Housing Affordability and Property Overhang:
A Study on B40 and M40 Homebuyers' Decision

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A Study on B40 and M40 Homebuyers' Decision

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DECLARATION

I hereby declare that:

(1) This Research Project is the end result of my own work and that due acknowledgement has been given in the references to all sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) The word count of this research report is ___19,996___ .

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DEDICATION

I would like to dedicate my work to my parents, beloved pregnant wife and young daughter. Without your unwavering support and care during this difficult time, I may not be able to complete the research smoothly.

In addition, I also wish this research may reached the hands of the people who enable the homeownership as inclusivity.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION

BNM	Bank Negara Malaysia
BRIM	Bantuan Rakyat 1 Malaysia
BSH	Bantuan Sara Hidup
CAGR	Compound annual growth rate
CCC	Certificate of Completion and Compliance
DOSM	Department of Statistics Malaysia
EPF	Employees' Provident Fund
EPU	Economic Planning Unit
FT	Federal Territories
GDP	Gross Domestic Product
KM	Kilometre
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
KPKT	Kementerian Perumahan dan Kerajaan Tempatan
KRI	Khazanah Research Institute
KTM	Keretapi Tanah Melayu
LRT	Light Rail Transit
MP	Malaysia Plan
MRT	Mass Rapid Transit
NAPIC	National Property Information Centre
OECD	Organisation for Economic Co-operation and Development
PPA1M	Perumahan Penjawat Awam 1 Malaysia
PR1MA	Perumahan Rakyat 1 Malaysia
RM	Ringgit Malaysia
RMM	Rumah Mampu Milik
RUMAWIP	Rumah Wilayah Persekutuan
SF	Square feet
SPM	Sijil Pelajaran Malaysia
SPNB	Syarikat Perumahan Negara Berhad

SPSS	IBM SPSS Statistics software
STPM	Sijil Tinggi Persekolahan Malaysia
UNCHS	United Nations Centre for Human Settlement
US	United States of America
USD	United States of America dollar

ABSTRACT

Housing is one of the human's basic need as it provides shelter to an individual person or family. However, the B40 and M40 income group were seen having challenges in attaining homeownership as there were mismatch of supply and demand of affordable housing, which eventually lead to property overhang. Notwithstanding certain B40 and M40 income group were affordable to own residential property at price RM300,000 and below, yet it was reported that such property overhang at the same time. Thus the paradox situation trigger the need for this study to understanding homebuyers' expectation in mitigating or avoid mismatch of demand and supply, which lead to property overhang. This research aim to find out factors influencing B40 and M40 income group buying decision towards an affordable house in Malaysia and to investigate whether housing affordability is the major factor influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia.

There were 346 survey questionnaires distributed and return, however only valid 304 of the samples will be use. In analysing the data, 36 measurement variables were accepted in meeting the reliability and validity test. Thereafter, using the factor analysis, the variables were grouped into 7 components which has eigenvalues of more than 1. Thus, there were 7 determinant factors revealed from the analysis that influence the B40 and M40 income group buying decision towards an affordable house in Malaysia. In addition, the study also confirmed that the housing affordability is the major determinant factor influence the B40 and M40 income group buying decision towards an affordable house in Malaysia.

CHAPTER 1

1.0   INTRODUCTION

In this chapter, the background of the study and relevant information will be provided including the problem statement, research question, research objective, significant of the study and outline of the research in addressing the issue of the study.

1.1 Background

Housing is one of the human's basic need as it provides shelter to an individual person or family (Maslow, 1943; Maslow, 1954). There is no standard definition of what constitute a housing need and the definition may be interpreted differently in accordance to a person's social, political or cultural norm (KRI, 2019a). In addition, the standards and definitions for what constitutes adequate or good quality housing may differ across nations and changes over time. According to Khazanah Research Institute (KRI, 2015), the provision of adequate housing is not only for the purpose of shelter, but also essential for the growth and well-being of society at large as it also encompasses security, privacy, investment as well as personal identity. Notwithstanding its importance, for those that could not afford a home ownership, they would probably require some form of assistances to fulfil their housing needs (KRI, 2019a). Typically, housing is an expensive commitment to most households, and it motivates one to save enough money to funnel into deposits in acquiring their dwelling (KRI, 2015). Thus, despite real estate industry is one of the key economic activity, it is generally being perceived that housing as a social welfare issue, whereby government assistance is inevitable to ensure the lower income households can afford to own their home.

The Department of Statistics Malaysia (DOSM, 2020a), estimated the population and number of households in Malaysia for year 2019 at approximately 32.6 million and 7.3 million respectively with an average household size of 3.9 persons. In comparison to year 2016, there were 6.9 million households with an average household size of 4.1 persons, representing 6% growth in number of household and slight reduction of household size. Similar trend was noted in the statistics for year 2010 and year 2000, whereby number of household increases and household size reduced over time (DOSM, 2014). Apart from that, using the current population growth rate, the DOSM (2016) also highlighted that the population is projected to increase to 41.5 million by the year 2040. As the number of household increases, it is expected that the demand for dwelling rise whether it is owner occupy or renting. Besides that, according to Cheah et al. (2018), it is the local culture of most Malaysian households that were more inclined to own their dwelling than renting, thus increases the housing demand. According to Bank Negara Malaysia (BNM, 2016), with the shrinking household size and coupled with rapid urbanisation and growth in household income and population, it is expected that the demand for housing will further being escalated. However, despite the need for substantial housing supply in the following years, it is vital to develop a detailed planning and implement effectively in providing affordable housing without compromising the sufficient quality and reliability for both the low and middle-income homebuyers.

Nevertheless, amid the growing housing demand, the Malaysian households who do not own a house in year 2019 was 23.1%, decreased slightly from 23.7% reported in year 2016 (DOSM, 2020a). Notably, in year 2010, there were only 21.3% households whom do not own their home (DOSM 2014). Notwithstanding over a nine-year period from year 2010 to 2019, there were merely 1.8% increase in households that do not own their dwelling, however the population, number of household and household size were different at the two different point in time. In a different viewpoint, the absolute amount of households that do own their home were about 1.7 million in year 2019 while in year 2010, there were about 1.4 million households. In contrast with the 1.8% increased as mentioned earlier, if using a different approach, the increased in number of households that do own their home were worsened to 21.4% over the nine years period.

'Median multiple' is a measure developed by the United Nations Centre for Human Settlement (UNCHS) and the World Bank in year 1988. This measure is commonly used in measuring housing affordability (KRI, 2015). The UNCHS and World Bank later discovered that the international average for housing affordability was 3 times based on the median multiple measure, which implied any results above 3 indicate housing unaffordability. Median multiple is also known as housing-price-to-income ratio and it can be further categorised into four ratings, as shown in Table 1.1.

Table 1.1 Demographia Housing Affordability Rating

Rating	Median Multiple
Severely unaffordable	5.1 and over
Seriously unaffordable	4.1 – 5.0
Moderately unaffordable	3.1 – 4.0
Affordable	3.0 and under

Source: Demographia, 2020

In Table 1.2, a simple illustration was made using the median household income and median house price in Malaysia for year 2019 to assess the housing affordability. The illustration shown that housing in Malaysia is unaffordable to B40 and M40 income group and the suggested a maximum housing affordability of RM113,976 and RM255,348 in their respective class. Although the M40 income group were classified as moderately unaffordable, according to KRI (2015) there had been growing concern over the middle-income earners as they struggle to purchase their home and yet they are not eligible to participate in government affordable housing campaign nor any other related government incentives scheme. This is due to the fact that most of the government incentives are aimed to encourage home ownership among B40 income group. Overlooking the needs and challenges faced by M40 group will further expediting the middle-income trap. Yet, it is essential to acknowledge that the illustration shown in Table 1.2 is using the average households' income by Malaysian in general. There is a need to inform readers that the household income levels is varied across states and cities in Malaysia, for instance RM6,959 is referred as B40 income level in Selangor while the same figure is actually being classified as M40 income level in Malacca.

Table 1.2 Median Multiple; and Malaysian B40 and M40 Income Group Housing Affordability in Malaysia Year 2019

Household from	Median household income	Median house price in Malaysia	Median multiple	Remarks	Maximum median house price affordable
Malaysian	RM5,873	RM289,646	4.1	Seriously unaffordable	RM211,428
B40 income group	RM3,166	RM289,646	7.6	Severely unaffordable	RM113,976
M40 income group	RM7,093	RM289,646	3.4	Moderately unaffordable	RM255,348

Source: DOSM, 2020a; NAPIC, 2020b

Another metric, namely 'housing cost burden' is a commonly used approach in the United States of America (US), Australia and (OECD) countries to measure housing affordability, after taking into consideration the financing cost (Cheah & Almeida, 2007). This approach is refer to a golden rule of in the event that housing expenditure (housing loan instalment payment) less than 30% of household income are deemed as affordable. In a similar approach, Malaysia's financial institutions use debt service ratio to assess homebuyers' affordability after taking into account the homebuyers' financial commitment, prior approving their housing loan application. According to BNM (2019), debt service ratio is a ratio of total monthly debt obligations (principal and interest) to monthly disposable income (net of statutory deductions).Instead of fixing a standard debt service ratio limit to be use across all financial institutions, each financial institution has their own debt service ratio limit. However, BNM (2012) had issued 'guidelines on responsible lending' to urge the financial institution to set a prudent level of debt service ratio in preventing homebuyer default in loan. In reference to BNM (2019), the debt service ratios for bulk 70% of newly-approved loans in year 2018 were remained below 60%.

The escalating demand in housing, alongside with the measurement in housing affordability, has pointed to the fact that housing affordability is a pressing issue worldwide. In the global context, findings by the Organisation for Economic Co-operation and Development (OECD) (2020) indicated that the young families

around the world are increasingly difficult to own their home as a result of the rising house prices that were not in tandem with the rise of their household income. As shown in Figure 1.1, using the housing price-to-income ratio, the affordability level in owning home is measured. As shown in the graph, it is noted that rent price growth steadily while the price-to-income ratio increased dramatically worldwide as the real house prices increases throughout the years.

Figure 1.1 Development of Average House Prices and Income Year 1996 to 2020
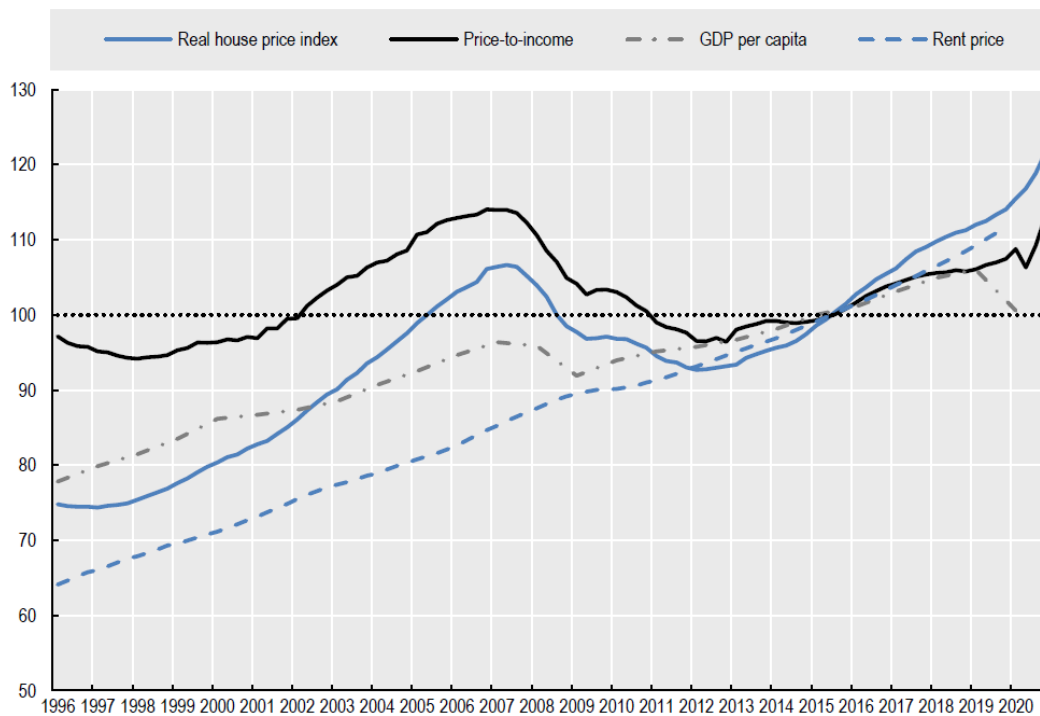
Source: OECD, 2020

In Malaysia, the deteriorating of housing affordability has prompted an urgency of government intervention in remedy (KRI, 2019a). In the 10th Malaysia Plan introduced a new policy for the Malaysian government to provide sufficient affordable housing cater to the low-income group as well as the middle-income groups. Apart from that, the government also committed to provide 1 million affordable homes by year 2018 with 653,000 units targeted to be built under the 11th Malaysia Plan. In the Malaysia's National Housing Policy states that the government's commitment to provide adequate, comfortable, quality and affordable housing to improve the living standard of its people. The overall government's housing supply strategy can be classified into social housing; low-cost and low-

medium-cost housing; government-assisted housing programmes; government quarters; and cooperative housing. Concurrently, the government also introduced various affordable housing schemes and new policies to encourage home ownership such as flexibility in Employees' Provident Fund (EPF) drawdown to finance home purchase, cash and tax incentives to developers and contractor to reduce the house price as well as stamp duty exemption to minimise transactional cost (Abdullateef & Tan, 2017). The theme of housing affordability has been further extended in the discussion and presentation by stakeholders in the drafting the 12th Malaysia Plan in which the role of government and private developers in providing affordable housing has been discussed (KRI, 2019b).

Table 1.3 Key Challenges of Malaysia Affordable Housing

	Challenges	MP
1.0	New development are unaffordable and exclusive	MP12, MP11
2.0	City residents cannot afford to own urban housing	MP11, MP8
3.0	Inadequate supply of affordable and quality housing	MP12, MP11, MP10, MP9, MP8, MP7, MP5, MP4, MP3, MP2, MP1
4.0	Lacked of accessibility to end-financing for low cost houses	MP12, MP7
5.0	Poor house maintenance	MP10
6.0	Insecure residential area due to crime	MP10, MP9
7.0	Lacked of sustainable development which include affordable housing strategically located with connected major economic activities, network of infrastructure, amenities and green space	MP10, MP9, MP8, MP7, MP6, MP5
8.0	Mismatch of supply and demand for affordable housing	MP12, MP10, MP3
9.0	Growing demand for affordable housing with access to infrastructure and amenities	MP11, MP9, MP8, MP7, MP6, MP4
10.0	Increasing cost of living	MP11
11.0	Inefficient streamline of provision of affordable housing among different government agencies	MP10, MP3

Source: EPU, 1965; EPU, 1970; EPU, 1975; EPU, 1980; EPU, 1985; EPU, 1990; EPU, 1995; EPU, 2000; EPU, 2005; EPU, 2010; EPU, 2015; KRI, 2019b

In fact, despite the recent highlights on affordable housing in the 10th, 11th and proration of 12th Malaysia Plan (MP) by Economic Planning Unit (EPU), the housing affordable issues has been long formulated since the country achieve its independence. Table 1.3 provide the summary on the concern over housing issues across various Malaysian Plans. As one may notice, the issues of affordable housing remained unsolved throughout the years although various incentives have been provided and concern being raised in the Malaysia Plans. This further point to the fact that the stakeholders was lacking comprehensive understanding on this issue. The following section will further elaborate the needs to investigate housing affordability issues from the perspective of housing purchase decision by the B40 and M40 groups.

1.2 Problem Statement

The National Property Information Centre (NAPIC, 2021b), had reported that at first quarter of year 2021, there were 138,633 units of residential properties launched in Malaysia and 27,468 units residential properties overhang. According to NAPIC, residential property overhang means residential units that were not sold even marketed more than nine months and already obtained Certificate of Completion and Compliance (CCC). In the context of home ownership affordable by B40 and M40 income group based on their median household income (as tabulated in Table 1.2) were RM113,976 and RM255,348 respectively. However, according to NAPIC (2021b), among the residential property launched at RM300,000 and below in first quarter of year 2021, there were 6,610 units property overhang amid 41,983 units launched during the period (as shown in Table 1.4). The figure of residential property is not included serviced apartment as this category of property is included as commercial used.

Table 1.4 Malaysia Residential Property Launched and Overhang First Quarter Year 2021

Area and price range	Units launched at first quarter of year 2021	Units overhang at first quarter of year 2021
Malaysia:		
RM0 to RM100,000	5,633	997
RM100,001 to RM200,000	11,367	1,429
RM200,001 to RM300,000	24,983	4,184
RM300,001 to RM400,000	20,034	3,979
RM400,001 to RM500,000	18,559	3,632
RM500,001 to RM600,000	13,446	3,370
RM600,001 to RM700,000	12,612	2,399
RM700,001 to RM800,000	6,711	1,296
RM800,001 to RM900,000	6,818	1,487
RM900,001 to RM1,000,000	2,638	856
More than RM1,000,000	15,832	3,839
Total units	138,633	27,468

Source: NAPIC, 2021b

In Figure 1.2 shows that the affordable property overhang (priced at RM300,000 and below) trend from year 2015 to first quarter year 2021. It is noted that the affordable property overhang peaked in year 2017 and 2018 at a record 31% of the launches in that year. However, notwithstanding the number of launches were increased in the later years, property overhang were quickly subside to 16% in first quarter of year 2021.

Figure 1.2 Malaysia Residential Property Price Range RM300,000 or Below
Launched and Overhang Status Year 2015 to First Quarter Year 2021

	2015	2016	2017	2018	2019	2020	Q1 2021
Units launched	25,938	26,176	27,639	39,989	41,513	45,157	41,983
Units overhang	5,633	5,830	8,529	12,258	10,253	8,758	6,610
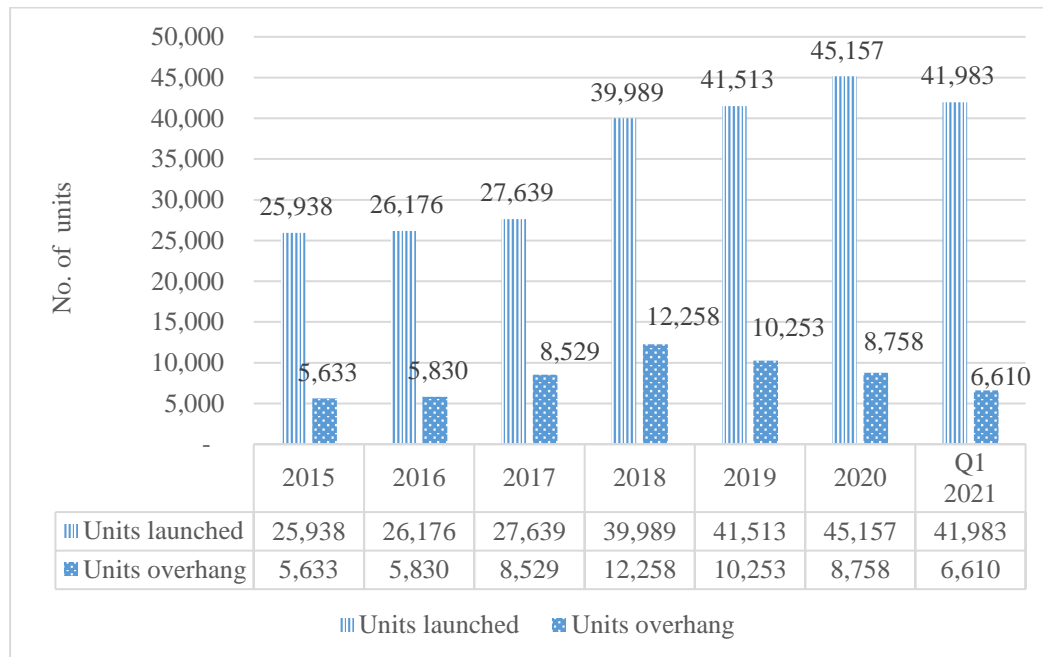
Source: NAPIC, 2016, 2017, 2018, 2019, 2020c, 2021a, 2021b

Despite various government measures to encourage home ownership and demand outweigh supply, there are still available property not sold even after marketed more than 9 months. The fact that these residential properties was priced within the affordability level of certain homebuyer give rise to a contradicting situation, whereby on one hand there were shortage of affordable housing, while on the other hand there are overhang of affordable housing. The property overhang may causes problematic issues as the property will deteriorate over time and developer usually incurred extra cost and effort to maintain the property in order to remain marketable condition. In addition, in the event the development not saleable for a longer period, the design may obsolete and even harder to sell. Apart from that, if these units still not saleable, it also implied that another piece of land in prime area has been wasted. Another major concern is that the government measures did not meet its objective to encourage home ownership effectively. As there were about 1.7 million Malaysian household did not owned their home in year 2019 according to DOSM (2020a), a proper planning and understanding of current homebuyers' expectation should be carry out thoroughly to mitigate or avoid mismatch of demand and supply, which can lead to property overhang.

As discussed earlier, housing is a necessity and 23.1% of Malaysian household in year 2019 have yet to own their home. Amid the growing concern of this social issue, it is the Malaysian government's focus and commitment to provide sufficient, comfortable, quality and affordable housing to its people. Nevertheless, amidst certain B40 and M40 income group (representing 80% of the total Malaysian household) having severely and moderately unaffordable housing issue in Malaysia, concurrently, the same place is encountered with property overhang priced within their affordability level. This incongruity raises questions as to whether the supply meet the demand effectively. According to Abdullateef and Tan (2017), the likelihood of imbalance in supply and demand of affordable housing are due to lack of reconciliation between the homebuyers' choice and supply. The authors also mentioned that a better understanding of the homebuyers' choice will establish new insights into housing supply and demand disparity. Thus, without analysing the homebuyers' needs and expectation in arriving at suitable specification, the development may not be interested by the potential buyers thereby such incident may result to the property overhang situation to continue. Therefore, there were urgent need to assess the determinant factors affecting the homebuyers' buying decision as a guide in planning for future housing property development.

The residential market (including affordable housing) in Malaysia has reached maturity stage amid homebuyers were getting more demanding and sophisticated in selection for their home in prime location with contemporary design, features as well as quality finishes (Hassanudin & Chandra, 2016). In a research conducted by Cheng and Cheok (2008) on the significance of branding among the real estate developers, revealed that the homebuyers were brand conscious and rank these developers based on their brand personality. The authors also revealed that over 90% of the respondents' home were purchased from reputable developers. However, the factors influencing these homebuyers may not be the same with those homebuyers of affordable housing. Hence this research had inserted developer's attributes factor as one of the factors to test for its importance in home buying decision of affordable housing.

1.3 Research Question

Following the problem statement, the following research questions being raised:-

i)   What are the factors influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia?

ii)   Is housing affordability the major factor influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia?

1.4 Research Objective

Essentially, the following objectives are meant to be achieved in answering the research questions:-

i)   To identify factors influencing B40 and M40 income group buying decision towards an affordable house in Malaysia; and

ii)   To investigate if housing affordability the major factor influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia.

1.5 Significant of the Study

It is expected the relevant authorities, researchers and scholars shall be benefited from this research through better understanding in the relationship between property overhang, pricing and B40 and M40 income group homebuyers' determinant factors influencing their buying decision. Apart from that, users of this study can use this study as a basic framework to emerge into new relevant research on the topic of this study.

Most of the research made from previous studies mainly focus on property price, household income, building and amenities, and location factors in influencing the homebuyers' purchase decision of affordable housing. However, as explained earlier, noted that the branding and developer factor are equivalent important in

purchase decision of a residential property. Thus, in view that property overhang of affordable housing may not be the affordable issue entirely, this research attempt to investigate other possible influencing factors including the view of the potential affordable housing homebuyer on how important is branding and developer factor in affordable housing.

The findings in this study may also serve as a guide to the policy maker, urban planner and property developer on planning for affordable housing priced at RM300,000 or below in Malaysia to achieve better effectiveness and competitive advantage in meeting the B40 and M40 income group housing needs. In proper planning of affordable housing development based on the B40 and M40 income group homebuyers' determinant factors, it is expected that the supply may be more responsive in meeting the demand, thus potential homebuyers shall be benefited with the suitable affordable housing and eventually reduce the property overhang situation.

Apart from that, amid the growing urbanisation across nations, land became scarce as development take place, thus effective use of land is important to avoid development not appealing to potential homebuyers. According to DOSM (2020a), the urbanisation rate in Malaysia is on an increasing trend and it is forecasted that Malaysia's urbanisation rate will reach 85% to 90% within the next 30 years. The statistics department also stated that as urban settlements grew larger and complicated, urbanisation is required to be planned and developed with comprehensive and uniform guidance. Hence, again the attention is on the importance of detailed market study and planning at the onset to ensure success of the housing development.

1.6 Outline of the Research

This research consists of five chapters. This chapter is an introduction to the research which consists of background of the study, problem statement, research question, research objective and significant of the study. The subsequent chapter, Chapter 2 review and discuss existing literatures by researchers and government agencies in relation to affordable housing, property overhang and homebuyers

preference , thereafter, built upon the existing literature, a theoretical framework that served as the theoretical backbone has been proposed, as well as hypotheses development. In Chapter 3, author describes and explains the methodology, design, plan, instruments and procedures in data collection and analysis. Followed by Chapter 4, in which the results of the research will be presented and discussed. The final Chapter 5 will conclude the findings with the aim of answering the research questions. On top of that suggestion on implication, limitation of the study and recommendation has been revealed.

CHAPTER 2

2.0   LITERATURE REVIEW

2.1 Introduction

This chapter review the literature and findings from previous researchers and scholars as well as relevant government agencies in relation to the topic of this study which mainly focus on published and available information such as journal articles, reports, website and books. Thereafter, theoretical framework and hypotheses are proposed in the later chapter.

2.2 Affordability Measurement

Housing affordability can be measured using the median multiple developed by the UNCHS and the World Bank. The median multiple is based on the rule of thumb that the higher the house price in relative to the household income resulting in higher housing unaffordability, and can be rank accordingly based on its severity (as shown in Table 1.1). In despite different countries have different norm, it is suggested that the median multiple at 3 times or below represents housing affordability. However, the suggested median multiple of 3 times does not implies the household should only spend up to 3 times of their household income on housing expenditure (KRI, 2015). Rather, the 3 times median multiple is a measure in assessing how effective is the supply of house in meeting the demand. In other words, it is an indicator of housing affordability from the supply perspective.

The US, Australia and OECD countries use housing cost burden to measure housing affordability, which take into consideration the financing cost. It is common that a house purchase would leverage on mortgage loan due to the significant price tag of the house, therefore it is relevant to factor in the effect of finance cost in assessing the housing affordability. In assessing the housing

affordability using this approach, in the event the housing expenditure was more than 30% of a household income is deemed as unaffordable (Cheah & Almeida, 2017). This is because if the household spend more than 30% of their household income on housing expenditure, they risk of not having sufficient income to cope with other expenses such as food, transportation and health, thus resulting a housing cost overburdened scenario. In this approach, housing expenditure is refer to the housing loan instalment payment.

In Malaysia, a similar approach, namely debt service ratio were commonly used by financial institutions in assessing the potential homebuyers' affordability by evaluating the borrower/applicant ability to repay (BNM, 2016). Debt service ratio is defined as the household debts repayment by the disposable income, computed using the total monthly bank and non-bank debt obligations (principal and interest) divided by monthly disposable income (net of statutory deductions) and converted into percentage. The debt service ratio gives an indication on the leverage level of a borrower/applicant of which the financial institution might reject the loan application if the borrower/applicant over-leverage. As a result of over-leveraging, the homebuyer most probably failed to purchase the house without loan assistance, which eventually lead to social problems and property overhang. Notwithstanding, every financial institutions had their own policies on the threshold and interpretation of the debt service ratio, the BNM (2012) had issued guidelines on responsible lending to urge the financial institution to set a prudent level of debt service ratio in preventing homebuyer default in loan. According to BNM (2019), the debt service ratios for bulk 70% of newly-approved loans in year 2018 were remained below 60%. Amid the national central bank continue to observe the lending and risk management practices by the financial institutions, it opined that the overall quality of household debt were remained sound and intact with higher risk attached to loan on purchase of higher-value properties.

2.3 Housing Affordability

Affordable housing is a term describing housing for the B40 and M40 income group while housing affordability is a function of house price and household income as

the median multiple (most widely used model in Malaysia) uses it as its main attributes to measure the housing affordability (KRI, 2015). In other words, house price and household income has a direct relationship with housing affordability as higher house price or lower household income reduces the housing affordability. Nevertheless, as recommended by United Nation and World Bank to use median multiple to measure housing affordability, it is important to understand that median multiple is not a tool to measure how much a household can afford to spend on housing expenditure, rather it is a measure to benchmark on how affordable the housing market is performing as a whole. For instance, a household can spend lesser on other expenditures to trade off for housing expenditure. In this case, the housing expenditure might exceed the recommended median multiple of 3 times but not necessary represent the housing unaffordability as every household can manage their pattern of spending.

It is worth noting that according to Abdullateef and Tan (2017), housing affordability will be considered cost burdened if the housing expenditure is more than 30% of the household income, which is consistent with housing cost burden approach used in US, Australia and OECD countries. Having said that, according to BNM (2019) the debt service ratios for the bulk 70% of newly-approved loans in year 2018 have remained below 60%. According to BNM (2019), debt service ratio is a ratio of total monthly debt obligations (principal and interest) to monthly disposable income (net of statutory deductions).Given most of affordable house purchase required a mortgage loan assistance, the debt service ratio is a powerful tool to measure capability of borrower to service their loan in relation to the house purchase. Even though a borrower might have other assets and savings to ensure consistency of loan repayment, the financial institutions are more concern on the borrower's asset liquidity to ensure the loan repayments are sustainable.

According to Syairah et al. (2019), housing loans had been growing moderately at 7% to 9% since year 2016 up to third quarter of year 2019, below the previous peak of 13.4% due to structural and cyclical trends. Amid the weaken sentiment during this period and policy strategies to manage risk associated with high household indebtedness as well as curbing the speculative activities in the Malaysian housing market, the loan approval had been more stringent and conservative. As shown in Figure 2.1, there were 39% loan rejections for household income group RM5,000 and below; and 38% loan rejections for household income

group of RM5,000 to RM10,000. Clearly, in the context of median household income of B40 and M40 of RM3,166 and RM7,093 respectively were classified within these categories of loan rejections. Thus, without loan assistance from financial institutions, the purchase of home will not materialise leading to low homeownership and possible property overhang. As shown in Figure 2.2, these loan rejections were mainly due to housing unaffordability of whopping 84% and 58% of these rejections were categories as severely unaffordable.

Figure 2.1 Share of Housing Loan Rejections by Income Group
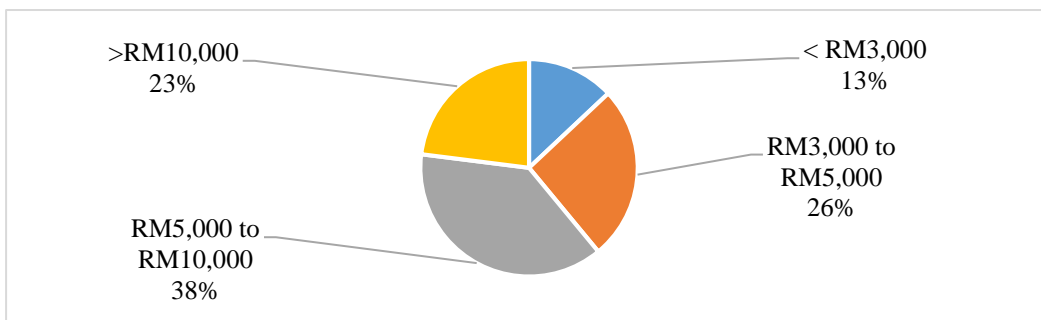
Source: Syairah et al., 2019

Figure 2.2 Rejected Housing Loan Applications by Median Multiple
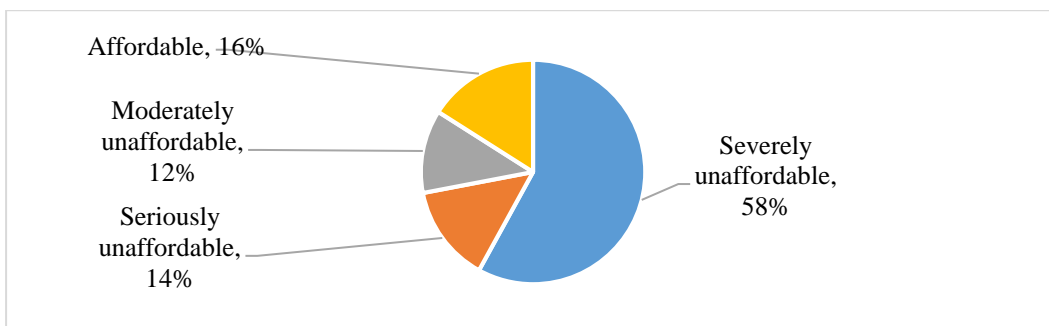
Source: Syairah et al., 2019

In identifying the creditworthiness of borrowers, Syairah et al. (2019) studies have found out that the poor management history, cash flow issues and over leveraging were the primary attributes to the loan rejections. Housing affordability also influenced by the purchasing power of the homebuyer as without sufficient financial assistance or savings, the house purchase cannot materialised. Notwithstanding the housing affordability is largely influenced by the household income and property price, interest rate also has an impact in computing the debt

service ratio as instalment payment varies in reference to the interest rate. According to Kearns (2019), one of the major driver of outstanding housing loan was as consequence of rising interest rate. Hence, as the interest rate increases, the repayment amount will be larger and reduces the affordability level.

2.3.1 Household Income

In reference to the DOSM (2020a), household is defined as a person, members of the family or unrelated persons living together with common provisions for food and other living essentials. Thus, household income is defined as the cumulative income of these members occupying within the same house which include employment income, business income, current transfers receipt such as educational aid, zakat, and Bantuan Rakyat 1Malaysia (BR1M)/ Bantuan Sara Hidup (BSH) as well as earnings accrued from investment income such as interest, dividend and rental income. In the context of affordable housing, it is the financial capability to own a house within the same household. Amid studies discussed earlier suggested that housing expenditure should be capped at average 30% of the household income so that it won't be cost overburdened, however the B40 and M40 income group might have difficulties to maintain at this level as median house price in Malaysia were higher than their affordability level. According to KPKT (2019), the Malaysia median multiple had been in the range of 4.0 to 5.0 from year 2002 to 2016, indicating housing unaffordability as the income growth of Malaysian is relatively slower than the growth of housing price. The minister also reported that during the period from year 2007 to 2016, the house price had increased 9.8% annually while the household income increased by 8.3%. The housing unaffordability is further evidenced in Appendix A that B40 income group was classified under severely unaffordable in housing throughout the states in Malaysia while M40 income group was deemed severely and seriously unaffordable in Kuala Lumpur and Selangor state respectively. According to DOSM (2020b), private final consumption expenditure by the households contributing significantly to Malaysia's economic growth whereby this segment contributed about 58.7% to the Gross Domestic Product (GDP) in year 2019. Notwithstanding, the economic development is

important to every nations, however the social concern is equally important amid the B40 and M40 income group earners are the main contributors to the workforce, one of the pillars driving the economy itself.

As shown in Table 2.1, the B40 and M40 income group had a compound annual growth rate (CAGR) of 8.2% and 6.9% respectively, while the median house price had CAGR of 6.9% over the 10-year period up to year 2019. Notwithstanding, during this period, the B40 and M40 income group were seen its median income were growing closely in relative to the average housing price, however according to Cheah and Almeida (2017), the housing affordability issue already in existence since year 2012. This can be evidenced in Table 2.2 that the median house price is beyond the affordable level of both the B40 and M40 income group. In Figure 2.3 is a chart showing the trend of B40 and M40 income group median household income and median house price with the CAGR peaked in year 2014 and move into downward trend thereafter.

Table 2.1 B40 and M40 Median Household Income, and Median House Price Year 2009 to 2019

Year	B40 income group median income	CAGR	M40 income group median income	CAGR	Median house price	CAGR
2009	RM1,440	NA	RM3,631	NA	RM149,000	NA
2012	RM1,847	8.7%	RM4,573	8.0%	RM170,000	4.5%
2014	RM2,629	19.3%	RM5,465	9.3%	RM270,000	26.0%
2016	RM3,000	6.8%	RM6,275	7.2%	RM298,000	5.1%
2019	RM3,166	1.8%	RM7,093	4.2%	RM289,646	-0.9%
CAGR 10-year		8.2%		6.9%		6.9%

Source: DOSM, 2013, 2017, 2020; KRI, 2015; NAPIC, 2020b

Table 2.2 B40 and M40 Income Group Housing Affordability Level

Year	B40 income group affordable level using median multiple of 3	M40 income group affordable level using median multiple of 3	Median house price
2009	RM51,840	RM130,716	RM149,000
2012	RM66,492	RM164,628	RM170,000
2014	RM94,644	RM196,740	RM270,000
2016	RM108,000	RM225,900	RM298,000
2019	RM113,976	RM255,348	RM289,646

Source: DOSM, 2013, 2017, 2020; KRI, 2015; NAPIC, 2020b

Figure 2.3 CAGR in B40 and M40 Median Household Income and Median House Prices Year 2012 to 2019
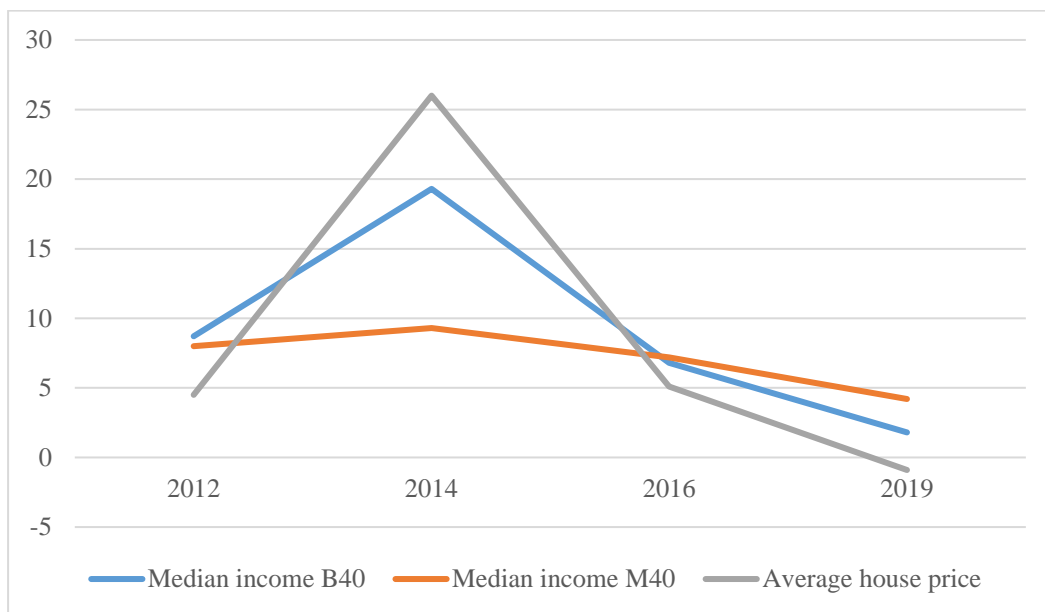
Source: DOSM, 2013, 2017, 2020; KRI, 2015; NAPIC, 2020b

A study by Yap and Ng (2018) revealed that household income and house price were the most important factors to assess housing affordability. This is consistent with Abdullateef and Tan (2017) research findings which highlighted that household income is the most important determinant of affordable housing choice. In reference to the median multiple formula, household income is the denominator, indicate that household income has a positive relationship with

housing affordability, as the higher the household income, the higher the housing affordability.

In reference to the DOSM (2020b) survey on household expenditure year 2019, it was noted that the median household expenditure was stood at RM3,654 with the major expenditure dominated by housing, water, electricity, gas and other fuels of 23.6%. Furthermore, it was reported that the B40 income group spend up to 25.6% of their income on housing cost while the M40 income group spend about 22.8% in the same period. Another findings from the survey revealed that the B40 income group spend up to 62.4% on food and accommodation while the M40 income group spend about 55.3% and the T40 income group the lowest at 48.6%. Generally, food and accommodation is the main basic necessities to sustain a person's living, however spending too much on this segment also meaning that lesser income can be spend on other expenditure such as transportation, health, education and clothing.

2.3.2 Property Price

Property price is mainly make up of land cost, infrastructure cost, building material cost, construction cost, professional fees, marketing cost, other development cost, statutory payments and a developer's profit. In other words, the changes of these costs will probably affect the property price. According to KRI (2019a), land cost is often associated with location, whereby shortage of available development lands in urban zone amid high population density area resulting in higher land cost and property price. Thus, as a result of high land cost, the developer will sell at a higher property price to register a better profitability (Yap & Ng, 2018). Nevertheless, sometimes developers might have difficulties in selling property at price more than the market price, as a consequence, the developer will lower the selling price and slash its profit margin. In addition, the speculative activities also have a relationship with land cost and property price (KRI, 2019a). In practice, land prices are influence by the concept of 'willing buyer and willing seller'. For instance, the developer willingness to pay a premium on the land cost (above market value) as he may be acceptable to the expected profitability projected from the feasibility study. Hence,

amid the autonomous residential land market, the land prices are determined residually from the interaction between the construction cost, house prices as well as the speculative activities (KRI, 2019).

According to Yap and Ng (2018), weaken Malaysian ringgit value and unstable economy including inflation are among the causal resulting the economic shifted fundamentally and potentially influence the property price. Inflation affect the cost of materials and construction cost, hence affecting the purchase price. In the event of high inflation and household income did not increase in tandem, the debt service ratio is expected to increase beyond the financial institution's allowable limit. Thus, eventually the loan failed to approve and house purchase will not be materialise. In other words, this is one of the instances of housing unaffordability.

Nevertheless, in contradiction to the norm of low material cost, labour cost, and machinery and equipment cost deliver a lower property price, the KRI (2015) research found out that house price in Malaysia had increased systematically despite these costs had declined over the six years period from year 2008 to 2014. KRI (2015) further explained that theoretically, selling price of new residential development are determined by referring to the existing house price and in the event the demand increases amid limited supply of new and existing development units, the price of new housing will increase. Thus, as developer (private entity) is profit oriented, even cost of development is far lower, the developer will sell at higher house price possible to reflect the market price as it fetched a better profit.

As shown in Figure 2.4, the average house price was increased year on year in a much slower rate and coupled with property overhang position as shown earlier (Figure 1.2), it is believed that in general the developers had to lower the property price in view of high inventories. Apart from that, a study by Cheah and Almeida (2017) revealed that the housing affordability issue worsen as the property launched at price above RM250,000. Accordingly, a study by Hassanudin and Chandra (2016) revealed that property price is the most significant attributes influencing homebuyers' buying decision. In reference to the median multiple formula, property price is the numerator, hence property price has negative relationship with housing affordability, as the higher the property price, housing affordability will likely to declined.

Figure 2.4 Malaysian House Price Index Year 2010 to 2020

Year	2019	2020ᴾ
Index	198.0	199.3
Average House Price	RM427,165	RM429,877

Year	2010
Index	100.0
Average House Price	RM217,857

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Index Point	100.0	110.9	125.8	140.0	153.2	164.5	176.1	187.6	193.7	198.0	199.3
Y-o Y Change (%)	5.5	10.9	13.9	11.2	9.4	7.4	7.1	6.5	3.3	2.2	0.6
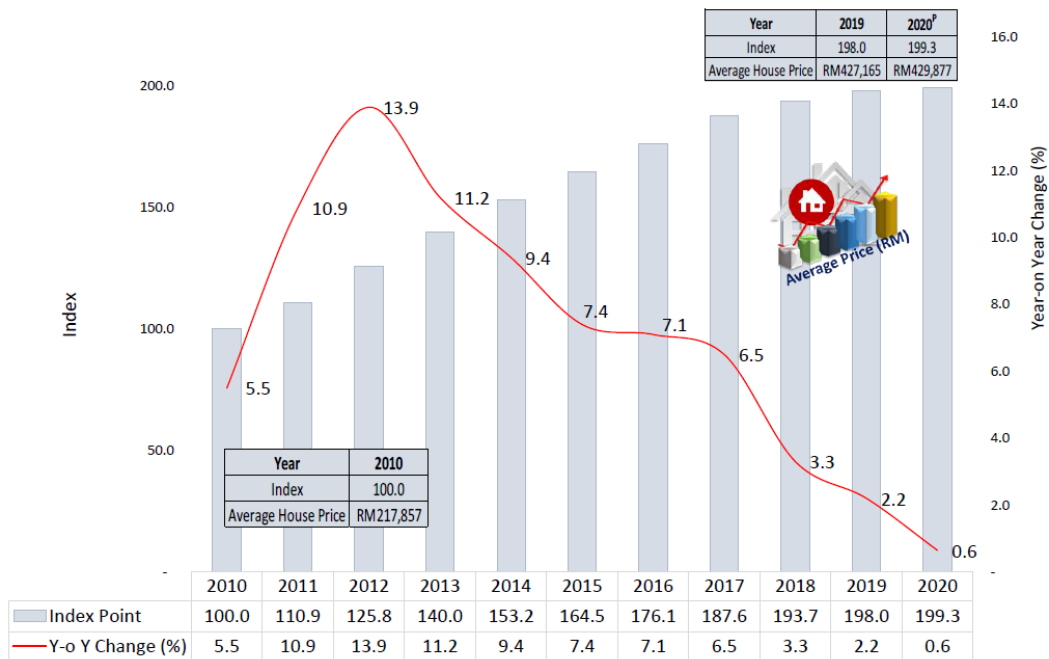
Source: NAPIC, 2020a

2.3.3 Affordable Housing Scheme and Government Policies

In reference to the latest National Housing Policy, 2019, Kementerian Perumahan dan Kerajaan Tempatan (KPKT, 2019), defined affordable housing as a house that is sufficient in quality, well located, unburdening cost of housing without compromising the need to meet other basic living costs as well as able to meet the dwellers' basic needs. In addition, the minister also opined that the type and house size will differ according to different households' requirements influenced by different economic condition, technology and living status. The KPKT reiterated that affordable housing should be sustainable and meet various criteria such as house priced reasonably in tandem to the household's affordable level, assess to neighbouring amenities to meet their daily needs as well as equipped with basic infrastructures such as water, electricity and internet.

In an effort to encourage and assist households in home ownership, the government had initiated various schemes and assistance by reducing the property's selling price, provide subsidies, as well as attractive housing financing. These policies allow homebuyers to borrow more financing instead of reducing the cost

of housing, thus increases household debt and the government subsidies was seen burdening the government financial strength (KRI, 2015). As a consequence of the current intervention mainly focuses on the demand side which is not sustainable, thus in order to strengthen the housing affordability, it is recommended to make the supply more elastic and more responsive to demand. In short, this can be done through reducing the production time in supplying houses and proper monitoring system to ensure the consistent supply of affordable homes in the area. Apart from that, in order to match the demand and supply effectively, proper analysis and planning must be carry out in consideration of the timing, the demographic' s preference and most of all, the disposable income in relation to housing cost.

Table 2.3 Summary of Affordable Housing Schemes in Malaysia

Affordable housing schemes	Description
DPR Johor	This scheme ensure the private property developer build and offer affordable housing of up to 40% of the development projects
My First Home	This scheme assist first time homebuyer to own a home
MyHome	This scheme provide subsidies to help low income household to own an affordable home
PPA1M	This scheme aim to assist low income and middle income civil servant in homeownership
PR1MA	This scheme focuses on providing affordable housing to middle income household in urban area
RMM Pulau Pinang	This scheme provides low, low-medium and affordable housing specifically for Penang residents
RMM Sarawak	This scheme provide low and medium cost housing to the low income earners of Sarawak resident
RMM SPNB	This scheme provide low, low-medium and medium cost housing to the low income group
Rumah Selangorku	This scheme provide low, low-medium and medium cost housing to the Selangor resident
RUMAWIP	This scheme provide affordable housing to the resident of Federal Territories

Source: KRI, 2015; MAMPU, 2021

As shown in Table 2.3 is a list of affordable housing schemes offered by federal and state governments which are currently available in the market with the aim to help and encourage low and medium income earners to own their home. However, the list is not exhaustive as there were no centralised government body monitor and publish all the relevant initiatives and schemes in relation these assistance. Thus, according to KPKT (2019), there is a need for a central figure centralising and coordinating the relevant information on affordable housing initiatives among more than 20 government and state agencies, as well as private developers involved in affordable housing development.

2.3.4 Property Overhang

As explained earlier, property overhang is defined as residential property which have received CCC but remained unsold for more than nine months after launch. Notwithstanding the property overhang were frequently perceived as results of oversupply of houses, the same cannot be true as KPKT (2019) reported that in year 2014 to 2016, the average supply of residential properties were 114,000 units which was far below the increased of new households in those years of 154,000 households in average. In the context of affordable housing (as tabulated in in Figure 1.2) there were 16% of the new launches or 6,610 units classified under property overhang in first quarter of year 2021. Amongst these units, the top four states contributing to property overhang of the nation are Perak, Sarawak, Penang and Selangor which account for 66% of the total property overhang (as shown in Figure 2.5). It is believed that the property overhang was caused by mismatch of selling price and income, as well as mismatch of development specifications in respond to change of demographics' need and expectation. Nonetheless, according to KPKT (2019), the information on affordable housing is not symmetric, hence there is a need to centralise all the database which inclusive of the household income, demographic and household's choice of specifications to strengthen the planning for future development. Thus, with the availability of timely relevant information for market study and planning during the onset of the development, the said mismatch can be reduced, if not to avoid in totality.

Figure 2.5 Top States' Property Overhang Priced RM300,000 and Below in First Quarter of Year 2021

	Perak	Sarawak	Penang	Selangor
‖ Units launched	9,489	4,624	4,030	5,016
▩ Units overhang	1,943	851	777	760

‖ Units launched   ▩ Units overhang
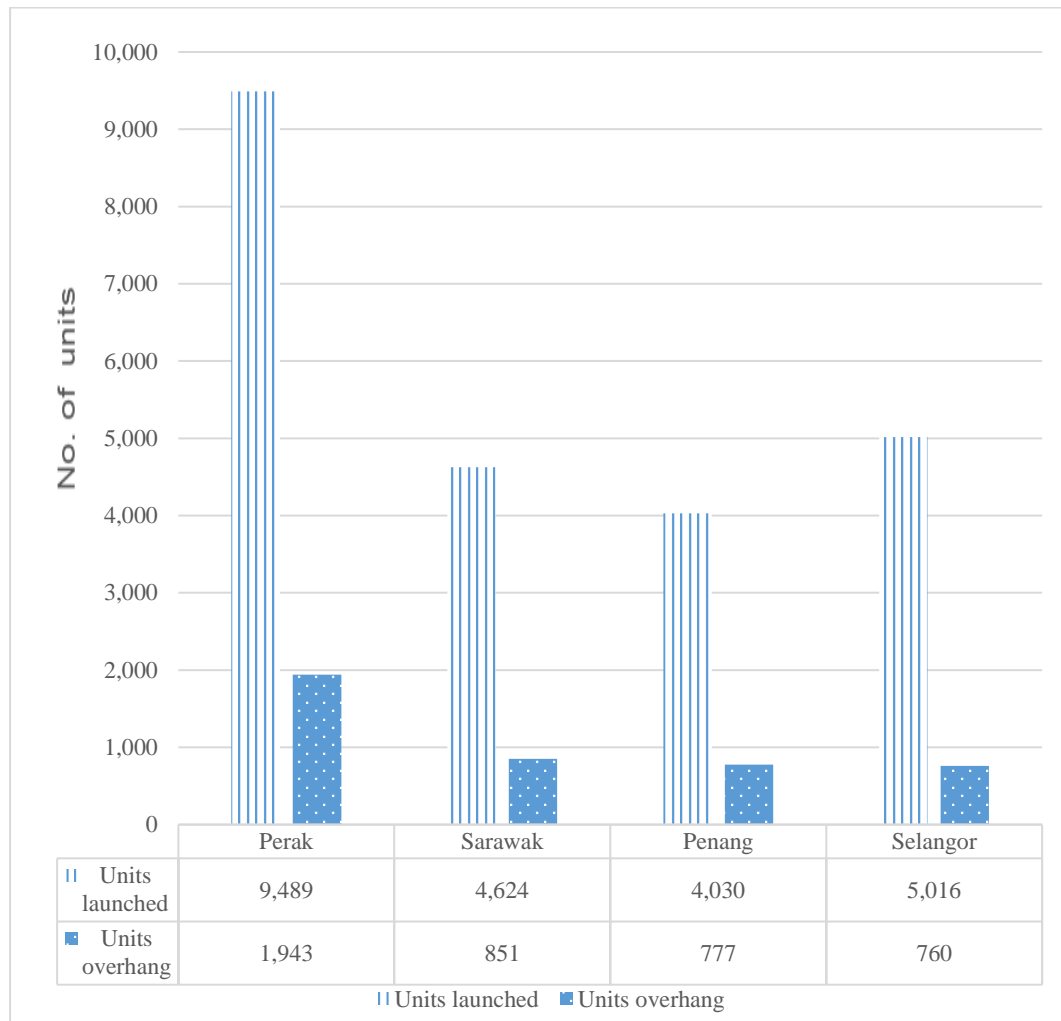
Source: NAPIC, 2021b

2.3.5 Demographic

The Malaysian population is estimated at 32.6 million with 7.3 million households in year 2019, and 70% of the population were at age 15 to 64 year-old while 46% of the population are in the work force (DOSM, 2020a). Demographic mainly refers to the age profile, gender, ethnicity, education level, marital status, number of household, age distribution, education level and household income of the homebuyer. The changes in demography and social-economic mainly impacted by the changes in overall population composition whereby it can possibly influence the

population distribution pattern by various categories such as age group, gender, education as well as urbanisation (DOSM, 2020a).

According to Bujang et al. (2010), demographic trends has significant impact in urban area, whereby the ignorance of it can led to property overhang. In addition, the authors also revealed that amongst different demographic profile, only marital status, number of households, monthly household income as well as education level have a strong relationship with affordable housing price. Apart from that, the KRI (2015) study found out that the types of housing demanded are subject to the family composition and advancement of household income over the time. For instance, a big family size may need a bigger housing space, however if the market does not supply such housing within the affordable level of the household, it is likely that the house buying will not materialise.

2.4 Building Factor

Building factor represents the design, specification and features of the housing such as number of bedroom, bathroom and parking space, total built-up, security service and facilities which also includes the type of material use and quality. According to Hassanudin and Chandra (2016), the Malaysian are getting more educated and sophisticated homebuyer whose tend to be more selective and demanding on location, contemporary features, design and quality finishing. Often the studies of affordable housing mainly focuses on the household income and property price which benchmark using median multiple and debt service ratio. However, as evidenced in Figure 1.2 that there were property overhang despite priced within the affordable range of certain B40 and M40 income group, implied that there were possibility that the property was not sold due to other reasons than affordability. Abdullateef and Tan (2018) is in the opinion that lacked of adequate information on design criteria may results various issues such as poor satisfaction of homebuyer, pre-occupancy obsolescence, costly maintenance, housing abandonment as well as property overhang. In addition, results from their study reveal that safety and security, cost of maintenance, noise and nuisance, possibility of future modification and waste disposal issue were the major factors of design requirement.

2.5 Location Factor

Location factor mainly refers to the strategic location of the affordable housing that gives convenience to the occupants in getting to nearby shops, mall, hospital, school, park, police station, authorities and working place to conduct their regular activities. According to KRI (2015), locational aspect of housing influence directly to labour mobility, thus impacting the human capital, economic growth and productivity of the area under review. Besides that, according to Tan (2011), an integrated amenities provide healthy living, learning, work and play has a better demand in functionality as it is more cost-effective living in a well-connected neighbourhood. One reason could be due to the common areas and amenities allow the community to perform their day-to-day social activities. The research also found out that location is a significant aspect affecting house price determinant given that there were significant connection between property price and distance to workplace, hospital and public transport. However, in despite the close relationship between the location of the affordable housing and property price, the property price not necessary higher due to strategic location of the housing, as certain affordable housing scheme such as PR1MA, RUMAWIP and Rumah Selangorku scheme provide affordable homes in urban cities of which the houses are priced ranges from RM52,000 to RM400,000 (KRI, 2015). Notwithstanding the above, the right location for property development is the key component for a successful project as location is the homebuyers' key concern of selecting and buying houses (Mastura et al., 2015).

2.6 Accessibility Factor

Accessibility factor is mainly represents the availability and connectivity of public transport and expressway. According to Moorthy and Jeronn (2014), residential properties in the vicinity of public transportation were well sought after due to the convenience to travel to their desire destination within a relative short period of time. Nevertheless, most of the affordable housing were situated far from the business district, hence coupled with poor public transportation network, occupants

has to spend more commuting time and travel cost to fulfil travel needs (Abdullateef & Tan, 2017).

2.7 Neighbourhood Factor

Neighbourhood factor emphasizes on the social concern over the occupant's harmony, health, privacy, lifestyle and secure living within the communities. Typically, the homebuyer would search for common interest and culture of the residents as well as the environment qualities within a development in considering for purchase of a home (Tan, 2011). According to Hanafi et al. (2018), an ideal community living coupled with free of crime neighbourhood offer sustainable satisfaction and promote social qualities of the occupants.

2.8 Developer's Attributes

A brand is a recognisable identity including name, logo and symbol which distinguish itself from products and services by competitors (Aaker, 1991). The author also further explained that the concept of brand equity is assets or liabilities attached to the brand itself which can be further categories into brand loyalty, brand awareness, perceived quality and brand association. Research by Jalilvand et al. (2011), asserted that these components need to be deliberated carefully in developing the brand equity of a product, as it can influence the buyer's purchase decision significantly. In generally, developer's name is a brand itself. The branding and reputation of developer developed over time through the delivery of products and services by the company, gives certain perception and expectation to the homebuyer on its quality, experience and their distinct capabilities. According to KPKT (2021), a 'sick' project is a project that delay by 30% from the expected completion date or after the expected date of completion in accordance to the sales and purchase agreement. In addition, minister also reported that there were 367 sick projects in Malaysia as at 30 April 2021. As in Cheng and Cheok (2008) study shows that homebuyers are brand conscious, hence it is expected the developer's

sick project may influence the homebuyers' purchase decision in the developer's future projects due to of its infamous brand image. In Yap et al. (2019) study evidenced that the homebuyer has a higher tendency to own their home from prominent developer in contrast to a less known developer due to its perceived value and quality.

In some cases, developers create a line of development products with similar concept, quality and design to differentiate its product from their competitors such as PR1MA by Perbadanan PR1MA Malaysia, Eco series by EcoWorld group and M Series by Mah Sing Group. As a result of eminent reputation status, the branding strategy gives a competitive advantage to the company which encourage the homebuyers in their purchase decision (Yap et al., 2019).

2.9 Theoretical Framework and Hypotheses

Based on the discussion earlier, the hypotheses are as follows:

H1: Housing affordability has an impact on influencing B40 and M40 income group buying decision towards an affordable house in Malaysia

H2: Building factor has an impact on influencing B40 and M40 income group buying decision towards an affordable house in Malaysia

H3: Location factor has an impact on influencing B40 and M40 income group buying decision towards an affordable house in Malaysia

H4: Accessibility factor has an impact on influencing B40 and M40 income group buying decision towards an affordable house in Malaysia

H5: Neighbourhood factor has an impact on influencing B40 and M40 income group buying decision towards an affordable house in Malaysia

H6: Developer's attributes has an impact on influencing B40 and M40 income group buying decision towards an affordable house in Malaysia

Based on the hypotheses, the theoretical framework is as follows:

Figure 2.6 Theoretical Framework
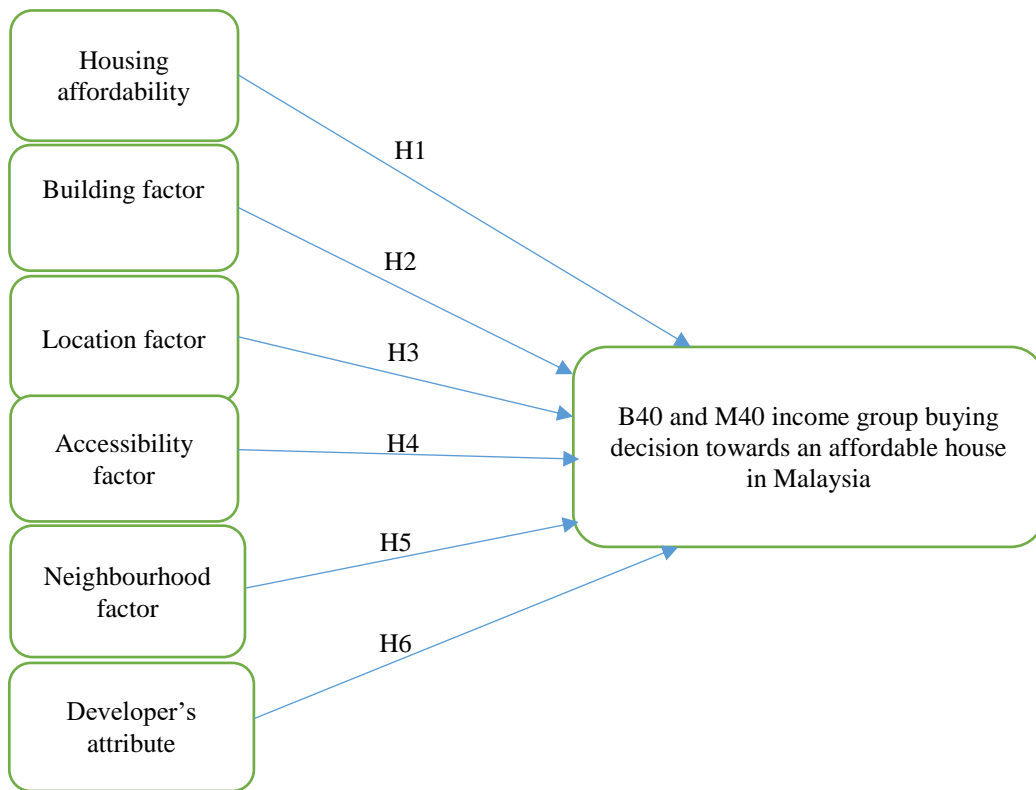
CHAPTER 3

3.0   RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss on the research design, population, sampling design, survey instruments, descriptive statistic and data analysis methods to achieve the objectives of this study.

3.2 Research design

According to Dawson (2002), research methodology is the philosophy or general principles that form as a guide in the research study. Research philosophy emphasizes on the development of knowledge and the nature of this information which categorise into four types according to the Saunders et al. (2012) research 'onion', namely positivism, realism, interpretivism and pragmatism. In view of the relevance and nature of this study, positivism is the most suitable approach which assume a scientific approach to the development of the knowledge. According to Saunders et al. (2012), positivism is an epistemological position which support the idea derived from observable social reality within a highly structured methodology with large samples in replicating of knowledge resulting a law-like generalisation similar to physical and natural scientists.

In addition, this study will be conducted using a deductive approach for theory development whereby theory or hypotheses are identified through literature review to develop a theoretical framework (as discussed in Chapter 2.9), prior to collection of data to test the hypotheses for theory falsification or verification. A deduction approach involves highly structured methodology to facilitate replication to ensure reliability which is quicker to complete in comparison to an inductive

approach (Saunders et al., 2012). As recommended by the authors, an inductive approach is more suitable in understanding the reasons why something is happening while a deductive approach is more appropriate to describe what is happening. Likewise, a deductive approach was more suitable to be used in this research as this study aim to find out the major contributing factors influencing the B40 and M40 income group buying decision towards an affordable house priced at RM300,000 or below in Malaysia. In addition, this study also investigate if housing affordability is the major factor influencing such buying decision and what are the other factors also influencing the home buying decision. Accordingly, a thorough review of existing literature related to affordable housing, property overhang, B40 and M40 income group as well as possible factors contributing to the home buying were performed to develop a theoretical framework and hypotheses focusing on research question and objectives. Thereafter a set of data collection will be collected and analyse to decide on acceptance or rejection of the hypotheses. In the event the hypotheses were rejected, a possible reasons or speculation will be given and discussed. Likewise, any implication and recommendation will be given accordingly.

Generally, there are three types of methodological choice of research design, namely quantitative, qualitative and multiple methods, in which the quantitative research deal with numerical data while the qualitative research deal with non-numerical data such as words, image and video; and as for multiple methods is a mixture of both method (Saunders et al., 2012). A quantitative research is principally connected to positivism that adopted a predetermined and highly structured data collection methods such as survey questionnaire while a qualitative research is for data collection method such as unstructured interview. In addition, a quantitative research generally often relates to deductive approach as the main concern is relying on data collected to prove a hypothesis and analyse the relationships between numerical variables with statistical techniques. Consistently, a quantitative research had been chosen to use in this study due to the similarities of characteristic in this study and descriptive in nature.

3.3 Population

The DOSM (2020a) estimated the population for Malaysia at approximately 32.6 million and number of household of 7.3 million in year 2019. In the context of this study, B40 and M40 income group is the population of the middle 40% and bottom 40% household group according to their median household income. In other words, the B40 and M40 income group represented 80% of the 7.3 million household, thus in the context of this study, the population size is 5.8 million.

3.4 Sampling Design

Conducting a survey based on the entire population is not practical due to time and cost constraint, alternatively data were collected from a sufficient sampling size were adequately to generalise statistically the conclusion of the findings (Saunders et al., 2012). According to Saunders et al. (2012), there were two types of sampling techniques, namely the probability and non-probability sampling techniques. In the event there is no sampling frame available, a probability sampling technique cannot be used, thus the non-probability sampling technique will be use in this case. The major difference between the sampling techniques is that in probability sampling, all the segments within the population has possibilities of being chosen while the non-probability sampling does not have (Sekaran & Bougie, 2016). In the context of this study, there were no sampling frame made available, therefore a non-probability sampling techniques were used in this study. According to Sekaran and Bougie (2016), there are two types of non-probability sampling, which is convenience sampling and purposive sampling (such as judgment sampling and quota sampling). A convenience sampling refers to sampling technique that collect data from willing volunteers within the population and conveniently available to participate the research. This study uses convenience sampling technique to reduce time and cost to administer the survey as well as appropriate when details of the population size is not available. Notwithstanding that the study findings through convenience sampling may not be generalisable to the population of interest, but

with sufficiently large sample size, the findings can represent the population (Sekaran & Bougie, 2016).

Sample size is determined in consideration of research objectives, the extent of precision, confidence level, variability and size of population, and time and cost involved in which 30 to 500 samples are appropriate for most research (Sekaran & Bougie, 2016). Hair et al. (2014) recommended sample size of 200 or more may reduce the detrimental effects of non-normality to negligible and minimum of 100 samples if conducting a factor analysis. Hence, consistent with the recommendations, this study target to collect minimum 200 samples. The targeted respondents for this research are Malaysian working adults aged 20 and above which fall within the B40 or M40 income group. The targeted respondent will split into 2 group of equal 100 samples each, whereby one group will be those households' residential unit value more than RM300,000 and another is lesser than RM300,000. This is to investigate whether is there were any significant difference in their importance rating.

The data collection can be collected just once or over a period of time to obtain the answer to the research questions (Sekaran & Bougie, 2016). In the context of this study, the time horizon uses a cross-sectional study in view of its suitability. In a cross-sectional study, it enable the research to be made on a particular phenomenon in a given time of which the data collection are gather over one day, a period of days, weeks or months (Sekaran & Bougie, 2016). Accordingly, in relation to this study, the questionnaires was sent out and gathered over a period of two weeks.

3.5 Survey Instruments

This study collect its data through survey questionnaire which allow collection of standardized quantitative data for analysis from a large sample size in an economic way and allow easy comparison. The appropriateness of data collection technique using questionnaire is consistent with Saunders et al. (2012) recommendation as questionnaire is suitable for descriptive research of which if undertaken using an opinion questionnaire enable to discover and explain variability within different

phenomena. In addition, analysing the data of research are able to examine the hypotheses (in Chapter 2.9) and explain the relationships between the variables.

The design of the questions and answers can be in open-ended or closed-ended (Saunders et al., 2012). In an open-ended questions, it give room to respondent to answer whatever or whichever way they preferred. However, in contrast to closed-ended questions, the respondent is restricted to a predetermined answer which is faster and easier to answer as well as ease of comparison amongst the respondents' answer. The authors further elaborated that there were six types of closed-ended questions, namely the list, category, ranking, rating, quantity and matrix. In the context of this study, only list, category and rating closed-ended questions will be used. The questionnaire were self-administered questionnaire using closed-ended questions whereby each respondent was required to answer to a set of questions in a predetermined order including their relevant particulars. Nevertheless, according to Saunders et al. (2012), in replicating or comparing the results of another similar study, the principles of adopt and adapt can be use. However, it is worth noting that before adoption of certain questions from another study, it is important to assess the questions prior use, due to massive number of poor questions. The language used in the questionnaire was in English as it is universally understood among the respondent. The survey were administered by leveraging on the internet by duplicating the same set of questionnaire into Google Forms and send out to respondent accordingly. The use of Google Forms were enable the questionnaires to reach respondent from all over Malaysia in a low cost and efficiently.

An appropriate questionnaire design is crucial to answer research questions in meeting the research objectives (Saunders et al., 2012). Accordingly, all constructs and measurement variables were determined through review of relevant literatures to enable data obtained from valid questionnaire accurately measure the concepts of this study as shown in Table 3.1. Apart from that, the authors also mentioned that the questionnaire design can impact the response rate, as well as the reliability and validity of the data collected. However, these concern can be minimized by deliberated design of the questions, proper layout, clear explanation, pilot testing and coordinate diligently on the distribution and collection of questionnaire.

Table 3.1 Constructs and Measurement Variables

Constructs	Measurement variables	Author
Housing affordability	- Household income - Property price - Interest rate of the loan - Availability of loan - Ability to provide down payment - Recurring cost	Abdullateef & Tan, 2017; Yap & Ng, 2018; Hassanudin & Chandra, 2016; Cheah & Almeida, 2017
Building factor	- Type of property - Built-up size - Number of bedrooms and bathrooms - Sufficient parking space - Aesthetic views - Facilities	Abdullateef & Tan, 2017; Hassanudin & Chandra, 2016
Location factor	- Building location - Nearby healthcare centres - Nearby shopping mall, shops or market - Nearby government agencies	Abdullateef & Tan, 2017; Hassanudin & Chandra, 2016
Accessibility factor	- Accessibility to working place - Availability of public transportation - Availability of expressway - Traffic congestion	Abdullateef & Tan, 2017; Hassanudin & Chandra, 2016; Hanafi et al., 2018
Neighbourhood factors	- Crime rate - Good security - Density - Friendly neighbourhood - Clean and green environment - Available of recreational and sporting facilities - Privacy - Away from hazardous and industry facilities	Hanafi et al., 2018
Developer's attributes	- Brand loyalty - Brand awareness - Perceived quality - Brand association - Background and reliability of property developer - After sale service quality	Aakers, 1991; Jalilvand et al., 2011; Yap et al., 2019; Hassanudin & Chandra, 2016

The questionnaire is separated into three sections of which all questions and answer are pre-coded for easy reference and facilitates data input. In section 1 is the list questions and category questions on the respondent's particular and demographic. In section 2 are rating questions which uses a five-point rating scale of Likert-style that required the respondent to give their opinion on the importance of each measurement variables according to the following scale:-

1) Very low important
2) Low Important
3) Important
4) Very important
5) Extremely important

In section 3 of the questionnaire is also a rating questions which comprise of similar five-point rating scale of Likert-style that required the respondent to give their opinion on their intention to purchase a house under affordable housing scheme according to the following scale:-

1) Strongly disagree
2) Disagree
3) Neutral
4) Agree
5) Strongly agree

A pre-testing and pilot test were conducted on the questionnaire up to 30 respondents including expert and experienced personnel in the industry to refine the questions as well as identify error such as bias question, double-barrelled questions or leading questions. After making sure the questions had no problem for the respondent to answer and no problem of data collection, hence the questionnaire thereby be finalised as set out in Appendix B and distributed accordingly together with Personal Data Protection Statement at the same period.

3.6 Descriptive Statistic

Descriptive statistic enable this study to examine and explain variables numerically, with the main concern on central tendency and dispersion (Saunders et al., 2012). Accordingly to Saunders et al. (2012), in describing the data quantitatively in terms of commonalities, middling and average the central tendency were measure in mode, median and mean. Mode is the frequently occurs value, median is the middle value after been arrange in sequence while mean is the average value. Apart from that, the authors also elaborated that the median is a neutral central tendency since it cannot influence by the extreme values within the distribution while the mean can be affected by extreme values, hence it is more useful to look into median in descriptive statistics. In measuring the dispersion of data around the central tendency, two most frequently used method are inter-quartile range and standard deviation. According to Hair et al. (2014), range refers to the extreme values in a sets of observations while standard deviation is a measure of the dispersion, mainly the interval and ratio data to obtain an index of the spread of a distribution.

The quantitative data collected from the survey were categories into categorical data and the numerical data. The categorical data refer to data which has no value but can be classified into different categories based on its characteristics and rank order (Saunders et al., 2012). In specific, the categorical data were further classified into nominal data and ordinal data In reference to the questionnaire of this study, nominal data are such as gender, ethnicity and marital status of which the data mainly be analyse by its mode and number of occurrence. Ordinal data collected in the questionnaire used were such as academic qualification and the importance of determinants in section 2 of the questionnaire. The ability of ordinal data to rank accordingly enable it to be analyse by its median, in addition to mode and number of occurrence.

The numerical data refer to data with value and further categories into interval data and ratio data of which both were mainly analysed by its mode, median, mean, minimum, maximum, standard deviation and number of occurrence (Saunders et al., 2012). As numbers can be assigned to each of the data value using a numerical scale, the numerical data is more precision in comparison to categorical data and has a wide range of use in statistics. As suggested by the authors, the

numerical data can either categories as interval data or ratio data. An interval data refer to numerical data that cannot be measured its relative differences but the interval (differences) between two data values can be stated. In contrast, the ratio data were able to compute for their relative difference between two data values.

3.7 Analysis Method

The quantitative data collected from the survey must be processed and analysed to turn it into useful information (Saunders et al., 2012). This study will leverage on IBM SPSS Statistics version 22 (SPSS) and Microsoft Excel 2013 (Excel) software to explore, present and examine the relationships of the data. However, before analysing the data, there were several preliminary steps as recommended by Sekaran and Bougie (2016) to ensure the accuracy, completeness and suitability of data for further analysis. First of all, before data entry into the SPSS, all the questions and answers in the questionnaire were pre-coded as mentioned earlier to facilitate ease of data checking and data input. Only after the pre-coding were performed, the raw data can be entered into the software accordingly. After the data entry were completed, the data were checked and follow up to detect inconsistent, illogical, illegal or omission data. An outlier data is an example of illogical response that must be eliminated from analysing as it will impact the results of analysis such as mean. Generally, an outlier refer to an observation substantially different from other observations. However, as explained by the authors, an outlier is not necessary an error, and as outlier has a significant impact on the research results, it is important to investigate diligently. The authors also suggested that an outlier can be detected by checking on the dispersion of nominal and ordinal variables (by obtaining the minimum and maximum data values and number of occurrence). Alternatively, SPSS software also provide such detection capability via box plot function, whereby extreme values will be single out to suggest for elimination. A detail explanation on the outlier detection and treatment is presented in Chapter 4.

Reliability of a measure is principally refer to the examination for internal consistency as well as stability (Sekaran & Bougie, 2016). In testing the reliability of the measure, Cronbach's coefficient alpha was used as a measurement of internal

consistency of the designed questionnaire with value between 0 and 1 (Saunders et al., 2012). Internal consistency mentioned here is refer to the correlation between different questions' responses/answer from the respondent on the survey questionnaire. Generally, this statistic measure the internal consistency of the answer from the respondent on the scale items which will be group into a scale to check on a particular factors or concept. The values derived from the alpha coefficient is between 0 to 1, whereby in the event the calculated value were at threshold value of 0.70 or greater, advocate the questions combine within the scale was examining the same variable/factor/concept. Thus, it measure how reliable is to group several items together within a variable. As the Cronbach's coefficient alpha results approach to 1, internal consistency reliability is higher which also indicate the different items grouped together in a set have high positive correlation (Sekaran & Bougie, 2016). However, in the event the Cronbach's coefficient alpha was less than threshold of 0.70, a further investigation into the items to identify which is the item lowly correlated that required to remove from the set. Notwithstanding that by removing the contributing item from the set can improve the reliability of measure, however according to Sekaran and Bougie (2016), the validity of the measure can be affected in a negatively. Apart from that, the authors also suggested that all negatively worded responses in the questionnaire must be reverse accordingly before inserting into the system for Cronbach's coefficient testing to ensure the items were measure in the same direction, or else the values derived will be incorrect. Hence, in the context of survey questionnaire being used, all the questions and answers were positively worded accordingly. The reliability test result using Cronbach's coefficient will be reported in Chapter 4.

In a quantitative research, it tests the relationship between variables numerically and analyses using different statistical techniques (Saunders et al., 2012). In assessing the internal validity of the questionnaire, it refers to testing whether the questionnaire measure what it is intended. The validity test rely on construct validity that shows the appropriateness of the results from the measure fit in the theoretical framework (Sekaran & Bougie, 2016). The construct validity was assessed through convergent validity, in which scores obtained suggest two different instruments measuring the identical idea are high correlation and through discriminant validity, to predict two variables were uncorrelated. According to Sekaran and Bougie (2016), validity measure can be obtained using correlational

analysis, factor analysis and multimethod matrix of correlation. Nevertheless, this study performed factor analysis, which is a multivariate technique that check on the dimensions of an idea and indicate which items fit appropriately into the dimension through establishing construct validity. According to Hair et al. (2014), the multivariate technique analyse the interrelationships among number of variables and to explain the variables in terms of its commonalities. Those highly inter-correlated variables or factors were assume to represent dimensions within the data. Likewise, factor analysis is appropriate in exploratory and confirmatory perspective. Nevertheless, in assessing the appropriateness of applying a factor analysis, correlations among the variables should be justifiably high enough. Bartlett's test of sphericity was performed to test statistically the overall significance of all correlations among dependent measures within a correlation matrix to determine the suitability of factor analysis (Hair et al., 2014). Generally, the techniques determine the statistical significance that shows significant correlations among different variables in the correlation matrix. The ideal Bartlett's test results is significance less than 0.05 shows that the correlations sufficiently exist among different variables to proceed further. In quantifying the extent of inter-correlation among the variables as well as the appropriateness of applying factor analysis, Kaiser-Meyer-Olkin's measure of sampling adequacy (KMO) was conducted. The values derived from the test ranges from 0 to 1, whereby the rule of thumb is in the event values above 0.50 indicate the entire matrix or the individual variable were appropriate. Hence, variables with value lower than 0.50 shall be eliminated from factor analysis accordingly. Nevertheless, according to a research by Kaiser and Rice (1974), the results of KMO test can further be ranked as shown in Table 3.2. According to Hair et al. (2014), a higher value indicate a strong inter-correlation and the value will be higher if sample size increases, average correlation increases, number of variables increases and number of factors decreases. The KMO index for this study will be revealed in Chapter 4.

Table 3.2 KMO Index and Description of Sampling Adequacy

KMO Index	Description
0.90	Marvelous
0.80	Meritorious
0.70	Middling
0.60	Mediocre
0.50	Miserable
Below 0.50	Unacceptable

Source: Kaiser & Rice, 1974

After reliability and validity test were conducted, the data will run a factor analysis to group similar variables measuring the same component or factor. Hence, each factors will consist of few variables and a suggested name will be given to each factors based on the similarities and significance of among the variables. Thereafter, similar test on reliability and validity will be run on each factors and a rank order based on highest mean will be generated on the factors to measure the importance of each factors in influencing the B40 and M40 income group purchase decision of an affordable housing in Malaysia. Since in the section 2 of the questionnaire required the respondents to rate the importance of each variables from scale of 1 to 5, thus the closer of the mean to value of 5 also indicate the higher the importance of the variables.

This study also uses a Spearman's correlation to examine if all the determinants were correlated and its strength between the variables. According to Sekaran and Bougie (2016), Spearman's correlation is particularly appropriate when variables were ordinal data such as those ordinal data in section 2 of the questionnaire. Generally, the Spearman's correlation suggested threshold of not exceeding 0.80, whereby results of more than 0.80 indicates both variables were measuring similar factor. However, if the results obtained was below 0.20 indicates the constructs were not meaningfully related.

Lastly, one sample t-test were conducted to test the alternative hypotheses as discussed in Chapter 2.9 to determine whether the alternative hypotheses should be accepted and null hypotheses be rejected, or vice versa. For each factor, the null hypothesis represented that the factor will not have an impact on influencing B40 and M40 income group buying decision towards an affordable house priced at RM300,000 or below in Malaysia ($H_0: U = U_0$) while the alternative hypothesis was

of that the factors will have an impact (H_α: $U > U_0$). In the context of this study, U_0 is the population mean and the critical level was fixed at 3.5. Factor with p-value of less than .05 which means the factor are statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

3.8 Results Presentation and Interpretation

Upon obtaining the results from data analysis, the findings will be interpreted in narrative form with the use of suitable table and graph to present the results effectively. In addition, relevant statistical results will also be discuss and explain on its relationship and implication in the context of this study.

3.9 Conclusion

The research design, population size, sampling design, survey instruments, descriptive statistic and data analysis methods use in this study were appropriate as discussed earlier. Thus, it is expected the methodology use can achieve the objectives of this study.

CHAPTER 4

4.0 FINDINGS AND DISCUSSION

4.1 Introduction

This chapter report and discuss on the findings obtained from the data analysis stage. A brief interpretation of the results will be given together with the use of suitable table and graph to present the results effectively.

In the first part of the chapter, it discusses the respondents' profile. Second part of the chapter analyses the data in determinant factors influencing the B40 and M40 income group homebuyers' decision towards affordable housing. Subsequently, it will discuss exclusively on the purchase intention of affordable housing as questioned in the survey questionnaire. The final part of the chapter will focus on the findings and relationship between the influencing factors and affordable housing purchase intention among B40 and M40 income group.

4.2 Respond Rate of the Survey and Outlier

A total of 346 survey questionnaires were distributed through Google Form and all were returned without any missing unanswered questions. This represent a 100% response rate which is considered sufficient for the purpose of this research. However, the reply of the respondents has to be filtered to eliminate unusable sample due outlier. According to Sekaran and Bougie (2016), an outlier is primarily a particular data that is significantly different from the rest of the data from other samples. Nevertheless, the authors also reiterate that an outlier is not necessary an error, however further inspection has to be carried out before eliminating the outlier to ensure the data used in the study correctly represents the results of the finding. This process was carried out using detail scrutiny and use of SPSS box plot function

to detect any unusual respond which is deem as extreme values that might affect the results of the research. According to Saunders et al. (2012), a box plot function helps to identify which sample has values which is different from the other data over the tolerate threshold and this incident is primarily due to mistakes in data entry. In this study, there were 42 samples was dropped out due to present of outliers, thus the total collected samples usable were reduced to 304 samples. Nonetheless, the number of samples used of 304 samples were still above the minimum 200 samples as recommended by Hair et al. (2014) which may reduce the detrimental effects of non-normality to negligible and minimum of 100 samples if conducting a factor analysis.

4.3 Respondent Demographical Profile

In section 1 of the survey questionnaire, there were 15 categorical questions raised to understand the demographical profiles of each respondent. Among others, the respondents were required to fill in particulars of their age range, gender, ethnicity and highest academic level. In order to understand more of their family members or housemate living within the same house, the questionnaire also include questions such as number of members living in the house, availability of motor vehicles within household as well as any of the members use public transportation to work. In addition, the questionnaire also has questions on distance from home to work place and distance from home to nearest available public transport such as public bus and train. In addressing the particulars of the respondent's house, questions were asked on the type of house, built up size and average market value. The final demographical questions was whether the respondent own or rent the house and what is the monthly household income.

4.3.1 Age

Figure 4.1 Respondents' Age Distribution
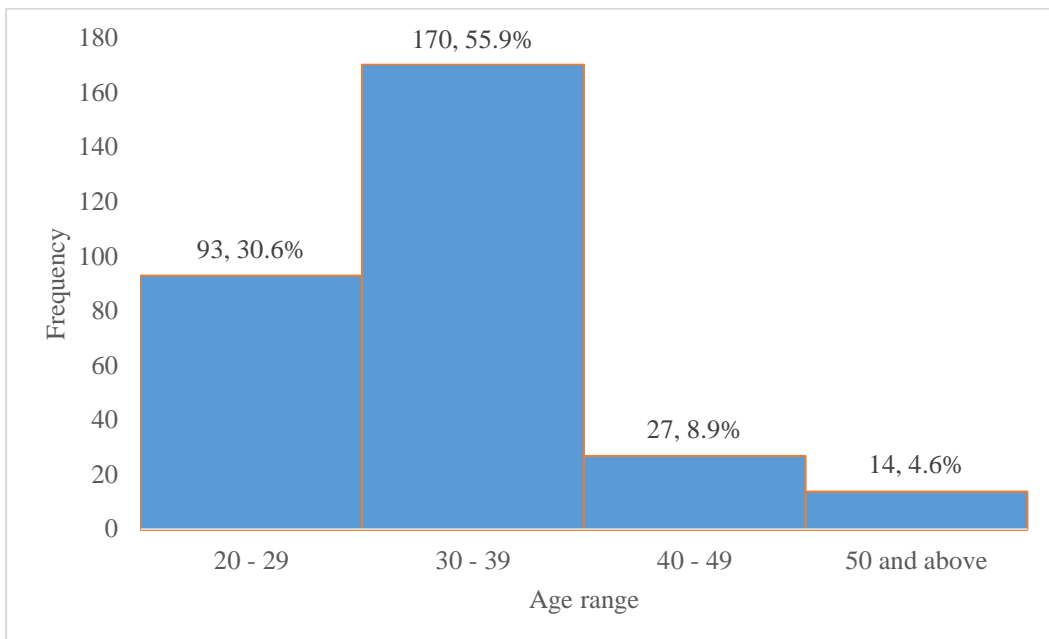
In Figure 4.1 display that there were 93 respondents at the age range of 20 to 29 years old and a significant number of 170 respondents was from the age range of 30 to 39 years old. The graph also shown that a smaller number of respondents were from the age group of 40 to 49 years old and 50 and above of 27 persons and 14 persons respectively. For the purpose of this study, it is appropriate to have a substantial respondents of 86.4% from the age range of 20 to 39 years old, as this is the age range whereby the homebuyer will typically begin to join the workforce, formed a household and purchase their dwelling.

4.3.2 Gender

Figure 4.2 Respondents' Gender Distribution
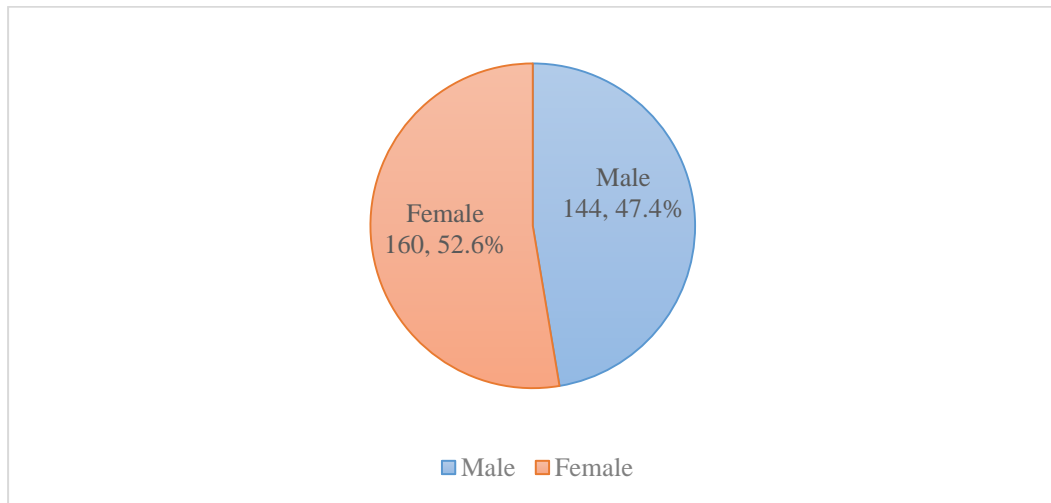
As shown in Figure 4.2, the respondents were relatively distribute among the respondents' gender whereby the female comprises of 160 persons or 52.6%, while male comprises of 144 persons or 47.4%. This study sample indicates that the findings may prone to female perspective and not representing Malaysia population in which male is dominant in the total population. Interpretation of findings need to be conducted with due diligent.

4.3.3 Ethnicity

Figure 4.3 Respondents' Ethnicity Distribution
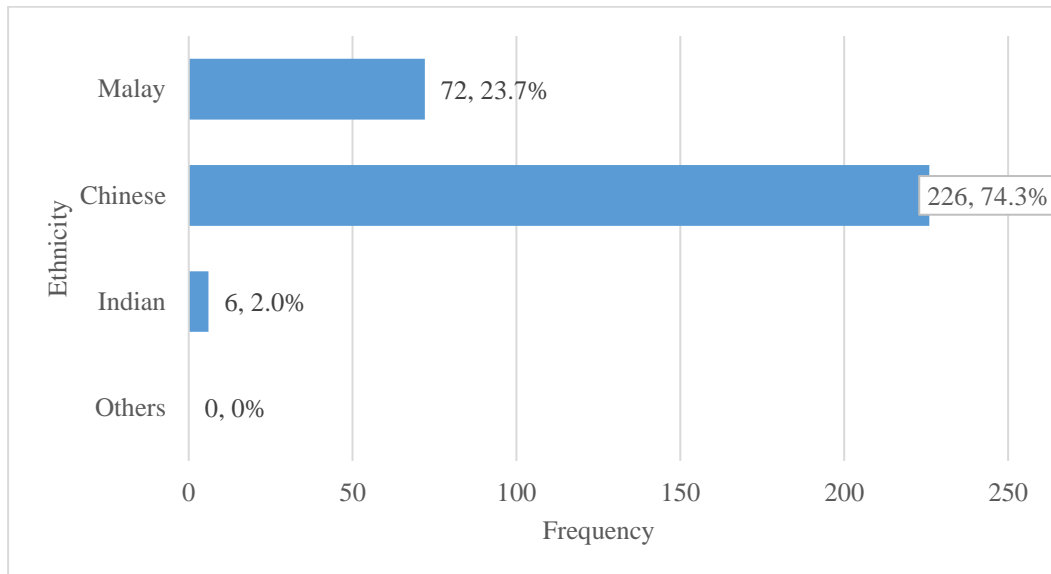
The ethnicity profile of the respondents in this study were mainly Chinese with 226 persons or 74.3%. Whereas the Malay respondents comprise of 72 persons or 23.7% and Indian respondents were minimal of 6 persons or 2.0%. This statistic further acknowledge the needs of interpreting the output carefully.

4.3.4 Marital status and number of members living in the house

Table 4.1 Cross Tabulation of Distribution between Marital Status and Number of Members Living in the House

| | | | Members | | | | | |
			1	2	3	4	More than 4 persons	Total
Marital	Single	Count	13	29	22	15	11	90
		% within Marital	14.4%	32.2%	24.4%	16.7%	12.2%	100.0%
	Married	Count	0	28	59	67	55	209
		% within Marital	0.0%	13.4%	28.2%	32.1%	26.3%	100.0%
	Divorced	Count	0	2	2	0	1	5
		% within Marital	0.0%	40.0%	40.0%	0.0%	20.0%	100.0%
Total		Count	13	59	83	82	67	304
		% within Marital	4.3%	19.4%	27.3%	27.0%	22.0%	100.0%

As shown in Table 4.1, the marital status of the respondents were majority married with significant 209 persons while the remaining were single and divorce of 90 persons and 5 persons respectively. On the other hand, the number of members living in the house were mainly 2 to more than 4 persons as the data shown each segment were in the range of 19.4% to 27.3%. In the cross tabulation table, it is noted that household with married status were mainly 3 to more than 4 persons with a significant cumulative 86.6% of the married respondents.

4.3.5 Highest Academic Level

Figure 4.4 Respondents' Highest Academic Level Distribution
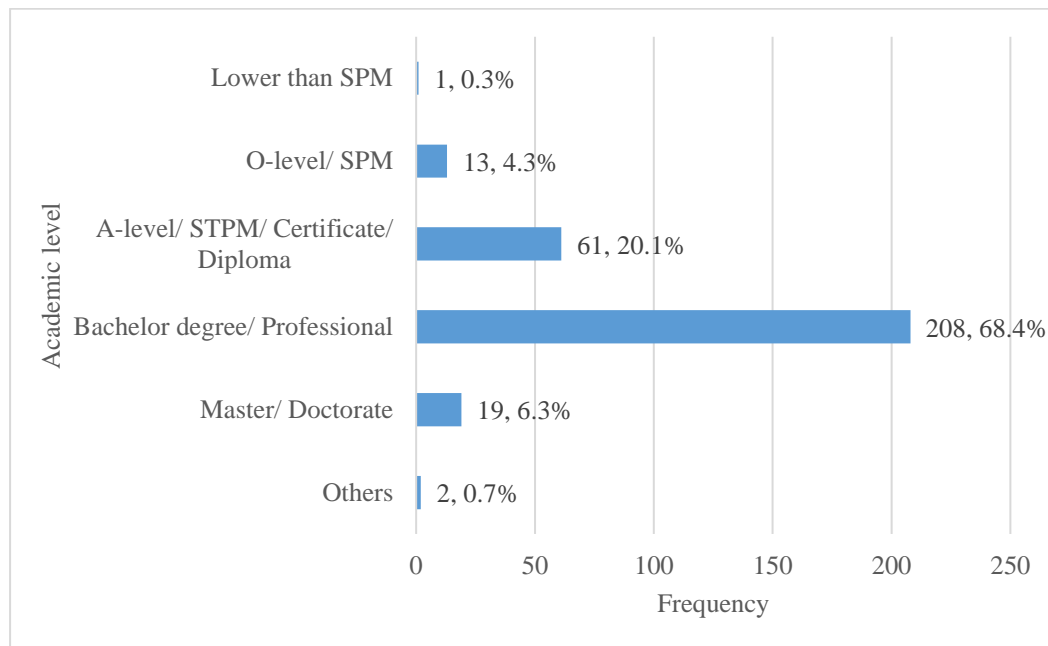
In Figure 4.4, it is noted that 208 persons or 68.4% of the respondents had bachelor degree/ professional qualification as their highest academic level. Respondents with highest academic level at A-level/ STPM/ certificate/ diploma were 61 persons and those master/ doctorate holders were 19 persons. The sample also comprises minimal number of O-level/ SPM and others of 13 and 2 persons respectively.

4.3.6 Availability of Motor Vehicle at Home and Use of Public Transportation to Work

Table 4.2 Cross Tabulation of Distribution between Respondents Who has Motor Vehicle at Home and Use of Public Transportation to Work

			Public transport		Total
			Yes	No	
Motor vehicle	Yes	Count	69	219	288
		% within Motor vehicle	24.0%	76.0%	100.0%
	No	Count	11	5	16
		% within Motor vehicle	68.8%	31.3%	100.0%
Total		Count	80	224	304
		% within Motor vehicle	26.3%	73.7%	100.0%

Table 4.2 shows that there were 288 respondents or their family members have motor vehicle at home and only 16 persons do not have any. Among the respondents, only 80 or 26.3% of the respondents use public transportation to their work place whereby a significant amount of 73.7% drove to their work place. In the cross tabulation, it is noted that there were 69 persons of the respondents use public transportation to their work place notwithstanding having motor vehicle at home. Apart from that, there were 5 respondents who did not have motor vehicle at home and also do not use public transportation.

4.3.7 Distance to Work Place and Nearest Public Transportation Infrastructure

Table 4.3 Cross Tabulation of Distribution between Distance from Home to Work Place and Distance from Home to Nearest Public Transportation Infrastructure

		Public transport distance					Total
		Less than 5KM	5 - 10KM	11 - 15KM	16 - 20KM	More than 20KM	
Less than 5KM	Count	17	2	0	0	1	20
	% within Work distance	85.0%	10.0%	0.0%	0.0%	5.0%	100.0%
5 - 10KM	Count	63	6	2	0	0	71
	% within Work distance	88.7%	8.5%	2.8%	0.0%	0.0%	100.0%
11 - 15KM	Count	89	2	2	0	0	93
	% within Work distance	95.7%	2.2%	2.2%	0.0%	0.0%	100.0%
16 - 20KM	Count	56	5	0	0	0	61
	% within Work distance	91.8%	8.2%	0.0%	0.0%	0.0%	100.0%
More than 20KM	Count	41	11	4	3	0	59
	% within Work distance	69.5%	18.6%	6.8%	5.1%	0.0%	100.0%
Total	Count	266	26	8	3	1	304
	% within Work distance	87.5%	8.6%	2.6%	1.0%	0.3%	100.0%

In Table 4.3, it is noted that respondents with distance from home to work place of 5 to 10 KM and 11 to 15 KM range were 71 and 93 persons respectively, while 16 to 20 KM and more than 20 KM distance range were 61 and 59 persons respectively. Respondents with less than 5 KM distance from home to work place is the lowest

of 20 persons. Meanwhile, distance from home to nearest public transportation infrastructure of bus or train services such as Keretapi Tanah Melayu (KTM), Light Rail Transit (LRT) and Mass Rapid Transit (MRT), there were significant 266 respondents or 87.5% recorded a distance of less than 5 KM. In the cross tabulation table, it is noted that there were 208 respondents' distance from home to work place was within 5 to 20 KM and distance from home to nearest public transportation infrastructure was within 5 KM.

4.3.8 House Type and Built Up Size

Table 4.4 Cross Tabulation of Distribution between Respondents' House Type and Built Up Size

			Built up size				
			Less than 500 SF	500 - 999 SF	1,000 - 1,499 SF	1,500 SF and above	Total
House type	Landed	Count	0	9	63	41	113
		% within House type	0.0%	8.0%	55.8%	36.3%	100.0%
	High rise	Count	2	81	97	11	191
		% within House type	1.0%	42.4%	50.8%	5.8%	100.0%
Total		Count	2	90	160	52	304
		% within House type	0.7%	29.6%	52.6%	17.1%	100.0%

In Table 4.4 presented on the respondents' living residences, there were 191 respondents living in high rise such as flat, condominium or apartment and 113 respondents living in landed properties such as terrace house or semi-detached house. It is also reported 55.8% of the landed properties built up size range from 1,000 to 1,499 square feet (SF) and 36.3% of the landed properties built up size range from 1,500 to 1,499 SF. As for the respondents living in high rise, there were 42.4% and 50.8% of the respondents' house built up size range of 500 to 900 SF and 1,000 to 1,449 SF respectively. In addition, it is noted that 160 respondents or 52.6% of the total respondents living in home with 1,000 to 1,499 SF built up size.

4.3.9 Average Market Value of House

Figure 4.5 Respondents' Average Market Value of House Distribution
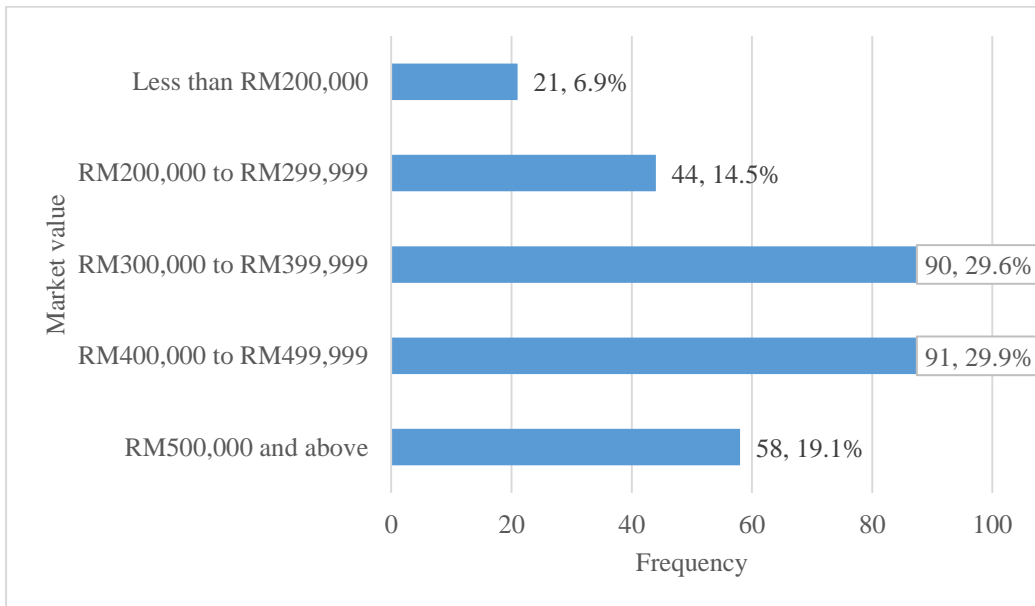
In the questionnaire, the respondents were also asked to reveal the average market value of their current residential unit. In Figure 4.5, the graph shown that majority of the respondents' house market value were at RM300,000 to RM399,999 and RM400,000 to RM499,999 of 29.6% and 29.9% of the respondents respectively. In addition, there were 58 respondents or 19.1% and 44 respondents or 14.5% of the respondents' house market value at RM500,000 and above, and RM200,000 to RM299,999 respectively. Houses with market value of less than RM200,000 is the fewest among other value range of 6.9% of the total respondents.

4.3.10 Household Income and Rent or Own

Table 4.5 Cross Tabulation of Distribution between Family Income and Rent or
Own

| | | | Own/Rent | | |
			Own	Rent	Total
Family income	Less than RM2,000	Count	1	3	4
		% within Family income	25.0%	75.0%	100.0%
	RM2,000 - RM3,999	Count	3	28	31
		% within Family income	9.7%	90.3%	100.0%
	RM4,000 - RM5,999	Count	26	49	75
		% within Family income	34.7%	65.3%	100.0%
	RM6,000 - RM7,999	Count	43	30	73
		% within Family income	58.9%	41.1%	100.0%
	RM8,000 - RM9,999	Count	42	10	52
		% within Family income	80.8%	19.2%	100.0%
	RM10,000 and above	Count	62	7	69
		% within Family income	89.9%	10.1%	100.0%
Total		Count	177	127	304
		% within Family income	58.2%	41.8%	100.0%

As tabulated in Table 4.5, there were only 4 respondents monthly household income
at below RM2,000 and 31 respondents' monthly household income at RM2,000 to
RM3,999. Monthly household income of RM4,000 to RM5,999 and RM6,000 to
RM7,999 has the highest respondents in the study as there were 75 and 73
respondents respectively. In addition, there were 52 respondents having monthly
household income of RM8,000 to RM9,999 and 69 respondents with income of
more than RM10,000. According to DOSM (2020a), B40 income group monthly
household income ranges from less than RM2,500 to RM4,849 while M40 income
group median monthly household income ranges from RM4,850 to RM10,959.

In the table also shows that 177 or 58.2% of the respondents owned their home and 127 respondents or 41.8% is renting their dwelling. In addition, the majority of the respondents who rent their dwelling were mainly from the income bracket of RM2,000 to RM7,999 of 107 respondents.

4.3.11 Summary of Distribution of Respondents' Majority Profiles

Table 4.6 Summary of Distribution of Respondents' Majority Profiles

Profile	Category	Frequency	Percentage
Age	30 – 39 years old	170	55.9%
Gender	Female	160	52.6%
Ethnicity	Chinese	226	74.3%
Marital status	Married	209	68.8
Highest academic level	Bachelor degree/ Professional	208	68.4%
Number of members	3 members	83	27.3%
Availability motor vehicles	Yes	288	94.7%
Use public transportation to work place	No	224	73.7%
Distance to work place	11 – 15 KM	93	30.6%
Distance to nearest public transportation	Less than 5 KM	266	87.5%
House type	High rise	191	62.8%
House size	1,000 – 1,499 SF	160	52.6%
Market value	RM400,000 – RM499,999	91	29.9%
Own or rent	Own	177	58.2%
Family income	RM4,000 – RM5,999	75	24.7%

As shown in Table 4.6 presented on the most frequent profiles of the respondents. It is noted that the majority of the respondents were Chinese, female, age of 30 to 39 years old and married. The highest academic level of majority respondents was in Bachelor degree/ Professional level. Majority of the respondents possess motor vehicle in their home with a high 94.7% respondents and do not use public

transportation to their work place of 73.7% respondents. Furthermore, majority respondents of 87.5% nearest public transportation from home is less than 5 KM. Next, the majority of the respondents are were renting their dwelling, living in high rise and size of 1,000 to 1,499 SF. On the lower percentage of the majority respondents were including members living in the same house of 3 persons, distance to work place within 11 to 15 KM, market value of house at RM400,000 to RM499,999 and monthly household income of RM4,000 to RM5,999.

4.4 Factor Analysis

In this section aim to test and analyse the data which comprise of 37 measurement variables within 6 different constructs. The data were analysed into descriptive statistics focusing on the central tendency and dispersion which including mean, median and mode. Nevertheless, the data will be tested for reliability and validity first, following by conducting factor analysis and one sample t-test.

4.4.1 Descriptive Statistic

As shown in Appendix C, is the descriptive statistics analysed for 37 variables on its frequency, mean, median, mode, standard deviation and variance. It is noted that 97.9% of the respondents had selected important to extremely important for each variables while 84.9% of the respondents had ranked each variables from very important to extremely important. This means that a high majority of the respondents agreed that the variables were the factors influencing their purchase decision towards affordable housing.

4.4.2 Reliability Measure

Table 4.7 Reliability Measure of Variables in Different Constructs

Construct	Cronbach's alpha	Cronbach's alpha based on standardized items	N of items
Affordable housing	.732	.757	6
Building factor	.835	.837	6
Location factor	.533	.597	4
Accessibility factor	.795	.797	4
Neighbourhood factor	.866	.874	8
Developer's attributes	.932	.935	9

In Table 4.7, it is reported that the Cronbach's alpha value ranges from 0.53 to 0.93. The acceptable value is 0.70 or more in measuring the internal consistency, thus all the constructs used was acceptable for reliability and high consistency except for location factor will required for further investigation. As suggested in Table 4.8, nearby government agencies variable within the location factor required to be excluded to ensure the value increases to an acceptable value. As shown in Table 4.9, upon eliminating the unsuitable variable within the location factor construct, Cronbach's alpha has reverted into an acceptable value. Therefore, in the further analysis, this variable will be excluded in all data analysis.

Table 4.8 Item-total Statistics of Location Factor

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
Building location	10.98	2.729	.282	.196	.508
Nearby healthcare centres	11.69	1.912	.508	.362	.296
Nearby shopping mall, shops or market	11.58	1.987	.488	.349	.321
Nearby government agencies	13.13	1.971	.150	.055	.696

Table 4.9 Reliability Measure of Location Factor after Excluding Nearby
Government Agencies Variable

Cronbach's alpha	Cronbach's alpha based on standardized items	N of items
.696	.700	3

4.4.3 Validity and Correlation Test

Table 4.10 KMO and Bartlett's Test

Kaiser-Meyer-Olkin measure of sampling adequacy.		.899
Bartlett's test of sphericity	Approx. chi-square	6817.605
	df	630
	Sig.	.000

In testing for validity, as shown in Table 4.10, the KMO was reported at 0.90 which was above threshold of 0.50 indicating the individual variables were appropriate. Apart from that, value was categories as marvellous in accordance to a paper by Kaiser and Rice (1974). In addition, the Bartlett's test result was significance less than 0.05 indicating that the correlations sufficiently exist among different variables to proceed further in factor analysis.

In addition, communalities was generated as shown in Appendix D whereby the lowest extraction value derived is building location of 0.47 and my choice of developer had the highest value of 0.79.

4.4.4 Factor Analysis

Table 4.11 Total Variance Explain

Component	Initial eigenvalues/ Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.772	32.701	32.701	6.381	17.726	17.726
2	3.530	9.805	42.506	4.150	11.527	29.253
3	2.197	6.102	48.608	3.309	9.192	38.445
4	1.829	5.080	53.688	3.181	8.835	47.281
5	1.677	4.659	58.347	2.336	6.490	53.771
6	1.361	3.782	62.129	2.201	6.114	59.885
7	1.068	2.967	65.096	1.876	5.211	65.096

As shown in Table 4.11, there were 7 components generated from 36 variables (excluding nearby government agencies variable) which has eigenvalues of more than 1. As suggested by the system, the initial eigenvalues of Component 1 to 7 were 32.701%, 9.805%, 6.102%, 5.080%, 4.659%, 3.782% and 2.967%. In total, these 7 components account for 65.096% which is acceptable in representing the data. As shown in Figure 4.6 is the Scree plot analysing the eigenvalues for each of the 36 variables analysed.

Figure 4.6 Scree Plot
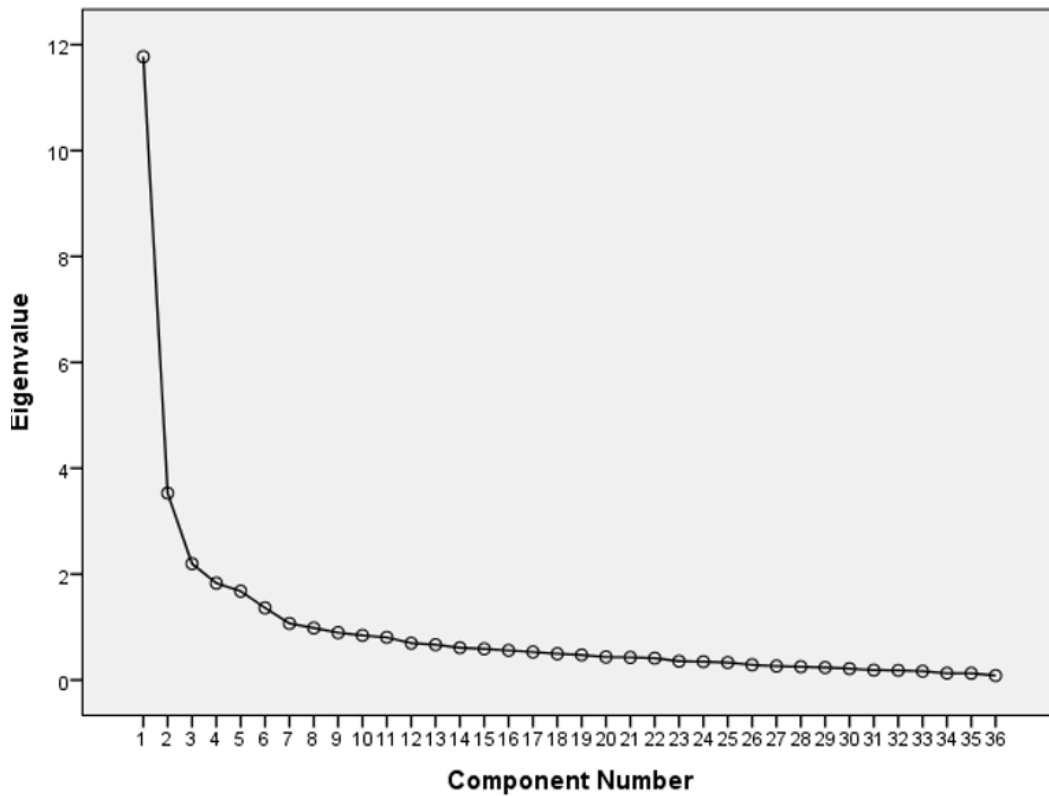
As suggested by factor analysis, all the variables can be grouped into 7 different components. Using the rotated component matrix (as shown in Appendix F), the variables were loaded into the 7 components accordingly and a summary was drawn out with suggested names as shown in Table 4.12.

Table 4.12 Component of Factor Influencing B40 and M40 Buying Decision toward Affordable Housing

Component	Suggested name	Variables
1	Developer's attributes	- My choice of developer - Good feeling of developer - Recommended brand - Willing to pay more for the brand - Well-known developer - Expected product quality - Track record of developer - Trustworthy developer - After sales service quality

2	Location and accessibility	- Building location
		- Nearby healthcare centres
		- Nearby shopping malls, shops or market
		- Accessibility to working place
		- Availability of public transportation
		- Availability of expressway
		- Traffic congestion
3	Living condition	- Crime rate
		- Good security
		- Clean and green environment
		- Availability of recreational and sporting facilities
		- Privacy
		- Away from hazardous and industry facilities
4	Building factor	- Type of property
		- Build up size
		- No. of bedrooms and bathrooms
		- Sufficient parking area
		- Aesthetic views
		- Facilities
5	Loan and cash commitment	- Interest rate of the loan
		- Available of loan
		- Ability for down payment
		- Recurring cost
6	Housing affordability	- Household income
		- Property price
7	Density and neighbourhood	- Density
		- Friendly neighbourhood

Table 4.13 Ranking Based on Highest Mean of Combine Variables

	Minimum	Maximum	Std. deviation	Variance	Mean	Ranking based on mean
Housing affordability	3	5	.385	.148	4.87	1
Living condition	3	5	.493	.243	4.47	2
Location and accessibility	3	5	.503	.253	4.35	3
Loan and cash commitment	3	5	.516	.266	4.26	4
Building factor	2	5	.511	.261	4.23	5
Developer's attributes	3	5	.509	.259	4.12	6
Density and neighbourhood	2	5	.626	.392	3.97	7

As shown in Table 4.13, is reporting on the ranking measuring the importance of each factors in influencing B40 and M40 income group in their purchase decision of an affordable housing. It is noted that housing affordability is the most important factor among others with a mean of 4.87. This is followed by living condition factor and, location and accessibility factor of 4.47 and 4.35 respectively. Loan and cash commitment factor, and building factor mean were recorded at 4.26 and 4.23 respectively. Whereas developer's attributes factor mean was recorded at 4.12 and lastly density and neighbourhood factor mean was recorded at 3.97.

4.4.5 Spearman's Rank Correlation Coefficient

In reference to Appendix I, the Spearman's rank correlation coefficient results between the factors was in the range of 0.16 to 0.53. The Spearman's correlation suggested results of more than 0.80 indicates both variables were measuring similar factor and results below 0.20 indicates the constructs were not meaningfully related. In this case, all the factors were within the threshold except for correlation result

between housing affordability factor with density and neighbourhood factor was recorded at 0.16, thus indicates the constructs were not meaningfully related.

4.4.6 One Sample T-Test

Table 4.14 One Sample T-Test

	Test Value = 3.5					
			Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
	t	df			Lower	Upper
Developer's attribute	21.376	303	.000	.624	.57	.68
Location and accessibility	29.322	303	.000	.845	.79	.90
Living condition	34.369	303	.000	.972	.92	1.03
Building factor	24.866	303	.000	.728	.67	.79
Loan and cash commitment	25.822	303	.000	.764	.71	.82
Housing affordability	61.783	303	.000	1.365	1.32	1.41
Density and neighbourhood	13.014	303	.000	.467	.40	.54

In Table 4.14 reported on the results of one sample t-test conducted for each of the factors. In the context of this study, the population mean and the critical level was fixed at 3.5 and 95% confidence level to test the hypotheses. It is reported that all the factors have p-value of less than .05 which means the factor are statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected. Hence, all factors suggested above can be used as factors influencing B40 and M40 income group buying decision towards an affordable house in Malaysia.

4.5 Intention to Purchase under Affordable Housing Scheme

Figure 4.7 Respondents Interested to Purchase under Affordable Housing Scheme
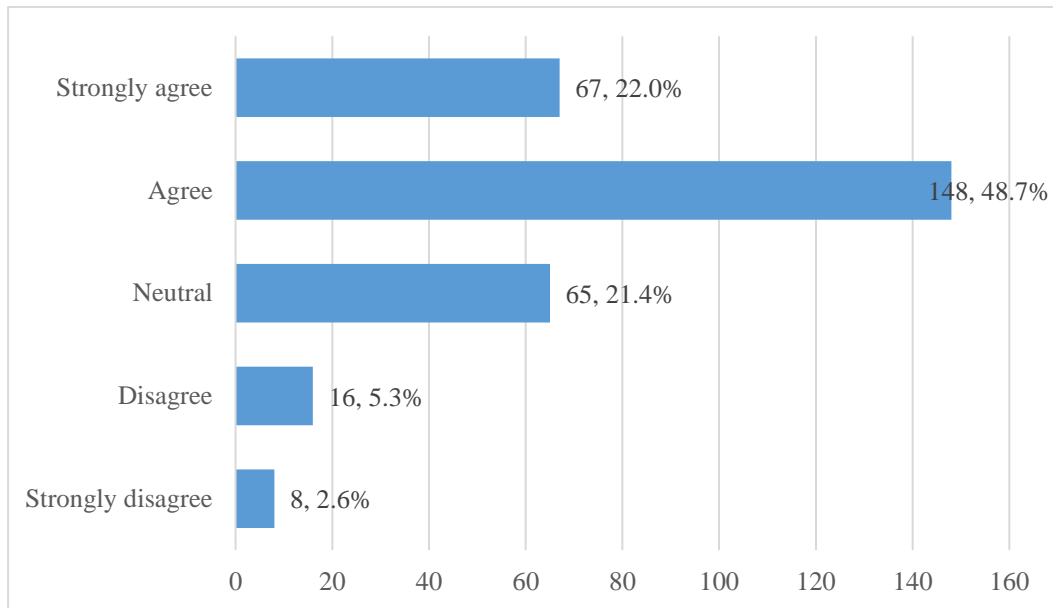
Figure 4.8 Respondents Wish to Purchase under Affordable Housing Scheme
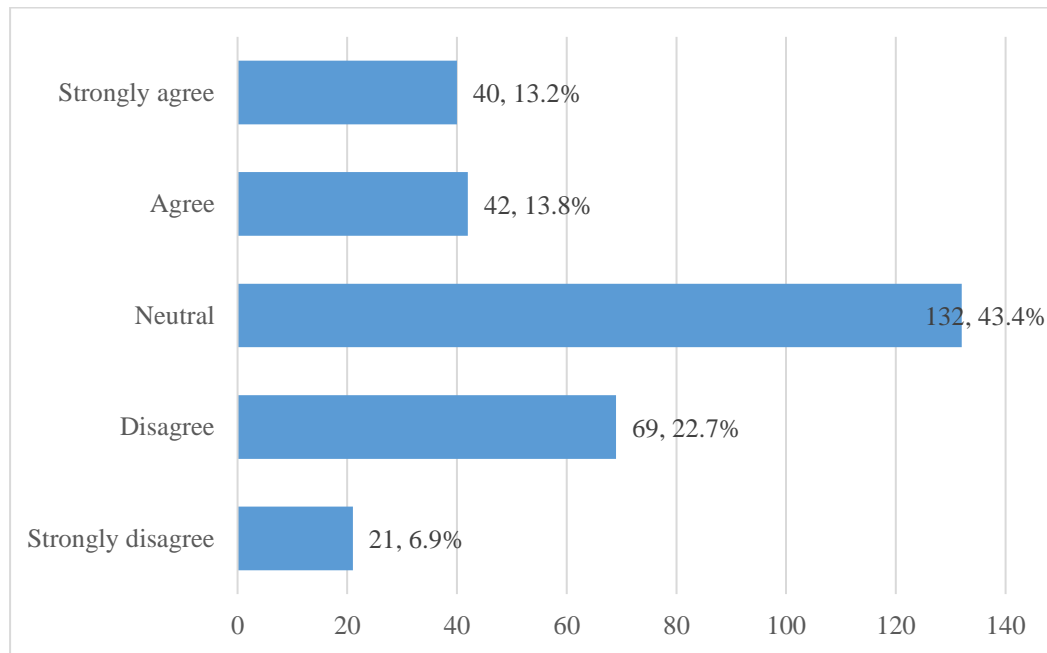
In Figure 4.7, the graph shows that majority of the respondents' interest in purchasing a house under affordable housing scheme were range from neutral, agree and strongly agree of 21.4%, 48.7% and 22.0% respectively. Similar trend was noted in Figure 4.8 for those who wish to purchase house under affordable housing scheme range from neutral, agree and strongly agree of 22.0%, 46.7% and 22.0% respectively. However, as shown in Figure 4.9, majority of the respondents of 43.4% were neutral in wishing to purchase house under affordable housing scheme introduced by government. The other respondents have mix reaction whereby 27.0% of the respondents were agree and strongly agree; and 29.6% were disagree and strongly disagree.

4.6 Interpretation and Discussion of Data

A total of 346 survey questionnaires was distributed to eligible respondents and 304 valid questionnaires was rely upon on data analysis after eliminating 42 samples with outliers. Nonetheless, the quantum of samples use was above the minimum 200 samples as recommended by Hair et al. (2014) to reduce the detrimental effects

of non-normality to negligible and as well as minimum of 100 samples if conducting a factor analysis. The demographical profiles of the respondents varies across which cover the demographics of average B40 and M40 group income Malaysian.

The data obtained comprise of 37 measurement variables within 6 different constructs, grouped in accordance to literature review performed on studies by previous researchers. In analysing the descriptive statistic of the data, it is noted that 97.9% of the respondents had selected important to extremely important for each variables while 84.9% of the respondents had ranked each variables from very important to extremely important. In other words, this indicated that a high majority of the respondents agreed that the variables were the factors influencing their purchase decision towards affordable housing.

Nonetheless, in measuring the internal consistency among the constructs, results of Cronbach's alpha value were recorded at 0.53 to 0.93 suggested that all the constructs used was acceptable for reliability and high consistency except for location factor. As a result, nearby government agencies variable was excluded in analysing and subsequently increases the Cronbach's alpha to 0.70.

In measuring the validity of data, KMO and Bartlett's test was conducted. The KMO was reported at 0.90 which was above threshold of 0.5 indicating the individual variables were appropriate and categories as marvellous in accordance to a paper by Kaiser and Rice (1974). As for Bartlett's test result, the value derived was significance less than 0.05 indicating that the correlations sufficiently exist among different variables to proceed further in factor analysis.

In conducting the factor analysis, there were 7 components extracted from 36 variables (excluding nearby government agencies variable) which has eigenvalues of more than 1. Collectively, the 7 components account for 65.096% which is which is acceptable in representing the data. Whereas in Spearman's rank correlation coefficient results were recorded in the range of 0.16 to 0.53. The Spearman's correlation suggested results of more than 0.80 indicates both variables were measuring similar factor and results below 0.20 indicates the constructs were not meaningfully related. In this case, all the factors were within the threshold except for correlation result between housing affordability factor with density and neighbourhood factor was recorded at 0.16, thus indicates the constructs were not meaningfully related. The further analysis and discussion on the 7 components identified are as follows.

Housing affordability:

This factor comprise of 2 variables namely household income and property price. Based on the mean of the combine variables of 4.87, this factor ranked the most important factor influencing the B40 and M40 income group purchase decision towards affordable housing in Malaysia. The findings shows that housing affordability factor remain as the most important factor among others, which is consistent with studies by Abdullateef and Tan (2017) and, Yap and Ng (2018). Nonetheless, it is noted this factor capture a lower KMO value (MSA = 0.50, X^2 (1) = 246.60, $p < .05$) however still within the minimum threshold of 0.5. The Cronbach's alpha was recorded at 0.86 which was acceptable for reliability and high consistency. The p-value of less than 0.05 which means the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

Living condition:

This factor make up of 6 variables namely crime rate, good security, clean and green environment, availability of recreational and sporting facilities, privacy and away from hazardous and industry facilities. This factor is the second most important determinant factor in this study with mean of 4.47, whereby according to Hanafi et al. (2018), vicinity facilities and free of crime contribute positively to the dwelling of the residents. The KMO value (MSA = 0.84, X^2 (15) = 897.07, $p < .05$) and Cronbach's alpha was recorded at 0.86 indicate the strong inter-correlation and high internal consistency. The p-value of less than 0.05 indicate the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

Location and accessibility:

There were 7 variables in this factor such as building location, nearby healthcare centres, nearby shopping malls, shops and market, accessibility to work place, availability of public transportation, availability of expressway and traffic congestion. An integrated amenities provide healthy living, learning, work and play provide greater demand in functionality as residents can live in a well-connected neighbourhood with cost-effective manner (Tan, 2011). This factor has a high mean of 4.35 whereby the KMO value (MSA = 0.84, X^2 (15) = 897.07, $p < .05$) and

Cronbach's alpha was recorded at 0.86 indicate the strong inter-correlation and high internal consistency. The p-value was recorded at less than 0.05 indicate the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

Loan and cash commitment:

In this factor, there were 4 variables which cover on interest rate of loan, availability of loan, ability to pay for down payment and recurring cost. The first part of this factor emphasizes on the ability to place down payment and leverage on loan to finance the house purchase. The second part is consideration on sufficient savings to cover operational cost such as interest on loan and recurring cost such as maintenance cost. Sufficient cash flow remains one of the important factors to consider as purchase of house involve high price and recurring cost to pay, therefore loan leveraging is quite common in house purchase. In Syairah et al. (2019) studies, it is reveal that poor management history, cash flow problems and over leveraging were the main reasons lead to loan rejections. This factor also recorded a high mean of 4.26 whereas the KMO value (MSA = 0.85, X^2 (21) = 726.90, $p < .05$) and Cronbach's alpha was recorded at 0.69. The p-value was less than 0.05 indicate the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

Building factor:

As the name suggest, this factor mainly relates to the physical function and utilities of the house such as type of building, build up size, no. of bedrooms and bathrooms, sufficient parking area, aesthetic views as well as building facilities. Generally, this factor represent the house the homebuyer is purchasing and according to Hassanudin and Chandra (2016) as the Malaysian homebuyer are getting more educated and sophisticated whose tend to be more selective and demanding on contemporary features, design and quality finishing. The mean was reported at 4.23, the KMO value (MSA = 0.82, X^2 (15) = 677.91, $p < .05$) and Cronbach's alpha was recorded at 0.84 indicate the strong inter-correlation and high internal consistency. The p-value of less than 0.05 indicate the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

Developer's attributes:

This factor is exactly same with the original variables of developer's attributes as shown in Table 3.1 which include the brand loyalty, brand awareness, perceived quality, brand association, background of developer, reliability of developer and after sale service quality. In Cheng and Cheok (2008) study shows that homebuyers are brand conscious and as reported in Yap et al. (2019) study, the homebuyer has a higher tendency to own their home from prominent developer in contrast to a less known developer due to its perceived value and quality. The mean was recorded at 4.12, KMO value (MSA = 0.91, X^2 (36) = 2,350.74, $p < .05$) and Cronbach's alpha was recorded at 0.93 indicate the strong inter-correlation and high internal consistency. The p-value was less than 0.05 indicate the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

Density and neighbourhood:

This factor refer to the density of the living place as well as friendly neighbourhood, however rank the lowest among the factors with a mean of 3.97. As reported by Hanafi et al. (2018), density and neighbourhood affect the livelihood of the occupants. The KMO value (MSA = 0.50, X^2 (1) = 68.95, $p < .05$) and Cronbach's alpha was recorded at 0.62. The p-value of less than 0.05 indicate the factor is statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected.

In summary of the data analysis, the study found that all the factors were statistically significant, hence the alternative hypothesis will be accepted and the null hypothesis be rejected. Therefore, all the factors are adequate and suitable to be included in the survey to answer the research questions and achieve the aim of the research. In addition, it is revealed that housing affordability is the major factor influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia.

CHAPTER 5

5.0   CONCLUSION

5.1 Introduction

This chapter summaries and discuss on the findings from the research in relation to factors influence B40 and M40 income group purchase decision towards affordable housing in Malaysia. In addition, this chapter will also include the delimitation and future studies recommended to future researchers.

5.2 Summary and Discussion

At the background of this study, it is noted that residential property overhang was a concurrent issue faced by the nation amid home ownership concern among the B40 and M40 income group. As discussed earlier, in the context of home ownership price affordable by B40 and M40 income group based on their median household income (as tabulated in Table 1.2) were RM113,976 and RM255,348 respectively. However, notwithstanding certain B40 and M40 income group were affordable to own residential property at price RM300,000 and below, the NAPIC reported that among the residential property launched at RM300,000 and below in first quarter of year 2021, there were 6,610 units property overhang. Thus the paradox situation trigger the need for this study to understanding homebuyers' expectation in mitigating or avoid mismatch of demand and supply, which lead to property overhang. Following the research problem, several research questions and objectives were raised, literature review on previous researchers was carried out and data analysis was performed on data collected from valid survey questionnaires.

The study found that all the factors were statistically significant, hence the alternative hypothesis will be accepted and the null hypothesis be rejected. In other

words, all the factors are adequate and suitable to be included in the survey to answer the research questions and achieve the aim of the research. In the research, it is noted that housing affordability is the main factor factors influence B40 and M40 income group purchase decision towards affordable housing in Malaysia. Inevitable, historically the properties prices trend was seen to rise over time, thus people are believed to be more keen to own their residential early to secure a lower price as well as capital gain on disposal. Notwithstanding home as shelter is a basic necessity, yet owning a unit can be challenging to certain lower income group. In relation to loan and cash commitment factor, it is noted that certain households may not have sufficient cash flow as purchase of house involve high price and recurring cost to pay, therefore loan leveraging is quite common in house purchase.

A sustainable effort to address the B40 and M40 income group homeownership issue effectively, besides studying on the connection between household income and property price, it is pertinent to also conduct market study on other possible determinant factors affecting such buying decision and incorporate the findings into the development to ensure meeting affordable housing objectives successfully while building economy and avoiding property overhang. In the research, it is noted that living condition is second most important factor which refer to liveable area with clean and green environment as well as free from crime. Nevertheless, the research shows that density and neighbourhood factor has a lower impact on the affordable housing purchase decision density and neighbourhood factor.

Likewise, the location and accessibility factor also play an important role in the affordable housing purchase criteria. Amid the B40 and M40 income group earnings were not rise sufficiently to cope with rising land cost and cost of construction materials which indirectly affect the purchase price of properties, the strategic location of affordable housing remain to be seen as an essential aspect in the homebuyers' purchase decision. Among others, the location of the development has better demand in urban or town area with convenience of public transportation to travel around. Nonetheless, notwithstanding that there were only 26.3% of the respondents use public transportation to their workplace, the importance of availability of public transportation remain high as statistics shown that 81% of the respondents agreed that it is very important and extremely important. In addition, the data also indicate that 89.8% of the respondents rated accessibility to working

place as very important and extremely important. It is also revealed that there were possibility that the respondents prefer staying nearby the public transportation infrastructure as the data shown that there were significant 87.5% recorded a distance from home to nearest public transportation infrastructure of less than 5 KM.

Building factor refers to the house the homebuyer is purchasing and according to Hassanudin and Chandra (2016) as the Malaysian homebuyer are getting more educated and sophisticated, they tend to be more selective and demanding on contemporary features, design and quality finishing. In hindsight, various data and articles has signalled the mismatch of purchasers' income and preference with properties available for sale in the market, hence authorities should intervene and reject developer's development proposal deemed not appealing based on the criteria in the market. In preventing such development to proceed is expected to gives more benefit to the stakeholders, instead of resolving property overhang issue aftermath. This is because once the development has been constructed, there will only be minimal changes can be done on the design to adjust itself towards meeting the homebuyers' need.

This research also confirmed that developer's attributes including brand equity were one of the factors influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia. This factor comprises the brand loyalty, brand awareness, perceived quality, brand association, background of developer, reliability of developer and after sale service quality. In general, the branding and reputation of developer developed over time via track records in delivering of products and services gained certain perception, satisfaction and expectation from the homebuyer on its quality, experience and their distinct capabilities.

In despite concurrently government persistent policies in ensuring inclusive homeownership among the B40 and M40 income group, yet the initiatives launched every year was seen insufficient to address the homeownership issue. The effort of addressing affordability issue such as giving incentives to property developers to reduce the properties cost was only part of the solution, as there were remain different aspects of consideration of the homebuyers towards purchase a residential property. Apart from that, the economy and income level of households were varies across different location, thus market study and survey has to be carry out in a

specific area in the onset to understand the potential purchasers' income level and other purchasing decision criteria in matching with the reasonable property price. In addition, market study and data analysis conducted carry out by government agencies should be continuously and available in the public to enhance the development plan in meeting the purchasers' affordability and needs. With the updated data in hand, it is expected that the future development shall meet the homebuyer's need effectively and remedy problems efficiently.

5.2.1 Achieving of Objective 1

The first objective of this study is to identify factors influencing B40 and M40 income group buying decision towards an affordable house in Malaysia. The relevant determinant factors were identified via literature review of journal articles by previous scholars and researchers. Upon collection of data from respondents, such factors were subjected to data analysis to examine the reliability and validity of each measurement variables prior factor analysis was conducted. As a result of factor analysis, 7 components were extracted from 36 variables which subject to a one sample t-test conducted on each components to test the measurements of sample in respect of the population. Hence, in examining the alternative hypotheses as discussed in Chapter 2.9 determine whether the alternative hypotheses should be accepted and null hypotheses be rejected, or vice versa. For each factor, the null hypothesis represented that the factor will not have an impact on influencing B40 and M40 income group buying decision towards an affordable house priced in Malaysia (H0: $U = U_0$) while the alternative hypothesis was of that the factors will have an impact (H_α: $U > U_0$). In the context of this study, U_0 is the population mean and the critical level was fixed at 3.5. Factor with p-value of less than .05 which means the factor are statistically significant therefore, the alternative hypothesis will be accepted and the null hypothesis be rejected. The procedures and methodology used in this study was made in reference to methodology used in study made by Abdullateef and Tan (2017); and Abdullateef and Tan (2018). In the context of this study, it is reported that all the factors have p-value of less than .05 which means the factor are statistically significant therefore, the alternative hypothesis will be

accepted and the null hypothesis be rejected. Hence, all factors suggested (in Table 4.12) can be used as factors influencing B40 and M40 income group buying decision towards an affordable house in Malaysia. Likewise, with the procedures and methodology used in the study revealed all the determinant factors and met the objective 1.

5.2.2 Achieving of Objective 2

The second objective of this study is to investigate if housing affordability the major factor influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia. After data analysis and factor analysis were conducted, there were 7 components generated out of 36 variables. Thereafter, the variables within the components were combined using SPSS to generate a combined average values for comparison purpose. The determinant factors were then ranked according to their highest mean (as shown in Table 4.13) to discover the most important factor among all. Hence, it is evidenced that the housing affordability is the major factor influencing the B40 and M40 income group buying decision towards an affordable house in Malaysia and met objective 2.

5.3 Delimitation

This study focus on B40 and M40 income group which representing a considerable amount of 80% of the Malaysian household. However, this research did not collect feedback from T20 income group on their determinant factors influence purchase decision towards affordable housing. It is assume that the T20 income group would have less concern in owning an affordable housing and less interested in purchasing an affordable housing.

This study is using some information from survey on the household income, basic amenities and expenditure for year 2019. In despite it was published more than a year, it is the latest study by DOSM as the statistic department only conduct

survey on the household income, basic amenities and expenditure twice every five years which is relevant to this study.

In the context of this study, a convenience sampling technique was used to collect the data to reduce time and cost in administering the survey as well as appropriate when details of the population size is not available. It is a sampling technique that collect data from willing volunteers within the population and conveniently available to participate the research. Notwithstanding that the study findings obtained from convenience sampling may not be generalisable to the population of interest, but with sufficiently large sample size, the findings can represent the population (Sekaran & Bougie, 2016).However, given sufficient time and cost, future researcher of similar studies is recommended to use different sampling techniques to collect data from samples that enable to represent the Malaysian population throughout the nation.

5.4 Future Studies

It is noted in the research that majority of the respondents were interested and wish to purchase a house under affordable housing scheme. However, majority of the same respondents remain neutral in preference to purchase a house under affordable housing scheme introduced by government. In addition, there were 22.7% and 6.9% of the respondents disagreed and strongly disagreed. Notwithstanding the same affordable housing offered, respondents were seem reluctant in affordable housing scheme introduced by the government. Thus, it is suggested that future researchers may further research on the factors influence B40 an M40 income group purchase decision towards affordable housing scheme introduced by the government.

REFERENCES

Aaker, D. A. (1991). *Managing brand equity*. The Free Press.

Abdullateef, O., & Tan, C. W. (2017). An exploration of determinants of affordable housing choice. *International Journal of Housing Markets and Analysis, 10*(5), 703-723. https://doi.org/10.1108/IJHMA-11-2016-0074

Abdullateef, O., & Tan, S. Y. (2018). An exploration into design criteria for affordable housing in Malaysia. *Journal of Engineering, Design and Technology, 16*(3), 360-384. https://doi.org/10.1108/JEDT-12-2017-0125

Bank Negara Malaysia. (2012). *Guidelines on responsible financing.* https://www.bnm.gov.my/documents/2012/factsheet_20120224_en.pdf

Bank Negara Malaysia. (2016). *Bank Negara Malaysia annual report 2015: Assessing demand-supply conditions in the Malaysian property market.* https://www.bnm.gov.my/files/publication/ar/en/2015/ar2015_book.pdf

Bank Negara Malaysia. (2019). *Financial stability and payment systems report 2018: Risk developments and assessment of financial stability in 2018.* https://www.bnm.gov.my/documents/20124/856365/fs2018_book.pdf

Bujang, A. A., Zarin, H. A., & Jumadi, N. (2010). The relationship between demographic factors and housing affordability. *Malaysian Journal of Real Estate*, *5*(1), 49–58. https://www.utm.my/intrest/files/2013/08/THE-RELATIONSHIP-BETWEEN-DEMOGRAPHIC-FACTORS-AND-HOUSING-AFFORDABILITY.pdf

Cheah, S. L., Almeida, S. J., & Ho, S. W. (2018). *BNM quarterly bulletin: Affordable housing: Challenges and the way forward* (Report No. 4Q2017). Bank Negara Malaysia. https://www.bnm.gov.my/documents/20124/770512/4Q2017_fullbook_en.pdf

Cheah, S.L., & Almeida, S. J. (2017). *Bank Negara Malaysia annual report 2016: Demystifying the affordable housing issue in Malaysia*. Bank Negara Malaysia. https://www.bnm.gov.my/documents/20124/829203/ar2016_book.pdf

Cheng, F. F., & Cheok, J. (2008). Importance of branding for property developers in Malaysia. *Sunway Academic Journal, 5*, 65-78. https://www.semanticscholar.org/paper/Importance-of-branding-for-property-developers-in-Cheng-Cheok/3cc1d8ddaf6be388c49ca13695cb64793439fc39

Dawson, C. (2002). *Practical research methods: A user-friendly guide to mastering research*. How To Books.

Demographia. (2020). *16th annual Demographia international housing affordability survey: 2020: Rating middle-income housing affordability*. http://www.demographia.com/dhi2020.pdf

Department of Statistics Malaysia (DOSM). (2013). *The household income survey 2012*. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=120&bul_id=d1FLak9XZklSMlVqZkhoZUloZytYQT09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09

Department of Statistics Malaysia (DOSM). (2014). *Report on characteristics of household 2010: Population and housing census of Malaysia*. https://www.dosm.gov.my/v1/images/stories/files/LatestReleases/population/Web_Release_Ciri_IR2010.pdf

Department of Statistics Malaysia (DOSM). (2016). *Population projection (revised), Malaysia, 2010 – 2040*. https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=Y3kwU2tSNVFDOWp1YmtZYnhUeVBEdz09

Department of Statistics Malaysia (DOSM). (2017). *Report of household income and basic amenities survey 2016*. https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=RUZ5REwveU1ra1hGL21JWVlPRmU2Zz09

Department of Statistics Malaysia (DOSM). (2020a). *Household income and basic amenities survey report 2019*. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=120&bul_id=TU00TmRhQ1N5TUxHVWN0T2VjbXJYZz09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09

Department of Statistics Malaysia (DOSM). (2020b). *Household expenditure survey report 2019*. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=323&bul_id=c3JpRzRqeTNPamMxL1FpTkNBNUVBQT09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09

Economic Planning Unit (EPU). (1965). 1st *Malaysia Plan: 1966 – 1970*. https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (1970). 2nd *Malaysia Plan: 1971 – 1975*. https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (1975). 3rd *Malaysia Plan: 1976 – 1980*. https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (1980). 4th *Malaysia Plan: 1981 – 1985*. https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (1985). 5th *Malaysia Plan: 1986 – 1990*. https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (1990). *6th Malaysia Plan: 1991 – 1995.* https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (1995). *7th Malaysia Plan: 1996 – 2000.* https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (2000). *8th Malaysia Plan: 2001 – 2005.* https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (2005). *9th Malaysia Plan: 2006 – 2010.* https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (2010). *10th Malaysia Plan: 2011 – 2015.* https://www.pmo.gov.my/the-malaysia-plan/

Economic Planning Unit (EPU). (2015). *11th Malaysia Plan: 2016 – 2020.* https://www.pmo.gov.my/the-malaysia-plan/

Hair, J. J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Pearson.

Hanafi, M. H., Mazree, A. S., Ahmad, H., & Umar, M. U. (2018). Neighbourhood factors contributing to the household mobility: Apartments in Malaysia. *Environment-Behaviour Proceedings Journal, 3*(7), 307-317. https://doi.org/10.21834/e-bpj.v3i7.1236

Hassanudin, M. T. T., & Chandra, K. S. (2016). Prioritisation of key attributes influencing the decision to purchase a residential property in Malaysia: An analytic hierarchy process (AHP) approach. *International Journal of Housing Markets and Analysis*, *9*(4), 446-467. https://doi.org/10.1108/IJHMA-09-2015-0052

Jalilvand, M. R., Samiel, N., & Mahdavinia, S. H. (2011). The effect of brand equity components on purchase intention: An application of Aaker's model in the automobile industry. *International Business and Management, 2*(2), 149-158. http://dx.doi.org/10.3968/j.ibm.1923842820110202.016

Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark IV[1]. *Educational and Psychological Measurement*, *34*, 111-117. https://doi.org/10.1177/001316447403400115

Kearns, J. (2019). *Understanding rising housing loan arrears.* Research Bank of Australia. https://www.rba.gov.au/speeches/2019/sp-so-2019-06-18.html

Kementerian Perumahan dan Kerajaan Tempatan (KPKT). (2019). *Dasar perumahan mampu milik negara: Perumahan untuk semua.* https://www.kpkt.gov.my/resources/index/user_1/MENGENAI%20KPKT/DASAR/BUKU_DRMM_11052019.pdf

Kementerian Perumahan dan Kerajaan Tempatan (KPKT). (2021). *Pemaju berstatus sakit.* https://ehome.kpkt.gov.my/index.php/pages/view/79

Khazanah Research Institute (KRI). (2015). *Making housing affordable.* http://www.krinstitute.org/assets/contentMS/img/template/editor/_FINAL_ Full_Draft__KRI- _Making_Housing_Affordable__with_hyperlink__220815%20(1).pdf

Khazanah Research Institute (KRI). (2019a). *Rethinking housing: Between state, market and society: A special report for the formulation of the national housing policy (2018 – 2025), Malaysia.* http://www.krinstitute.org/assets/contentMS/img/template/editor/Rethinkin g%20Housing%20(Full%20Report)-%20EN%20Version.pdf

Khazanah Research Institute (KRI). (2019b). *Rethinking housing: The role of government and private developers in providing affordable housing: 12th Malaysian Plan kick-off conference.* http://rmke12.epu.gov.my/ciopapers/a266bec057f88059c720c80cb7b711c 3.pdf

Malaysian Administrative Modernisation and Management Planning Unit (MAMPU). (2021). *Affordable home scheme.* https://www.malaysia.gov.my/portal/content/30704

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370-396. https://doi.org/10.1037/h0054346

Maslow, A. H. (1954). *Motivation and personality*. Harper & Row. https://www.eyco.org/nuovo/wp-content/uploads/2016/09/Motivation-and- Personality-A.H.Maslow.pdf

Mastura, J., Azlan, R. N., & Syed, P. S. A. B. (2015). Managerial capabilities of housing developers: Building the competitive advantage of a firm. *International Journal of Construction Management*, *16*(1), 27-38. https://doi.org/10.1080/15623599.2015.1117708

Moorthy, R., & Jeronn, N. (2014). Public transportation effect on the rising of property prices in Malaysia: A correlation study of MRT project. *Review of Integrative Business & Economics Research, 3*(2), 350-357. https://www.sibresearch.org/uploads/2/7/9/9/2799227/riber_b14-171_350- 357.pdf

National Property Information Centre (NAPIC). (2016). *Property market status report: Property overhang* (Report No. Q42015). http://napic.jpph.gov.my/portal

National Property Information Centre (NAPIC). (2017). *Property market status report: Property overhang* (Report No. Q42016). http://napic.jpph.gov.my/portal

National Property Information Centre (NAPIC). (2018). *Property market status report: Property overhang* (Report No. Q42017). http://napic.jpph.gov.my/portal

National Property Information Centre (NAPIC). (2019). *Property market status report: Property overhang* (Report No. Q42018). http://napic.jpph.gov.my/portal

National Property Information Centre (NAPIC). (2020a). *Malaysian house price index* (Report No. Q42020). https://napic.jpph.gov.my/portal/key-statistics

National Property Information Centre (NAPIC). (2020b). *Mean & median of all house price by state 2019.* https://napic.jpph.gov.my/portal/web/guest/stat/viewResult?p_p_id=Search Statistic_WAR_StatisticsManagementportlet&_SearchStatistic_WAR_Stat isticsManagementportlet_action=renderViewItemScreen&itemId=11299& pageno=1&search=&inheritRedirect=true

National Property Information Centre (NAPIC). (2020c). *Property market status table: Property overhang* (Report No. Q4 2019). https://napic.jpph.gov.my/portal/web/guest/publication?p_p_id=ViewPubli shings_WAR_ViewPublishingsportlet&p_p_lifecycle=0&p_p_state=norm al&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=2&_ViewPublishings_WAR_ViewPublishingsportlet_a ction=renderReportPeriodScreenArc&publishingId=437&pageno=1

National Property Information Centre (NAPIC). (2021a). *Property market status table: Property overhang* (Report No. Q4 2020). https://napic.jpph.gov.my/portal/web/guest/publication?p_p_id=ViewPubli shings_WAR_ViewPublishingsportlet&p_p_lifecycle=0&p_p_state=norm al&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=2&_ViewPublishings_WAR_ViewPublishingsportlet_a ction=renderReportPeriodScreen&publishingId=437&pageno=1&languag e=

National Property Information Centre (NAPIC). (2021b). *Property market status table: Property overhang* (Report No. Q1 2021). https://napic.jpph.gov.my/portal/web/guest/publication?p_p_id=ViewPubli shings_WAR_ViewPublishingsportlet&p_p_lifecycle=0&p_p_state=norm al&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=2&_ViewPublishings_WAR_ViewPublishingsportlet_a ction=renderReportPeriodScreen&publishingId=437&pageno=1&languag e=

Organisation for Economic Co-operation and Development (OECD). (2020). *Housing prices.* https://www.oecd.org/els/family/HM1-2-Housing-prices.pdf

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (6th ed.). Pearson.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). Wiley.

Syairah, H. S., Lim, S. L., Nurjannah, A., Aliya, Y. H., Junaidah, Y., & Ooi, K. (2019). *BNM quarterly bulletin: Banking on banks: Are they lending enough?* (Report No. 3Q2019). https://www.bnm.gov.my/documents/20124/766180/3Q2019_fullbook_en.pdf/ec308d44-5eca-dbc6-7e8b-76789cc33c01?t=1614069407486

Tan, T. H. (2011). Neighborhood preferences of house buyers: The case of Klang Valley, Malaysia. *International Journal of Housing Markets and Analysis*, *4(1)*, 58-69. https://doi.org/10.1108/17538271111111839

Yap, J. B. H., & Ng, X. H. (2018). Housing affordability in Malaysia: Perception, price range, influencing factors and policies. *International Journal of Housing Markets and Analysis*, *11*(3), 476-497. https://doi.org/10.1108/IJHMA-08-2017-0069

Yap, J. B. H., Tan, C. W., Loo, S. C., & Lee, W. P. (2019). Towards a "branded" property developer: Key traits for Malaysian housing market. *International Journal of Housing Markets and Analysis*, *12*(4), 626-643. https://doi.org/10.1108/IJHMA-06-2018-0039

APPENDIX A

MEDIAN MULTIPLE; AND B40 AND M40 INCOME GROUP HOUSING AFFORDABILITY IN DIFFERENT STATES OF MALAYSIA YEAR 2019

Population from	Median house price	B40 income group median multiple and Affordability level	M40 income group median multiple and Affordability level
Johor	RM350,000	9.2, severely unaffordable	4.1, moderately unaffordable
Kedah	RM199,100	5.2, severely unaffordable	2.3, affordable
Kelantan	RM210,000	5.5, severely unaffordable	2.5, affordable
Malacca	RM200,000	5.3, severely unaffordable	2.3, affordable
Negeri Sembilan	RM206,750	5.4, severely unaffordable	2.4, affordable
Pahang	RM218,000	5.7, severely unaffordable	2.6, affordable
Penang	RM285,000	7.5, severely unaffordable	3.3, moderately unaffordable
Perak	RM216,600	5.7, severely unaffordable	2.5, affordable
Perlis	RM220,000	5.8, severely unaffordable	2.6, affordable
Sabah	RM300,000	7.9, severely unaffordable	3.5, moderately unaffordable
Sarawak	RM313,000	8.2, severely unaffordable	3.7, moderately unaffordable
Selangor	RM380,000	10.0, severely unaffordable	4.5, seriously unaffordable
Terengganu	RM255,000	6.7, severely unaffordable	3.0, affordable
Federal Territories (FT) Kuala Lumpur	RM480,000	12.6, severely unaffordable	5.6, severely unaffordable
FT Labuan	RM320,000	8.4, severely unaffordable	3.8, moderately unaffordable
FT Putrajaya	RM260,000	6.8, severely unaffordable	3.1, moderately unaffordable

Source: DOSM, 2020a; NAPIC, 2020b

APPENDIX B

SURVEY QUESTIONNAIRE USE IN THE STUDY

Survey on the factors influencing buying decision of affordable housing in Malaysia

Dear Sir & Madam,

I am currently conducting a research to understand the factors affecting M40 and B40 income group buying decision towards residential housing priced at RM300,000 or below in Malaysia. According to National Property Information Centre (NAPIC), in first quarter of year 2021, there were 6,610 units of residential property in Malaysia priced at RM300,000 and below, which was launched but not sold 9 months after launched. In light of the current property glut issue, your feedback and assistance to this research is well appreciated towards completing this survey questionnaire. Information obtained is strictly confidential and will only be used for statistical and mathematical analyses for the purpose of this study.

Please tick and fill in where appropriate

Section 1

A) What is your age group:

1) 20 - 29 □   2) 30 - 39 □   3) 40 - 49 □   4) 50 and above □

B) What is your gender:

1) Male □   2) Female □

C) What is your ethnicity:

1) Malay □   2) Chinese □   3) Indian □   4) Others □

D) What is your marital status:

1) Single □   2) Married □   3) Divorce □

E) What is your highest academic level:

1) Lower than SPM   2) O-Level/SPM □

3) A-Level/STPM/Certificate/Diploma □   4) Bachelor Degree/Professional □

5) Master/Doctorate □   6) Others □

F) How many number of members living in the house:

1) 1 person □   2) 2 persons □   3) 3 persons □   4) 4 persons □

5) More than 4 persons □

1

G) Does you or your family (within the house) have motor vehicle at home:
1) Yes □   2) No □

H) Does you or any of your family (within the house) use the public transportation to work:
1) Yes □   2) No □

I) What is the distance from home to work place:
1) Less than 5km□   2) 5 – 10km □   3)11 – 15km □   4) 16 – 20km □
5) More than 20km □

J) What is the distance from home to nearest public transport (eg. Bus/ KTM/ LRT/ MRT):
1) Less than 5km□   2) 5 – 10km □   3)11 – 15km □   4) 16 – 20km □
5) More than 20km □

K) What is your house type:
1) Landed (eg. Terrace/ Semi-Detached/ Bungalow) □
2) High rise (eg. Flat/ Apartment/ Condominium) □

L) How big is the built up size of your house:
1) Less than 500sf □   2) 500 – 999sf □   3)1000 – 1499sf □
4) 1,500sf and above □

M) What is the average market price of your house:
1) Less than RM200,000 □   2) RM200,000 – 299,999 □ 3)RM300,000 – 399,999 □
4) RM400,000 – 499,999 □   5) RM500,000 and above □

N) Do you own or rent the house you are living in?
1) Own □   2) Rent □

O) What is your family's monthly income:
1) Less than RM2,000 □   2) RM2,000 - 3,999 □   3) RM4,000 - 5,999 □
4) RM6,000 - 7,999 □   5) RM8,000 - 9,999 □   6) RM10,000 and above □

Section 2

Please rate the extent of the following factors that influence your buying decision of a house

Scale/ Determinant	1) Very Low Important	2) Low Important	3) Important	4) Very important	5) Extremely Important
Housing affordability					
i. Household income					
ii. Property price					
iii. Interest rate of the loan					
iv. Available of loan					
v. Ability to provide down payment					
vi. Recurring cost: Building maintenance cost, land lease, insurance, quit rent, assessment					
Building Factor					
i. Type of property					
ii. Built up size					
iii. No. of bedrooms and bathrooms					
iv. Sufficient parking area					
v. Aesthetic views					
vi. Facilities					
Location Factor					
i. Building location					
ii. Nearby healthcare centres					
iii. Nearby shopping mall, shops or market					
iv. Nearby government agencies					
Accessibility Factor					
i. Accessibility to working place					
ii. Availability of public transportation					
iii. Availability of expressway					
iv. Traffic congestion					

3

Neighbourhood factor					
i.	Crime rate				
ii.	Good security				
iii.	Density				
iv.	Friendly neighbourhood				
v.	Clean and green environment				
vi.	Availability of recreational and sporting facilities				
vii.	Privacy				
viii.	Away from hazardous and industry facilities				
Developer's Attributes					
i.	I have my choice(s) of developer				
ii.	Good feeling towards the developer				
iii.	Recommended brand				
iv.	Willing to pay more for the brand				
v.	Well-known developer				
vi.	Expected product quality				
vii.	Track record of the developer				
viii.	Trustworthy developer				
ix.	After sales service quality				

In general,	Strongly Disagree →				Strongly Agree
a) I am interested to purchase a unit of house under the affordable housing scheme	1	2	3	4	5
b) I wish to acquire a house under the affordable housing scheme	1	2	3	4	5
c) I am preferring to purchase affordable housing unit under the affordable housing scheme introduced by government	1	2	3	4	5

Thank you for your time sparing to complete this questionnaire.

4

APPENDIX C

DESCRIPTIVE STATISTICS OF VARIABLES

Variable and frequency	1) Very low important	2) Low important	3) Important	4) Very important	5) Extremely important	Mean	Median	Mode	Standard Deviation	Variance
Household income	Nil	Nil	8	25	271	4.87	5	5	.412	.170
Property price	Nil	Nil	8	25	271	4.87	5	5	.412	.170
Interest rate of the loan	1	4	54	150	95	4.10	4	4	.751	.564
Available of loan	1	1	34	140	128	4.10	4	4	.701	.492
Ability to provide down payment	Nil	1	26	90	187	4.52	5	5	.665	.442
Recurring cost: Building maintenance cost, land lease, insurance, quit rent, assessment	2	3	46	152	101	4.14	4	4	.751	.564
Type of property	Nil	3	27	112	162	4.42	5	5	.695	.483
Built up size	Nil	1	24	118	161	4.44	5	5	.653	.426
No. of bedrooms and bathrooms	Nil	2	50	143	109	4.18	4	4	.720	.518

Sufficient parking area	Nil	1	26	164	113	4.28	4	4	.627	.394
Aesthetic views	1	4	76	171	52	3.88	4	4	.701	.492
Facilities	Nil	3	53	142	106	4.15	4	4	.735	.540
Building location	Nil	Nil	4	50	250	4.81	5	5	.426	.181
Nearby healthcare centres	Nil	1	51	167	85	4.11	4	4	.672	.451
Nearby shopping mall, shops or market	Nil	3	30	171	100	4.21	4	4	.651	.424
Nearby government agencies	26	110	127	21	20	2.67	3	3	.964	.929
Accessibility to working place	1	1	29	148	125	4.30	4	4	.679	.461
Availability of public transportation	5	12	41	116	130	4.16	4	5	.919	.844
Availability of expressway	4	7	28	114	151	4.32	4	5	.837	.700
Traffic congestion	1	2	14	111	176	4.51	5	5	.650	.422
Crime rate	1	2	12	75	214	4.64	5	5	.624	.389
Good security	Nil	Nil	11	76	217	4.68	5	5	.540	.292
Density	1	3	93	140	67	3.88	4	4	.764	.584
Friendly neighbourhood	2	1	53	172	76	4.05	4	4	.704	.496
Clean and green environment	Nil	Nil	18	140	146	4.42	4	5	.603	.363

	1	2	3	4	5	Mean				
Availability of recreational and sporting facilities	Nil	2	44	120	138	4.30	4	5	.734	.539
Privacy	Nil	2	50	144	108	4.18	4	4	.718	.516
Away from hazardous and industry facilities	Nil	Nil	17	82	205	4.62	5	5	.591	.349
I have my choice(s) of developer	Nil	Nil	49	183	72	4.08	4	4	.627	.394
Good feeling towards the developer	Nil	Nil	47	186	71	4.08	4	4	.619	.383
Recommended brand	Nil	1	65	180	58	3.97	4	4	.647	.418
Willing to pay more for the brand	1	17	118	133	35	3.61	4	4	.776	.603
Well-known developer	Nil	2	46	193	63	4.04	4	4	.620	.384
Expected product quality	Nil	Nil	23	171	110	4.29	4	4	.597	.357
Track record of the developer	Nil	Nil	19	158	127	4.36	4	4	.596	.355
Trustworthy developer	Nil	Nil	17	141	146	4.42	4	5	.598	.357
After sales service quality	Nil	1	21	174	108	4.28	4	4	.600	.361
Total	47	190	1,459	4,798	4,754					
Percentage	0.4%	1.7%	13.0%	42.7%	42.3%					

APPENDIX D

COMMUNALITIES OF VARIABLES

	Initial	Extraction
Household Income	1.000	.739
Property Price	1.000	.755
Interest Rate Loan	1.000	.561
Available Loan	1.000	.505
Ability for Down Payment	1.000	.711
Recurring Cost	1.000	.557
Type of Property	1.000	.524
Built Up Size	1.000	.665
No. Bedrooms and Bathrooms	1.000	.739
Sufficient Parking Area	1.000	.705
Aesthetic Views	1.000	.505
Facilities	1.000	.565
Building Location	1.000	.473
Nearby Healthcare Centres	1.000	.645
Nearby Shopping Mall, Shops or Market	1.000	.578
Accessibility to Working Place	1.000	.547
Availability of Public Transportation	1.000	.697
Availability of Expressway	1.000	.729
Traffic Congestion	1.000	.483
Crime Rate	1.000	.703
Good Security	1.000	.752
Density	1.000	.621
Friendly Neighbourhood	1.000	.622
Clean and Green Environment	1.000	.709
Availability of Recreational and Sporting Facilities	1.000	.721
Privacy	1.000	.547

Away from Hazardous and Industry Facilities	1.000	.675
My Choice of Developer	1.000	.791
Good Feeling of Developer	1.000	.822
Recommended Brand	1.000	.709
Willing to Pay More for Brand	1.000	.519
Well-Known Developer	1.000	.768
Expected Product Quality	1.000	.683
Track Record of Developer	1.000	.709
Trustworthy Developer	1.000	.723
After Sales Service Quality	1.000	.678

APPENDIX E

TOTAL VARIANCE EXPLAIN

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.772	32.701	32.701	11.772	32.701	32.701	6.381	17.726	17.726
2	3.530	9.805	42.506	3.530	9.805	42.506	4.150	11.527	29.253
3	2.197	6.102	48.608	2.197	6.102	48.608	3.309	9.192	38.445
4	1.829	5.080	53.688	1.829	5.080	53.688	3.181	8.835	47.281
5	1.677	4.659	58.347	1.677	4.659	58.347	2.336	6.490	53.771
6	1.361	3.782	62.129	1.361	3.782	62.129	2.201	6.114	59.885
7	1.068	2.967	65.096	1.068	2.967	65.096	1.876	5.211	65.096
8	.982	2.728	67.824						
9	.894	2.482	70.306						
10	.842	2.340	72.646						
11	.805	2.235	74.881						
12	.696	1.934	76.815						
13	.666	1.851	78.666						
14	.609	1.692	80.359						
15	.588	1.632	81.991						
16	.559	1.551	83.542						
17	.530	1.471	85.014						
18	.496	1.379	86.393						
19	.473	1.314	87.707						
20	.435	1.208	88.915						
21	.427	1.187	90.101						
22	.412	1.144	91.245						
23	.355	.986	92.231						
24	.346	.961	93.192						
25	.330	.918	94.110						
26	.287	.797	94.906						
27	.262	.729	95.635						
28	.251	.697	96.332						
29	.235	.653	96.985						
30	.215	.596	97.581						
31	.185	.515	98.096						
32	.181	.503	98.599						
33	.166	.460	99.059						

34	.128	.355	99.414					
35	.127	.353	99.767					
36	.084	.233	100.000					

ROTATED COMPONENT WITH KAIZER NORMALIZATION MATRIX OF VARIABLES

	Component						
	Developer's attributes	Location and accessibility	Living condition	Building factor	Loan and cash commitment	Housing affordability	Density and neighbourhood
My choice of developer	.828	.130	.211	.073	.174	-.076	.057
Good feeling of developer	.848	.108	.194	.072	.193	-.041	.098
Recommended brand	.779	.115	.124	.200	.183	-.006	.013
Willing to pay more for the brand	.686	.036	.105	.063	.004	-.119	-.133
Well-known developer	.837	.118	.155	.069	.146	.012	.048
Expected product quality	.773	-.007	.142	.142	.052	.179	.102
Track record of developer	.751	.103	.111	.169	-.088	.277	.099
Trustworthy developer	.732	.089	.126	.111	-.073	.350	.149
After sales service quality	.707	.131	.131	.054	.021	.194	.321
Building location	.178	.555	.041	.087	.017	.345	.067
Nearby healthcare centres	.109	.643	.066	.232	.053	-.084	.389
Nearby shopping mall, shops or market	.227	.674	.127	.219	.002	-.058	.064
Accessibility to working place	.031	.633	.065	.270	-.047	.176	.188
Availability of public transportation	-.056	.818	.081	.034	.114	.058	.011
Availability of expressway	.059	.754	.240	.134	.053	.061	-.273
Traffic congestion	.212	.489	.278	.207	.245	.113	.075
Crime rate	.279	.140	.631	.169	.040	.371	.201
Good security	.258	.066	.701	.171	-.019	.339	.212
Clean and green environment	.230	.260	.678	.071	.225	-.011	.270
Availability of recreational and sporting facilities	.227	.470	.637	.080	.156	-.062	-.091
Privacy	.390	.132	.468	.186	.054	-.065	.342
Away from hazardous and industry facilities	.320	.171	.661	.225	.115	.187	.085
Type of property	.127	.185	.149	.637	.152	.084	.125
Built up size	.112	.352	.176	.686	.079	.133	-.064
No. bedrooms and bathrooms	.118	.221	.033	.808	.088	.110	.054

Sufficient parking area	.208	.126	.113	.769	.111	-.008	.170
Aesthetic views	.321	.156	.249	.370	.344	-.197	.150
Facilities	.183	.458	.244	.421	.235	-.171	-.030
Interest rate of the loan	.066	-.026	.040	.271	.495	.144	.464
Available of loan	.159	-.079	.149	.285	.584	.136	.103
Ability for down payment	.017	.099	.193	.146	.759	.231	-.114
Recurring cost	.145	.277	-.061	-.015	.628	.126	.212
Household income	.107	.105	.193	.025	.349	.746	-.034
Property price	.100	.117	.115	.117	.205	.813	-.022
Density	.161	.003	.333	.185	.037	-.009	.670
Friendly neighbourhood	.173	.262	.345	-.014	.282	-.054	.567
	6.941	4.567	3.775	3.690	2.466	1.559	1.236

APPENDIX G

KMO AND BARTLETT'S TEST AFTER FACTOR ANALYSIS

KMO and Bartlett's Test – Developer's attributes		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.909
Bartlett's Test of Sphericity	Approx. Chi-Square	2350.735
	df	36
	Sig.	.000

KMO and Bartlett's Test – Location and accessibility		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.852
Bartlett's Test of Sphericity	Approx. Chi-Square	726.900
	df	21
	Sig.	.000

KMO and Bartlett's Test – Living condition		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	897.065
	df	15
	Sig.	.000

KMO and Bartlett's Test – Building factor		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.818
Bartlett's Test of Sphericity	Approx. Chi-Square	677.907
	df	15
	Sig.	.000

KMO and Bartlett's Test – Loan and cash commitment		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.588
Bartlett's Test of Sphericity	Approx. Chi-Square	234.890
	df	6
	Sig.	.000

KMO and Bartlett's Test – Housing affordability		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	246.601
	df	1
	Sig.	.000

KMO and Bartlett's Test – Density and neighbourhood		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	68.946
	df	1
	Sig.	.000

APPENDIX H

CRONBACH'S ALPHA AFTER FACTOR ANALYSIS

	Reliability Statistics – Developer's attributes		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.932	.935	9

	Reliability Statistics – Location and accessibility		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.838	.842	7

	Reliability Statistics – Living condition		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.864	.872	6

Reliability Statistics – Building factor		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.835	.837	6

Reliability Statistics – Loan and cash commitment		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.688	.691	4

Reliability Statistics – Housing affordability		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.855	.855	2

Reliability Statistics – Density and neighbourhood		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.621	.623	2

SPEARMAN'S RANK CORRELATION COEFFICIENT

			Developer's Attribute	Location and Accessibility	Living Condition	Building Factor	Loan and Cash Commitment	Housing Affordability	Density and Neighbourhood
Correlations									
Spearman's rho	Developer's Attribute	Correlation Coefficient	1.000	.285**	.534**	.409**	.276**	.203**	.384**
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
		N	304	304	304	304	304	304	304
	Location and Accessibility	Correlation Coefficient	.285**	1.000	.534**	.590**	.280**	.292**	.298**
		Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000
		N	304	304	304	304	304	304	304
	Living Condition	Correlation Coefficient	.534**	.534**	1.000	.545**	.381**	.270**	.590**
		Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
		N	304	304	304	304	304	304	304
	Building Factor	Correlation Coefficient	.409**	.590**	.545**	1.000	.467**	.242**	.396**
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
		N	304	304	304	304	304	304	304
	Loan and Cash Commitment	Correlation Coefficient	.276**	.280**	.381**	.467**	1.000	.360**	.378**
		Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000

	N	304	304	304	304	304	304	304
Housing Affordability	Correlation Coefficient	.203**	.292**	.270**	.242**	.360**	1.000	.163**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.004
	N	304	304	304	304	304	304	304
Density and Neighbourhood	Correlation Coefficient	.384**	.298**	.590**	.396**	.378**	.163**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.004	.
	N	304	304	304	304	304	304	304
**. Correlation is significant at the 0.01 level (2-tailed).								