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Analysis of Housing Affordability Stress (HAS) in Indonesia: Determinants and Influencing Condition

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Abstract

Housing Affordability Stress (HAS) has become an increasingly critical issue in Indonesia, with housing costs rising faster than income growth. This issue is particularly concerning urban areas, where living costs are significantly higher than in other regions. Although previous studies have explored factors influencing HAS, research in developing countries with low financial literacy levels remains limited. This study employs two research models to analyze HAS in Indonesia. The first model examines the effects of household size, homeownership status, and residential location on HAS, while the second model investigates the role of financial literacy. Utilizing data from the National Socioeconomic Survey (SUSENAS) and the National Survey on Financial Literacy and Inclusion (SNLIK), the research identifies significant relationships between these variables and HAS. The findings reveal that larger households tend to face lower levels of HAS, while renters and urban residents are more likely to experience higher housing stress. Financial literacy is also shown to significantly influence HAS. However, the context of residential location remains a critical factor, as urban households continue to experience higher HAS levels despite higher financial literacy compared to rural areas. These insights highlight the need for integrated approaches that combine financial literacy initiatives with location-specific housing policies. The study offers practical recommendations for policymakers to develop inclusive strategies that address housing affordability challenges while fostering economic resilience and well-being.

Keywords: Housing Affordability Stress (HAS); household size; homeownership status; residential location; financial literacy.

INTRODUCTION

Housing affordability has become a significant global issue as housing costs continue to rise faster than income growth, worsening financial burdens on households (Wetzstein, 2017). This phenomenon is commonly referred to as Housing Affordability Stress (HAS), defined as the financial strain experienced by households when they are required to allocate a substantial portion of their income toward housing costs (Acolin & Reina, 2022). Internationally, HAS is often measured by the percentage of income spent on housing, with households considered to be under stress when they allocate more than 30% or 50% of their income for housing (Emmanuel et al., 2023). This condition leaves limited resources for other essential needs, such as food, healthcare, and education, often leading to further socio-economic hardships (Pollack et al., 2010).

The issue of housing affordability is also experienced in Indonesia, where a significant housing backlog, estimated at 14 million units as of 2023, continues to grow (KemenPUPR, 2022; LPEM FEB UI, 2024). This backlog disproportionately affects low-income households, particularly those working in the informal sector, who struggle to access affordable housing options. According to the Ministry of Public Works and Housing (KemenPUPR), more than 93% of the backlog comes from low-income families, 60% of whom are employed in informal sectors, highlighting the structural inequality in housing provision (LPEM FEB UI, 2024). Furthermore, Indonesia's housing affordability challenges are exacerbated by significant regional disparities, particularly between urban and rural areas (Sari & Wiguna, 2022). Urban regions, such as Jakarta and its surrounding areas (Jabodetabek), experience significantly higher housing costs than other parts of the country. Median prices for mid-sized homes (91–150 square meters) in Central Jakarta, for example, are 2.5 times higher than in Semarang, the capital of Central Java, at IDR 3 billion and IDR 1.2 billion per house, respectively (Flash Report, 2023). Additionally, the Residential Property Price Index (SHPR) in Jabodetabek reached 109.50 in 2024, surpassing the national average of 108.76 (Bank Indonesia, 2024). These conditions forcing many households to either rent or relocate to less accessible suburban areas. However, these alternatives often fail to fully resolve affordability challenges due to limited accessibility to public transportation and urban facilities, which are critical for daily living.

Global trends in housing affordability, observed in countries such as the United States, Australia, and South Korea, underscore the influence of socioeconomic variables such as household income, family size, housing tenure, and location on HAS (Lee, 2012; Krapf & Wagner, 2020; Wood & Ong, 2011). However, while developed countries have extensively studied HAS and implemented targeted policies, similar research in developing nations like Indonesia remains scarce. This gap is particularly evident in exploring the role of financial literacy, a critical yet understudied factor that may influence the impact of socio-economic vulnerabilities on housing affordability. Low levels of financial literacy in Indonesia, especially among low-income and rural households, further

constrain their ability to manage economic pressures and secure affordable housing options.

Financial literacy is a critical factor influencing households' ability to manage income and expenses effectively, particularly in navigating financial pressures like housing affordability. According to Prakoso et al. (2024) and Selvina et al. (2024), households with higher financial literacy are better equipped to make informed decisions, allocate resources prudently, and access affordable housing finance options. However, data from the National Survey on Financial Literacy and Inclusion (SNLIK) indicate that financial literacy levels in Indonesia remain relatively low, especially among low-income households and rural residents. This limitation restricts their ability to achieve financial stability, exacerbating Housing Affordability Stress (HAS). Studies further highlight that financial literacy not only enhances financial management but also fosters behaviors like budgeting and housing needs planning (OECD, 2020). Furthermore, households with greater financial literacy demonstrate better resilience to economic shocks and are less likely to experience HAS (LPEM FEB UI, 2024).

Atkinson and Messy (2012) define financial literacy as the integration of awareness, knowledge, skills, and actions that enable individuals to make sound financial decisions. With adequate financial literacy, individuals are less likely to make poor financial choices that could lead to instability. This concept aligns with Shappel et al. (2018), who emphasize the strong relationship between personal financial management and overall well-being. Financial literacy equips individuals to address various challenges, contributing not only to financial stability but also to enhanced quality of life.

The broader context of financial literacy includes aspects of personal finance, as noted by Garman and Forgue (2010). Effective personal financial management encompasses short- and long-term financial planning, credit management, and activities such as purchasing homes, insurance, and investments. These financial activities are crucial for achieving both immediate financial stability and long-term economic security. Similarly, Wuttke et al. (n.d.) highlight the importance of personal finance in making critical financial decisions, such as evaluating job opportunities or deciding between buying and renting a house. These decisions are often influenced by individuals' awareness of macroeconomic factors like inflation, stock values, and interest rates, which directly affect their financial outcomes.

In addition, personal financial management supports achieving overall economic satisfaction. Safari et al. (2021) emphasize that financial well-being is integral to broader life satisfaction, improving individuals’ quality of life. Jumame (2023) further elaborates that personal finance plays a pivotal role in helping individuals achieve economic satisfaction and financial security. These perspectives underscore the interconnectedness between financial literacy, personal financial management, and well-being, reinforcing the significance of financial education in alleviating HAS.

By enhancing financial literacy, households can improve their ability to manage income and expenses, potentially reducing the impact of socio-economic vulnerabilities

on HAS. This study explores the influence of financial literacy in shaping the relationship between socio-economic factors and HAS, providing valuable insights into how financial awareness can support households in managing housing-related financial pressures within different contextual settings.

This study examines the determinants of HAS in Indonesia, focusing on household size, homeownership status, residential location, and financial literacy. Java Island, which comprises six provinces—DKI Jakarta, Banten, West Java, Central Java, East Java, and DIY Yogyakarta—serves as the study area. Home to 56% of Indonesia's population and contributing more than 56% to the national GDP (BPS, 2023), Java provides a representative context for analyzing HAS dynamics in Indonesia. By utilizing data from the National Socioeconomic Survey (SUSENAS) and SNLIK, this research provides a comprehensive understanding of how socio-economic factors and financial literacy interact to influence HAS. The findings aim to inform policymakers in designing inclusive housing policies and financial literacy programs that address the specific challenges faced by households in Indonesia. These insights emphasize the need for a multidimensional approach to addressing HAS, highlighting the interplay between economic, social, and educational factors to achieve sustainable and equitable housing solutions.

RESEARCH METHODS

This study uses a quantitative approach. Quantitative research is a research approach that focuses on the collection and analysis of numerical data (Gravetter et al., 2016; Saleh., 2018). Through this approach, researchers can conduct systematic measurements, produce reliable findings, and draw generalizable conclusions. Quantitative research usually involves structured data collection procedures, such as surveys or experiments, and statistical analysis to test specific hypotheses and theories (Kaplan & Saccuzzo, 2013). This approach was chosen because it is in accordance with the objectives of the study which aims to identify the determinants and conditions that influence Housing Affordability Stress (HAS). The research is based on secondary data from two key sources: the National Socioeconomic Survey (SUSENAS) conducted by the Central Bureau of Statistics (BPS) and the National Survey on Financial Literacy and Inclusion (SNLIK) conducted by the Financial Services Authority (OJK). SUSENAS provides extensive data on household socio-economic conditions, housing tenure, household size, and residential location, while SNLIK offers detailed insights into financial literacy levels. Data spanning the years 2018–2022 was utilized, allowing for a comprehensive assessment of housing affordability trends and the role of financial literacy across different regions.

The study focuses on households in Java Island, which includes six provinces: DKI Jakarta, Banten, West Java, Central Java, East Java, and Yogyakarta. This region was chosen for its socio-economic significance, accounting for 56% of Indonesia’s population and contributing more than 56% to the national GDP (BPS, 2023). The dataset comprises 157,042 households, drawn from a simple random sampling method implemented by BPS and OJK. This approach ensures each household within the population had an equal chance

of selection, eliminating bias and providing a representative sample of households across urban and rural areas. The inclusion of such a broad dataset enhances the study's ability to generalize findings and address disparities in housing affordability and financial literacy within the region.

Housing Affordability Stress (HAS) is measured using the Housing Cost-to-Income Ratio (HIR), which evaluates the proportion of household income allocated to housing expenses. This approach is widely used in international studies to determine housing affordability thresholds (Aurand et al., 2021; Kim & Kang, 2024). Housing costs encompass all related expenditures, including mortgage or rent payments, utilities, and other housing-related costs. However, due to data limitations in the SUSENAS dataset, which does not directly capture household income, a proxy measure using average household expenditure is employed. This proxy assumes that household spending closely aligns with income, especially in low-income households where most earnings are consumed for basic needs (Rostiana, 2011). This measure provides a robust and practical method to assess HAS levels, enabling insights into the financial pressures households face in accessing adequate housing. The HIR formula is:

$$HIR = (HMLIP \text{ or } R + HME + UE + HFE) / HI \times 100$$

Where HMLIP is the amount of home mortgage or rent fees; HME is the cost of housing management; UE is the cost of utilities; HFE is the cost of home furnishings; R is the amount of rent payment; and HI is household income.

RESULTS AND DISCUSSION

Descriptive Statistics

The dataset comprises 157,042 households from Java Island, covering six provinces: DKI Jakarta, Banten, West Java, Central Java, East Java, and Yogyakarta. The analysis examines variations in household size, homeownership status, residential location, financial literacy, and Housing Affordability Stress (HAS), offering a comprehensive understanding of the socio-economic dynamics influencing housing affordability across the region.

Household size, a fundamental demographic factor, is categorized into three groups: small (1–3 members), medium (4–6 members), and large (more than six members). Small households dominate the dataset, accounting for 45% of the total, and are particularly prevalent in urban areas such as DKI Jakarta, where economic pressures and limited housing space encourage smaller family structures. Medium-sized households, representing 52% of the sample, are more common in suburban and rural areas, where housing affordability allows for larger families. Meanwhile, large households, comprising over six members, make up only 4% of the sample and are primarily concentrated in rural areas, particularly in Central and East Java. These patterns reflect a demographic shift toward smaller households, influenced by economic constraints and urbanization trends.

Homeownership serves as a key indicator of housing security. The majority of households, 89%, own their homes, with significantly higher ownership rates observed in rural areas due to lower housing and land costs. By contrast, urban areas, particularly DKI Jakarta, show a higher proportion of households (11%) residing in rented or alternative housing arrangements. These findings underscore the ongoing challenges in urban regions, where elevated property prices hinder access to homeownership and compel many families to rely on the rental market.

Residential location reveals a nearly equal distribution of households between urban (49.9%) and rural (50.1%) areas, yet the housing challenges differ substantially between the two. Urban households face higher housing costs and consequently higher levels of financial pressure, driven by elevated property prices and rental rates. In rural areas, while housing costs are generally lower, economic constraints such as limited access to financial resources and job opportunities present unique challenges. This stark contrast underscores the necessity for location-specific strategies to address housing affordability comprehensively.

Financial literacy plays a vital role in enabling households to manage their personal finances effectively, particularly in mitigating housing affordability challenges. The data reveal significant disparities in financial literacy levels between urban and rural areas. Urban households saw a marked improvement, with financial literacy levels increasing from 41.41% in 2019 to 56.7% in 2022, a growth of 15.29%. This progress reflects the impact of financial education programs, greater access to digital financial services, and active efforts by financial institutions to educate urban communities. In contrast, rural households experienced slower growth, with financial literacy rising from 34.54% in 2019 to 43.3% in 2022, an increase of only 8.76%. These findings highlight the persistent gap between urban and rural populations, emphasizing the need to enhance financial literacy initiatives in rural areas. Addressing this disparity is critical for building financial resilience and alleviating housing affordability stress across diverse socio-economic settings.

Table 1
HAS Distribution in Java Island (%)

	2018	2019	2020	2021	2022	Total
Desa	**8,9**	**9,3**	**9,4**	**9,6**	**9,7**	**9,4**
Banten	10,9	10,6	11,3	11,6	11,2	11,1
Jawa Barat	100,9	10,4	10,1	10,4	11	10,5
Jawa Tengah	8,7	9,2	9,4	9,6	9,7	9,3
Jawa Timur	8,1	8,8	8,6	9	9	8,7
Yogyakarta	8,4	9,1	9,5	109,9	10	9,4
Kota	**12,4**	**12,7**	**11,6**	**14,2**	**13,8**	**13**
Banten	12,5	15	12,6	14,9	15,5	14,4
DKI Jakarta	22,1	20,4	20,2	23,2	26,6	22,4
Jawa Barat	14,9	13,8	11,8	15,2	15,2	14,3
Jawa Tengah	10,2	11	10,7	12,7	12,4	11,5
Jawa Timur	9,7	11,1	9,9	12,1	11	10,8
Yogyakarta	10,7	13,2	10,6	14,4	12,3	12,3
Total	**10,6**	**11,1**	**10,4**	**12**	**11,8**	**11,2**

Source: Researcher, (2024)

Housing Affordability Stress (HAS) further illustrates the financial burden households face in covering housing costs. Table 1 highlights notable geographic disparities in HAS across Java Island from 2018 to 2022. Urban areas, particularly DKI Jakarta, report the highest HAS levels, with a five-year average of 22.4%, reflecting the high cost of living and limited availability of affordable housing in metropolitan areas. In comparison, rural regions such as East Java exhibit much lower HAS levels, averaging 9.7% over the same period, indicating relatively better housing affordability. Temporal trends reveal modest fluctuations, with urban centers like Jakarta experiencing a notable increase in HAS from 20.2% in 2020 to 26.6% in 2022. While most regions remain below the international threshold of 30%, the urban-rural divide in HAS levels highlights the need for targeted policies to mitigate housing stress in high-pressure urban environments while addressing the financial constraints of rural households.

Linear Regression Analysis

Linear regression analysis was conducted to examine the direct effects of household size (X1), homeownership status (X2), and residential location (X3) on Housing Affordability Stress (HAS). Prior to interpreting the regression results, diagnostic tests were performed to validate the model assumptions and ensure the reliability of the findings.

The multicollinearity assumption was evaluated using Variance Inflation Factor (VIF) values, which were consistently below 10 for all predictor variables across the five-year period (2018–2022). This result confirmed the absence of significant multicollinearity among the independent variables, allowing each predictor to independently explain variations in HAS. The heteroskedasticity assumption was tested to ensure constant variance of residuals. While some indications of heteroskedasticity were observed, robust standard errors were applied to mitigate these effects, ensuring that the estimated coefficients remained unbiased and efficient. Collectively, these diagnostic tests confirmed the statistical validity of the regression model. The results of these diagnostic tests are summarized in Table 2 and Table 3.

Table 2
Multicollinearity Test (2018-2022)

Variabel	VIF (2018)	VIF (2019)	VIF (2020)	VIF (2021)	VIF (2022)	VIF (Total)
X_1 - Keluarga Sedang	1,08	1,10	1,07	1,11	1,08	1,09
X_1 - Keluarga Besar	1,06	1,07	1,05	1,06	1,04	1,06
X_2 - Lain-lain	1,12	1,15	1,08	1,21	1,15	1,14
X_3 - Desa	1,1	1,1	1,06	1,15	1,12	1,11

Source: Researcher, (2024)

Table 3
Heteroskedasticity Test (2018-2022)

Tahun	*P-value*	Metode Uji	Kesimpulan
2018	0,000	*Breusch-Pagan*	Terdapat Heterokedastisitas
2019	0,000	*Breusch-Pagan*	Terdapat Heterokedastisitas
2020	0,000	*Breusch-Pagan*	Terdapat Heterokedastisitas
2021	0,000	*Breusch-Pagan*	Terdapat Heterokedastisitas
2022	0,000	*Breusch-Pagan*	Terdapat Heterokedastisitas
Total	0,000	*Breusch-Pagan*	Terdapat Heterokedastisitas

Source: Researcher, (2024)

Linear regression analysis was conducted to examine the direct effects of household size (X1), homeownership status (X2), and residential location (X3) on Housing Affordability Stress (HAS). The regression coefficients, summarized in Table 4, provide robust insights into the relationships between these predictors and HAS over the five-year period (2018–2022).

Table 4
Regression Result (2018-2022)

	(1) Model T 2018	(2) Model T 2019	(3) Model T 2020	(4) Model T 2021	(5) Model T 2022	(6) Model Total
X_1 - K. Sedang	-1,199***	-1,275***	-1,315***	-1,429***	-1,520***	-1,337***
	(0,045)	(0,045)	(0,043)	(0,048)	(0,048)	(0,021)
X_1 - K. Besar	-2,302***	-2,634***	-2,624***	-2,727***	-2,737***	-2,610***
	(0,099)	(0,094)	(0,099)	(0,101)	(0,115)	(0,045)
X_2 - Lain-lain	13,724***	12,887***	13,823***	13,450***	14,481***	13,741***
	(0,153)	(0,137)	(0,178)	(0,125)	(0,155)	(0,066)
X_3 - Desa	-1,310***	-1,107***	-0,778***	-1,271***	-1,217***	-1,142***
	(0,042)	(0,042)	(0,042)	(0,042)	(0,043)	(0,019)
Konstanta	10,675***	10,953***	10,605***	11,459***	11,524***	11,035***
	(0,042)	(0,041)	(0,040)	(0,043)	(0,043)	(0,019)
N	31408	31408	31409	31409	31408	157042
R^2	0,536	0,546	0,498	0,588	0,572	0,554

Note: * p < .05
Source: Researcher, (2024)

Household size (X1) is divided into two categories—medium households (K. Sedang) and large households (K. Besar)—with small households as the reference group. The coefficients for both medium and large households are consistently negative across all models, indicating that larger households experience lower levels of HAS compared to smaller households. For example, in the aggregated model, medium households have a coefficient of -1.337 ($p < 0.05$), while large households have a coefficient of -2.610 ($p < 0.05$). This suggests that larger households, contrary to expectations, may benefit from economies of scale or shared financial responsibilities, leading to reduced housing cost burdens.

Homeownership status (X2), represented by "Lain-lain" (non-homeowners, such as renters), exhibits a consistently strong positive relationship with HAS across all models. The aggregated model shows a coefficient of 13.741 ($p < 0.05$), indicating that non-homeowners face significantly higher levels of housing stress compared to homeowners.

This finding underscores the vulnerability of renters to fluctuating housing costs and limited affordability in the rental market, particularly in urban areas.

Residential location (X3) compares rural areas (Desa) to urban areas (reference category). The negative coefficients for rural areas across all models highlight that rural households experience significantly lower HAS than their urban counterparts. For instance, in the aggregated model, the coefficient for rural households is -1.142 ($p < 0.05$), reflecting the relative affordability of housing in rural regions compared to metropolitan areas such as DKI Jakarta.

The constant term, representing the average HAS for the baseline groups (small households, homeowners, and urban households), is consistently positive and statistically significant across all models. In the aggregated model, the constant is 11.035 ($p < 0.05$), which provides a baseline for interpreting the effects of the predictors.

The model's explanatory power, measured by R-squared, ranges from 0.498 in 2018 to 0.588 in 2021, with the aggregated model achieving an R-squared of 0.554. This indicates that 55.4% of the variability in HAS is explained by the predictors included in the model, while the remainder may be attributed to unobserved factors.

The results of the simultaneous testing, summarized in Table 5, further validate the model's overall significance. The F-statistics for all models across the five-year period, as well as the aggregated model, are statistically significant at $p < 0.05$. This confirms that the independent variables—household size, homeownership status, and residential location—jointly have a meaningful impact on HAS. The consistently significant F-statistics underscore the importance of considering these predictors in explaining variations in HAS across both spatial and temporal dimensions.

Table 5
Simultaneous Testing (2018-2022)

Tahun	*F*-statistik	*p-value*
2018	2528,83	0,000
2019	2901,72	0,000
2020	1951,55	0,000
2021	3516,45	0,000
2022	2673,32	0,000
Total	13397,97	0,000

Source: Researcher, (2024)

In addition to simultaneous testing, partial testing was conducted to evaluate the individual contributions of each predictor variable. The t-statistics for each variable are statistically significant at $p < 0.05$ across all models, as shown in Table 6. Household size, homeownership status, and residential location each independently influence HAS, with consistent patterns observed over time. These findings confirm that all three predictors are

crucial in shaping housing affordability outcomes, providing robust evidence of their individual and collective importance.

Together, the results of the simultaneous and partial tests highlight the strong explanatory power of the regression model and the statistical significance of the independent variables. These findings set the stage for a detailed discussion of the socio-economic implications, focusing on how household size, homeownership, and residential location contribute to housing affordability challenges across Java Island.

Table 6
Partial Testing (2018-2022)

Variabel	*p-value*	Signifikansi
X_1 - Keluarga Sedang	0,000	Signifikan
X_1 - Keluarga Besar	0,000	Signifikan
X_2 - Lain-lain	0,000	Signifikan
X_3 - Desa	0,000	Signifikan

Source: Researcher, (2024)

Mean Difference Test

The analysis of financial literacy and its impact on Housing Affordability Stress (HAS) was conducted using mean difference test. This test aimed to assess the differences in HAS between urban and rural households, considering varying levels of financial literacy across these regions. The results of this analysis, covering the period from 2018 to 2022, are summarized in Table 7.

Table 7.
Mean Difference Testing (2018-2022)

Tahun	Literasi Rendah (*Mean* ± SD)	Literasi Tinggi (*Mean* ± SD)	Perbedaan (Δ)	*p-value*
2018	9,92 ± 3,08	12,39 ± 7,18	-3,47	0,000
2019	9,34 ± 4,02	12,74 ± 7,07	-3,40	0,000
2020	9,38 ± 4,06	11,62 ± 6,54	-2,24	0,000
2021	9,644 ± 3,94	14,16 ± 8,11	-4,52	0,000
2022	9,75 ± 3,99	13,84 ± 8,25	-4,10	0,000

Source: Researcher, 2024).

The findings reveal significant disparities in HAS between urban and rural households. Across all years, urban households consistently reported higher average HAS than rural households. For example, in 2018, rural households recorded an average HAS of 9.92 ± 3.08, compared to 12.39 ± 7.18 for urban households, resulting in a mean difference (Δ) of -3.47 ($p < 0.05$). This pattern was consistent throughout the study period, with significant differences in HAS observed each year ($p < 0.05$).

These findings indicate that while financial literacy levels are generally higher in urban areas, they are insufficient to mitigate the heightened housing stress caused by

elevated living and housing costs in these regions. In contrast, rural households, despite exhibiting lower levels of financial literacy, experience less housing stress due to more affordable housing costs and a less competitive property market.

Discussion

The results confirm that household size significantly influences Housing Affordability Stress (HAS). Larger households, categorized as "Medium" (4–6 members) and "Large" (more than six members), consistently experience lower HAS compared to smaller households (1–3 members). The regression analysis revealed negative coefficients for "Medium" households (-1.337, $p < 0.05$) and "Large" households (-2.610, $p < 0.05$) in the aggregated model. This pattern aligns with the findings of Lee (2012), which suggest that larger households benefit from economies of scale, allowing for the distribution of housing costs across more household members. This advantage offsets potential challenges associated with higher living space requirements.

Interestingly, these results contradict the common assumption that larger households face greater housing burdens due to increased space needs. Instead, the findings suggest that larger households often have access to pooled financial resources, enabling better cost management and reduced stress levels. These observations are consistent across the 2018–2022 study period, with the largest HAS reductions recorded for "Large" households in 2019 (-2.634) and for "Medium" households in 2022 (-1.520).

The analysis further highlights the critical role of homeownership status in shaping HAS. Renters consistently reported higher HAS compared to homeowners. The positive coefficient for "Renters" (13.741, $p < 0.05$) underscores their vulnerability to fluctuating and often elevated rental costs. This finding is consistent with the work of Kim and Kang (2024), who argue that renters are more susceptible to economic pressures due to unstable housing costs, often compounded by sudden rental increases. In 2020-2022, renters faced the increase HAS levels, likely exacerbated by the economic impacts of the COVID-19 pandemic, which led to income losses without corresponding decreases in rental costs.

The vulnerability of renters reflects broader structural issues in housing markets, particularly in urban areas where high demand drives up rental prices. Conversely, homeowners benefit from more stable housing expenses, often linked to fixed mortgage rates or outright ownership. These dynamics emphasize the importance of promoting homeownership as a strategy to alleviate HAS, particularly for middle- and low-income households.

Residential location also plays a significant role in determining HAS. Urban households consistently exhibit higher HAS compared to rural households, as evidenced by the negative coefficient for rural residency (-1.142, $p < 0.05$). Urban households face elevated housing costs due to factors such as higher property prices and gentrification, as noted by Sharma and Samarin (2021). These pressures disproportionately impact low- and middle-income families, limiting their ability to secure affordable housing.

Rural households, in contrast, benefit from lower housing costs and a less competitive property market. However, Wood et al. (2014) caution that these advantages

may be offset by limited access to infrastructure and economic opportunities, which can indirectly influence household well-being. While rural areas offer more affordable housing, they may lack the amenities and employment opportunities available in urban regions, presenting unique challenges for policymakers.

These findings collectively highlight the multifaceted nature of HAS, driven by demographic, economic, and geographic factors. Tailored policy interventions are required to address these challenges, including support for larger households, incentives for homeownership, and urban planning strategies to improve housing affordability in high-cost areas.

The results of the mean difference test reveal a significant difference in the average Housing Affordability Stress (HAS) between households in urban (high literate) and rural (low literate) areas during the period 2018–2022. Urban households exhibit consistently higher HAS levels compared to their rural counterparts, despite having higher aggregate financial literacy. These findings suggest that while financial literacy is essential, it may not always be sufficient to alleviate the greater housing cost pressures experienced in urban areas characterized by high property prices and elevated living costs.

Selviana (2024) highlights that financial literacy enables households to manage income and expenditures more effectively, thereby mitigating economic pressures. However, its impact is highly contextual. In urban settings, where structural factors such as exorbitant housing costs dominate, financial literacy may not significantly offset these pressures. Conversely, in rural areas with relatively lower housing costs, financial literacy can have a more pronounced effect in helping households manage their expenses.

The socio-economic conditions in urban and rural areas further explain this disparity. Urban households face substantially higher housing costs than rural households, limiting the effectiveness of financial literacy in reducing HAS. On the other hand, rural households, despite lower financial literacy levels, encounter less severe housing cost pressures, enabling them to allocate resources more flexibly and manage expenditures with greater ease.

These findings underscore the geographically contextual nature of the relationship between financial literacy and HAS. Financial literacy can serve as a valuable tool for reducing HAS, but its impact is contingent on external factors such as housing costs and cost-of-living pressures. In urban areas, financial literacy programs must be complemented by interventions aimed at curbing housing costs and alleviating living expenses. In rural areas, expanding access to financial education and financial services can amplify the benefits of financial literacy.

These findings suggest that the role of financial literacy in addressing HAS must be contextualized within geographic and economic realities. In urban areas, financial literacy programs should be paired with policies aimed at reducing housing costs and mitigating living expenses, while in rural areas, efforts to broaden access to financial education and services can further enhance its benefits. By addressing these regional disparities,

policymakers can ensure more equitable outcomes in managing housing affordability stress across diverse settings.

CONCLUSION

This study provides key insights into Housing Affordability Stress (HAS) in Indonesia by analyzing the influence of household size, homeownership status, residential location, and financial literacy. The findings highlight that medium-sized and large households experience lower levels of HAS compared to smaller households. This result suggests that larger households tend to manage housing cost pressures more effectively, likely due to their ability to pool and utilize resources more efficiently. Smaller households, on the other hand, face greater challenges in balancing housing expenses relative to their financial capacity.

Homeownership status also plays a crucial role in determining HAS levels. Renters are significantly more vulnerable to HAS compared to homeowners, primarily due to the instability of rental costs, which exacerbates financial pressures. This instability underscores the importance of promoting stable housing arrangements, such as homeownership, as a strategy to alleviate housing affordability challenges. Moreover, residential location emerges as a critical factor, with urban households facing significantly higher HAS than rural households. The elevated living costs and housing prices in urban areas, driven by high demand and limited affordability, amplify financial stress, whereas rural households benefit from lower housing costs and a less competitive property market.

Financial literacy is shown to have a significant impact on HAS, with households possessing higher financial literacy exhibiting lower levels of housing stress. Financially literate households are better equipped to manage their income and expenditures effectively, reducing the burden of housing costs. The significant difference in HAS between households with varying levels of financial literacy highlights the importance of financial education as a tool to mitigate housing affordability pressures. These findings underscore the need for targeted efforts to improve financial literacy across all demographic groups to address HAS more effectively.

Overall, this study emphasizes the importance of considering socio-economic factors and financial literacy in understanding and addressing HAS in Indonesia. By identifying the critical role of these variables, the findings offer a foundation for developing more inclusive housing policies and financial literacy programs. Policymakers should prioritize interventions that address the structural challenges of urban housing affordability while expanding access to financial education to empower households in managing housing costs. These strategies can contribute to a more sustainable and equitable housing environment across Indonesia.

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