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Understanding the Influence of Property Stigma on Overhang in Selangor's Real Estate Market

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Abstract

This study examines the impact of various forms of property stigma: environmental, social, geographical, psychological, public, minimal, and physical, on property overhangs in Selangor. Property overhang, characterized by unsold properties despite completion, presents a significant challenge for developers and policymakers in rapidly urbanizing regions. The research utilizes Spearman's rank correlation analysis to explore the strength and direction of associations between these stigma types and the likelihood of unsold properties. Data were collected from 161 respondents, all potential property buyers, in Selangor, providing a diverse perspective on how stigma affects market outcomes. The results reveal statistically significant positive correlations between all forms of stigma and property overhang, with environmental stigma showing the strongest correlation ($r_s = 0.497$, $p < .001$). These findings emphasize the complex, multi-dimensional nature of property stigma and its significant role in influencing buyer perceptions and the marketability of properties. The study highlights the need for real estate professionals and policymakers to address physical and non-physical stigma factors, such as environmental hazards or social perceptions, to reduce property overhang and improve the absorption of unsold properties in the market.

Keywords:

Property stigma, Property overhang, Spearman's rank correlation, Correlation

Article History

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1. INTRODUCTION

Property stigma refers to the adverse impact on a property's perceived value and marketability due to specific characteristics or associations, such as environmental hazards, structural issues, or undesirable neighborhood features (Bell, 2016; Rahim et al., 2019). Stigmatized properties are often subject to negative perceptions that lead to diminished buyer interest, lower transaction prices, and extended time on the market, contributing to the phenomenon known as property overhang. Property overhang, defined as accumulating unsold housing units within a given period after the Certificate of Completion and Compliance (CCC) is issued, presents significant challenges to developers and policymakers, particularly in rapidly urbanizing regions such as Selangor, Malaysia. These challenges underscore the urgency and importance of our research.

This study uniquely addresses this gap by employing a quantitative approach to analyze the relationship between property overhangs and various types of property stigma within residential areas in Selangor. The real estate market has become a significant interest for economists and researchers nowadays (Ismail & Nayan, 2021). In the first half of 2024, Malaysia's property overhang recorded Perak has the highest number of overhang residential units at 4,161, followed by Johor with 3,219 units, Kuala Lumpur with 3,051 units, and Selangor with 2,984 units. Most of these overhang units were priced below RM300,000.00 (The Edge Malaysia, 2024). According to Majid et al. (2023) and Salleh et al. (2024), housing prices below RM300,000.00 are considered affordable. Selangor was chosen due to its high economic significance, diverse property market, stronger market competition, and more significant impact of property overhang on investment behavior, making it a more critical and representative case for analyzing property stigma (NAPIC, 2023). Using Spearman's correlation analysis, the study examines how proximity to elements such as dumping sites, groundwater pollution, sewerage processing plants, and high-voltage power lines influence the perception of environmental stigma among potential property buyers. The findings, which provide actionable insights for developers, urban planners, and policymakers, empower them to make informed decisions that can mitigate the adverse effects of stigma and reduce property overhangs in the housing market.

2. LITERATURE REVIEW

Stigma towards property refers to the negative perceptions that diminish a property's market value and desirability, often leading to prolonged sale periods and reduced marketability. This stigma can arise from various factors, including environmental concerns such as pollution and contamination (Bond, 2001), physical deterioration like inadequate maintenance and unattractive design (Cradduck & Warren, 2019), and psychological elements such as properties associated with distressing events like crimes or hauntings (Perlin & Ben-Ezra, 2005). Properties affected by stigma often fail to attract buyers, contributing to issues like property overhang, where completed properties remain unsold for extended periods (Said et al., 2017). Understanding the dimensions of property stigma is crucial for real estate professionals to develop effective strategies to mitigate its impact and improve the overall market performance. Recent studies have also examined how stigma is measured in various contexts, suggesting that stigma's dimensions are not uniform across regions or markets (Said et al., 2017; Cheng & Ling, 2023). For instance, in post-crisis economies, properties in stigmatized areas may experience longer periods of overhang, driven by buyers' reduced willingness to purchase. These buyers may be wary of potential future declines in property values. Therefore, it is essential to examine stigma's role not only from a property's condition but also from an emotional and cognitive perspective, particularly in rapidly developing urban centers like Selangor. One notable study by Huri et al. (2024) categorized stigma into three broad categories: physical, non-physical, and psychological stigma. This typology offers a deeper understanding of how different stigma types can contribute to overhang in Malaysia's residential market.

2.1 Physical Stigma

Physical stigma towards property refers to the negative perceptions and decreased market value

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resulting from a property's visible physical defects or unattractive features. This stigma can be attributed to various factors, such as poor maintenance, outdated or inefficient design, and the overall dilapidation of the property (Cradduck & Warren, 2019). Potential buyers often perceive such properties as less desirable due to the anticipated costs and efforts required for renovation and maintenance. For instance, structural issues like cracks, leaks, or outdated facilities can significantly diminish a property's appeal and market value (Said et al., 2017). Furthermore, properties with limited aesthetic appeal or those lacking modern amenities often face prolonged sale periods and reduced market prices (Ishak et al., 2019). Understanding the impact of physical stigma is essential for property developers and real estate professionals to improve property conditions and enhance marketability.

2.2 Non-Physical Stigma

Non-physical stigma towards property refers to negative perceptions and reduced market value resulting from factors unrelated to the property's physical condition (Said et al., 2017). This type of stigma encompasses environmental issues, such as proximity to waste disposal sites or high-voltage power lines (Hajnal, 2017), and social factors like crime rates or undesirable neighbourhood reputations (Bell, 2016). Additionally, social concerns, such as crime issues (Ibrahim & Maimun, 2022; Teck-Hong, 2011), a high number of students renting in family neighbourhoods (Horgan, 2020), and an influx of foreign workers (Huri et al., 2024), contribute to non-physical stigma. The perception of distance and accessibility, including poor access to public transport (Kassim & Tey, 2022; Tan, 2024; Rahim et al., 2019), also plays a role. Public stigma, such as developers failing to deliver houses on time (Rahim et al., 2019), poor construction quality (McCabe, 2018), and the misconception that well-known developers always launch properties at higher prices (Rahim et al., 2019), further impacts property overhang. In Selangor, the mandatory inclusion of affordable housing in large-scale projects under the Rumah SelangorKu policy adds another layer to this issue. Lastly, minimal stigma, related to poor maintenance of facilities and the conversion of units into Airbnb accommodations, threatens resident safety and contributes to non-physical stigma (Huri et al., 2024). These non-physical factors can significantly deter potential buyers and investors, leading to prolonged sale periods and lower property values (Callanan & Eves, 2015).

2.3 Psychological Stigma

Psychological stigma towards property refers to the negative perceptions and adverse emotional responses that potential buyers may harbour due to the property's association with distressing or undesirable events. This can include properties where tragic incidents, such as murders, suicides, or natural disasters, have occurred, as well as those believed to be haunted (Alias et al., 2014). Additionally, concerns about past flash floods and landslides can evoke fear among potential buyers (Adzhar et al., 2021; Said et al., 2017). Even if a property is located in a desirable area, these elements can deter prospective buyers, reducing market value and prolonging sale periods (Bond, 2001; Bell, 2016). Psychological stigma is rooted in the emotional and cognitive responses of individuals, which significantly influence their purchasing decisions and overall perception of the property (Perlin & Ben-Ezra, 2005). These psychological factors create a sense of fear, discomfort, or aversion, leading to diminished market value and longer sale periods. The impact of psychological stigma on the property is profound as it affects not only the perceived safety and desirability of the property but also the buyer's willingness to engage with it, ultimately influencing the property's marketability and value (Said et al, 2017). This stigma can linger long after the events that caused it, making it a significant factor in real estate transactions and property valuations.

Several studies have explored the influence of various factors on property stigma, ranging from non-physical elements to physical characteristics (Said et al., 2017; Cheng & Ling, 2023). The growing body of literature highlights stigma's multifaceted nature, with psychological and physical dimensions playing critical roles in shaping public perceptions (Cradduck & Warren, 2019; Mohammad et al., 2022). However, there remains a need for empirical analysis that systematically investigates the correlations between property overhang and the degree of stigma perceived by potential buyers.

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Given the conceptual framework established by Huri et al. (2024) and its validation by property experts, it is essential to explore further and quantify the relationships between the identified property stigma variables and property overhang. While the conceptual framework provides a foundational understanding of the variables at play, it lacks empirical quantification that can reveal the strength and direction of these relationships (Lobo & Gundur, 2018).

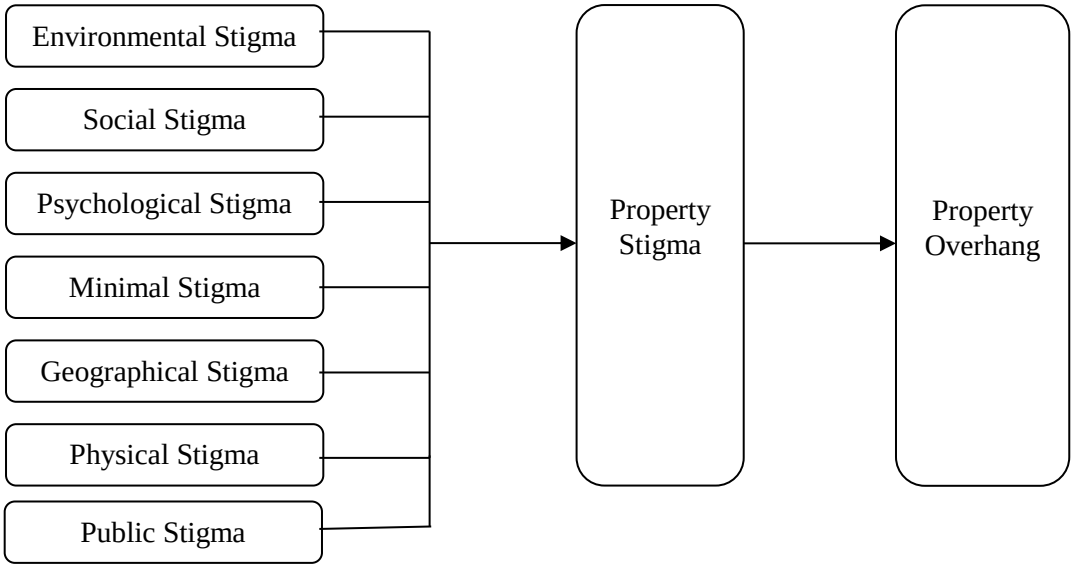

Figure 1: Conceptual framework
Source: Huri el al.,2024

Applying Spearman's rank analysis will validate the conceptual framework and offer practical implications for property developers and policymakers to mitigate stigma, thereby enhancing marketability and public perception of affected properties.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study follows a quantitative research design to examine the relationship between various forms of property stigma environmental, social, geographical, psychological, public, minimal, and physical stigma and property overhang in Selangor. A non-experimental, correlational design was adopted to assess the strength and direction of associations between these stigma types and the likelihood of properties remaining unsold. This approach allows for the identification of relationships rather than establishing causality (Cohen, 1988).

3.2 Sample Selection.

The study used purposive sampling to select 161 participants, all of whom were potential property buyers in Selangor. This selection method was chosen because it enables targeted sampling of individuals with relevant experience or interest in properties in areas potentially affected by stigma (Cohen, 1988). Participants were specifically chosen from residential areas known to experience stigma-related issues such as environmental concerns and social challenges. Respondents already involved in housing schemes with known property overhangs were excluded to ensure that the sample represented individuals who actively considered purchasing properties, allowing for more accurate insights into the factors influencing property overhang. By focusing on individuals actively considering property

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purchases, the study aimed to capture a more accurate perception of stigma factors that may impact their decision-making process. The sample size of 161 participants was determined based on statistical recommendations for non-parametric analysis. Bujang (2024) suggests that for non-parametric tests such as Spearman's rank correlation, a sample size of at least 149 respondents provides sufficient power at a 95% confidence level, making the sample appropriate for the analysis conducted in this study. Data were collected using a structured questionnaire to assess respondents' perceptions of various types of property stigma. The questionnaire was divided into sections corresponding to the seven identified stigma categories: environmental stigma, social stigma, geographical stigma, psychological stigma, public stigma, minimal stigma, and physical stigma. For each category, respondents were asked to rate their agreement with statements related to specific stigma factors on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." This scale allowed the study to measure attitudes toward each category of stigma in a nuanced way, capturing varying levels of perception and concern. The questionnaire also included questions about the respondents' awareness of property overhang in their area of interest, enabling the researchers to gauge how well-informed the participants were about the issue and how it might influence their perceptions of stigma. The structured survey approach ensured consistency in responses, enabling robust statistical analysis. Additionally, using a Likert scale provided a quantifiable way to assess respondents' perceptions of the various stigma types and their potential impact on the likelihood of property overhang.

3.3 Reliability and Validity

To ensure the instrument's reliability, a pilot test was conducted on a sample of 30 respondents to identify any ambiguities in the questionnaire and make necessary adjustments before the primary survey (Cronbach, 1951). The internal consistency of the survey was evaluated using Cronbach's alpha, with values above 0.70 considered acceptable (Nunnally & Bernstein, 1994). For construct validity, the survey was reviewed by a panel of experts in real estate and property valuation to ensure that the items in the questionnaire accurately represented the stigma dimensions outlined in the theoretical framework (Sekaran & Bougie, 2016). Expert judgment ensured content validity, while construct validity was confirmed through factor analysis, which showed that the questions were correctly grouped into the corresponding stigma dimensions. While the study's external validity is limited to Selangor, the methodology can be adapted to other regions with similar urban development characteristics.

3.4 Statistical Analysis

This study employed Spearman's rank correlation analysis to investigate the relationships between various types of property stigma, namely environmental, social, geographical, psychological, public, minimal, and physical stigma, and their impact on property overhangs in Selangor. Spearman's rank correlation was selected due to its non-parametric nature, making it suitable for assessing complex, non-linear associations between the variables involved. Unlike Pearson's correlation, which assumes linear relationships and normally distributed data, Spearman's rank correlation does not make assumptions about the data distribution. It is effective for analyzing the monotonic relationships between the studied variables (Rebekic et al., 2015). This approach was deemed appropriate due to the likely non-linear relationships between stigma factors and property overhang, given the multifaceted nature of property stigma. The study's primary objective was to quantify the strength and direction of the associations between property overhang and the seven types of stigma identified in the literature. To achieve this, the study focused on respondents' perceptions of property stigma in residential areas in Selangor, Malaysia, and how these perceptions might correlate with the likelihood of properties remaining unsold, thus contributing to property overhang.

This non-parametric statistical method measures the degree of association between two variables, ranging from -1 (indicating a perfect negative correlation) to +1 (indicating a perfect positive correlation). The analysis was performed at a 95% confidence level, with results interpreted according to Cohen's (1988) benchmarks for evaluating the strength of correlations. This approach provided a comprehensive understanding of how various forms of stigma contribute to the property overhang

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phenomenon in Selangor. The correlations were significant at $p < 0.01$. The depiction of the r-value of Spearman's Rho Correlation (Dancey & Reidy, 2004) is presented in Table 1 and Figure 2 to demonstrate the level of strength of the relationships among the variables.

Table 1: Level of Strength of the Relationship

Spearman's Rho	Correlation
0.01 - 0.19	None or very weak relationship
0.20 - 0.29	Weak relationship
0.30 - 0.39	Moderate relationship
0.40 - 0.69	Strong relationship
≥ 0.70	Very strong relationship

This descriptor applies to both positive and negative relationships.

Source: Dancy and Reidy, 2004

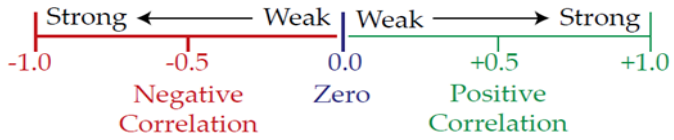

Figure 2: The spectrum of the correlation coefficient (-1 to +1)
Source: Gogtay and Thatte, 2017

4. RESULT AND ANALYSIS

This section presents findings regarding the relationship between various forms of property stigma and property overhangs in Selangor. The main types of stigma analyzed include Environmental Stigma, Social Stigma, Geographical Stigma, Psychological Stigma, Public Stigma, Minimal Stigma, and Physical Stigma. This analysis aims to understand how these stigma factors influence the likelihood of properties remaining unsold in the region, thereby contributing to the phenomenon of property overhang. The analysis was conducted using Spearman's rank correlation, which measures the strength and direction of the association between these stigma types and property overhang. The results, including correlation coefficients, significance levels, and confidence intervals, are displayed in the following tables. These findings provide insights into which types of stigma are most strongly associated with property overhang, informing future strategies for mitigating their impact in the real estate market.

The data presented in Table 2 provides a detailed breakdown of respondents' perceptions across various types of property stigma, including environmental, social, geographical, psychological, public, minimal, and physical stigmas. The results indicate varying levels of agreement and disagreement among the respondents.

Table 2**:** Potential buyer's perceptions towards property stigma that may affect the property overhang

Factors	Criteria	Frequencies	
		N	%
Environmental Stigma	Strongly Not Agree	2	1.2%
	Not Agree	11	6.8%
	Neutral	19	11.8%
	Agree	70	43.5%
	Strongly Agree	59	36.6%
Social Stigma	Strongly Not Agree	1	0.6%
	Not Agree	8	5.0%
	Neutral	24	14.9%

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	Agree	75	46.6%
	Strongly Agree	53	32.9%
Geographical Stigma	Strongly Not Agree	1	0.6%
	Not Agree	8	5.0%
	Neutral	26	16.1%
	Agree	68	42.2%
	Strongly Agree	58	36.0%
Psychological Stigma	Strongly Not Agree	2	1.2%
	Not Agree	8	5.0%
	Neutral	17	10.6%
	Agree	75	46.6%
	Strongly Agree	59	36.6%
Public Stigma	Strongly Not Agree	0	0
	Not Agree	8	5.0%
	Neutral	17	10.6%
	Agree	73	45.3%
	Strongly Agree	63	39.1%
Minimal Stigma	Strongly Not Agree	0	0
	Not Agree	21	13.0%
	Neutral	40	24.8%
	Agree	71	44.1%
	Strongly Agree	29	18.0%
Physical Stigma	Strongly Not Agree	0	0
	Not Agree	11	6.8%
	Neutral	26	16.1%
	Agree	80	49.7%
	Strongly Agree	44	27.3%

These findings underscore the pervasive impact of various forms of stigma on property perceptions, with a predominant majority of respondents acknowledging the significance of each stigma type. The high levels of agreement across most categories suggest that stigma is a crucial factor influencing property marketability and desirability. Data analysis covering 161 respondents indicates that the calculation of the Spearman's rank correlation coefficient:

Table 3: Summary analysis of all pairs factors

Confidence Intervals of Spearman's Rho				
	Spearman's rho	**Significance (2-tailed)**	**95% Confidence Intervals (2-tailed)[a,b]**	
			Lower	**Upper**
Property Overhang – Environmental Stigma	.497	<.001	.363	.611
Property Overhang – Social Stigma	.373	<.001	.227	.503
Property Overhang – Geographical Stigma	.438	<.001	.297	.560
Property Overhang – Psychological Stigma	.318	<.001	.168	.454
Property Overhang – Public Stigma	.363	<.001	.216	.494
Property Overhang – Minimal Stigma	.399	<.001	.255	.526
Property Overhang – Physical Stigma	.402	<.001	.257	.528

a. Estimation is based on Fisher's r-to-z transformation.

b. Estimation of standard error is based on the formula proposed by Bonett and Wright

Table 3 presents Spearman's rank correlation analysis results, examining the relationship between property overhang and various categories of property stigma, including environmental, social, geographical, psychological, public, minimal, and physical stigmas. The Spearman's rho values, all statistically significant ($p < .001$), indicate positive correlations across all types of stigma, suggesting that as the level of stigma increases, the likelihood of property overhang also increases.

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Table 4: Correlation between property overhang and environmental stigma

Correlations				
			Property Overhang	**Environmental Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.497**
		Sig. (2-tailed)		<.001
		N	161	161
	Environmental Stigma	Correlation Coefficient	.497**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161
**. Correlation is significant at the 0.01 level (2-tailed)				

Table 4 presents Spearman's rho for the correlation between environmental stigma and property overhang, which was calculated to be 0.497, indicating a moderate positive relationship and statistically significant with a p-value of < .001, which suggests that this positive correlation is unlikely to have occurred by chance. The 95% confidence interval for this correlation coefficient ranges from 0.363 to 0.611, further confirming the reliability of this association. This suggests that properties associated with environmental stigmas, such as proximity to pollution or waste disposal sites, are more likely to remain unsold.

Table 5: Correlation between property overhang and social stigma

Correlations				
			Property Overhang	**Social Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.373**
		Sig. (2-tailed)		<.001
		N	161	161
	Social Stigma	Correlation Coefficient	.373**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161
**. Correlation is significant at the 0.01 level (2-tailed)				

Table 5 presents the correlation between social stigma and property overhang, which was found to be 0.373, indicating a moderate positive relationship. The significance level ($p < .001$) indicates this result is statistically significant. The 95% confidence interval for the correlation coefficient ranges from 0.227 to 0.503, supporting the robustness of the finding. This result implies that properties perceived negatively due to social factors, such as high crime rates or poor neighborhood reputation, are moderately associated with increased property overhang.

Table 6: Correlation between property overhang and geographical stigma

Correlations				
			Property Overhang	**Geographical Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.438**
		Sig. (2-tailed)		<.001
		N	161	161
	Geographical Stigma	Correlation Coefficient	.438**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161
**. Correlation is significant at the 0.01 level (2-tailed)				

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Table 6 presents a Spearman's rho of 0.438 for the correlation between geographical stigma and property overhang, denoting a moderate positive correlation. The significance level of $p < .001$ indicates that the relationship is statistically significant. The confidence interval of 0.297 to 0.560 suggests that this positive association is consistent across different samples. This finding highlights that undesirable geographical factors, such as remote locations or poor accessibility, are correlated with the likelihood of properties remaining unsold.

Table 7: Correlation between property overhang and psychological stigma

Correlations				
			Property Overhang	**Psychological Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.318**
		Sig. (2-tailed)		<.001
		N	161	161
	Psychological Stigma	Correlation Coefficient	.318**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161

**. Correlation is significant at the 0.01 level (2-tailed)

Table 7 presents the correlation between psychological stigma and property overhang was calculated to be 0.318, suggesting a moderate positive relationship. The significance level ($p < .001$) confirms the statistical significance of this result. The confidence interval for this correlation ranges from 0.168 to 0.454, indicating that the relationship, although weaker than other forms of stigma, remains statistically relevant. Properties associated with distressing events (e.g., crimes, accidents) tend to experience longer periods on the market.

Table 8: Correlation between property overhang and public stigma

Correlations				
			Property Overhang	**Public Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.363**
		Sig. (2-tailed)		<.001
		N	161	161
	Public Stigma	Correlation Coefficient	.363**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161

**. Correlation is significant at the 0.01 level (2-tailed)

Table 8 presents Spearman's rho for the relationship between public stigma and property overhang, which was 0.363, indicating a moderate positive correlation. This relationship is statistically significant, with a p-value of < .001. The confidence interval for this correlation is 0.216 to 0.494, suggesting that public stigma, such as negative media coverage or association with disreputable developers, is a factor that can lead to property overhang.

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Table 9: Correlation between property overhang and minimal stigma

Correlations				
			Property Overhang	**Minimal Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.399**
		Sig. (2-tailed)		<.001
		N	161	161
	Minimal Stigma	Correlation Coefficient	.399**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161
**. Correlation is significant at the 0.01 level (2-tailed)				

Table 9 presents a Spearman's rho of 0.399 observed between minimal stigma and property overhang, indicating a moderate positive correlation. The p-value of < .001 confirms the statistical significance of this finding, and the confidence interval of 0.255 to 0.526 supports the robustness of the result. Even minor stigmas, such as slight defects or less desirable attributes, appear to have a measurable impact on the likelihood of properties difficult to sold.

Table 10: Correlation between property overhang and physical stigma

Correlations				
			Property Overhang	**Physical Stima**
Spearman's rho	Property Overhang	Correlation Coefficient	1.000	.402**
		Sig. (2-tailed)		<.001
		N	161	161
	Physical Stigma	Correlation Coefficient	.402**	1.000
		Sig. (2-tailed)	<.001	
		N	161	161
**. Correlation is significant at the 0.01 level (2-tailed)				

Table 10 presents the correlation between physical stigma and property overhang was calculated to be 0.402, indicating a moderate positive relationship. This result is statistically significant, with a p-value of < .001. The confidence interval for this correlation ranges from 0.257 to 0.528, suggesting that physical issues, such as poor building conditions or unattractive design, contribute to the likelihood of properties experiencing overhang.

5. FINDINGS

The results of this study provide compelling evidence of the significant role that various forms of property stigma play in contributing to property overhang in Selangor, Malaysia. The analysis revealed a moderate positive correlation between environmental stigma and property overhang ($r_s = 0.497$, $p < .001$), supporting the assertion in the literature that environmental factors such as proximity to pollution, waste disposal sites, or hazardous materials can severely impact the marketability of properties. This finding is consistent with Bond's (2001) research, which emphasized the detrimental effect of environmental issues on property values. Properties in areas perceived to be environmentally degraded tend to face prolonged market times and lower demand, as potential buyers are discouraged by concerns over their health and well-being. Similarly, the observed correlation between social stigma and property overhang ($r_s = 0.373$, $p < .001$) reinforces Bell's (2016) argument that social issues, including crime rates, neighborhood reputation, and general social stability, are critical determinants in the real estate market. When an area has a poor reputation, whether due to high crime rates, economic decline, or

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undesirable social conditions, it can significantly deter prospective buyers. This social stigma is particularly powerful in affecting the purchasing behavior of potential buyers, who may be reluctant to invest in properties in unsafe or socially unstable areas. The findings highlight the importance of addressing these social issues to enhance the attractiveness of properties and reduce their time on the market.

Psychological stigma was also shown to significantly impact property overhang, with a correlation of ($rs = 0.318$, $p < .001$). This result validates previous research by Alias et al. (2014) and Bond (2001), who found that psychological factors such as properties' association with tragic events, crimes, or natural disasters can heavily influence buyers' emotional responses. Even if a property is physically in good condition, the emotional and cognitive aversion to such negative associations often leads to reduced buyer interest and extended periods of overhang. This finding underscores the need for sellers and developers to address not just the physical but also the psychological aspects that may affect the desirability of a property. These results reinforce the multifaceted nature of property stigma and its substantial impact on property overhang, validating the conclusions drawn by Huri et al. (2024) and Said et al. (2017), who suggested that both physical and non-physical stigma factors must be addressed through targeted interventions. The findings underscore the necessity for real estate professionals and developers to adopt strategies that consider all dimensions of stigma to improve the marketability of properties and reduce the time they remain unsold.

Moreover, the analysis demonstrates that environmental and geographical factors were the most influential factors contributing to property overhang among the different types of stigma studied. The proximity to waste sites, high-voltage power lines, and poor accessibility were all found to be significant factors in deterring buyers. This aligns with findings from global studies, such as those by Cradduck and Warren (2019), which suggest that infrastructure-related stigma, including poor access to transportation or essential services, can severely affect property desirability. Geographical stigma, linked to location-specific issues such as remoteness or poor urban planning, is critical for developers and urban planners to consider when planning new residential areas. Properties in areas perceived as poorly accessible or in undesirable geographical settings are more likely to face difficulties attracting buyers, leading to overhangs. In addition, psychological stigma was found to play a significant role in property overhang, further confirming the findings of Perlin and Ben-Ezra (2005), which highlighted the cognitive and emotional responses buyers have to properties with negative histories. Psychological factors can be a significant deterrent, even in otherwise desirable locations, indicating that the emotional context surrounding a property must also be addressed in the marketing and selling process. Buyers' associations with adverse events, whether real or perceived, can lead to long-term stigma that significantly affects property values and sale prospects.

6. IMPLICATIONS FOR DEVELOPERS, POLICYMAKERS, AND REAL ESTATE PROFESSIONALS

The findings of this study have profound implications for developers, real estate professionals, and policymakers. The results suggest that to effectively reduce property overhang, addressing all aspects of property stigma, environmental, social, psychological, and geographical, rather than focusing on only one factor is essential. The environmental dimension, for instance, calls for immediate action from developers to incorporate sustainable and environmentally friendly practices in their projects. Investing in environmental remediation, such as cleaning polluted sites or implementing green infrastructure solutions, could help mitigate the stigma associated with properties in environmentally challenged areas. Moreover, developers should focus on promoting green and energy-efficient buildings, as these types of developments are increasingly desirable by environmentally-conscious buyers. For social stigma, policymakers should work closely with community leaders, law enforcement agencies, and social organizations to improve the reputation of stigmatized neighborhoods. This could involve investing in crime prevention, improving local infrastructure, and ensuring that social services are accessible to all residents. Local government initiatives, such as community revitalization programs, could play a pivotal

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role in reducing social stigma and, by extension, property overhang. By improving the safety, reputation, and overall quality of life in these areas, policymakers can reduce the stigma that affects the property market. Geographical stigma presents another challenge, particularly in urban areas experiencing rapid growth. Policymakers and developers should prioritize infrastructure development, particularly in underserved or remote areas, to ensure that residential developments are well-connected to transportation networks, public services, and economic opportunities. Enhancing accessibility to these areas would help reduce the stigma associated with their location, thus increasing property demand and mitigating the likelihood of overhangs. The psychological stigma related to properties with negative histories is more complex to address. However, developers can still take action by offering full disclosure regarding a property's history and proactively addressing any negative associations. Real estate professionals can also assist by repositioning these properties within the market, perhaps through branding or discount pricing, to overcome buyer hesitation. Sometimes, offering renovation incentives or temporary price reductions may help mitigate buyer concerns linked to psychological stigma.

7. CONCLUSION

This study explored how different types of property stigma, such as environmental, social, geographical, psychological, public, minimal, and physical stigma, affect property overhangs in Selangor. By analyzing data from 161 respondents using Spearman's rank correlation, the study found significant positive correlations between stigma and property overhang, meaning that higher levels of stigma are linked to more unsold properties. Environmental stigma is strongly correlated with property overhang among all the stigma types. This suggests that properties near ecological hazards, such as waste disposal sites or pollution, are less likely to sell. This finding highlights the importance of addressing environmental issues to improve the marketability of properties. Other types of stigma, such as social stigma (related to crime rates), geographical stigma (due to poor accessibility), and psychological stigma (related to past events), also contribute to property overhang. These results show that property overhang is not just about market conditions but also about how potential buyers perceive the area and property based on physical and non-physical factors. Although Spearman's rank correlation helped identify these relationships, it is important to note that the results are based on the specific sample in Selangor. The findings may not apply to regions or property markets with different conditions. Future research could involve a more extensive and more diverse sample and longitudinal studies to track how stigma and property overhang change over time. Despite these limitations, the study provides valuable insights for real estate professionals and policymakers. It suggests strategies should address the stigma factors, primarily environmental issues, to reduce property overhang. By improving the perceived value of stigmatized properties, it is possible to enhance their marketability and reduce the number of unsold properties.

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