure 3.6: Heuristic model categorising socio-economic demographic influential factors

Source: Author

Despite the overall increase observed in educational attainment, there remains a mismatch between skills supplied versus demanded, and the global financial crisis has exacerbated unemployment throughout South Africa. This will necessitate an increased reliance on government subsidised homeownership for the vulnerable households, and non-subsidised homeownership will likely decline (Banerjee *et al.,* 2008; Statistics South Africa, 2014c; Marais & Cloete, 2015). The influence of each socio-economic demographic factor on homeownership status will be analysed in Chapter 5.

The next section will discuss the different life stages which are predominantly determined by age, relationship status, and family structure (Henderson & Ioannides, 1986; Drew, 2015).

3.3.2 Life stages demographics

Worthington (2009) found the combined life stages of age, relationship status, and family structure to influence the access to mortgage and homeownership status. Households experience different life stages as household members age. Age is

therefore a complex non-financial influential factor (Goodman, 1988) and will be discussed in the following section.

3.3.2.1 Age

Internationally, studies analysing age as an influential factor, has led to complex and dissimilar findings and age was found to correlate with other influential factors (Goodman, 1988; Alba & Logan, 1992; Hargreaves, 2002). The exception was Israel, where age was considered insignificant in determining homeownership status (Ben-Shahar, 2007). Interestingly, mobility decreases as age increases and it is therefore unusual for homeowners to revert back to renting (Bourassa, 1995).

In Denmark, America and Australia, homeownership attainment was found to increase with the age of the household head, as higher age allows the household time to save for a deposit and reduce mortgage constraints (Henderson & Ioannides, 1986; Bourassa, 1995; Haurin *et al.,* 1996; Painter *et al.,* 2001; Lauridsen & Skak, 2007). More recently in Australia, the probability of a mortgage loan was discovered to be highest for middle-aged (between 30 and 49 years) households and lowest for the young (Worthington, 2009). Similarly (despite the years discrepancy) middle-aged New Zealanders obtained higher homeownership levels compared to the young and old (Hargreaves, 2003). This could be explained as younger households often experience difficulty in obtaining a mortgage loan due to lower income levels, whereas the death of a spouse for older aged households reduces homeownership attainment for some (Henderson & Ioannides, 1986; Haurin *et al.,* 1996; Drew, 2015; Lennartz *et al.,* 2015). In contrast with other findings, young Danes (aged below 35) prefer homeownership more than middle-aged and older Danes (Andersen, 2011). This discrepancy with other studies is due to preference and realistic homeownership attainment expectation as many young households do not qualify for a mortgage and are unable to execute their preferred homeownership status (Andersen, 2011).

The Statistics South Africa (2016d) study concurs with international literature as homeownership attainment was found to increase with the age of the household head, however no decline was experienced for the older aged household heads. As a result of the global economic recession and the implementation of the National Credit Act,

recent homeownership attainment has decreased even further for young South Africans due to increased unemployment levels and mortgage restrictions. Remarkably, older South Africans' homeownership attainment has increased from 2001 to 2011 (Statistics South Africa, 2016d).

As a person age, they enter different life stages which relate to socio-economic demographics. Generally educational attainment occurs first, followed by labour market entrance and skills development, all during which relationships and families are formed.

Although complex, middle and older age allows time to save and pay off a home and thus increase non-subsidised homeownership attainment. In contrast, younger aged persons are at the start of their careers with limited time to save and pay off a home, thus reducing non-subsidised homeownership attainment. Due to the intricate relationship between age and various other life demographic factors, age is categorised as a non-proximate influential factor.

Perhaps one of the reasons for international age discrepancies is due to generational differences in relationship status and family structure. The modern generation consists of increased single income households as marriage and family formation are being delayed, therefore parenting and homeownership attainment was found to occur at a higher age (Reed & Mills, 2007; Fisher & Gervais, 2010; Grinstein-Weiss *et al.,* 2013).

3.3.2.2 Relationship status

Marital status was generally found to increase the probability of access to a mortgage and homeownership attainment, whereas unmarried (single) households had reduced homeownership attainment (Ben-Shahar, 2007; Worthington, 2009; Fisher & Gervais, 2010; Drew, 2015; Acolin *et al., 2016*). Part of this occurrence could be explained as married couples produce dual incomes which contribute to an increased total household income level and mortgage affordability, especially when compared to young single households (Hargreaves, 2003; Carter, 2011). In contrast, an older study discovered the effect of marital status on American households' income levels insignificant (Goodman, 1988).

Traditionally, marital status represents a settling down life stage and the start of a family structure whereafter the family structure was expanded by children which normally coincided with homeownership attainment (Hargreaves, 2003). The modern generations' aspirations of marriage and family formation have declined, and thus a delay and decline in homeownership attainment was experienced (Hargreaves, 2002; Hargreaves, 2003; Fisher & Gervais, 2010; Drew, 2015).

Changes in relationship status trends include increased single parent households, increased family separations, and increased partner relationships. Lack of savings ability was particularly restrictive to single income households (Hargreaves, 2003). Single or divorced households experienced increased restrictions to mortgage and homeownership attainment when compared to married or partnered households (Henderson & Ioannides, 1986; Lauridsen & Skak, 2007; Worthington, 2009; Herbers *et al.,* 2014). Divorced households typically own less as it represents a period of instability where temporary housing is sought while a new life stage is entered (Reed & Greenhalgh, 2002; Lauridsen & Skak, 2007; Andersen, 2011). Single, widowed households retain their homeownership status more than other singles as they have likely lived in the home for an extended period (Bourassa, 1995; Lauridsen & Skak, 2007). Interestingly, the effect of partner relationships on homeownership status attainment was found similar to single households (Drew, 2015), as these couples were reluctant to combine their income and commit to saving for a deposit (Hargreaves, 2002; Reed & Greenhalgh, 2002).

South Africa has a rich cultural heritage which influences households' relationship status. There are three types of legal marriages recognised in South Africa, namely civil marriage, customary marriage, and civil unions. Recently, a decline in civil and customary marriages was experienced, whereas civil unions have increased and divorce rates fluctuate (Statistics South Africa, 2015d). Despite the vastly improved life-expectancy at the birth of South Africans, the effect is delayed and high widowhood remains in the foreseeable future (Statistics South Africa, 2014b). The Statistics South Africa (2016d) study found married or partnered households to be six percentage points more likely to attain homeownership than unmarried or separated households

in 2011. This finding could possibly be ascribed to the dual income received by married or partnered households.

Although complex, households with a married or living together as partners, and widowed relationship status are expected to increase non-subsidised homeownership attainment, whereas single (never married) and separated or divorced households are expected to reduce non-subsidised homeownership attainment. Due to the intricate relationship between relationship status and various other demographic factors, relationship status is categorised as a non-proximate influential factor.

Being in a married or partnered relationship combined with having children was found to improve access to mortgage finance and the housing market (Worthington, 2009). However, the decline and delay in marriage and family formation (including reduced number of children) has resulted in reduced homeownership attainment (Hargreaves, 2003; Reed & Mills, 2007). Recently in South Africa it was found that the majority (54%) of divorced households had children younger than eighteen, which was expected to have a complex influence on tenure status (Statistics South Africa, 2015d). The section hereafter discusses the influence of family structure on homeownership attainment.

3.3.2.3 Family structure

Family structure was found to have a close and complex relationship with homeownership attainment (Mulder, 2006). Traditionally, extending the family structure with children indicated a settling down life stage which coincided with an increase in homeownership attainment. For families with a combined household income and children, the advantages and preference of homeownership were found to be greater (Bourassa, 1995; Mulder, 2006; Andersen, 2011; Carter, 2011; Acolin *et al., 2016*).

In recent times, perhaps due to economic uncertainty, several households are deferring family formation with the addition of children. This reduced number of children was found to decrease homeownership attainment in America (Drew, 2015).

Households in countries such as the United Kingdom prioritised homeownership before family formation, therefore homeownership attainment is delayed. This priority shift could be ascribed to the cost of raising children competing with homeownership aspirations. Perhaps for this reason European countries with the highest homeownership rates often have the lowest fertility rates (Reed & Greenhalgh, 2002; Mulder, 2006). Another complex argument discovered that raising children increased costs and reduced total household income, especially where one parent becomes economically inactive and remains home to spend time with children. The stay-at-home parent, therefore, does not contribute to the total household income level, making homeownership attainment increasingly unaffordable (Hargreaves, 2003; Mulder, 2006; Carter, 2011).

Family structure includes both the number of adults and the number of dependent children as different tenure status outcomes are expected. For instance, the increasing trend in young adults co-residing as flatmates will increase the household size but is unlikely to lead to homeownership attainment (Hargreaves, 2003; Lennartz *et al.,* 2015). In America, large family size was found to increase homeownership attainment, except where more household members are required to earn the same income level (Painter *et al.,* 2001).

Internationally a multi-generational trend found children to remain part of their parents' households for longer periods before forming their own families (Lennartz *et al.,* 2015). This complex family structure trend was similarly experienced in South Africa and is known as the "sandwich generation" where grandparents and children remain part of the household for longer and parents experience increased dependency which makes it increasingly difficult to attain homeownership (Old Mutual Investment Group, 2015). Another complication is as a result of the high HIV/AIDS infection rate of the adult population which causes a low life expectancy for South African households. This is likely to lead to larger extended households and grandparent-headed households, also known as "skip-generation" households, and even child-headed households (Statistics South Africa, 2013b). This multigenerational trend has caused the majority of South Africans to live in extended households, which includes children being raised by uncles, aunts, or grandparents, and is expected to influence homeownership attainment (Statistics South Africa, 2013b).

According to the Statistics South Africa (2016d) study, homeownership attainment is the lowest for households of only one member whereafter homeownership attainment considerably increases for a two person (likely a couple or dual income) household, thereafter increasing until the family structure consists of seven members. The trend remains generally stable beyond seven household members.

For households whose family structure consists of a high number of household members, non-subsidised homeownership attainment is expected to increase. Contrary to this, households consisting of one household member or a small number of household members are expected to decrease non-subsidised homeownership attainment. Due to the intricate relationship between family structure and various other demographic factors, it is categorised as a non-proximate influential factor.

3.3.2.4 Life stages demographics summary

Intricate relationships were found between life stages demographics such as age, relationship status, and family structures, which are expected to influence non-subsidised homeownership attainment as illustrated in Figure 3.7.

Influential factors		**Homeownership attainment**	
Non-Proximate ⇨	**Proximate** ⇨	**Increase** ✚	**Decrease** ━
Non-financial influential factors			
Life stages demographics			
Age		Medium and old age	Young age
Relationship status		Married or living together as partners and widowed	Never married or single and separated or divorced
Family structure		Large number of household members	Small number of household members

Figure 3.7: Heuristic model categorising life stages demographics influential factors

Source: Author

The influence of each life stage demographic factor on non-subsidised homeownership attainment will be analysed in Chapter 5. Life stages demographics also have intricate relationships which relate to cultural heritage demographics, which will now be discussed.

3.3.3 Cultural heritage demographics

Internationally, the dream of homeownership has been passed down from generation to generation, which is known as cultural heritage (Shelton, 1968; Hargreaves, 2002; Reed & Greenhalgh, 2002; Dickerson, 2009; Tabner, 2015). The literature identified population group, location, and gender as integral parts of cultural heritage which will now be discussed in turn.

3.3.3.1 Population group

Several studies found population group (also referred to as ethnicity or race) to influence homeownership attainment (Henderson & Ioannides, 1986; Alba & Logan, 1992; Painter *et al.,* 2001; Deng *et al.,* 2003). Interestingly, earlier studies concluded that ethnicity either has weak significance or no influence on mortgage constraints (Henderson & Ioannides, 1986; Haurin *et al.,* 1996).

Discrimination based on population group is experienced internationally and especially in South Africa due to the after effects of apartheid (Tshitereke, 2009; Andrews, 2015; South Africa. Department of Government Communication and Information System, 2016). In America, the White population group is the majority population group and have the highest probability of homeownership when compared to minority population groups such as African Americans (Black), American Indians, Asian and Hispanic groups (Henderson & Ioannides, 1986; Alba & Logan, 1992; Drew, 2015). Surprisingly, Painter *et al.,* (2001) found the Asian population group and the White population group to have similar homeownership attainment. In contrast to the majority White population group, the African American population group tends to have lower income levels and homeownership attainment (Goodman, 1988).

The South African nation is known as the ‘rainbow nation’ in reference to the country’s cultural diversity which includes four main population group classifications, namely African (Black), Coloured, Indian (or Asian), and White. In South Africa, the vast majority of the population (80%) is African, 9% Coloured, 8% White, and only 3% Indian (or Asian) (Statistics South Africa, 2014b).

In contrast with America and other countries where population group (racial) discrimination was experienced by minority population groups (Alba & Logan, 1992; Andrews, 2015), in South Africa discrimination was suffered by the majority, i.e. the African population group and other non-White minority population groups (Andrews, 2015). Despite the abolishment of the apartheid regime, it remains part of the South African history (Andrews, 2015) and the after effects remain, as found by the Statistics South Africa (2016d) survey. White and Indian (or Asian) households jointly attain homeownership most frequently at 64%, followed by Coloured households at 57%, and African households attain homeownership the least at 51%. While all population groups were affected by the overall decline in homeownership between 2001 and 2011, White and Indian (or Asian) population groups were affected the most (Statistics South Africa, 2016d). Given the changes and schemes implemented by the South African government since apartheid it is expected that, although the after effects of population group discrimination may still be present, the influence on homeownership attainment should have reduced (Tshitereke, 2009). The influence of these changes and schemes on population groups fall beyond the scope of this study.

In America, cultural history relating to population groups was found to have intricate relationships with other influential factors such as socio-economic demographics, life stages demographics, and other cultural heritage demographics (Alba & Logan, 1992). Similarly, in South Africa the population group was found to have intricate relationships with other influential factors due to historical discrimination affecting income level, wealth, education, and location (Andrews, 2015).

Households from Indian (or Asian) and White population groups are expected to have increased non-subsidised homeownership attainment, whereas households from African and, to a lesser extent, those from Coloured population groups, are expected to show decreased non-subsidised homeownership attainment. Due to the indirect relationship between population group and other demographic factors, it is categorised as an underlying influential factor.

In America it was found that population group and income segregation across metropolitan areas were important factors influencing homeownership attainment (Deng *et al.,* 2003). For example, the White population group owned homes located in metropolitan areas more than African Americans (Deng *et al.,* 2003). Andrews (2015) discovered that, similar to South Africa, America and Portugal also experienced racial discrimination where Africans lived in undesirable locations in lower quality homes, with limited housing demand and reduced house price appreciation. The influence of location on homeownership attainment will now be discussed.

3.3.3.2 Location

Studies found that the location of a home in terms of proximity to work, schools, shops and parks, public transport, major roads and proximity to city, influence homeownership attainment (Toussaint-Comeau & Rhine, 2004; Lauridsen & Skak, 2007; Reed & Mills, 2007; Andersen, 2011). Households will only purchase a home once a suitable location is found (Reed & Mills, 2007). Perhaps for this reason a study among Hispanics in America found that tenure decision and location decision is a joint decision (Toussaint-Comeau & Rhine, 2004).

Interestingly, an older Australian study concluded that, although higher income increases homeownership attainment since it increases mortgage affordability, there appears to be a negative relationship between an increase in income level if the preferred location is in an expensive metropolitan area where renting is the only viable option (Bourassa, 1995). Similarly, as a result of the unaffordability of homeownership attainment in metropolitan areas, the probability of homeownership was lower in metropolitan areas and higher in rural (countryside) areas in Denmark (Lauridsen & Skak, 2007).

A Danish survey of tenure status preference found the location and its surroundings very important for households. Households preferring metropolitan areas were more concerned with long-term financial considerations, whereas those who prefer the non-metro city, town or rural areas, also prefer detached homes with the ability of customisation and are less concerned about public transport or avoiding bad neighbourhoods (Andersen, 2011).

Historically in South Africa, location (spatial) segregation constrained the majority of its non-White citizens to live in areas outside the labour market, in unsustainable, poor service areas, thereby restricting their participation in the economy and housing tenure status decision (Tshitereke, 2009; National Planning Commission, 2012; Statistics South Africa, 2016d).

For the purpose of this study location consists of province and area. South Africa is geographically divided into nine provinces, namely Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West, and Western Cape. The nine provinces encompasses eight metropolitan areas: Buffalo City (East London), City of Cape Town, Ekurhuleni (East Rand), eThekwini (Durban), City of Johannesburg, Mangaung (Bloemfontein), Nelson Mandela Bay (Port Elizabeth), City of Tshwane (Pretoria), and then non-metro cities or towns and rural areas.

As experienced in other developing countries, South Africans are experiencing continuing urbanisation and most South Africans are located within metropolitan areas with many relocating to Gauteng and the Western Cape (South Africa. Department of Cooperative Governance and Traditional Affairs, 2013). This relocation adds pressure on housing supply, service delivery and resources, especially within the metropolitan areas. In contrast, many rural areas remain densely populated without any increase in economic activities or poverty reduction. Relocation can benefit the poor if it reduces their transit times and places them closer to their place of work by creating opportunities for economic growth (South Africa. Department of Cooperative Governance and Traditional Affairs, 2013; Statistics South Africa, 2016d). However, in reality, South African metropolitan areas are underachieving economically and

remain largely segregated (South Africa, Department of Cooperative Governance and Traditional Affairs, 2013).

This study focusses on non-subsidised homeownership, by excluding the subsidised occupied rent free and other tenure status categories from the Statistics South Africa Census 2011 data (Statistics South Africa, 2012a). The following homeownership and renting distribution was seen in Figure 3.8:

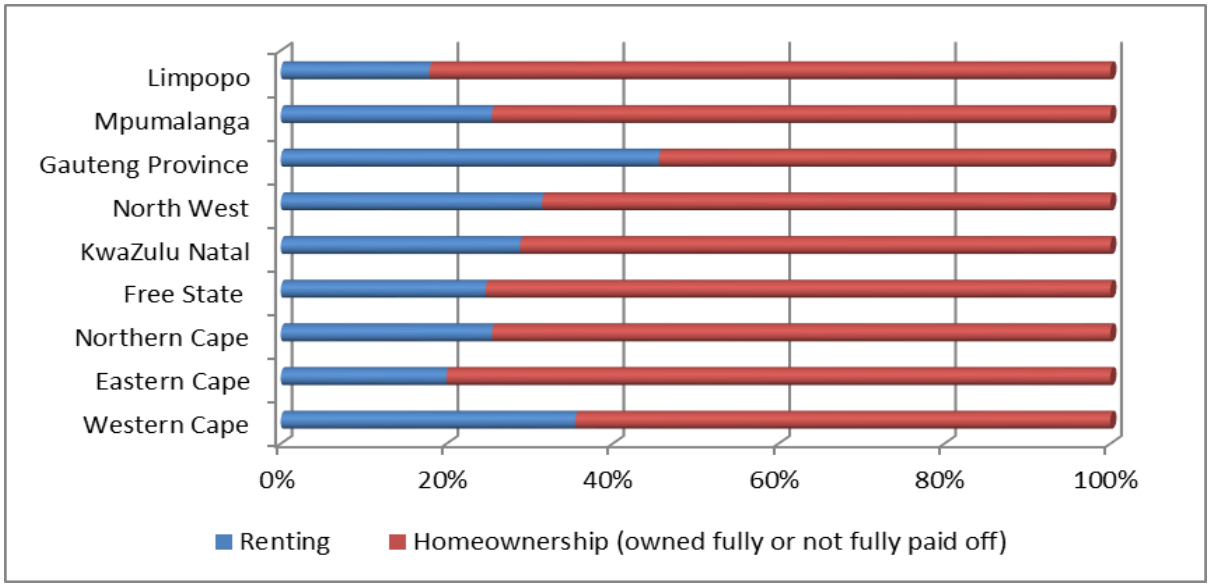

Figure 3.8: Census 2011 homeownership and renting distribution per province
Source: Statistics South Africa (2012a)

Ranked from highest homeownership attainment to lowest homeownership attainment is Limpopo (82%), Eastern Cape (80%), Free State (75%), Mpumalanga (75%), Northern Cape (75%), KwaZulu-Natal (71%), North West (68%), Western Cape (65%), and Gauteng (54%). Despite the Statistics South Africa homeownership status including subsidised homeownership such as RDP housing, the influence of location on non-subsidised homeownership status is expected to relatively align. In addition, households may prefer residing in metropolitan areas close to the labour opportunities but may only be able to afford homeownership in a non-metro city or town, or rural areas.

Households residing in Limpopo and Eastern Cape are expected to attain non-subsidised homeownership more. In contrast, those residing in Gauteng and the Western Cape are expected to attain non-subsidised homeownership the least. In addition, households located in rural areas and non-metro city or town areas, to a lesser extent, are expected to increase non-subsidised homeownership attainment, whereas households residing in metropolitan areas are expected to decrease non-subsidised homeownership attainment. Due to the indirect relationship between location (province and area) and other demographic factors, it is categorised as an underlying influential factor.

3.3.3.3 Gender

Traditionally households headed by males were found more likely to obtain a mortgage and homeownership than female-headed households (Henderson & Ioannides, 1986; Goodman, 1988; Lauridsen & Skak, 2007). This is perhaps expected as the majority of household breadwinners are traditionally male, as females often preferred staying home to raise children. Males, therefore, earned higher income levels and thus qualified for a mortgage easier (Henderson & Ioannides, 1986; Goodman, 1988; Hargreaves, 2003; Lauridsen & Skak, 2007). Interestingly in Israel, the influence of gender on homeownership attainment was found insignificant (Ben-Shahar, 2007).

In contrast with tradition, a study among low-income renters participating in a homeownership education programme found that female-headed households have an increased probability of homeownership attainment (Van Zandt & Rohe, 2011). In Australia an increase in female-headed households was experienced and, where the female-headed households' income levels equaled that of the male-headed households, female-headed households attained homeownership more (Kupke, Rossini, McGreal & Yam, 2014). Perhaps the reason for this shift is due to females placing a higher importance on homeownership attainment than males (Huang *et al.,* 2015). However, in reality, income levels are not equal and female-headed households therefore, attain homeownership less (Kupke *et al.,* 2014).

In 2014 the South African population's female-headed households marginally (by one percentage points) exceeded male-headed households (Statistics South Africa,

2014b). Further in contrast to tradition, the Statistics South Africa (2016d) study found that female-headed households are seven percentage points more likely to attain homeownership than male headed households. Part of this reason could be ascribed to females qualifying for government subsidised homeownership such as RDP homes more, based on their vulnerability characteristics (Statistics South Africa, 2016d). Female-headed households were found more vulnerable as these households consisted of larger family structures with more dependents and often included “skip-generations”. In addition, the percentage of female-headed households was found to increase with age due to females’ higher life expectancy (Statistics South Africa, 2013b).

The above section stated that seven percentage points higher homeownership attainment by female-headed households includes a portion of subsidised homeownership (such as RDP house, Free use and other) which is higher for female-headed households (Statistics South Africa, 2016d). This study focusses on non-subsidised homeownership attainment and therefore the influence of female Financially Knowledgeable Person (FKP) households due to subsidised homeownership must be excluded. Despite historical gender inequalities favouring male FKP households, the influence of subsidised homeownership favouring female-headed households is not expected to change the probability of non-subsidised homeownership attainment from female- to male-headed households.

Female FKP households are expected to increase non-subsidised homeownership attainment, whereas male FKP households are expected to decrease non-subsidised homeownership attainment. Due to the indirect relationship between gender and other demographic factors, it is categorised as an underlying influential factor.

3.3.3.4 Cultural heritage demographics summary

Despite several initiatives in the South African housing, renting, labour and other markets, many South Africans still lack the necessary cultural foundation which would allow them to partake in the optimal tenure decision (South Africa. Department of Human Settlements, 2004; Tshitereke, 2009). Indirect relationships were found between cultural heritage demographics such as population group, location, and gender, which are expected to influence homeownership attainment as illustrated in Figure 3.9.

Influential factors			**Homeownership attainment**	
Underlying ⇨	**Non-Proximate** ⇨	**Proximate** ⇨	**Increase** ✚	**Decrease** ▬
	Non-financial influential factors			
	Cultural heritage demographics			
Population group			Indian (or Asian) and White	African or Coloured
Location Province and area			***Province:*** Limpopo and Eastern Cape ***Area:*** Non-metro city, or town and rural	***Province:*** Gauteng and Western Cape ***Area:*** Metropolitan
Gender			Female-FKP household	Male-FKP household

Figure 3.9: Heuristic model categorising cultural heritage demographics influential factors

Source: Author

The influence of each cultural heritage demographic factor on homeownership attainment will be analysed in Chapter 5.

3.4 CONCLUSION

In this chapter, the literature review identified several financial and non-financial factors influencing non-subsidised homeownership attainment as set out in phases 1 and 2 (see Figure 3.1), which is summarised in Figure 3.10. In phase 3, the expected influences of these identified influential financial and non-financial factors on non-subsidised homeownership attainment and the intricate relationships amongst factors, was used to develop the heuristic model as illustrated in Figure 3.11.

Financial influential factors are expected to have a proximate influence on non-subsidised homeownership attainment. Non-financial influential factors such as socio-economic demographics, and life stages demographics are expected to have a non-proximate influence on non-subsidised homeownership attainment. Furthermore, cultural heritage demographics are expected to have an underlying influence on homeownership attainment.

Sub-research question 2 is therefore answered in this chapter by:

Developing a South African non-subsidised homeownership heuristic model based on the most prevalent factors identified from a literature review.

After developing the South African non-subsidised homeownership heuristic model based on the most prevalent factors identified from a literature review, the research design and methodology, which will be utilised to analyse the data, will be discussed in Chapter 4.

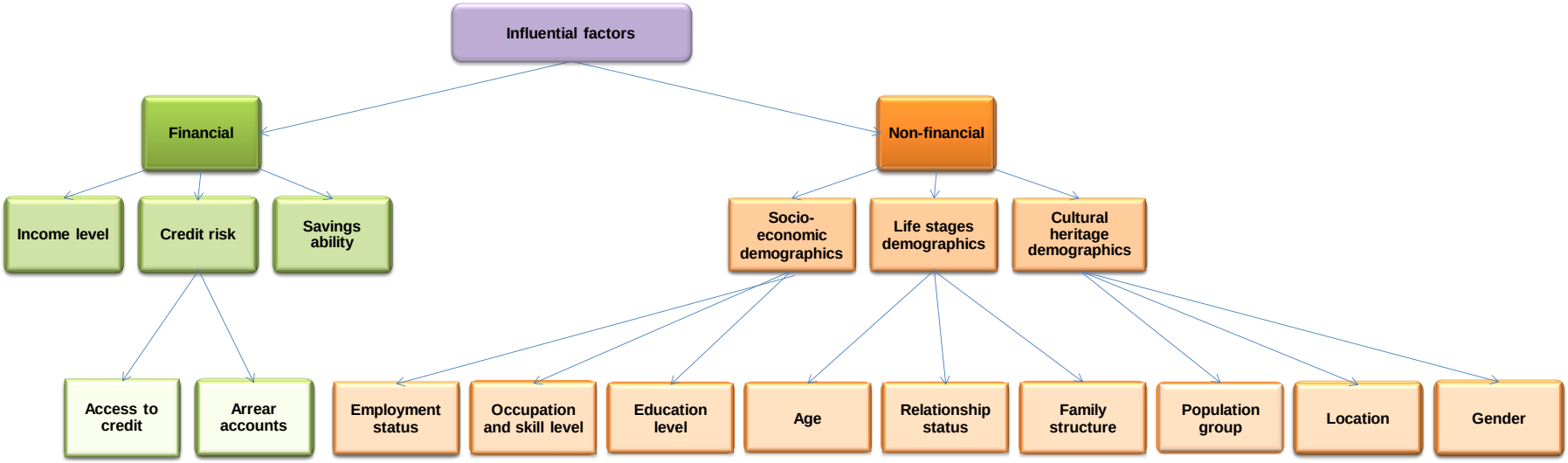

Figure 3.10: Summary of identified financial and non-financial influential factors

Source: Author

Influential factors			Homeownership attainment	
Underlying ⇨	**Non-Proximate** ⇨	**Proximate** ⇨	**Increase** ✚	**Decrease** ━
Financial influential factors				
		Income level	High-income level	Low-income level
		Credit risk	Low credit risk	High credit risk
		Savings ability	Savings ability	Savings inability
Non-financial influential factors				
Socio-economic demographics				
	Employment status		Employed	Unemployed and not economically active
	Occupation and skill level		High occupation and skill level	Low occupation and skill level
	Education level		High education level	Low education level
Life stages demographics				
	Age		Medium and old age	Young age
	Relationship status		Married or living together as partners and widowed	Never married or single and separated or divorced
	Family structure		Large number of household members	Small number of household members
Cultural heritage demographics				
Population group			Indian (or Asian) and White	African or Coloured
Location Province and area			***Province:*** Limpopo and Eastern Cape ***Area:*** Rural and Non-metro city, or town	***Province:*** Gauteng and Western Cape ***Area:*** Metropolitan
Gender			Female-FKP household	Male-FKP household

Figure 3.11: A South African non-subsidised homeownership heuristic model

Source: Author

CHAPTER 4
RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

The main research objective of this study is to determine the comparative odds of variables contributing to non-subsidised homeownership in South Africa based on identified influential factors. Despite the apparent advantages of homeownership, a declining trend was experienced in South Africa and internationally which necessitated the determinacy of the most advantageous tenure status for South African households as a secondary objective. Based on the South African housing tenure contextualisation and the case study of financial and non-financial considerations, it was found in Chapter 2 that homeownership status is the most advantageous tenure status from a macro- and micro- (household) level. Furthermore, an additional secondary objective to identify the factors influencing non-subsidised homeownership based on a literature review was deemed necessary. These identified factors were utilised to develop a South African heuristic model predicting homeownership status outcomes in Chapter 3. This chapter will describe the research design and methodology applied to this study to determine whether the identified influential factors per the heuristic model have a relationship with the homeownership status outcome of South African households.

This chapter consists of three main sections, namely research design, data suitability, and data analysis methods. The main purpose of each section is illustrated in Figure 4.1.

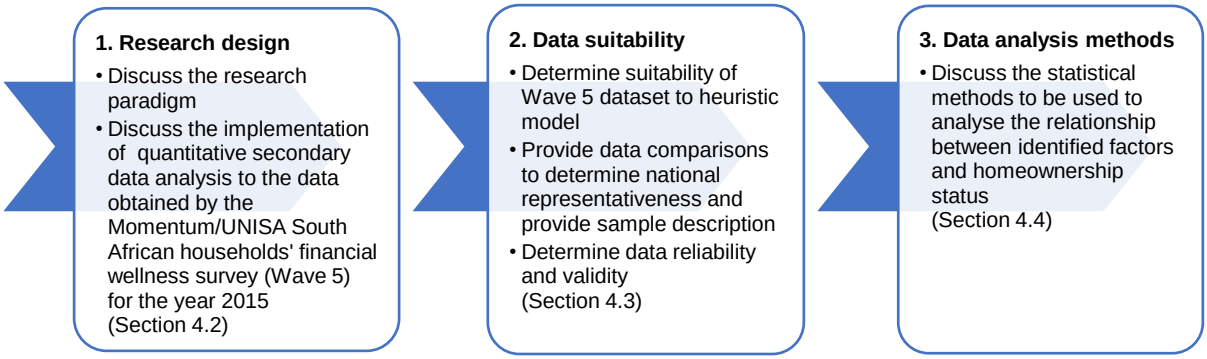

Figure 4.1: Summary of purpose of each section in Chapter 4

4.2 RESEARCH DESIGN

A research paradigm is an accepted model or pattern used as guidance (Kuhn, 1970). This study utilises pragmatism as a research paradigm which is guided by the desire to provide a solution to a practical problem by producing socially useful information (Hanson, 2008; Feilzer, 2009; Johnson & Onwuegbuzie, 2013).

To achieve the research objective of this study (see Section 1.5), a quantitative research methodology was adopted and secondary data analysis was the implemented research method. The secondary data analysis was performed on the data obtained by the Momentum/UNISA South African Households' Financial Wellness Survey (Wave 5) for the year 2015.

Utilising secondary data has several advantages, such as saving data collection costs and time, allowing for high-quality data, the possibility of longitudinal analysis, subgroup analysis, and cross-cultural analysis. Comparisons over time and between countries become possible, there is more time for the analysis of the data, reanalysis can provide new interpretations, the broader obligations of the sociological investigations are limited, and observer bias is reduced (Bryman, 2001; Mann, 2003). Despite these advantages, the researcher may not be familiar with the data set and its complexities as the data may not be ideally suited for the study or may be incomplete (Bryman, 2001; Mann, 2003). These limitations were considered in the choice of data used for the purposes of this study. A further investigation of the suitability of the Wave 5 data set will be discussed in the section hereafter.

4.3 DATA SUITABILITY

Before utilising the Wave 5 data set for analysis purposes, it is necessary to determine the suitability and quality of the data set. Suitability will be based on whether the Wave 5 data set contains the necessary questions in relation to the heuristic model shown in Section 3.4 that could assist in addressing the main objective of this study (see Section 1.5), while the quality of the data set will be assessed based on parameter identification. The sub-sections that follow evaluate the suitability of the Wave 5 data

set, offer a sample description, provide data comparisons to determine the national representativeness of the Wave 5 data set, and discuss data reliability and validity.

4.3.1 Evaluation of suitability of data source

The heuristic model developed in Chapter 3 identified several influential factors (variables) which were compared to the data questions available from Wave 5 to determine its suitability as illustrated in Figure 4.2.

As demonstrated in Figure 4.2, the occupation and skill level influential factor was omitted. The primary data source no longer contained questions relating to this variable as prior Wave data collection experience indicated that respondents found such questions too time consuming (thus reducing respondent participation in the remainder of the survey) and thus did not consider this a core variable for analysis purposes. Considering that 13 of the 14 influential factors could be obtained from the Wave 5 data, the data is considered sufficient for the purpose of this study, given that lack of data availability is one of the limitations of secondary data (see Section 4.2).

It was determined that the Wave 5 data basis is suitable for the purpose of this study.

It is interesting to note that of these 13 independent variables, six are direct attributes of the FKP, namely employment status, education level, age, relationship status, population group, and gender, whereas province and area relate to the entire household. The income level, access to credit, accounts in arrears, and family size are where the information for the entire household are aggregated.

In addition to determining the suitability of the Wave 5 data base, the next step discusses the sample distribution and comparison with other sources based on the variables selected for this study.

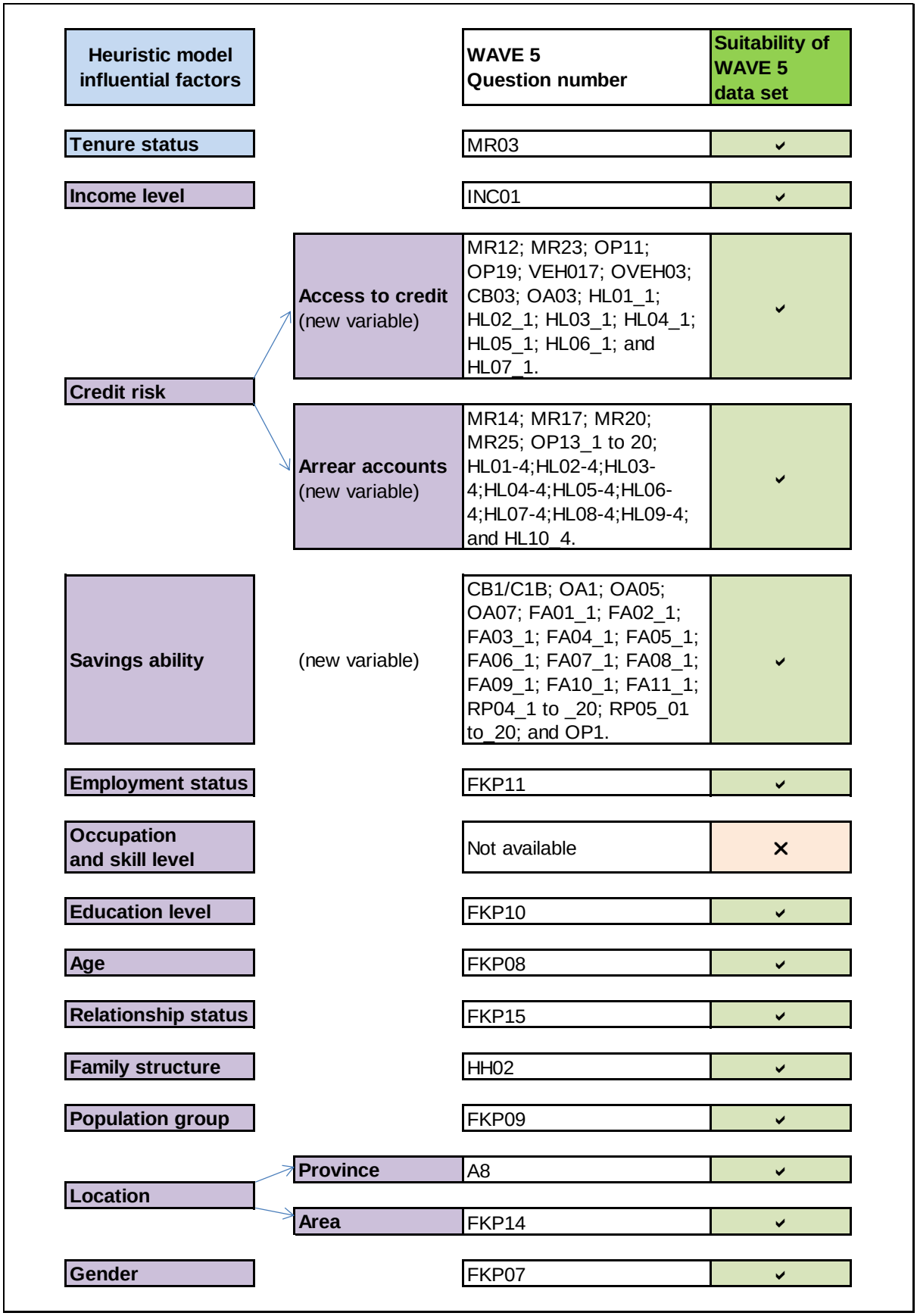

Figure 4.2: Suitability of Wave 5 data set

4.3.2 Sample description and parameter identification

The Wave 5 survey was completed by 2 500 households. Surveyors followed a decision tree to determine who the FKP is and conducted the interview with the FKP who further provided them with household data where applicable. Table 4.1 provides the unweighted sample distribution in terms of various demographic factors.

Table 4.1: Unweighted sample distribution based on various demographic factors

DEMOGRAPHIC VARIABLE	PERCENT
Household income level	
Very low income (R0 - R19 000 PA)	16.69
Low income (R19 001 - R86 000 PA)	37.85
Low emerging middle class (R86 001 - R197 000 PA)	12.81
Emerging middle class (R197 001 - R400 000 PA)	12.89
Realized middle class (R400 001 - R688 000 PA)	15.79
Emerging affluent (R688 001 - R1 481 000 PA)	2.60
Affluent (R1 481 001 - R2 360 000 PA)	0.54
Wealthy (R2 360 001 + PA)	0.83
Employment status	
Employed	51.20
Not economically active	22.72
Unemployed	26.08
Education level	
No schooling	3.08
Primary not complete	4.20
Primary complete	6.60
Secondary not complete	31.12
Secondary complete	44.08
Tertiary	10.04
Unspecified	0.88
Age	
18-24	5.76
25-34	23.72
35-44	24.80

DEMOGRAPHIC VARIABLE	PERCENT
45-54	20.48
55-64	13.60
65+	11.64
Province	
Eastern Cape	12.96
Free State	6.40
Gauteng	20.32
KwaZulu-Natal	16.80
Limpopo	9.44
Mpumalanga	8.32
Northern Cape	4.16
North West	8.64
Western Cape	12.96
Gender	
Male	36.52
Female	63.48

Source: Momentum & Unisa (2016)

The foundation of this study is factors influencing the South African households' tenure status as discussed in Chapter 3. The following section sets out to determine how tenure status and each of the influential factors identified in the heuristic model compare to other available data sources, specifically determining their national representativeness through parameter identification. In order to achieve this, the Wave 5 data set is compared with other 2015 data sets including the Bureau of Market Research's Income and Expenditure Survey data set (BMR IES 2015), the South African Audience Research Foundation's (SAARF) All media and products survey (AMPS 2015), Statistics South Africa's Quarterly labour force survey - quarter 4 (QLFS 2015 Q4), FinMark Trust's survey FinScope South Africa 2015 Metro/Non-Metro combined (FinScope 2015), and Statistics South Africa's General Household Survey 2015 (GHS 2015). Where appropriate the average of these data sets were calculated and compared to the Wave 5 data set to determine national representativeness. To allow for comparability on a household level, the Wave 5 data set was weighted in accordance with the BMR household weight (BMR_HH_WEIGHT), which is based on

the BMR's number of households estimate. Each of the variables will be discussed in turn.

The following Rand value ranges were applied where Wave 5 respondents were requested to provide amounts:

- 1=A: Rnil;
- 2=B: R1 - R400;
- 3=C: R401 - R800;
- 4=D: R801 - R1 600;
- 5=E: R1 601 - R3 200;
- 6=F: R3 201 - R6 400;
- 7=G: R6 401 - R8 500;
- 8=H: R8 501 - R12 600;
- 9=I: R12 601 - R30 300;
- 10=J: R30 301 - R52 900;
- 11=K: R52 901 - R72 000;
- 12=L: R72 001 - R100 000;
- 13=M: R100 001 - R151 700;
- 14=N: R151 701 - R250 000;
- 15=P: R250 001 - R363 900;
- 16=Q: R363 901 - R614 400;
- 17=S: R614 401 - R863 900;
- 18=T: R863 901 - R1 000 000;
- 19=U: R1 000 001 - R2 000 000;
- 20=V: R2 000 001 - R4 000 000;
- 21=W: R4 000 001 - R6 000 000;
- 22=X: R6 000 001 - R10 000 000;
- 23=Y: R10 000 001 and more; and
- 24=Z: Response not given.

4.3.2.1 Tenure status

The Wave 5 questionnaire contained a question (MR03) asking the ownership status of the main residence[8] which consisted of RDP house, Owned and fully paid off (thus have no debt on the property), Owned but not yet paid off (thus still have some outstanding debt on the property), Rented, Free use, and Other. This question was completed by all households. The coding of this variable is indicated in Table 4.2.

Table 4.2: Tenure status data coding

Variable name	Question number	Question	Data value
Tenure status	MR03	What is the ownership status of your main residence?	1: RDP house 2: Owned and fully paid off (thus have no debt on the property) 3: Owned but not yet paid off (thus still have some outstanding debt on the property) 4: Rented 5: Free use 6: Other

FinMark Trusts' FinScope 2015 tenure status options aligned best with Wave 5, whereas BMR IES 2015 and AMPS 2015 data sets contained differences in tenure status options available to respondents. For example, neither indicated RDP house as an option and AMPS 2015 data only had three options making it incomparable[9].

8 The main residence was described by fieldworkers to respondents as "…the place where you (and your household) live for most of the year".

9 QLFS 2015 data set did not contain tenure status data and was excluded.

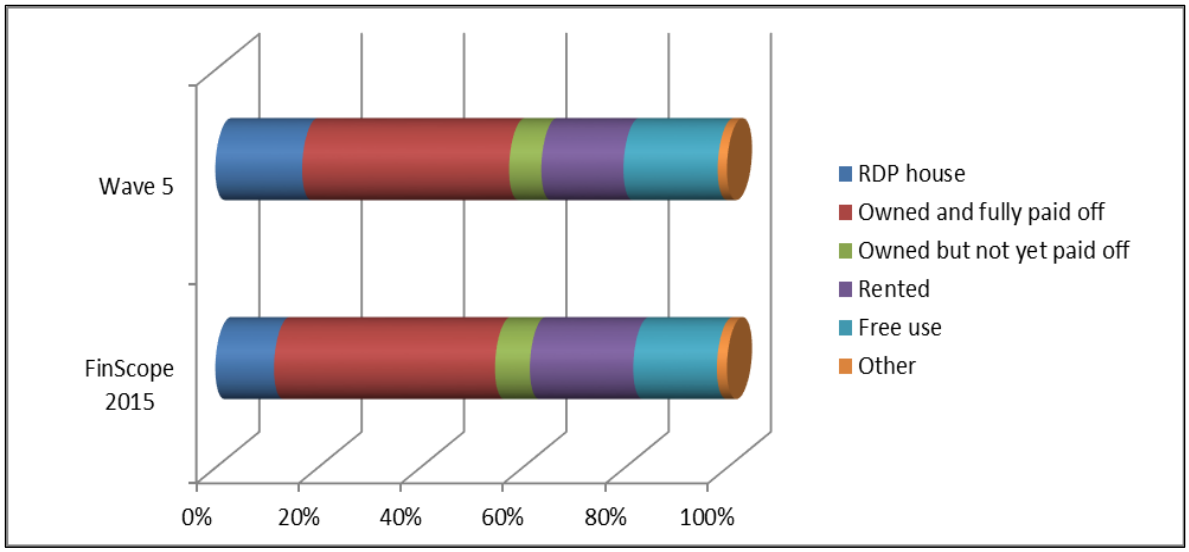

Figure 4.3: Data sets comparison of tenure status

Source: FinMark Trust (2015); Momentum & Unisa (2016); Author

From Figure 4.3 it is evident that Wave 5 is relatively in-line with FinScope 2015 data in terms of tenure status category trends. Although slightly lower than FinScope 2015 data, the largest tenure status group (47% of households) according to Wave 5 own their homes (fully or not paid off) without government support. Based on Wave 5 data, 17% of government funded homeownership was obtained through RDP housing, where FinScope 2015 indicates 11.5%, creating the largest variance of more than five percentage points between the two data sources. Despite this variance, the RDP house tenure status per Wave 5 does align closely with Statistics South Africa data indicating 17% RDP housing (Statistics South Africa, 2016d)[10] and could possibly be ascribed to households' uncertainty of the RDP house classification as tenure status. Interestingly, Wave 5 found that only 16% of households rent their homes which was four percentage points lower than FinScope 2015 data which could partly be due to the two percentage points higher response from the 'Free use' and 'Other' tenure status groups. This is perphaps as a result of sampling differences or could for example, to a limited extent, be explained where rental of informal dwellings also included cases where someone owns the dwelling, but pays rent for the land on which it was erected, which was not specifically defined by either the Wave 5 data or

[10] Statistics South Africa data contained separate unmatched tenure status and RDP questions making the data incomparable with tenure statuses classification as per Wave 5 data set.

FinScope 2015 data. The Wave 5 data is thus considered to be nationally representative based on tenure status classification.

Combined, the government funded homeownership (RDP house) and Free use and Other tenure status groups represent 37% of the weighted sample total, which is a result of the unique South African history and the nation's high reliance on government housing incentives as discussed in Chapter 3. Although the focus of the study is primarily on households within the non-subsidised homeownership (Owned fully or financed) and Not owned (Rented) tenure status categories, thus excluding RDP house, Free use and Other categories, all six original tenure statuses were considered when determining national representation.

4.3.2.2 Income level

International and South African studies found higher income levels lead to increased homeownership attainment (Henderson & Ioannides, 1986; Goodman, 1988; Bourassa, 1995; Haurin *et al.,* 1996; Coulson & Fisher, 2002; Hargreaves, 2003; Van Dam *et al.,* 2003; Worthington, 2009; Carter, 2011; Drew, 2015; Rust, 2016; Statistics South Africa, 2016d). The questionnaire contained a question (INC01) asking the Gross total monthly income (before taxes and deductions and including all sources of income) of each household member from the Rand value range. Of the total weighted number of households, 3% declined responding to the total household income question and were therefore discarded for analysis purposes.

To allow for comparison with the BMR IES 2015 data sources, the monthly income levels were recoded by the BMR as follows to per annum amounts:

- Very low income (R0 - R19 000 per annum);
- Low income (R19 001 - R86 000 per annum);
- Low emerging middle class (R86 001- R197 000 per annum);
- Emerging middle class (R197 001 - R400 000 per annum);
- Realized middle class (R400 001 - R688 000 per annum);
- Emerging affluent (R688 001 - R1 481 000 per annum);

- Affluent (R1 481 001 - R2 360 000 per annum);
- Wealthy (R2 360 001 + per annum).

The coding of this variable is indicated in Table 4.3.

Table 4.3: Income level data coding

Variable name	Variable description	Data value[11]
Income level	Household income groups	1: Very low income (R0 - R19 000 PA) 2: Low income (R19 001 - R86 000 PA) 3: Low emerging middle class (R86 001 - R197 000 PA) 4: Emerging middle class (R197 001 - R400 000 PA) 5: Realized middle class (R400 001 - R688 000 PA) 6: Emerging affluent (R688 001 - R1 481 000 PA) 7: Affluent (R1 481 001 - R2 360 000 PA) 8: Wealthy (R2 360 001 + PA)

Wave 5 is closely in-line with the BMR IES 2015 data set regarding total annual household income levels as illustrated in Figure 4.4.

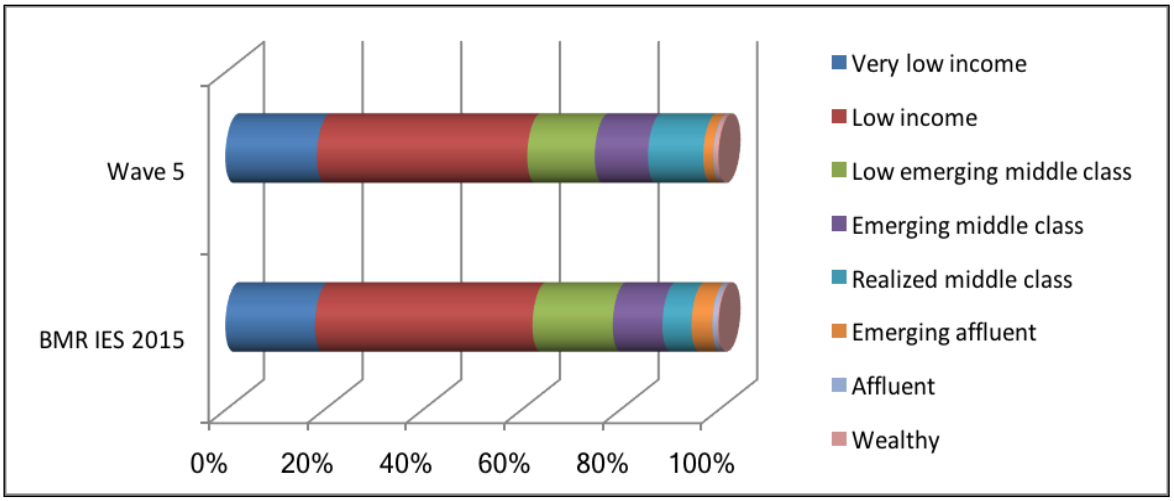

Figure 4.4: Data sets comparison of total household income level

Source: Bureau of Market Research (2015); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

11 Monthly total income for all household members were calculated and recoded from the Rand value ranges of Wave 5 to per annum income values per the BMR IES 2015.

For both data sets, households with lower total annual income levels (very low income, low income, and low emerging middle-class) represent the vast majority of households (79% for BMR IES 2015 and 75% for Wave 5). Despite the 5 percentage points higher response rate obtained by Wave 5 from the realized middle-class households, there appears to be a correspondence between the two data sets and the Wave 5 data is thus considered to be nationally representative based on total household income level.

4.3.2.3 Credit risk

The literature review in Chapter 3 identified credit risk as influencing mortgage affordability assessment and tenure status. Financiers consider the households' credit risk as part of the affordability assessment and a households' current financial obligations are considered to ensure that households are not over-indebted and can afford the mortgage repayments (South Africa, 2005b; South Africa. Department of Trade and Industry, 2015). Credit risk will be measured by two variables in this study. The first variable "Access to credit" indicates whether the household will be able to afford more credit, or that a household has previously been assessed as credit worthy and may indicate possible access to further credit. The second credit risk variable "Arrear accounts" indicates the households' repayment history and indicates the households' credit risk.

- **Access to credit**

The questionnaire contained several questions determining if the household has access to credit. A new variable "Access to credit" was created if the household had access to or made use of any of the following credit products: outstanding mortgage, household content debt, outstanding mortgage on other properties, household content debt on other property, vehicle debt, other vehicle debt, collectables debt, other assets debt, bank overdraft, credit card / petrol cards, store cards, personal loans from banks, personal loans from friends, student loans, and other finance agreements. The coding of these variables are indicated in Table 4.4.

Table 4.4: Access to credit variables data coding

Question number	Question	Data value	Recode value
MR12	Outstanding mortgage: What is the amount of the bond (mortgage) still owing on this property?	Rand value ranges 1 to 24	2 - 23 → 1 1 & 24→ 0
MR23	Household content debt: Is there any amount still outstanding on any financing agreements on the acquisition of these household content items? *Finance agreements include lay-buys, hire purchase agreements, personal loan, financing through stores e.g. Ellerines, Lubners, Joshua Doore etc. Exclude credit card debt covered later)*	1: Yes 2: No	1→ 1 2→ 0
OP11 (_1 to _20) repeat for all household members	Other properties outstanding mortgage: What is the amount of the bond (mortgage) still owing on this property?	Rand value ranges 1 to 24	2 - 23 → 1 1 & 24→ 0
OP19 (_1 to _20) repeated for all household members	Other properties household content: Are there any amount still outstanding on any financing agreements on the acquisition of these household content items? *Finance agreements include lay-buys, hire purchase agreements, personal loan, financing through stores e.g. Ellerines, Lubners, Joshua Doore etc. Exclude credit card debt covered later)*	1: Yes 2: No	1→ 1 2→ 0

Question number	Question	Data value	Recode value
VEH017 (_1 to _20) repeated for number of vehicles as per veh1	Vehicle debt: What is the outstanding amount on the vehicle finance?	Rand value ranges 1 to 24	2 - 23 → 1 1 & 24→ 0
OVEH03	Other vehicles debt: Do you still owe the person/ business you bought these vehicles from any money?	1: Yes 2: No	1→ 1 2→ 0
CB03	Collectables debt: Do you still owe the person/ business you bought these collectibles from any money?	1: Yes 2: No	1→ 1 2→ 0
OA03	Other assets debt (such as livestock): Do you owe anyone money for these assets?	1: Yes 2: No	1→ 1 2→ 0
HL01_1	Bank overdraft: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0
HL02_1	Credit card / petrol cards: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0
HL03_1	Store cards: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0
HL04_1	Personal loans from banks: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0
HL05_1	Personal loans from friends: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0

Question number	Question	Data value	Recode value
HL06_1	Student loans: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0
HL07_1	Other finance agreements: Does anyone in your household have any?	1: Yes 2: No	1→ 1 2→ 0

The new variable was created as follows:

- If (MR12 + MR23 + OP11+ OP19 + VEH017 + OVEH03 + CB03 + OA03+ HL01_1 + HL02_1 + HL03_1 + HL04_1 + HL05_1 + HL06_1 + HL07_1) were found to be larger than 0 coded as 1 (indicating access to credit).
- Otherwise coded as 0 (indicating no access to credit).

The coding of the new variable is indicated in Table 4.5.

Table 4.5: New variable: Access to credit data coding

Variable name	Data value
Access to credit	1: Yes 0: No

To allow for comparison a similar variable was created from AMPS 2015 and FinScope 2015 data sets. Data was compared between AMPS 2015 data, FinScope 2015 data and their average with Wave 5 2015, data as illustrated in Figure 4.5.

In terms of the “Access to credit” variable, Wave 5 indicated that 47% has access to credit and this is relatively in-line with the average of the other data sets (FinScope 2015 and AMPS 2015) of 53%.

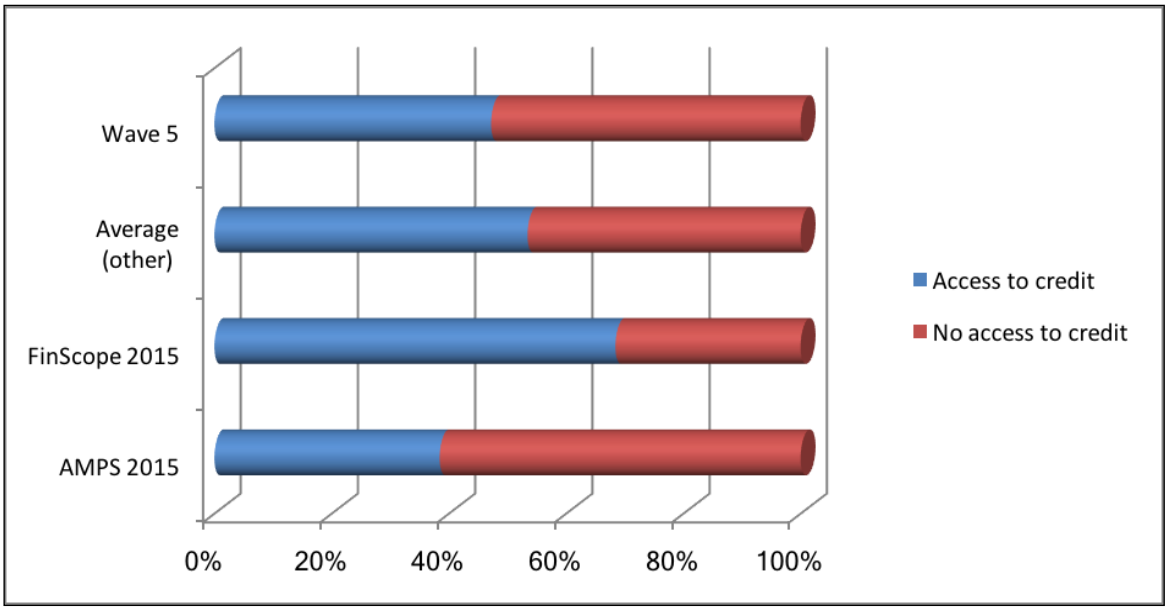

Figure 4.5: Data sets comparison of access to credit

Source: FinMark Trust (2015); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

Possible variation was likely caused by different credit instruments utilised in each data set and the inclusion of transactional accounts which could be utilised as either a credit or savings account. The Wave 5 data is thus considered to be nationally representative based on “Access to credit”.

- **Arrear accounts**

Forty-two percent of South Africans are in arrears by three months and more, or had judgments against them, or had negative ratings on their credit record, according to the National Credit Regulator, and 12% are one to two months in arrears (National Credit Regulator, 2015). These arear accounts increase households’ credit risk and is expected to impact homeownership status negatively. A new variable, “Arrear accounts” was created from Wave 5 data to determine the influence of arrear accounts on the households’ credit risk and tenure status. The questionnaire contained several questions determining if the household has arrear accounts. The “Arrear accounts” variable was created if the household indicated any of the following arrear accounts with regards to mortgage, rent, utilities bills, household content debt, mortgage of other property, bank overdraft, credit card / petrol cards, store cards, personal loans from banks, arrear personal loans from friends, student loans, other finance agreements,

arrear alimony, school fees, and other bills. The coding of these variables are indicated in Table 4.6.

Table 4.6: Arrear accounts data coding

Question number	Question	Data value	Recode value
MR14	Are you behind with any bond (mortgage) payments?	1: Yes 2: No	1→1 2 →0
MR17	Are you behind with any payments of your rent?	1: Yes 2: No	1→1 2 →0
MR20	Are you behind with any payments of your utilities bills?	1: Yes 2: No	1→1 2 →0
MR25	Are you behind with any payments with respect to financing agreements on household content items?	1: Yes 2: No	1→1 2 →0
OP13 (_01 to _20)	Other property: Are you behind with any bond (mortgage) payments?	1: Yes 2: No	1→1 2 →0
HL01_4	Arrear bank overdraft: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL02_4	Credit card/ petrol cards: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL03_4	Store cards: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL04_4	Personal loans from banks: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL05_4	Personal loans from friends: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0

Question number	Question	Data value	Recode value
HL06_4	Student loans: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL07_4	Other finance agreements: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL08_4	Alimony: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL09_4	School fees: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0
HL10_4	Other bills: Are you behind with any installments?	1: Yes 2: No	1→1 2 →0

The new variable was coded as follows:

- If (MR14 + MR17 + MR 20 + MR 25 + OP13_01 to 20 + HL01_4 + HL02_4 + HL03_4 + HL04_4 + HL05_4 + HL06_4 + HL07_4 + HL08_4 + HL09_4 + HL10_4) larger than 0 coded as 1 (indicating accounts in arrears).
- Otherwise coded as 0 (indicating no accounts in arrears).

The coding of the new variable is indicated in Table 4.7.

Table 4.7: New variable: Arrear accounts data coding

Variable name	Data value
Arrear accounts	1: Yes 0: No

From the Wave 5 data illustrated in Figure 4.6, it is seen that 15% of households responded that they have one or more account in arrears. Due to the sensitivity of the nature of arrear account questions, it is anticipated that households may not always

respond accurately to these questions. None of the other data sets had comparable arrear accounts data available to determine if the arrear accounts variable is nationally representative. Although the National Credit Regulator provides arrear data on a macro-consumer level, it is not directly comparable to Wave 5 which is based on a disaggregated micro-household level.

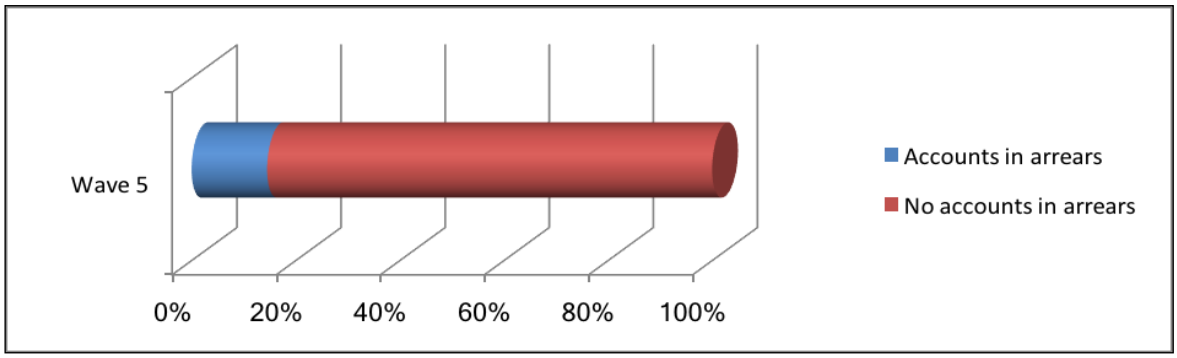

Figure 4.6: Wave 5 data set household response to arrear accounts

Source: Momentum & Unisa (2016); Author

4.3.2.4 Savings ability

Local and international literature identified savings ability, mainly deposit saving, to influence tenure status (Reed & Greenhalgh, 2002; Hargreaves, 2003; Ben-Shahar, 2007; Statistics South Africa, 2016d). The questionnaire contained several questions determining if the household is able to save. A new variable "Savings ability" was created if the household indicated utilising any of the following assets: collectables, other assets, trust assets, business assets, cheque and savings accounts[12], money market (short-term) accounts, fixed-term deposits, Postbank, unit trusts, retirement funds, long-term policies, listed share investments, unlisted share investments, RSA (retail) bonds, other financial assets, retirement (fund) provisions, voluntary pension schemes, or whole life insurance contracts, and other property or investment property. The coding of these variables are indicated in Table 4.8.

[12] The FinScope 2015 data contained numerous transaction accounts which could either be classified as credit account or savings account which made it incomparable. Recently and in contrast with international and historic norms, South African households generally utilise cheque or savings account as a transaction account which combines their savings and credit accounts.

Table 4.8: Savings ability data coding

Question number	Question	Data value	Recode value
CB1	Collectables: Does anyone in your household own any valuables such as jewellery, works of art, antiques, coins or other collectibles?	1: Yes 2: No	1→1 2 →0
OA1	Other assets: Does anyone in your household have any other assets, e.g. livestock?	1: Yes 2: No	1→1 2 →0
OA05	Does anyone in your household have any trust assets?	1: Yes 2: No	1→1 2 →0
OA07	Does anyone in your household have any business assets?	1: Yes 2: No	1→1 2 →0
FA01_1	Does anyone in your household have a cheque / savings account? (see glossary) (excluding overdrafts covered in next section).	1: Yes 2: No	1→1 2 →0
FA02_1	Does anyone in your household have a short-term deposit account (e.g. money market accounts)?	1: Yes 2: No	1→1 2 →0
FA03_1	Does anyone in your household have a fixed-term deposit account (e.g. three / six months account)?	1: Yes 2: No	1→1 2 →0
FA04_1	Does anyone in your household have a Postbank account?	1: Yes 2: No	1→1 2 →0
FA05_1	Does anyone in your household have a unit trust investment?	1: Yes 2: No	1→1 2 →0
FA06_1	Does anyone in your household have a retirement fund benefit (e.g. pension fund, retirement annuity)?	1: Yes 2: No	1→1 2 →0
FA07_1	Does anyone in your household have a long-term policy (e.g. education, endowment)?	1: Yes 2: No	1→1 2 →0

Question number	Question	Data value	Recode value
FA08_1	Does anyone in your household have investments in shares in companies listed on the JSE?	1: Yes 2: No	1→1 2 →0
FA09_1	Does anyone in your household have investments (shares) in a business/ companies?	1: Yes 2: No	1→1 2 →0
FA10_1	Does anyone in your household have retail bonds (e.g. Government RSA Retail Bonds)?	1: Yes 2: No	1→1 2 →0
FA11_1	Does anyone in your household have other financial assets, e.g. stokvels, burial society and social clubs?	1: Yes 2: No	1→1 2 →0
RP04 (_1 to _20)	What do you think is the current value of your / X's retirement fund's?	Rand value ranges 1 to 24	2 - 23 → 1 1 & 24→ 0
RP05 (_1 to _20)	Some people have formal retirement plans they set up on their own, such as voluntary pension schemes or whole life insurance contracts. Do you / X have any such plans?	1: Yes 2: No; 3: Don't know	1→1 2 →0 3→0
OP1	How many other properties such as holiday homes or investment property, if any, does your household own?	Number	If number of assets →1 otherwise recode →0

The new variable was coded as follows:

- If (CB1 + OA1 + OA05 + OA07 + FA01_1 + FA02_1 + FA03_1 + FA04_1 + FA05_1 + FA06_1 + FA07_1 + FA08_1 + FA09_1 + FA10_1 + FA11_1 + RP04_1 to _20 + RP05_1 to _20 +OP1) larger than 0 coded as 1 (indicating able to save).
- Otherwise coded as 0 (indicating unable to save).

The coding of the new variable is indicated in Table 4.9.

Table 4.9: New variable: Savings ability data coding

Variable name	Data value
Savings ability	1: Yes 0: No

To allow for comparison, a similar savings ability variable was created from the AMPS 2015 data set. In terms of "Savings ability", Wave 5 2015 at 78% is nine percentage points higher than the AMPS 2015 data as illustrated in Figure 4.7. This is possibly due to the Wave 5 survey containing a wider variety of assets invested in than the AMPS 2015 data set. The Wave 5 data set is thus considered to be nationally representative based on savings ability.

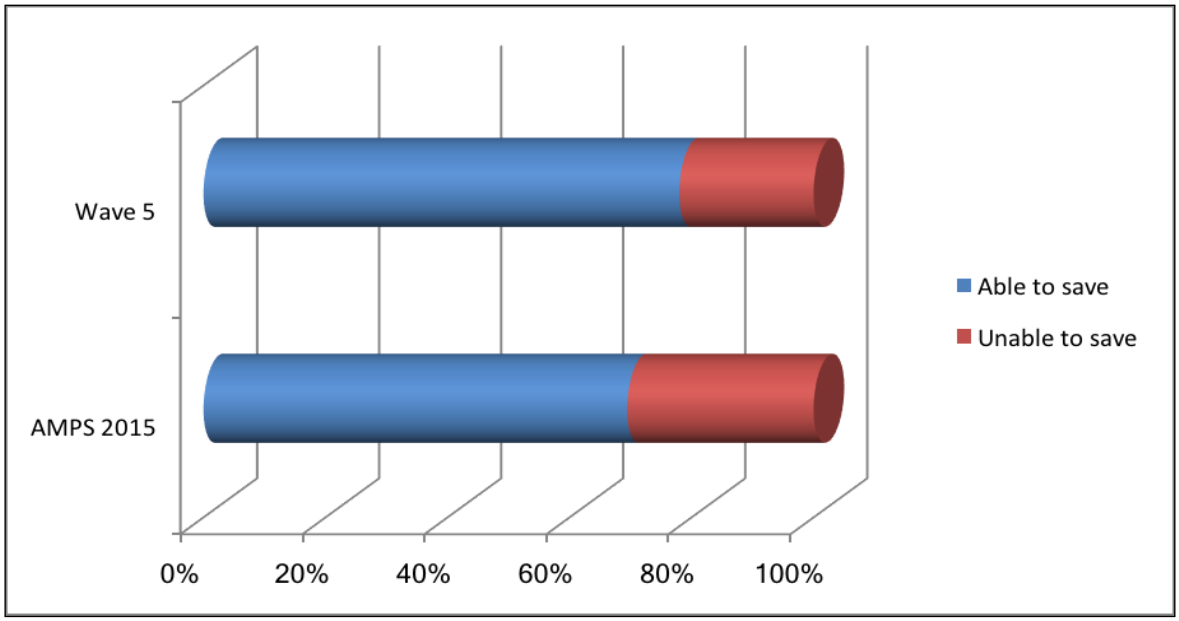

Figure 4.7: Data sets comparison of savings ability

Source: Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

4.3.2.5 Employment status

The questionnaire contained a question (FKP11) asking the FKP respondent's current employment status which provided respondents with eight alternatives which were

recoded to allow for comparability with other data sets. This question was completed by all households. The coding of this variable is indicated in Table 4.10.

Table 4.10: Employment status coding

Variable	Question number	Question	Data value	Recode value
Employment status	FKP11	What is your current employment status?	1: Paid employee 2: Paid family worker 3: Self-employed	1: Paid employee 2: Paid family worker 3: Self-employed → 1: Employed
			4: Not working: retired 5: Not working: housewife 6: Not working: student	7: Not working: unemployed 8: Not working: seasonal worker → 2: Unemployed
			7: Not working: unemployed 8: Not working: seasonal worker	4: Not working: retired 5 Not working: housewife 6: Not working: student → 3: Not economically active

Wave 5 is relatively in-line with other data sets in terms of employment status, as illustrated in Figure 4.8. The average from other data sets (FinScope 2015, QLFS 2015 Q4 and AMPS 2015) compared to Wave 5 data sets seem to vary between the unemployed and not economically active employment status categories.

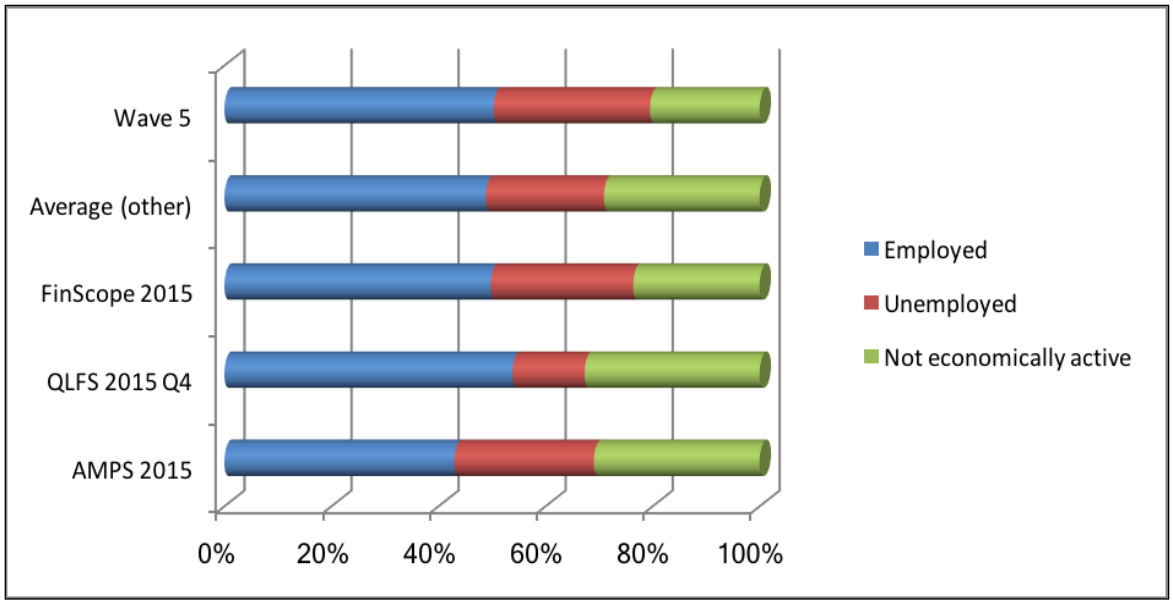

Figure 4.8: Data sets comparison of employment status

Source: FinMark Trust (2015); Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

The response rate from Wave 5 had a higher than average (based on FinScope 2015, QLFS 2015 Q4 and AMPS 2015) response from unemployed (29%) status groups and a lower than average response from the not economically active (21%) status groups. This could be expected as FKPs are more likely to be economically active and not working due to unemployment and seasonal job opportunities, than economically inactive and not working due to retirement, being a housewife, or student status. Wave 5 data appears most in-line with the FinScope 2015 data and is thus considered to be nationally representative based on employment status.

4.3.2.6 Education level

International studies have found that an increase in education level increased homeownership status as mortgage constraints were reduced for higher education levels (Lauridsen & Skak, 2007; Drew, 2015). The questionnaire contained a question (FKP10) asking the FKP's highest level of completed education which consisted of 15 alternatives, including an "other" category. The "other" category was recoded to the appropriate groups by the BMR leaving 14 alternatives. To allow for comparability with other data sets, these 14 education levels were recoded into seven education level

categories as illustrated in Table 4.11. This question was completed by 99% of households.

Table 4.11: Education level data coding

Variable	Question number	Question	Data value	Recode value	
Education level	FKP10	What is the highest level of education that you have completed?	1: No schooling 2: Pre-school 3: Some primary completed 4: Primary completed 5: Grade 10 or less 6: Grade 12/ Standard 10/ Form 5/ Matric 7: NTC I 8: TC II 9: NTC III 10: Diploma/ certificate with less than Grade 12/ Std 10 11: Diploma/ certificate with Grade 12/ Std 10 12: Degree 13: Post-graduate degree or diploma 14: Don't know	1: No Schooling 2: Pre-school	1: No schooling
				3: Some primary completed	2: Primary not completed
				4: Primary completed	3: Primary completed
				5: Grade 10 or less 7: NTC I 8: NTC II 10: Diploma/ certificate with less than Grade 12/ Std 10	4: Secondary not completed
				6: Grade 12/ Standard 10/ Form 5/ Matric 9: NTC III 11: Diploma/ certificate with Grade 12/ Std 10	5: Secondary completed
				12: Degree 13: Post-graduate degree or diploma	6: Tertiary
				14: Don't know	7: Unspecified

Figure 4.9 illustrate that despite variances between the data sets' categories, the majority of households has secondary not completed and the secondary completed education levels.

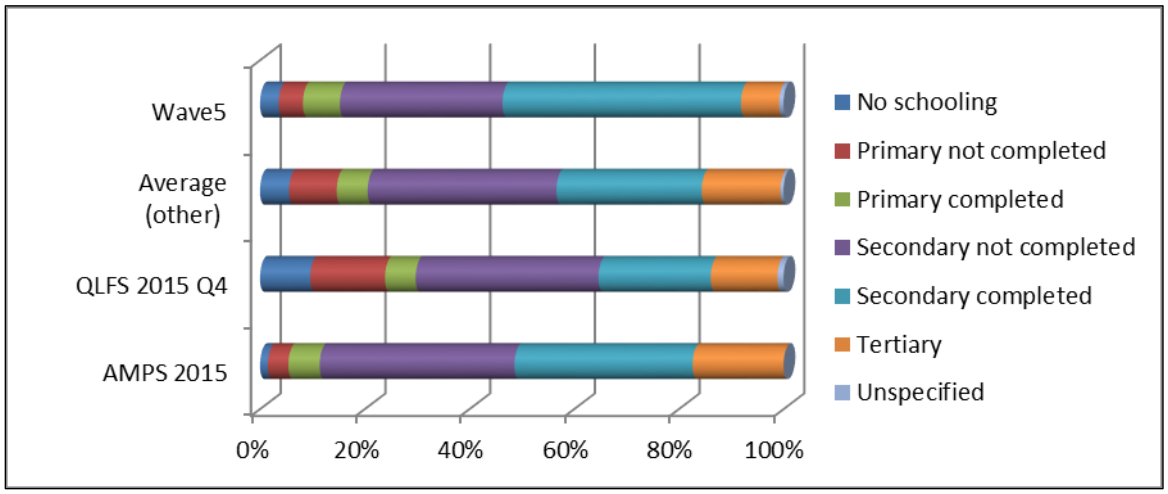

Figure 4.9: Data sets comparison of education level

Source: Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

Perhaps since the Wave 5 survey focusses on the Financially Knowledgeable Person (FKP), it could be why the response for the secondary completed education level category is eighteen percentage points higher than the average of the other data sets (QLFS 2015 Q4 and AMPS 2015) and six percentage points less for the no schooling and primary not completed. Interestingly, the Wave 5 response rate for the tertiary education level category is six percentage points lower than expected. The Wave 5 data is thus considered to be nationally representative based on education level.

4.3.2.7 Age

The questionnaire contained a question (FKP08) asking the FKP's actual age. For comparability purposes, ages were combined to create ranges as illustrated in Table 4.12. This question was completed by all households.

Table 4.12: Age groups data coding

Variable name	Question number	Question	Data value	Recode value
Age	FKP08	What is your age?	Actual age	1: 18-24 2: 25-34 3: 35-44 4: 45-54 5: 55-64 6: 65+

As illustrated in Figure 4.10, Wave 5 found the vast majority (71%) to be from the 25 to 54 age groups. The largest variations between Wave 5 and the average of other data sets (FinScope 2015, QLFS 2015 Q4, AMPS 2015) are of the six percentage points lower response rate from the youngest age groups for Wave 5.

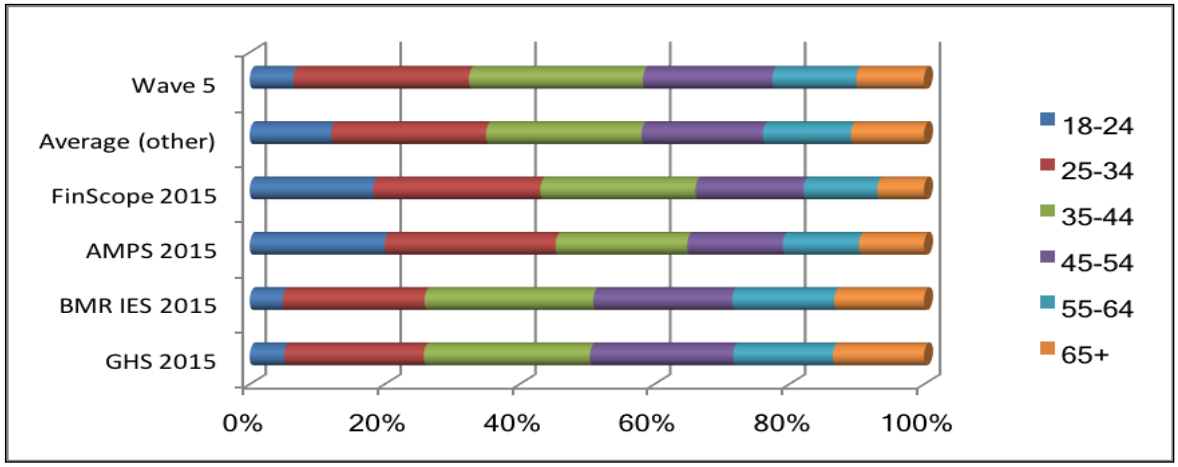

Figure 4.10: Data sets comparison of age groups

Source: Bureau of Market Research (2015); FinMark Trust (2015); Statistics South Africa (2015b); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

Possible explanations for discrepancies are that younger household members generally do not represent the FKP as required by Wave 5, and most FKPs are middle-aged. Another reason could be that other data sets include younger than 18 years household heads, such as FinScope 2015 (from 16 years) and AMPS 2015 (from 15 years) and GHS 2015 (from 8 years). The lowest response rate of 6% is from the young working age group (18 to 24 years) as these individuals may reside with their

parents as students or employment seekers. The second smallest age group of 10% is from the retired age group (65 and older) as these FKPs are older than the working age and are possibly either living with their children or have passed away, as the South African's average life expectancy is 59 years for males and 63 years for females (Statistics South Africa, 2014b). General correspondence is seen for age groups amongst the data sets and Wave 5, and Wave 5 data is thus considered to be nationally representative based on age.

4.3.2.8 Relationship status

The questionnaire contained a question (FKP15) asking the FKP's current relationship status (often referred to as marital status). The four relationship statuses consisted of never married (single), married/ living together as partners, widowed, separated/ divorced, and required no recoding. All households completed this question. The coding of this variable is indicated in Table 4.13.

Table 4.13: Relationship status data coding

Variable name	Question number	Question	Data value
Relationship status	FKP15	What is your current relationship status?	1: Never married (single) 2: Married / living together as partners 3: Widowed 4: Separated/divorced

As illustrated in Figure 4.11, the Wave 5 data compared to the average of the other data sets is four percentage points lower for the never married (single) FKP's, four percentage points higher for separated or divorced FKP's, whereas married or living together as partners and widowed FKP's respectively only had a one percentage point discrepancy when compared to the average of the other data sets. Wave 5 is therefore relatively in-line with other data sets (FinScope 2015, QLFS 2015 Q4, AMPS 2015) with regards to relationship status.

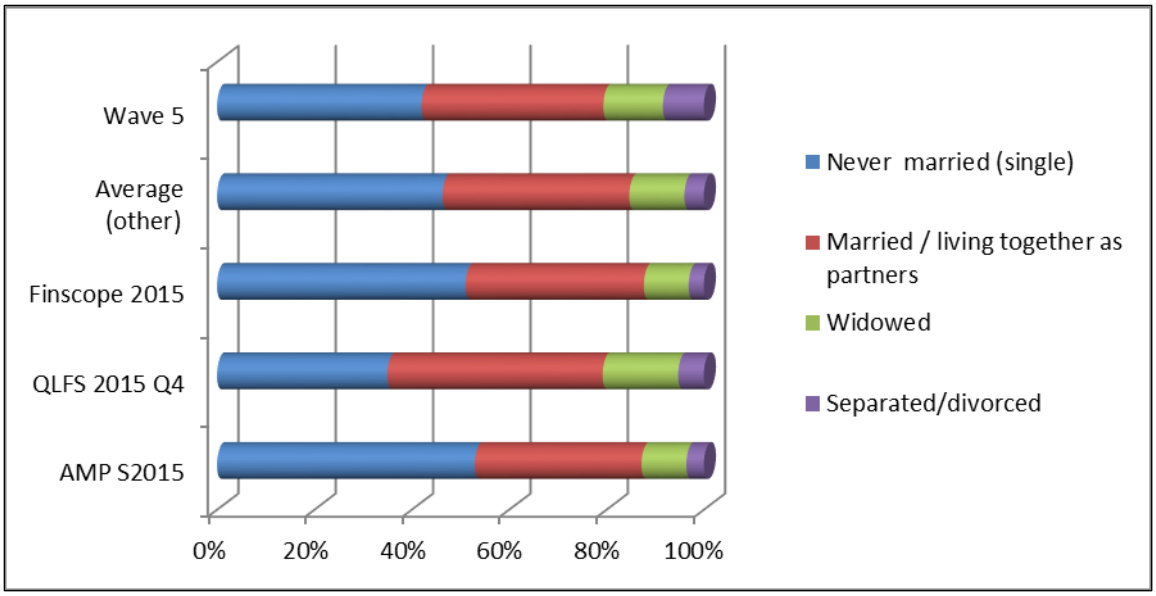

Figure 4.11: Data sets comparison of relationship status

Source: FinMark Trust (2015); Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

The largest group at 42%, the never married or single status group, exceeded the second largest group, the married and living together as partners group at 37% in Wave 5. Possible reasons for the shift from the married status group may be due to the recent decrease in the number of civil and customary marriages and the smaller increase in civil unions experienced in South Africa (Statistics South Africa, 2015c). Remarkably, at 8% Wave 5 had a higher response from separated/ divorced FKPs, perhaps as this often represents a transitional life stage and these persons become the FKP of the new household. The Wave 5 data is thus considered to be nationally representative based on relationship status.

4.3.2.9 Family structure

The questionnaire contained a question (HH02) evaluating the family structure (household composition) by determining the number of adults and children (under the age of 18) in the household, respectively. A new variable was created adding the number of adults and the number of children to determine the total household size. Households consisting of seven and more members were combined due to low response rates from these households. The coding of this variable is indicated in Table 4.14.

Table 4.14: Family structure data coding

Variable name	Question number	Question	Data value	Recode value
Family structure	HH02	We would first like to record the composition of the household. How many adults (including yourself) and children (under the age of 18) are there living with you in your house?	Actual number of adults and children	1: 1 member household 2: 2 member household 3: 3 member household 4: 4 member household 5: 5 member household 6: 6 member household 7: 7 or more member household

As illustrated in Figure 4.12, Wave 5 data compared to the average of other data sets is relatively in-line for households consisting of four, five, six and seven or more household members (FinScope 2015, BMR IES 2015 and GHS 2015). The largest exception is households consisting of only one household member which is thirteen percentage points less for Wave 5 than the average from the other data sets. Two and three member households exceed the average from other data sets respectively by five and three percentage points. Perhaps the difference could be ascribed to the difference of inclusion or exclusion of household members per data set.

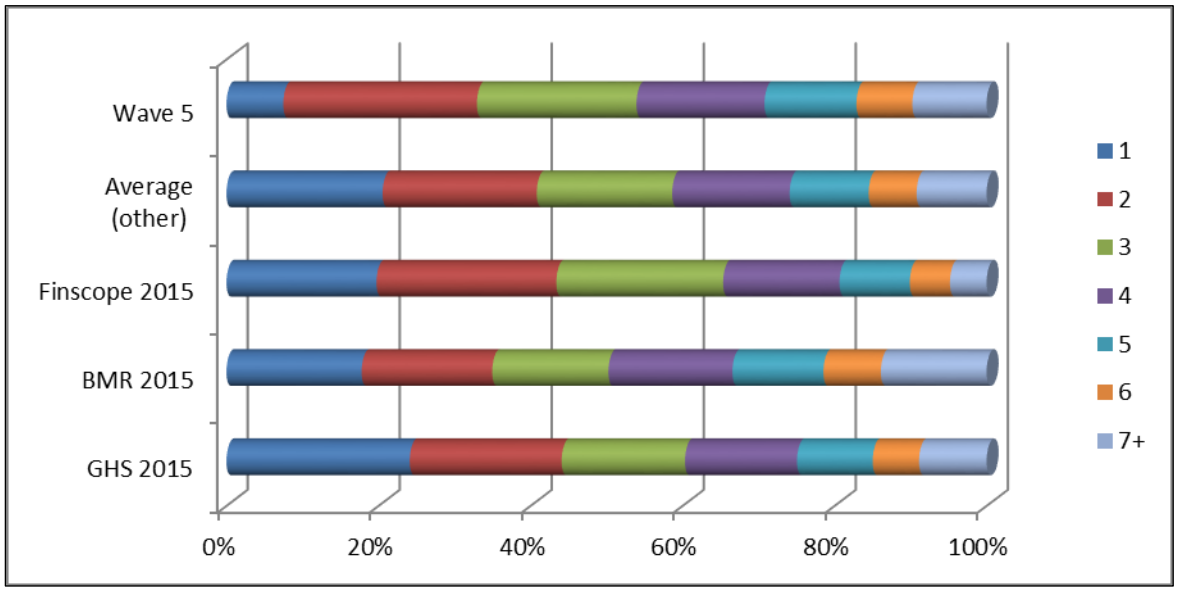

Figure 4.12: Data sets comparison of family structure

Source: Bureau of Market Research (2015); FinMark Trust (2015); Statistics South Africa (2015b); Momentum & Unisa (2016); Author

Wave 5 described the household as "… the economic unit, i.e. everyone who lives and eats together as well as people not living there but who are financially dependent on those at the main residence or on whom members are financially dependent…"[13]. Statistics South Africa defines a household as "… a group of who live together and provide themselves jointly with food and/ or other essentials for living, or a single person who lives alone…" (Statistics South Africa, 2016a). Persons who stayed in the dwelling a minimum of four nights on average per week during the last four weeks, sharing resources as a unit, were considered household members for GHS 2015 purposes. The Wave 5 data is thus considered to be nationally representative based on family structure.

4.3.2.10 Population group

The questionnaire contained a question (FKP09) asking the FKP to describe their population group. Population groups per Wave 5 included: African, Coloured, Indian, White, and Other. The "other" population group was recoded as 'system missing' due to its small portion and to allow for comparability with other data sets. This question was completed by all households. The coding of this variable is indicated in Table 4.15.

Table 4.15: Population group data coding

Variable	Question number	Question	Data value	Recode value
Population group	FKP09	How would you describe yourself in terms of population group?	1: African 2: Indian 3: Coloured 4: White 5: Other	1: African→1: African, 2: Indian → 2: Indian 3: Coloured → 3: Coloured 4: White→ 4: White 5: Other → System missing

[13] Wave 5 followed the following criteria for including household members:
(1) Person works elsewhere but returns to this address regularly.
(2) Person is a student living away from this address only during the academic term.
(3) The person is a child in joint custody and spends more days here than anywhere else.
(4) The person is an elderly parent who lives here more days than anywhere else.
Include if unsure with reasons

As illustrated in Figure 4.13, Wave 5 data closely aligns with other data sets (FinScope 2015, QLFS 2015 Q4, AMPS 2015 and BMR IES 2015) with regards to population group.

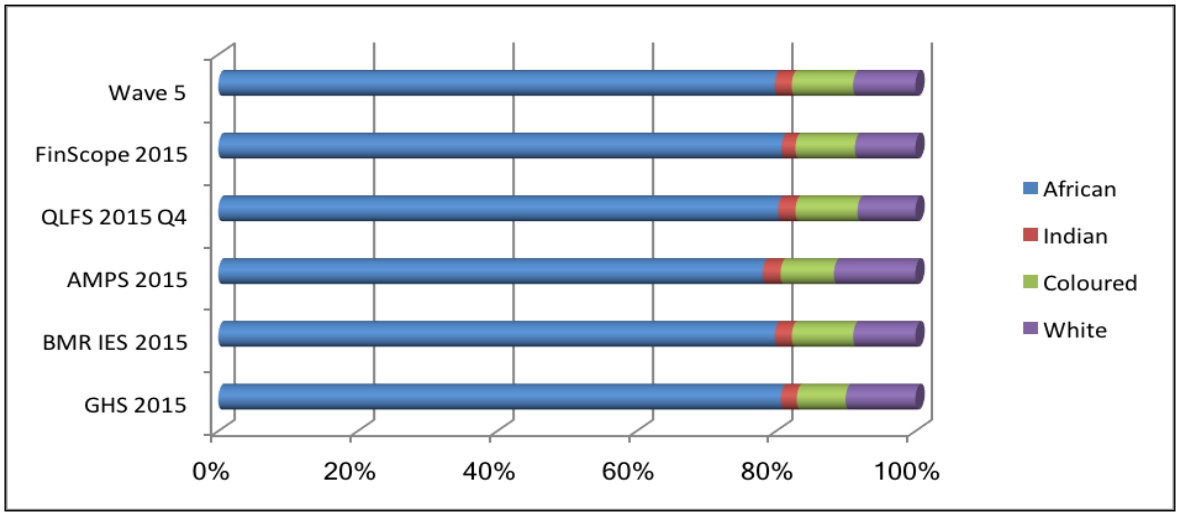

Figure 4.13: Data sets comparison of population groups

Source: Bureau of Market Research (2015); FinMark Trust (2015); Statistics South Africa (2015b); Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

In South Africa, the vast majority of households are represented by the African population group. In Wave 5, 80% were from the African group, whereas the Coloured and White population groups each contributed 9% and the Indian group contributed only 2%. The Wave 5 data is thus considered to be nationally representative based on population group[14].

4.3.2.11 Location (province and area)

The South African government aims its efforts at rectifying apartheid's spatial settlements and reform urban areas (Statistics South Africa, 2016d). Location for the purpose of this study, therefore, consists of province and area (metro, non-metro and urban).

[14] Other data sets combined Indian and Asian population groups. Wave 5 however did not specify Asian as part of this population group.

- **Province**

Province was one of the sample design criteria and thus a similar distribution across the nine provinces (Eastern Cape, Free State, Gauteng, Kwazulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West, and Western Cape) was expected and realised. This variable required no recoding. This question was completed by all households. The coding of this variable is indicated in Table 4.16.

Table 4.16: Province data coding

Variable name	Question number	Question	Data value
Province	A8	Province	1: Eastern Cape 2: Free State 3: Gauteng 4: Kwazulu-Natal 5: Limpopo 6: Mpumalanga 7: Northern Cape 8: North West 9: Western Cape

Figure 4.14 clearly illustrates that Wave 5 data is in-line with other data sets.

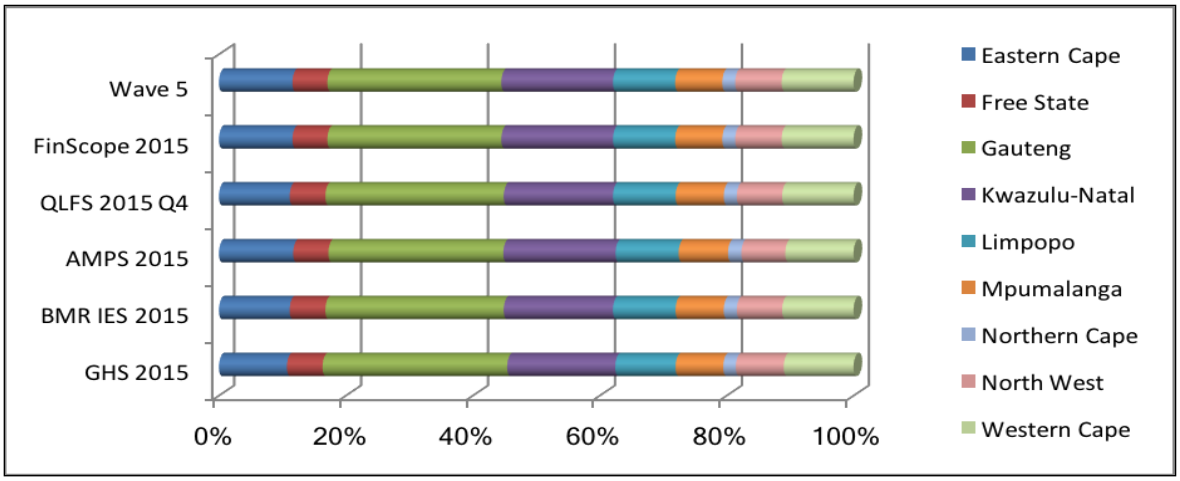

Figure 4.14: Data sets comparison of province

Source: Bureau of Market Research (2015); FinMark Trust (2015); Statistics South Africa (2015b); Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

Per Wave 5, the largest percentage of South African households (28%) reside in Gauteng, followed by 17% in Kwazulu-Natal, 11% in Western Cape, 11% in Eastern Cape, 10% in Limpopo, 8% in Mpumalanga, 7% in North West, 6% in Free State and only 2% in Northern Cape. The Wave 5 data is thus considered to be nationally representative based on province.

- **Area distribution**

The questionnaire contained a question (FKP14) asking the FKP to classify the area in which they reside as metropolitan, non-metro city or town, and rural area. The metropolitan selections consisted of Buffalo City (East London), City of Cape Town, Ekurhuleni (East Rand), eThekwini (Durban), City of Johannesburg, Mangaung (Bloemfontein), Nelson Mandela Bay (Port Elizabeth), and City of Tshwane (Pretoria). This question obtained a 100% response rate. To allow for comparability, this question was recoded into metropolitan, non-metro city or town, and rural area as indicated in Table 4.17.

Table 4.17: Area data coding

Variable	Question number	Question	Data value	Recode value
Area	FKP14	How would you classify the area (i.e. metropolitan, non-metro city or town or a rural area) in which the members of the household usually live?	1: Buffalo City (East London) 2: City of Cape Town 3: Ekurhuleni (East Rand) 4: eThekwini (Durban) 5: City of Johannesburg 6: Mangaung (Bloemfontein) 7: Nelson Mandela Bay (Port Elizabeth) 8: City of Tshwane (Pretoria) 9: Non-metro city or town 10: Rural area	1 to 8 →1: Metropolitan, 9 → 2: Non-metro city or town 10 → 3: Rural area

Figure 4.15 illustrates that the largest portion of South Africans live in metropolitan areas as these areas typically provide the most employment opportunities (Statistics South Africa, 2016d). FinScope 2015's areas, namely metro, small urban and rural, aligned best with Wave 5 data as the area classification of other data sets were incomparable, for example, the GHS 2015 options were urban, traditional, and farms.

Wave 5 data had eight percentage points more from metro areas than FinScope 2015, and six percentage points less from the non-metro city or town areas. The difference could be ascribed to the alteration in classification of the non-metro city or town area which was described as small urban by FinScope 2015. The data is thus considered to be nationally representative based on area.

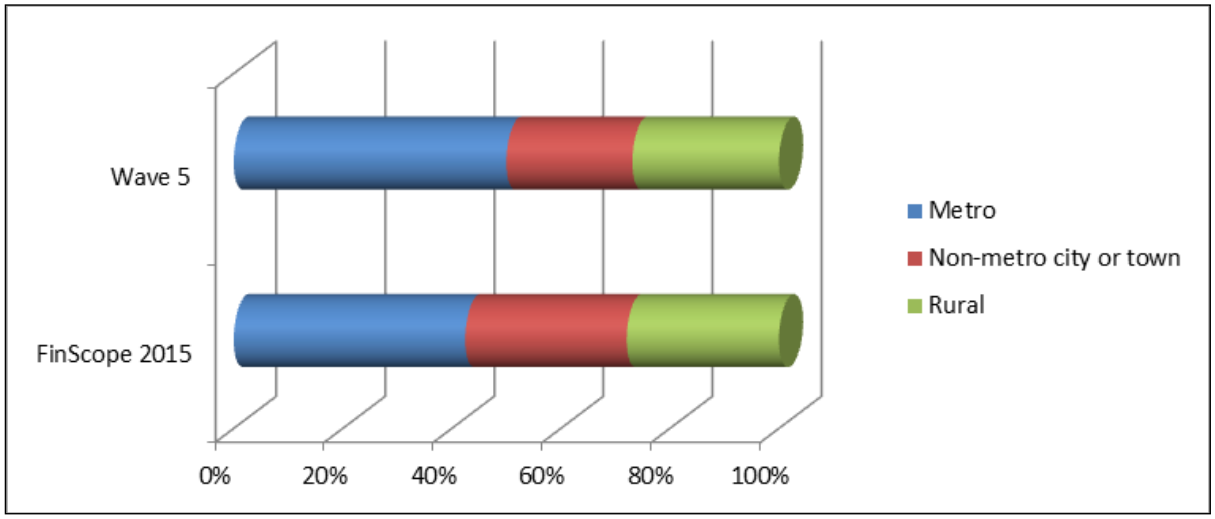

Figure 4.15: Data sets comparison of area distribution

Source: Bureau of Market Research (2015); FinMark Trust (2015); Statistics South Africa (2015b); Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

4.3.2.12 Gender

The questionnaire contained a question (FKP07) asking the FKP to indicate their gender as either male or female. This question was completed by all households. The coding of this variable is indicated in Table 4.18.

Table 4.18: Gender data coding

Variable name	Question number	Question	Data value
Gender	FKP07	What is your gender?	1: Male 2: Female

Traditionally for the majority of households, males have been identified as the head of the household and the financially knowledgeable person (Smith, Mcardle & Willis, 2010). As illustrated in Figure 4.16, the data set comparison was therefore unexpected as the majority (66%) in Wave 5 had female FKPs, which is similar to FinScope 2015 (57%) data but in contrast to the QLFS2015, AMPS 2015, BMR IES 2015, and GHS 2015 data sets where the majority of household heads were male.

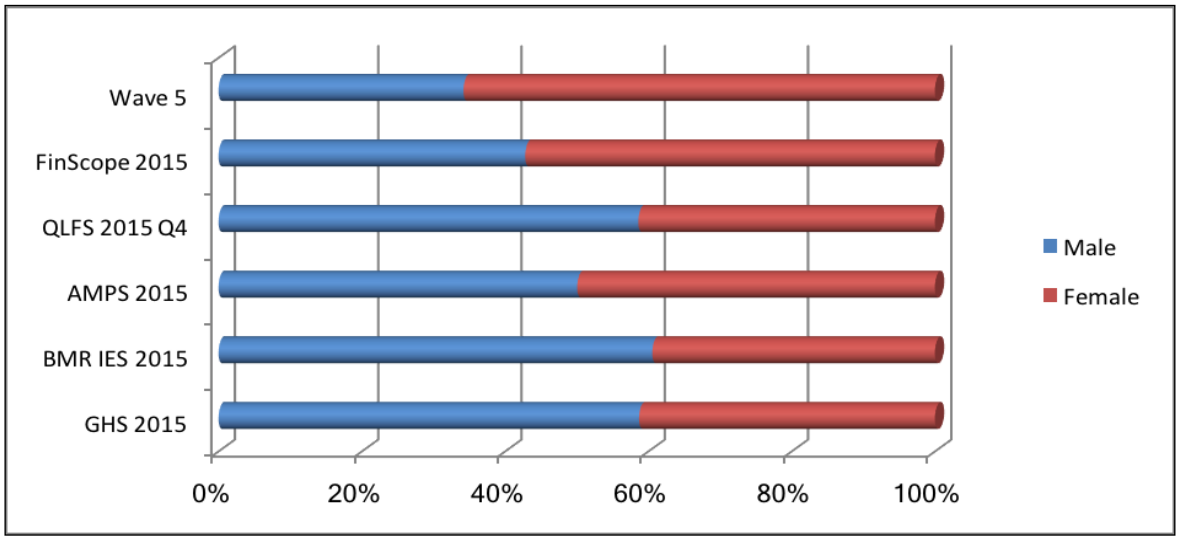

Figure 4.16: Data sets comparison of gender

Source: Bureau of Market Research (2015); FinMark Trust (2015); Statistics South Africa (2015b); Statistics South Africa (2015c); Momentum & Unisa (2016); South African Audience Research Foundation (2016); Author

Part of this is explained as females were found to respond more to surveys than males (Korkeila, Suominen, Ahvenainen, Ojanlatva & Helenius, 2001). Another explanation is that more separated/ divorced households responded to Wave 5 (see relationship status), and this transitional phase often makes females the financially knowledgeable person of the newly formed household. Furthermore, the Wave 5 survey focussed on the FKP, whereas other studies focussed on the household head. The Wave 5 FKP is

determined by identifying the person who knows most about the household's finances, whereas the household head, as determined by Statistics South Africa (2016a), is "…the main decision-maker, or the person who owns or rents the dwelling, or the person who is the main breadwinner." The Wave 5 data is thus considered to be nationally representative based on gender.

4.3.2.13 Summary of parameter identifications

After comparing Wave 5 data with the GHS 2015, BMR IES 2015, AMPS 2015, QLFS 2015 and FinScope 2015 data sets where applicable, and obtaining plausible explanations for deviations, it was concluded that the Wave 5 data set is nationally representative for the purpose of this study. However, no comparison was possible for arrear accounts which represent an exploratory variable, as no comparative data was available.

It was determined that the Wave 5 data base is nationally representative and suitable for the purpose of this study.

The next step of this study will consider the reliability and validity of the data for the purpose of this study.

4.3.3 Reliability and validity

Prior to the researcher obtaining the secondary Wave 5 data for the purpose of this study, the Bureau of Market Research at UNISA conducted extensive neural networks and various other statistical tests on the data set, and the data was overall found to be reliable and valid. Data coding and recoding was done to ensure comparability between data sets and weighted to ensure that it is nationally representative on a macro-level. In addition to the comprehensive reliability and validity procedures performed on the Wave 5 data set on a macro-level by the BMR, this section aims to determine if the secondary data is reliable and valid for the purpose of this study.

Face validity determines the extent to which a measure reflects what it is intended to measure (Nevo, 1985). Although the secondary data used in this study was not

designed exclusively for the purpose of this study, Section 4.3.1 indicated that the data set contained the necessary variables that cover the required spectrum of options to conduct an analysis to achieve the objective of this study. The data can, therefore, be deemed valid. Section 4.3.2 furthermore indicated through parameter identification that the data selected for the purposes of this study is nationally representative and therefore may be deemed reliable. This section answered sub-question 3 (see Section 1.5.3):

Sub-question 3: Is the Wave 5 data set suitable, reliable and valid for the purpose of this study?

The next section discusses the methods applied for data analysis in this study.

4.4 DATA ANALYSIS METHODS

Section 4.3.2 of this chapter retained all six tenure statuses (RDP house, Owned and fully paid off, Owned but not yet paid off, Rented, Free use and Other), however the focus of this study is predominantly on the attainment of homeownership (Owned fully and not yet paid off) or homeownership not attained (Rented). The RDP house ownership, Free use, and Other categories are thus excluded for analysis purposes as these households do not partake in the tenure status decision but rather qualify for government assistance and therefore have different characteristics. This study therefore focusses on non-subsidised homeownership which is necessary to achieve its main objective to determine the comparative odds of variables contributing to non-subsidised homeownership in South Africa. Figure 4.17 illustrates the focus area as non-subsidised homeownership status attained or not attained.

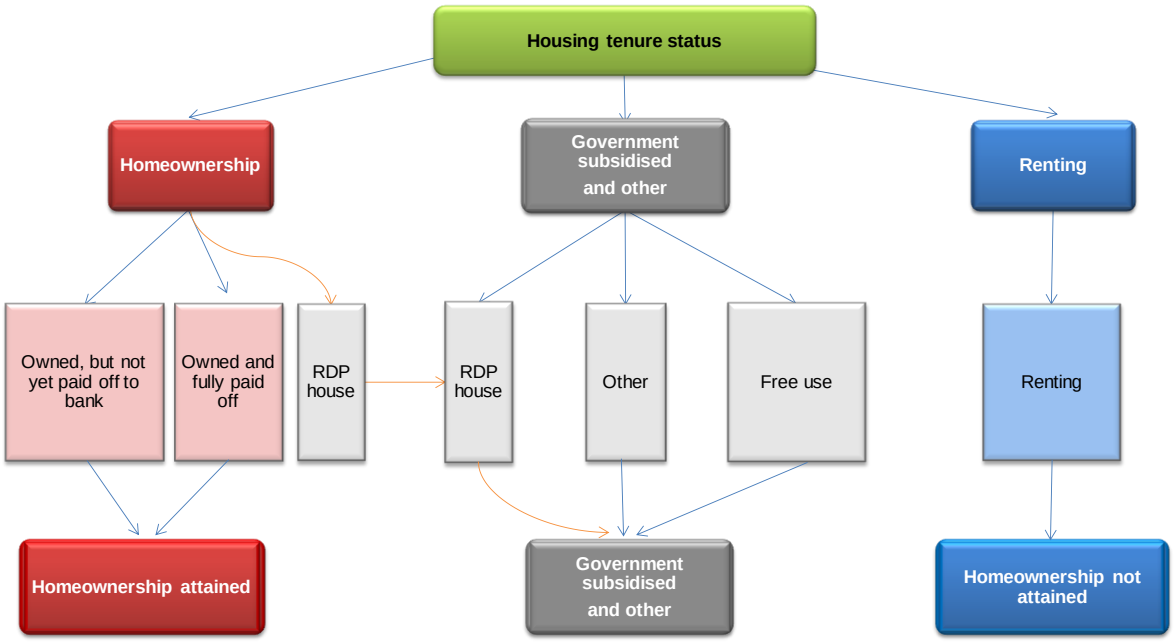

Figure 4.17: Homeownership status attainment or non-attainment

Source: Author

For the remainder of the study the "Tenure status" variable's six categories (see Section 4.3.2) are recoded into a new variable "Homeownership status". RDP house, Free use, and Other are recoded as missing values, Owned not paid off and Owned fully paid off is recoded as 1, and Rented is recoded as 0. Homeownership status is, therefore, a binary variable as indicated in Table 4.19.

Table 4.19: Homeownership status data coding

Data value	Recode value
1: RDP house	1 → System missing
2: Owned and fully paid off (thus have no debt on the property)	2 → 1: Homeownership attained
3: Owned but not yet paid off (thus still have some outstanding debt on the property)	3 → 1: Homeownership attained
4: Rented	4 → 0: Homeownership not attained
5: Free use	5 → System missing
6: Other	6 → System missing

This section sets out to discuss the methods used to determine if there is a statistically significant relationship between factors identified from the literature and

homeownership status attainment. Homeownership status is the dependent variable and the identified factors from the heuristic model in Chapter 3 are the categorical independent variables. This section provides a brief description of each of the statistical methods to be employed which include Visual inspection, Chi-square test for independence and logistic regression. The Wave 5 data will be statistically analysed using the SPSS Statistics software package, and the results will be discussed in Chapter 5.

4.4.1 Visual inspection

A visual inspection will be performed in Chapter 5 to determine if there appears to be a relationship between non-subsidised homeownership status and each of the identified influential factors. Cross tabulations will be performed between homeownership status and each of the identified influential factors, from which comparative figures will be drawn.

4.4.2 Chi-square test for independence

After discussing the individual appearance of a possible relationship from visual inspection, the Pearson's Chi-square test for independence, a statistical method determining the statistical significance of the isolated relationships between the dependent and independent variables, will be conducted as a screening test. By comparing the observed and expected frequencies and measuring the relationship between data and theory Pearson's Chi-square test for independence determines the relationship between two categorical variables by considering the amount of cases found in the various categories of one variable across the different categories of another variable (Bless & Kathuria, 1993; Pallant, 2005). The Chi-square test for independence is appropriate as screening test for this study as all the variables identified from the heuristic model in Chapter 3 are categorical variables.

Pearson's Chi-square is further considered a non-parametric statistic, which is appropriate for this study as the distribution is not expected to fall within a normally distributed curve (Pallant, 2005). In this study, the Chi-square test will be performed as screening test to determine the possible isolated statistical significance of

relationships between each identified factor (independent variable) and homeownership status (dependent variable), in order to answer the sub-research question 4:

Sub-question 4:
Which identified influential factors indicate isolated relationships with non-subsidised homeownership in South Africa?

Chi-square test for independence is subject to certain underlying assumptions (Laerd statistics, 2016b):

- The dependent variable (homeownership status) and independent variables must be ordinal or nominal (i.e. categorical) in nature.
- Both variables must be from two or more independent groups.

As homeownership and all the available identified influential factors from the heuristic model (see Section 3.4 and Figure 4.2) are categorical variables, the first assumption criteria is met. There are 13 categorical variables available relating to income level, credit risk (access to credit, arrear accounts), savings ability, employment status, education level, age, relationship status, family structure, population group, location (province and area) and gender. It is, furthermore, possible to divide homeownership and each isolated possible identified influential factor into groups that are independent from each other and therefore the criteria of the second assumption is also met.

4.4.3 Logistic regression and odds ratio

Logistic regression will test the significance of the variables (possible influential factors) identified from the heuristic model in Chapter 3 (Pallant, 2005). Determining the impact of the identified factors is necessary to answer the following research sub-question of this study:

Sub-question 5:
Which identified influential factors have a significant influence on non-subsidised homeownership in South Africa when taking other identified factors into consideration?

Logistic regression is an extension of linear regression whereby the outcome is no longer a continuous variable but rather predicts the probability of falling within the homeownership attained or not attained dependent variable, based on the categorical variables (Plant, 1997; Laerd statistics, 2016a).

This study will apply a binary-logistic regression statistical method that is convenient for associating binary dependent variables with independent variables (Plant, 1997). Binary-logistic regression is subject to certain underlying assumptions (Laerd statistics, 2016a):

- The dependent variable (homeownership status) is a binary variable.
- The independent variables (possible influential factors) are all categorical variables.
- The dependent variable has mutually exclusive values and exhaustive categories.
- A linear relationship between any continuous independent variables and the logit transformation of the dependent variable should be present.

As homeownership status is either attained (1) or not attained (0) it meets the criteria of the first and third assumptions. SPSS has a functionality of allocating dummy variables to categorical covariates. The researcher modified the variables to the same measuring level, which conformed variables to a categorical nature and independent variables therefore meet the second assumption. The fourth assumption is not relevant to this study as the independent variables are all categorical and not continuous in nature.

In a basic logistic regression model, the independent variables (influential factors) are related to the binary dependent variable (homeownership status) in a model

$$\log(\frac{P}{1-P}) = \beta_0 + \beta_1 X_1$$

where P = prob (Y = 1), Y represents the dependent variable, X_1 the independent variables, and β the respective coefficients (Hsieh, Bloch & Larsen, 1998).

The hypothesis for each independent variable will test whether the coefficients of each of the independent variables are statistically significantly different from 0 (has an impact on the dependent variable) when all other variables remain the same. In this study, there are multiple independent variables in the heuristic model, and therefore the hypothesis of interest is the influence of a specific factor, given the state of the remaining factors, on homeownership status. The statistical significance will be based on the relevant p-value. If the p-value is less than 0.05, the specific independent variable may be deemed to be highly statistically significant at a 5% level, and therefore may be considered to be a predicting factor of homeownership, given the other independent variables.

Odds ratios will result from performing such a logistic regression. The odds ratio for each independent variable can be calculated from the coefficient obtained in the logistic regression. The resulting value represents the increase in odds of homeownership attainment if the dependent variable increases by one unit (moves from one categorical group to the next), all other variables being equal (Plant, 1997). Odds ratios are interpreted for each of the variables as one cannot interpret the variables conjointly as the analysis method is not based on conditional probabilities.

4.4.4 Summary of statistical methods

The main purpose of each statistical method discussed in this section is illustrated in Figure 4.18.

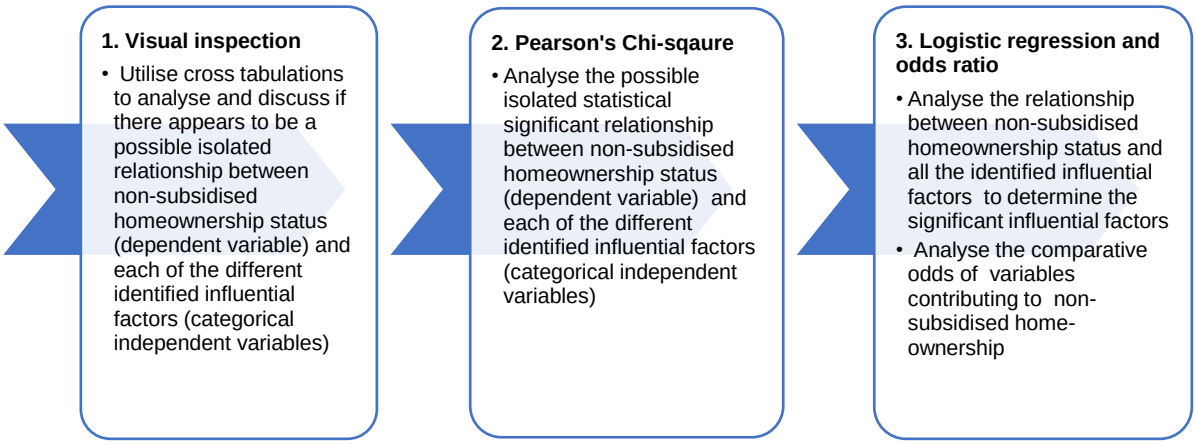

Figure 4.18: Summary of main purpose of statistical methods

4.5 ETHICAL CLEARANCE

The Wave 5 survey was conducted in accordance with UNISA's Policy on Research Ethics and other research policies. Ethical clearance was obtained (BMR-CR023) before the survey was conducted. After approval in compliance with the UNISA Policy on Research Ethics by the College of Accounting Science Research Ethics Committee (2015_CAS_029), the secondary data from Wave 5 was provided to the researcher.

4.6 DATA LIMITATIONS

Self-reporting is the most prevalent data limitation of the secondary survey data used in this study as it may contain inaccurate data provided by FKP respondents. A further data limitation found by the BMR was the inaccessibility of high-income households which may contribute to biased sampling. The Wave 5 survey was deemed appropriate despite not containing a question on occupation and skill level, which was identified from the literature review (see Section 4.3).

4.7 CONCLUSION

In this chapter the research design was discussed, and thereafter it was determined that the UNISA/Momentum Wave 5 data set is suitable for the purpose of this study (see Section 4.3.1). Section 4.3.2 provided a sample description and determined that the weighted sample is nationally representative and compares well to other sources. Section 4.3.3 indicated that the data may be deemed to be reliable and valid for the purpose of this study. Determining if there exists a relationship between the identified factors and homeownership status, will occur by applying the data analysis methods of visual inspection, the Pearson's Chi-square tests for independence, logistic regression, and odds ratios, as discussed in Section 4.4. Chapter 5 will provide the results of the statistical analysis. These results will culminate in a comparative odds analysis of the variables found to significantly contribute to non-subsidised homeownership in South Africa.

CHAPTER 5
ANALYSIS OF DATA

5.1 INTRODUCTION

After determining in Chapter 2 that homeownership status is the most advantageous tenure status, this chapter will focus on presenting the research findings of the analysis focussed on homeownership status attainment. The chapter provides analysis of the relationship between non-subsidised homeownership status and the influential factors identified from the literature review. This chapter consists of three sections based on the analysis methods discussed in Chapter 4, namely visual inspection, Pearson's Chi-square test for independence, and logistic regression and odds ratio analysis as illustrated in Figure 5.1.

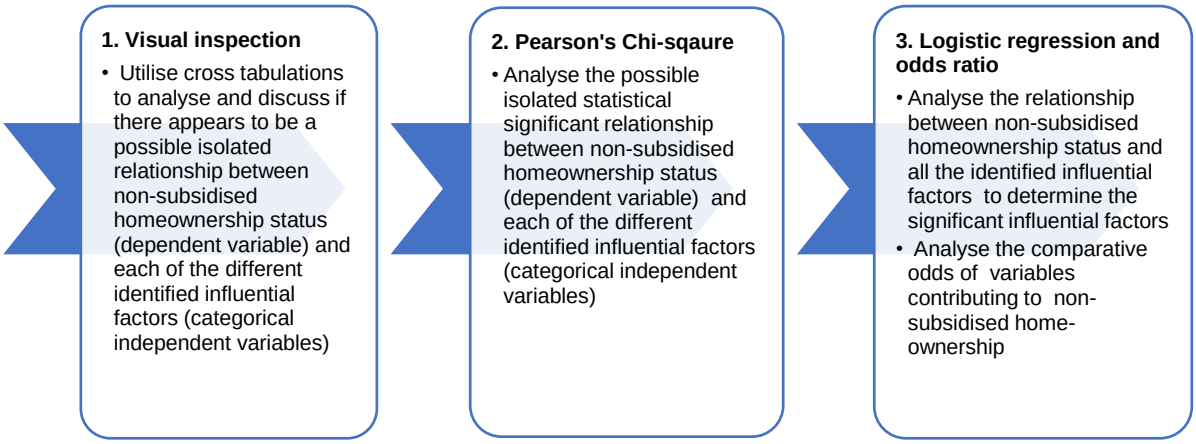

Figure 5.1: Summary of statistical data analysis in Chapter 5

The first and second statistical analysis will determine the isolated significant relationship between non-subsidised homeownership and each of the identified influential factors. The third statistical analysis addresses the main research objective of this study by analysing the comparative odds of variables contributing to non-subsidised homeownership in South Africa based on the identified influential factors. In the sections to follow, inferential analyses of the secondary data from the Wave 5 survey will be conducted, interpreted, and reported on.

To focus on the main objective of this study, the six tenure statuses were recoded into only the two relevant statuses for the purposes of this study as discussed in Section 4.4. Table 5.1 illustrates the distribution of the new combined variable, namely homeownership status.

Table 5.1: Homeownership status distribution

Tenure status	Percent		Homeownership status	Percent	Valid Percent
Owned and fully paid off	40.5		Homeownership attained	46.7	74.4
Owned but not yet paid off	6.3				
Rented	16.1		Homeownership not attained	16.1	25.6
RDP house	17.0		Missing	37.2	
Free use	18.4				
Other	1.8				

Source: Momentum & Unisa (2016); Author

Note: Rounding difference

Based on the valid percentage distribution of the new variable, 74.4% homeownership status was attained by those who have owned and fully paid off their homes, as well as those who owned but have not yet paid off their homes, while homeownership was not attained by 25.6%, which were renters. The next section will visually and statistically analyse the isolated relationship between non-subsidised homeownership status and each identified influential factor.

5.2 INSPECTION OF POSSIBLE ISOLATED RELATIONSHIPS

The appearance and statistical relationship between non-subsidised homeownership status and each identified influential factor based on the heuristic model (see Section 3.4) will respectively be analysed and discussed in this section. Firstly, a visual inspection will be performed to determine if there appears to be a possible isolated relationship between homeownership status and each of the identified influential factors. Cross tabulations will be performed in SPSS for homeownership status and each of the identified influential factors, from which comparative figures will be drawn.

Secondly, Pearson's Chi-square test of independence will be performed as a screening test to determine the isolated statistical significance of the relationship between each identified influential factor and homeownership status. Significance of identified factors in relation to homeownership status will be determined by considering the p-values, where a p-value ≤ 0.05 indicates significance at a 5% level.

5.2.1 Income level

Income level was identified by numerous studies to influence homeownership attainment (Coulson & Fisher, 2002; Van Dam et al., 2003; Worthington, 2009; Carter, 2011; Drew, 2015). For analysis purpose, the total household income levels were further condensed to low household income group, emerging household income group, and high household income group, as illustrated in Table 5.2.

Table 5.2: Income level data recoding

Variable name	Variable description	Data value	Recode value
Income level	Household income groups	1: Very low income (R0- R19 000 PA) 2: Low income (R19 001- R86 000 PA)	1: Low household income group
		3: Low emerging middle class (R86 001- R197 000 PA) 4: Emerging middle class (R19 7001- R400 000 PA) 5: Realized middle class (R400 001- R688 000 PA)	2: Emerging household income group
		6: Emerging affluent (R688 001- R1 481 000 PA) 7: Affluent (R1 481 001- R2 360 000 PA) 8: Wealthy (R2 360 001+ PA)	3: High household income group

The comparison between household income level groups and homeownership status is illustrated in Figure 5.2.

Statistics South Africa recently conducted a study providing an in-depth analysis of housing from a human settlements perspective based on General Household Survey data from 2002 to 2014 (Statistics South Africa, 2016d). Similar to this recent Statistics South Africa study, the data from Wave 5 appears to indicate that homeownership increases as the total household income level increases.

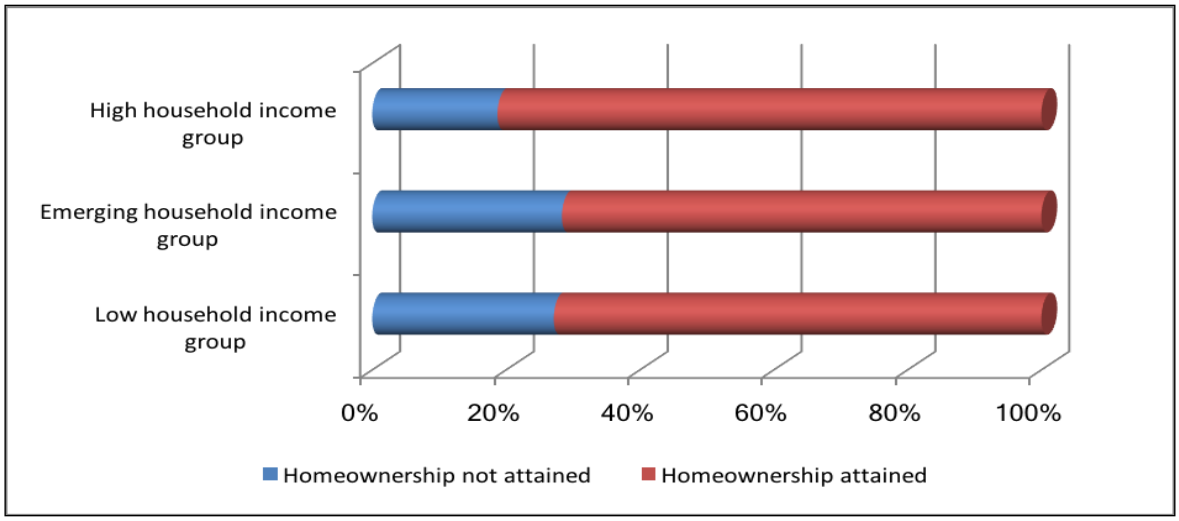

Figure 5.2: Homeownership attainment and total household income level visual inspection

Source: Momentum & Unisa (2016); Author

As expected based on the literature (Drew, 2015), those households in the high-income level group attained homeownership to a greater extent than those in the emerging and low household income groups, by 10 and 8 percentage points respectively. The apparent homeownership attainment status gap between the high household income group and the emerging and low household income group could partly be ascribed to the latter households' inability to qualify for a mortgage loan (Marais & Cloete, 2015). Interestingly, the low household income group attain homeownership 1% more than the emerging household income group. This could partly be due to the sample distribution, whereby the majority (50%) of households represent the low household income level groups, the emerging household income groups represent 28% of households, and the high household income group at 21%

are represented the least as it is often difficult to gain access to high households' income groups. A further possible explanation is that low household income groups who previously received a RDP house and have subsequently attained the title deed, might have classified themselves in the Owned and fully paid off category as homeowners and not in the RDP house category, and are therefore included in the homeownership status variable.

It is evident from Figure 5.2 that total household income level seems to influence the household's homeownership status. The statistical significance of this apparent relationship will now be tested utilising the Pearson's Chi-square test in Table 5.3.

Table 5.3: Chi-square test for homeownership status and household income level

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	69678.176[a]	2	0.000***
Likelihood Ratio	73179.939	2	0.000
Linear-by-Linear Association	40171.822	1	0.000
N of Valid Cases	9927259		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 542188.81.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (2 df) = 69678.176 (P<0.000)) indicated a statistically significant relationship between homeownership status and household income level.

5.2.2 Credit risk

As discussed in Chapter 4 (see Section 4.3.2.3), credit risk contains two variables namely access to credit and arrear accounts, which were found to determine a households' credit risk when determining mortgage affordability and will be visually inspected and statistically analysed in this section.

The statistical isolated relationship of credit risk with homeownership status will be tested utilising Pearson's Chi-square test for independence and pertains to two variables, of which the combined influence may be suppressive.

5.2.2.1 Access to credit

This variable indicates whether the household will be able to afford more credit or that a household has previously been assessed as credit worthy and may indicate likely access to further credit.

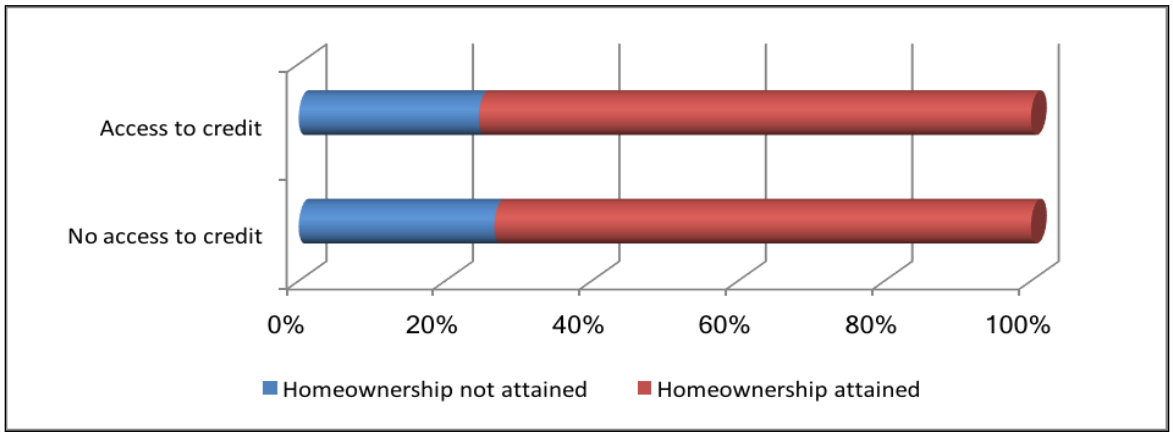

Figure 5.3: Homeownership attainment and access to credit visual inspection

Source: Momentum & Unisa (2016); Author

From Figure 5.3 it is evident that households with access to credit attain non-subsidised homeownership to a greater extent, although only two percentage points more than households with no access to credit. Households with no access to credit appear to rent more. This is expected as households who do not have access to credit are typically poorer households or less credit worthy and thus have more difficulty in attaining homeownership. Access to credit does, therefore, appear to influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.4.

Table 5.4: Chi-square test for access to credit and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	6051.121[a]	1	0.000***
Continuity Correction[b]	6051.009	1	0.000
Likelihood Ratio	6043.069	1	0.000
Linear-by-Linear Association	6051.120	1	0.000
N of Valid Cases	10275734		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 1.20E+6.			
b. Computed only for a 2x2 table			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (1 df) = 6051.121 (P<0.000)) indicated a statistically significant relationship between homeownership status and access to credit.

5.2.2.2 Arrear accounts

As an indication of a households' repayment history and credit risk, households with arrear accounts have greater credit risk, which could negatively influence homeownership attainment.

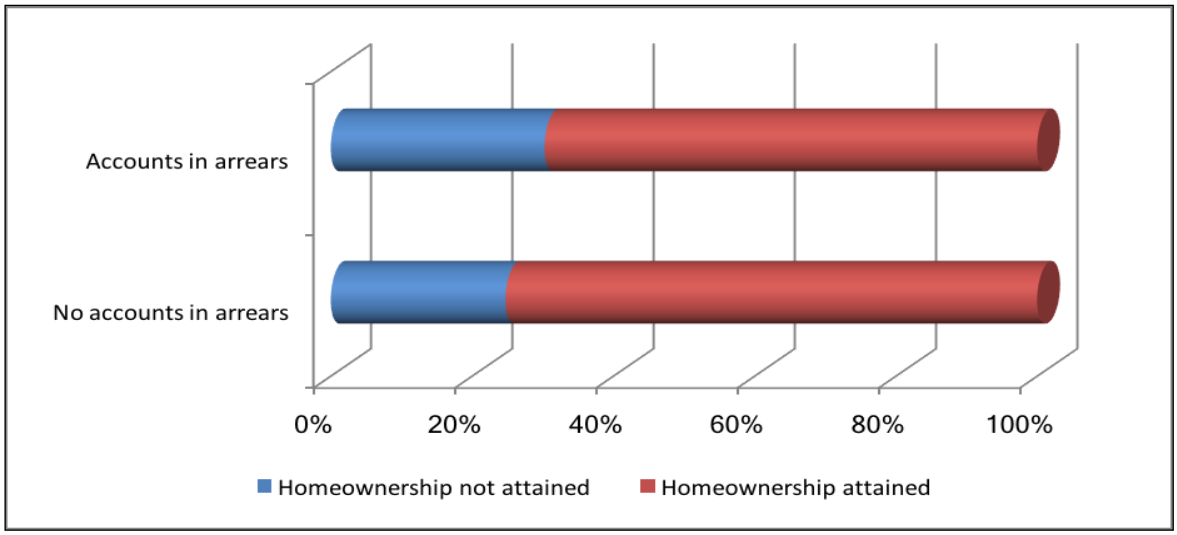

Figure 5.4: Homeownership attainment and accounts in arrears visual inspection

Source: Momentum & Unisa (2016); Author

As can be seen from Figure 5.4 households with no accounts in arrears attain non-subsidised homeownership five percentage points more than households with accounts in arrears. This is expected as households with a good repayment history have a lower credit risk and are able to attain credit (mortgages) and homeownership easier. Renting requires a less stringent affordability assessment and households with arrear accounts, therefore, tend to rent more. As seen from Figure 5.4, accounts in arrears do influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.5.

Table 5.5: Chi-square test for arrear accounts and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	21045.993[a]	1	0.000***
Continuity Correction[b]	21045.703	1	0.000
Likelihood Ratio	20421.240	1	0.000
Linear-by-Linear Association	21045.991	1	0.000
N of Valid Cases	10275734		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 395093.31.			
b. Computed only for a 2x2 table			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (1 df) = 21045.993 (P<0.000)) indicated a statistically significant relationship between homeownership status and households with arrear accounts.

In isolation, both access to credit and arrear accounts have a statistically significant relationship with homeownership status. Therefore, credit risk in general seems to have a statistically significant relationship to homeownership attainment.

5.2.3 Savings ability

The literature found that homeownership attainment and access to finance are influenced by a household's ability to save for a deposit and transaction fees (Reed & Greenhalgh, 2002; Hargreaves, 2003; Ben-Shahar, 2007). The relationship between homeownership status and savings ability is illustrated in Figure 5.5.

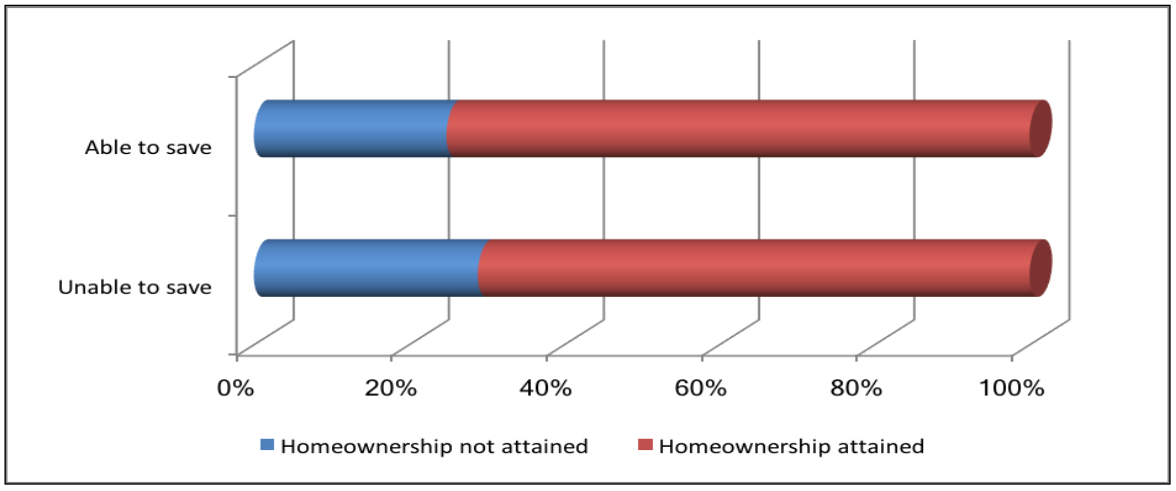

Figure 5.5: Homeownership attainment and savings ability visual inspection

Source: Momentum & Unisa (2016); Author

The ability to save increases homeownership attainment as these households will more likely be able to save towards a deposit and enter the housing market. For a rental deposit, the saving requirement is minimal and the deposit is refundable. It is evident from an inspection of Figure 5.5 that savings ability does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.6.

Table 5.6: Chi-square test for savings ability and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	12973.551[a]	1	0.000***
Continuity Correction[b]	12973.338	1	0.000
Likelihood Ratio	12707.465	1	0.000
Linear-by-Linear Association	12973.549	1	0.000
N of Valid Cases	10275735		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 470915.78.			
b. Computed only for a 2x2 table			

***: statistically significant for p-values ≤ 0.05.

Source: Author

The results from Pearson's Chi-square (X^2 (1 df) = 12973.551 (P<0.000)) indicated a statistically significant relationship between homeownership status and households' saving ability.

5.2.4 Employment status

Internationally, employment status was found to increase homeownership, particularly as employment security is considered when applying for a mortgage loan (Hargreaves, 2003; Zhou, 2011). The appearance of a relationship between homeownership status and employment status is illustrated in Figure 5.6.

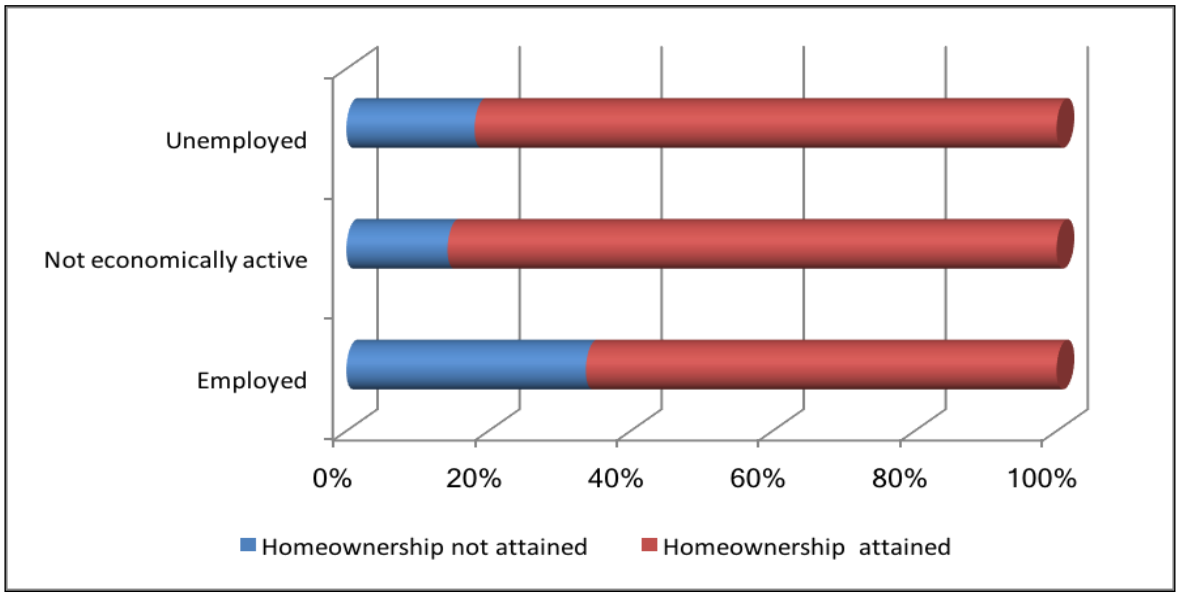

Figure 5.6: Homeownership attainment and employment status visual inspection

Source: Momentum & Unisa (2016); Author

Contrary to the literature, households where the FKP is employed attained homeownership status the least at 66%, whereas the not economically active FKP attained homeownership the most at 86%, followed by unemployed FKPs at 82%. Part of the discrepancy could be explained by limited access to high-income group households who are more likely to be employed. Literature identified a relationship between education, income level and employment status, whereby increased education levels led to increased income levels and increased employment status (Carnevale *et al.,* 2011; OECD publishing, 2012).

The not economically active FKP attain non-subsidised homeownership four percentage points more than unemployed FKPs. This could be ascribed to the fact that the not economically active FKPs include retired persons whose house may already be paid off or inherited. It should, furthermore, be kept in mind that this study focussed on the employment status of the FKP, whereas other household members' employment status may differ from that of the FKP. An inspection of Figure 5.6 shows that employment status does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.7.

Table 5.7: Chi-square test for employment status and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	420101.874[a]	2	0.000***
Likelihood Ratio	434823.572	2	0.000
Linear-by-Linear Association	297818.598	1	0.000
N of Valid Cases	10275734		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 584149.45.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (2 df) = 420101.874 (P<0.000)) indicated a statistically significant relationship between homeownership status and the FKP's employment status.

5.2.5 Education level

Research has found that an increase in education level increased homeownership attainment as mortgage constraints were reduced for higher education levels (Lauridsen & Skak, 2007; Van Zandt & Rohe, 2011; Drew, 2015; Acolin *et al., 2016*). As an indication of potential earnings and forming part of the mortgage finance assessment criteria, financiers consider the education level attained by the applicant (Henderson & Ioannides, 1986; South Africa. Department of Trade and Industry,

2015). The appearance of a relationship between homeownership status and education level is illustrated in Figure 5.7.

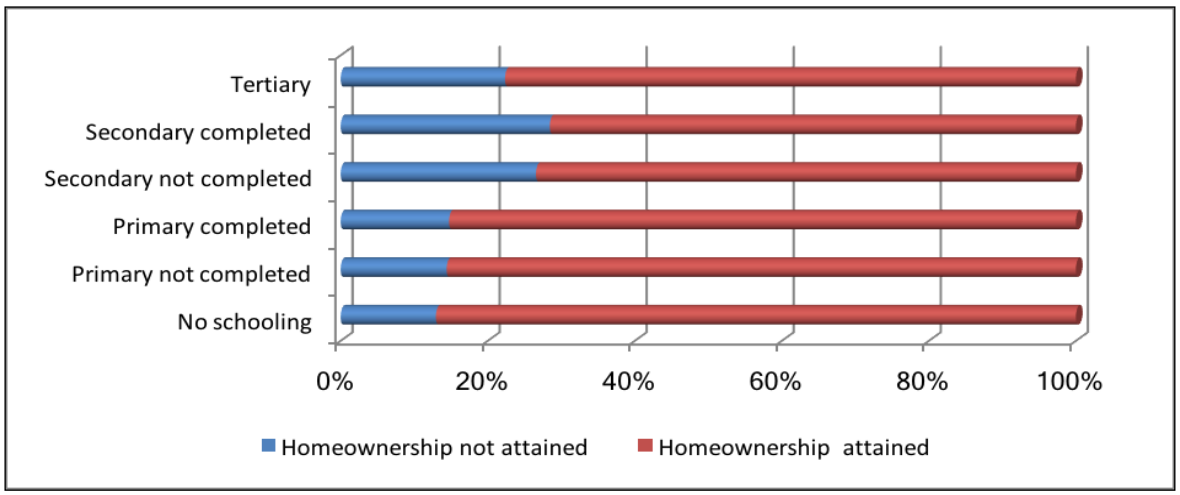

Figure 5.7: Homeownership attainment and education level visual inspection

Note: To allow for statistical analysis the 0.8% unspecified education level was recoded as system missing

Source: Momentum & Unisa (2016); Author

Homeownership attainment is higher for households where the FKP obtained a tertiary education. This is expected as these highly educated households earn higher incomes and more easily qualify for mortgage finance. Unexpectedly, for households where the FKP obtained the lowest education levels (no schooling, primary not completed and primary completed), homeownership was higher than those with secondary not completed and secondary completed education levels. This discrepancy could partly be explained by limited access to households from high-income level groups as these households are likely to have higher education levels. Another possible explanation is that although the FKP is the most financially knowledgeable person in the household, the FKP may not have the highest education level in the household.

It is evident from an inspection of Figure 5.7 that education level does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.8.

Table 5.8: Chi-square test for education level and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	111450.467[a]	5	0.000***
Likelihood Ratio	122142.223	5	0.000
Linear-by-Linear Association	48869.828	1	0.000
N of Valid Cases	10178946		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 71185.66.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (5 df) = 111450.467 (P<0.000)) indicated a statistically significant relationship between homeownership status and education level.

5.2.6 Age

The literature found discrepancies between middle and higher age groups with regards to the highest attainment of homeownership, however it agreed that homeownership attainment is reduced for the younger age groups (Goodman, 1988; Alba & Logan, 1992; Hargreaves, 2002; Carter, 2011). The appearance of a relationship between homeownership status and age is illustrated in Figure 5.8.

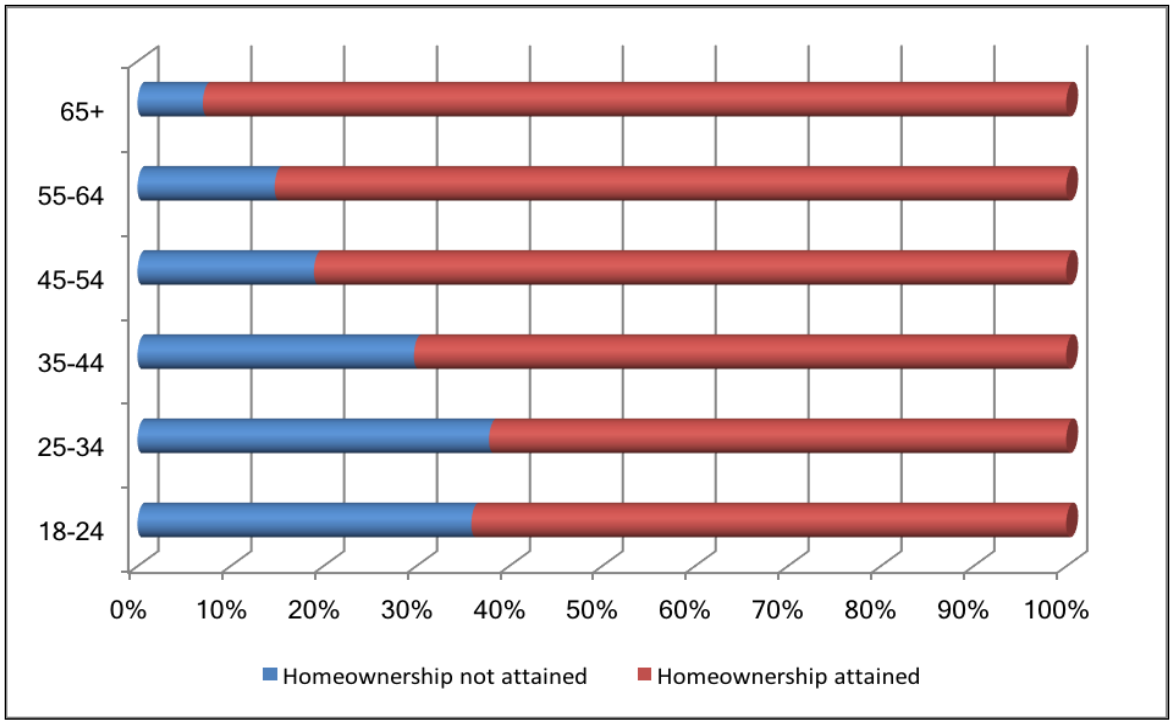

Figure 5.8: Homeownership attainment and age visual inspection

Source: Momentum & Unisa (2016); Author

Similar to the Statistics South Africa (2016d) study, Wave 5 data indicates that homeownership increases as age increases. As expected from the literature, the two youngest FKP age groups (18 to 24 years and 25 to 34 years) had the lowest homeownership attainment at 64% and 62% respectively and the oldest age group (65 and older) had the highest homeownership attainment at 93%.

Possible explanations are that younger households find it difficult to attain ownership due to lack of income and savings ability, as they are not at the peak of their income levels yet. As a result they often prefer or are forced to rent, whereas older households have had more time to save and repay the mortgage, or may have inherited the house as the longest living spouse. The middle-aged households are also more likely to obtain a mortgage as they have achieved superior occupation levels, often accompanied by higher income levels compared to younger FKPs.

It is evident from Figure 5.8 that age does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.9.

Table 5.9: Chi-square test for age and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	597304.619[a]	5	0.000***
Likelihood Ratio	648675.726	5	0.000
Linear-by-Linear Association	566228.315	1	0.000
N of Valid Cases	10275736		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 166501.95.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (5 df) = 597304.619 (P<0.000)) indicated a statistically significant relationship between homeownership status and age.

5.2.7 Relationship status

From the literature review in Chapter 3 (see Section 3.4), it is expected that homeownership will be higher for households that are married/ living together as partners or widow(er)s than for never married (single) and separated/ divorced households. The appearance of a relationship between homeownership status and relationship status is illustrated in Figure 5.9.

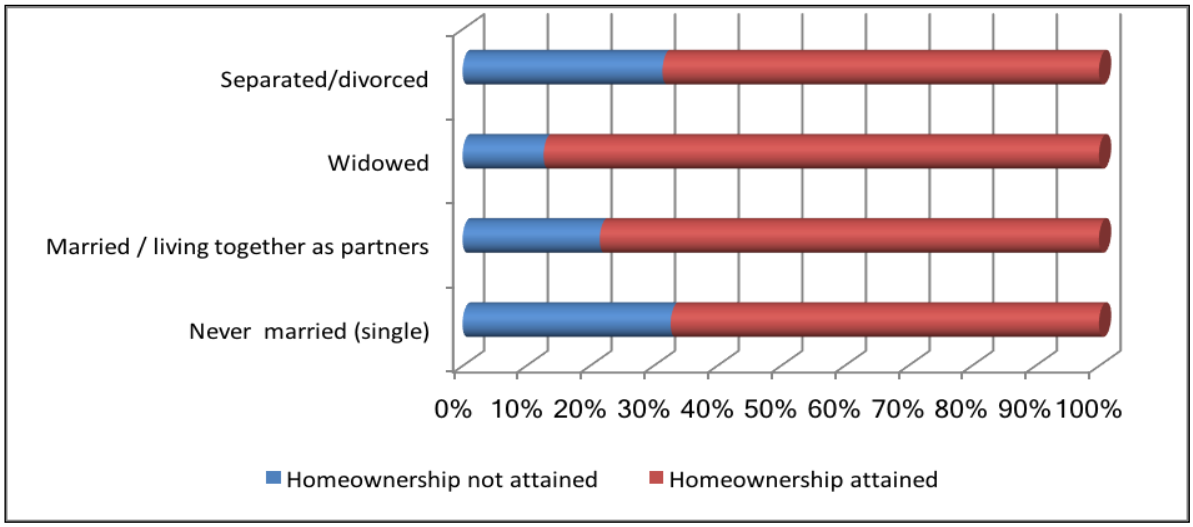

Figure 5.9: Homeownership attainment and relationship status visual inspection

Source: Momentum & Unisa (2016); Author

Similar to the Statistics South Africa (2016d) study, Wave 5 data indicates that homeownership increases for households where FKPs are married/ living together as partners, as opposed to never married (single) or separated/ divorced[15]. Wave 5 found widowed FKPs had the highest homeownership attainment at 87%, followed by married/ living together as partners FKPs at 78%. This is possibly due to widow(er)s being more likely to have inherited the home. In addition, married or couples living together as partners are able to earn a dual income and obtain finance more easily. Never married (single) FKPs attained homeownership the least at 67%, followed closely by separated/ divorced FKPs at 69%. Never married (single) FKPs are perhaps still living with their parents or in lower income groups, whereas those who are separated/ divorced are going through a transitional relationship phase and thus do not wish to commit to homeownership during this phase. It is evident from an inspection of Figure 5.9 that relationship status does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.10.

[15] Statistics South Africa (2016b) categorised relationship status as either married/ living together or not married / separated and therefore did not contain a separate category for Separated/ divorced, Widowed and Never married (single) as per Wave 5.

Table 5.10: Chi-square test for relationship status and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	264024.741[a]	3	0.000***
Likelihood Ratio	276036.240	3	0.000
Linear-by-Linear Association	74618.422	1	0.000
N of Valid Cases	10275734		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 211006.40.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (3 df) = 264024.741 (P<0.000)) found a statistically significant relationship between homeownership status and relationship status.

5.2.8 Family structure

The literature found family structure has a close and complex relationship with homeownership status (Mulder, 2006). More children are generally believed to increase homeownership status, although the relationship regarding the number of adults in the household was found to be more complex (Bourassa, 1995; Hargreaves, 2003; Mulder, 2006; Andersen, 2011; Carter, 2011; Lennartz *et al.,* 2015; Acolin *et al., 2016*). The appearance of a relationship between homeownership status and family structure is illustrated in Figure 5.10.

As illustrated, homeownership attainment usually increases as household size increases, reaching a plateau at seven or more household members which is similar to the results from the Statistics South Africa (2016d) study.

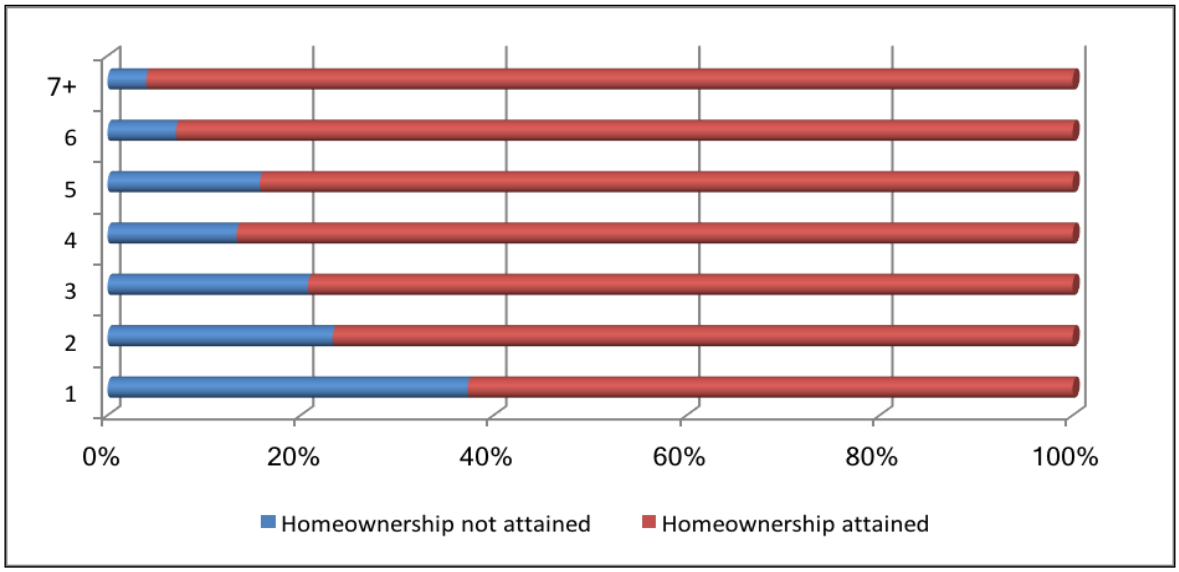

Figure 5.10: Homeownership attainment and family structure visual inspection

Source: Momentum & Unisa (2016); Author

As expected, being a single person household reduces homeownership attainment by eleven percentage points (compared to the 74% overall homeownership status attainment) as these households do not have more than one income to make it easier to qualify for a mortgage loan or have the ability to save for a deposit. Homeownership increases for two person (coupled) households, perhaps since both spouses or partners are working and earning incomes. Increasing the household size with the addition of children increases homeownership attainment further, which aligns with literature which found that couples with children have a greater desire for homeownership (Andersen, 2011). It is evident from Figure 5.10 that family structure does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.11.

Table 5.11: Chi-square test for family structure and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	352861.916[a]	6	0.000***
Likelihood Ratio	376907.379	6	0.000
Linear-by-Linear Association	307168.558	1	0.000
N of Valid Cases	7578742		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 81434.43.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (6 df) = 352861.916 (P<0.000)) indicated a statistically significant relationship between homeownership status and family structure.

5.2.9 Population group

Population group was identified as a homeownership status influential factor from the literature review. Historically in South Africa discrimination was experienced by the majority African population group and other non-White minority population groups, which restricted access to the housing market (Andrews, 2015). The appearance of a relationship between homeownership status and population group is illustrated in Figure 5.11.

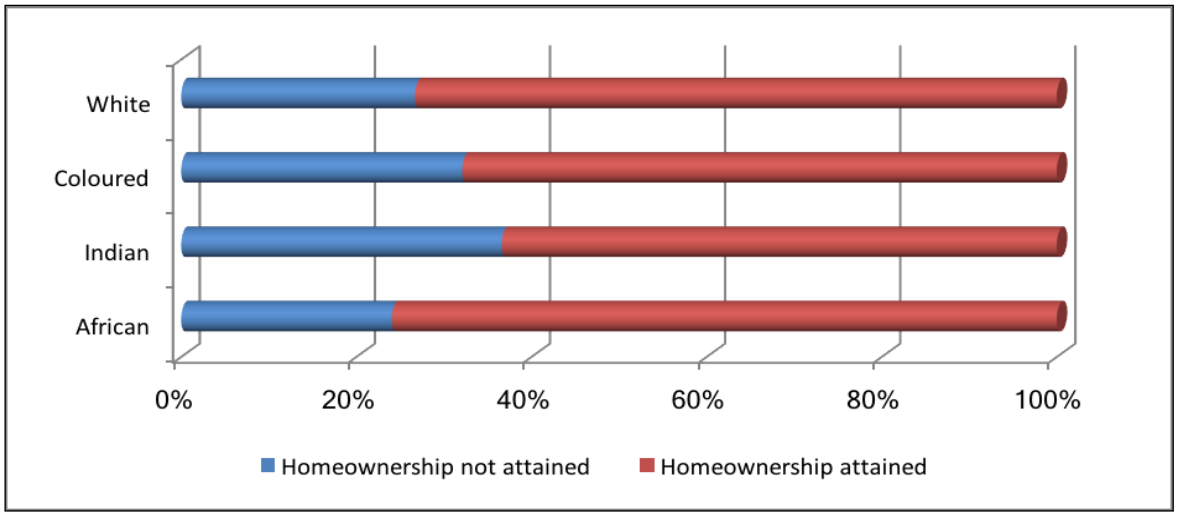

Figure 5.11: Homeownership attainment and population group visual inspection

Source: Momentum & Unisa (2016); Author

From the Wave 5 data it is evident that South Africa has come a long way since the abolishment of apartheid as the largest homeownership status attainment is from the African population group. This finding is in contrast with the Statistics South Africa (2016d) study that found the African population group to attain homeownership the least. White population groups attained homeownership status second most, whereas the Statistics South Africa (2016d) study found this population group attained homeownership status the most. The Indian population group attained homeownership the least whereas the Statistics South Africa (2016d) study found the Coloured population group to attain homeownership status the least. Part of this discrepancy could be explained due to the inclusion of RDP house as homeownership status by the Statistics South Africa (2016d) study whereas the Wave 5 data separated RDP house as a separate tenure status, which was excluded for data analysis purposes for this study.

It is evident from an inspection of Figure 5.11 that population group does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.12.

Table 5.12: Chi-square test for population group and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	52273.104[a]	3	0.000***
Likelihood Ratio	49796.235	3	0.000
Linear-by-Linear Association	18260.041	1	0.000
N of Valid Cases	10275733		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 81309.36.[16]			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (3 df) = 52273.104 (P<0.000)) found a statistically significant relationship between homeownership status and population group.

5.2.10 Location

Studies found that the location of the home influences homeownership status (Toussaint-Comeau & Rhine, 2004; Lauridsen & Skak, 2007; Reed & Mills, 2007; Andersen, 2011). Location, for the purpose of this study, consists of province and area, which will be discussed hereafter. The statistical relationship between location and homeownership status pertains to two variables of which the combined influence may be suppressive.

[16] Other population group had only 3 respondents and was recoded as a system missing value

5.2.10.1 Province

South Africa is divided into nine geographical provinces. The appearance of a relationship between homeownership status and province is illustrated in Figure 5.12.

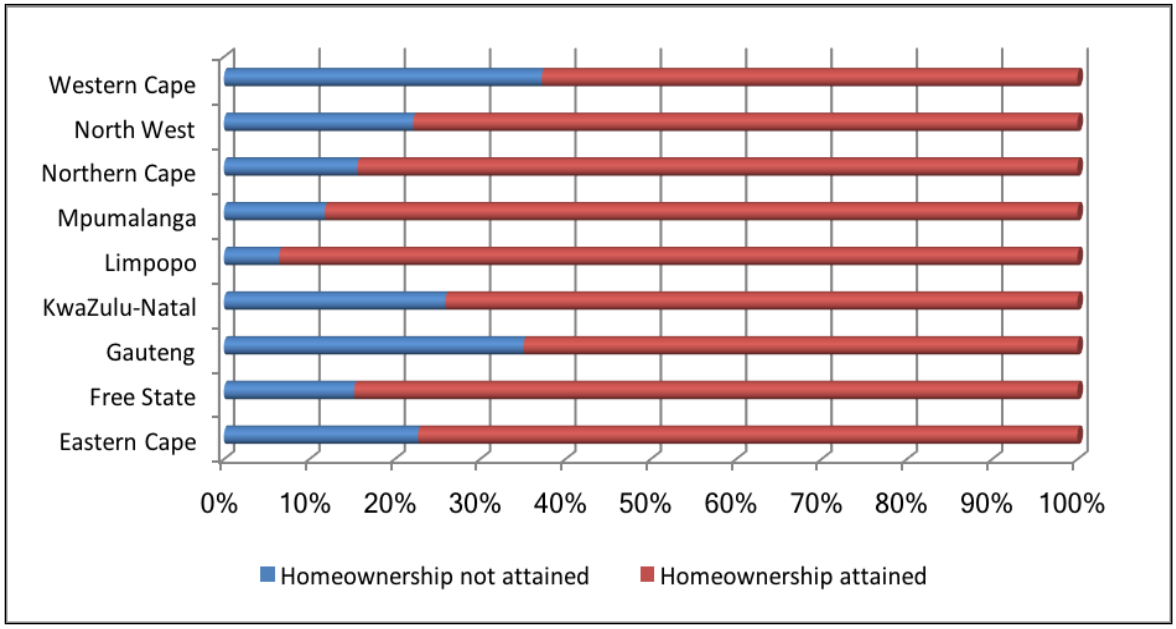

Figure 5.12: Homeownership attainment and province visual inspection

Source: Momentum & Unisa (2016); Author

Figure 5.12 shows that homeownership is the highest in Limpopo, which agrees with the Statistics South Africa (2012a) Census 2011 data (after excluding Occupied rent free and Other). Due to the high cost of homeownership and high rental demand in the Western Cape and Gauteng provinces, these provinces had the lowest homeownership attainment, which is similar to the Statistics South Africa (2012a) study that found Gauteng province to have the lowest homeownership attainment, followed by Western Cape and North West province (Smith, 2014; PayProp, 2015; Statistics South Africa, 2016d). Other possible reasons for differences between provinces could be ascribed to this study focussing on non-subsidised homeownership, excluding RDP house, Free use and Other, which was included by the Statistics South Africa (2016d) study. Another possible reason for discrepancies between the two data sets (Statistics South Africa and Wave 5) may be the different definitions of a 'household' applied by the studies, thereby including or excluding some household members, for example, migrant workers (see Section 4.3.2).

It is evident from an inspection of Figure 5.12 that province does influence the household's homeownership status. The statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.13.

Table 5.13: Chi-square test for province and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	575224.144[a]	8	0.000***
Likelihood Ratio	637486.329	8	0.000
Linear-by-Linear Association	1301.290	1	0.000
N of Valid Cases	10275733		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 32403.28.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (8 df) = 575224.144 (P<0.000)) indicated a statistically significant relationship between homeownership status and province.

5.2.10.2 Area

The literature found the relationship between area and homeownership to be complex in nature as households generally prefer to live close to economic activity, but can often not afford to own homes in these areas. The appearance of a relationship between homeownership status and area is illustrated in Figure 5.13.

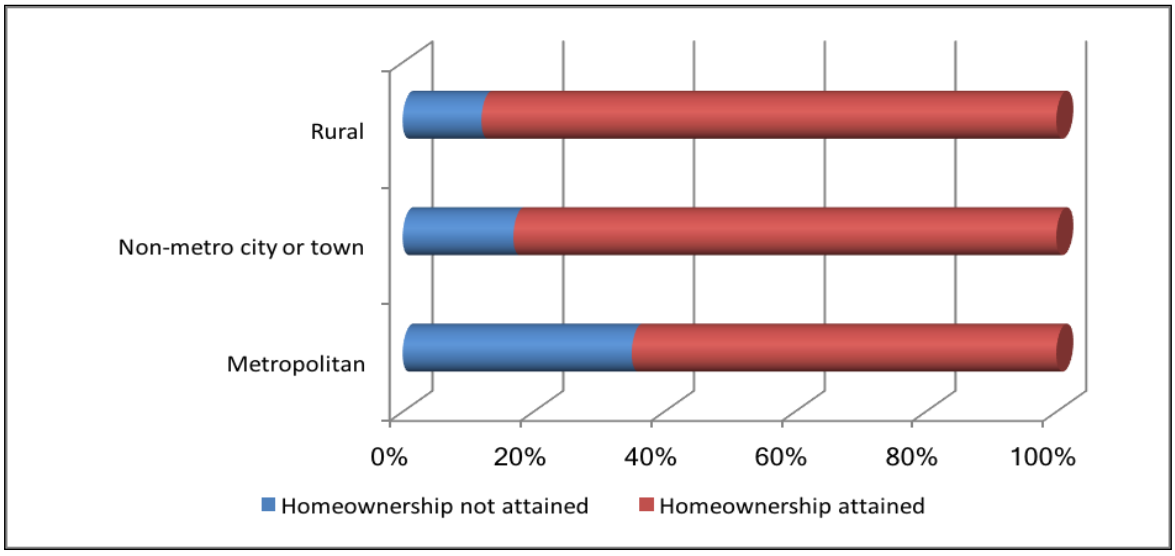

Figure 5.13: Homeownership attainment and area visual inspection

Source: Momentum & Unisa (2016); Author

Households residing in metropolitan areas attain non-subsidised homeownership the least at 65%, possibly due to the unaffordability of ownership in these areas, and often rent instead. Households in rural areas attained homeownership most at 88%, followed by non-metro city or town occupants at 83%. It is evident from an inspection of Figure 5.13 that area does influence the household's homeownership status. The statistical significance of this relationship will be tested utilising the Pearson's Chi-square test in Table 5.14.

Table 5.14: Chi-square test for area and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	589389.721[a]	2	0.000***
Likelihood Ratio	620294.921	2	0.000
Linear-by-Linear Association	551015.880	1	0.000
N of Valid Cases	10275734		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 563462.00.			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (2 df) = 589389.721 (P<0.000)) found a statistically significant relationship between homeownership status and area.

In isolation, both province and area has a statistically significant relationship with homeownership status. Therefore, location is deemed to have a statistically significant relationship to homeownership status.

5.2.11 Gender

Traditionally, male-headed households were found more likely to obtain homeownership and a mortgage than their female-headed counterparts (Henderson & Ioannides, 1986; Goodman, 1988; Lauridsen & Skak, 2007). However, similar to the Statistics South Africa (2016d) study, Wave 5 data indicates that being female increases homeownership attainment. The appearance of a relationship between homeownership status and gender is illustrated in Figure 5.14.

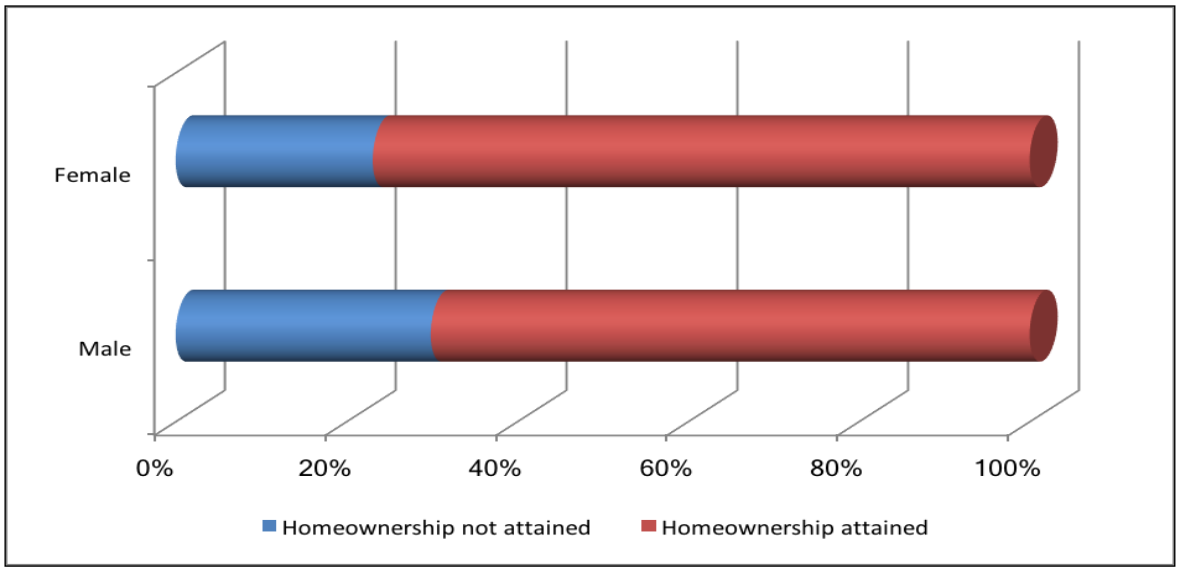

Figure 5.14: Homeownership attainment and gender visual inspection

Source: Momentum & Unisa (2016); Author

From the data it appears that females attain non-subsidised homeownership seven percentage points more than their male counter parts. It is evident from an inspection of Figure 5.14 that gender does influence the household's homeownership status. The

statistical significance of this relationship will now be tested utilising the Pearson's Chi-square test in Table 5.15.

Table 5.15: Chi-square test for gender and homeownership status

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	57775.269[a]	1	0.000***
Continuity Correction[b]	57774.912	1	0.000
Likelihood Ratio	57018.799	1	0.000
Linear-by-Linear Association	57775.263	1	0.000
N of Valid Cases	10275734		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 959006.67.			
b. Computed only for a 2x2 table			

***: statistically significant for p-values ≤ 0.05.

Source: Author

As screening test, the results from Pearson's Chi-square (X^2 (1 df) = 57775.269 (P<0.000)) indicated a statistically significant relationship between homeownership status and gender.

5.2.12 Summary isolated relationships

Following visual inspections and Pearson's Chi-square tests, Table 5.16 summarises the isolated relationships identified between influential factors from the heuristic model and homeownership status.

Table 5.16: Summary of isolated relationships with homeownership status

Possible identified influential factors	Visual relationship	Significant relationship (Chi-square)
Income level	✔	Statistically significant
Credit risk		
• Access to credit	✔	Statistically significant
• Arrear accounts	✔	Statistically significant
Savings ability	✔	Statistically significant
Employment status	✔	Statistically significant
Education level	✔	Statistically significant
Age	✔	Statistically significant
Relationship status	✔	Statistically significant
Family structure	✔	Statistically significant
Population group	✔	Statistically significant
Location		
• Province	✔	Statistically significant
• Area	✔	Statistically significant
Gender	✔	Statistically significant

As illustrated above, isolated relationships appear to be present for all the influential factors (variables) and homeownership. The Chi-square analyses confirmed that isolated statistically significant relationships with homeownership status exist for all the identified influential factors.

The influence of all the identified influential factors on homeownership status attainment will be considered and analysed in Section 5.3 through logistic regression.

5.3 REGRESSION MODEL

In this section, the analysis aims to indicate the comparative odds of variables contributing to non-subsidised homeownership in South Africa.

Prior to performing the binary logistic regression and interpreting the odds ratios, a statistical test was performed to determine the accuracy of the non-subsidised homeownership regression model. Table 5.17 indicates the percentage of cases that were correctly classified by the regression model.

Table 5.17: Classification Table

	Homeownership not attained	Homeownership attained	Percentage Correct
Homeownership not attained	420 783	950 341	30.7
Homeownership attained	235 474	5 697 588	96.0
Overall Percentage			83.8
a. The cut value is .500			

Source: Author

The percentage of cases that the non-subsidised homeownership regression model accurately classified between homeownership attained or not obtained, is 83.8%. The regression model is deemed to predict the homeownership status outcome accurately when compared to the actual data, and is thus deemed fit for the purpose of this study.

By applying the SPSS function of classifying all independent variables as categorical covariates, in effect allocating dummy variables to each category, this allows for the application of logistic regression and odds ratios (see Section 4.4.3). Odds ratios are interpreted in comparison to the reference group per variable. In the logistic regression, the reference group for each independent categorical variable is as indicated in the following list:

- Income level: Low household income group;
- Access to credit: No access to credit;
- Arrear accounts: Accounts in arrear;
- Savings ability: Unable to save;
- Employment status: Unemployed;
- Education level: No Schooling;

- Age: 18-24 years;
- Relationship status: Separated /divorced;
- Family structure: One member household;
- Population group: White.
- Province: Eastern Cape;
- Area distribution: Metropolitan; and
- Gender: Male.

For the interpretation of the logistic regression and specifically the odds ratios, the categorical variables are coded as illustrated in Table 5.18.

Table 5.18: Categorical variables codings

		Parameter coding							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Income level									
	Low household income groups	0	0						
	Emergency household income groups	1	0						
	High household income groups	0	1						
Credit risk									
Access to credit	No access to credit	0							
	Access to credit	1							
Arrear accounts	No accounts in arrears	1							
	Accounts in arrears	0							
Savings ability									
	Unable to save	0							
	Able to save	1							
Employment status									
	Employed	1	0						
	Not economically active	0	1						
	Unemployed	0	0						

Education level									
	No schooling	0	0	0	0	0			
	Primary not completed	1	0	0	0	0			
	Primary completed	0	1	0	0	0			
	Secondary not completed	0	0	1	0	0			
	Secondary completed	0	0	0	1	0			
	Tertiary	0	0	0	0	1			
Age									
	18-24	0	0	0	0	0			
	25-34	1	0	0	0	0			
	35-44	0	1	0	0	0			
	45-54	0	0	1	0	0			
	55-64	0	0	0	1	0			
	65+	0	0	0	0	1			
Relationship status									
	Never married (single)	1	0	0					
	Married / living together as partners	0	1	0					
	Widowed	0	0	1					
	Separated / divorced	0	0	0					
Family structure									
	1 member household	0	0	0	0	0	0		
	2 member household	1	0	0	0	0	0		
	3 member household	0	1	0	0	0	0		
	4 member household	0	0	1	0	0	0		
	5 member household	0	0	0	1	0	0		
	6 member household	0	0	0	0	1	0		
	7+ member household	0	0	0	0	0	1		
Population group									
	African	1	0	0					
	Indian	0	1	0					
	Coloured	0	0	1					
	White	0	0	0					

Location									
Province	Eastern Cape	0	0	0	0	0	0	0	0
	Free State	1	0	0	0	0	0	0	0
	Gauteng	0	1	0	0	0	0	0	0
	KwaZulu-Natal	0	0	1	0	0	0	0	0
	Limpopo	0	0	0	1	0	0	0	0
	Mpumalanga	0	0	0	0	1	0	0	0
	Northern Cape	0	0	0	0	0	1	0	0
	North West	0	0	0	0	0	0	1	0
	Western Cape	0	0	0	0	0	0	0	1
Area	Metropolitan	0	0						
	Non-metro city or town	1	0						
	Rural	0	1						
Gender									
	Male	0							
	Female	1							

Table 5.19 provides the results of the binary logistic regression performed. These results may be interpreted as follows:

β: This value provides the rate of change in the log odds as the independent variable changes (Hsieh *et al.,* 1998).

Wald: The results of the Wald test indicate the statistical significance of each variable.

Sig.: The statistical significance of the coefficient (or p-value) based on the Wald test.

Exp(β): This value represents the odds ratio of the independent variable in comparison to its reference group and represents the probability (change in the odds) of attaining homeownership if the dependent variable moves from one categorical group to the next, all other variables kept constant.

Table 5.19: Regression model results

	β	S.E.	Wald	df	Sig.	Exp(β)
Income groups			**44,313.357**	**2**	0.000***	
Emerging household income group	0.016	0.003	30.252	1	0.000***	1.016
High household income group	0.653	0.004	32,307.769	1	0.000***	1.921
Access to credit	**0.380**	**0.003**	**19,878.914**	**1**	0.000***	**1.463**
Access to credit						
Arrear accounts	**0.308**	**0.003**	**10,706.113**	**1**	0.000***	**1.360**
No accounts in arrears						
Savings ability	**0.290**	**0.003**	**7,705.798**	**1**	0.000***	**1.337**
Able to save						
Employment status			**24,778.384**	**2**	0.000***	
Employed	-0.380	0.003	15,164.405	1	0.000***	0.684
Not economically active	0.073	0.004	338.381	1	0.000***	1.076
Education level			**107,986.269**	**5**	0.000***	
Primary not completed	-0.633	0.012	3,024.944	1	0.000***	0.531
Primary completed	0.150	0.011	190.140	1	0.000***	1.162
Secondary not completed	0.174	0.010	317.428	1	0.000***	1.190
Secondary completed	0.656	0.010	4,453.574	1	0.000***	1.926
Tertiary	1.638	0.011	23,293.897	1	0.000***	5.145
Age groups			**278,385.206**	**5**	0.000***	
25-34	0.179	0.005	1,277.045	1	0.000***	1.196
35-44	0.756	0.005	20,335.114	1	0.000***	2.130
45-54	1.244	0.006	50,553.603	1	0.000***	3.468
55-64	2.024	0.006	98,807.371	1	0.000***	7.567
65+	3.240	0.008	153,027.915	1	0.000***	25.542
Relationship status			**63,062.721**	**3**	0.000***	
Never married (single)	0.902	0.005	40,093.529	1	0.000***	2.464
Married / living together as partners	0.265	0.004	4,401.414	1	0.000***	1.303
Widowed	0.724	0.006	16,650.339	1	0.000***	2.062

	β	S.E.	Wald	df	Sig.	Exp(β)
Family structure			**239,532.482**	**6**	0.000***	
2 member household	0.690	0.004	33,653.596	1	0.000***	1.994
3 member household	1.064	0.004	73,618.404	1	0.000***	2.898
4 member household	1.623	0.005	127,121.073	1	0.000***	5.067
5 member household	1.156	0.005	56,762.519	1	0.000***	3.177
6 member household	1.994	0.007	78,278.043	1	0.000***	7.342
7+ member household	2.794	0.007	141,949.357	1	0.000***	16.350
Population group			**40,766.777**	**3**	0.000***	
African	0.308	0.004	7,103.385	1	0.000***	1.361
Indian	-0.801	0.006	16,589.928	1	0.000***	0.449
Coloured	0.123	0.005	700.675	1	0.000***	1.131
Province			**205,765.615**	**8**	0.000***	
Free State	0.644	0.008	6,152.085	1	0.000***	1.904
Gauteng	-0.475	0.005	9,704.217	1	0.000***	0.622
KwaZulu-Natal	0.047	0.006	71.559	1	0.000***	1.049
Limpopo	1.603	0.010	25,392.166	1	0.000***	4.967
Mpumalanga	-0.442	0.006	4,985.849	1	0.000***	0.643
Northern Cape	-0.627	0.011	3,284.312	1	0.000***	0.534
North West	-0.996	0.006	26,434.254	1	0.000***	0.369
Western Cape	-1.497	0.006	70,855.536	1	0.000***	0.224
Area			**65,365.106**	**2**	0.000***	
Non-metro city or town	0.357	0.004	9,112.735	1	0.000***	1.429
Rural	1.185	0.005	64,464.837	1	0.000***	3.271
Gender	**0.005**	**0.003**	**3.842**	**1**	0.050**	**1.005**
Female						
Constant	-2.213	0.014	23,899.249	1	0.000***	0.109

***: very highly statistically significant for p-value ≤ 0.01;

**: highly statistically significant for p-values ≤ 0.05; and

*: statistically significant for p-values ≤ 0.1.

Source: Author

With the exception of gender which was only highly significant, the binary logistic regression found each of the other identified factors (income level, access to credit, arrear accounts, savings ability, employment status, education level, age, relationship

status, family structure, population group, province and area) have a very highly statistically significant ($p \leq 0.01$) relationship with homeownership status attainment.

5.3.1 Income level

A very high statistical significance was found when comparing the reference group (those from the low household income group) to households from the emerging household income group and the high household income group. As anticipated from the literature and visual inspection (see Section 5.2.1), an increase in household income level progressively increases the probability of homeownership attainment. The odds ratio for a household attaining homeownership status is highest for households within the high household income group, followed by the emerging income group, and lowest for the low-income group. Households within the high-income group are almost twice (1.921 times more) as likely to attain non-subsidised homeownership as the low household income group, and households within the emerging household income group are only slightly (1.016 times) more likely to attain non-subsidised homeownership than the low household income groups.

5.3.2 Credit risk

Credit risk consists of two variables – access to credit and arrear accounts – which formed part of the odds ratios, the results of which will be discussed hereafter.

5.3.2.1 Access to credit

Households with access to credit were found very highly statistically significant when compared to the reference group (those with no access to credit). Similar to the visual inspection (see Section 5.2.2.1), the probability of a household attaining homeownership increases if the household has previously gained access to credit, with all other variables kept unchanged. The odds ratio for a household attaining homeownership status is higher for households with access to credit. Households with access to credit are 1.463 times more likely to attain non-subsidised homeownership than those without access to credit.

5.3.2.2 Arrear accounts

Compared to the reference group (those with accounts in arrears), households with no accounts in arrears were found very highly statistically significant. Households with accounts in arrears have an increased credit risk and a decreased probability of homeownership attainment as seen from the visual inspection (see Section 5.2.2.2). Therefore, the probability of a household attaining homeownership increases if the household has no accounts in arrears, with all other variables kept unchanged. The odds ratio for a household attaining homeownership status is higher for households with no accounts in arrears. Households with no accounts in arrears are 1.360 times more likely to attain non-subsidised homeownership than those with accounts in arrears.

5.3.3 Savings ability

A very highly statistical significance was found when comparing the reference group (those that are unable to save) to those that are able to save. As expected from the visual inspection (see Section 5.2.3), households that are able to save are more likely to save for a deposit or down-payments and attain non-subsidised homeownership, with all other variables kept unchanged. The odds ratio for a household attaining homeownership status is higher for households able to save. Households able to save are 1.337 times more likely to attain non-subsidised homeownership than those unable to save.

5.3.4 Employment status

Households where the FKP is employed or not economically active were found very highly statistically significant when compared to the reference group (those where the FKP of the household is unemployed). Similar to the visual inspection (see Section 5.2.4), the probability of a household attaining homeownership decreases if the FKP of the household is employed and increases if the FKP of the household is not economically active, with all other variables kept unchanged. The odds ratio for a household attaining homeownership status is higher for households not economically active and lower for employed household FKPs compared to unemployed household

FKPs. Households with unemployed FKPs are 1.46 times more likely to attain non-subsidised homeownership than employed FKPs, and households where FKPs are not economically active are only slightly (1.076 times) more likely to attain non-subsidised homeownership than unemployed FKP households.

5.3.5 Education level

When comparing the reference group (those with no schooling) with households where the FKP attained primary not completed, primary completed, secondary not completed, secondary completed and tertiary, all other education levels were found very highly statistically significant. Similar to the literature (Drew, 2015), the probability of a household attaining homeownership increases as the FKP's education level increases (with the exception of primary not completed which is less), with all other variables kept unchanged. Households where the FKP attained a tertiary education had the highest likelihood of homeownership attainment and are 5.145 times more likely to attain non-subsidised homeownership than those with no schooling. Those with secondary completed are almost twice (1.926 times more) as likely, whereas those with secondary not completed (1.19) and those with primary completed (1.162) are almost equally as likely to attain non-subsidised homeownership than those with no schooling. Remarkably, those with no schooling are nearly twice as likely (1.88 times more) as those with primary not completed education levels to attain non-subsidised homeownership.

5.3.6 Age

All other age groups, when compared to the reference group (those aged 18 to 24), were found very highly statistically significant. As seen from the visual inspection (see Section 5.2.6), homeownership attainment increases progressively as the FKP of the household matures. The odds ratio for a household attaining homeownership status is highest for the oldest age group, with all other variables kept unchanged. Households where the FKP was 65 and older, was the most likely to attain non-subsidised homeownership. They are 25.542 times more likely than the youngest households (aged 18 to 24), households aged 55 to 64 are 7.567 times more likely, households aged 45 to 54 are 3.468 times more likely, households aged 35 to 44 are

2.13 times more likely, and households aged 25 to 34 are only slightly (1.196 times) more likely than young households to attain non-subsidised homeownership.

5.3.7 Relationship status

In comparison to the reference group (those separated/ divorced), a FKP household with a never married or single, married or living together as partners, and widowed relationship status were found very highly statistically significant. The probability of a household attaining homeownership is the lowest for the separated/ divorced households, and highest for the never married (single) households, with all other variables kept unchanged. The odds ratio for a household attaining homeownership status is highest for households never married (single), followed by widowed, then followed by married/ living together as partners. Households where the FKP was never married (single) was the most likely to attain non-subsidised homeownership as they are 2.464 times more likely than separated/ divorced households, whereas widowed households are 2.062 times more likely, and married/ living together as partners are 1.303 times more likely to attain non-subsidised homeownership than separated/ divorced households.

Although homeownership attainment for separated/ divorced FKP households in a transitional phase is expected to be low and widowed FKP households' homeownership attainment is expected to be high, it is interesting to note that based on the odds ratio, the never married (single) FKP households are more likely to attain non-subsidised homeownership than married/ living together as partners FKP households. This is in contrast to the visual inspection (see Section 5.2.7), which found widowed FKPs to attain non-subsidised homeownership most at 87%, followed by married or living together as partners FKPs at 78%, whereas separated/ divorced and never married (single) FKPs attained homeownership the least at 69% and 67% respectively. Part of this finding could be explained by households committing less to marriage and partnered relationships often have the same influence as being never married (single) (Reed & Greenhalgh, 2002; Hargreaves, 2002). This could further be due to the influence of all the other factors (independent variables) included in the model, given that when the isolated relationships were considered, the pattern confirmed expectations.

5.3.8 Family structure

Compared to the reference group (one member household), all other family structures from two to six household members were found very highly statistically significant. The probability of a household attaining homeownership is the lowest for one member households and the highest for seven or more member households, with all other variables kept unchanged. The odds ratio for a household attaining homeownership status is highest for households of seven or more members, followed by six members, four members, five members, three members and two members. This agrees with the visual inspection (see Section 5.2.8) whereby homeownership attainment increases progressively as the FKP household size increases, with the exception of four and five which are inverse. Households where the household consists of seven or more members are 16.350 times more likely than one member households to attain non-subsidised homeownership, households of six members are 7.342 times more likely, households of five members are 3.177 times more likely, households of four members are 5.067 times more likely, households of three members are 2.898 times more likely, and households of two members are 1.994 times more likely to attain non-subsidised homeownership than one member households.

5.3.9 Population group

Compared to the reference group (White households), all other population groups (African, Indian and Coloured) were found very highly statistically significant. The probability of a household attaining homeownership is the lowest for Indian households and the highest for African households, with all other variables kept unchanged. This ranking agrees to that of the visual inspection (see Section 5.2.9) whereby African households attained homeownership the most at 76% and Indian households the least at 63%. The odds ratio for a household attaining homeownership status is highest for African households, followed by Coloured and White. African households were 1.361 times more likely than White households to attain non-subsidised homeownership, Coloured households were 1.131 times more likely to attain non-subsidised homeownership, and Indian households were 0.449 times less likely to attain non-subsidised homeownership than White households. Compared to

the visual inspection (see Section 5.2.9) the ranking of Coloured and White population groups are inverse as the visual inspection found White households to attain non-subsidised homeownership second most at 73% and Coloured households to trail by five percentage points. This could be due to the influence of all the other factors (independent variables) included in the model, given that when the isolated relationships were considered, the pattern confirmed expectations.

5.3.10 Location

South African locations are divided into provinces and areas, which were analysed utilising the odds ratios. These results are discussed next.

5.3.10.1 Province

All of the other eight provinces were found very highly statistically significant when compared to the reference group (those residing in Eastern Cape). Consistent with the visual inspection (see Section 5.2.10.1), the probability of a household attaining homeownership is the highest for those residing in Limpopo, and lowest for those residing in the Western Cape. Households residing in Limpopo are 4.967 times more likely to attain non-subsidised homeownership than those living in the Eastern Cape, households living in the Free State are almost twice (1.904 times more) as likely, and households living in KwaZulu-Natal are almost equally probable (1.049 times more likely) to attain non-subsidised homeownership than those residing in the Eastern Cape. When looking at households living in the Eastern Cape, they are 4.46 times more likely than those living in the Western Cape to attain non-subsidised homeownership. They are also 2.71 times more likely than those living in the North West, they are almost twice (1.87 times) as likely as those living in the Northern Cape, and they are 1.61 times as likely as those living in Gauteng to attain non-subsidised homeownership.

5.3.10.2 Area

In relation to the reference group (those living in metropolitan areas), households living in either non-metro city or town or rural areas were found very highly statistically

significant. Aligned with the visual inspection (see Section 5.2.10.2), the probability of a household attaining homeownership is highest if the household resides in a rural area and is lowest if residing in metropolitan areas, with all other variables kept unchanged. Therefore, the odds ratio for a household attaining homeownership status is highest for households living in rural areas followed by non-metro city or town areas, and lowest for households living in metropolitan areas. Households living in rural areas are 3.271 times more likely to attain non-subsidised homeownership than those living in metropolitan areas, and households living in non-metro city or towns are 1.429 times more likely to attain non-subsidised homeownership than those living in metropolitan areas.

5.3.11 Gender

Compared to the reference group (those with male FKPs), female FKP households were found highly statistically significant. Aligned with the visual inspection (see Section 5.2.11), the probability of a household attaining homeownership slightly increases if the households' FKP is female, with all other variables kept unchanged. The odds ratio for households attaining homeownership status is only slightly higher for females. Female households are almost equally probable (1.005 times more likely) to attain non-subsidised homeownership than males. The odds are therefore relatively even despite FKP's gender.

5.3.12 Comparative odds of variables contributing to non-subsidised homeownership in South Africa

Based on the results of the binary logistic regression and the odds ratios of attaining homeownership, the main research question is answered:

What are the comparative odds of variables contributing to non-subsidised homeownership attainment in South Africa?

The interpretation of the odds ratio analysis of variables contributing to non-subsidised homeownership in South Africa is illustrated in Figure 5.15. The results of the odds ratios are interpreted singularly, per variable and should not be interpreted conjointly.

Influential factors	Most likely to attain non-subsidised homeownership					Least likely to attain non-subsidised homeownership (Renting)
Financial influential factors						
Income groups	High household income group		Emerging household income group			Low household income group
Access to credit	Access to credit			No access to credit		
Arrear accounts	No accounts in arrears			Accounts in arrears		
Savings ability	Able to save			Unable to save		
Non-financial influential factors						
Socio-economic demographics						
Employment status	Not economically active		Unemployed		Employed	
Education level	Tertiary	Secondary completed	Secondary not completed	Primary completed	No schooling	Primary not completed
Life stages demographics						
Age groups	65+	55-64	45-54	35-44	25-34	18-24
Relationship status	Never married (single)	Widowed		Married / living together as partners		Separated/ divorced
Family structure	7+ members	6 members	4 members	5 members	3 members	2 members	1 member
Cultural heritage demographics						
Population group	African	Coloured	White	Indian		
Province	Limpopo	Free State	KwaZulu-Natal	Eastern Cape	Mpumalanga	Gauteng	Northern Cape	North West	Western Cape
Area	Rural	Non-metro city or town	Metropolitan			
Gender	Female	Male				

Figure 5.15: Comparative odds of variables contributing to non-subsidised homeownership in South Africa

Interpreting the odds ratio for each of the 13 variables (influential factors) in isolation indicates the likelihood of each variable contributing to non-subsidised homeownership. By comparing the results of the odds ratios to the heuristic model developed in Chapter 3 determines if the comparative odds are as expected or unexpected.

As anticipated the income groups variable indicated that households within high household income groups are almost twice (1.921 times) as likely to attain non-subsidised homeownership than those from low household income groups, who are the least likely. Similarly the outcome of the two credit risk variables are as expected; households who have access to credit are more likely (1.463 times) than those without access to credit and households who have no accounts in arrears are more likely (1.360 times) than those with accounts in arrears to attain non-subisidised homeownership. Furthermore, households who are able to save are more likely (1.337 times) than households unable to save to attain non-subsidised homeownership as expected.

As expected, the likelihood of the education variable contributing to non-subsidised homeownership increases as the education level progresses and is highest for tertiary education and lowest for primary not completed. Households where the FKP attained a tertiary education are 5.145 times more likely to attian homeownership than households where the FKP attained no schooling. Interestingly results of no schooling and primary not completed are inverse.

Not suprisingly lifestages demographics found the likelihood of non-subsidised homeownership to increase with age. Households where the FKP is 65 years and older are 25.542 times more likely to attain non-subsidised homeownership than households where the FKP is aged 18 to 24.

As anticipated the famlily structure of larger households are most likely to attain non-subsidised homeownership and in general the likelihood regresses as the number of household members decline. Households consisting of seven and more members are 16.350 times more likely to attain non-subsidised homeownership than single person households. Expectedly gender with the lowest significance (highly statistically

significant) found female-FKP households attain non-subsidised homeownership only slightly (1.005 times) more than their male counterparts.

Surprisingly, socio-economic demographics found that households where the FKP is not economically active are 1.573 times more likely to attain non-subsidised homeownership than households where the FKP is employed. Unemployed FKP households are 1.462 times more likely to attain non-subsidised homeownership than households where the FKP is employed.

Counterintuitively households where the FKP is never married or single are almost twice (1.891 times) as likely to attain non-subsidised homeownership than FKP households who are married or living together as partners. As expected households with a widowed FKP are ranked second most likely to attain non-subsidised homeownership and separated or divorced FKP households are least likely to attain non-subsidised homeownership.

The results from the cultural herritage demographics odds ratios are perhaps the most controversial. The population group variable found African households are most likely to attain non-subsidised homeownership. African households are 3.031 times more likely than Indian households, 1.361 times more likely than White households and 1.203 times more likely than Coloured households to attain non-subsidised homeownership.

Location which consists of two varaibles (province and area) found the results of Province variable, partially as expected. Households living in Limpopo are 22.174 times more likely to attain non-subsidised homeownership than households living in the Western Cape, who are found the least likely. It was however expected that Gauteng would be the lowest ranked province. Provinces ranked from most likely to least likely to attain non-subsidised homeownership are Limpopo, Free State, KwaZulu Natal, Eastern Cape, Mpumalanga, Gauteng, Northern Cape, North West and Western Cape. Not surprisingly, households residing in rural areas are most likely to attain non-subsidised homeownership, followed by non-metro city, or town, and lastly, households residing in metropolitan areas are the least likely to attain non-subsidised

homeownership. Households residing in rural areas are 3.271 times more likely than those residing in metropolitan areas to attain non-subsidised homeownership.

5.4 CONCLUSION

This chapter provided the results of the analysis performed on Wave 5 data. The visual inspection (see Section 5.2) found that relationships appear to be present between all the identified influential factors and homeownership attainment. Based on the Pearson's Chi-squares tests performed in Section 5.2 a statistically significant relationship was found between all the identified influential factors and non-subsidised homeownership attainment.

The binary logistic regression performed in Section 5.3 found a statistically significant relationship between all the identified influential variables and non-subsidised homeownership attainment. The interpretation of the comparative odds ratios in Section 5.3.12 answered the main research question.

The next chapter will summarise the key findings, discuss limitations, suggest future research opportunities and provide a conclusion and recommendation.

CHAPTER 6
SUMMARY AND CONCLUSION

6.1 INTRODUCTION

This chapter will summarise the key findings, consider limitations, suggest future research opportunities and conclude on the study. Figure 6.1 illustrates the concluding phases of this chapter.

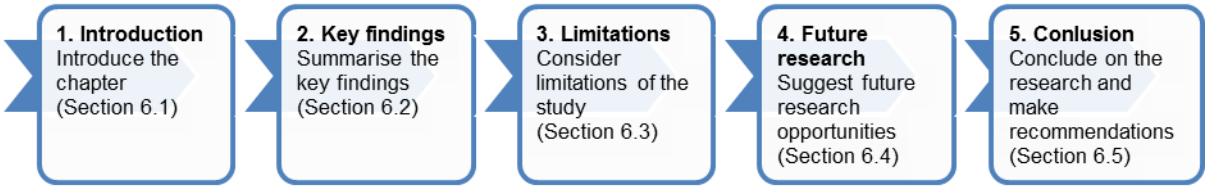

Figure 6.1: Summary of concluding phases in Chapter 6

6.2 SUMMARY OF KEY FINDINGS

The key findings summarises the results of each of the research sub-questions formulated in Chapter 1 as well as the main research question.

6.2.1 Most advantageous tenure status

Chapter 2 answered the first research sub-question (see Section 1.5.1):

Sub-question 1: Which is the most advantageous tenure status (homeownership or rent) for South African households?

First, financial and non-financial considerations were identified from the literature review. To determine the optimal financial tenure status from a South African perspective, a practical case study was applied. This entailed calculating the Net Present Equity Value (NPEV) of homeownership and comparing it with the NPEV of renting (see Section 2.5.1.3). In the short-term, renting was deemed to be the optimal

tenure status due to the benefits of superior monthly cash-flow affordability and monthly cash-flow predictability. Homeownership is, however, not a short-term decision but rather a long-term investment decision (Turner & Luea, 2009; Seeff, 2013).

From a long-term financial perspective, the overall case study found homeownership attainment most advantageous as illustrated in Figure 6.2

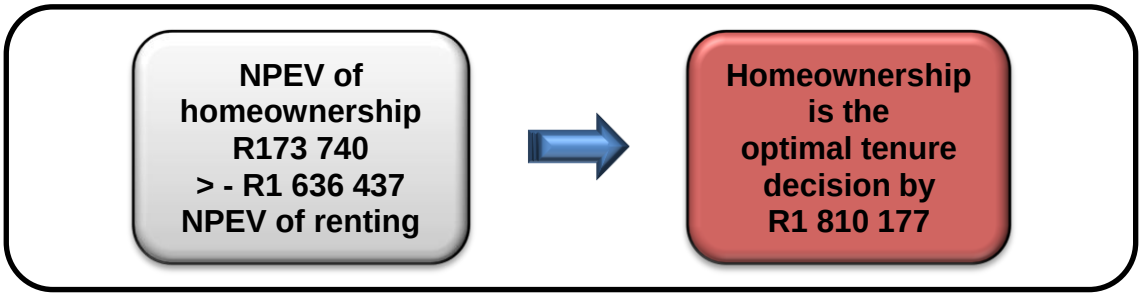

Figure 6.2: Optimal tenure status of the case study

Source: Author

Homeownership Net Present Equity Value (NPEV) exceeded that of renting by R1 810 177 (see Section 2.5.1.3). To further determine which of the identified long-term financial advantages were critical, a sensitivity analysis was performed. The sensitivity analysis found that homeownership advantages appear to exceed that of renting, as illustrated in Figure 6.3.

After allowing for several changes to the case study assumptions, homeownership remained the optimal long-term tenure status. House price appreciation and forced asset creation were identified as critical advantages, and no rental market risk and asset securitisation were identified as non-critical advantages for the homeowner. The only critical advantage for renter households was the no initial investment required. No interest and credit risk, no house price depreciation risk, no selling cost, and superior wealth creation possibilities were found to be non-critical advantages.

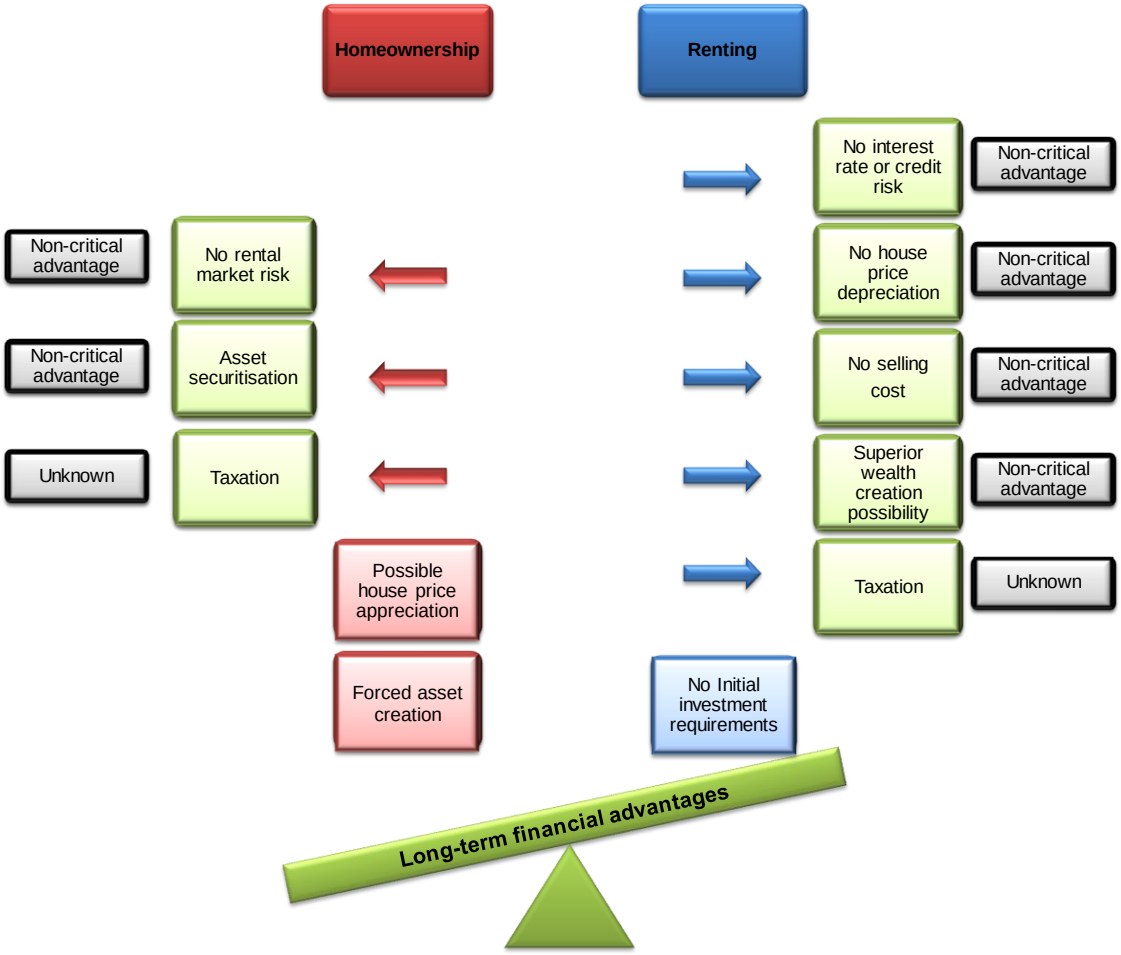

Figure 6.3: Long-term financial critical advantages

Source: Author

Determining the most advantageous tenure status based on non-financial factors was more complex, as illustrated in Figure 6.4.

Although homeownership's non-financial advantages appear to outweigh that of renting, these non-financial advantages cannot be directly compared. The weight of non-financial advantages are determined by the household's preference and belief therein (Drew, 2014; Huang *et al.,* 2015). Overall, South African homeownership is deemed more advantageous than renting based on macro-economic factors and micro- (household) financial and non-financial factors (see Section 2.6).

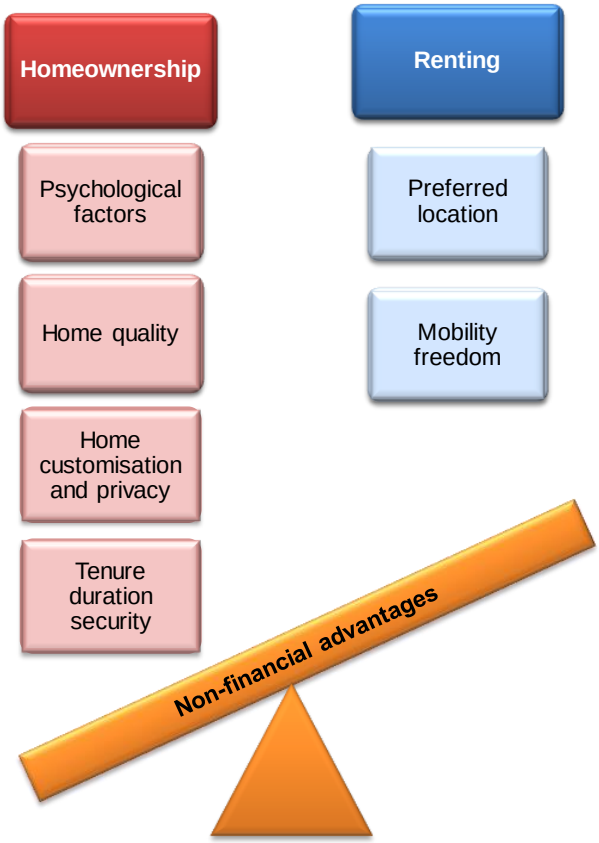

Figure 6.4: Most advantageous non-financial considerations

Source: Author

6.2.2 Constructing the heuristic model

Despite the superior advantages associated with homeownership (see Section 2.6), a declining trend was experienced (see Section 2.3). This declining homeownership and increasing renting trend indicated that households are unable to pursue homeownership attainment due to other factors influencing their tenure status outcome. It was, therefore, necessary to answer the second sub-question:

Sub-question 2: Which identified financial and non-financial influential factors are expected to influence the non-subsidised homeownership outcome?

The answer to this sub-research question was determined in Chapter 3 through a literature review which identified the most prevalent financial and non-financial influential factors.

Influential factors			Homeownership attainment	
Underlying ⇨	**Non-Proximate** ⇨	**Proximate** ⇨	**Increase** ✚	**Decrease** ━
Financial influential factors				
		Income level	High-income level	Low-income level
		Credit risk	Low credit risk	High credit risk
		Savings ability	Savings ability	Savings inability
Non-financial influential factors				
Socio-economic demographics				
	Employment status		Employed	Unemployed and not economically active
	Occupation and skill level		High occupation and skill level	Low occupation and skill level
	Education level		High education level	Low education level
Life stages demographics				
	Age		Medium and old age	Young age
	Relationship status		Married or living together as partners and widowed	Never married or single and separated or divorced
	Family structure		Large number of household members	Small number of household members
Cultural heritage demographics				
Population group			Indian (or Asian) and White	African or Coloured
Location Province and area			***Province:*** Limpopo and Eastern Cape ***Area:*** Rural and Non-metro city, or town	***Province:*** Gauteng and Western Cape ***Area:*** Metropolitan
Gender			Female-FKP household	Male-FKP household

Figure 6.5: A South African non-subsidised homeownership heuristic model

Source: Author

From the identified influential factors, the South African non-subsidised homeownership heuristic model was developed as illustrated in Figure 6.5. Based on the heuristic model (see Section 3.4), South African households with strong financial attributes such as high-income level, low credit risk and savings ability were anticipated to attain non-subsidised homeownership most and due to its direct relationship financial influential factors were categorised as proximate. These financial attributes were expected to be influenced by non-proximate socio-economic demographics. Employment, occupation and skill levels, such as managers, professionals or technicians, and higher education levels such as tertiary education, were expected to increase non-subsidised homeownership attainment. Lower levels of financial influential factors and socio-economic demographic factors were anticipated to reduce non-subsidised homeownership attainment. The negative effect of macro-economic factors such as high unemployment rates and a volatile housing market is likely to influence the non-subsidised homeownership outcome (Marais & Cloete, 2015).

Increased age is believed to allow time to save, time to attain an education, and secure employment. Therefore, higher age was anticipated to increase non-subsidised homeownership attainment. Relationship status such as married or living together as partners was expected to increase non-subsidised homeownership, as these couples have a combined income to contribute towards the household. Being married with children and an increased family size is anticipated to increase the desire for non-subsidised homeownership attainment. The relationship of these life stages demographics was, therefore, categorised as non-proximate influential factors.

In-line with South Africa's historical housing background (see Section 2.4), the White and Indian population groups were anticipated to attain non-subsidised homeownership the most and the African and Coloured population groups were anticipated to attain non-subsidised homeownership the least. Those living in the rural areas of Limpopo were expected to attain non-subsidised homeownership the most and those living in Gauteng and the Western Cape were anticipated to attain non-subsidised homeownership the least. Interestingly, females were anticipated to attain

non-subsidised homeownership the most, despite males traditionally being identified as the household head or FKP.

After developing the heuristic model, the suitability of the Wave 5 data set was determined by applying the following tests: data coding and recoding was done to ensure comparability between data sets and weighted for national representation purposes, face validity was performed and the survey contained the necessary variables identified from the literature review. The Wave 5 data set contained all influential factors except occupation and skill level. This answered sub-question 3 (see Section 4.3):

Sub-question 3: Is the Wave 5 data set suitable, reliable, and valid for the purpose of this study?

The statistical methods analysed the isolated and combined significant relationships between homeownership status and each of the identified influential factors in Chapter 5. Determining the isolated significant relationships through visual inspection and statistically through Pearson's Chi-square, answered sub-question 4 (see Section 5.2):

Sub-question 4: Which identified influential factors indicate isolated relationships with non-subsidised homeownership in South Africa?

It was determined that each of the identified factors appears to have a relationship from the visual inspection and finding a statistically significant relationship based on Pearson's Chi-square test.

A binary logistic regression provided the ability to test the combined impact of the identified factors on homeownership status.

To answer sub-question 5, the binary logistic regression provided odds ratios (see Section 5.3):

Sub-question 5:
Which identified influential factors have a significant influence on non-subsidised homeownership in South Africa when taking other identified factors into consideration?

The binary logistic regression found that all identified influential factors (income level, access to credit, arrear accounts, savings ability, employment status, education level, age, relationship status, family structure, population group, province, and area) have a statistically significant relationship with non-subsidised homeownership status attainment (see Section 5.4).

The interpretation of the logistic regression including the odds ratio and heuristic model comparison as illustrated in Figure 6.6 answered the main research question:

What are the comparative odds of variables contributing to non-subsidised homeownership attainment in South Africa?

Influential factors	Heuristic model expected non-subsidised homeownership attainment		Non-subsidised homeownership odds		Odds of non-subsidised homeownership accuracy	
	Increase ✚	**Decrease** ▬	**Increase** ✚	**Decrease** ▬	**Increase** ✚	**Decrease** ▬
Financial influential factors						
Income level	High-income level	Low-income level	High-income level	Low-income level	✔	✔
Credit risk	Low credit risk	High credit risk	Low credit risk	High credit risk	✔	✔
Access to credit Arrear accounts	*Access to credit* *No accounts in arrear*	*No access to credit* *Accounts in arrear*	*Access to credit* *No accounts in arrear*	*No access to credit* *Accounts in arrear*	✔ ✔	✔ ✔
Savings ability	Savings ability	Savings inability	Savings ability	Savings inability	✔	✔
Non-financial influential factors						
Socio-economic demographics						
Employment status	Employed	Unemployed and not economically active	Not economically active (for example pensioners)	Employed	✕	✕
Education level	High education level	Low education level	High education level (Tertiary education level)	Low education level (Primary school not completed)	✔	✔
Life stages demographics						
Age	Medium and old age	Young age	Oldest age group (65 years and older)	Youngest age group (18 to 24)	✔	✔

Influential factors	Heuristic model expected non-subsidised homeownership attainment		Non-subsidised homeownership odds		Odds of non-subsidised homeownership accuracy	
	Increase ✚	Decrease ▬	Increase ✚	Decrease ▬	Increase ✚	Decrease ▬
Relationship status	Married or living together as partners and widowed	Never married (single) and separated or divorced	Never married (single)	Separated/ divorced	✗	✔
Family structure	Large number of household members	Small number of household members	Consists of seven or more household members	Consists of one household member	✔	✔
Cultural heritage demographics						
Population group	Indian (or Asian) and White	African or Coloured	African	Indian	✗	✗
Location Province and area	***Province:*** Limpopo and Eastern Cape ***Area:*** Rural and Non-metro city, or town	***Province:*** Gauteng and Western Cape ***Area:*** Metropolitan	***Province*:** Limpopo ***Area*:** Rural	***Province:*** Western Cape ***Area*:** Metropolitan	✔ ✔	✗ ✔
Gender	Female-FKP household	Male-FKP household	Female-FKP household	Male-FKP household	✔	✔

Figure 6.6: Odds ratios and heuristic model comparison

Figure 6.6 indicates that the regression model results accurately determined the outcome of non-subsidised homeownership for income level, credit risk, savings ability, education level, age, family structure, area and gender, as the comparative odds of these variables corresponded to the expected results based on the heuristic model.

In line with the heuristic model, non-subsidised homeownership attainment increases with household income level. Households with access to credit attain non-subsidised homeownership more than households without access. Non-subsidised homeownership attainment is affected negatively if households have any accounts in arrears, possibly due to this affecting their credit rating. Households who are able to save are more likely to attain non-subsidised homeownership, as saving for a deposit and transaction fees is often required. The outcomes based on the comparative odds for financial influential factors therefore aligns with the heuristic model developed in Chapter 3.

In contrast to the expectation from the heuristic model, employed FKP households attain non-subsidised homeownership the least, whereas the not economically active attain non-subsidised homeownership the most. This phenomenon could partly be explained by Combrink and Venter (2016), who found that an increase in employment is insufficient if it does not coincide with increased occupation and skill level for which there is a higher demand, leading to increased income. The higher than expected non-subsidised homeownership attainment for the not economically active employment status could furthermore relate to retired FKP households who are included in this category. As anticipated from the heuristic model the higher education levels variable indicates increased education levels, such as tertiary education, contributed to increased non-subsidised homeownership attainment. The outcomes based on the comparative odds for socio-demographic factors therefore only partly aligns with the heuristic model developed in Chapter 3.

As anticipated from the heuristic model, older FKP households tend to attain non-subsidised homeownership the most and young FKP households attain non-subsidised homeownership the least. These results are anticipated from the employment status variable as not economically active, retired FKP households form

part of the older age group who attain non-subsidised homeownership the most. Theoretically, older FKP households have had more time to accumulate savings and pay off a house than younger households. Contradicting to the heuristic model, households with FKP's who have never been married or are single were found to attain non-subsidised homeownership the most instead of the least. The heuristic model anticipated that households with FKP's from the married or living as partners relationship status category attain non-subsidised homeownership the most. Households' homeownership aspirations in partnered relationships were found to align more with single households than married households as they do not wish to commit to a long-term mortgage (Reed & Greenhalgh, 2002). Perhaps combining married or living together as partners in one relationship status category has contributed to this unexpected outcome. Aligned with the heuristic model larger households attain non-subsidised homeownership the most and smaller households attain non-subsidised homeownership the least. The outcomes based on the comparative odds of the life stages demographics therefore align with the heuristic model developed, with the exception of relationship status.

The results of population group are conflicting with the heuristic model expectation, as African households are found to attain non-subsidised homeownership the most and Indian households the least. This could be an indication that the equality of housing since apartheid has come further than anticipated and that African households now have a more solid footing in the non-subsidised housing market, or due to the transfer of subsidised homeownership (e.g. RDP housing) to households which is subsequently classified as owned and fully paid off and therefore forms part of the non-subsidised homeownership.

As anticipated from the heuristic model households residing in Limpopo are most likely to attain non-subsidised homeownership. Partially aligned with the heuristic model, Wave 5 data found households living in the Western Cape are least likely to attain non-subsidised homeownership, whereas the heuristic model anticipated Gauteng to be the least likely and Western Cape to slightly exceed Gauteng. The Limpopo province is dominated by rural areas, with large agricultural and mining sectors. Despite attaining non-subsidised homeownership most, this province is the poorest province with 75% of people living below the national poverty line (Statistics South

Africa, 2014c). Limpopo's households appear to have poor financial and socio-economic demographic characteristics such as education levels (Statistics South Africa, 2012a). In contrast, households from the Western Cape and Gauteng provinces were found to have limited non-subsidised homeownership attainment, but superior income and education levels (Statistics South Africa, 2012a; Statistics South Africa, 2014c). Some households residing in metropolitan areas in the Western Cape and Gauteng are unable to afford homeownership in these expensive housing market areas and resort to renting instead, while others prefer the mobility freedom associated with renting which allows employment pursuit. Value of homes in the metro of the Western Cape are generally much higher than homes in the rural areas of Limpopo and it is therefore apparent that non-subsidised homeownership attainment as wealth indicator cannot measure the level of wealth created. Supporting the heuristic model, households residing in rural areas are found to attain non-subsidised homeownership the most and those residing in metropolitan areas are found least likely. Although female FKP households are only slightly more likely than their male counterparts to attain non-subsidised homeownership, the finding agrees with the heuristic model. The outcomes based on the comparative odds of cultural heritage demographics therefore aligns with the heuristic model in terms of area and gender, but conflicts in terms of population group and only partly corresponds in terms of province.

6.3 LIMITATIONS OF THE STUDY

Data limitations identified self-reporting since the FKP may provide inaccurate information. The BMR further found inaccessibility of high-income households which may result in the sample being biased. The Wave 5 survey did not contain a question on occupation and skill level, which was identified from the literature review (see Section 4.3). Housing tenure status has been the subject of a very large collection of literature and it is therefore not possible to include all homeownership status influential factors in the South African non-subsidised homeownership heuristic model (Carter, 2011).

6.4 SUGGESTIONS FOR FUTURE RESEARCH

Due to the extent of the housing market, several future research opportunities exist in this area. These future research opportunities will now be discussed briefly.

Follow-up research can be performed comparing the impact of housing policies and economic climate on the trends in housing tenure status by comparing year-on-year homeownership outcomes. By further determining a Rand value which could be linked to affordable housing, future research could distinguish between households who are able to afford homeownership and ascertain possible reasons for renting instead, which will provide further insight into the housing market.

Research could also be done by conducting a survey to determine which of the financial and non-financial considerations (advantages and disadvantages) South Africans deem most important. Responses could be ranked on a Likert-scale. The current study could be expanded upon by considering alternative data bases in determining if other factors such as religion, immigrant status, and occupation and skill level significantly influence homeownership attainment in South Africa.

By conducting a further survey, it could be determined if South African homeownership attainment is perceived to increase the adequacy of housing. This could be combined with an analysis of the types of dwellings (formal, informal and traditional) South African households consider as homeownership.

A detailed statistical analysis can be performed to statistically determine the intricate cascade relationships (proximate, non-proximate and underlying) between the financial and non-financial influential factors. This will provide further insight into which combined factors influence homeownership attainment.

Similar to this study, the likelihood of variables contributing to subsidised homeownership (for example RDP housing) in South Africa can be analysed to provide insight into the subsidised housing market. Alternatively, similar studies can be performed in other countries. Differences found between countries could provide

insight into areas which South African housing policy makers could focus on to attain the desired housing outcome.

Lastly, determining the South African households' discount rate (which includes determining the risk indicator) will allow for more precise financial assumptions for households making long-term financial decisions. The Beta which indicates the risk will for example be increased by the negative macro-economic factors such as high unemployment rates experienced in South Africa. This will offer insight into various economic decisions, going beyond the housing tenure sphere, for example investment decisions.

6.5 CONCLUDING REMARKS AND RECOMMENDATIONS

Determining the comparative odds of variables contributing to non-subsidised homeownership in South Africa contributes to the knowledge and understanding of the South African housing market. The study provides the government with insight into the non-subsidised homeownership market. Promoting the non-subsidised housing market will reduce the strain on government housing subsidies as encouraging households to attain non-subsidised housing has macro- and micro-economic growth potential. Disseminating the information and providing the necessary tools and education will allow households to make informed long-term tenure status decisions which could be beneficial to the economy and society.

The study found several factors to influence South African households' non-subsidised homeownership attainment. Many of these factors relate to demographics over which the household has no control (for example age, population group and gender). There is, however, some influential factors which households can control to a limited extent (for example education level, employment status and income group). It is these factors, which should be the focus of the South African government's policies and incentives.

Homeownership attainment has the ability to lead to increased wealth for South Africans and non-subsidised homeownership should be encouraged to alleviate poverty and reliance on government support. However, it appears that wealth

accumulation will not occur unless the household obtains the necessary education levels to attain employment in professions leading to higher income levels.

To increase wealth and alleviate poverty it is recommended that government support should focus on increasing education levels. Education attainment, in preparation for occupations for which there is a demand and higher income level prospects, should therefore be the focus of government support. Not only will these education levels increase the likelihood of homeownership attainment, it will lead to increased income levels which will also lead to increased household wealth. Educating households about credit risk and how to manage their credit risk is also believed to increase homeownership attainment. By educating households of the importance of homeownership and savings, households may become financially independent and require less government support.

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