



The Influence of Internet Users and Macroeconomic Determinants on the Islamic Finance Index in Indonesia and Malaysia

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Article Info	Abstract
Keywords: Islamic finance index; internet users; macroeconomics; Indonesia; Malaysia. Article history: Received: 2023-07-21 Revised: 2023-12-07 Accepted: 2024-01-17	The rapid proliferation of internet access has fundamentally transformed the operational landscape of global business and interpersonal communication, with Islamic finance being no exception to this transformation. This study examines whether internet penetration, economic growth, exchange rates, labor force participation, and poverty levels serve as determinants of the Islamic Finance Index (IFI) in Indonesia and Malaysia. A quantitative approach is adopted, employing panel data regression techniques. Given constraints in variable availability, an unbalanced panel regression is applied using quarterly data spanning the period from 2013 to 2022. Empirical findings confirm a statistically significant association between internet users and selected macroeconomic variables in relation to IFI. Specifically, internet penetration positively contributes to IFI advancement, while labor force participation and poverty rates also exert notable influences. The remaining macroeconomic variables, however, do not yield statistically significant results. Through a systematic examination of the relationships among internet users, macroeconomic determinants, and Islamic finance performance, this study addresses an existing gap in the literature, offering valuable guidance for policymakers and scholars seeking to identify the primary variables that should be prioritized to accelerate Islamic finance development in both Indonesia and Malaysia, in alignment with the growing rate and influence of internet adoption. <i>This is an open-access article under the CC BY-NC license.</i>
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1. INTRODUCTION

Indonesia and Malaysia represent two prominent developing economies characterized by substantial and expanding internet user bases. As of January 2022, Indonesia recorded approximately 204.7 million internet users out of a total population of 277.7 million, corresponding to an internet penetration rate of 73.7%, while the remaining 26.3%, equivalent to approximately 73.05 million individuals, had yet to utilize the internet. Malaysia, by contrast, exhibited a comparatively higher internet penetration rate of 89.6%, with only 3.43 million out of 29.55 million Malaysians remaining outside the reach of digital connectivity (Kemp, 2022). The sustained advancement of the Internet of Things (IoT), automation, digitalization, and artificial intelligence is anticipated to accelerate economic growth, particularly within the domain of Islamic finance (He, 2019; Rahim et al., 2018). Accordingly, internet users occupy a central position as key enablers of the Islamic Finance Index, given that they constitute the primary market through which Islamic financial services, products, and policies are delivered and accessed.

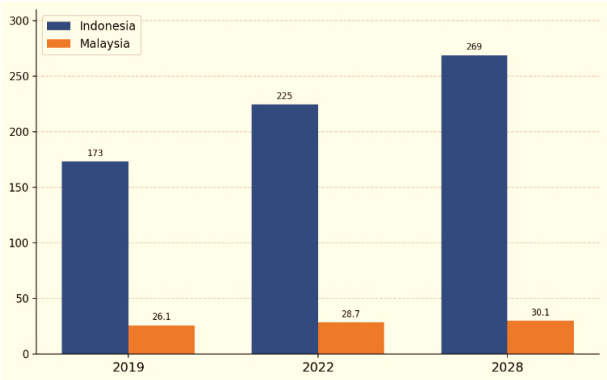


Figure 1. Trend Comparison of Internet Users Between Indonesia and Malaysia

Source: Statista, Datareportal (2023)

As illustrated in Figure 1, Indonesia demonstrates a steady and remarkable upward trajectory in internet user growth, recording double-digit increases in several years, with the number rising from 173.45 million users in 2019 to a projected 269.09 million by 2028. This growth is attributable to several contributing factors, including the affordability of mobile data, increasing smartphone penetration, and active government initiatives (Kemp, 2022). Malaysia, while experiencing more gradual yet consistent growth, benefits from a higher GDP per capita, although affordability constraints and infrastructure limitations continue to play a moderating role.

The substantial expansion of internet users in both nations has exerted a considerable influence on productive activity (Lubis and Febrianty, 2018; Narayanasamy et al., 2011). The emergence of online marketplaces such as Lazada and Shopee, for instance, has enabled businesses of varying scales to engage with broader consumer markets, sell directly to end users, and participate in international trade. Concurrently, the increasing adoption of cloud computing services, digital collaboration platforms, and online marketing tools has enhanced organizational efficiency, fostered innovation, and strengthened communication channels. The expansion of remote work arrangements further creates operational flexibility for both employers and employees, with potential implications for production patterns and increased labor mobility (Choudhury et al., 2019).

With regard to consumption, internet-enabled e-commerce platforms have broadened consumer access to goods and services, enhanced purchasing convenience, and potentially elevated aggregate consumption levels. The proliferation of digital wallets and electronic payment systems has further streamlined financial transactions, promoted cashless spending behavior,

and may contribute to higher consumption frequency (Rathore, 2016). Beyond production and consumption, the realm of distribution has also benefited significantly from internet adoption through the strategic use of social media platforms for targeted audience engagement, personalized marketing campaigns, and improved distribution effectiveness (Bhoopathy and Kanagaraj, 2023). Logistics operators and delivery service networks have experienced substantial growth in parallel, generating employment opportunities and enhancing the efficiency of product distribution systems.

The continued expansion of internet users in Indonesia and Malaysia is expected to exert a meaningful influence on the Indonesia-Malaysia Islamic Finance Index. Greater internet penetration may enhance public awareness and comprehension of Islamic financial products and services across a broader demographic. Digital platforms and financial technology solutions offer improved convenience and accessibility in managing Islamic financial products, particularly for populations that remain unbanked. Social media channels and digital marketing strategies further facilitate engagement with younger demographic segments and promote awareness of Shariah-compliant financial offerings. Nevertheless, persistent challenges associated with regulatory frameworks, cybersecurity vulnerabilities, and gaps in financial literacy continue to pose constraints on growth (Uddin et al., 2020).

Beyond institution-specific factors, macroeconomic variables encompassing gross domestic product (GDP), labor force participation, poverty rates, and exchange rates are widely recognized as potential determinants of the Islamic Finance Index, given their capacity to stimulate shifts in development patterns and supply-demand dynamics for financial services (Mensi et al., 2020). These variables may further serve as critical determinants of a country's economic growth trajectory, financial system stability, the scope of industrial expansion, and capital inflow (Zahid and Basit, 2017). In the context of rapid technological advancement that has propelled the industrial revolution to its fourth phase and social capital development toward Society 5.0, it becomes increasingly important to account for the pervasive integration of the internet across both public and private sectors.

Despite growing scholarly interest in the intersection of internet usage and Islamic finance, a notable scarcity of empirical studies specifically examining the determinants of the Islamic Finance Index in Indonesia and Malaysia persists. The present study endeavors to illuminate the relationship and significance of internet user penetration and macroeconomic variables in relation to the Islamic Finance Index, a domain that has received limited attention in the existing literature. Most prior studies have concentrated on conventional macroeconomic variables such as GDP growth (Zahid and Basit, 2018), interest rates (Dewi, 2022; Mushtaq and Siddiqui, 2016), and inflation (Budiandru and Yuniarti, 2020), frequently neglecting the potential influence of digitalization and internet penetration on the Islamic finance sector. Furthermore, existing research has tended to focus on Middle Eastern or South Asian contexts such as Pakistan (Nawaz et al., 2019; Naz and Gulzar, 2023) or has generalized findings across Muslim-majority nations (Butt et al., 2023; Batorshyna et al., 2021), with insufficient attention directed toward the distinct economic and digital characteristics of Southeast Asian nations such as Indonesia and Malaysia.

This study addresses the gap in the literature by establishing poverty levels and internet penetration as underutilized determinants in the analysis of the Islamic Finance Index. In contrast, the development of Islamic banking has more commonly been employed as a proxy variable for assessing countries' economic growth (Boukhatem and Moussa, 2018; Hachicha and Amar, 2015; Mensi et al., 2020). Moreover, a considerable body of existing research has neglected critical socio-economic determinants such as labor force dynamics and poverty rates, both of which can significantly shape financial inclusion outcomes and the broader development of Islamic finance. This study aims to address this gap by presenting a comprehensive analytical

framework that integrates digital and macroeconomic variables to assess their combined influence on the IFI.

The remainder of this paper is organized as follows. Section 2 presents a review of the relevant literature, followed by the methodological framework in Section 3. Section 4 reports and discusses the empirical findings, while Section 5 presents the conclusions and policy recommendations.

2. LITERATURE REVIEW

2.1. Background Theory

In the context of this study, the Islamic Finance Index (IFI) refers to a composite financial development indicator published by the Islamic Financial Services Board (IFSB). The IFI is operationalized as a composite measure aggregating total assets or funding (liabilities), equity, and total revenue of Islamic banking institutions, in accordance with the reporting framework adopted by the IFSB. This operationalization positions the IFI as a measure of the overall financial performance and developmental trajectory of the Islamic banking sector, rather than referring to a capital market or equity index. The IFI therefore captures the effectiveness of Islamic bank management in generating revenue while reinforcing public confidence in deposit mobilization, investment activity, and financing services (Intan and Alam, 2019).

Internet users represent an increasingly significant determinant across virtually all contemporary business sectors, as industrial structures undergo substantial transformation toward information technology-driven mechanisms. The proliferation of internet usage is anticipated to facilitate more efficient and environmentally sustainable economic growth by reducing demand for conventional energy resources. The pervasive advancement of information and communication technology (ICT) has led to a rapid expansion of providers and users of digitally-based information services across diverse sectors, encompassing e-commerce, e-government, digital payment systems, electronic health services, and related domains (Mangku et al., 2021).

Gross domestic product (GDP) denotes the aggregate monetary value of all finished goods and services produced within a country over a specified period. Serving as a foundational indicator of economic performance and a measure of economic growth, GDP may be assessed through income, production, and expenditure approaches, and is subject to adjustments reflecting changes in inflation and population. GDP constitutes a primary reference point for policymakers, investors, and business actors in formulating informed strategic decisions. Despite the variable nature of the causal relationship between GDP and inflation (Nisa', 2022), price level increases tend to alter a country's GDP without necessarily reflecting genuine improvements in the quality of goods and services. Consequently, a thorough analysis of GDP necessitates micro-level evaluation to identify underlying causal drivers (Abel et al., 2020).

Exchange rates represent a critical factor within the financial sector. Financial institutions frequently adjust interest rate policies in response to exchange rate fluctuations to achieve monetary policy objectives, while such currency movements simultaneously expose them to currency risk in international transactions (Krugman et al., 2018). To mitigate these risks and sustain profitability, banks, investment firms, and multinational corporations employ a variety of hedging instruments and risk management strategies. Furthermore, close monitoring of exchange rate movements is essential for financial institutions to uphold price stability and manage inflationary pressures (Sihotang and Hasanah, 2022), both of which are fundamental to the stability of the financial sector and broader economic growth.

Poverty is understood not merely as an inequitable distribution of freedom and opportunity, but also as a condition substantially driven by inadequate attention to equitable growth and income distribution. A widening income distribution gap tends to produce rising poverty rates

irrespective of prevailing economic growth rates. This challenge necessitates the application of holistic, long-term strategies designed to improve the quality of life and welfare of impoverished populations (Parewangi et al., 2020).

The labor force participation rate constitutes a fundamental indicator of labor market activity, defined as the proportion of the working-age population that is either employed or actively seeking employment within a given economy. Unlike composite human development measures, the labor force participation rate captures the quantity dimension of labor supply rather than qualitative attributes of workforce skill or educational attainment. A higher labor force participation rate reflects greater productive engagement within the economy, implying expanded income generation, heightened financial demand, and a broader potential client base for financial institutions operating within the Islamic finance sector. In the present study, this variable is operationalized as the labor force participation rate as a share of the total population (LLBR), sourced from the World Development Indicators (WDI) published by the World Bank, consistent with prior empirical studies examining macroeconomic determinants of banking sector performance (Wang et al., 2019).

2.2. Previous Studies and Hypotheses

Drawing from related prior research as summarized in Table 1, findings on the relationship between macroeconomic variables and Islamic finance present a mixed picture. In contrast to Nastiti and Kasri (2019), who reported a negative and insignificant association between exchange rates and Islamic finance, Sitompul (2021) and Tumewang et al. (2019) found that both variables demonstrated no significance in their partial relationship with Islamic finance, while contradictory results emerged when examined simultaneously. This discrepancy may be attributed to the comparatively smaller market share held by Islamic banks relative to their conventional counterparts in exchange rate-sensitive environments. An additional explanatory factor lies in the observation that Islamic banks' business partners, predominantly small and medium enterprises (SMEs), are more frequently involved in export activities than in import operations. Erdogan et al. (2020) further argued that the insignificant effect of exchange rates on Islamic markets is attributable to the inherent stability of Islamic stock markets and their screening mechanisms, which render them vulnerable only to external manipulative pressures. Applying the same variables, Abidin and Haseeb (2018) found that both factors may exert significant negative influences on Islamic finance.

Table 2.1. Previous Studies Related to the Connection and Impact of Internet Users, Labor Force, and Macroeconomic Variables toward Islamic Financing Index

Authors	Countries or Regions	Period of Study	Methods
Abidin and Haseeb (2018)	Malaysia and GCC countries	1990-2017	Gravity model approach
Erdogan et al. (2020)	India, Malaysia, and Turkey	2013-2019	Causality-in-variance test
Nastiti and Kasri (2019)	12 Islamic commercial banks in Indonesia	2015-2017	Generalized least square estimation
Elseoud et al. (2020)	Islamic retail banks in Bahrain	2013-2019	REM and FEM
Athari and Bahreini (2021)	Islamic banks operating in the Arab markets	2003-2017	Panel data approach
Thaker et al. (2022)	Malaysia	2019	Partial Least Square (PLS) and UTAUT 2 analysis

Oseni et al. (2018)	Malaysia	2014	Multiple regression and UTAUT analysis
Cham (2018)	MENA region and Brunei, Bangladesh, Malaysia, and Pakistan	2000-2013	Generalized linear model
Ali et al. (2018)	Bank Islam Brunei Darussalam	2012-2016	Fixed effects panel regression
Rahim et al. (2022)	Malaysia	2018	Structural equation model (SEM)
Juhro et al. (2020)	Indonesia	1968-2018	Dynamic least squares (DOLS) and OLS
Istan and Fahlevi (2020)	Sharia commercial banks in Indonesia	Q1 2013-Q3 2017	Multiple linear regression
Ali et al. (2020)	Indonesia	2019	Analytic network process (ANP) approach
Rofiqo and Afrianti (2019)	12 Sharia commercial banks in Indonesia	2010-2017	Multiple regression analysis

Source: Authors' collection

Economic growth, as measured by GDP, has been demonstrated to have a significant and positive effect on Islamic banks (Athari and Bahreini, 2021), as it not only establishes trade patterns (Abidin and Haseeb, 2018) but also supports economic diversification (Ali et al., 2018), encourages public saving behavior (Istan and Fahlevi, 2020), and stimulates research and development investment (Juhro et al., 2020). Notably, the influence of GDP may be conditioned by the prevailing economic governance regime. A more rigid governance structure, characterized by limited risk-sharing possibilities and reduced incentives for productive investment, may produce a negative relationship between GDP and Islamic bank performance. Evidence from Bahrain illustrates this point, where despite a statistically significant association, GDP was found to be negatively related to the profitability of Islamic banks, a pattern attributed to the country's distinct economic orientation, reliance on alternative instruments for managing surplus deposits, and limited public access to transparent economic direction information (Elseoud et al., 2020). These findings are consistent with results reported by Rofiqo and Afrianti (2019) in a study of twelve Shariah commercial banks in Indonesia, where money velocity was prioritized as a mechanism for optimizing money supply and demand flows in pursuit of higher expected returns. Cases where GDP functions as a non-determinant of Islamic bank profitability arise either during structural economic crises (Cham, 2018) or when no meaningful relationship exists between the two variables (Al Fathan and Arundina, 2019).

With respect to internet users, the relationship may be conceptualized more specifically in terms of technology-oriented consumer behavior toward Islamic fintech, which plays a paramount role in expanding the competitive and digital development opportunities of Islamic banks (Rahim et al., 2022). Internet connectivity exposes broader population segments to Islamic financial products through online platforms, educational resources, and targeted marketing strategies. Online portals facilitate the presentation of Shariah-compliant products, while social media campaigns serve to communicate Islamic finance principles to wider audiences. This enhanced exposure leads to improved financial understanding among the population, fostering informed decision-making and greater demand for Islamic financial services, which in turn contributes to improved performance outcomes. A further mechanism through which the internet may amplify Islamic finance performance is through fintech solutions such as microfinancing platforms and crowdfunding tools that extend financial access to traditionally underserved populations,

expanding the customer base, strengthening deposit mobilization, and advancing financial inclusion.

Research conducted in Malaysia affirms the significant contribution of the internet to the growth of Islamic banks (Oseni et al., 2018; Thaker et al., 2022), as digital connectivity enhances transaction convenience for bank customers and supports a shift in customer preferences toward digital platforms. However, while internet access continues to expand, financial literacy and understanding of Islamic finance principles may not progress at an equivalent rate, potentially giving rise to exploitation of or misunderstanding about financial products and adversely affecting institutional performance.

The performance of Islamic banks is also subject to the influence of labor force quality, underscoring the importance of employing personnel equipped with both digital competencies and theoretical knowledge to ensure the efficient delivery of Islamic financing services. Ali et al. (2020) explored this relationship and found it to be significantly positive, a finding corroborated by Khana et al. (2020). By contrast, Cham (2018) reported a significant negative relationship, reasoning that a labor force, regardless of its skill level, may inadvertently impede the operational efficiency that Islamic banks seek to achieve.

3. RESEARCH METHODS

This study does not seek to account for all factors that may influence the growth of Islamic finance and internet-related components. Rather, it investigates the nature of the relationships among macroeconomic variables in Malaysia and Indonesia, internet user penetration, and Islamic financial performance indicators, with the objective of determining whether these variables are meaningfully associated with the Islamic Finance Index in both countries.

The study employs quarterly data on the Islamic Finance Index, internet users, GDP, labor force participation, exchange rates, and poverty rates. Consistent with data availability, the study period spans from 2013 to 2022. Islamic Finance Index data captures the development of Islamic finance through a composite measure incorporating total funding or liabilities, equity, and total revenue, sourced from the Islamic Financial Services Board.

The inclusion of internet user variables is intended to quantify the influence of consumer behavior among technology-savvy individuals accessing digital Islamic finance services. Internet user penetration further serves as a proxy for individual engagement with financial services. Given the extensive integration of the internet in online education, market activity, and financial technology, the widespread presence of internet users may be closely linked to the advancement and expansion of productivity and development within the Islamic finance ecosystem.

This study also incorporates poverty as a variable, given that Islamic finance frequently intersects with social welfare initiatives aimed at supporting economically vulnerable segments of the population. The labor force variable is employed to assess the capacity of human capital in Indonesia and Malaysia. The study further examines GDP and exchange rates to assess the potential shocks that these factors may introduce to the Islamic Finance Index.

Data on internet users, GDP, labor force, and exchange rates were sourced from the World Development Indicators (WDI), while poverty rate data was obtained from Our World in Data. All variables were transformed to logarithmic form prior to analysis to standardize the distributional properties of the data and mitigate the effects of extreme values. The summary of variables is presented in Table 2, and the descriptive statistics are presented in Table 3.

Table 3.1. Summary of Variables

Variable	Description	Units	Sources
LIFI	Islamic Finance Index	USD	Islamic Financial Services Board
LINU	Internet Users	Share of population	WDI
LGDP	GDP per capita	USD	WDI
EXR	Exchange rate	USD	WDI
LLBR	Labor force	Share of population	WDI
POV	Poverty	Share of population	Our World in Data

Source: Authors' Collection

Table 3.2. Descriptive Statistics

	LIFI	LINU	LGDP	LEXR	LLBR	LPOV
Mean	3.294	2.116	2.116	3.086	2.116	2.178
Std. Deviation	0.927	0.797	0.791	1.160	0.796	0.732
Maximum	4.304	2.995	2.997	4.219	2.993	2.973
Minimum	0	0	0	0	0	0

Source: Authors' Collection

[AUTHOR NOTE: The descriptive statistics for LINU, LGDP, and LLBR in Table 3 originally reported near-identical values (mean = 2.116, SD ≈ 0.795, max ≈ 2.995 for all three variables), which is statistically improbable for variables measured on fundamentally different scales. These values appear to reflect a data-entry error. Authors must verify and correct Table 3 against the actual dataset before resubmission.]

Prior to estimation, the stationarity properties of all panel series were systematically assessed to mitigate the risk of spurious regression, which is particularly acute in quarterly macroeconomic panel data (Pedroni, 2001; Kao, 1999). The Im-Pesaran-Shin (IPS) panel unit root test and the Fisher-type augmented Dickey-Fuller (ADF) test were applied to each variable in level and first-difference form. Variables exhibiting non-stationarity at levels were further subjected to the Pedroni and Kao panel cointegration tests to determine whether a long-run equilibrium relationship exists among the integrated series. The identification of a cointegrating relationship among non-stationary variables justifies the estimation of a levels regression within the panel framework, as the variables would be bound by a common stochastic trend. The results of these diagnostic procedures informed the final specification and interpretation of the regression model.

The study employs unbalanced panel regression, and the final selection of the analytical model is contingent upon the outcomes of a series of panel diagnostic tests, including the Lagrange Multiplier test, the Chow test, and the Hausman test. Classical assumptions are further applied to validate the chosen model and minimize the potential for estimation biases. The regression model applied in this study takes the following form:

$$LIFlit = \alpha + \beta_1 LINUit + \beta_2 LGDPit + \beta_3 LEXRit + \beta_4 LLBRit + \beta_5 POVit + \epsilon it \quad (1)$$

In this specification, the subscripts *i* and *t* denote country and time dimensions, respectively. LIFI denotes the Islamic Finance Index, while LINU, LGDP, LEXR, LLBR, and LPOV represent internet users, economic growth, exchange rate, labor force participation, and poverty, respectively.

4. RESULTS AND ANALYSIS

4.1. Results

This section presents the regression findings of the study, with emphasis placed on the roles of internet user penetration and macroeconomic factors in influencing the Islamic Finance Index in Indonesia and Malaysia. Statistical relationships were examined using unbalanced panel regression. Following a series of diagnostic tests, the analysis indicates a preference for the Random Effect Model. The Lagrange Multiplier test produced a p-value below the designated significance threshold, confirming the appropriateness of the Random Effect Model for this analysis.

The study incorporates additional variables in a sequential manner to ensure data adequacy and to assess the consistency of the results across model specifications. The findings indicate that most variables retain consistent signs, although some inconsistency is observed in the coefficient sign for internet users, which is addressed through multicollinearity diagnostics reported in the Analysis section. The correlation matrix is provided in Table 4 to verify that cross-variable correlations remain below the 0.80 threshold. The definitive findings are summarized in Table 5.

Table 4.1. Correlation Matrix of Variables

	LIFI	LINU	LGDP	LEXR	LLBR	LPOV
LIFI	1					
LINU	-0.290	1				
LGDP	-0.281	0.495	1			
LEXR	0.444	-0.331	-0.194	1		
LLBR	0.634	-0.258	-0.268	0.136	1	
LPOV	-0.138	-0.354	-0.046	0.379	-0.655	1

Source: Authors' calculation

Table 4.2. Estimation Results

	Random Effect		
	(1)	(2)	(3)
Internet User (LINU)	-0.3380*** (0.1260)	-0.0935 (0.1391)	0.3453** (0.1434)
Economic Growth (LGDP)		-0.1934 (0.1338)	-0.0980 (0.1005)
Exchange Rate (LEXR)		0.3085*** (0.0846)	0.1262 (0.0790)
Labor (LLBR)			1.2339*** (0.1919)
Poverty (LPOV)			0.6865*** (0.2060)
Constant	4.0097*** (0.2849)	2.9489*** (0.4626)	-1.6842* (0.9379)
R-squared	0.1017	0.2785	0.7259
Countries	2	2	2

***, **, * represent 1%, 5% and 10% significance levels, respectively.

Source: Authors' Calculation

4.2. Analysis

4.2.1. Internet Users and the Islamic Finance Index

With respect to the Internet User variable (LINU), it is apparent that in Model (3), the coefficient attains statistical significance at the 5% level (0.3453**), reflecting a positive directional relationship. This result indicates that a rise in internet user penetration is associated with an increase in the IFI. Specifically, each one percentage point increase in internet users corresponds to an approximate 0.34 percentage point increase in the Islamic Finance Index. This relationship operates through the mechanism by which internet users gain enhanced access to digital Islamic finance services, thereby intensifying financial transactions and ultimately facilitating the broader expansion of Islamic finance.

The sign reversal of the LINU coefficient across sequential model specifications warrants careful econometric scrutiny. In Model (1) the coefficient is significantly negative (0.338 at the 1 percent level), turns to negative insignificance in Model (2) (0.094), and then attains positive significance in the fully specified Model (3) (0.345 at the 5 percent level). Sign instability of this magnitude across progressive model specifications is a recognized symptom of multicollinearity or omitted variable bias in multiple regression frameworks (Belsley et al., 1980). Inspection of the correlation matrix in Table 4 reveals moderate inter-regressor correlations, notably between LINU and LGDP (0.495) and between LLBR and LPOV (0.655), which may contribute to the observed coefficient instability through the progressive introduction of correlated covariates. Variance inflation factor (VIF) diagnostics are recommended to formally quantify multicollinearity severity in future iterations of this analysis. The positive and statistically significant coefficient obtained in the fully specified Model (3) is interpreted as the conditional partial effect of internet penetration on IFI, controlling for all covariates simultaneously, and constitutes the primary basis for substantive interpretation given its superior model fit ($R^2 = 0.726$) and theoretical coherence.

Both Indonesia and Malaysia are home to large and increasingly digitally literate populations, particularly within younger demographic cohorts (Tjiptono et al., 2020). These internet-savvy users demonstrate a higher propensity to adopt digital financial services (Chadha et al., 2022) and explore innovative fintech solutions, including those operating in accordance with Islamic finance principles (Hanif, 2018). According to the Islamic Finance Development Report (2021), Malaysia and Indonesia are ranked first and second globally in terms of Islamic finance market development, a standing further supported by McKinsey's assessment of comparatively superior internet access conditions in both countries (Das et al., 2016).

The proliferation of online investment platforms and fintech companies across Indonesia and Malaysia affords internet users convenient access to Shariah-compliant investment instruments (Susilawati et al., 2021; Yahya, 2021). As internet users become increasingly familiar with these platforms, their inclination toward Islamic financial products such as sukuk, Islamic mutual funds, and Islamic equity investments is likely to strengthen (Johar and Suhartanto, 2019).

Thaker et al. (2022) contended that Islamic fintech holds significant potential for penetrating new markets by understanding how users adapt to technological change through digital finance engagement. By leveraging these insights, Islamic finance institutions can structure their marketing strategies to capture market share within the digital economy. This perspective is validated by Oseni et al. (2018) and Rahim et al. (2022), whose studies affirm that digital tools within the financing sector serve as significant task enablers, accelerating and simplifying numerous customer transactions encompassing deposits and investment financing facilities.

According to the State of the Global Islamic Economy Report (2020), financial technology is playing a pivotal role in propelling Islamic finance forward, evidenced by a notable 24.7% increase in net profits recorded by CIMB Malaysia. The younger generation has increasingly engaged in transactions such as "Buy Now, Pay Later" arrangements and loan applications

through digital marketplace platforms, indicating considerable potential for enhanced profitability in Islamic finance through strategic collaboration with online market operators.

Roubaud et al. (2022) noted that Islamic banks are more inclined to engage in collaborative arrangements with emerging fintech companies and startups rather than pursuing direct investment in fintech ventures, a preference stemming from the perception that nascent fintech firms represent comparatively lower-risk partnership opportunities. Such an approach enhances the potential profitability of fintech integration for Islamic banks and fosters a more supportive operational environment for Islamic fintech enterprises.

The growth in internet user penetration may further contribute to improvements in digital financial literacy (Shen et al., 2020). In both Indonesia and Malaysia, individuals with internet access can readily engage with educational resources, instructional materials, and online courses related to Islamic finance principles (Rahmanto et al., 2023). This enhanced financial literacy fosters greater participation in Islamic financial activities and investment, thereby contributing to an upward trajectory in the IFI.

4.2.2. Economic Growth and the Islamic Finance Index

Regarding economic growth as measured by LGDP, although the variable exerts a negative influence on the IFI, whereby each percentage point increase in economic growth corresponds to an approximate 0.09 percentage point decline in the Islamic Finance Index, the coefficient does not attain statistical significance in any of the model specifications. The primary explanation for this finding may lie in the economic diversity of Indonesia and Malaysia, where growth may be predominantly shaped by manufacturing, agriculture, and services sectors (Ahmad, 1989; Tatli et al., 2017), which exhibit fundamentally different drivers compared to those of Islamic finance.

Additionally, economic growth in Indonesia and Malaysia is subject to external influences such as global economic conditions, trade dynamics, and commodity price movements, which may not align with the performance trajectory of the Islamic finance industry. This finding stands in contrast to the results of Tabash and Dhankar (2014), who found a positive correlation between Islamic bank financing and economic growth in Qatar, Bahrain, and the UAE.

4.2.3. Exchange Rate and the Islamic Finance Index

With respect to the exchange rate variable (LEXR), the coefficient, while positive in sign, does not reach statistical significance. Each percentage point increase in the exchange rate is associated with an approximate 0.12 percentage point increase in the Islamic Finance Index. The findings align with those reported by Sitompul and Nasution (2019), who concluded that the expansion of Islamic bank assets was broadly unaffected by fluctuations in exchange rates, partly because most Islamic banks maintain their currency reserves in US dollars, limiting the extent to which exchange rate movements affect their asset positions given the still-limited market share of Islamic finance relative to conventional finance.

Furthermore, when the Indonesian Rupiah (IDR) and the Malaysian Ringgit (MYR) appreciate against other major currencies, particularly the US Dollar (Ali et al., 2015; Khairulanam et al., 2021; Tho'in and Prastiwi, 2019), foreign investment in Islamic financial instruments becomes comparatively more attractive. An influx of foreign investment resulting from currency appreciation can drive up prices for Shariah-compliant equities and Sukuk, generating an upward movement in the IFI.

4.2.4. Labor Force and the Islamic Finance Index

The coefficient for the Labor Force variable (LLBR) attains statistical significance at the 1% level (1.2339***), indicating a positive association between labor force participation and the IFI. Each one percentage point increase in labor force participation is associated with an approximate 1.23

percentage point increase in the Islamic Finance Index. A significant rise in labor force participation may serve as an indicator of broader economic growth (Bloom and Freeman, 1986; Roa et al., 2011), while simultaneously contributing to reductions in unemployment rates (Sunni et al., 2024).

Higher rates of employment imply greater levels of production, consumption, and aggregate economic activity within the Islamic financing sectors. Furthermore, as companies expand, their need for additional capital may increase (Fidiantowi and Sukarno, 2023; Ilic et al., 2022), potentially resulting in heightened Sukuk issuance that positively influences the IFI. This finding underscores the substantial role of a workforce equipped with Islamic finance literacy in supporting the growth and sustained performance of the Islamic finance industry in both countries.

4.2.5. Poverty and the Islamic Finance Index

The coefficient for the Poverty variable (LPOV) attains statistical significance at the 1% level (0.6865***), indicating a positive relationship between poverty rates and the IFI. Each one percentage point increase in poverty is associated with an approximate 0.68 percentage point increase in the Islamic Finance Index. This finding may be attributed to the distinctive socio-religious characteristics of Indonesia and Malaysia as countries with the world's largest Muslim populations (Hidayat and Darmadi, 2019), with Indonesia having been recognized as the world's most generous nation for six consecutive years (Muhtianingsih and Amanah, 2023).

Rising poverty, mediated by Islamic teachings, may cultivate greater awareness and propensity among citizens to engage in charitable giving (Nasrat et al., 2023; Riwanda and Wafa, 2023), participate in fundraising activities, and utilize Islamic-labeled financial products. This behavioral tendency is rooted in the understanding that Islamic financial products adhere to Shariah principles throughout all phases of operations, with a structural emphasis on poverty alleviation through equitable profit distribution mechanisms (Maulida and Purnomo, 2022; Othman et al., 2021), thereby potentially contributing to an upward movement in the Islamic Finance Index.

It is important, however, to acknowledge that the positive association between poverty and IFI may also be explained through structural mechanisms that operate independently of individual-level religious motivation. From a supply-side perspective, Islamic financial institutions may strategically expand their branch networks, microfinancing schemes, and social finance instruments such as zakah and waqf into economically disadvantaged regions, thereby increasing the aggregate volume of Islamic financial intermediation in higher-poverty environments (Parewangi et al., 2020). This interpretation is consistent with the notion of reverse causality, wherein Islamic banks actively target underserved populations rather than poverty independently driving demand for Islamic finance. Furthermore, the possibility of a spurious correlation arising from shared time trends between declining poverty rates and expanding Islamic finance infrastructure cannot be excluded in the absence of a formal instrumental variable or panel cointegration framework. These alternative explanations are acknowledged as limitations of the present study and should be examined in future research through causal identification strategies such as instrumental variable estimation or Granger causality testing.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This study employs a Random Effects Model to examine the determinants of Islamic Financial Intermediation in Indonesia and Malaysia. The findings reveal a statistically significant and positive relationship between the IFI and internet user penetration, labor force participation, and

poverty rates, while economic growth and exchange rates do not appear to exert significant effects. The positive association between internet users and the IFI suggests that greater internet penetration enhances access to information and financial services, potentially stimulating demand for Islamic financial products. Similarly, an expanding labor force may indicate a growing pool of prospective clients for Islamic finance institutions.

The positive association between poverty rates and the IFI warrants further investigation. This finding may imply that Islamic financing institutions need to refine their product offerings to better address the financial needs of low-income populations. The highest positive coefficient associated with the labor variable may reflect a growing awareness and appreciation of Islamic finance among the working population in both countries. Nevertheless, it remains imperative to continue developing more efficient and effective Islamic financing products and services to maximize their contribution to economic growth across all relevant sectors.

While this study effectively fulfills its primary research purpose, it acknowledges certain limitations. Incorporating demographic characteristics of internet users, such as age, occupation, income, and educational background, would allow for more precise predictions and a more nuanced understanding of which population segments are the primary users of digital Islamic finance services. A causal analysis could also be conducted to investigate whether reciprocal relationships exist among the variables. To the best of the authors' knowledge, this study represents the first attempt to bridge the gap between digital and macroeconomic determinants by analyzing their combined effects on IFI.

A further and fundamental methodological limitation concerns the cross-sectional composition of the panel dataset. With only two country-level units (Indonesia and Malaysia), the asymptotic properties underlying standard panel diagnostic tests, including the Hausman test, the Lagrange Multiplier test, and the Chow test, are not strictly satisfied in any statistically meaningful sense. The distinction between fixed effects and random effects estimators is also practically inconsequential with N equal to 2. The present analysis is therefore more accurately characterized as a two-country comparative time-series study rather than a conventional panel analysis, and findings should not be generalized beyond the specific economic and institutional contexts of Indonesia and Malaysia. Future research should seek to expand the cross-sectional dimension of the panel by incorporating a broader set of Muslim-majority economies at comparable stages of Islamic finance development, thereby strengthening the generalizability and statistical power of subsequent analyses.

5.2. Recommendation

Islamic financing service providers should intensify outreach efforts and enhance financial literacy through digital platforms, capitalizing on the positive correlation identified between internet users and the IFI. This effort could be further advanced through the development of user-friendly mobile applications and online banking services tailored to the growing digitally literate population. To achieve broader economic impact, it is essential for Islamic finance institutions to collaborate with government entities in developing innovative Shariah-compliant financial instruments capable of contributing to economic growth across diverse sectors. Regulatory authorities should maintain a careful balance between innovation and adaptive regulation as a prerequisite for sustainable Islamic finance growth.

At a more targeted level, Islamic finance institutions in Indonesia and Malaysia may develop Shariah-compliant financial products designed to address the specific needs and challenges of low-income populations, including microfinancing schemes, financial education programs, and income-generating investment opportunities. Investing in financial literacy programs directed at working professionals and forming partnerships with educational institutions represent

meaningful and strategically relevant measures for elevating human resource quality within the industry.

For future research, it is recommended that scholars expand the scope of data and extend the analytical period by employing the Generalized Method of Moments (GMM) to generate more precise findings. Expanding the number of Islamic countries included in the analysis, with classifications based on development stage, may also serve as a valuable alternative, ensuring a more diverse representation of economic, social, and cultural contexts. By categorizing countries according to development stage, the analysis can support comparative inquiry to identify cross-country patterns and trends, enabling a more nuanced exploration of how different economic and technological environments affect the growth and sustainability of Islamic Finance Institutions.

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