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THE IMPACT OF ISLAMIC FINANCIAL INCLUSION ON INDONESIAN HUMAN DEVELOPMENT

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Informasi Artikel Abstrak

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Keywords: Financial inclusion, HDI, Indonesia, PCA Human development in Indonesia is not even between provinces; therefore, the role of financial inclusion is expected to encourage human development. This study examines Islamic financial inclusion's influence on human development in Indonesia and compares its effects between Western and Eastern Indonesia. The study included panel data from 33 provinces covering 2018 to 2023, using quantitative methodologies and random effects regression models. The Islamic financial inclusion index was developed using the Key Component Analysis (PCA) approach, including access, availability, and utilization of Islamic banking services. The study's findings show that the inclusion of Islamic finance has a positive and significant impact on the Human Development Index (HDI) at the national and regional levels. The Western Indonesia region benefits the most from the IFI, but the Eastern region experiences a more uneven and lower impact. These results imply that more access to Islamic financial services can improve people's standard of living, health, and education, affecting their quality of life. This study provides valuable insights into the role of Islamic financial inclusion in human development in Indonesia. The policy implications that can be taken from the findings of this research are that the government must ensure equitable human development throughout Indonesia, so that the role of Islamic financial inclusion will be more significant in human development.

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INTRODUCTION

Human development is one of the leading indicators that measure the success of a country in recent decades (UNDP, 2024). Human development is a strategy to improve human skills, creating opportunities for individuals to make choices to enhance a better, healthier, and fulfilling standard of living (Omodero, 2019). The concept of human development goes beyond the creation of welfare by simply increasing income; more than that, it prioritizes improving citizens' quality of life (Ouedraogo & Thiombiano, 2025). One of the measures of human development is the Human Development Index (HDI).

The development of HDI in Indonesia shows year-on-year growth. In 2024, the HDI in Indonesia will reach 75.02, an increase of 0.63 points or 0.85 percent compared to 2023's 74.39. However, there is still an inequality in the rise in HDI between provinces. DKI Jakarta Province, as the country's capital, has the highest HDI of 83.55 in 2024, while some provinces in Indonesia have lower HDI levels. For example, provinces in Eastern Indonesia, such as Papua, have a lower HDI rate of 60.62 in 2024 (BPS, 2024). This shows that there is still a disparity in human development in Indonesia. Therefore, it is necessary to encourage the increase of HDI, especially in Eastern Indonesia.

The literature explains that financial inclusion can play a role in improving human development (Omar & Inaba, 2020). Abdelghaffar et al. (2023) emphasize that financial inclusion has a higher effect on human development in lowand middle-income countries than high- and upper-middle-income countries. Bhuvaneskumar et al. (2024) emphasized that financial inclusion can support human development through improved education and health in developing countries. Financial institution inclusivity can encourage improved human development through access to financial institutions that are easier to meet basic needs, such as education and health (Hidayat et al., 2025).

Financial inclusion in Indonesia shows positive growth from year to year. Based on the Financial Literacy and Inclusion Survey by the Financial Services Authority (OJK), it was found that the level of financial inclusion in Indonesia is 75.02 percent. This means 75 people out of a hundred in Indonesia have been financially inclusive (OJK, 2024). However, financial inclusion in Indonesia is still not optimal for supporting human development. It can be seen that there is still an inequality in human development, especially in Eastern Indonesia, when compared to the Western region. In line with this, as a country with a majority Muslim population, financial inclusion in Indonesia also pays attention to the role of Islamic financial inclusion and its contribution to social and economic development in Indonesia. Novreska and Arundina (2024) and Hakim et al. (2024) shows that Islamic financial inclusion plays a role in development in Indonesia, including human development, although it has a relatively slower growth rate compared to conventional financial inclusion.

Previous research analyzing the role of Islamic financial inclusion in HDI in Indonesia has been conducted by researchers, although it is still limited. Novreska and Arundina (2024) show that Islamic financial inclusion can play a role in increasing HDI. However, it was found that the results were inconsistent wh, ere only in areas with high and very high HDI levels the role of financial inclusion had a significant impact onhile in regions with low HDI levels it did not have a significant impact. In line with this, Zahara et al. (2021) it shows that the dimension of Islamic financial inclusion does not have all of them, which can play a role in increasing HDI, where only the use dimension has a positive effect. In contrast, the accessibility dimension has no impact on HDI, and availability hurts HDI. Based on these findings, there is no consistency in the findings of the role of financial inclusion in HDI in Indonesia. Therefore, it is essential to re-analyze how financial inclusion plays a role in HDI in Indonesia.

However, this study differs from previous research in two ways. First, this study will compare and contrast the role of Islamic financial inclusion in development between Western and Eastern Indonesia, which has not been done in previous research. In addition to analyzing a sample of 33 provinces, this study will also examine the influence of Islamic financial inclusion on human development in a separate sample between Western and Eastern Indonesia. Second, the study calculated the Islamic financial inclusion index using the Principal Component Analysis (PCA) approach, which had not been done in previous studies.

Based on the explanation above, this study aims to analyze whether Islamic financial inclusion improves human development in Indonesia and whether it can increase human development in Western and Eastern Indonesia. This research is expected to contribute to developing theories and policies related to human development through financial inclusion.

METHOD

This study uses a quantitative approach to analyze the role of Islamic financial inclusion in human development in Indonesia. This study uses panel data from 33 provinces throughout 2018-2023, obtained from the Financial Services Authority (OJK) and the Central Statistics Agency (BPS). Data to calculate the Islamic financial inclusion index was obtained from the OJK, while HDI data, economic growth, unemployment,

Eastern Indonesia, which has not been done in poverty, and the number of adults were obtained previous research. In addition to analyzing a from BPS.

The Islamic financial inclusion index is an independent variable, measured from three dimensions represented by one indicator on each dimension, adopted from Novreska & Arundina (2024). The indicators used are (1) the amount of funds from third parties of Islamic banks (Islamic Commercial Banks, Islamic Business Units, and Islamic Rural Banks) per 1000 adult population in 33 provinces; (2) the number of Islamic bank office networks (Islamic Commercial Banks, Islamic Business Units, and Islamic Rural Banks) per 100,000 adult population in 33 provinces; and (3) the amount of Islamic bank financing compared to GDP in 33 provinces. The three indicators represent the dimensions of accessibility, validity, and usage, respectively. To calculate the Islamic financial inclusion index (IFI) based on these three dimensions, this study uses the Principal Component Analysis (PCA) approach.

In addition to independent variables, this study also uses several control variables such as economic growth, unemployment rate, poverty rate, and the number of adult population (age 15+) in 33 provinces in Indonesia. The operational definition of each variable can be seen in Table 1.

Variables	Indicator	Scale	Code	Source	
Dependent					
Human	Human Development Index (HDI) in 33	Rasio	HDI	BPS	
Development	provinces				
Independent					
Islamic Financial	Islamic Financial Inclusion Index in 33	Rasio	IFI	OJK, calculated	
Inclusion	provinces			by the author	
				using PCA	
Control					
Economic Growth	Economic Growth rate in 33 provinces	Rasio	Eg	BPS	
	(%)				
Unemployment	Unemployment rate in 33 provinces	Rasio	Unem		
	(%)				
Poverty	Poverty rate in 33 provinces (%)	Rasio	Pov		
Adult Population	Number of adult population (age 15+)	Rasio	LnPop		
	in 33 provinces in natural logarithm				
	(<i>ln</i>)				

Tabel 1. Variable Measurement

This study uses a panel data analysis model to answer research questions. The model used is as shown in equation (1).

$$HDI_{i,t} = \alpha_0 + \beta_1 IFI_{i,t} + \beta_2 Eg_{i,t} + \beta_3 Unem_{i,t} + \beta_4 Pov_{i,t} + \beta_5 LnPop_{i,t} + \varepsilon_{i,t}$$
(1)

Where *HDI* is the Human Development Index (HDI) in natural logarithms, *IFI* is the Islamic financial inclusion index, *Eg* is economic growth, *Unem* is unemployment, *Pov* is poverty, *LnPop* is the number of adult population (in natural logarithms), and ε is the standard error.

The data analysis of this research panel is divided into two stages, namely (1) analysis on the full sample in 33 provinces in Indonesia, and (2) analysis on separate samples, namely samples from West and Eastern Indonesia. Western Indonesia consists of the provinces of Bali, Bangka Belitung, Banten, Bengkulu, DKI Jakarta, Jambi, West Java, Central Java, East Java, Riau Islands, Lampung, Nanggroe Aceh Darussalam, Riau, West Sumatra, South Sumatra, North Sumatra, and DI Yogyakarta. Meanwhile, the provinces in Eastern Indonesia consist of Gorontalo, West Kalimantan, South Kalimantan, Central Kalimantan, East Kalimantan, Maluku, North Maluku, West Nusa Tenggara, East Nusa Tenggara, Papua, West Papua, West Sulawesi, South Sulawesi, Central Sulawesi, Southeast Sulawesi, and North Sulawesi.

Panel data analysis begins with selecting the best model. To determine the best model, whether the Ordinary Least Squares (OLS), Fixed Effect (FE), or Random Effect (RE) model, this study uses the Chow, Hausman, and Lagrange Multiplier Tests. Panel data analysis using Stata 16 software. After getting the best model, in this study, Random Effect (RE) is the best model, the analysis results were carried out to answer the research question asked, namely whether financial inclusion can play a role in increasing HDI in Indonesia.

RESULTS AND DISCUSSION

Deskriptif Statistik

Table 2 shows the descriptive statistics for all the variables used. Based on the table, it can be seen that the level of human development (HDI) in Indonesia is still unequal, where there are provinces with a low level of human development of 60.06, while there are those with a high level of human development of 82.46. Papua is the province with the lowest level of development, while DKI Jakarta is the capital city with the highest level of HDI.

Variables	Obs	Mean	Std. Dev.	Min	Max
HDI	198	71.277	3.969	60.060	82.460
IFI	198	0.411	0.248	0.105	1.000
Eg	198	3.985	3.932	-15.740	20.600
Unem	198	5.129	1.770	1.400	10.950
Pov	198	10.625	5.457	3.470	27.740
LnPop	198	4.333	0.906	0.693	5.288

Tabel 2. Descriptive statistics

The Islamic financial inclusion index (FII) level ranges from 0 to 1, where 0 indicates no financial inclusion and 1 indicates full financial inclusion (Churchill & Marisetty, 2020). Based on Table 2, it can be seen that the level of the financial inclusion index shows that there are provinces with a financial inclusion index value of 0.10 which indicates that the level of financial inclusion

is very low. At the same time, there are provinces that have a level of financial inclusion index with a value of 1 which indicates full financial inclusion. The provinces with a very low level of Islamic financial inclusion are East Nusa Tenggara, and those with a financial inclusion index of 1 are DKI Jakarta and Nanggroe Aceh Darussalam. Figure 1 shows the growth rate of Islamic financial inclusion in 33 provinces in Indonesia.

Figure 1 shows several provinces with low growth in the Islamic financial inclusion index, such as East Nusa Tenggara, Papua, West Papua, North Sulawesi, Central Sulawesi, Maluku, and Bali. Some provinces, such as East Nusa Tenggara, Papua, West Papua, North Sulawesi, Gorontalo, and Bali, have low Islamic financial inclusion indexes, likely due to limited Islamic banking services in these provinces, where the Muslim population is a minority. The majority of these provinces are in Eastern Indonesia. Meanwhile, provinces such as Nanggore Aceh Darussalam (NAD), Riau, Riau Islands, West Sumatra, South Sumatra, North Sumatra, DKI Jakarta, Bengkulu, Banten, and Yogyakarta have relatively higher growth rates of Islamic financial inclusion than other provinces. Provinces that have a high level of Islamic financial inclusion show that Islamic banking services there are already accessible to the majority of people, where the majority of the population is Muslim. This indicates that Islamic financial inclusion is growing in line with the Muslim population's demand for Islamic banking services (demand side).

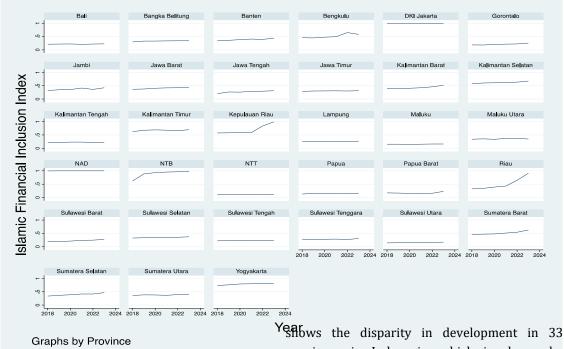


Figure 1. Financial Inclusion Index of 33 Provinces in Indonesia in 2019-2023

Table 2 also shows differences in the economic growth rate in 33 provinces in Indonesia. There are provinces whose economic growth rate is -15.74 percent during the 2018-2023 period, while there are provinces whose growth rate is above 20 percent. In addition, some provinces have relatively high unemployment and poverty rates, namely 10.95 percent and 27.74 percent. This

Stibws the disparity in development in 33 provinces in Indonesia, which is shown by differences in the economic growth rate, unemployment, and poverty. Table 2 also shows that the growth of the adult population is a minimum of 0.69 and a maximum of 5.22.0 fthe adult population is a minimum of 5.22.

Correlation Matrix

The correlation value ranges from -1 to 1, where 1 indicates a perfect positive correlation, while -1 indicates a perfect negative correlation, and 0 indicates no correlation. A positive correlation indicates that a variable is moving in the same direction, while a negative correlation means that a variable is moving in the opposite direction (Wani et al., 2024). Based on Table 2, it can be seen that FII has a positive correlation of 0.5592 with HDI. This suggests that an increase in IFI can encourage an increase in HDI. Based on the

correlation indicates that a variable is moving in results of the correlation matrix in Table 2, it can the same direction, while a negative correlation be concluded that there is no problem of means that a variable is moving in the opposite multicollinearity.

Variables	HDI	IFI	Eg	Unem	Pov	LnPop
HDI	1					
IFI	0.5592*	1				
Eg	-0.0348	-0.0662	1			
Unem	0.3641*	0.2360*	-0.2610*	1		
Pov	-0.6408*	-0.2905*	-0.0117	-0.3055*	1	
LnPop	0.0100	0.1617*	0.0801	0.0881	0.0218	1

Tabel 3. Correlation Matrix

Variance Inflation Factor

VIF was used to detect Multicollinearity between independent variables in the regression. Multicollinearity occurs when two or more independent variables are highly correlated, making the estimated coefficient unstable (unnaturally large or small) and causing standard errors to swell (Wooldridge, 2010). Based on the results of the VIF test, as shown in Table 4, it can be concluded that the model does not experience multicollinearity problems.

Variable	VIF	1/VIF
Unem	1.23	0.809717
Pov	1.19	0.838243
IFI	1.15	0.866085
Eg	1.1	0.908712
LnPop	1.05	0.949735
Mean VIF	1.15	

Table 4. Variance Inflation Factor (VIF)

Best Model Selection

The selection of the best model using the Chow, Hausman, and Lagrange Multiplier tests, as shown in Table 5, shows that the probability (prob) of the Chow test is 0.000, the probability of the Hausman test (prob>chi2) is 0.9581, and the probability of the Lagrange Multiplier (prob>chibar2) is 0.0000. Based on these results, it can be concluded that the Random Effect (RE) model is the best model. Therefore, to answer the hypothesis, this study used a random-effect model.

Table 5. Best Model Selection

Chow Test (prob)	Hausman Test (prob>chi2)	Langrange Multiplier (Prob > chibar2)
0.0000	0.9581	0.0000

Based on the results of panel data analysis with random effects, it was found that in all three samples, both full samples in Indonesia, the West, and the East, Islamic financial inclusion (FII) consistently had a positive and significant effect on human development (HDI). Economic growth in the full sample and eastern Indonesia had a positive but insignificant impact on HDI. Meanwhile, in Western Indonesia, economic growth positively and significantly affects HDI.

Unemployment in the full sample and Eastern Indonesia had a positive but not significant effect. Meanwhile, in Western Indonesia, unemployment positively and significantly affects HDI. This indicates an anomaly between the unemployment rate and HDI in Western Indonesia in this study sample. Poverty had a negative and significant effect on population (15+) had a negative and significant insignificant effect. The growth of the adult

HDI in the full sample and Eastern Indonesia, effect on the full sample and Eastern Indonesia, while in Western Indonesia, it had a negative but while in Western Indonesia, it was not significant.

	(1)	(2)	(3)
Variables	Full	West	East
IFI	6.260***	5.621***	2.609***
	(1.471)	(1.514)	(1.004)
Eg	0.0138	0.0822***	0.000630
	(0.0167)	(0.0221)	(0.0202)
Unem	0.181	0.250**	0.315
	(0.118)	(0.103)	(0.429)
Pov	-0.328***	-0.0905	-0.386***
	(0.108)	(0.152)	(0.0695)
LnPop	-0.196***	-0.107	-0.269**
	(0.0627)	(0.146)	(0.117)
Constant	72.06***	70.23***	72.65***
	(1.616)	(1.459)	(2.583)
Observations	198	102	96
Number of Province	33	17	16

Table 6. The Impact of Islamic Financial Inclusion on Human Development

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Discussion

in both the full sample and Western and Eastern Indonesia, Islamic finance (FII) inclusion can improve human development (HDI). These results are in line with previous research showing that financial inclusion plays a role in improving human development (Raichoudhury, 2016; Kamalu & Ibrahim, 2023; Novreska & Arundina, 2024; Tissaoui et al., 2024). These results confirm that better access to Islamic financial services can support expenditures related to human development, such as health, education, and improving living standards. Financing channeled by formal Islamic financial institutions can improve the quality of human life.

Figure 2 shows that the overall impact of Islamic financial inclusion can support human development. The data distribution in the full Indonesian sample is quite wide and varied, reflecting heterogeneity between provinces. The more spread, where the HDI is generally lower,

points are in the range of FII between 0.1 and 1 This study found consistent results that and HDI of around 60 and 85. This positive relationship suggests that Islamic financial inclusion contributes to human development, although many other factors may also be involved. The West Indonesia sample showed a stronger and clearer positive relationship than other samples. The steeper regression line indicates that FII has a greater impact on the increase in HDI. The data points are more concentrated, with the HDI mostly above 70, indicating better human development conditions. This shows that provinces in western Indonesia have higher effectiveness in utilizing access to Islamic finance to improve people's welfare.

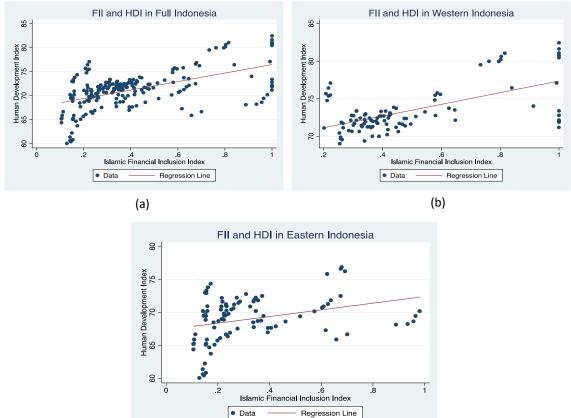
> Meanwhile, the Eastern Indonesia sample has a positive but weaker relationship, which can be seen from the sloping regression line. In addition, the distribution of data points is

ranging from 60 to 75. Many provinces have low FIIs with varying HDIs, suggesting other nonfinancial factors are more predominant in influencing HDI. This also indicates that the impact of FII on HDI is less consistent in provinces in Eastern Indonesia, which may be caused by limited access, literacy, or other structural barriers.

Based on Figure 2, it can be concluded that there is a positive relationship between the Islamic Financial Inclusion Index (FII) and the Human Development Index (HDI) in Indonesia. This relationship is strongest in Western Indonesia, where access to Islamic finance seems to encourage improved quality of life more directly. In contrast, although positive trends remain visible in Eastern Indonesia, IFI's influence on HDI appears to be weaker and more uneven. This emphasizes that financial inclusion policies must consider the context of the region to increase their effectiveness in supporting overall human development.

This study's results align with Sen's Capabilities Approach theory in 1993, where financial inclusion is considered a way to empower people by giving them access to the financial resources they need to engage in the economy, improve health, education, and other aspects of life (Tissaoui et al., 2024). In line with this, Schultz's theory of human capital in 1961 argued that individuals' total productivity and well-being could be improved by investing in education, health, and skills. Islamic financial inclusion encourages human resource development (HDI) and can increase everyone's productivity potential by providing financial resources for education, health, and other aspects of life (Tissaoui et al., 2024).





The results of this study also show that development. This result aligns with previous (c) economic growth can increase human research that found that economic growth can

However, the results in this study show that the full sample and Eastern Indonesia are insignificant. Uneven economic growth throughout Indonesia may have an inconsistent influence on human development. It also shows that regions with a better economic and institutional structure can utilize growth results to improve the community's quality of life. On the other hand, at the national and eastern levels, economic growth has not been fully converted into an increase in HDI. This indicates the need for more inclusive policy interventions so that all levels of society can feel the results of economic development, especially in areas with limited infrastructure and access to basic services.

Poverty had a negative and significant effect on increasing HDI in all samples. These results show that poverty can consistently hinder human development in Indonesia. In addition, a significant negative coefficient shows that the increase in poverty rates significantly reduces the quality of human development, especially in areas with limited access to basic services. In contrast, in the western region, although the direction of the relationship remains negative, the effect is not statistically significant. This can be due to the region's ability to provide basic social services fairly evenly, thereby reducing the direct impact of poverty on HDI.

The unemployment rate positively and significantly influenced the western Indonesian sample. Regions with high HDI can explain this phenomenon, which tends to have more advanced social and economic structures, including urbanization and high educational participation. As a result, despite the increase in open unemployment, the population still has access to good education and health services, so overall HDI scores remain high. Thus, unemployment in this context does not necessarily reduce the quality of human development, but reflects the dynamics of the labor market in developed areas.

The regression results showed that adult population growth negatively influenced HDI nationally and in the eastern region, but not significantly in the western region. This indicates

increase HDI (Khan et al., 2018; Syofya, 2018). that in provinces with large populations, However, the results in this study show that the full sample and Eastern Indonesia are insignificant. Uneven economic growth throughout Indonesia may have an inconsistent influence on human development. It also shows that regions with a better economic and institutional structure can utilize growth results

> Based on the existing findings, it can be concluded that Islamic financial inclusion can play a role in increasing human development in Indonesia, both in the western and eastern regions. Although its influence is stronger in the Western region than in Eastern Indonesia, these findings align with the conclusions, Novreska and Arundina (2024) which explain that the role of Islamic financial inclusion is more felt by provinces with a high and very high level of human development. Based on these findings, the Indonesian government needs to distribute human development equitably throughout Indonesia, and Islamic financial inclusion policies are directed to support this equity.

CONCLUSION

This study aims to analyze the role of Islamic Financial Inclusion in improving human development in Indonesia. This study also aims to compare the influence of Islamic financial inclusion on human development in the Western and Eastern Indonesia regions separately. The results of the study show that Islamic financial inclusion has a positive and significant influence on human development both at the national level (full sample), in Western Indonesia, and in Eastern Indonesia. IFI's influence on HDI is strongest in Western Indonesia. Meanwhile, in Eastern Indonesia, although there is a positive influence, the impact is weaker and more uneven, allegedly due to limited access and financial literacy. Economic growth is not significant to HDI nationally or in the eastern region, but it is significant in the western region. Poverty has a significant negative influence on HDI at the national and eastern levels. The unusual unemployment rate actually has a positive effect in the western region. The growth of the adult

population has a significant negative impact on HDI in the national and eastern regions.

This study offers multiple policy recommendations based on the current findings. Initially, the necessity for equitable access to Islamic financial services. The government must enhance the accessibility of Islamic financial services, particularly in Eastern Indonesia, which remains underdeveloped. Secondly, enhancing financial literacy. Enhance public awareness of the goods and application of Islamic financial services. Thirdly, it is essential to focus activities aimed at disadvantaged regions. The government must formulate inclusive policies that consider regional inequities, particularly in infrastructure and essential services. Ultimately, fortifying local Islamic financial institutions by promoting the establishment and enhancement of Islamic banks in the region to expedite the advancement of Islamic financial inclusion.

Financial inclusion and human development in Indonesia are anticipated to be positively impacted by this research. This study has limitations, including its focus on data from only 33 provinces during the 2018-2023 period, the Islamic financial inclusion index being assessed solely through three primary indicators without considering other non-bank or informal elements, and the absence of an exploration into qualitative factors such as public perception of Islamic financial services. This study advocates for future research through longitudinal studies with extended timeframes and the incorporation of microdata (individual/household), as well as the inclusion of moderating or mediating variables such as financial literacy or religious diversity to elucidate complex interactions, and the application of mixed methods to capture sociocultural factors influencing the efficacy of financial inclusion.

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