HOUSING EQUILIBRIUM PRICE FRAMEWORK FOR MALAYSIAN MIDDLE CLASS GROUP IN AFFORDABLE HOUSING MARKET

FAZILAH BINTI RamlI

A thesis submitted in fulfillment of the requirements for the award of the Degree of Master of Technology Management

Faculty of Technology Management and Business Universiti Tun Hussein Onn Malaysia

AUGUST 2017
For my beloved mother and father
My brother, my sister,
My love

Much appreciate for all the support,
understanding and love
from all of you
ACKNOWLEDGEMENT

I would like to express my sincere appreciation to my supervisor, Dr. Rozlin binti Zainal and my co supervisor, Dr. Maimunah binti Ali for the support, advice and guidance given through out the duration for this research.

Also, my deep appreciation goes to my parent for their support in terms of encouragement and financial, patience and prayers. Last but not least, appreciation also goes to everyone involved directly or indirectly towards the compilation of thesis.
ABSTRACT

Failure in getting housing equilibrium price for affordable housing market has become a hot topic that is often discussed in the press due to the imbalance between housing demanded and supplied. The basic purpose of the research was to investigate the relationship between macroeconomic housing demand and supply determinant factors and affordable housing needs in Malaysia, and to determine the equilibrium house price for middle-class income in the affordable housing market. The research involved the development of theoretical framework by synthesising the models and framework developed by past researchers on the housing equilibrium price framework. It also uses time series analysis together with regression analysis to collect and analyse data. As initial, 371 respondents from household’s side and 32 respondents from developer’s side in Melaka Tengah were selected as samples as case study in Melaka. During data analysed, around 200 questionnaires from households and 32 questionnaires from developers can be used. The data was analysed using SPSS software to investigate the relationship between macroeconomic housing demand and supply determinant factors towards the needs and supply of affordable housing market. From the investigation, current house price, monetary status and population changes are the most critical factors that lead to the needs of affordable housing supplies. Meanwhile, developers put the interest rate, government interventions and population changes as the catalyst to develop the affordable housing projects. On the other hand, the empirical data of housing prices are collected from NAPIC from 2006 to 2015. The equilibrium price calculated from the sales performance within four quarter reported by NAPIC is examined using linear regression method. Based on these themes, the research contended that the housing equilibrium price can be achieved using empirical data from demand and supply with supported from current house price, monetary status and population changes the interest rate, government interventions and population changes. Hence, government is the key player and be a pulling effect in controlling the housing price by using the housing demand and supply determinant factor to create a win-win situation between middle-class income and housing developers.
ABSTRAK

Kegagalan dalam mendapatkan harga keseimbangan perumahan untuk pasaran perumahan yang mampu dimiliki telah menjadi topik hangat yang sering dibincangkan dalam akhbar kerana ketidakseimbangan antara perumahan yang diminta dan dibekalkan. Tujuan asas penyelidikan ini adalah untuk mengkaji hubungan antara permintaan perumahan makroekonomi dan faktor penentu bekalan dan keperluan perumahan yang mampu dimiliki di Malaysia, dan untuk mengetahui harga rumah keseimbangan untuk pendapatan kelas pertengahan di pasaran perumahan yang berpatutan. Kajian ini melibatkan pembangunan model teoritis dengan mensintesis model yang dibangunkan oleh penyelidik terdahulu mengenai kerangka harga keseimbangan perumahan. Ia juga menggunakan analisis siri masa bersama-sama dengan analisis regresi untuk mengumpul dan menganalisis data.

Sebagai permulaan, 371 responden dari pihak isi rumah dan 32 responden dari pihak pemaju di Melaka Tengah dipilih sebagai sampel memandangkan kajian kes di Melaka. Sebanyak 200 soal selidik dari isi rumah dan 32 soal selidik dari pemaju boleh digunakan. Data dianalisis dengan menggunakan perisian SPSS untuk menyiaskan hubungan antara permintaan perumahan makroekonomi dan faktor penentu bekalan ke arah keperluan dan penawaran pasaran perumahan yang mampu dimiliki. Status kewangan dan perubahan penduduk adalah faktor yang paling kritikal yang membawa kepada keperluan bekalan perumahan yang mampu dimiliki.

# TABLE OF CONTENTS

ACKNOWLEDGEMENT vi
ABSTRACT vii
ABSTRAK viii
TABLE OF CONTENTS ix
LIST OF TABLES xiii
LIST OF FIGURES xv
LIST OF SYMBOLS AND ABREVIATIONS xvii
LIST OF APPENDICES xviii

## CHAPTER 1  INTRODUCTION  1
  1.1 Background of Research 1
  1.2 Research Problem 2
  1.3 Research Questions 6
  1.4 Research Aim and Objectives 7
  1.5 Scope of Research 7
  1.6 Significance of Research 8
  1.7 Research Organisation 9
  1.8 Conclusion 10

## CHAPTER 2  LITERATURE REVIEW  11
  2.1 Introduction 11
  2.2 Current Scenario of Housing in Malaysia 11
  2.3 General Attributes and Operational Definitions 18
    2.3.1 Affordable Housing 18
    2.3.2 Malaysian Middle Class Income Group 20
    2.3.3 Housing Market 21
    2.3.4 Medium-Cost Housing Needs 22
    2.3.5 Medium-Cost Housing Provided 24
  2.4 Previous Study on Related Topic 25
CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction 57
3.2 Research Design 57
3.3 Research Process 61
3.4 Research Instrument 64
   3.4.1 Secondary Data Analysis 64
   3.4.2 Questionnaire Survey 67
3.5 Selection Sample 71
3.6 Reliability Test 75
   3.6.1 Pilot Test 75
3.7 Research Flow for Achieving Objective One 77
   3.7.1 Preparing Data File 77
   3.7.2 Factor Analysis 80
   3.7.3 Factorability Considerations Analysis 80
   3.7.4 Factor Extraction Analysis 80
3.8 Correlation Analysis 82
   3.8.1 Pearson r Correlation Analysis 83
3.9 Regression Analysis 85
3.10 Research Flow for Achieving Objective Two 86
   3.10.1 Correlation Analysis 88
3.11 Research Flow for Achieving Objective Three 89
3.12  Conclusion 92

CHAPTER 4  DATA ANALYSIS AND RESULTS 93
4.1  Introduction 93
4.2  Data Analysis Results for Survey Method (Set I) 94
   4.2.1 Effect of the Housing Demand Determinants toward the Affordable Housing Market in Malaysia 97
4.3  Data Analysis Results for Survey Method (Set II) 105
   4.3.1 Effect of Housing Supply Determinants toward Affordable Housing Market in Malaysia 107
4.4  Data Analysis Results for Document Analysis Method 110
   4.4.1 Stage One (Histogram Bar Chart Analysis) 110
   4.4.2 Stage Two (Demand and Supply Mechanism) 114
   4.4.3 Stage Three (Housing Equilibrium Price Identification) 115
4.5  Conclusion 120

CHAPTER 5  DISCUSSION 122
5.1  Introduction 122
5.2  Summary of Findings for Objective One 122
5.3  Macroeconomic Housing Demand Determinant Factors toward the Need of Affordable Housing Market 123
   5.3.1 House Price 123
   5.3.2 Monetary Status 124
   5.3.3 Changes of Population Structure 125
   5.3.4 Infrastructure & Amenities Provided 126
   5.3.5 Location 126
   5.3.6 Housing Physical State 127
5.4  Summary of Findings for Objective Two 128
5.5  Macroeconomic Housing Supply Determinant Factors toward the Affordable Housing Market Provided 129
   5.5.1 Interest Rate 129
   5.5.2 Government Interventions 130
   5.5.3 Changes of Population Structures 130
   5.5.4 Land Availability 131
   5.5.5 Cost of Construction 132
5.5.6 Location 133
5.6 Information Required in Performing Housing Equilibrium Price 134
  5.6.1 Housing Demand and Supply Behavioural 134
  5.6.2 Interaction between Housing Demand and Supply 136
  5.6.3 Housing Equilibrium Price Respond in Housing Market 137
5.7 Conclusion 140

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS 141
  6.1 Introduction 141
  6.2 Achievement of the First Objective (Housing Demand Determinants) 142
  6.3 Achievement of the Second Objective (Housing Supply Determinants) 143
  6.4 Achievement of the Objective Three (Housing Equilibrium Price) 145
  6.5 Limitation of Research 146
  6.6 Recommendations for Research 147
    6.6.1 Recommendations for Practitioners 148
    6.6.2 Recommendations for Body of Knowledge 148
  6.6 Closure 149

References 149-163
Appendices 164-213
# LIST OF TABLES

1.1 Total number of squatters for each state in Malaysia during the year 2014 4  
2.1 Housing affordability category 13  
2.2 Comparison of housing affordability across states in Malaysia 2014 14  
2.3 Gap between housing needs and housing provided for low starting year 1971 until 2010 17  
2.4 Definition of affordable housing according to the type of scheme 19  
2.5 Mean and median monthly salary and wages by occupation 20  
2.6 Housing needs under five year Malaysian housing plans 23  
2.7 Housing provided under five year Malaysian housing plans 25  
2.8 Research gap analysis on housing market issues 26  
2.9 Policy to curb speculations 34  
2.10 Revised of RPGT 34  
2.11 Scheme eligibility for each type of housing scheme 47  
2.12 Housing demand determinant factors 51  
2.13 Housing supply determinant factors 52  
3.1 Sampling and coding plan 65  
3.2 Total housing demand and supply for year 2006-2015 66  
3.3 Summary of element in questionnaire form set i 69  
3.4 Summary of element in the questionnaire form set ii 70  
3.5 Descriptive scale of Likert scale 71  
3.6 Sample size determination 74  
3.7 Reliability statistics I (questionnaire set I) 76  
3.8 Reliability statistics II (questionnaire set II) 76  
3.9 Variable coding instruction 78  
3.10 Summaries of screening data for questionnaire factors 79
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.11</td>
<td>Guidelines for determination of relationship strength</td>
<td>83</td>
</tr>
<tr>
<td>3.12</td>
<td>Variable coding summarise</td>
<td>87</td>
</tr>
<tr>
<td>3.13</td>
<td>Summaries of screening data for questionnaire factors</td>
<td>88</td>
</tr>
<tr>
<td>4.1</td>
<td>Household’s Demographic Results</td>
<td>94</td>
</tr>
<tr>
<td>4.2</td>
<td>KMO and Barlett’s Test</td>
<td>97</td>
</tr>
<tr>
<td>4.3</td>
<td>Total variance explained</td>
<td>98</td>
</tr>
<tr>
<td>4.4</td>
<td>Comparison of eigenvalues from SPSS software and Monte Carlo parallel analysis</td>
<td>99</td>
</tr>
<tr>
<td>4.5</td>
<td>List of factors in five components extracted</td>
<td>100</td>
</tr>
<tr>
<td>4.7</td>
<td>New r-value set i</td>
<td>102</td>
</tr>
<tr>
<td>4.8</td>
<td>Interrelationship among demand determinant factors</td>
<td>103</td>
</tr>
<tr>
<td>4.9</td>
<td>Developer’s demographic results</td>
<td>106</td>
</tr>
<tr>
<td>4.10</td>
<td>Correlations result set II</td>
<td>107</td>
</tr>
<tr>
<td>4.11</td>
<td>New r-value set II</td>
<td>107</td>
</tr>
<tr>
<td>4.12</td>
<td>Interrelationship among supply determinant factors</td>
<td>108</td>
</tr>
<tr>
<td>4.13</td>
<td>Housing equilibrium price during the year 2006 until 2015</td>
<td>114</td>
</tr>
<tr>
<td>4.14</td>
<td>Regression results</td>
<td>116</td>
</tr>
<tr>
<td>4.15</td>
<td>Housing equilibrium price according to the level of price categorised</td>
<td>117</td>
</tr>
<tr>
<td>5.1</td>
<td>Summary of findings for objective one</td>
<td>123</td>
</tr>
<tr>
<td>5.2</td>
<td>Summary of findings for objective two</td>
<td>128</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

1.1 Total of housing unit’s construction approved from year 2010 until 2014 4
2.1 Comparison between growth average of house prices and household income 12
2.2 Comparison of new housing supply and households density 15
2.3 Fundamental law of demand 28
2.4 House price growth 29
2.5 Fundamental law of demand 30
2.6 Long-run period supply 31
2.7 Short-run period supply 32
2.8 Theory of housing prices 33
2.9 Pipeline effect 36
2.10 New construction (completions) 36
2.11 Effects of exogenous shifters on new construction 37
2.12 Hierarchy of housing needs 42
2.13 Chart of urbanization level amongst key states 44
2.14 Process of ‘goldfish phenomenon’ 45
2.15 Demand and supply mechanism 49
2.16 Theoretical framework 55
3.1 Case study in Melaka 58
3.2 Research flow chart 63
3.3 Flow chart of data analysis process 77
3.4 Monte Carlo PCA analysis 82
3.5 Stages achieving objective one 84
3.6 Stages achieving objective two 89
3.7 Research flow chart for objective three 91
4.1 Scree plot 98
4.2 Macroeconomic housing demand determinant factors involve toward affordable housing market need 105
4.3 Macroeconomic housing supply determinant factors involve toward affordable housing market provided

4.4 Histogram bar chart of housing demand and supply develop across year 2006 until 2015

4.5 Housing equilibrium price at RM50,000 until RM100,000

4.6 Housing equilibrium price at RM 100,000 until RM150,000

4.7 Housing equilibrium price at RM150,000 until RM200,000

4.8 Housing equilibrium price at RM200,000 until RM250,000

4.9 Housing equilibrium price at RM250,000 until RM300,000
**LIST OF SYMBOLS AND ABREVIATIONS**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>α</td>
<td>Alpha</td>
<td></td>
</tr>
<tr>
<td>β</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>ρ</td>
<td>Price</td>
<td></td>
</tr>
<tr>
<td>CAGR</td>
<td>Compound Annual Growth Rate</td>
<td></td>
</tr>
<tr>
<td>CFO</td>
<td>Certificate of Occupancy</td>
<td></td>
</tr>
<tr>
<td>DIBS</td>
<td>Developer Interest Bearing Scheme</td>
<td></td>
</tr>
<tr>
<td>EP</td>
<td>Equilibrium price</td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>Gross domestic Product</td>
<td></td>
</tr>
<tr>
<td>ICS</td>
<td>Interest capitalization schemes</td>
<td></td>
</tr>
<tr>
<td>NEAC</td>
<td>National Economic Action Council</td>
<td></td>
</tr>
<tr>
<td>NEP</td>
<td>New Economy Policy</td>
<td></td>
</tr>
<tr>
<td>NKRA</td>
<td>National Key Result Areas</td>
<td></td>
</tr>
<tr>
<td>NRV</td>
<td>National Research Venture</td>
<td></td>
</tr>
<tr>
<td>OPR</td>
<td>Overnight Policy Rates</td>
<td></td>
</tr>
<tr>
<td>PAKR</td>
<td>Public Low Cost Housing Program</td>
<td></td>
</tr>
<tr>
<td>PHP</td>
<td>People Housing Program</td>
<td></td>
</tr>
<tr>
<td>PIR</td>
<td>Price-Income Ratio</td>
<td></td>
</tr>
<tr>
<td>PPA1M</td>
<td>Perumahan Penjawat Awam 1 Malaysia</td>
<td></td>
</tr>
<tr>
<td>PR1MA</td>
<td>1 Malaysia Housing Program</td>
<td></td>
</tr>
<tr>
<td>REHDA</td>
<td>Real Estate and Housing Developers</td>
<td></td>
</tr>
<tr>
<td>RUMAWIP</td>
<td>Rumah Mampu Milik Wilayah Persekutuan</td>
<td></td>
</tr>
<tr>
<td>SPNB</td>
<td>Syarikat Perumahan Negara Berhad</td>
<td></td>
</tr>
<tr>
<td>UNCHS</td>
<td>United Nations Centre for Human Settlement</td>
<td></td>
</tr>
</tbody>
</table>
LIST OF APPENDICES

A  Reliability test (households) ........................................ 164
B  Reliability test (developers) ........................................ 165
C  Categorical variables (household - demographic) ............. 166
D  Categorical variables (household - house price) ............... 168
E  Categorical variables (household - housing state) ............ 170
F  Categorical variables (household - monetary status) ........ 172
G  Categorical variables (household - population) ............... 174
H  Categorical variables (household - location) .................. 176
I  Categorical variables (household - infrastructure) .......... 178
J  KMO and Barlett test .................................................... 179
K  Total variance explained .............................................. 180
L  Rotated component ...................................................... 181
M  Correlation (I) ............................................................. 182
N  Categorical variables (developer) ................................. 183
O  Correlation (II) ............................................................. 184
P  Linear regression result I .............................................. 185
Q  Linear regression result II ............................................. 187
R  Linear regression result III ........................................... 189
S  Linear regression result IV ............................................ 191
T  Linear regression result V ............................................. 193
U  Graph of normal P-P plot of regression standardized residual (Total Demand) ........................................ 195
V  Graph of normal P-P plot of regression standardized residual (Total Supply) ........................................ 195
W  Sample of questionnaire form for households ................. 196
X  Sample of questionnaire form for developers .................. 204
Y1 Chart of the housing demand trend in 2015 .................... 204
Y2 Chart of the housing supply trend in 2015 ..................... 204
Y3  Chart of the housing demand trend in 2014  205
Y4  Chart of the housing supply trend in 2014  205
Y5  Chart of the housing demand trend in 2013  205
Y6  Chart of the housing supply trend in 2013  205
Y7  Chart of the housing demand trend in 2012  206
Y8  Chart of the housing supply trend in 2012  206
Y9  Chart of the housing demand trend in 2011  206
Y10 Chart of the housing supply trend in 2011  207
Y11 Chart of the housing demand trend in 2010  207
Y12 Chart of the housing supply trend in 2010  207
Y13 Chart of the housing demand trend in 2009  208
Y14 Chart of the housing supply trend in 2009  208
Y15 Chart of the housing demand trend in 2008  208
Y16 Chart of the housing supply trend in 2008  209
Y17 Chart of the housing demand trend in 2007  209
Y18 Chart of the housing supply trend in 2007  209
Y19 Chart of the housing demand trend in 2006  210
Y20 Chart of the housing supply trend in 2006  210
Y21 Chart of housing equilibrium price during 2015  210
Y22 Chart of housing equilibrium price during 2014  211
Y23 Chart of housing equilibrium price during 2013  211
Y24 Chart of housing equilibrium price during 2012  211
Y25 Chart of housing equilibrium price during 2011  212
Y26 Chart of housing equilibrium price during 2010  212
Y27 Chart of housing equilibrium price during 2009  212
Y28 Chart of housing equilibrium price during 2008  213
Y29 Chart of housing equilibrium price during 2007  213
Y30 Chart of housing equilibrium price during 2006  213
1.1 Background of Research

In recent decades, the demand for affordable housing has been increasing over the world until today (Wood, 2007). Even today, the affordable housing sector market has yet to meet the demands of the global population in the city (Jenkins et al., 2007). The population of Malaysia has increased from 21.3 million in 2000 to 30 million people in 2013 with a growth rate of 1.6%. The GDP has increased within this time along with the per capita income. The housing prices have increased by 12.3% annually all over the country (DoS, 2015). In the last decade, housing needs increased more than three times as fast for very low-income households with full-time employment than for all other very low-income households. It is generally accepted because housing market conditions can vary greatly across geographic areas so local planning agencies and governments have a greater understanding of the demographic and housing characteristics for their regions and are able to develop effective housing strategies (Feldman, 2002).

The issue of affordable housing in the world has not subsided. Past research in the US showed housing absolutely needs assistance in the form of federal financial and require either for profit or for non-profit parties to be responsible (Wallace, 1995). Immense chasm between demand and supply of affordable housing supply will cause the housing market price to be unstable besides leading to the problem of squatters (Arman et al., 2009). According to the Kalarickal & Buckley (2006), affordable housing market sector was identified as one of the most under-penetrated markets by private companies.
As an alternative to compulsory affordable housing construction, the government take initiatives to provide free land at strategic areas backed by efficient public transportation systems. The government can also fix the price or the proportional rise in price per square feet for affordable housing units under the development projects (EPU, 2015). Besides that, starting the year 2014, developers must build at least 20 percent low-cost houses and 20 per cent medium-cost houses in any housing project. The houses are open to first-time buyers with a monthly household income of RM3,000 for low-cost houses and a maximum of RM6,000 for medium-cost houses (Shuid, 2011).

The Tenth Malaysia Plan includes establishing 78,000 affordable housing units, out of which 38,950 will be under the People’s Housing Program (PHP) and 39,050 units will be under the programs conducted by Ministry of Rural and Regional Development. Government has a lot to do when it comes to developing low-cost and affordable housing for the people of Malaysia. Most importantly, in 2014 Budget, government is providing subsidy of RM30,000 per unit, which encourage developers to build more low- and medium-cost houses (EPU, 2015; KRI, 2015).

1.2 Research Problem

Failure in getting equilibrium price for affordable housing in Malaysia lately has become a hot topic that is often discussed in the press due to the increase in a number of overhang units of housing recorded across our country. Residential, Shops and Industrial Properties Market Status Report Q1 2014 issued by NAPIC shows that the houses priced below RM50,000 recorded the highest sales performance which is about 73 percent of the total new houses launched in the past two years (NAPIC, 2014). However, NAPIC (2014) found that developers tend to build houses ranging from RM150,000 until RM500,000 even the majority of overhang units is about 7,801 units of 13,055 recorded after being launched into the market came from house prices below RM300,000. According to the Malaysia Housing Minister, there is about 40% difference between the demand for affordable housing and its supply in Malaysia recorded in the year 2014 (EPU, 2015). Dos (2014) states that 80% Malaysians earn less than RM 6,900 per month and cannot afford houses priced at higher than RM 300,000 (EPU, 2015).
Most of the private housing developers used the cost-based pricing method to determine the price of residential properties (Rasid, 2013). According to Sheehan (1997), cost-based pricing method is referring to the total up from the land cost, construction cost, and soft cost. Even though the local authorities had set the price ceilings housing category but the developers still disobey the regulations (Shuid, 2011). The mismatch between real market demand and what is being offered obviously happen because of the developer’s behaviour. Even the policy had been regulated which is there must be 30% medium-cost and 20% low-cost components respectively to the landed development more than three acres while 30% medium-cost component for developments on an area less than three acres, still the developers do not show their interest to participate (NAPIC, 2014). Situation always happen more likely despite there are 10 affordable houses unit requested by the market, the developers only supplying two affordable units, four office spaces units, two retail spaces units and two very high-cost properties units (MoF, 2015).

Besides that, developers seem take too much profit up to above 50% of the cost of selling the house since there is no specific ways or methods they must followed. This is happen because the developers are forced to pay high amounts of constructions premium to the state government besides the soft cost, which act as a hidden cost in the housing development projects. As sequences, the developers will include the addition costs when pricing the house (Osmadi et al., 2015). They set the house price at will even for the affordable housing price because there is no monitoring from the government done all this time (Sinar Harian, 2013). The impact is, the buyer cannot afford to buy the house and the speculators will control the housing situation until the house price boomed (Osmadi et al., 2015). However, limited studies have discussed on the weaknesses of pricing method used by the developers to evaluate the housing prices (Osmadi et al., 2015).

Nevertheless, the traditional method used can be improved so that the developers are more interested to provide the affordable house with affordable price without ignoring the profit margin (Rasid, 2013; Bakhtiar, 2013). In addition, the problem encountered based on the report shows immense chasm happening between demand and supply for affordable housing in our country. From the perspective of surplus in high-cost housing, it shows that our country has prompted real estate developers, which are more focused on developing luxury property instead of developing affordable housing (JPN, 2015). This statement is strongly agreed by
Wood (2007) who opines that property owners are more interested in projects that can give them lucrative return and this, of course, do not refer to affordable housing projects. Hence, prices of existing homes in the low and middle price segment continue to grow (EPU, 2015). Figure 1.1 shows total of housing unit’s construction approved from year 2010 until 2014. The figure reaffirms the overview about the scenario happening in housing supply based on house price category. From the figure, it is prove that the majority of developers apply approval for high-cost houses instead of other categories. More troubling issues are approval for the construction of low-medium cost houses which decreased by 79.2% (4,621 units) in 2014 compared to 2013.

![Figure 1.1: Total of Housing Unit’s Construction Approved from Year 2010 until 2014](JPN, 2015)

The figure illustrates a significant difference and imbalanced proportions between Malaysian housing supply and needs of what has been constructed and what Malaysia actually needs. The effects from the surplus of high-cost housing units lead to a huge total number of squatters by each state across our country including Sabah and Sarawak (Shuid, 2003; KRI, 2015; JPN, 2015; NAPIC, 2014; MURNInets, 2016). Obviously, the gap supply for lower cost housing is more important than high-cost housing. Furthermore, a number of people with a monthly income of RM700.00 consist of at least 440,000 people recorded since the year 2011. However, the 10th Malaysia Plan is only talking about 78,000 affordable units when Malaysia has more than 1,300,000 people living under the poverty line (Bakhtiar et.al, 2013). High-cost
housing is indicated by prices over RM100,000 while low-cost housing is indicated by prices less than RM42,000.

Table 1.1 shows the total number of squatters according to each state in Malaysia during the year 2015. We can say that only Melaka recorded the lowest total number of squatters since the state provided not only sufficient housing supply units but also affordable housing prices. From Table 1.1, Sabah has the highest total number of squatters in Malaysia followed by Johor and Sarawak where each of them recorded 133059, 31553, 35233 inhabitants respectively. None of the states across the country had zero squatters recorded for all this time. However, Melaka, Negeri Sembilan, and Terengganu recorded the lowest total number of squatters in this year. This sign actually warns responsible agencies to realize that there is still a huge gap between demand and supply housing due to socioeconomic changes, urbanization and evolving population structures. Squatters will continue to be widespread among the low and lower middle-income households in urban areas as long as the issue of inadequate supply of affordable housing is still unresolved.

Therefore in such situations that already discussed by NAPIC (2014), Wood (2007), EPU (2014), Sinar Harian (2013) & MoF (2015) the implementation of an equilibrium price for Malaysian middle-class income in the affordable housing market among developers should be proposed in order to make sure they set an equilibrium price on par with total demand. Considering that the private developers carry out many housing development projects, it is vital for them to know and implement the framework proposed in this research to ensure an adequate supply of affordable housing to the middle-income households. According to KRI (2015) and Osman et al. (2017) Melaka Housing Board is the only board who one step forward in providing adequate affordable housing where it also indirectly solving the squatters problem even Johor, Pulau Pinang, Pahang and Selangor were established at the same time. The board showed that they can manage to oversee the affordable housing development projects even the other housing board. Melaka Housing Board is a state government agency that had been organized to oversee the affordable housing development projects in Melaka. The Board was established in 2002 through the passing of the Melaka Housing Board Enactment 2002. Secondly, all over the years, Melaka is one forward step in providing adequate affordable housing where it also indirectly solving the squatters problem compared to other states such as Johor,
Pulau Pinang, Pahang and Selangor by showing the improvement of house price year by year in Melaka (KRI, 2015; Osman et al., 2017).

Table 1.1: Total Number of Squatters for Each State in Malaysia during 2015 (KRI, 2015)

<table>
<thead>
<tr>
<th>State</th>
<th>Family</th>
<th>Family Members</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johor</td>
<td>11,151</td>
<td>31,553</td>
<td>8,346</td>
</tr>
<tr>
<td>Kedah</td>
<td>2,703</td>
<td>13,255</td>
<td>2,703</td>
</tr>
<tr>
<td>Kelantan</td>
<td>1,685</td>
<td>7,780</td>
<td>1,649</td>
</tr>
<tr>
<td>Melaka</td>
<td>7</td>
<td>19</td>
<td>7</td>
</tr>
<tr>
<td>Negeri Sembilan</td>
<td>195</td>
<td>382</td>
<td>233</td>
</tr>
<tr>
<td>Pahang</td>
<td>1,134</td>
<td>5,632</td>
<td>935</td>
</tr>
<tr>
<td>Perak</td>
<td>1,709</td>
<td>6,836</td>
<td>1,709</td>
</tr>
<tr>
<td>Perlis</td>
<td>1,853</td>
<td>8,570</td>
<td>1,853</td>
</tr>
<tr>
<td>Pulau Pinang</td>
<td>4,208</td>
<td>18,909</td>
<td>2,875</td>
</tr>
<tr>
<td>Sabah</td>
<td>28,087</td>
<td>133,059</td>
<td>26,479</td>
</tr>
<tr>
<td>Sarawak</td>
<td>8,431</td>
<td>35,233</td>
<td>7,784</td>
</tr>
<tr>
<td>Selangor</td>
<td>2,542</td>
<td>3,299</td>
<td>3,299</td>
</tr>
<tr>
<td>Terengganu</td>
<td>469</td>
<td>1,976</td>
<td>450</td>
</tr>
<tr>
<td>Wilayah Persekutuan Kuala Lumpur</td>
<td>3,217</td>
<td>12,868</td>
<td>3,217</td>
</tr>
<tr>
<td>Wilayah Persekutuan Labuan</td>
<td>970</td>
<td>5,521</td>
<td>970</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>68,361</strong></td>
<td><strong>284,892</strong></td>
<td><strong>62,509</strong></td>
</tr>
</tbody>
</table>

1.3 Research Questions

This research seeks to answer the following questions based on the research problem identified:

1. What is the relationship between housing demand determinants with affordable housing needs in Malaysia?
2. What is the relationship between housing supply determinants with affordable housing provided in Malaysia?
3. What is the housing equilibrium price for Malaysian middle-class income in the affordable housing market?
1.4 Research Aim and Objectives

This research is conducted to propose a housing equilibrium price framework for Malaysian middle-class group to create an affordable housing market. Therefore, several research objectives need to be achieve to reach the research aim namely,

1. To investigate the relationship between housing demand determinants and affordable housing needs in Malaysia
2. To investigate the relationship between housing supply determinants and affordable housing provided in Malaysia.
3. To determine the housing equilibrium price for Malaysian middle-class income in the affordable housing market.

1.5 Scope of Research

Melaka Tengah was chose as case study in this research to represent Malaysia by taking considerations that Melaka as UNESCO World Heritage Site. This research focussed on Melaka Tengah because the district had proven that the district had improved and maintained the housing affordability among the citizen even it is surrounded with high population density together with high good potential development and urbanization (Osman et al., 2017). Population for households for Melaka Tengah was estimated around 23,540 respondents including who are living at Ayer Keroh, Ayer Molek, Batu Berendam, Bukit Baru, Bukit Rambai, Kandang, Klebang, Melaka, Paya Rumput, Sungai Udang, Tangga Batu and Tanjong Kling (DoS, 2015). However, the research had some limitations since the total number of respondents only covered for Melaka Tengah instead of all Melaka state.

The first and second research objective is to investigate the relationship between housing demand and supply determinants and affordable housing market in Malaysia. For these objectives, the researcher used the questionnaire method and distributed to two different types of respondents. The first set of questionnaire was distributed to households between the age group of 25 to 40 years old in Melaka by taking considerations from KRI (2015) which state that the majority of households aged from 25 to 40 years old are facing difficulties in homeownership. Meanwhile, the alternate survey was focused on the housing developers in Melaka because
according to DoS (2015), NAPIC (2015) and KRI (2015), Melaka had stood out providing housing under affordable level compared to other state (KRI, 2015).

Results from both set of questionnaires were analysed using SPSS software to get the strength of the relationship between the macroeconomic housing demand determinant factors (current house price, affordable housing physical state, monetary status, population changes, affordable housing location, infrastructures and amenities provided) and macroeconomic housing supply determinant factors (interest rate, construction cost, land availability, population changes, location, government interventions) toward the affordable housing market need and supply in Malaysia.

On the other hands, third objective aims to determine the equilibrium price for affordable housing for Malaysian middle-class income. The researcher use secondary data analysis method to extracted the total housing demand and supply starting year 2006 until 2015 from the Property Market Status Report from NAPIC website. According to Riddle (2004), more than 10 years is considered accepted for the housing demand and supply. This objective was focused on the landed housing properties include any type of terrace house, any type of detached house, cluster and town house, priced between RM50,000 until RM300,000 by taking considerations from MURNInets (2016) which states that RM300,000 is a maximum price in the affordable market price for middle-class income groups which normally face dilemmas in homeownership.

The different final process of analyses involved are the cost-benefit analysis process and linear regression analysis to see the equilibrium price across 10 years selected. The analysed series data was analysed by using Microsoft Excel for further explanation and SPSS software to complete the demand and supply equation so that the housing equilibrium price framework for the affordable housing market can be developed.

1.6 Significance of Research

The importance of the research is to propose the equilibrium price for the affordable housing market in Malaysia. As we know, the state of Melaka is already categorised providing the affordable housing market which the housing price is at three times of the median multiple DoS (2015), NAPIC (2015) and KRI (2015). Therefore, this
research is carried out to create awareness among developers on how to achieve the equilibrium price in the affordable housing market.

Besides that, the government also can improve their policy to control housing prices as the research is going to identify factors involved in getting equilibrium price for affordable housing market. In addition, this research will promote ways to get equilibrium price for affordable housing so that scholars can improve the equilibrium price framework proposed in order to make Malaysian housing affordable not only in Melaka.

1.7 Research Organisation

This research contains seven main chapters. Overall, combination and alterations from chapter one, two, and three are giving the theoretical framework for the research. Chapter one generally explains about the background of research and research problem. From that, research questions and research aim, and research objectives are developed meanwhile the scope of research is identified.

Chapter two explains about the affordable housing problem market in detail. Besides that, it also discusses theory related to imbalance between demand and supply determinants and other determinants that cause the changes in house price. Issues on affordability toward housing homeownership are also explained in this chapter.

Research methodology will be discussed in the next chapter which is in chapter three. Within this chapter, it covers two technique of gathering data including primary data and secondary data. This chapter is fundamental to the research because it explains about the research process, framework concept, ways to gather data and information, and analysis method chosen.

The subsequent chapter covers the process of analysing data from primary data gathered from respondents. Through this chapter, each research objective will nearly be achieved because the results obtained are displayed, and analysed according to the priority based on stages planned in the previous chapter.

Chapter five presents the findings of each research objective. In this chapter, further discussion will be done in order to form a conclusion for solving the framework proposed in the starting chapter.
Heading to the last chapter which is chapter six. Conclusion and suggestions to improve the affordable housing market will be stated and recommendations for future research will be suggested.

1.8 Conclusion

Affordable housing is not a welfare issue but it is a structural issue caused by an unresponsive housing sector. Choosing the suitable method in doing a research is essential which may influence in generating good information. Last but not least, this chapter is actually the beginning of the research process. Identifying the research background followed by current issues were highlighted in the research problem. Consequently, research questions will be raised from the problem that are in the limelight lately.
CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

House is the largest single asset for most people since it is a part of non-pension wealth in their life. That is why; changes in house prices can greatly affect their total household wealth indirectly. Every increase and decrease in house price has pros and cons. However, lower house price can open up many opportunities for young households to buy houses instead of renting them but at the same time, it could hurt the entire house owner. Hence, particularly in recent years, housing equilibrium prices have been in the limelight for various research areas. Relevant theories will be discussed later in this chapter to shed light on this issue.

2.2 Current Scenario of Housing in Malaysia

Over the past few years, the housing price market in Malaysia had experienced a huge value development that affected the purchasing power among the home buyers especially first time home buyers (Mohd Shoed & Subramaniam, 2016). According to BNM (2016), incomes were rising more than the growth of house prices between years 2004 to 2007. This sign shows the housing affordability across Malaysia has progressively declined due to the uneven pace of house prices and income growth (BNM, 2016). The average of house prices in Malaysia rose by 7.9% in average annual growth rate over a specified period of time (CAGR), exceeding the growth in average household income of 7.3% over the same period during the period in 2009 and 2014 (see Figure 2.1).
The gap between actual house prices and the levels that are considered affordable to the majority of Malaysian households requires comprehensive resolution. This is why the research is designated especially to focus on the households between the age group of 25 to 40 years old as a respondent to answer the first research. Over the next 20 years, this segment of the population will join the ranks of a growing middle-income group aspiring to home ownership (Utusan Online, 2016). To give an idea of the current size of demand for housing, Malaysia’s Household Income and Basic Amenities Survey Report of 2012 indicates that nearly 42% of households fall within the middle-income range of RM3,000-RM6,999 or a mean monthly income of around RM4,600 (DoS, 2014). This may be translated into about 3 million middle-income households that have to be housed by the private sector and another 2.5 million households to be covered by public social housing programs.

According to the BNM (2016) and Utusan Online (2016) households between the age group of 25 to 40 years old facing difficulties in homeownership as they tend to be indebted with existing debt obligations such as car loan and outstanding credit card repayments. Consequently, housing affordability can use median multiple to evaluate urban housing markets. The median multiple was first developed in 1988 by
UNCHS and the World Bank under the Housing Indicators Program (KRI, 2015). Basically, median multiple is also known as price to income ratio that gives the ‘global norm’ based on rating housing affordability categories (see Table 2.1) (Angel et. al., 1993; Angel, 2000; Demographia, 2015).

Table 2.1: Housing Affordability Category
(Demographia, 2015)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Median Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severely unaffordable</td>
<td>5.1 and above</td>
</tr>
<tr>
<td>Seriously unaffordable</td>
<td>4.1 – 5.0</td>
</tr>
<tr>
<td>Moderately unaffordable</td>
<td>3.1 – 4.0</td>
</tr>
<tr>
<td>Affordable</td>
<td>3.0 and below</td>
</tr>
</tbody>
</table>

House price can be considered as an affordable state if a household can finance it with less than three times its annual household income. Hence, this suggests that houses priced up to RM165,060 are considered affordable to general median Malaysian household (BNM, 2016). House price above RM500,000 is considered affordable only for households earning at least RM15,000 a month (5.4% of Malaysia’s total population in 2014). However, level of affordability for each household for each state of Malaysia are differs. Table 2.2 shows the housing affordability for Terengganu, Kuala Lumpur, Pulau Pinang, and Sabah that stood out as severely unaffordable compared to other states in Malaysia. However, only the state of Melaka stood out as under affordable for housing affordability (EPU, 2015). Indeed, this research is focused on the private developers in Melaka to investigate on how they determine the house price in the affordable condition.
Table 2.2: Comparison of housing affordability across states in Malaysia, 2014 (DoS, 2015, NAPIC, 2015 & KRI, 2015)

<table>
<thead>
<tr>
<th>No.</th>
<th>Area</th>
<th>Monthly median income</th>
<th>Annual median income</th>
<th>Market median-3 price</th>
<th>Median all house price</th>
<th>Median multiple affordability</th>
<th>Affordability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Terengganu</td>
<td>3,777</td>
<td>45,324</td>
<td>135,972</td>
<td>250,000</td>
<td>5.5</td>
<td>Severely</td>
</tr>
<tr>
<td>2.</td>
<td>K. Lumpur</td>
<td>7,620</td>
<td>91,440</td>
<td>274,320</td>
<td>490,000</td>
<td>5.4</td>
<td>Unaffordable</td>
</tr>
<tr>
<td>3.</td>
<td>P. Pinang</td>
<td>4,702</td>
<td>56,424</td>
<td>169,272</td>
<td>295,000</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Sabah</td>
<td>3,745</td>
<td>44,940</td>
<td>134,820</td>
<td>230,000</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Pahang</td>
<td>3,389</td>
<td>40,668</td>
<td>122,004</td>
<td>200,000</td>
<td>4.9</td>
<td>Seriously</td>
</tr>
<tr>
<td>6.</td>
<td>Kelantan</td>
<td>2,716</td>
<td>32,592</td>
<td>97,776</td>
<td>157,740</td>
<td>4.8</td>
<td>Unaffordable</td>
</tr>
<tr>
<td>7.</td>
<td>Perak</td>
<td>3,451</td>
<td>41,412</td>
<td>124,236</td>
<td>180,000</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Perlis</td>
<td>3,500</td>
<td>42,000</td>
<td>126,000</td>
<td>181,000</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Johor</td>
<td>5,197</td>
<td>62,364</td>
<td>187,092</td>
<td>260,000</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Selangor</td>
<td>6,214</td>
<td>74,568</td>
<td>223,704</td>
<td>300,000</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Negeri Sembilan</td>
<td>4,128</td>
<td>49,536</td>
<td>148,608</td>
<td>188,888</td>
<td>3.8</td>
<td>Moderately</td>
</tr>
<tr>
<td>12.</td>
<td>Sarawak</td>
<td>3,778</td>
<td>45,336</td>
<td>136,008</td>
<td>164,667</td>
<td>3.6</td>
<td>Unaffordable</td>
</tr>
<tr>
<td>13.</td>
<td>Kedah</td>
<td>3,451</td>
<td>41,412</td>
<td>124,236</td>
<td>140,000</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Melaka</td>
<td>5,029</td>
<td>60,348</td>
<td>181,044</td>
<td>180,000</td>
<td>3.0</td>
<td>Affordable</td>
</tr>
</tbody>
</table>

The changes in population in Malaysia happen in many ways such as migration of people from rural to urban areas, job transfers, maternity, marriage, and urbanisation will increase the demand for housing property (Vermeulen & Ommeran, 2006). Rapid development in a city due to the economic activities had attracted the rural communities to migrate and experience urban life (Agus, 2005). Apart from that, the city is forced to face the housing shortages because of the increased population from the migration activities (Abdullah et al., 2017. The existence shortage of housing supply linked with the process of urbanisation and urban growth encourage residents flocking to the city to get a chance offered by the city.

However, this research is not discussing this matter with further, it is sufficient to declare the existence of such relationships in order. Figure 2.2 shows the comparison of new housing supply and the household’s density starting the year 2005 until 2015. Between 2005 and 2008, the number of new houses completed averaged 166,876 units annually, while the number of households increased by about 117,250, implying a surplus supply of housing units of about 49,626 units per year.
Over the past five years, however, the annual completion of houses has declined considerably to 80,089 units, far below the 166,000 average net increases in the number of households’ annually. This suggests an average shortage of 85,911 housing units per year between 2011 and 2015.

Besides that, based on property market status reports, reviews reveal that many new units have been developed but the review also highlights that many existing units are unsold. The growing housing sector encourages developers to build new housing units more. As indicated by the NAPIC, there were approximately 7,538 new residential units launched in Malaysia in 2015, while there was a current stock around 4.8 million units in the market recorded in Q1 2015 (NAPIC, 2015). The huge numbers of unsold units suggest the issue of difficulty in selling and affordability. The effects of ‘overhang’ are not limited to only developers, but buyers of low-cost houses have also suffered (Bajunid & Ghazali, 2012).

Based on the Hung Up On Residential Property (2006), overhang refers to completed properties issued with Certificate of Fitness for Occupation and unsold for more than nine months. The mass media also highlighted that majority of the housing supply has been concentrated in the higher-price housing which is more than RM250,000. Impact from that situation, the house price has outstripped the rise in income level and cause the median house prices are beyond the reach of most Malaysians. BNM (2015) also added the housing market has not provided an
adequate supply of affordable housing especially for middle-class income group. The gap between demand and supply during year 2014 was estimated around 960,000 units across Malaysia which recorded about 50% of the shortage is faced by Sabah and Sarawak. The rest half percent recorded are Kuala Lumpur, followed by Pulau Pinang and Johor having the highest shortage of affordable housing units (BNM, 2015). Contradict, Selangor is the only state found to have a surplus of affordable housing units (BNM, 2015).

Table 2.3 shows the Gap between Housing Needs and Housing Provided for Low Starting Year 1971 until 2010. Unfortunately, the government has not documented the statistics for the targets in the Tenth Malaysia Plan (2011–2015) and for the housing erected by the public and private sectors. In the Second Malaysia Plan (from 1971 to 1975), the private sector increased its influence when the government sought the cooperation of private developers in the provision of low-cost houses. As per this plan, at least 30% of the houses in each private housing project must be low cost. To sum up from all Malaysian plans, the private sector has exceeded this set target by providing a surplus of 41%, 29.4%, and 116% of houses over the past three consecutive Malaysia Plan periods (1991–1995, 1996–2000, and 2000–2005, respectively.

From the table, we can see that the housing provided by public sector and government still cannot fill the gap for housing needs. Every five years Malaysian plan is not be able to achieve their target in providing a sufficient unit of housing especially for medium-cost housing. Seventh Malaysian Plan recorded that only 1/3 medium-cost housing of the market needs constructed by public sector meanwhile the private sector constructed more than the market needs. The fall in supply is not new. National housing production has been on a declining trend since the late 1970’s, notably for social housing, which once accounted for over 50% of total housing output. A shortage of housing is likely to worsen as population growth continues and the supply response remains sluggish. Latest household projection suggest that housing supply would have to rise very significantly from its levels over the past twenty years in order to meet rising demand. The shortfall between the demand for housing each year and the number of housing completions is often referred to as the ‘demand gap’. There has been a long-term gap between the estimated annual demand for housing in the regions and the numbers of houses constructed each year in each region as well as nationally.
Table 2.3: Gap between Housing Needs and Housing Provided for Low Starting Year 1971 until 2010
(Various Five Years Malaysia Plan)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Need</td>
<td>Provided</td>
<td>Need</td>
<td>Provided</td>
<td>Need</td>
<td>Provided</td>
<td>Need</td>
<td>Provided</td>
</tr>
<tr>
<td>Public Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-cost housing</td>
<td>-</td>
<td>13,244</td>
<td>26,250</td>
<td>176,500</td>
<td>45,800</td>
<td>40,000</td>
<td>15,376</td>
<td>62,812</td>
</tr>
<tr>
<td>Low/medium-cost housing</td>
<td>-</td>
<td>41,965</td>
<td>60,000</td>
<td>110,010</td>
<td>57,500</td>
<td>32,056</td>
<td>8,075</td>
<td>45,800</td>
</tr>
<tr>
<td>Medium cost housing</td>
<td>-</td>
<td>24,240</td>
<td>41,300</td>
<td>20,560</td>
<td>8,075</td>
<td>31,700</td>
<td>42,300</td>
<td>27,614</td>
</tr>
<tr>
<td>Medium/high-cost housing</td>
<td>-</td>
<td>6,627</td>
<td>57,300</td>
<td>37,930</td>
<td>370,400</td>
<td>22,794</td>
<td>370,400</td>
<td>88,877</td>
</tr>
<tr>
<td>Subtotal</td>
<td>-</td>
<td>86,076</td>
<td>220,800</td>
<td>121,510</td>
<td>398,570</td>
<td>190,045</td>
<td>174,000</td>
<td>84,452</td>
</tr>
<tr>
<td>Private Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Developers</td>
<td>-</td>
<td>64,862</td>
<td>100,000</td>
<td>199,490</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Low-cost housing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medium/high-cost housing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sub-total</td>
<td>-</td>
<td>173,734</td>
<td>162,000</td>
<td>362,680</td>
<td>524,730</td>
<td>201,993</td>
<td>552,500</td>
<td>570,000</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>259,810</td>
<td>382,800</td>
<td>484,190</td>
<td>923,300</td>
<td>701,500</td>
<td>573,000</td>
<td>859,480</td>
</tr>
</tbody>
</table>

Note:
1. Low cost housing price below RM42,000 per unit
2. Low medium cost housing price RM42,001–RM80,000 per unit
3. Medium cost housing price RM80,001–RM150,000 per unit
4. High cost housing price RM150,000 and above per unit
2.3 General Attributes and Operational Definitions

2.3.1 Affordable Housing

Before framing the housing affordability, it is important to delineate the contours of this term by defining the term affordable housing. According to Gopalan & Venkataraman (2015), affordable housing refers to any housing that meets some form of affordability criterion such as income level of the family and the affordability (High Level Task Force on Affordable Housing for All, 2008). However, UN-HABITAT, 2011 defined the affordable housing as the housing which is adequate in quality and location, and is not so costly that it prevents its occupants from meeting other basic living needs.

Meanwhile, MURNInets (2013) summarised that the definition of affordable housing in Malaysia are includes houses built for low-income households, low-medium households and medium households. Besides that, the definition also related to the ability of the households to pay at least 1/3 of the total household income for the purpose of payment either own ownership or lease. However, MURNInets (2013) added that the concept of affordable housing does not have a fixed and uniformed definition according to the type of scheme introduced by the government. This is because all the housing scheme introduced are targeting different class income group according to their target applicants which based on the eligibility criteria that had been set.

Therefore, Table 2.4 shows the definition of affordable housing according to the scheme introduced by the government. There are about seven types of affordable housing projects in Malaysia namely Skim Perumahan Rakyat 1Malaysia (PR1MA), Skim Perumahan Mampu Milik Swasta (MyHome), Perumahan Penjabat Awam 1Malaysia (PPA1M), Program Perumahan Rakyat (PPR), Rumah Mesra Rakyat 1Malaysia (RMR1M), Rumah Mampu Milik Wilayah Persekutuan (RUMAWIP) and Rumah Selangorku (Starproperty, 2016).
Table 2.4: Definition of Affordable Housing According to the Type of Scheme (Adaptation from Starproperty, 2016)

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Scheme</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1Malaysia People’s Housing</td>
<td>Includes houses built in price range starting from RM100,000 until RM400,000 for households income between RM2,500 until RM10,000</td>
</tr>
<tr>
<td>2.</td>
<td>Private Affordable Ownership Housing Scheme (MyHome)</td>
<td>MyHome1 Includes houses built in price range starting from RM50,000 until RM90,000 at Peninsular for the first time buyer households income between RM3,000 until RM4,000 MyHome2 Includes houses built in price range starting from RM90,001 until RM170,000 for the first time buyer households income between RM4,001 until RM6,000</td>
</tr>
<tr>
<td>3.</td>
<td>Program Perumahan Penjawat Awam 1Malaysia (PPA1M)</td>
<td>Includes houses built in price range starting from RM150,000 until RM300,000 for the first time buyer government servants income below RM10,000</td>
</tr>
<tr>
<td>4.</td>
<td>Projek Perumahan Rakyat (PPR)</td>
<td>Includes houses built in price range starting from RM30,000 until RM35,000 for the first time buyer households income below RM2,500</td>
</tr>
<tr>
<td>5.</td>
<td>Rumah Mesra Rakyat 1Malaysia (RMR1M)</td>
<td>Includes houses built in price range starting from RM45,000 until RM65,000 for households income between RM750 until RM3,000</td>
</tr>
<tr>
<td>6.</td>
<td>Rumah Mampu Milik Wilayah Persekutuan (RUMAWIP)</td>
<td>Includes houses built in price range starting from RM52,000 until RM300,000 for households income below RM15,000 (only for who stays and work in Wilayah Persekutuan)</td>
</tr>
<tr>
<td>7.</td>
<td>Rumah Selangorku</td>
<td>Includes houses built in price range starting from RM42,000 until RM250,000 for households income between RM3,000 until RM10,000 (only for who within vicinity of the Selangor region)</td>
</tr>
<tr>
<td>8.</td>
<td>Rumah Idaman Rakyat (RIR)</td>
<td>Includes houses built in price range starting from below RM300,000 for first time buyers/disable persons (OKU) or single mother having personal income under RM7,500 or households income under RM10,000</td>
</tr>
</tbody>
</table>
2.3.2 Malaysian Middle Class Income Group

Since 2014, economists and academics have believed the term “middle class” did not have the same meaning it had more than 10 years ago when considering the challenges faced by this group in coping with the demands of life today (Surendra, 2017). As indicated in the Routledge Handbook of World Englishes, the middle class basically a class of salaried workers. Again according to the book, the middle class income group is depending on their salary and upon increment salaries as their main income sources. Kirkpatrick (2010) also highlighted that the purchasing power among the middle-income group are depends upon the value of the currency.

A survey conducted by Malaysian Department of Statistics once in every five years give an indicator for the supplied income of employees. According to Table 2.5, the lower middle class consist of several support workers such as clerical which earn on average RM1,718 per month. The rest are those in the sales and service category only earn RM1,299 per month. In accordance with that, Malaysia (2012b) already highlighted that about two-thirds of households in Malaysia have less than RM5,000 per month meanwhile almost 40 percent earn less than RM3,000. This sign proved that the middle class income group having relatively weak financial position.

Table 2.5: Mean and Median Monthly Salary and Wages by Occupation  
(Malaysia, 2012a)

<table>
<thead>
<tr>
<th>No.</th>
<th>Occupation</th>
<th>Number (‘000)</th>
<th>Mean income (RM)</th>
<th>Median income (RM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Managerial and administrative</td>
<td>302.0 (3.3%)</td>
<td>5,213.00</td>
<td>4,000.00</td>
</tr>
<tr>
<td>2.</td>
<td>Professional</td>
<td>1134.7 (12.5%)</td>
<td>3,807.00</td>
<td>3,440.00</td>
</tr>
<tr>
<td>3.</td>
<td>Technicians and associate professionals</td>
<td>1,188.6 (13.1%)</td>
<td>2,435.00</td>
<td>2,200.00</td>
</tr>
<tr>
<td>4.</td>
<td>Clerical support workers</td>
<td>1,136.5 (12.5%)</td>
<td>1,718.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>5.</td>
<td>Services and sales workers</td>
<td>1,685.3 (18.5%)</td>
<td>1,299.00</td>
<td>1,000.00</td>
</tr>
<tr>
<td>6.</td>
<td>Craft and related trades workers</td>
<td>133.6 (1.5%)</td>
<td>1,283.00</td>
<td>1,100.00</td>
</tr>
<tr>
<td>7.</td>
<td>Plant and machine operators</td>
<td>950.0 (10.4%)</td>
<td>1,216.00</td>
<td>1,000.00</td>
</tr>
<tr>
<td>8.</td>
<td>Skilled agricultural, forestry, and fishery</td>
<td>1,389.9 (15.3%)</td>
<td>1,065.00</td>
<td>860.00</td>
</tr>
<tr>
<td>9.</td>
<td>Elementary occupations</td>
<td>1,167.9 (12.8%)</td>
<td>959.00</td>
<td>810.00</td>
</tr>
<tr>
<td>10.</td>
<td>Total</td>
<td>9,088.6 (100.0%)</td>
<td>1,881.00</td>
<td>1,400.00</td>
</tr>
</tbody>
</table>
On the other hands, those group in the administrative, managerial and professional categories earn as much as RM10,000 until RM30,000 per month, meanwhile those in other category earn RM2,000 until RM4,000 per month. In this case, Kirkpatrick (2010) had mentioned that group is categorized as new middle class income as the group enjoy a higher income level. To address this, the government had set up several housing programmes especially for the middle class income group since the demand for housing is not strong among those do not own houses but also among house owners who want to improve their quality of life (Abdul Rahman, 2013).

2.3.3 Housing Market

Previous research (Oberlink, 2008) specifies housing is such a fundamental necessity that people often question about where to live largely on the basis of what kind of housing options are available and whether these options meet their current budget and requirement. Pettinger (2012) defined the housing market as medium that consist of supply and demand for houses, usually in a particular country or region. A key element of the housing market is the average house prices and trend in house prices. However, according to Olanwareju et al. (2016) housing market is a major industry of the arrangement that brings buyers and sellers into a close contact to exchange goods or services where price mechanisms or market regulations are applied for efficiency.

Pettinger (2012) highlighted that a housing market usually involve five main element namely, supply for housing, demand for housing, house prices, rented sector and government intervention. Olanwareju (2016) explained in his paper that the price paid for a good or service in the market is determined by the supply and demand forces. Specifically, a market aims to allocate resources and to maximize the surplus of buyers and sellers. Sullivan et al. (2013) added, with the market structure, a buyer will not pay more than the value of the good or service earned. On the other hand, the market allows sellers to maximize their surplus. However, the market also can be imperfect because of factors like price, income distribution and quantity regulation, taxes, subsidies, social interests, common resources, monopoly, and high costs of the transaction that could also lead to inefficiency (Parkin, 2013).
2.3.4 Medium-Cost Housing Needs

Housing needs and housing demand are two different terms. According to Health (2014), housing need is refers to shortfalls from certain normative standards of adequate accommodation. This measure mainly refers to the level of need for more or improved social housing. Housing need drivers include demographic trends such as migration rates, population age structures and household headship rates Health, 2014). Besides that, economic factors are also involved directly and indirectly in terms of their influence over demographic outcomes such as household formation. Hence, any comprehensive housing needs framework must include both demographic and economic variables (Health, 2014).

Housing need has always been seen as strongly related to demographic trends in population and household numbers, and any housing need framework must take account of demographics including age structures (Bramley, 2010). On the other hands, housing demand is a market driven concept and relates to the type and number of houses that households will choose to occupy based on preference and ability to pay. Usually, the term housing requirement is sometimes used to combine these two measures to generate an overall picture of the housing market (Health, 2014). According to (Health, 2014), governments may require estimates of housing need for a variety of purposes. If regularly refreshed they should provide a way of monitoring the state of the housing system, analogous to government’s monitoring of poverty or the state of the labour market.

Bramley et al. (2010) reported the main factors identified behind housing need, as distinct from housing demand. As the report notes, housing need may refer to such as insecurity of tenure or lack of affordability, or housing that is unsuitable due to its type or condition. As there is no universal set of measures to determine either need or demand, estimates of how many homes and of what type are required are likely to vary (Bramley et al., 2010). However, a determination of need, for the provision of social housing, will be affected by certain policy judgements as well as the measures used. Statements about the numbers of houses that need to be built as opposed to the existing ‘need’ and projected demand for housing will therefore be influenced by certain value judgments and factors such as the availability of resources (Schmuecker, 2011).
Despite efforts by the public and private sectors to promote homeownership, there still exist an enormous number of issues which need to be urgently addressed to ensure that housing needs of all Malaysian could be met. Table 2.6 shows the total housing needs during year 1971 until 2010. As seen in Table 2.6, it is noticeable that the total housing needs for low and medium-cost housing units during eighth Malaysian plan is the highest compared to the other year. However, even the housing needs for low and medium-cost housing units decreased to from 175,000 to 67,000 during the next five years, but it still recorded the highest total housing needs during that year. From the private sector side, high-cost housing shows the highest record across the year 2001 until 2010 compared to the others housing type. On the other sides, the low-cost housing for year 2001 until 2005 recorded the lowest unit housing needs while the medium-cost housing for year 2006 until 2010 recorded the lowest unit housing needs.

Table 2.6: Housing Needs under Five Year Malaysian Housing Plans
(Various Five Years Malaysia Plan)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-cost Housing</td>
<td>62,200</td>
<td>176,500</td>
<td>45,800</td>
<td>40,000</td>
<td>64,000</td>
<td>15,000</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>Low/medium-cost housing</td>
<td></td>
<td>60,000</td>
<td>110,010</td>
<td>57,500</td>
<td>56,100</td>
<td>9,300</td>
<td>175,000</td>
<td>67,000</td>
</tr>
<tr>
<td>Medium cost housing</td>
<td></td>
<td>41,300</td>
<td>58,500</td>
<td>27,000</td>
<td>32,600</td>
<td>102,700</td>
<td>56,000</td>
<td>48,400</td>
</tr>
<tr>
<td>Medium/high-cost housing</td>
<td>57,300</td>
<td>53,560</td>
<td>18,7000</td>
<td>45,300</td>
<td>54,000</td>
<td>65,000</td>
<td>62,405</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>220,800</td>
<td>398,570</td>
<td>149,000</td>
<td>174,000</td>
<td>230,000</td>
<td>311,000</td>
<td>197,805</td>
<td></td>
</tr>
<tr>
<td>Private Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Developers</td>
<td>100,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-cost housing</td>
<td></td>
<td>90,000</td>
<td>370,400</td>
<td>215,700</td>
<td>137,000</td>
<td>39,000</td>
<td>53,500</td>
<td></td>
</tr>
<tr>
<td>Medium-cost housing</td>
<td></td>
<td>259,470</td>
<td>169,600</td>
<td>170,700</td>
<td>418,000</td>
<td>80,000</td>
<td>25,000</td>
<td></td>
</tr>
<tr>
<td>High-cost housing</td>
<td></td>
<td>12,000</td>
<td>25,260</td>
<td>12,600</td>
<td>15,000</td>
<td>160,000</td>
<td>369,700</td>
<td></td>
</tr>
<tr>
<td>Private housing</td>
<td></td>
<td>150,000</td>
<td></td>
<td></td>
<td></td>
<td>14,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-total</td>
<td>162,000</td>
<td>524,730</td>
<td>552,500</td>
<td>399,000</td>
<td>570,000</td>
<td>303,000</td>
<td>448,200</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>382,800</td>
<td>923,300</td>
<td>701,500</td>
<td>573,000</td>
<td>800,000</td>
<td>614,000</td>
<td>559,000</td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. Low-cost housing price below RM42,000 per unit
2. Low-medium cost housing price RM42,001–RM80,000 per unit
3. Medium cost housing price RM80,001–RM150,000 per unit
4. High-cost housing price RM150,000 and above per unit
2.3.5 Medium-Cost Housing Provided

As Dispaquale (1999) points out that housing provided is unlike other markets where we observe price per standard unit (such as price per pound of apples), we observe housing expenditures (price times quantity) since there is no standard housing quantity since each unit can vary considerably on many quality dimensions in the housing market. This is because, housing provided is the outcome of complicated decision making by builders and the owners of existing housing. However, we have little direct evidence that permits us to observe the behavior of housing providers. In order to understand the micro foundations of housing provided, developers should come with information on the quality and quantity of housing services provided, maintenance and capital improvement decisions, rents, and asset values (Dispaquale, 1999).

First, housing provided by the for the poor under Eight Year Malaysian Plans has not been satisfactory. The housing provided for medium-cost housing and high –cost housing by the private sector is about 496,996 units. On the other hand, the low achievement levels for the low-cost housing provided which is only 9,536 units are due to a complicated and ambiguous relationship between federal, state and local levels. Such relationship has caused the overlapping in the distribution of work which may retard the performance of the public sector (Shuid, 2011). In the Seventh Malaysian Plan (1996 – 2000), 737,856 units of houses were built by the private sector in which 206, 208 units were medium-cost and 348, 250 units were high-cost units (see Table 2.7).

Meanwhile, housing provided by the public sector in the medium-and high-cost housing is high as clearly indicated in the Sixth Malaysian Plan. However, in the case of private sector, housing provided for low-cost housing type by private developers fell below the targeted level as they are not keen in building low-cost houses due to a low level of profitability. It is not surprising to learn that the construction of medium and high-cost housing by private sector has exceeded targeted level with a 158.6% for medium cost and a 386.2% for high cost housing during the Sixth Malaysia Plan. The level of achievement for medium and high-cost housing has further increased to 187.5% and 435.3% respectively for the period 1996 through 2000.


Berlin, C. (2007). *Sampling and descriptive statistics*. Taiwan, National Taiwan Normal University: SLP


Malaysia (2012a) Household income and amenities survey report, Putrajaya: department of statistics

Malaysia (2012b) Labour force survey report, Putrajaya: department of statistics


http://www.pr1ma.my/


Schmoeckler, K. (2011). The good, the bad and the ugly. *Housing demand, 2025*


Ninth Malaysia Plan (2006-2010). Putrajaya: Prime Minister’s Department.


