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Factors Affecting the Owner Satisfaction in Low-cost Housing: A Regional Analysis for Strategic Segmentation

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Abstract

Owner satisfaction is one of the most important tools for evaluating and improving housing developer performance and government housing policies. The quality of government low-cost housing projects must be monitored, and data on owner satisfaction can assist. Owner satisfaction in low-cost housing, on the other hand, has been studied primarily in public low-cost flats. The purpose of this study was to investigate the factors that influence owner satisfaction in low-cost terrace housing. 806 questionnaires were distributed, and 403 completed questionnaires were collected from the study's target respondents. Five low-cost terrace housing areas in three regions of Sarawak were surveyed. Multiple regression analysis was used to investigate the factors that contribute to owner satisfaction. The findings show that in all three regions, homeownership, housing policies of developers, and house quality are the three key elements that have a substantial impact on owner satisfaction. In the Southern and Northern Regions, developer housing policies are a major determinant in owner satisfaction, whereas in the Central Region, homeownership is important. Only in the Central Region does the social environment component considerably influence owner satisfaction. Surprisingly, in the Northern Region, the cost of the home does not much affect how satisfied the owners are with their homes. This study was restricted to Sarawak means that it might not be applicable to other regions. To validate the results, additional research is needed in other geographic locations or with different home designs.

Keywords: Owner Satisfaction, Low-cost Housing, Regional Analysis, Sarawak

Introduction

Low-cost housing typically commands low margins, and it is challenging to housing developers especially with the expensive labor and materials. On the other hand, the owners

of low-cost houses are always trading off satisfaction of house with the affordable budget. Owner satisfaction is important for those have low income (Riazi & Emami, 2018) and economically unable to get other options in housing (Abdul Mohit et al., 2010). Ideally, the quality of all government low-cost housing projects must be closely monitored, and the information related to the owner satisfaction need to be obtained periodically for continuous improvement of the industry. Owner satisfaction has been used to evaluate and improve the performance of housing developers and important government policies related to housing since the 1980s. (Amerigo & Aragones, 1997; Abdul Mohit & Azim, 2012).

Low-cost housing production involves three phases, which are policy making, design, and evaluation on post-occupancy (Riazi & Emami, 2018). Low-cost housing development is carried out in Malaysia by both the commercial and public sectors (Ho & Idrus, 2008; Abdul Mohit et al., 2010) and their price-related performance can hardly be standardized to safeguard the owners' benefits. Therefore, it is crucial to perform post-occupancy evaluation to understand the factors contribute to owner satisfaction of low-cost housing as it can be used to enhance the owner satisfaction via the market (Huang & Du, 2015). Furthermore, it can reduce or avoid housing projects to fail due to insufficient information on factors that affect owner satisfaction (Riazi & Emami, 2018).

Studies have been carried out to study owner satisfaction on public low-cost flats in Kuala Lumpur by Husna and Nurizan in 1987 also by Abdul Mohit, Ibrahim and Rashid in 2010. However, there is no study has been carried out to investigate residential satisfaction on public low-cost terrace house. Therefore, this study investigates the factors affecting owner satisfaction on low-cost terrace housing.

Literature Review

It is necessary to study the factors influencing low-cost terrace housing because the supply of affordable houses will be increased immediately in the housing market for buyers who wish to buy the house for the first time (New Straits Times, 2016). The construction of affordable houses is always welcome as it will lead to fundamental growth of the economy and meeting the social objectives of the country. Nevertheless, the interests of the house owners and households need to be prioritized. From the house owners' viewpoint, there are numerous factors affecting their satisfaction. Other than the quality of the houses in general, among the commonly investigated factors are price (Jaafar et al., 2005), social environment (Abdul Mohit et al., 2010), house quality (Abdul Mohit et al., 2010), homeownership (Balestra & Sultan, 2013) and housing policy of developer (Abdullahi & Wan Abdul Aziz, 2011).

Housing is commonly prioritized to care for the targeted community of a nation. In Malaysia, an attempt for improving the poor life quality was noticed in the Second Malaysian Plan's Mid-Term Review between 1961 and 1965 that drew attention to the low-cost housing provision which aimed at making the urban poor living conditions better (Abdul Karim, 2008). The second Malaysia Plan had to do with low-priced housing provision that was a fundamental need of society. In the Fourth Malaysia Plan, top priority was given to public low-cost programs which were constructed by State Economic Development Corporations (SEDC) and the Ministry of Housing and Local Government (Idrus & Ho, 2008). In the Eighth Malaysia Plan between 2001 and 2005, the government wished to carry out a program for upgrading and improving the low-cost public housing to make sure the well maintenance of the public

amenities, buildings and common facilities. The Figure 1 shows examples of low-cost terrace houses.



Figure 1: Examples of low-cost terrace houses

A cozy and pleasant house will satisfy general well-being of people that encourage happiness, healthy life and productivity. Less money will be spent on health maintenance and entertainment if everybody can have the house that has enough quality (Ishak et al., 2019). The government is obliged to assist people to own a house and has outlined the Malaysian Housing Policy (2010) to realize housing requirement by low-income group known as B40 (Ismail et al., 2020).

The health, safety, convenience and good living environment were emphasized in the housing programme. Housing development under the Ninth Malaysia Plan between 2006 and 2010 concentrated on the affordability, quality and adequacy of housing for rent or sale, for Malaysia's citizens particularly for people in middle and low-income groups (Abdul Karim, 2008). The provision of appropriate, affordable, and quality housing for all Malaysians in various income levels was prioritised during the Ninth Malaysia Plan in 2010, with a focus on the low-income group and the destitute (Ho & Idrus, 2008). In East Malaysia, a ceiling price for low-cost house in Sarawak was set by the government (i.e., RM50,400.00 for the intermediate unit and RM59,220.00 for the corner unit). Table 1 below shows the specifications of new design for low-cost houses provided by Ministry of Housing and Local Government in 2002.

Table 1

Specifications of New Design for Low-Cost Houses

Elements	Terrace Houses	Flats
Floor Space	48 - 60 meter square	45 - 56 meter square
Bedroom		
-min	3	3
-min area of habitat room		
(i) First room	11.7 meter square	11.7 meter square
(ii) Second room	9.9 meter square	9.9 meter square
(iii) Third room	7.2 meter square	7.2 meter square
Kitchen-min area	4.5 meter square	4.5 meter square
Living and dining rooms	Provided as one combined space or separately with adequate area according to internal layout	Provided as one combined space or separately with adequate area according to internal layout
Bathroom and toilet	Provided separately with minimum area of 1.8 meter square each	Provided separately with minimum area of 1.8 meter square each
Storage space and porch	Adequate provision for resident's comfort	Adequate provision for resident's comfort and convenience
Drying area/ Launderette facilities*	-	Adequate provision for each unit.
Price	RM50,400.00 for the intermediate unit and RM59,220.00 for the corner unit**	RM42,000 for Sarawak***

Note: *Must be provided according to the 'Guidelines for the provision of launderette facilities in multi-storeyed buildings prepared by the Local Government Department, Ministry of Housing and Local Government. Source: Ministry of Housing and Local Government, 2002 (Ho & Idrus, 2008). **The Borneo Post (27 November 2013). ***Utusan Malaysia (29 January 2016)

Residential satisfaction is defined as the gap between a household's actual and desired/aspired housing and neighbourhood situations, according to its theoretical underpinnings (Jaafar et al., 2005). Residents are the customers who are also the owners of the houses. Residential satisfaction is always found as a variance between households' actual and expected housing and neighbourhood conditions (Addo, 2015). Residential satisfaction is also considered as a predictor of behavioural intentions either to stay or move from existing housing (Weidemann & Anderson, 1985). Generally, residential satisfaction is analysed by relating satisfaction with internal dwelling design that includes facilities, size, cost and design (Buys & Miller, 2012) or housing unit, neighbourhood and homeownership (Rohe, et al., 2013). It is of the greatest interest to study residential satisfaction if it involves the population who has low economic resources because if they are dissatisfied, they are unable to abandon their current residential environment (Amerigo & Aragones, 1997). Studies on residential satisfaction have served several purposes, including assessing existing housing conditions,

residents' needs and preferences, and residents' quality of life, housing projects' level of success or failure, and project quality (Ibem & Aduwo, 2013). Therefore, the following paragraphs will discuss the aspects that influence owner satisfaction with low-cost housing in Sarawak, including price, social environment, house quality, homeownership, and developer housing policy.

It is suggested by Parasuraman, Zeithaml and Berry (1994) that satisfaction is influenced by the product quality, service quality and price (Bei & Chiao, 2001). Study by Bei and Chiao (2001) indicates that the customer satisfaction is positively related to perceived price fairness, that is price fairness is basic and essential to develop the consumer satisfaction. According to Qin and Prybutok (2008), a few studies test price as one of the determinants of customer satisfaction (Kara et al., 1995; Lee & Ulgado, 1997; Gilbert et al., 2004). According to Jaafar, Hassan, Mohamad, and Ramayah (2005), project type, house price, and length of residency all have a significant impact on Penang Development Corporation residents' housing satisfaction.

Therefore, it is hypothesized that

H1: In low-income housing, price has a positive effect on owner satisfaction.

According to Savasdisara et al (1989), residents of private low-cost housing in Bangkok, Thailand were more satisfied with housing units than with environmental facilities (Abdul Mohit & Nazyddah, 2011). The variables for the social environment are noise, accident, safety, security control and community relations (Abdul Mohit et al., 2010). Social environment has influence on residential satisfaction (Huang & Du, 2015). Abdul Mohit, Ibrahim and Rashid (2010)'s study shows that there is high positive correlation between residential satisfaction and social environments. Thus, it is hypothesized that:

H2: Owner satisfaction in low-cost housing is positively influenced by the social environment.

Zeithaml et al (1996) include product quality, personal factors, and price of cost as customer satisfaction model components (Qin & Prybutok, 2008). Residents of public housing in Kuala Lumpur, Malaysia, were dissatisfied with dwelling unit characteristics (Abdul Mohit et al., 2010). Residents of low-cost housing in Johor Bahru were dissatisfied with the house's size, rental, and crowding (Nurizan, 1993). Residents of public housing in Abuja, Nigeria, were dissatisfied with building features, structure types, housing conditions, and management (Ukoha & Beamish, 1997). According to Abdul Mohit et al (2010)'s study on new high-rise-low-cost housing standards with 63m² minimum area consists of 3 bedrooms and separate bathroom and toilet, there is a high positive correlation between residential satisfaction and housing unit features. As a result, the next hypothesis is:

H3: House quality positively affects the owner satisfaction in low-cost housing

Residential satisfaction's key indicator and determinant is homeownership or tenure status (Abdul Mohit et al., 2010). Many studies indicate that "residential satisfaction is much higher among homeowners than renters (Loo, 1986; Lu, 1999)" (Abdul Mohit et al., 2010). There is positive relationship between homeownership and life satisfaction (Zumbro, 2014). Findings by Balestra and Sultan (2013) indicates that homeownership seems to be one of

housing satisfaction's key drivers which agrees with the past literature. Therefore, it is hypothesized that:

H4: Homeownership positively affects the owner satisfaction in low-cost housing.

The housing policy focuses on creating "amenable and sustaining" environment of housing in Malaysia. The policy is also to make sure "comprehensive settlement planning" is completed with the provision of fundamental and social infrastructure in the housing estates (Abdullahi & Abd Aziz, 2011). Residential satisfaction is evaluated to identify the factors which affect satisfaction to assist housing planners to successfully formulate housing policies (Riazi & Emami, 2018). The main aim of housing policy in Malaysia is to realize all the Malaysians particularly the low-income group a guaranteed and unobstructed entry to adequate and satisfactory housing needs (Abdullahi & Wan Abd Aziz, 2011). Thus, it is hypothesized that:

H5: Housing policy of the developer positively affects owner satisfaction in low-cost housing.

All above hypotheses lead to development of conceptual framework as in Figure 2.

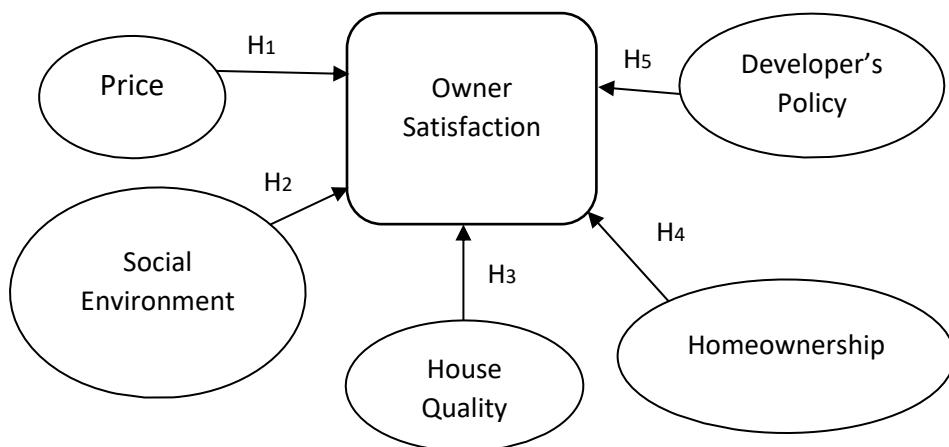
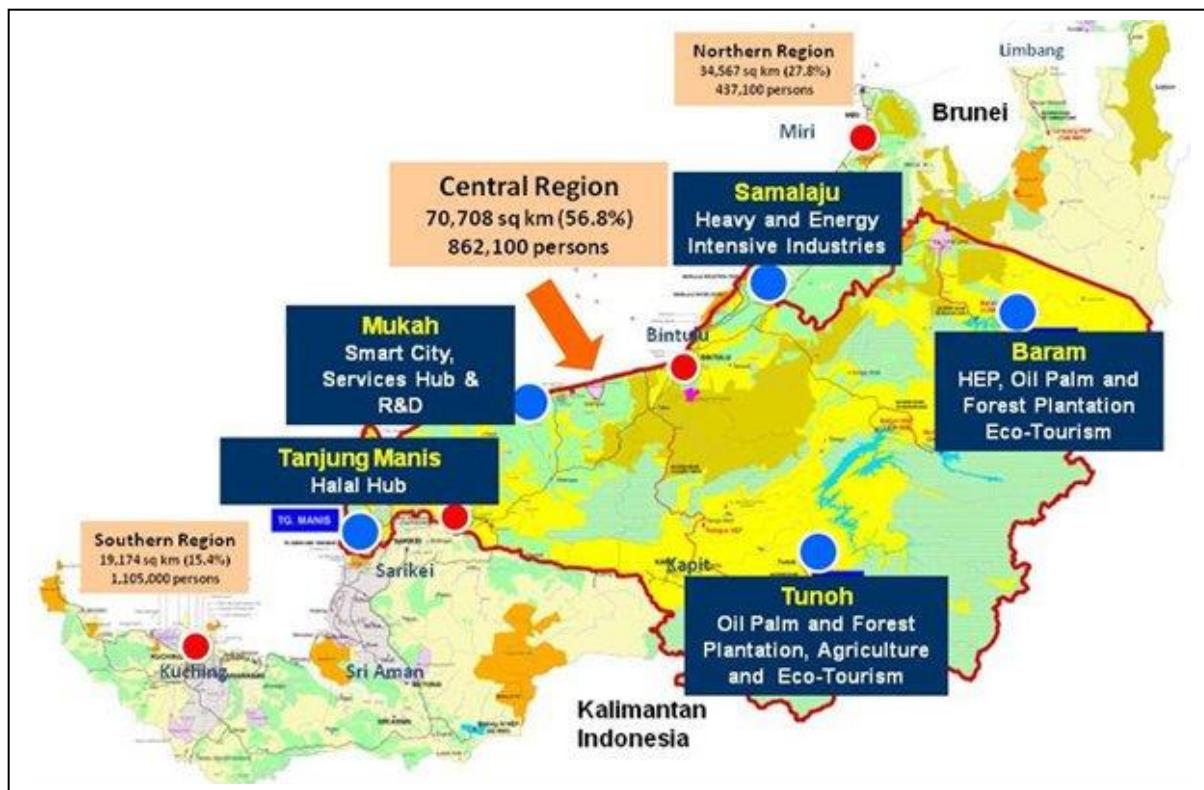


Figure 2. The Conceptual Framework for Factors Affecting Owner Satisfaction on Low-cost Housing in Sarawak

Research Methodology

This empirical research was done in Sarawak, East Malaysia and it aimed to investigate the factors affecting the owner satisfaction on low-cost terrace housing in the Southern, Central and Northern regions of Sarawak as shown in Figure 3. The Northern Region consists of Limbang, Miri, Bintulu, Lawas and Suai (Phang & Lau, 2016), and it is an agricultural area which has a higher GDP neighboring country, Brunei. The Central Region in Sarawak includes Bintangor, Sarikei, Mukah, Daro and Sibu, is a mixed of agricultural and developing industrial area. The Southern Region comprises Betong, Sri Aman, Kuching and Pusa, is an administration and business centre.



Source: <https://sarawak.gov.my/web/home/page/200/investor/>

Figure 3: The Three Geographical Regions in Sarawak

Questionnaire survey was carried out to collect data from the three regions. The multi-item variables were operationalized after thorough literature review on the factors affecting satisfaction in housing. The 5-point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree) was used for the respondents to perform their evaluations of the factors. Positive statements are used to all questions to avoid confusion by the respondents and mistake in data analysis. 806 questionnaires were sent out and 403 complete questionnaires are collected from the target respondents for the study. Survey data was collected from five low-cost terrace housing areas for three regions in Sarawak namely Kuching and Betong for Southern region, Sarikei for Central region and Limbang for Northern region. Reliability checking and validity testing were carried out to ensure goodness of measurement. The software used in this study was Statistical Package for the Social Sciences (SPSS version 22). Reliability and relationship analyses were performed. The variables and their respective items are shown in Table 2.

Table 2
Construct Measurement

Variables	Items	Source
Owner Satisfaction	1. Satisfaction of Price 2. Satisfaction of Social Environment 3. Satisfaction of House Quality 4. Satisfaction of Homeownership 5. Satisfaction of Housing Policy of Developer 6. Overall Satisfaction	Abdul Mohit et al (2010) Qin and Prybutok (2008)
Factors affecting Owner Satisfaction:		
1. Price	1.1 Competitive Price 1.2 Value worthy of Price 1.3 Special discounts	Qin and Prybutok (2008)
2. Social Environment	2.1 Noise level 2.2 Accident situation 2.3 Crime situation 2.4 Security control 2.5 Community Relations	Abdul Mohit et al (2010)
3. House Quality	3.1 Living area 3.2 Dining space 3.3 Kitchen space 3.4 Bedrooms 3.5 Toilet 3.6 Bathroom 3.7 Dry area 3.8 Sockets (power points) 3.9 Ventilation of House	Abdul Mohit et al (2010)
4. Homeownership	4.1 Local Amenities Investment 4.2 Property Maintenance in the Neighbourhood 4.3 Length of Tenure 4.4 Children Cognitive Ability and Behaviour Problems 4.5 Social Capital Investment 4.6 Financial Benefits of Home Owning	Tan (2008)
5. Housing Policy of the Developers	5.1 Number of low cost houses built in housing projects 5.2 Maximum price of low-cost houses (terrace) 5.3 Minimum building size per unit 5.4 Car parking requirements 5.5 Road specification 5.6 Drain specification 5.7 Footpath specification 5.8 Housing amenities/facilities (e.g., open space/shop/surau/other house of worship/multi-purpose hall/children playground)	Ho and Idrus (2008)

Results and Discussion

Respondents

The results in Table 3 show all races in Sarawak have a chance to own low-cost terrace houses to meet their basic needs. Majority of the respondents are non-executive and have gross family income between RM1000 and RM2000. This shows that the low-cost houses are sold to the right buyers from the low-income groups. Majority of the respondents are aged above 40 years old as low-cost housings in Sarawak have been in existence for more than forty years since 1973 under the 2nd Malaysia Plan. There are more respondents aged less than 26 years old who have the opportunity to own the low-cost terrace house to meet their basic needs as at that age, they have low income. Most of the respondents have a stable income as they are working with the government and private agencies. This indicates that the low-cost housings are near to the town for the convenience of the respondents to commute daily to work. This also shows that the low-cost houses are sold to buyers who have a stable income for easy loan approval by the banks. Minority of the respondents who earn above RM3000 indicates that as they age, their income increases. Most of the respondents have attended schools and they are more than 40 years old, and they were able to understand and answer the questions asked.

Table 3
Respondents' Characteristics

	Race						
	Malay	Chinese	Melanau	Iban	Bidayuh	Orang Ulu	Total
Gender:							
Male	113	32	6	60	33	15	259
Female	61	19	5	39	12	8	144
Age (years):							
Between 18-25	24	5	0	14	8	3	54
Between 26-30	12	5	2	9	9	1	38
Between 31-40	24	9	4	19	5	2	63
Between 41-60	114	32	5	57	23	17	248
Frequency							
Percent							
Family Income:							
Between RM1000 - RM2000	274			68.0			
Between RM2001 - RM3000	83			20.6			
Between RM3001 - RM4000	29			7.2			
Above RM4000	17			4.2			

Educational Background:

No Formal Education	44	10.9
Primary School	55	13.6
Lower Secondary School	108	26.8
Upper Secondary School	136	33.7
University or College or Institute	60	14.9

Employment Sector:

Government	114	28.3
Private	200	49.6
Own Business	59	14.6
Pensioner	30	7.4

Normality, Validity and Reliability Tests

The normality test was applied to all variables, and the normal Q-Q plots show that the majority of the data for all variables is on a straight line. As a result, it is reasonable to assume that all variables' data are normally distributed (Pallant, 2011). A validity test was performed using factor analysis to determine whether the items captured the intended study. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.948, which is greater than 0.6, indicating that the items capture the intended study, as 0.6 is recommended by Pallant (2011) as "the minimum value for good factor analysis (Tabachnick & Fidell, 2007)." The anti-image correlation table shows that all perpendicular values are greater than the top, bottom, left, and right values. Therefore, the results show that the items have passed the validity test.

Reliability test was carried out by using Internal Consistency Reliability and the result in Table 4 shows that Cronbach's Alpha for each construct is above 0.7, that is an acceptable reliability coefficient value (Pallant, 2011; DeVellis, 2003; Voon, 2017; Nunnally & Bernstein, 1994). This indicates that the data has passed the Internal Consistency.

Table 4
Reliability Statistics

Variables	Cronbach's Alpha	Number of Items
Factors:		
1. Price	0.785	3
2. Social Environment	0.774	5
3. House Quality	0.936	9
4. Homeownership:		
Local Amenities Investment	0.721	3
Property Management in The Neighbourhood	0.846	3
Length of Tenure	0.883	3
Children's Cognitive Ability and Behavioral Problem	0.835	3
Social Capital Investment	0.762	2
Financial Benefits of Home Owning	0.822	3
5. Housing Policy of the Developers	0.876	9
Owner's Satisfaction	0.905	7

Factors Contributing to Owner Satisfaction

By Regions

Table 5 shows the results of the multiple regression analysis. In overall Sarawak, the coefficient of determination, $r^2 = 0.689$, indicates that 68.9% of owner satisfaction in low-cost terrace housing depends directly on price, social environment, house quality, homeownership and housing policy of the developer. These factors contribute 70.0%, 71.7% and 68.6% of the variations in owner satisfaction for Southern, Central and Northern Regions of Sarawak respectively.

Table 5
The Results of the Multiple Regression

Region	Factors				Housing Policy of Developer	R^2
	Price	Social Environment	House Quality	Homeownership		
Overall Sarawak	0.183*	0.011#	0.141*	0.235*	0.491*	0.689
Southern Region (Mainly for administration and business)	0.208*	-0.019#	0.122*	0.177*	0.558*	0.700
Central Region (Mixed of agricultural and industrial area)	0.189*	0.170*	0.183*	0.400*	0.256*	0.717
Northern Region (An agricultural area)	0.113#	-0.032#	0.152*	0.267*	0.490*	0.686

Note: * indicates p -value < 0.05 , # indicates p -value > 0.05

The overall result for Sarawak is that the p -value for each factor except social environment is less than 0.05, implying that the factors of price, house quality, homeownership, and the developer's housing policy significantly contribute to owner satisfaction in low-cost terrace housing. The Southern Region has similar results to the rest of Sarawak, where price, house quality, homeownership, and the developer's housing policy all play a role in owner satisfaction in low-cost terrace housing. All of the factors considered in this study, including price, social environment, house quality, homeownership, and the developer's housing policy, are significantly contributing to owner satisfaction in low-cost terrace housing in the Central Region. The Northern Region has the fewest factors influencing owner satisfaction in low-cost terrace housing, which only include house quality, homeownership, and the developer's housing policy.

Across Regions

In overall Sarawak, Southern Region and Central Region, the factor of price positively affects owner satisfaction in low-cost terrace housing. The results agree with Parasuraman, Zeithaml and Berry (1994) that satisfaction is influenced by the product quality, service quality and price. These results also support the study by Jaafar et al (2005) conducted on all types of housing under Penang Development Corporation, where owner satisfaction is significantly influenced by the project type, house price and length of residency.

Only in Central Region the social environment positively affects owner satisfaction in low-cost terrace housing. The result agrees with the study by Abdul Mohit et al (2010) that there is a high positive correlation between the owner satisfaction and social environment. The result also supports the findings by Huang and Du (2015) that social environment has an influence on the owner satisfaction.

The results for overall Sarawak, Southern Region, Central Region and Northern Region show that house quality positively affects owner satisfaction in low-cost terrace housing. These results agree with the study by Bei and Chiao (2001) that the customer satisfaction is positively related to the perceived product quality that is basic and essential to develop the consumer satisfaction. The results also support the study by Abdul Mohit et al (2010) that there is a high positive correlation between owner satisfaction and features of quality housing, such as area of the house unit, number of bedrooms, separate bathroom and toilet.

The results for overall Sarawak and all the three regions show that homeownership positively affects owner satisfaction in low-cost terrace housing. These results agree with Abdul Mohit et al (2010); Balestra and Sultan (2013) where the key indicator, determinant and driver of owner satisfaction is homeownership or tenure status. The results support the findings by Zumbro (2014) that there is a positive relationship between homeownership and life satisfaction of house owner. It shows that the housing policy of Malaysia to realize all the Malaysians particularly the low-income group, a guaranteed and an unobstructed entry to adequate and satisfactory housing needs, is on the right direction.

In all the Southern, Central and Northern Regions, housing policy of developer positively affects owner satisfaction in low-cost terrace housing. The results urge for housing policy that creates "amenable and sustaining" environment as proposed by (Abdullahi and Abd Aziz, 2011). Their proposed policy is also suggesting "comprehensive settlement planning" complete with provision of fundamental and social infrastructure in the housing estates.

Relationship with Social Economics

House quality, homeownership and housing policy of the developer are the three significant factors that affect owner satisfaction in low-cost terraced housing for overall Sarawak State and also each region in Sarawak. These factors are related to long term ownership of houses. As the owners of low-cost housing are from the population that has low economic resources, they understand that if they are dissatisfied with the house owned, they are unable to abandon their current residential environment (Amerigo & Aragones, 1997) for another house. Also, they are aware of the attempt from the government and housing developers to supply affordable standard houses (Hashim, 2003). It is found that with the same quality of house, owner-occupiers are more satisfied than renters due to the homeownership provides a sense of 'self-gratification' and psychologically makes the owners feel proud (Kaitilla, 1993), and highly satisfied (Riazi & Emami, 2018). The low-cost houses owners regardless of region see homeownership as an "upgrade" of their socio-economic status.

House quality and homeownership contribute the most in Central region as compared to other regions. As a region with major agricultural activities and some industrial activities, the supply of houses could be more than demand for the population. The potential owner of low-cost houses in this region can be more demanding on the house quality and homeownership as they have many options.

Price and housing policy of developer contribute the most in Southern Region. The administration and business activities in the Southern Region drift the population from other

regions to this region (Echoh et al., 2015), and makes it the most developed region with the highest population density in Sarawak. Competition over the use of land is critical in this region. As a result, the standard of living is relatively higher here. Owners of low-cost terrace houses are satisfied if they manage to own the houses at affordable price with proper housing policy from developers such as the distance to work place and sufficient facilities for better urban life. Zoning of land with necessary facilities and affordable public transportation are crucial factors contributing to owner satisfaction in urban (Riazi & Emami, 2018).

Social environment is only significant in Central Region. With the mix of agricultural and industrial activities, the potential owners are looking for low-cost terrace houses with significant social environment. They want interaction with community especially for the agricultural activities, and the houses are security controlled. It is worth noting that price is not a significant factor contributes to owner's satisfaction in Northern Region. It could be due to the limited supply of low-cost terrace houses in this agricultural region. Also, the price of agricultural land is relatively lower, and most properly the low-cost terrace houses can be sold at more affordable price.

Conclusion and Direction for Future Research

The Covid-19 pandemic was started in December 2019 which has badly affected the economy and each society's segment (Emekci, 2021). To mitigate the impacts from the pandemic to the low-cost terrace housing industry, strategic plan should be carried out for more relevant policies. It should take into consideration of factors that contributing to owner satisfaction of low-cost terrace housing across geographic areas with different social and economic activities.

In this paper, it is found that there are three factors contribute to owner satisfaction of low-cost housing regardless of the social and economic activities of the housing areas, they are house quality, homeownership and policy of housing developer. The factor of social environment is found to be significantly contributed to owner satisfaction of low-cost terrace housing in moderate developing areas where the main economic sectors are mix of agriculture and industry. The factor of house price is not significantly contributing to the owner satisfaction of low-cost terrace housing in agricultural areas where the supply is limited but at a more affordable price due to land title.

Due to the fact that this study was conducted solely in Sarawak, it may not be applicable to other geographical areas. Therefore, further research in other geographical areas or types of housing is required to validate the findings.

References

- Abdullah, B. C., & Abd. Aziz, W. N. A. (2011). Pragmatic housing policy in the quest for low-income group housing delivery in Malaysia. *Journal of Design and Built*.
- Abdul Karim, H. (2008). The satisfaction of residents on community facilities in Shah Alam, Malaysia. *Asian Social Science*, 4 (11), 131-137.
- Abdul Mohit, M., Ibrahim, M., & Rashid, Y.R. (2010). Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat International*, 34, 18-27.

- Abdul Mohit, M., & Azim, M. (2012). Assessment of residential satisfaction with Public Housing in Hulhumale, Maldives. Paper presented at the ASEAN Conference on Environment-Behaviour Studies, Bangkok, Thailand.
- Amerigo, M., & Aragones, J. I. (1997). A theoretical and methodological approach to the Study of Residential Satisfaction. *Journal of Environmental Psychology*, 17, 47-57.
- Balestra, C., & Sultan, J. (2013). Home Sweet Home: The determinants of residential satisfaction and its relation with well-being. *OECD Statistics Working Papers*, 2013/05, OECD Publishing.
- Echoh, D. U., Nor, M. N., & Masron, T. (2015). Socio-Spatial Inequalities in Sarawak: The Role of Sarawak Corridor of Renewable Energy (SCORE). Proceedings of International Conference on Development and Socio Spatial Inequalities 2015.
- Emekci, S. (2021). How the pandemic has affected Turkish housing affordability: why the housing running cost is so important. *City, Territory and Architecture*, (2021) 8:4.
- Ho, C. S., & Idrus, N. (2008). *Affordable and Quality Housing Through The Low Cost Housing Provision in Malaysia*. Paper presented at the seminar of sustainable development and Governance of Department of Civil Engineering, and Architecture, Toyohashi University of Technology, Japan.
- Hong, Q., & Prybutok, V. R. (2008). Determinants of customer-perceived service quality in fast-food restaurants and their relationship to customer satisfaction and behavioral intentions. *The Quality Management Journal*, 15 (2), 35-50.
- Huang, Z., & Du, X. (2015). Assessment and determinants of residential satisfaction with public housing in Hangzhou, China. *Habitat International*, 47, 218-230.
- Ibem, E. O., & Aduwo, E. B. (2013). Assessment of residential satisfaction in public housing in Ogun State, Nigeria. *Habitat International*, 40, 163-175.
- Ishak, N. L., Yakub, A. R. A., & Achu, K. (2019). Buyers' Perception on Factors Affecting Affordable Housing Overhang in Johor, Malaysia. *International Journal of Real Estate Studies*, 48-58.
- Ismail, A., Bujang, A.A., Jaafar, M.N., Anthony Jiram, W.R., & Wijayaingtyas, M. (2020), Housing Affordability Stress: A Literature Survey and Some Evidence from Malaysia. *Jurnal Kemanusiaan*, 18:1 (2020), 53-57.
- Jaafar, M., Hassan, N., Mohamad, O., & Ramayah, T. (2005). The determinants of housing satisfaction level: A study on residential development project by Penang Development Corporation (PDC). *Jurnal Kemanusiaan*.
- Khair, N., Ali, M. H., Wilson, A. J., & Juhari, N. H. (2012). *Physical Environment for Post Occupancy Evaluation in Public Low-Cost Housing*. Paper presented at the 3rd International Conference on Business and Economic Research (3rd ICBER 2012) Proceeding, Bandung, Indonesia.
- New Straits Times. (2016). *Affordable Housing is Priority*.
- Pallant, J. (2011). *SPSS survived manual-a step by step guide to data analysis using SPSS* (4th edition). Australia: Allen & Unwin.
- Phang, K. Y., & Lau, S. W. (2016). A Survey on the Usage of Biomass Wastes from Palm Oil Mills on Sustainable Development of Oil Palm Plantations in Sarawak. IOP Conference Series: Materials Science and Engineering 206 012091
- Ramayah, T., Mahamad, O., & Mosahab, R. (2010). Service Quality, Customer Satisfaction and Loyalty: A Test of Mediation. *International Business Research*, 3 (4).
- Riazi, M., & Emami, A. (2018). Residential satisfaction in affordable housing: A mixed method study. *Cities*.

- Sulaiman, H., & Yahya, N. (1987). Housing provision and satisfaction of low-income households in Kuala Lumpur. *Habitat International*, 11 (4), 27-38.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th edn). Boston: Pearson Education.
- The Borneo Post. (2013). *Government monitors increase in house prices*.
- The Borneo Post. (2015). *More Land for Affordable Housing*.
- Voon, B. H. (2017). Service Environment of Restaurants: Findings from the youth customers. *Journal of ASIAN Behavioural Studies*, 2 (2), 63-73.
- Zumbro, T. (2014). The relationship between homeownership and life satisfaction in Germany. *Housing Studies*, 29 (3), 319-338.