



## Financial Literacy of Indonesian Migrant Workers in Malaysia: Policy Evidence from the National Financial Literacy Strategy

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### Abstract

Financial literacy is a key policy instrument for strengthening financial inclusion, economic resilience, and social stability. In Malaysia, this objective is supported through the National Financial Literacy Strategy, which emphasizes inclusive financial education and responsible financial behavior, particularly among vulnerable populations. Indonesian migrant workers constitute a substantial segment of Malaysia's labor force; however, limited financial literacy continues to hinder their participation in formal financial services and efficient remittance management. This study examines the determinants of financial literacy among Indonesian migrant workers in Malaysia, focusing on financial attitude, financial behavior, and financial socialization. Using a quantitative approach, data were collected from 205 respondents through structured questionnaires and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The study contributes to the literature in three ways: (1) developing a migrant-worker-specific model of financial literacy in a cross-border labor context; (2) incorporating financial socialization as a key determinant, emphasizing the influence of family, peers, and workplace learning; and (3) extending the policy relevance of financial literacy research by linking behavioral factors to broader financial inclusion outcomes. The findings reveal that financial attitude, financial behavior, and financial socialization have positive and statistically significant effects on financial literacy. These results support the objectives of Malaysia's National Financial Literacy Strategy and offer practical implications for policymakers and financial regulators, particularly Bank Negara Malaysia. The study highlights the need for targeted financial literacy programs delivered through formal financial institutions, remittance service providers, and employer-based initiatives to improve financial capability and promote sustainable financial inclusion among migrant workers.

**Keywords:** Financial Literacy, Indonesian Migrant Workers, National Financial Literacy Strategy, SEM-PLS, Malaysia

**JEL Classification:** G53, J61, G28

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### Introduction

Financial literacy has increasingly been recognized as a strategic policy priority for strengthening financial inclusion, economic resilience, and social stability across both developed and developing economies.

Conceptually, financial literacy encompasses not only financial knowledge but also skills, attitudes, and behaviors that enable individuals to make informed financial decisions, enhance financial well-being, and promote social equity; however, persistent disparities driven by cognitive biases, demographic characteristics, and unequal access to education continue to undermine these objectives, highlighting the need for targeted and context-specific interventions, including digital financial literacy initiatives (Ahamed, 2025). Extensive empirical evidence confirms that financial literacy is a critical foundation for financial inclusion, particularly in ensuring vulnerable and marginalized populations have access to appropriate, affordable, and regulated financial services (Ibor, 2023; Stroia, 2025). Studies across diverse economic contexts demonstrate that higher levels of financial literacy are associated with improved savings behavior, responsible credit use, efficient resource allocation, and greater economic stability, thereby supporting inclusive and sustainable economic development (Bodhgire, 2025; Katnić et al., 2024; Manickam et al., 2024). Moreover, financial literacy has proven essential in fostering economic resilience during periods of systemic shock, such as the COVID-19 pandemic, by empowering individuals to navigate financial uncertainty and maintain confidence in financial decision-making (Liu et al., 2024). Consequently, policymakers and central banks play a pivotal role in embedding financial literacy within national development strategies, as sustained improvements in financial capability are fundamental to long-term financial stability, inclusive growth, and societal well-being (Hasler et al., 2023).

Malaysia has institutionalized financial literacy as a national policy priority through the National Financial Literacy Strategy, positioning it as a key instrument to enhance access to financial education and promote responsible financial behavior across the population. The strategic foundation of this initiative can be traced to the Financial Sector Master Plan, through which Bank Negara Malaysia (BNM) has progressively expanded financial education programs to strengthen financial capability and consumer protection, as evidenced by qualitative assessments of policy evolution and institutional commitment (Ilias & A'zmi, 2022). Despite sustained policy efforts, empirical studies continue to reveal persistent gaps in financial literacy and confidence among Malaysians, underscoring the need for more targeted and inclusive interventions (Murugiah, 2016). This concern is further amplified by demographic and structural shifts, including population ageing and declining reliance on social security systems, which necessitate higher levels of financial literacy to support informed decision-making related to savings, investments, debt management, and retirement planning (Taylor & Wagland, 2011). National survey evidence also indicates that financial vulnerability remains prevalent, with one in three Malaysians reporting low confidence in managing personal finances, highlighting the urgency of strengthening financial education initiatives under the national strategy (Izzati et al., 2023). Moreover, recent empirical reviews suggest that financial attitude and social influences, particularly family-based financial socialization, play a significant role in shaping financial literacy outcomes, reinforcing the importance of behaviorally informed and socially embedded policy approaches within Malaysia's National Financial Literacy Strategy framework.

Indonesian migrant workers constitute one of the largest segments of Malaysia's migrant labor force and play a vital role in sustaining key sectors such as manufacturing, construction, agriculture, and domestic services, thereby contributing significantly to Malaysia's economic growth and labor market flexibility (World Bank, 2023). Despite their substantial economic contribution, Indonesian migrant workers remain disproportionately vulnerable to financial exclusion, characterized by limited financial literacy, low utilization of formal banking and remittance services, and a high dependence on informal financial mechanisms that expose them to fraud, excessive transaction costs, and financial insecurity (OECD, 2020). Empirical studies consistently show that migrant workers often face structural barriers, including limited access to financial education, documentation constraints, language barriers, and inadequate integration into host-country financial systems, which collectively undermine their participation in regulated financial markets (Doi et al., 2021). These challenges have direct implications for the effectiveness of Malaysia's national financial inclusion policies, as the exclusion of a large and economically active migrant population weakens the overall inclusiveness, efficiency, and resilience of the financial system (Bank Negara Malaysia, 2022). Consequently, improving financial literacy and formal financial participation among Indonesian migrant workers is not only a social imperative but also a strategic policy concern, as it directly supports the objectives of Malaysia's National Financial Literacy Strategy and broader inclusive growth agenda.

Empirical evidence indicates that Indonesian migrant workers in destination countries such as Malaysia face significant gaps in financial literacy, which undermines their ability to engage effectively with formal financial systems and manage their economic resources. Studies show that many migrant workers exhibit limited financial knowledge and planning skills, leading to poor budgeting, impulsive spending, and

vulnerability to financial fraud and informal financial services, including illegal investment schemes and high-cost informal remittances (Nugroho et al., 2025). These gaps contribute to suboptimal financial behaviors, such as low use of regulated banking products and reliance on informal channels for remittance transfers, which can reduce transaction efficiency and increase costs for both workers and their families (Pujiastuti et al., 2025). Moreover, inadequate financial literacy among migrant workers has been linked to greater economic vulnerability, including increased debt exposure and limited capacity for long-term financial resilience, thereby affecting not only individual well-being but also broader socio-economic stability in both host and origin communities (Suranto et al., 2024). Addressing these disparities is therefore critical to enhancing the effectiveness of financial inclusion policies and ensuring that migrant workers can fully benefit from formal financial systems and contribute sustainably to economic development.

The determinants of financial literacy are grounded in a multifaceted theoretical framework that encompasses cognitive, affective, behavioral, and social dimensions, each contributing to how individuals acquire, internalize, and apply financial knowledge in everyday decision-making. Financial knowledge, representing the cognitive understanding of financial concepts and products, consistently emerges in recent empirical research as a foundational predictor of effective financial management behaviors, such as budgeting and saving (Rehman & Mia, 2024). Financial attitude reflects individuals' predispositions toward financial planning and money management, shaping motivational dispositions that influence subsequent financial behaviors and reinforcing the link between knowledge and action (Setiawan & Laulita, 2024). Financial behavior, in turn, captures the manifestation of both knowledge and attitude into concrete practices such as expenditure monitoring, savings allocation, and responsible use of financial services, which are shown to be positively influenced by both financial knowledge and attitude in recent studies (Shroff, 2025). Importantly, financial socialization, the process through which individuals learn financial norms, values, and skills from family, community, and institutional agents, has been identified as a critical social mechanism facilitating the internalization of financial attitudes and enhancing the practical application of financial knowledge among diverse populations (Dwiputri & Kabbaro, 2025). Collectively, these constructs form an integrated theoretical basis suggesting that financial literacy is not solely an individual trait, but a dynamic outcome shaped by interrelated cognitive, motivational, behavioral, and social influences.

Despite growing scholarly interest in financial literacy among migrant populations, existing research remains limited in both scope and methodological rigor, particularly in relation to Indonesian migrant workers in Malaysia. Most studies on this topic have focused on descriptive assessments or community-engagement interventions aimed at improving financial knowledge and behaviors (Suranto et al., 2024), but they seldom employ comprehensive structural models that simultaneously account for attitudinal, behavioral, cognitive, and social determinants of financial literacy. This paucity of advanced quantitative analysis is notable given the increasing recognition that multifactorial models, especially those based on Partial Least Squares Structural Equation Modeling (PLS-SEM) are necessary to rigorously test complex causal relationships among financial attitude, financial behavior, financial knowledge, and financial socialization (Lu et al., 2025). While recent empirical work on related themes, such as digital financial inclusion, has applied PLS-SEM to low-income households in Malaysia (Lu, Kosim & Cheah, 2025), equivalent studies specifically targeting migrant worker populations and aligned with Malaysia's national financial inclusion objectives are scarce. This gap underscores the need for robust, measured evidence that can inform policymakers, especially central banks such as Bank Negara Malaysia, about the structural determinants of financial literacy and thereby enhance the effectiveness of inclusion strategies within diverse migrant communities.

Despite the growing body of literature on financial literacy and financial inclusion, several important gaps remain unaddressed. First, empirical studies focusing specifically on Indonesian migrant workers in Malaysia remain limited, even though this group constitutes a significant and economically relevant segment of the Malaysian labor market. Most existing research tends to concentrate on domestic populations or migrant workers in general without capturing the unique socio-economic and institutional conditions faced by Indonesian migrants in Malaysia. Second, there is a lack of studies that explicitly link key behavioral determinants of financial literacy, namely financial attitude, financial behavior, and financial socialization, with the implementation and policy framework of Malaysia's National Financial Literacy Strategy. As a result, the policy relevance of behavioral financial literacy research remains underdeveloped, particularly in explaining how individual-level financial capabilities align with national financial inclusion agendas. Third, Malaysia, as a primary destination country for Indonesian migrant workers, presents distinctive institutional, cultural, and financial system characteristics that differentiate it from other host countries, such as Singapore, the Middle

East, or East Asia. These contextual differences suggest that findings from other migration settings may not be fully generalizable to the Malaysian context, thereby creating a need for context-specific empirical evidence.

Therefore, this study aims to empirically examine the determinants of financial literacy among Indonesian migrant workers in Malaysia using a Structural Equation Modeling approach, thereby providing statistically grounded insights that are directly relevant to the objectives of Malaysia's National Financial Literacy Strategy. By identifying key behavioral and social drivers of financial literacy, this research seeks to contribute not only to the academic literature but also to the formulation of inclusive and effective financial policies that enhance migrant financial inclusion and systemic financial resilience.

## **Literature Review**

### ***Financial Literacy and National Financial Inclusion Policy***

Financial literacy is widely recognized as a foundational component of financial inclusion and economic resilience. [Bhat et al. \(2025\)](#) and [Lusardi and Mitchell \(2014\)](#) argue that financial literacy enhances individuals' ability to participate effectively in formal financial systems, manage financial risks, and achieve long-term financial well-being. In the policy domain, financial literacy has increasingly been embedded within national financial inclusion strategies to promote responsible financial behavior and consumer protection, particularly among vulnerable populations ([OECD, 2020](#)).

Malaysia institutionalizes this approach through the National Financial Literacy Strategy (NFLS), coordinated by Bank Negara Malaysia, which emphasizes inclusive financial education and behavioral change. However, empirical evidence suggests that non-citizen groups, particularly migrant workers, continue to exhibit lower levels of financial literacy, limiting the effectiveness of financial inclusion policies and the formalization of financial transactions ([Bank Negara Malaysia, 2022](#)). These findings underscore the need for targeted empirical studies examining financial literacy determinants among migrant workers within the national policy framework.

### ***Financial Literacy among Migrant Workers***

Migrant workers represent a structurally vulnerable group in host-country financial systems. Studies consistently show that migrant workers rely disproportionately on informal financial services, face higher remittance costs, and have limited access to regulated financial products due to legal status, language barriers, and limited financial capability ([Demirgüç-Kunt et al., 2022](#); [World Bank, 2022](#)). [OECD \(2019\)](#) further documents that migrant workers score below national averages in financial knowledge, financial behavior, and financial planning across both developed and emerging economies.

According to [Kurniati & Abdillah \(2025\)](#), in the Malaysian context, Indonesian migrant workers constitute a substantial share of the labor force and play a critical role in labor-intensive sectors. Despite their economic contribution, limited financial literacy constrains their ability to engage with formal financial institutions and optimize remittance and savings behavior. Recent empirical evidence by [Rizal et al. \(2023\)](#) confirms that Indonesian migrant workers in Malaysia exhibit moderate levels of financial literacy, with significant gaps in financial planning and the use of regulated financial products.

### ***Theory of Planned Behavior***

Financial literacy has emerged as a critical life skill that enables individuals to effectively manage financial resources, make informed economic decisions, and enhance their long-term financial welfare. Prior research demonstrates that financial literacy is determined by a range of interconnected factors, encompassing financial knowledge, financial attitudes, financial behaviors, and financial socialization. Studies have consistently reported that favorable financial attitudes and responsible financial behaviors are positively associated with higher levels of financial literacy. Moreover, socialization mechanisms operating through family environments, peer networks, and educational settings substantially influence the acquisition of financial knowledge and the development of financial decision-making competencies ([Ansar et al., 2023](#); [Rizal et al., 2023](#)). In addition, demographic characteristics such as age, gender, and educational attainment have been found to explain variations in financial literacy across populations. These observations underscore the multidimensional nature of financial literacy, which is formed through the interaction of cognitive, behavioral, and social dimensions.

The theoretical foundation underpinning the relationships among these variables is provided by the Theory of Planned Behavior (TPB), which emphasizes that attitudes, perceived social expectations, and perceived control over behavior jointly shape behavioral intentions and actual actions. Applied to financial decision-making, financial knowledge and educational exposure contribute to the development of favorable financial attitudes and stronger perceptions of financial capability, which subsequently promote responsible financial behavior (Ismail et al., 2017; Yong et al., 2018). Empirical evidence suggests that financially literate individuals are more likely to demonstrate prudent financial practices, including saving regularly, investing strategically, planning for retirement, and managing financial risks effectively (Harahap et al., 2022; Rhu et al., 2023). Additionally, enhanced financial literacy has been associated with stronger investment intentions and greater entrepreneurial orientation, as it improves individuals' ability to evaluate financial opportunities and increases their confidence in managing financial resources (Ahmad et al., 2025; Putri & Adawiyah, 2020).

The emergence of digital financial ecosystems has transformed the landscape of financial literacy research, shifting scholarly attention beyond traditional financial knowledge and behavioral dimensions. As digital financial services become increasingly prevalent, digital financial literacy has gained prominence as a critical competency encompassing the ability to access, understand, evaluate, and effectively utilize financial technologies. Empirical research demonstrates that individuals' engagement with digital financial services is shaped by a combination of technological preparedness, behavioral characteristics, and financial capabilities, which together enhance opportunities for financial inclusion (Putri et al., 2025). Overall, the literature portrays financial literacy as a multidimensional phenomenon that evolves through the interaction of personal attributes, social influences, behavioral tendencies, and technological competencies. Consequently, strengthening financial education initiatives and policy frameworks remains essential for fostering sustainable financial behavior and improving financial outcomes across heterogeneous populations.

### ***Financial Attitude and Financial Literacy***

Financial attitude refers to an individual's underlying psychological orientation toward financial matters, encompassing perceptions and preferences related to saving, spending, budgeting, and risk management (Ajzen, 1991; Kumar et al., 2025; Mustafa et al., 2025). Favorable financial attitudes, particularly those characterized by long-term planning and self-discipline, play a pivotal role in converting financial knowledge into sound financial practices and responsible financial decision-making (Strömbäck et al., 2017).

Empirical research suggests that favorable financial attitudes are associated with a greater likelihood of engaging in responsible financial behaviors, such as budgeting expenditures, accumulating savings, and preparing for future financial needs through long-term planning (Gutter & Copur, 2011). Among migrant populations, however, financial attitudes are formed within a unique socioeconomic environment characterized by uncertain income streams, obligations to remit earnings to family members, and culturally embedded social norms. In this regard, Rizal et al. (2023) found that financial attitude significantly enhances financial literacy among Indonesian migrant workers, highlighting the importance of psychological and behavioral factors in developing financial capability beyond the acquisition of financial knowledge alone.

### ***Financial Behavior and Financial Literacy***

Financial behavior reflects the behavioral dimension of financial literacy, encompassing individuals' decisions regarding spending, saving, investing, and credit management (Abdallah et al., 2025; Chhillar et al., 2025). Grounded in the Theory of Planned Behavior, such behaviors are influenced by a combination of personal attitudes, perceived control over financial actions, and prevailing social norms (Ajzen, 1991; Gafoor et al., 2025; Kumar et al., 2025).

Empirical evidence suggests that financially literate individuals are more likely to adopt prudent financial behaviors, including systematic saving, responsible borrowing, and active engagement with formal financial services (Lusardi, 2019). For migrant workers, these behavioral patterns are particularly important, as they contribute to more efficient remittance management and enhanced financial resilience in the face of economic uncertainty (Demirgüç-Kunt et al., 2022). Consistent with prior findings, Rizal et al. (2023) reported a significant positive association between financial behavior and financial literacy among Indonesian migrant workers in Malaysia, indicating that financial capability is reinforced not only by knowledge acquisition but also by the adoption of sound financial practices.

**Financial Socialization and Financial Literacy**

Financial socialization represents a lifelong learning process through which individuals acquire financial knowledge, form financial attitudes, and develop financial behaviors by engaging with social agents such as family, peers, employers, institutions, and media sources (Danes, 1994; Kaur & Singh, 2025; Mahapatra et al., 2025). The literature highlights financial socialization as a key determinant of financial capability, as it facilitates the transmission of financial values, norms, and practices across social environments. Its role becomes particularly important for vulnerable populations that face limited access to structured financial education, where informal learning channels often serve as the primary source of financial knowledge and guidance.

Among migrant workers, financial socialization frequently takes place through informal channels, including interactions with co-workers, migrant communities, and community-based organizations, which often serve as alternative sources of financial learning when access to formal financial institutions and educational resources is constrained in host countries (Kumar et al., 2025; Mahapatra et al., 2025). Recent literature highlights the growing importance of workplace financial education initiatives and collaborative programs involving regulated financial institutions as effective mechanisms for enhancing financial literacy among migrant populations literacy (Islam et al., 2025; Khan et al., 2025; OECD, 2019). Empirical evidence from Rizal et al. (2023) demonstrates that financial socialization exerts a positive and statistically significant influence on financial literacy, underscoring the critical role of social learning processes in supporting the objectives of national financial literacy policies and strategies.

Building on the theoretical foundations and empirical evidence outlined earlier, this study advances a set of hypotheses aimed at identifying the determinants of financial literacy among Indonesian migrant workers residing in Malaysia. Particular attention is given to three influential constructs: financial attitude, financial behavior, and financial socialization, which represent key behavioral and social factors that may shape financial capability. These variables are deemed especially relevant because they capture the processes through which individuals acquire, internalize, and apply financial knowledge in the unique circumstances of labor migration and socioeconomic vulnerability. Consequently, the proposed hypotheses seek to empirically examine the extent to which these factors contribute to variations in financial literacy. In addition, a conceptual model is presented to provide a systematic and visual representation of the hypothesized relationships underlying the research framework.

- H1: Financial attitude positively influences financial literacy
- H2: Financial behavior positively influences financial literacy
- H3: Financial socialization positively influences financial literacy

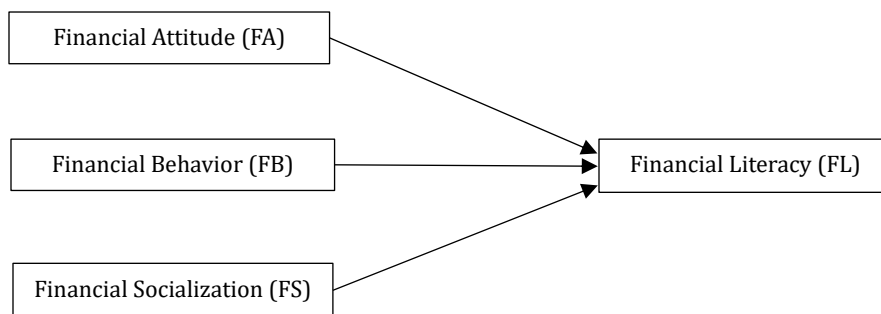


Figure 1. Conceptual Model

**Research Methods**

**Sample and Data Collection**

This study applied a purposive sampling approach to identify respondents who satisfied predefined criteria aligned with the research objectives. The study population comprised Indonesian migrant workers currently living and employed in Malaysia. Eligibility requirements included being an Indonesian citizen, aged 18 years

or older, actively working in Malaysia, having a minimum of six months of work experience in the host country, and willingly consenting to participate in the survey. The use of purposive sampling was deemed appropriate as it allowed the researcher to focus on individuals who possessed relevant characteristics essential for examining financial literacy among Indonesian migrant workers.

Data collection was conducted using a combination of offline (face-to-face) and online survey methods. For the offline approach, questionnaires were distributed directly to Indonesian migrant workers in several Malaysian locations with a high concentration of migrant workers, including Kuala Lumpur, Selangor, Johor, and Penang. This approach allowed researchers to reach respondents who had limited access to online platforms and to provide clarification when needed. For the online approach, the same questionnaire was administered through Google Forms and disseminated via Indonesian migrant worker communities, WhatsApp groups, and community organizations. The mixed-mode data collection strategy was adopted to increase response rates, broaden geographical coverage, and reduce sampling bias associated with relying on a single method.

The study obtained 205 valid responses, which were used for the final analysis. Sample adequacy was assessed in accordance with PLS-SEM requirements. Based on [Hair et al. \(2019\)](#), the ten-times rule indicates a minimum requirement of 40 observations, given that the endogenous variable is predicted by four constructs. Furthermore, G\*Power analysis ( $\alpha = 0.05$ , power = 0.80,  $f^2 = 0.15$ ) suggested a minimum sample size of 85 respondents. Since the actual sample size of 205 exceeds these thresholds, the dataset is considered sufficient to ensure robust and reliable PLS-SEM estimations.

Table 1 presents the demographic profile of the 205 Indonesian migrant workers who participated in this study. Regarding age, the largest proportion of respondents (40.0%) were between 36 and 50 years old, followed by those aged 26–35 years (23.41%). Respondents aged above 50 years accounted for 21.95%, while the youngest group, aged 18–25 years, represented 14.63% of the sample. This distribution indicates that most respondents were in their productive working years and had likely accumulated substantial work and financial experience.

In terms of gender, female respondents dominated the sample, accounting for 80.49% of participants, whereas male respondents represented only 19.51%. This finding suggests that the surveyed migrant worker population was predominantly female, which may reflect the concentration of Indonesian migrant workers in sectors such as domestic services and caregiving in Malaysia.

With respect to marital status, the majority of respondents were married (72.20%), followed by single respondents (17.56%) and divorced respondents (10.24%). The predominance of married individuals suggests that many migrant workers may have family responsibilities, which could influence their financial attitudes, behaviors, and decision-making processes.

The educational profile shows that more than half of the respondents (51.22%) had completed primary school or an equivalent level of education. Approximately 29.76% had completed junior high school, while 17.07% had attained senior high school education. Only a very small proportion possessed higher education qualifications, with 0.49% holding a bachelor's degree and 1.46% holding postgraduate qualifications. These findings indicate that the majority of respondents had relatively low formal educational attainment, highlighting the importance of financial education initiatives targeted at migrant workers.

Regarding monthly income, most respondents (58.05%) earned between RM 500 and RM 1,000 per month, while 24.39% reported incomes between RM 1,000 and RM 1,500. Only a small percentage earned above RM 2,000 per month. This income distribution suggests that a considerable proportion of Indonesian migrant workers in Malaysia belong to lower-income groups, making financial literacy and effective financial management particularly important for their economic well-being.

Finally, the results show that 50.73% of respondents had resided in Malaysia for more than three years, while 29.76% had stayed between two and three years. Only 19.51% had lived in Malaysia for less than two years. This indicates that most respondents had considerable experience working and living in Malaysia, which may have influenced their exposure to financial services, financial socialization processes, and financial literacy development. Overall, the demographic characteristics suggest that the sample consists primarily of experienced, married, female migrant workers with relatively low educational attainment and modest income levels. These characteristics provide important context for interpreting the study's findings on the determinants of financial literacy among Indonesian migrant workers in Malaysia.

Table 1. Demographic Characteristics of Respondents (N = 205)

Variable	Category	Frequency (n)	Percentage (%)
Age	18–25 years	30	14.63
	26–35 years	48	23.41
	36–50 years	82	40.00
	Above 50 years	45	21.95
Gender	Male	40	19.51
	Female	165	80.49
Marital Status	Married	148	72.20
	Single	36	17.56
	Divorced	21	10.24
Education Level	Primary School	105	51.22
	Junior High School	61	29.76
	Senior High School	35	17.07
	Bachelor's Degree	1	0.49
	Postgraduate Degree	3	1.46
Monthly Income (RM)	RM 500–1,000	119	58.05
	RM 1,000–1,500	50	24.39
	RM 1,500–2,000	27	13.17
	RM 2,000–2,500	5	2.44
	Above RM 2,500	4	1.95
Length of Stay	0–1 year	13	6.34
	1–2 years	27	13.17
	2–3 years	61	29.76
	More than 3 years	104	50.73

The measurement items employed in this study were adapted from previously validated and widely recognized instruments within the financial literacy literature. The constructs of financial attitude, financial behavior, financial socialization, and financial literacy were sourced from established empirical studies and subsequently modified to align with the context of Indonesian migrant workers in Malaysia. Prior to the main data collection, the questionnaire was evaluated to ensure its clarity, contextual appropriateness, and content validity. All latent variables were assessed using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The use of the Likert scale is justified by its widespread application and its effectiveness in capturing respondents' attitudes, perceptions, and behavioral orientations in social science and financial literacy research.

### ***Partial Least Squares–Structural Equation Modeling (PLS-SEM)***

This study utilizes a quantitative approach to examine the determinants of financial literacy among Indonesian migrant workers in Malaysia, focusing on financial attitude, financial behavior, and financial socialization. Primary data were collected through structured questionnaires distributed to purposively selected respondents to ensure relevance to the research objectives. Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM), which is appropriate for testing complex models involving multiple latent constructs and simultaneous relationships. SEM enables the empirical assessment of theoretical frameworks by estimating causal relationships among observed and latent variables within a system of equations (Byrne, 2013). The analysis followed standard SEM procedures, including data preparation, model specification, estimation, and evaluation of measurement and structural models (Hoyle, 2012). Furthermore, PLS-SEM is advantageous due to its minimal requirements regarding data distribution and sample size, making it suitable for behavioral finance studies involving migrant populations (Qoyum & Fauziyyah, 2019).

Table 2 presents the measurement items used to assess the four constructs examined in this study: financial literacy (FL), financial attitude (FA), financial behavior (FB), and financial socialization (FS). Financial literacy was measured through respondents' ability to distinguish between needs and wants, allocate income for savings, manage monthly expenses, and plan for their children's higher education. Financial attitude captured the perceived importance of understanding banking institutions, pension funds, and financial institutions in general. Financial behavior was assessed through indicators related to financial goal setting, regular saving practices, allocating at least 10% of monthly income for future needs, and comparing prices

before making purchases. Meanwhile, financial socialization measured the influence of family on financial decision-making, including guidance on financial management and consultation with family members regarding financial products and transactions.

Table 2. Measurement Items by Construct

Construct	Item Code	Statement
Financial Literacy (FL)	FL1	I am able to distinguish between wants and needs.
	FL2	I allocate a portion of my income for savings.
	FL3	I am able to manage my monthly expenses.
	FL4	I have planned and saved or invested for my children's education up to the undergraduate level.
Financial Attitude (FA)	FA1	Understanding banking institutions is important to me.
	FA2	Understanding pension funds is important to me.
	FA3	Understanding financial institutions is important to me.
Financial Behavior (FB)	FB1	I have clear financial goals.
	FB2	I consistently set aside at least 10% of my monthly income for future financial needs.
	FB3	I save money on a monthly basis.
	FB4	I compare prices before making a purchase.
Financial Socialization (FS)	FS1	My family provides guidance on how to manage finances.
	FS2	I consult my family before choosing a financial product.
	FS3	I consult my family before conducting financial transactions.

Source: Lusardi and Mitchell (2017), OECD (2020), and Xiao and O'Neill (2016).

## Results and Discussion

### Results

Based on 205 observations, the descriptive statistics presented in Table 3 indicate a reasonable degree of variation across all variables, suggesting that the dataset is suitable for further empirical analysis (Hair et al., 2019). Financial Literacy (FL) records a mean score of 15.224 with a standard deviation of 3.226, indicating a moderate to relatively high level of financial literacy among respondents. The observed values range from 6 to 20, reflecting substantial heterogeneity in respondents' financial knowledge and competencies, which is consistent with prior studies emphasizing the diverse financial capability profiles among migrant workers (Lusardi & Mitchell, 2011).

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
FL	205	15.224	3.226	6	20
FA	205	10.8	2.641	3	15
FB	205	13.38	3.556	4	20
FS	205	9.785	2.913	3	15

Financial Attitude (FA) shows a mean value of 10.800 and a standard deviation of 2.641, with scores ranging between 3 and 15. This suggests that respondents generally exhibit a moderately positive financial mindset, although noticeable individual differences persist. Such variation aligns with behavioral finance literature, which highlights the role of personal beliefs and attitudes in shaping financial decision-making (Ajzen, 1991; Xiao & O'Neill, 2016).

Financial Behavior (FB) reports a mean score of 13.380 and a standard deviation of 3.556, representing the highest dispersion among the explanatory variables, with values ranging from 4 to 20. This wide distribution indicates considerable differences in actual financial management practices, supporting previous findings that financial behavior tends to vary more widely than financial attitudes or knowledge (Lusardi, 2019).

Financial Socialization (FS) records a mean score of 9.785 with a standard deviation of 2.913, and minimum and maximum values of 3 and 15, respectively. This reflects a moderate level of financial learning acquired through family, peers, workplaces, and media exposure, consistent with socialization theory

emphasizing the influence of social environments on financial capability development (Gudmunson & Danes, 2011; Shim et al., 2010). Overall, the absence of extreme clustering and the presence of adequate variability across all constructs support the robustness of subsequent multivariate analyses aimed at explaining financial literacy outcomes.

The correlation matrix presented in Table 4 shows that Financial Literacy (FL) is positively and statistically associated with all explanatory variables. Specifically, FL demonstrates moderate correlations with Financial Attitude (FA) ( $r = 0.537$ ,  $p < 0.01$ ), Financial Behavior (FB) ( $r = 0.544$ ,  $p < 0.01$ ), and Financial Socialization (FS) ( $r = 0.466$ ,  $p < 0.01$ ). These results suggest that individuals who hold more favorable financial attitudes, exhibit more responsible financial behaviors, and experience stronger financial socialization tend to display higher levels of financial literacy. This pattern is consistent with the financial capability framework, which emphasizes the interdependence between financial knowledge, attitudes, behaviors, and social influences (Lusardi & Mitchell, 2011).

Among these relationships, the strongest correlation is observed between FL and FB, indicating that practical financial behaviors are closely aligned with individuals' financial knowledge and understanding. This finding supports prior empirical evidence showing that financial literacy is more strongly reflected in observable financial behaviors than in attitudes alone (Xiao & O'Neill, 2016).

Furthermore, the intercorrelations among the independent variables are positive and statistically significant, with coefficients ranging from 0.268 to 0.568. The strongest association occurs between Financial Behavior (FB) and Financial Socialization (FS) ( $r = 0.568$ ,  $p < 0.01$ ), suggesting that financial practices are substantially shaped by social learning mechanisms, including family influence, peer interaction, workplace exposure, and media-based information. This result is in line with financial socialization theory, which posits that financial behaviors are learned and reinforced through social contexts over time (Gudmunson & Danes, 2011; Shim et al., 2010).

As shown in Table 4, all correlation coefficients are below the widely accepted threshold of 0.80, suggesting that multicollinearity is unlikely to present a serious issue in subsequent multivariate analyses (Hair et al., 2019). Overall, the correlation results provide initial empirical evidence supporting the proposed relationships and justify the inclusion of these variables in further regression or structural equation modeling procedures.

Table 4. Correlation Matrix Results

Variable	FL	FA	FB	FS
FL	1.000			
FA	0.537***	1.000		
FB	0.544***	0.368***	1.000	
FS	0.466***	0.268***	0.568***	1.000

Note: Where \*, \*\*, and \*\*\* denote statistical significance at the 10% ( $p < 0.10$ ), 5% ( $p < 0.05$ ), and 1% ( $p < 0.01$ ) levels, respectively.

The first scatter plot (Figure 2) illustrates the bivariate relationships between Financial Socialization (FS), Financial Attitude (FA), and Financial Behavior (FB), with FL values ranging from approximately 6 to 20 and the explanatory variables spanning from 3 to 20. The distribution of observations reveals a clear positive and approximately linear pattern across all relationships, consistent with the reported correlation coefficients ( $r = 0.466$  for FS-FL,  $r = 0.537$  for FA-FL, and  $r = 0.544$  for FB-FL), thereby supporting the assumption of linearity prior to multivariate analysis (Field, 2024; Hair et al., 2019). Among the three predictors, FB exhibits the most concentrated upward trend, indicating that financial literacy is more closely aligned with observable financial behaviors than with attitudinal or socialization factors, a finding that is consistent with prior empirical studies emphasizing the strong linkage between financial knowledge and financial management practices (Fernandes et al., 2014; Hilgert et al., 2002; Xiao & O'Neill, 2016). In contrast, FS and FA display relatively wider dispersion at comparable score levels, reflecting heterogeneity in how social learning processes and financial attitudes translate into financial knowledge, as suggested by financial socialization theory (Bandura, 1997; Gudmunson & Danes, 2011). Overall, the scatter plot analysis provides visual confirmation of positive associations and supports the suitability of subsequent parametric and multivariate analyses (Tabachnick & Fidell, 2019).

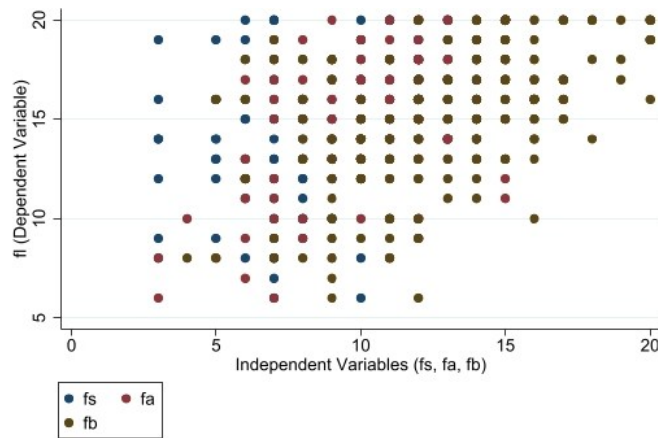


Figure 2. Scatterplot Correlation Result

The scatterplot matrix (Figure 3) further confirms these patterns by visualizing pairwise associations among FL, FS, FA, and FB. The plots reveal positive slopes across all variable pairs, with correlation magnitudes ranging from 0.268 to 0.568, indicating moderate associations rather than near-perfect relationships. The spread of observations around the implied linear trends suggests meaningful heterogeneity without excessive overlap, visually reinforcing the absence of serious multicollinearity and supporting the suitability of FS, FA, and FB as distinct predictors of FL in multivariate analysis.

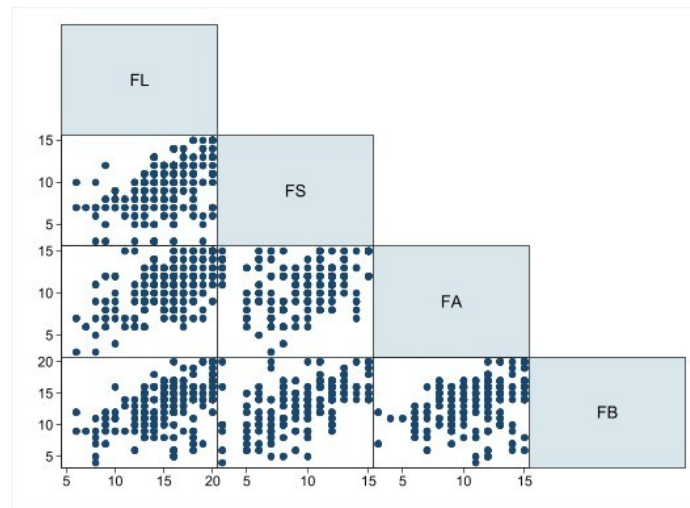


Figure 3. Scatterplot Matrix Result

The assessment of the measurement model indicates that all constructs meet the recommended criteria for reliability and convergent validity (Table 5). The outer loadings for all indicators range from 0.656 to 0.878, exceeding the minimum threshold of 0.60 (Hair et. al, 2022), which confirms that each indicator adequately represents its respective latent construct (FA, FB, FS, and FL). In particular, FA and FS demonstrate relatively strong indicator loadings, with several items exceeding 0.78, suggesting robust construct operationalization. Although a few FB indicators exhibit comparatively lower loadings (e.g., FB2 and FB4), their values remain within acceptable limits and do not warrant indicator removal.

Table 5. Assessment of Measurement Model Results

	Outer loadings	CA	CR (rho a)	CR (rho c)	(AVE)	VIF
FA1 <- FA	0.878	0.754	0.783	0.858	0.669	1.671
FA2 <- FA	0.779					1.517
FA3 <- FA	0.793					1.435
FB1 <- FB	0.743	0.681	0.695	0.803	0.505	1.29
FB2 <- FB	0.672					1.439
FB3 <- FB	0.766					1.318
FB4 <- FB	0.656					1.406
FS1 <- FS	0.819	0.712	0.742	0.833	0.625	1.409
FS2 <- FS	0.788					1.542
FS3 <- FS	0.764					1.594
FL1 <- FL	0.725	0.765	0.767	0.85	0.587	1.448
FL2 <- FL	0.784					1.241
FL3 <- FL	0.796					1.643
FL4 <- FL	0.758					1.548

In terms of internal consistency reliability, all constructs fulfill the recommended criteria, as evidenced by Cronbach's Alpha values between 0.681 and 0.765, with composite reliability ( $\rho_a$  and  $\rho_c$ ) generally exceeding the 0.70 benchmark (Hair et al., 2019). Convergent validity is further confirmed through Average Variance Extracted (AVE) values ranging from 0.505 to 0.669, indicating that each construct explains more than 50% of the variance of its indicators (Hoyle, 2012). In addition, variance inflation factor (VIF) values remain below the conservative threshold of 3.00, suggesting that multicollinearity at the measurement level is not a concern (Hair et al., 2019). Collectively, these results demonstrate that the measurement model is robust and suitable for further structural model analysis.

The discriminant validity assessment confirms that all constructs are empirically distinct. Based on the HTMT criterion (Table 6), all inter-construct ratios range from 0.364 to 0.820, remaining below the conservative threshold of 0.85 (Hair et al., 2022), thereby indicating adequate discriminant validity among FA, FB, FS, and FL. Although the HTMT value between FS and FB (0.82) is relatively higher compared to other construct pairs, it still falls within acceptable limits, suggesting conceptual relatedness without empirical redundancy (Hair et al., 2022).

Table 6. Heterotrait-Monotrait Ratio Results

	Heterotrait-monotrait ratio (HTMT)
FB <-> FA	0.520
FL <-> FA	0.715
FL <-> FB	0.753
FS <-> FA	0.364
FS <-> FB	0.820
FS <-> FL	0.612

Consistent results are obtained from the Fornell-Larcker criterion (Table 7), where the square roots of AVE for each construct (FA = 0.818, FB = 0.711, FL = 0.766, FS = 0.791) exceed their corresponding inter-construct correlations. This indicates that each construct shares more variance with its own indicators than with other constructs in the model (Hair et al., 2022). Taken together, the HTMT and Fornell-Larcker results provide robust evidence that FA, FB, FS, and FL exhibit satisfactory discriminant validity, supporting the adequacy of the measurement model for structural analysis.

Table 7. Fornell-Larcker Criterion Results

	FA	FB	FL	FS
FA	0.818			
FB	0.412	0.711		
FL	0.557	0.56	0.766	
FS	0.306	0.53	0.469	0.791

Figure 4 illustrates the measurement and structural models obtained from the PLS-SEM analysis. The measurement model demonstrates that all indicators adequately represent their respective latent constructs, confirming satisfactory indicator reliability and convergent validity. The structural model further indicates that all hypothesized relationships are positive and statistically significant, providing empirical support for the proposed research framework. Overall, the endogenous construct exhibits a moderate level of explanatory power, suggesting that the exogenous constructs collectively explain a substantial proportion of its variance. Detailed statistical results are presented in the subsequent tables.

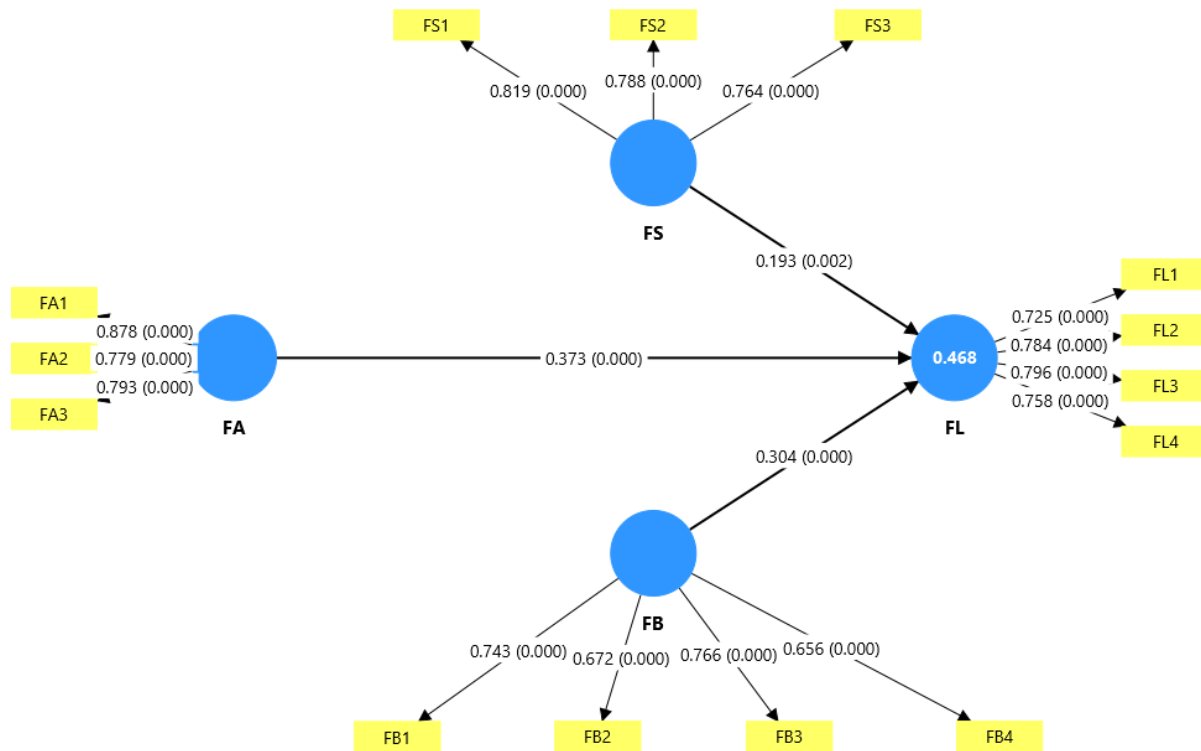


Figure 4. Measurement Model Path Graph

The bootstrap estimation using 5,000 resamples (Table 8) offers strong empirical support for all hypothesized structural paths, confirming that FA, FB, and FS significantly and positively influence FL. The most pronounced effect is found in the FA → FL relationship ( $\beta = 0.373$ ,  $t = 5.77$ ,  $p < 0.01$ ), suggesting that cognitive and psychological financial orientations play a central role in determining financial literacy levels. This finding implies that individuals with a positive financial mindset reflected in long-term orientation, self-control, and prudent financial judgment are more likely to engage in the acquisition and application of financial knowledge. Practically, the result highlights the need for policy interventions and financial education programs that emphasize not only knowledge enhancement but also the cultivation of constructive financial attitudes, including financial responsibility, strategic planning, and risk awareness.

The path from FB to FL is also positive and significant ( $\beta = 0.304$ ,  $t = 4.33$ ,  $p < 0.01$ ), indicating that financial literacy is closely linked to actual financial practices. This relationship suggests a reciprocal learning mechanism in which repeated engagement in financial behaviors (such as budgeting, saving, and monitoring expenses) reinforces financial understanding through experiential learning. In other words, individuals who actively manage their finances are more likely to internalize financial concepts and improve their literacy over time. The implication is that financial education initiatives should emphasize behavioral activation, including practical exercises, simulations, and habit-forming interventions, rather than relying solely on theoretical instruction.

Table 8. Structural Model Assessment Results

	Original sample	Std. dev	T stat	P values	F-Square	Supported?
FA -> FL	0.373***	0.065	5.77	0.000	0.214	Yes
FB -> FL	0.304***	0.070	4.33	0.000	0.113	Yes
FS -> FL	0.193***	0.063	3.09	0.002	0.050	Yes
R-Square	0.468					
Adjusted R Square	0.460					

Note: Where \*, \*\*, and \*\*\* denote statistical significance at the 10% ( $p < 0.10$ ), 5% ( $p < 0.05$ ), and 1% ( $p < 0.01$ ) levels, respectively.

Although comparatively smaller, the effect of FS on FL remains statistically significant ( $\beta = 0.193$ ,  $t = 3.09$ ,  $p < 0.01$ ), underscoring the foundational role of social learning in the development of financial literacy. This result indicates that financial knowledge and awareness are partially shaped by early exposure to financial discussions and practices within family, peer, and educational environments. However, the weaker magnitude relative to FA and FB suggests that socialization alone may be insufficient to produce high financial literacy without being reinforced by positive attitudes and consistent behaviors. Accordingly, the policy implication is that financial socialization should be strategically integrated into formal education systems and community-based programs, ensuring that social exposure to financial concepts is translated into attitudinal change and practical financial behavior. Collectively, these findings imply that improving FL requires a comprehensive approach that simultaneously targets psychological orientation (FA), behavioral engagement (FB), and supportive social environments (FS). The  $R^2$  value of 0.468 indicates a moderate level of explanatory power, suggesting that financial attitude, financial behavior, and financial socialization jointly account for 46.8% of the variance in financial literacy. The remaining 53.2% is likely explained by other unobserved factors, such as income level, educational attainment, access to financial services, and work experience.

The PLS-Predict results (Table 9) indicate that the model exhibits adequate out-of-sample predictive relevance for FL. All indicators of FL report positive  $Q^2_{\text{predict}}$  values, ranging from 0.224 to 0.271, which confirms that the model possesses meaningful predictive power beyond mere in-sample explanation (Hair et al., 2019). Among the indicators, FL4 shows the highest predictive relevance ( $Q^2_{\text{predict}} = 0.271$ ), followed closely by FL3 and FL2, suggesting that the structural relationships involving FA, FB, and FS are particularly effective in predicting these dimensions of financial literacy (Hair et al., 2019).

Table 9. The PLS-Predict Results

	$Q^2_{\text{predict}}$	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE	IA_RMSE	IA_MAE
FL1	0.224	1.045	0.783	1.028	0.804	1.186	0.932
FL2	0.264	0.792	0.603	0.815	0.621	0.924	0.689
FL3	0.269	0.927	0.715	0.939	0.738	1.084	0.862
FL4	0.271	0.877	0.66	0.848	0.622	1.027	0.804

From a comparative perspective, the predictive accuracy of the PLS-SEM model is generally superior to or comparable with the benchmark linear model (LM) and clearly outperforms the indicator average (IA) model. Specifically, for most indicators (FL2, FL3, and FL4), the PLS-SEM RMSE and MAE values are lower than those of the IA model and are closely aligned with, or slightly better than, the LM benchmarks. Although in the case of FL1 the LM exhibits marginally lower RMSE, the overall pattern suggests that the PLS-SEM model delivers medium predictive power rather than purely explanatory capability. These findings imply that the model is not only theoretically sound but also practically relevant, as it can reliably predict individual-level variations in financial literacy based on FA, FB, and FS, thereby reinforcing its applicability for policy design and targeted financial education interventions.

## Discussion

This study provides strong empirical evidence on the determinants of financial literacy among Indonesian migrant workers in Malaysia, contributing to both the academic literature and policy discourse on financial inclusion in host countries. The structural model demonstrates substantial explanatory power, with an  $R^2$  value

of 0.468 (Adjusted  $R^2 = 0.460$ ), indicating that Financial Attitude (FA), Financial Behavior (FB), and Financial Socialization (FS) jointly explain nearly 47% of the variation in Financial Literacy (FL). This level of explanatory strength is considered moderate to high in behavioral and social science research, underscoring the robustness of the proposed model in capturing key dimensions of financial capability among migrant workers (Hair et al., 2022; Tabachnick & Fidell, 2019).

Among the explanatory variables, Financial Attitude exhibits the strongest influence on financial literacy ( $\beta = 0.373$ ,  $p < 0.01$ ;  $f^2 = 0.214$ ), representing a medium-to-large effect size. This finding highlights the central role of individuals' cognitive and psychological orientations toward financial matters such as future orientation, self-discipline, and responsible financial judgment in shaping their level of financial literacy. The result is consistent with behavioral finance and the Theory of Planned Behavior, which emphasize that attitudes significantly influence learning motivation and decision-making processes (Ajzen, 1991; Lusardi & Mitchell, 2014). For Indonesian migrant workers, who often face income uncertainty, limited access to formal financial education, and complex cross-border financial environments, a positive financial attitude appears to be a critical driver of their willingness to acquire, process, and apply financial knowledge. From a policy perspective, this finding strongly aligns with Malaysia's National Financial Literacy Strategy, which emphasizes attitude formation and responsible financial mindsets as foundational pillars of financial capability (Bank Negara Malaysia, 2019). It suggests that financial literacy initiatives coordinated by Bank Negara Malaysia and the Financial Education Network should continue prioritizing attitude-based interventions tailored to the specific financial challenges faced by migrant workers.

Financial behavior exhibits a positive and statistically significant impact on financial literacy ( $\beta = 0.304$ ,  $p < 0.01$ ;  $f^2 = 0.113$ ), indicating a moderate effect size. This finding highlights the role of experiential learning, where continuous engagement in financial activities such as budgeting, saving, expense management, and monitoring financial commitments gradually enhances individuals' financial understanding. The result aligns with prior studies suggesting that financial literacy not only influences financial behavior but is also developed through behavioral experience in practice (Hilgert et al., 2002; Xiao & O'Neill, 2016). Within the context of migrant workers in Malaysia, routine financial activities related to remittances, consumption smoothing, and exchange rate management function as informal yet effective learning channels. This evidence further supports the behavioral orientation embedded in Malaysia's financial literacy policy framework, which increasingly emphasizes the use of practical tools, digital financial platforms, and behaviorally informed interventions to strengthen financial capability (OECD, 2020). Consequently, financial education initiatives for migrant workers should prioritize experiential engagement and habit formation rather than relying exclusively on knowledge-based instruction.

Although comparatively smaller, the effect of Financial Socialization on financial literacy remains positive and statistically significant ( $\beta = 0.193$ ,  $p < 0.01$ ;  $f^2 = 0.050$ ), reflecting a small but meaningful contribution. This finding highlights the foundational role of social learning processes such as family influence, peer interaction, workplace exposure, and community engagement in shaping financial knowledge and awareness (Bandura, 1997; Gudmunson & Danes, 2011). However, the relatively weaker effect size compared to FA and FB suggests that socialization alone may be insufficient to substantially enhance financial literacy unless it is reinforced by positive attitudes and consistent financial behaviors. For migrant workers, financial socialization channels are often fragmented due to geographical separation from family and reliance on peer networks with heterogeneous financial capability. This insight has important policy implications, indicating that Malaysia's National Financial Literacy Strategy could be strengthened by expanding structured socialization mechanisms within migrant communities, including employer-based financial education programs, collaboration with remittance providers, and partnerships with migrant worker associations (Bank Negara Malaysia, 2019).

Collectively, the empirical findings demonstrate that improving financial literacy among Indonesian migrant workers in Malaysia requires an integrated approach that simultaneously targets psychological orientation (FA), behavioral engagement (FB), and supportive social environments (FS). The relative magnitudes of the path coefficients and effect sizes suggest that while social exposure to financial information is important, the most effective policy interventions are those that foster positive financial attitudes and translate knowledge into consistent financial behavior. This study contributes empirically by validating a multidimensional model of financial literacy within a migrant worker context, which remains underexplored in the existing literature. Moreover, it provides policy-relevant evidence supporting the core principles of Malaysia's National Financial Literacy Strategy, particularly its emphasis on inclusivity, behavioral change, and targeted interventions for vulnerable groups (Lusardi & Mitchell, 2014; OECD, 2020). By addressing the specific

financial realities of migrant workers, this research offers valuable insights for enhancing financial inclusion, improving remittance efficiency, and promoting sustainable economic development in Malaysia.

The empirical results of this study can be theoretically explained through established frameworks in behavioral economics, financial capability theory, and social learning theory, which conceptualize financial literacy as a multidimensional construct shaped by psychological, behavioral, and social mechanisms (Atkinson & Messy, 2012; Huston, 2010). The dominant effect of Financial Attitude on Financial Literacy is consistent with the Theory of Planned Behavior, which posits that attitudes significantly influence individuals' motivation to acquire knowledge and engage in deliberate decision-making processes (Ajzen, 1991). Positive financial attitudes such as future orientation, self-control, and responsible judgment enhance cognitive readiness for financial learning, particularly in high-risk and uncertain environments faced by migrant workers (Potrich et al., 2016; Thaler, 2016). The significant role of Financial Behavior further supports the financial capability perspective, which emphasizes experiential learning, whereby repeated financial practices reinforce financial understanding and competence over time (Sherraden, 2013; Xiao et al., 2009). This bidirectional relationship suggests that financial literacy is not solely a prerequisite for sound behavior but is also an outcome of sustained behavioral engagement (Lusardi & Mitchell, 2014). Meanwhile, the positive yet smaller effect of Financial Socialization aligns with Social Learning Theory, which underscores the importance of observational learning and social interaction in shaping financial knowledge (Bandura, 1997; Gudmunson & Danes, 2011). However, structural constraints faced by migrant workers such as family separation and limited institutional exposure may weaken socialization channels, reducing their relative explanatory power (Doi et al., 2014).

The findings of this study are largely consistent with prior empirical research demonstrating that financial attitude, financial behavior, and financial socialization are significant determinants of financial literacy, thereby reinforcing the robustness of multidimensional financial literacy models across diverse populations. The strong influence of Financial Attitude aligns with earlier studies showing that positive financial mindsets significantly enhance individuals' motivation to acquire and apply financial knowledge (Ajzen, 1991; OECD, 2020; Potrich et al., 2016), while the significant role of Financial Behavior corroborates evidence that experiential engagement in financial activities strengthens financial understanding through learning-by-doing mechanisms (Lusardi & Mitchell, 2014; Xiao et al., 2009). Similarly, the positive effect of Financial Socialization supports prior findings emphasizing the role of family, peers, and institutional exposure in shaping financial capability (Doi et al., 2014; Gudmunson & Danes, 2011). However, unlike studies conducted in household or student populations where socialization often emerges as a dominant predictor (Shim et al., 2010), its relatively weaker effect in this study suggests a context-specific divergence attributable to the structural realities of migrant workers, including geographic separation from family, reliance on informal peer networks, and limited access to host-country financial education systems.

This contextual deviation constitutes an important novelty, as it demonstrates that the relative importance of financial literacy determinants shifts under cross-border labor conditions. By focusing on Indonesian migrant workers in Malaysia, an underrepresented yet economically significant group, this study extends existing financial literacy literature beyond conventional domestic settings and provides empirical evidence that migrant status moderates the transmission mechanisms of financial knowledge. In doing so, it contributes novel contextual insights to the global financial literacy discourse, particularly within host-country policy frameworks such as Malaysia's National Financial Literacy Strategy, which increasingly emphasizes targeted, inclusive, and behaviorally informed interventions for vulnerable populations.

The findings of this study have important implications for the National Financial Literacy Strategy (NFLS) in Malaysia, which emphasizes inclusive, behaviorally informed, and targeted financial education to strengthen financial capability among vulnerable populations. The empirical evidence shows that financial attitude, financial behavior, and financial socialization significantly influence financial literacy among Indonesian migrant workers, with financial attitude emerging as the most dominant factor. This aligns closely with the NFLS framework, which prioritizes the development of responsible financial mindsets as the foundation of financial capability. The strong role of financial attitude suggests that current NFLS initiatives should continue to emphasize cognitive and psychological transformation, particularly among migrant workers who face income instability and limited access to formal financial education.

In addition, the significant effect of financial behavior supports the NFLS emphasis on practical, action-oriented financial education. The findings indicate that financial literacy is strongly reinforced through daily financial practices such as budgeting, saving, and remittance management, which are highly relevant to migrant workers' lived financial experiences. This suggests that NFLS implementation can be further strengthened by integrating experiential learning components, digital financial tools, and behaviorally driven interventions

within workplace and remittance ecosystems. Such an approach would ensure that financial literacy is not only acquired as knowledge but also internalized through repeated financial actions.

Furthermore, the positive but relatively weaker influence of financial socialization highlights an important gap in the current policy implementation of NFLS. While the strategy recognizes the importance of financial education ecosystems, the results of this study indicate that migrant workers experience fragmented socialization channels due to geographical separation from family and limited structured institutional support in the host country. This finding suggests that NFLS could be enhanced by expanding community-based financial literacy initiatives and strengthening partnerships with employers, remittance service providers, and migrant worker associations. By reinforcing social learning environments, NFLS can more effectively reach migrant populations and improve the sustainability of financial literacy outcomes.

Overall, the results of this study reinforce the relevance of the National Financial Literacy Strategy in Malaysia while also highlighting the need for more context-specific and migrant-sensitive implementation mechanisms. A more integrated approach that simultaneously targets financial attitude formation, behavioral reinforcement, and structured financial socialization is essential to maximize the effectiveness of NFLS among Indonesian migrant workers and to advance inclusive financial development in Malaysia.

Based on the empirical findings, several operational recommendations are proposed to enhance financial literacy among Indonesian migrant workers in Malaysia. First, workplace-based financial literacy training should be systematically implemented by employers, particularly in sectors with high concentrations of migrant workers, to ensure direct access to financial education in a structured and accessible environment. Second, targeted education on formal remittance channels should be strengthened to encourage the use of secure, low-cost, and regulated financial transfer services, thereby reducing reliance on informal remittance systems. Third, training programs on digital financial services should be introduced to improve migrant workers' ability to utilize mobile banking, e-wallets, and other fintech platforms, which are increasingly essential in cross-border financial management. Fourth, a strategic collaboration between Bank Negara Malaysia and the Embassy of the Republic of Indonesia is recommended to design, coordinate, and monitor inclusive financial literacy initiatives tailored to migrant workers' needs. Finally, community-based financial literacy programs should be developed within Indonesian migrant worker networks to leverage peer learning and social reinforcement, ensuring sustainable knowledge dissemination at the grassroots level.

## **Conclusion**

This study highlights important theoretical and policy implications by confirming that financial literacy among migrant workers is shaped not only by knowledge, but also by financial attitudes and behaviors. The stronger effects of financial attitude and behavior support financial capability and behavioral finance frameworks, emphasizing that mindset and experiential engagement are central to financial learning. From a policy perspective, the findings empirically reinforce Malaysia's National Financial Literacy Strategy, particularly its focus on behaviorally informed and inclusive financial education. This suggests that initiatives led by Bank Negara Malaysia should prioritize attitude formation, habit-building, and practical financial tools, especially through employer-based programs, formal financial institutions, and remittance service providers that directly engage migrant workers' daily financial decisions.

Several limitations should be acknowledged. First, the cross-sectional design restricts causal inference, as the relationships observed reflect associations rather than dynamic learning processes over time. Second, the use of self-reported measures may be subject to response and social desirability biases, potentially affecting the accuracy of financial literacy assessments. Third, the sample is limited to Indonesian migrant workers in Malaysia, which may constrain the generalizability of the findings to other migrant populations or host-country contexts with different institutional and regulatory environments.

Future research should employ longitudinal or experimental designs to better capture causal mechanisms and the evolution of financial literacy among migrant workers. Comparative studies across different migrant groups or host countries would further enrich understanding of how institutional settings shape financial capability. Additionally, incorporating objective financial outcomes such as savings accumulation, debt management, or remittance efficiency alongside self-reported measures would strengthen empirical robustness. Further exploration of digital financial services and fintech adoption is also warranted, given their growing role in migrant financial inclusion strategies.

This study provides robust evidence that financial literacy among Indonesian migrant workers in Malaysia is significantly influenced by financial attitude, financial behavior, and financial socialization, with

attitude and behavior playing dominant roles. The findings underscore the necessity of an integrated financial literacy approach that combines psychological orientation, practical financial engagement, and supportive social environments. By aligning empirical results with Malaysia's National Financial Literacy Strategy, this research contributes novel contextual insights and policy-relevant evidence for enhancing migrant financial inclusion, improving remittance practices, and promoting sustainable economic development in host countries.

### CRedit Author Statement

**Annisa Nur Salam:** Conceptualization, Writing – original draft preparation and editing. **Achmad Rizal:** Data collection/curation, Formal analysis. **Danial Muhammad Wirdyansyah:** Design of methodology.

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