

Factors Influencing the Housing Price: Developers' Perspective

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Abstract—The housing industry is crucial for sustainable development of every country. Housing is a basic need that can enhance the quality of life. Owning a house is therefore the main aim of individuals. However, affordability has become a critical issue towards homeownership. In recent years, housing price in the main cities has increased tremendously to unaffordable level. This paper investigates factors influencing the housing price from developer's perspective and provides recommendation on strategies to tackle this issue. Online and face-to-face survey was conducted on housing developers operating in Penang, Malaysia. The results indicate that (1) location; (2) macroeconomics factor; (3) demographic factors; (4) land/zoning and; (5) industry factors are the main factors influencing the housing price. This paper contributes towards better understanding on developers' view on how the housing price is determined and form a basis for government to help tackle the housing affordability issue.

Keywords—Factors influencing house price, housing affordability, housing developers, Malaysia.

I. INTRODUCTION

HOUSING has been the long-term focus of urban development and social and economic policies. The efficiency and effectiveness of housing delivery systems require housing provision for all [1]. Many studies have proved that homeownership creates benefits not only for individuals and families, but also for communities. Despite the benefits of homeownership and the motivations for individuals to own a house, affordability has become a critical issue. Quigley and Raphael [2] find that individuals' concerns over the affordability of housing are based on two main factors: (1) housing is the single largest expenditure component in the budgets of most individuals and families, and (2) many metropolitan areas have experienced an increase in housing prices and rentals. Quigley and Raphael [2] further argue that the subject of 'affordability' has become unclear because it addresses numerous issues, including housing price, housing quality, distribution of household income, borrowing ability of a household, public policies affecting the housing market and the choices that people make on the price they are willing to pay to own a house.

In Malaysia, government focus on housing provision is targeted towards the low-income group. The provision of housing for other Malaysians is by the private sector [3],

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which focuses on high-end, expensive houses. Although the government requires private housing developers to provide affordable houses in their residential development projects, the selling price of those houses is still relatively high. According to the Central Bank of Malaysia [4], Malaysian households at end of 2010 earned RM 581 billion or 76% of the GDP, and basing from their disposable income, the households are spending about half of their income to pay off their debts. The Bank Negara Annual Report [4] reveals that the largest portion of the Malaysian household debt goes to paying off housing loans. According to the report, Malaysians take on an increasing amount of housing loans because of rising house prices, low or negative interest rates, and speculative activities. The Bank Negara Annual Report [4] shows strong indicators suggesting that house prices and the ability to service housing loans have been overstretched in Malaysia.

TABLE I
INCOME GROWTH VERSUS HOUSE PRICE INCREASES IN MALAYSIA [5]

| States | Average household income | | | House price index | | |
|-----------------|--------------------------|-----------|-----------|-------------------|-----------|-----------|
| | 13-yr CAGR | 8-yr CAGR | 3-yr CAGR | 13-yr CAGR | 8-yr CAGR | 3-yr CAGR |
| Selangor | 5.0% | 3.9% | 5.6% | 4.8% | 5.4% | 12.2% |
| Kuala Lumpur | 5.8% | 7.0% | 16.1% | 6.2% | 7.0% | 11.8% |
| Pahang | 7.4% | 5.7% | 4.5% | 6.4% | 6.4% | 10.5% |
| Sabah | 5.9% | 6.7% | 9.0% | 7.9% | 8.8% | 10.5% |
| Terengganu | 7.2% | 9.0% | 9.6% | 6.2% | 7.0% | 10.2% |
| Malaysia | 5.6% | 5.5% | 7.5% | 4.8% | 5.5% | 9.4% |
| Perak | 5.6% | 6.1% | 8.1% | 5.3% | 5.3% | 8.8% |
| Pulau Pinang | 3.8% | 4.6% | 4.7% | 5.0% | 5.6% | 8.1% |
| Negeri Sembilan | 5.3% | 5.9% | 8.9% | 4.3% | 4.6% | 7.7% |
| Sarawak | 5.0% | 5.8% | 6.2% | 4.7% | 5.8% | 7.0% |
| Perlis | 7.2% | 7.1% | 10.6% | 4.9% | 4.7% | 6.6% |
| Johor | 4.4% | 5.3% | 6.7% | 1.8% | 3.4% | 6.0% |
| Kelantan | 7.0% | 7.1% | 7.7% | 4.3% | 4.4% | 6.0% |
| Kedah | 6.0% | 6.1% | 8.7% | 4.5% | 4.0% | 5.5% |
| Melaka | 5.9% | 6.9% | 4.4% | 3.7% | 3.8% | 5.0% |

The house prices in Penang have increased at a three-year compound annual growth rate (CAGR) of 8.1%, exceeding the income growth of 4.7% over the same period. With a longer horizon of eight years, both house price and income have narrowed the gap. An even longer view of 13 years shows that income growth still lags behind housing prices, with house prices growing at 5% p.a. compared to 3.8% for household income (shown in Table I). However, the condition in Penang differs from the overall situation in Malaysia, where the household income within three years is struggling with the housing price index that differs by 1.9%. Eight years later, a household is able to balance the CAGR of the household

income and the housing price index. In the next 13 years, a household can have peace of mind, as household income passes 0.8% of CAGR towards housing price. Table I indicates that Penang is the state that is unable to exceed or equal the CAGR of household income and housing price even after 13 years.

The escalated house price prevents citizens from purchasing a house and burdens them with paying rent, which ranges from RM 700 to RM 1,500 per month in Penang; in comparison, the average monthly disposable salary after tax ranges from RM 2,000 to RM 4,400 per month. Inspired by the issues of the uncontrolled rise of housing prices in Penang and the low household income of the people, the present research investigates the factors influencing the housing price in Penang from developers' point of view.

II. THEORETICAL BACKGROUND

A. Housing Provision in Malaysia

In Malaysia, the government has an important social responsibility towards housing provision for the people. This responsibility is distributed throughout the federal and state government. The local authority falls under the jurisdiction of the state government. According to federal law, land housing matters fall under the authority of the state government and local councils [3]. The implementation of a housing policy, such as approval of land conversion, subdivision of a housing project, allocation of low-cost houses and levy on foreign ownership, therefore falls under the power of the state government [5]. The state government is also involved in housing provision through its state economic and development corporations (SEDCs) to fulfil the housing objectives outlined by the state [6].

According to [7], the local authority is allowed to guide, lead, authorize or instruct and appoint certain development projects that may be necessary. The act also stated that the local authority may collaborate with the developer to minimize housing price, which must be affordable to middle- and low-income households. In relation to the development charge, the local authority has the power to make the rules, and determining the charge of development is part of its role. Based on the Act, the local authority has the power to control and manage the development of the state. However, the current pattern of development, i.e. insufficient affordable housing, suggests that the Act is not being implemented by the local authority. On the basis of this situation, Agus [8] suggested that priority should be given to improving the capacity and efficiency of local authorities in housing management, effective planning and manpower training.

The federal government is mainly involved in housing through the Ministry of Housing and Local Government Malaysia (MHLG), which is responsible for formulating policies and guidelines for housing provision. The National Housing Department (NHD), a department under MHLG, is directly responsible for providing housing for low-income citizens throughout the country, with the cooperation of the state governments. Other federal government departments and

agencies are also involved in the housing provision, particularly quarters for its staff with minimum or no rental charges. Other government statutory bodies such as the Urban Development Authority or the Regional Development Agencies are also involved in providing housing but target special groups or development in specific areas [6].

Since the independence of Malaysia in 1957, the provision of low-cost housing has become a priority of the government in its Five-Year National Plan. The Malaysian housing policy emphasized the adequate supply of affordable houses to Malaysians, particularly to the low-income group. The policy is more of a 'shelter for all' policy rather than a 'homeownership' one, because some may prefer to have rented shelter rather than be involved in the high investment and long financial commitment of owning a house [5].

In the 1980s, the privatization policy was introduced, which resulted in the active participation of private developers in the housing provision in Malaysia. These private developers were involved in the construction of various types of houses throughout the country, including low-cost housing. To date, more than 80% of housing provisions in Malaysia are by private developers. All housing projects are required to allocate at least 30% of houses as low-cost units, and developers should have cross-subsidies for the cost of building these low-cost units from the sale of higher cost units. Private housing developers in Malaysia are governed by the Housing Development (Control and Licensing) Act, 1966 (Act 118) (Amendment 2002). All private housing developers who undertake housing development comprising more than four units of houses are required to obtain a license from the MHLG prior to selling the unit. This requirement ensures that housing projects are implemented according to schedule and completed within the stipulated timeframe; at the same time, it gives the government power to scrutinize the financial and technical background of the housing developer [9], [6]. In addition to the license of the developer, the private housing developer is also required to obtain an advertising permit to sell the house. In 2008, more than 1,846 private housing developers registered with the MHLG through the Division of Licensing and Advisory Services [6].

The government intervenes in the housing market by urging the private sector to take the leading role in the provision of houses, including the low cost, as well as the deregulation of the approval of large massive housing projects brought about by several issues and problems related to the mismatch of housing demand and supply, housing delivery and built environment [5]. House prices in Malaysia have soared to exorbitant levels in major cities, and even the middle class cannot afford to own a house or an apartment [10]. The report of the Consumer Association of Penang [10] stated that the majority of Malaysians need affordable homes, but developers are supplying houses that are unaffordable. The report further described developers as preferring to cater houses to investors and speculators who would buy to rent or invest in the property and would reserve the best units for clients who would purchase multiple units even before the project is officially launched. At the same time, the concept of

industrialisation for the construction industry in Malaysia has been strongly supported by the federal and state governments. However, the concept is still ineffective in overcoming the housing shortage and solving the problems of increasing prices of raw materials, such as cement, steel bars, bricks and timber, all of which affect the ability of housing developers to hold down the house prices [8] This issues raised the question on what the factors are influencing the housing price.

B. Factors Influencing the Housing Price

The issue of uncontrolled housing price has been evaluated from various perspectives, including affordability, the quality of life and government policy. Literature reviews show that many factors influence housing price. [11] suggested that house price movements are influenced by economic fundamentals, such as real income growth that affects the purchasing power and borrowing capacity of households, interest rate, stock prices, supply, population growth and economic activities. Hashim [11] also indicated that speculative pressure and innovation in mortgage market have an effect on housing price. An innovation in the mortgage market creates financial deregulation in mortgage markets, which significantly reduces loan constraints on households. T. S. Ong [12] measured the macroeconomics variables and showed that GDP, population growth and real property gain tax (RPGT) are the determinants of housing price. However, the research showed that changes in housing price in Malaysia may not necessarily be influenced by the GDP, population growth and RPGT.

Housing location is also found to affect the house price. Housing location may help occupants develop a preferred way of life by identifying the opportunities available for study, work and access to services and facilities [13]. Proper infrastructure in the housing area also contributes to the increase in house prices [14]. Specifically, if a house is close to a school, shopping mall, bank, transportation facility, hospital, restaurant, church, temple, airport or any other place that can provide convenience to the people staying in that area, the house will undoubtedly possess a high housing value. Wang and Li [15] supported the generalization that the location of the housing is an important factor to consider when purchasing a house. The distance to the workplace, schools, retailing outlets and public transportation stations are proved to be noteworthy considerations in purchasing a house [16]. A research carried out in Hong Kong showed that accessibility of the mass transit railway is an important consideration in choosing a house, a finding that implies the influence of accessibility on the affordability of private rental housing [17]. Houses that are accessible to services and facilities and are a short distance from the workplace can help occupants save on transportation expenses.

Glaeser, Gyourko and Saks [18] found that housing price increase in America is influenced by zoning and development permission, the value of amenities and the demand and supply factors. They noted that zoning and development permission raised the cost of construction by covering both physical costs of construction and the opportunity cost of converting

agricultural lands. According to the authors, land or site for housing development, physical structure and government approval for the development are indicators for the supply of housing. The increase in housing price is the effect of the increase in physical cost of construction, land price or regulatory barriers to new construction. They suggested that changes in housing supply regulation may be the most important transformation in the American housing market. These findings are echoed in the study by Tan [3], who described that the decrease in land supply area because of rapid urbanization has a significant negative effect on housing development costs, which increased the housing price. Tan [3] further described that the absence of large-scale townships makes complying with authority requirements insufficient because most housing developers could not acquire a sizable land bank for residential development in urban areas.

The research by MacDonald [19] on the drivers of house price inflation in Penang categorized the factors into six categories:

- 1) Supply side factors: A decrease in land supply but increase in housing demand show an unhealthy match, which places pressure on the developer to increase the housing price. Scarcity of land for development, mismatch of housing supply and competing pressures on available land have pushed the housing price.
- 2) Economic factors: Low interest rate, continued investment of multinational corporations and easy homeownership have developed a new breed of property investors in Penang. At the same time, the speculation in a rising market has increased the housing price further, thus increasing the cost of housing.
- 3) Industry factors: The increased cost of construction materials has caused the developers to protect their profits by raising house prices even higher. In the last five years, the price of raw materials has risen from 15% to 30% [12]. Ong [12] noted that professional workers with high educational level are hired as engineers, and the price of labour involved in construction causes the increase in construction cost. Thus, the developer will increase the price of a house per unit. At the same time, the requirement to provide local infrastructure and fulfil various obligations has forced private developers to increase the overall construction cost. Hence, cost is directly added to the housing price.
- 4) Physical connectivity and internationalization: The improvement of physical connectivity, the inscription of Georgetown as a World Heritage Site and the international marketing of properties have increased the international profile of Penang in recent years. Such situation has attracted house buyers from around the world and resulted in the driving demand for high-end property in the market.
- 5) Demographic factors: The increase in population growth, which can be attributed to the migration of local citizens, foreign workforce and Malaysians returning from overseas to retire, has created a great demand for housing.

This situation has contributed to the increase in housing price.

- 6) The role of planning: MacDonald [19] found that planning has not contributed to the sustainable development of Penang state and has not produced housing supply that can meet the demand of all sectors of society. This situation is identified to allow the private-developer-driven market to address the demand of wealthy buyers, which have significantly contributed to house price inflation.

The literature reviews [11-19] have identified many factors that influence housing price, some of which overlap. However, most of the works in literature look at the factors from the economic and planning points of view. At the same time, most of the data came from the reports that attempt to relate the trend of increasing housing price and economic variables. Information on the factors that influence housing price from the perspective of the private developer, how developers determine housing price, their strategies and their target markets is insufficient. This research will fill in the gap by examining the factors that influence the housing price and the strategies from the point of view of developers.

III. METHOD

This research employed a multi stage data collection. The first stage involved literature review on concepts related to housing such as affordable housing, factors influencing the housing price, price control mechanism and housing policy in Malaysia as well as various countries. A questionnaire survey and interview questions was formulated based on the outcome of the literature review.

The second stage involved pilot study using the questionnaires with professionals in the property market, including lecturers, surveyors, estate agents and representatives from Real Estate and Housing Developers Association (REHDA), to obtain their views on the proposed questions. Based from the pilot study, some of the questions were deleted within the allocated time of answering the questionnaire from 15 minutes to 20 minutes. Total 42 items were used to identify factors influencing the housing price from developers' perspective.

A questionnaire survey using face-to-face approach and online survey was then conducted with developers operating in Penang. The list of developers is obtained from the REHDA in Penang and the Ministry of Urban Wellbeing, Housing and Local Government by searching developers and private housing schemes. REHDA is known as the representing body of developers in Malaysia. The ministry provided the related information about developers who actively construct housing developments in Penang. The study gathers approximately 900 developers from REHDA and the ministry. However, the developers in the list are redundant and listed twice (same parent company). Thus, the cleaning process on the data must be completed before proceeding to the sample size of the study. The total population of developers in Penang is 410. The selected developers that actively develop residential area are recognised by the Ministry of Urban Wellbeing, Housing

and Local Government and REHDA. The state of Penang is chosen for this research because it is one of the most active states in Malaysia in terms of housing development. At the same time, Penang is facing a critical issue on housing in relation to its housing price, which has increased tremendously over the years compared to those of other states in Malaysia. Total of 56 developers' firms respond to the questionnaire and 53 are useable.

The next stage of this research involved data analysis. The data were analyzed using descriptive analysis. Prior to the analysis, the main loading and cross loading of the items are checked to ensure the reliability of the indicators. The items that exceed the recommended value of 0.5 are retained [20]. The convergent validity of the measurements used in this research is obtained by examining the AVE. The variance shared with a construct and its measures is greater than the error when the AVE is greater than 0.50. The result shows that all the AVEs are above 0.50.

A. Respondents' Background

TABLE II
PROFILE OF THE RESPONDENTS (N=53)

| Variable | Description | Number of Respondents | % |
|------------------|-------------------|-----------------------|------|
| Current Position | Owner | 3 | 5.7 |
| | Senior manager | 14 | 26.4 |
| | Manager | 15 | 28.3 |
| | Assistant manager | 9 | 17.0 |
| | Other | 12 | 22.6 |
| Gender | Female | 20 | 37.7 |
| | Male | 33 | 62.3 |
| Ethnicity | Malay | 12 | 22.6 |
| | Chinese | 40 | 75.5 |
| | Indian | 1 | 1.9 |
| Education | High school | 7 | 13.2 |
| | Diploma | 8 | 15.1 |
| | Bachelor's degree | 23 | 43.4 |
| | Master's degree | 13 | 24.5 |
| | Other | 2 | 3.8 |
| Work Experience | 0-5 | 15 | 28.3 |
| | 6-10 | 9 | 17.0 |
| | 11-20 | 13 | 24.5 |
| | 21-30 | 16 | 30.2 |

The study managed to obtain questionnaires from 15 managers (26.4%), 14 senior managers (26.4%), 12 people with other positions, such as CEO and similar high-ranking positions (22.6%), 9 assistant managers (17%) and 3 company owners (5.7%). The respondents consist of 33 males (62.3%) and 20 females (37.7%). Among the respondents, 75.5% are Chinese, 22.6% are Malay and 1.9% are Indian. Most of them (23, 43.4%) have a bachelor's degree; 13 (24.5%) have a master's degree. Eight people (15.1%) graduated with a diploma, and seven people (13.2%) graduated from high school. In terms of work experience, 16 (30.2%) have worked for 21 to 30 years. Fifteen respondents have less than five years of working experience. Only 13 (24.5%) and 9 (17%) respondents have work experience between 11 and 20 years and 6 and 10 years, respectively. Table II summarises the respondents' profiles.

B. Developers' Background

Most of the developers are private limited companies (77.4%), several are public limited companies (20.8%) and a few are government-linked companies (1.9%). In relation to company establishment, 15 developers have been established between 11 and 20 years, and an equal number of companies have been founded between 21 and 30 years. Eight companies have been operating for more than 30 years (15.1%), whereas another eight companies have been operating between 6 and 10 years. Only seven companies (13.2%) have been operating for less than five years. Most of the developers operate within Penang (58.5%). However, 35.8% of the developers have business in other states in Malaysia (national), whereas 5.7% are expanding to an international scale.

In relation to the projects result shows that an equal number of developers (54.7%) are involved with housing/residential and mixed projects. Mixed projects refer to a combination of residential and commercial projects, as well as a few light industrial projects. Only five developers (9.4%) are focusing on commercial projects. Two developers focus on industrial projects, and another two focus on other project types (3.8%). One company (1.9%) focuses on infrastructure development. The other business ventures specified include hotel management, landscape and interior design. Table III summarizes the developers' profiles.

TABLE III
 PROFILE OF DEVELOPERS (N=53)

| Variable | Description | Number of Respondents | % |
|------------------------|---|-----------------------|------|
| Type of Ownership | Public Limited Co. (Bhd) | 11 | 20.8 |
| | Private Limited | 41 | 77.4 |
| | Government-linked Company | 1 | 1.9 |
| Company Establishment | 0-5 years | 7 | 13.2 |
| | 6-10 years | 8 | 15.1 |
| | 11-20 years | 15 | 28.3 |
| | 21-30 years | 15 | 28.3 |
| | > 30 years | 8 | 15.1 |
| Company Business Scale | Within Penang State | 31 | 58.5 |
| | National | 19 | 35.8 |
| | International | 3 | 5.7 |
| Business/Project Type | Housing/Residential | 29 | 54.7 |
| | Commercial | 5 | 9.4 |
| | Mixed Projects | 29 | 54.7 |
| | Infrastructure | 1 | 1.9 |
| | Industrial | 2 | 3.8 |
| | Other: Hotel Management, Landscape, Interior Design | 2 | 3.8 |

IV. RESULTS

In total there are 42 items related to the developers' view on determining the housing price; these items are classified into macroeconomic factors, demographic factors, planning/zoning, industry factors and location as independent variables. All items of the latent variables are evaluated using a seven-point Likert scale (1 - strongly disagree, 2 - disagree, 3 - somewhat disagree, 4 - neither agree nor disagree, 5 - somewhat agree, 6 - agree, 7 - strongly agree). Table IV presents the obtained results after the deletion of certain items.

The main loading of the deleted question items, as well as the average variance extracted (AVE) of the main loading of the remaining questions, is less than 50%.

TABLE IV
 ITEMS FOR FACTORS INFLUENCING THE HOUSING PRICE (N=53)

| Macroeconomic Factors | |
|-----------------------|---|
| MF1 | The increase in housing demand has influenced our decision in determining the housing price. |
| MF4 | With low interest rates, households are encouraged to purchase a house. |
| MF6 | We consider the inflation rate in determining the housing price. |
| MF7 | The rapid increase in housing prices has caused the housing bubble. |
| Demographic Factors | |
| DF1 | We conduct a detailed market study before deciding on the type of houses to develop. |
| DF2 | We conduct a detailed market study before deciding on the price of the houses we develop. |
| DF3 | We consider the population growth when estimating the demand for housing. |
| DF4 | We assure that population growth influences our decision in determining the housing price. |
| DF5 | We understand the background of our buyers for the housing development. |
| DF6 | We consider household income as the major indicator in determining the housing price. |
| DF8 | The current standard of living influences our decision on housing price. |
| Land/Zoning | |
| Z4 | Land reclamation strongly influences housing price. |
| Z5 | We set the housing price on freehold land higher than leasehold land. |
| Z6 | We believe that zoning influences our decision on housing price. |
| Z7 | We believe re-zoning influences housing price. |
| Z8 | Strict control on zoning and planning will assist in controlling the housing price. |
| Industry Factors | |
| IF4 | Regulatory barriers (such as planning permission, building plan permission, etc.) have increased the development cost and influenced housing price. |
| IF7 | Collaboration/joint ventures between local authorities and developers may reduce housing prices. |
| IF8 | The professional and highly skilled labour hired for the project has increased construction costs and thus increased the housing price. |
| IF9 | The number of labourers involved in the project has influenced housing price. |
| Location | |
| L3 | Proper area infrastructure is important and contributes to the housing price. |
| L5 | High specification and quality contributes to the housing price. |
| L6 | Housing façade (design) influences our decision in determining the housing price. |

The exact mean value of the five latent variables varies from 4.915 to 5.742 along with the standard deviation ranging from 0.775 to 0.953 on a seven-point Likert scale. Nevertheless, the mean values of all of the variables are above the 3.50 midpoint. Location obtains the highest mean value (5.742), whereas industry factors have the smallest mean value (4.915). The distribution values documented via standard deviation shows that industry factors have the highest value (1.210), whereas location has the smallest value (0.775). The results suggest that location is the most important factor that influences housing price based on the developers' perception, followed by macroeconomic factors, demographic factors, land/zoning and industry factors. Table V provides the result

acquired from the descriptive analysis according to the ranking.

TABLE V
 FACTORS INFLUENCING THE HOUSING PRICE ACCORDING TO RANKING
 (N=53)

| Variables | No of items | Min | Max | Mean | Std. Deviation |
|-----------------------|-------------|-----|-----|-------|----------------|
| Location | 3 | 4 | 7 | 5.742 | 0.775 |
| Macroeconomic factors | 4 | 3 | 7 | 5.519 | 0.799 |
| Demographic factors | 7 | 3 | 7 | 5.509 | 0.953 |
| Land/zoning | 4 | 3 | 7 | 5.434 | 0.951 |
| Industry factors | 4 | 2 | 7 | 4.915 | 1.210 |

The mean values of all of the variables are above the 4.0 midpoint. Z5 scores the highest mean value (5.98), whereas IF7 obtains the lowest mean value (4.74). The dispersion values reported through standard deviation indicates that all the dispersion values are less than 2. IF7 has the highest dispersion value (1.631), whereas L5 has the lowest dispersion value (0.929). Table VI lists the results obtained from the descriptive analysis.

TABLE VI
 DESCRIPTIVE ANALYSIS OF FACTORS INFLUENCING THE HOUSING PRICE

| Items | Minimum | Maximum | Mean | Std. Deviation |
|-------|---------|---------|------|----------------|
| MF1 | 2 | 7 | 5.45 | 1.170 |
| MF4 | 2 | 7 | 5.60 | 1.198 |
| MF6 | 3 | 7 | 5.74 | 1.003 |
| MF7 | 3 | 7 | 5.28 | 1.081 |
| DF1 | 1 | 7 | 5.64 | 1.558 |
| DF2 | 1 | 7 | 5.72 | 1.561 |
| DF3 | 3 | 7 | 5.47 | 1.085 |
| DF4 | 2 | 7 | 5.32 | 1.370 |
| DF5 | 2 | 7 | 5.21 | 1.321 |
| DF6 | 3 | 7 | 5.70 | 1.030 |
| DF8 | 3 | 7 | 5.51 | 1.103 |
| Z4 | 3 | 7 | 5.45 | 1.186 |
| Z5 | 3 | 7 | 5.98 | 0.971 |
| Z6 | 3 | 7 | 5.66 | 1.126 |
| Z7 | 2 | 7 | 5.49 | 1.234 |
| Z8 | 1 | 8 | 5.13 | 1.387 |
| IF4 | 2 | 7 | 5.02 | 1.380 |
| IF7 | 1 | 7 | 4.74 | 1.631 |
| IF8 | 1 | 7 | 5.23 | 1.502 |
| IF9 | 2 | 7 | 4.68 | 1.384 |
| L3 | 3 | 7 | 5.70 | 1.218 |
| L5 | 3 | 7 | 5.94 | 0.929 |
| L6 | 3 | 7 | 5.58 | 1.046 |

V. DISCUSSION

A. Factors Influencing Housing Price in Penang

The developer perspective is that location is the most important factor that influences the housing price. The results reveal that when the location of the project is equipped with proper infrastructure, high quality and good design specifications, location can contribute to the housing price. This finding is supported by [14]-[16], which found that proper infrastructure and facilities in the housing area can increase housing prices.

The second factor that influences the housing price in Penang is the macroeconomic factor. The inflation rate is noted to influence the housing price. At the same time, developers perceive that when the interest rate is low and people are encouraged to purchase a house, a high demand for housing is automatically created and can further influence developers' decision on the housing price. This finding reflects the research by MacDonald [19], who suggested that the low interest rate encouraged homeownership and created a new breed of property investors in Penang and contributed to the speculation that had increased the housing price.

The third factor that influences the housing price in Penang is the demographic factor. The population growth, current standard of living and lifestyle have contributed to developers' decision in determining the housing price. The fourth factor is related to land and zoning issues. The finding indicates that land status—whether freehold or leasehold—influences developer's decisions on housing price. Developers set a higher price on freehold than on leasehold land. The need for re-zoning and reclamation of land also influences the housing price. The last factor that influences housing price in Penang is the industry factor. The study found that the professional and highly skilled labour hired for the project has increased the construction cost and thus increased the housing price. Another important view related to the industry factor is the regulatory barriers (plans, approvals, etc.) that have contributed to the increased development cost and further influenced the housing price. This result is similar to the findings by Glaeser, Gyourko and Saks [18], who found that the housing price increase in America is influenced by zoning and development permission, which increase the construction cost.

The findings on factors that influence the housing price in Penang are similar to the previous studies discussed in theoretical background. However, the statistical results surprisingly do not indicate that first-grade land title and land scarcity in Penang are the important factors that influence the housing price from the developer perspective. The developers are speculated to have a land bank in Penang that was bought a long time ago; hence, the land scarcity does not affect their decision on the housing price. Unlike previous studies, this study has managed to rank the factors, thus providing a clear view on the most important factor to consider towards the housing price control mechanism.

VI. CONCLUSION

Through the questionnaire survey, the factors that influence housing price in Penang have been validated. This paper capture a clear understanding of the important factors that determine the housing price from the perspective of the private housing developers.

Based from the results, it is recommended that affordable housing projects develop need to consider location factors. The area that is really in need for affordable housing is at the urban area. At the same time, affordable housing need to consider macroeconomic factor and demographic factor.

The results and findings of this research contribute to a comprehensive mechanism to enable policy makers to handle issues related to controlling the housing price on the basis of factors that determine the price. The research has recognized that the small sample size is the most obvious limitation. It is recommended that future research should consider larger sample size for more generalize results.

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