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Article

The Scale Validation of Amanah Ikhtiar Malaysia's Microfinance Services and Household Socioeconomic Instrument: An Exploratory Factor Analysis

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ABSTRACT - Households' socioeconomic outcomes play a crucial role in sustainable development. Both public and private organisations have introduced various microfinance schemes to address economic deprivation. Nevertheless, there is ongoing debate in the literature about the effectiveness of these strategies in improving household socioeconomic performance. Researchers continue to face challenges in identifying key factors that enhance the performance of low-income households, largely due to the absence of reliable measurement tools. This study develops and validates a scale specifically designed to capture the multifaceted effect of microfinance on household socioeconomic well-being. The research introduces measuring constructs for first-order constructs relating to variables such as microfinance services, household Entrepreneurial Competencies (EC), Financial Management Practices (FMP), and socioeconomic performance. Using Exploratory Factor Analysis (EFA) on data collected from low-income households engaged in microfinance programs in Malaysia, the study assesses the instrument's reliability and validity. Findings ensure the potential of the validated measurement tool to evaluate the effectiveness of microfinance interventions. The results confirm that the developed instrument is valid and reliable for future studies on microfinance and household economic models.

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INTRODUCTION

Poverty has long been a pressing issue in the developing nations. As of 2024, around 8.5% of the global population lives in extreme poverty, surviving on less than $2.15 a day (World Bank, 2024). In response, world leaders have launched international sustainable development initiatives to reduce poverty, address economic disparity, and combat environmental challenges (Abdullah et al., 2021a). Moreover, the rapid population growth and rising unemployment in developing nations have further disrupted household well-being, making poverty alleviation a top priority (Al-Mamun et al., 2019). Events such as the economic crisis of 2008 and, more recently, the COVID-19 pandemic have exacerbated poverty, affecting millions worldwide (World Bank, 2024). Hence, international initiatives, such as the United Nations' Sustainable Development Goals (SDGs), specifically target poverty reduction, economic equity, and environmental sustainability, providing a framework for addressing poverty comprehensively (United Nations, 2023).

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Malaysia, a developing nation undergoing rapid socioeconomic transition, has made significant progress in economic growth and poverty reduction over the past few decades (Loke et al., 2020; Usman et al., 2017). However, pockets of poverty remain, particularly in urban slums and remote rural areas (Nair & Sagaran, 2017). Even urban and middle-income populations face economic challenges due to rising living costs, with the low-income group, or Bottom 40% (B40), being the most severely affected. This group, comprising approximately 2.91 million households, earns less than RM 4,849 monthly (Department of Statistics Malaysia, 2019). In addition, the COVID-19 pandemic has further diminished the B40's share of total income, dropping it from 16.4% in 2016 to 15.9% in 2020 (Department of Statistics Malaysia, 2020). According to the Department of Statistics Malaysia (2022), the absolute poverty rate has reached 6.2% in 2022. As a result, many B40 households are now trapped in poor living conditions, prompting urgent government intervention to help them escape the cycle of poverty.

The Malaysian authorities developed several Microfinance Institutions (MFIs) to alleviate poverty and improve poor households' well-being. The largest is Amanah Ikhtiar Malaysia (AIM), established in 1987 to provide financial assistance to low-income households, especially in rural areas. AIM's primary goal is to reduce poverty by offering microloans, business training, and support for microenterprises, empowering low-income individuals, particularly women, to enhance their socioeconomic well-being (Al-Mamun et al., 2018). Over the years, AIM has positively impacted thousands of Malaysians by facilitating income generation and contributing to improved standards of living, making it a key player in Malaysia's poverty alleviation efforts (Kasim & Jayasooria, 2001). However, AIM has encountered significant challenges that raise questions about its ability to fulfil its mission effectively and sustainably.

One pressing issue involves the financial sustainability and operational efficiency of AIM. The institution has faced challenges with loan repayment and concerns over its reliance on external funding, which affects its ability to maintain a steady flow of support for clients (Mustapa et al., 2018). Consequently, such issues have led to debates about the effectiveness of AIM's microfinance model in promoting sustainable socioeconomic improvements among low-income households. At the same time, some households reportedly struggle with loan repayments or use the funds for immediate consumption needs rather than productive investments, potentially undermining the intended impact of AIM's services on poverty alleviation (Al-Mamun et al., 2019; Wahab et al., 2018). These limitations highlight a critical need to evaluate whether AIM's programs genuinely support long-term poverty reduction or merely provide temporary financial relief.

Additionally, concerns have emerged regarding the impact of AIM's services on household dependency and socioeconomic empowerment. Some clients have reported repeated borrowing cycles, suggesting a dependency on microloans that impedes their progress toward financial independence (Abdullah et al., 2021b). This raises questions about how AIM's microfinance services facilitate genuine socioeconomic mobility or risk creating a cycle of debt among its clients. Moreover, a further complication is AIM's limited ability to measure and evaluate the long-term socioeconomic effects of its services on clients, as the institution lacks validated instruments to assess dimensions such as income stability, education, healthcare access, and quality of life (Ahmad et al., 2019). Without reliable assessment tools, AIM faces challenges in accurately gauging the effectiveness of its programs in improving clients' socioeconomic well-being. Mainly, evaluating the effectiveness of microfinance requires reliable measurement instruments to accurately capture various dimensions of household socioeconomic well-being. Furthermore, without such tools, the broader impact of microfinance services remains inadequately understood, limiting their potential to drive significant socioeconomic progress (Ramli et al., 2024; Abdullah et al., 2022). These issues have motivated researchers to examine the effectiveness of AIM's services more comprehensively, particularly by developing and validating a standardised instrument to measure socioeconomic outcomes among client households.

By addressing this gap, the study aims to provide AIM with insights into the impact of its microfinance programs on client welfare, helping to provide more effective and sustainable

strategies for poverty alleviation. Ultimately, this research offers a robust assessment tool to optimise microfinance initiatives in Malaysia and beyond. Hence, the primary objective of this study is to validate a scale that accurately measures the impact of microfinance services on household socioeconomic conditions, focusing on the specific context of Malaysian households within the B40 group. Accordingly, by conducting an Exploratory Factor Analysis (EFA), this research seeks to identify the core dimensions of the microfinance services and household socioeconomic well-being instrument, providing a foundation for future assessments and targeted interventions. Through this validation process, the study aims to contribute a robust tool that can guide policymakers and stakeholders in tailoring microfinance services to meet the needs of Malaysia's vulnerable populations.

This paper develops a new tool and employs EFA to identify key factors contributing to the success of microfinance programs. It explores both financial and non-financial services AIM offers and their influence on households' socioeconomic well-being and Entrepreneurial Success (ES). The main explanatory variables include microfinance Financial Services (FS), Training Programs (TP), and Business Coaching (BC). Meanwhile, household Social Well-being (SW), Economic Well-being (EW), and ES serve as the model's outcome variables. Additionally, the model incorporates household Financial Management Practices (FMP) and Entrepreneurial Competencies (EC) as mediators to explain how microfinance impacts household socioeconomic performance. Microfinance Institutions' Efficiency (MIE) is also introduced as a moderator to enhance the effectiveness of microfinance in improving household outcomes. Therefore, developing and validating this instrument is a crucial step toward minimising errors and ensuring the reliability of exploratory research. The study further assesses the reliability and validity of these instruments for examining household socioeconomic mechanisms.

This research makes several significant contributions to existing knowledge. Most notably, it offers a valid and reliable instrument that future studies on microfinance and household socioeconomic factors can employ. While earlier studies (Koh et al., 2021; Solarin et al., 2020; Al-Mamun et al., 2018) largely focused on financial and training factors as explanatory factors, this research adds BC to the independent variables. It also introduces FMP as a new mediating factor, building on the previously used EC from earlier models (Al-Mamun et al., 2016; Newman et al., 2014). The novelty of this research lies in the inclusion of MIE as a moderating factor in the relationship between microfinance services and household socioeconomic outcomes. Since MFIs have a dual objective of financial sustainability and social impact, the efficiency of service delivery is critical for maximising client benefits (Hassan et al., 2012). Thus, MIE is anticipated to significantly influence households' ability to achieve their social and financial goals. Furthermore, the study emphasises the importance of addressing the multidimensional nature of household performance by independently incorporating three main dependent factors: SW, EW, and ES. This approach allows for a more comprehensive understanding of the socioeconomic impacts of microfinance interventions. Moreover, the findings highlight the role of microfinance in fostering essential human capabilities, such as financial management and entrepreneurial skills. These capabilities enable households to manage their finances and businesses more effectively, ultimately enhancing their socioeconomic performance. In addition, this research advances existing knowledge by addressing critical gaps and providing valuable insights into optimising microfinance programs for improved household outcomes.

This paper is structured as follows: The subsequent sections cover the literature review, materials and methods, results, discussion, and, finally, conclusion and recommendations.

LITERATURE REVIEW

Household socioeconomic performance, which reflects the ability to meet essential needs and withstand economic challenges, has become a key concern, especially in the wake of the pandemic. To address these issues, researchers and policymakers continue to explore effective strategies to

improve household outcomes. Although Malaysia strives to achieve developed nation status, persistent issues such as income disparity and poverty remain unresolved (Nair & Sagaran, 2017). A report from the Department of Statistics Malaysia (2020) demonstrated a rise in absolute poverty, increasing from 5.6% in 2019 to 8.4% in 2020, with extreme poverty rising from 0.4% to 1.0%. This equates to approximately 640,000 households in poverty. In response, the Malaysian government introduced the The Government of Malaysia's Official Gateway My Government (2021) to chart a path forward for economic recovery.

The Government of Malaysia's Official Gateway My Government. (2021) focuses on providing financial support to Small and Medium Enterprises (SMEs) and creating alternative financing options to complement the traditional banking sector. These initiatives aim to channel savings into high-potential economic activities, creating opportunities for micro businesses. Moreover, the plan also seeks to address socioeconomic disparities by implementing measures such as microfinance and entrepreneurial training to empower home-based businesses. Additionally, community-driven activities, including urban farming and childcare services, are promoted to enable low-income individuals to supplement their income. Note that efforts to combat poverty are particularly focused on marginalised groups like the Orang Asli, aiming to empower them as micro-entrepreneurs and improve their socioeconomic status. Similarly, the New Economic Model (NEM) prioritises initiatives to raise the income levels of disadvantaged populations. In parallel, the financial inclusion agenda is designed to enhance socioeconomic outcomes and contribute to a better quality of life (Usman et al., 2019). These policies guide Malaysia's economic and financial system toward recovery, aiming for a high-income economy with FS to ensure that all citizens can better prepare for future risks.

Microfinance, widely recognised as an effective tool for poverty reduction, is key in helping low-income households improve their socioeconomic outcomes by providing FS that enables participation in entrepreneurial and economic activities (Loke et al., 2020). In Malaysia, microfinance has been a key strategy for raising income levels and improving the quality of life for low-income households (Solarin et al., 2020). Common microfinance services include microcredit, micro-insurance, and micro-savings, all of which are crucial to the economic stability of poor households (Ledgerwood, 1998). Microcredit, in particular, offers small loans that help smooth consumption and boost income, enabling households to capitalise on economic opportunities (Al-Shami, 2014). Research suggests effective microcredit schemes can alleviate economic deprivation and inequality (Al-Mamun et al., 2018). Meanwhile, micro-savings, another essential service, allow individuals to accumulate financial capital, providing security against future risks (Al-Shami et al., 2014). At the same time, savings accounts enable clients to access larger loans with flexible repayment options, supporting income-generating activities (Fiorillo et al., 2014). In addition, death-benefit funds provide insurance to protect poor individuals against unforeseen events such as natural disasters or accidents (Cabraal, 2011).

To address poverty and enhance household well-being, Malaysia established several microfinance organisations, including AIM, which offers FS and non-FS. AIM, the country’s largest MFI, serves approximately 80% of poor households (Usman et al., 2019). In addition to FS, like microcredit, savings, and insurance, AIM provides non-FS with the opportunity to build human capital through TP and BC (Al-Mamun et al., 2019). These services help poor households improve their financial management and entrepreneurial skills, which are crucial for escaping poverty. BC, in particular, has emerged as a key service, offering personalised strategies to clients to improve their socioeconomic outcomes (Dobrea & Maiorescu, 2015).

The literature on microfinance in Malaysia highlights its significant role in poverty alleviation, especially for marginalised and low-income groups, while examining its effectiveness and sustainability challenges. MFIs in Malaysia, particularly AIM, have been at the forefront of efforts to uplift low-income households through access to microloans, skill development, and financial training (Al-Mamun et al., 2019). Moreover, research indicates that these services have helped improve clients' income stability, economic independence, and living standards (Loke et

al., 2020). However, the extent of microfinance's impact on long-term socioeconomic outcomes remains a point of debate, especially considering that microloans are often used for consumption rather than income-generating activities, limiting their transformative potential (Ahmad et al., 2019).

Recent studies emphasise AIM's pivotal role in reaching underserved communities, particularly in rural Malaysia, where financial exclusion remains a significant issue (Edris et al., 2021). Thus, by providing small-scale loans and supporting microenterprises, AIM has enabled recipients, especially women, to enhance their financial resilience, positively impacting their household welfare and empowerment (Hameed et al., 2019). However, some researchers argue that while AIM programs address immediate financial needs, they do not always result in sustainable poverty alleviation or upward socioeconomic mobility (Abdullah et al., 2024). Notably, dependence on microloans and the high costs associated with borrowing have led to concerns about whether AIM's interventions generate meaningful, long-term improvements in the EW of clients (Muda & Lonik, 2020).

An emerging theme in recent research is the role of external factors, such as economic crises and environmental challenges, which have heightened the vulnerability of microfinance clients in Malaysia. The COVID-19 pandemic, for instance, placed immense financial stress on low-income households and highlighted gaps in AIM's approach to financial sustainability and risk management (Loke et al., 2020). The pandemic highlighted the need for MFIs to strengthen their crisis resilience strategies to protect clients during economic downturns better. Hence, scholars have suggested that AIM could enhance its impact by diversifying its services, including offering financial literacy training and tailored business development programs that support income-generating activities, especially in light of the increased financial vulnerability observed among clients during the pandemic (Abdullah et al., 2021b).

Moreover, the literature has recently examined AIM's ability to foster self-sufficiency and financial independence among clients, an important indicator of socioeconomic progress. Research suggests that, in many cases, clients of AIM return for repeat loans, suggesting dependency rather than independence (Nair & Sagaran, 2017). On the other hand, Al-Mamun et al. (2019) argued that AIM's model needs reform to emphasise financial education and entrepreneurship training to reduce the need for continued borrowing and to build self-reliance among beneficiaries. Scholars have also highlighted the significance of developing robust measurement tools to assess the impact of AIM's services on socioeconomic outcomes. Without such tools, it is challenging to determine whether AIM's clients experience substantial improvements in quality of life or merely temporary financial relief (Ahmad et al., 2019).

Overall, while the body of literature highlights the critical role of microfinance in improving household welfare in Malaysia, it also includes areas for potential enhancement, particularly in promoting sustainable development and financial autonomy. Thus, researchers suggest that AIM and similar MFIs in Malaysia may need to adopt more holistic approaches to poverty alleviation, incorporating financial literacy, business skills training, and resilience-building strategies to create lasting impacts. This study builds on these insights by proposing and validating a comprehensive instrument to measure the socioeconomic outcomes of microfinance clients. Accordingly, it contributes to understanding how effectively microfinance services in Malaysia foster economic independence and uplift marginalised communities.

METHODOLOGY

First Stage: Developing Questionnaire

The development of the questionnaire began with identifying the theoretical foundations and key elements essential to constructing the study's conceptual framework. The primary objective was identifying relevant variables and designing appropriate measurement items. This process involved

an in-depth literature review and collaborative discussions with team members to determine the theoretical framework and critical factors influencing household socioeconomic performance.

The Household Economic Portfolio (HEP) Model, established by Chen and Dunn (1996), emerged as the most widely recognised theoretical framework for assessing the impact of microfinance. Consequently, this study adopted the HEP model as the basis for its framework. The HEP model analyses the impact of microfinance interventions on household outcomes by examining a household's economic structure, which comprises economic resources, a portfolio of economic activities, and the relationships between these components. According to the model, financial interventions directly influence household economic resources, subsequently affecting socioeconomic outcomes through various economic activities. This underscores the significance of financial capital allocation in enhancing socioeconomic performance and highlights the role of individual and household-specific decision-making attributes in shaping these outcomes. Additionally, the model identifies external market factors as vital contributors to the success of microfinance interventions.

Despite its strengths, the HEP model does not detail household decision-making processes sufficiently. To address this limitation, the current study integrated human capital factors into the model to explore their influence on the effectiveness of microfinance interventions. The resulting conceptual framework includes the following components:

1. Microfinancing, as the independent variable, is further divided into two dimensions—financial literacy (encompassing FS, financial management, and social capital) and entrepreneurship (capturing EC).
2. Microfinance efficiency as the moderator, influencing the relationship between microfinancing and outcomes.
3. Household socioeconomic well-being is the dependent variable, encompassing two dimensions: EW and SWB (see Figure 1).

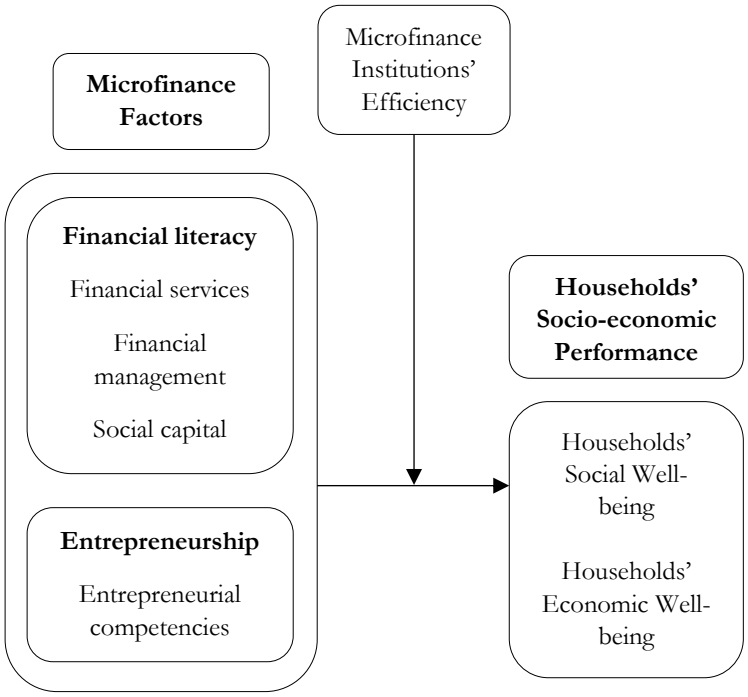

Figure 1: Initial research framework

Based on this framework, a questionnaire was designed to measure each dimension by adopting or adapting items from existing literature. Initially, the study developed 139 items through

a literature review and expert discussions. Key principles of the wording were followed to ensure clarity, such as avoiding double-barrelled questions, ambiguous statements, and bias (in terms of race or group) and ensuring the questionnaire length was appropriate for respondents.

In-depth discussions with industry experts were conducted to gain additional insights and refine the research focus areas (variables). Following these consultations, adjustments were made to finalise the conceptual framework. Two new independent variables, TP and BC, were introduced. Meanwhile, FMP and EC were repositioned as mediating variables, while social capital was excluded from the model. Additionally, ES was incorporated as a dependent variable. Consequently, the revised framework termed the Quality Educational Provision model (Figure 2), received full endorsement from the experts. The updated model includes three primary microfinance services, FS, TP, and BC, as independent variables. Two human capital factors, FMP and EC, serve as mediators to investigate how microfinance influences socioeconomic outcomes. Recognising the significance of service delivery, MIE was included as a moderator, potentially enhancing the effectiveness of microfinance services. Finally, household socioeconomic performance was defined as the dependent variable with three key dimensions: SW, EW, and ES (refer to Figure 2). This study highlights the role of both financial and non-financial microfinance services in equipping clients with essential skills, such as entrepreneurial and financial management competencies. Correspondingly, these skills empower individuals to make informed decisions when selecting and managing economic activities, ultimately leading to better socioeconomic outcomes. A comprehensive list of variables and their dimensions is presented in Table 1. After thorough discussions with industry representatives, 43 items were removed from the original 139, and 30 new items were added, resulting in 126 items in the final questionnaire.

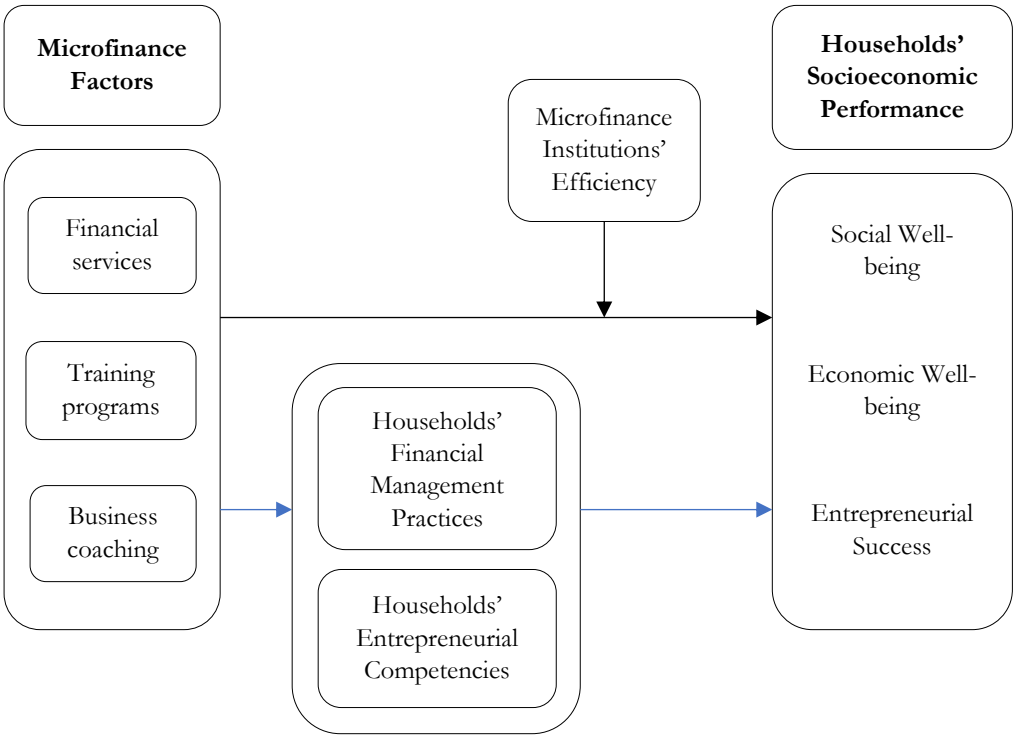

Figure 2: Conceptual framework of quality educational provision

Table 1: Variable description

Variable	Dimension	Number of Items
Financial Services (FS)	Microcredit (MC), Micro-savings (MS), and Death benefit Fund (DF)	15
Training Programs (TP)	Basic Entrepreneurship Training (BE)	5
Business Coaching (BC)	Product Development Coaching (PC) and Service coaching (SC)	10
Financial Management Practices (FMP)	Basic Finance (BF), Opportunity Awareness (OA), Risk Management (RM), Credit Management (CM), and Budgeting and Cash Management (BCM)	27
Entrepreneurial Competencies (EC)	Commitment Competency (CMC), Strategic Competency (SC), Relationship Competency (RC), Opportunity Recognition Competency (ORC), Organising Competency (OC), and Conceptual Competency (CC)	33
Microfinance Institutions' Efficiency (MIE)	Credibility (CR) and Responsiveness (RS)	14
Households' Social Well-being (SW)	Level of Satisfaction (LS) and Provision of Opportunities (PO)	10
Households' Economic Well-being (EW)	Economic Performance (EP)	5
Households' Entrepreneurial Success (ES)	Business success (BS)	7
Total Items		**126**

The first independent variable, FS, was measured using three critical services—microcredit, micro-savings, and a death-benefit fund—each assessed through five questions for 15 items. These measuring indicators were adapted from previous studies (Bernard et al., 2016). The second independent variable, TP, focused on basic training as its primary dimension, with five questions developed based on industry input and program characteristics. Similarly, the third independent variable, BC, was divided into two categories: service coaching and product development coaching. A total of ten items were created based on industry input to measure BC. The first mediating variable, FMP, was measured using five core financial management areas in the literature: basic finance, opportunity awareness, risk management, credit management, and budgeting and cash management. A total of 27 items were adapted from various studies (Parrotta & Johnson, 1998; Yin-Fah et al., 2010; Masud et al., 2012; Krah et al., 2014; Anthony & Sabri, 2015). Similarly, the second mediating variable, EC, was measured using the six dimensions outlined by Man et al. (2008): commitment competency, strategic competency, relationship competency, opportunity recognition competency, organising competency, and conceptual competency. Accordingly, a total of 33 items were adapted from previous literature (Man et al., 2008) to assess EC.

The moderating variable, MIE, was measured using two main dimensions: credibility and responsiveness. Fourteen items were adapted from the study by Chowdhury and Mukhopadhaya (2011) to measure MIE. The dependent variable, household socioeconomic performance, was divided into three main dimensions: SW, EW, and ES. Specifically, EW was measured with five items covering household economic performance indicators: income level, asset ownership, expenditures, savings, and confidence. Meanwhile, SW was measured using two dimensions of social development: satisfaction level and provision of opportunities. Drawing from the literature (Midgley, 1995; Wahab et al., 2018), seven items were used to measure satisfaction in meeting basic

needs, and three items were used to assess the provision of opportunities. Finally, ES was measured using seven business performance items adapted from prior studies and industry input (Bernard et al., 2016).

Second Stage: Testing Questionnaire (Data Analysis)

In the second stage, a comprehensive data analysis was conducted to evaluate the quality and accuracy of the questionnaire. The process began with assessing the validity and reliability of the measurement constructs. Factor analysis technique was then employed to identify significant factors and uncover underlying patterns among the variables. Finally, the validity and reliability of the developed scale were re-examined. The detailed steps followed in this stage are outlined below.

Validation (Content Validity)

The second phase involved conducting a content validation assessment with industry professionals and academic experts to evaluate the instruments. The Content Validity Index (CVI) was calculated using a four-point ordinal rating scale, with options ranging from Irrelevant to Very Relevant (1 = Irrelevant, 2 = Not Important, 3 = Relevant with Corrections, and 4 = Very Relevant). Ratings of one and two were classified as disagreement, whereas scores of three and four indicated agreement. All 126 items achieved a score of over 96%, demonstrating strong consensus among the six reviewers. Consequently, no items were removed, though some revisions were made to correct inaccuracies and ensure context relevance. To further ensure face validity, a few items were modified to eliminate any ambiguity.

Pretesting

In the pretesting phase, the revised version of the questionnaire was assessed on six respondents from different districts of Negeri Terengganu, Malaysia, who were clients (sahabat) of AIM. Based on their feedback, the questionnaire was reorganised: Part A focused on demographic information, and Part B included measurement items. Since no items were removed during the content validity stage, all 126 items were retained. This phase allowed the collection of comments and suggestions to ensure clarity, relevance, comprehension, removal of vague statements, and an appropriate response time for the questionnaire.

Construct Validation (Pilot Test)

A survey method was used to gather a substantial amount of quantitative data, following the guidelines of Sekaran and Bougie (2016). The target population consisted of B40 households that received microfinance services from AIM in Malaysia. Therefore, AIM clients (sahabat) were selected from across all Malaysian states to ensure representativeness, and data was collected using a convenience sampling method. Based on the Stable Factor Structure (SFS) approach, which reduces standard errors in correlations, a sample size of 100 to 200 respondents is recommended, with a 2:1 respondent-to-variable ratio (Field, 2013). Therefore, 200 respondents were selected, and data was collected via telephone. All responses were gathered anonymously, with strict adherence to confidentiality and privacy. Subsequently, the data underwent manual filtering and screening to eliminate inappropriate responses, after which data analysis was performed. Under the pilot test, two methods were implemented, i.e., (1) reliability test and (2) EFA.

Reliability Analysis

Prior to conducting factor analysis, the dataset's reliability was assessed using four established criteria: Standard Deviation (SD), inter-item correlations, corrected item-total correlations, and internal consistency measured by Cronbach's alpha.

The following conditions were used to confirm data reliability:

i) SD exceeding zero;
ii) Inter-item correlations ranging from 0.3 to 0.9;
iii) Corrected item-total correlation above 0.3;
iv) Cronbach's alpha value above 0.7.

Meeting these conditions ensured the reliability of the data for further analysis.

Factor Analysis

This study utilised factor analysis, a popular statistical technique for developing instruments (Williams et al., 2010). Factor analysis serves three primary purposes (Gorsuch, 1990): (1) reducing a large set of variables into a smaller number of factors, (2) helping model formation by identifying associations between latent variables and their measurements, and (3) examining scale validity. Considering that this research aimed to develop a scale and model, an EFA approach was applied. The study conducted an EFA to identify underlying patterns in the data and reduce the dataset into smaller, more manageable variables (Yong & Pearce, 2013). This involved three main steps: assessing factor suitability, extracting factors, and performing factor rotation.

Step 1: Factor Suitability Test

Despite its significance, many researchers overlook assessing factor suitability before performing factor analysis (Worthington & Whittaker, 2006). In this study, factor suitability was assessed using the Kaiser-Meyer-Olkin (KMO) test (Kaiser, 1970) and Bartlett's test (Bartlett, 1950). For factor analysis to be appropriate, the KMO value should be 0.6 or higher, and the probability for Bartlett's test should be significant at 0.05 or below (Tabachnick et al., 2007). Accordingly, both tests were conducted to confirm the suitability of the data for factor analysis.

Step 2: Factor Extraction

Principal Component Analysis (PCA) was employed for factor extraction, one of the most commonly used methods (Williams et al., 2010). The study applied multiple criteria to determine and retain the number of factors, following guidelines from prior research (Hair et al., 1995). These methods included Kaiser's eigenvalue criterion (Kaiser, 1970) and Cattell's scree test (Cattell, 1966). Both are widely employed due to their simplicity (Hayton et al., 2004; Zwick & Velicer, 1986).

Both methods—Kaiser's eigenvalue criterion and Cattell's scree test—were utilised to identify the appropriate number of factors to retain. For Kaiser's criterion, a line of best fit was determined based on the largest Sum of Squared Distances (SSD), with the Singular Value Decomposition (SVD) method used to scale the line. Factors with eigenvalues greater than 1 were retained, while those with lower values were discarded (Kaiser, 1970).

For the scree test, eigenvalues were plotted on the y-axis against their respective components on the x-axis. The number of components was determined by selecting the points on the left side of the "elbow" of the plot, excluding the inflection point itself. For illustration, two components (points 1 and 2) were selected (see Figure 3).

Step 3: Factor Rotation

The Direct Oblimin method refined the factors, allowing for correlated factors. Items with factor loadings of 0.3 or higher were retained, while redundant items (cross-loaded between components) were deleted. The Pattern Matrix and Component Matrix (including the Factor Transformation Matrix Table and Varimax/Orthogonal-Rotated Factor Matrix Table) were assessed in detail to select the appropriate components and items.

The following procedures were used to complete the EFA process:

1. Select the more interpretable table—good grouping with the most items (Pattern and Structure Matrix Table).
2. Delete redundant items with cross-loadings between components.
3. Remove items with factor loadings below 0.3.
4. Delete one item at a time and re-run the EFA test.
5. Stop deleting items when no further improvements are made.

A final reliability test was performed once validity was confirmed for all factors and components. This test assessed the consistency of the items and attributes (Abdullah et al., 2018a & Abdullah et al., 2018b) using Cronbach's alpha values to ensure the reliability of the factors.

Figure 3: Scree plot (Developed based on Field, 2013)

Third Stage: Cross-Checking Questionnaire

The final stage involved verifying the accuracy and efficiency of the identified factors. After validating and confirming the construct reliability through statistical analysis, a thorough cross-checking of the questionnaire items was conducted to verify the accuracy of the final data. This step is crucial to avoid errors and guarantee precision in the results. Notably, all retained items were carefully reviewed in relation to their corresponding theoretical concepts and research domains as identified by the experts. This ensured that each variable accurately embodied its intended conceptual meaning. The verification process confirmed that the constructs and their associated items effectively represented their respective research domains. The study identified four key research domains:

1. Microfinance effectiveness
2. Human capital development
3. Service efficiency
4. Sustainable socioeconomic development

The researchers cross-verified a total of 125 items spanning eight measurement constructs with the defined research domains. For instance, FS was assessed based on its ability to deliver targeted financial benefits to clients. Non-FS, such as TP and BC, were evaluated for their role in enhancing clients' human capabilities. Collectively, these FS and non-FS reflect the overall

effectiveness of microfinance interventions, with non-FS being particularly instrumental in fostering human capital development. Meanwhile, mediating variables, including FMP and EC, were analysed for their contribution to enhancing clients' abilities to manage economic activities effectively. Both constructs measure human capital, contributing to improved socioeconomic outcomes for households. Additionally, MIE items were evaluated based on how effectively MFIs deliver services to clients, reflecting service efficiency and its role in achieving sustainable socioeconomic development. Finally, the items related to household socioeconomic performance indicators—SW, EW, and ES—focused on broader aspects of sustainable socioeconomic development, emphasising households' social standing and economic outcomes. In addition, a thorough review of all instrument development and validation steps was conducted to ensure the accuracy of the results. Following this process, the study presents the final validated and reliable instrument for the specific variables examined.

RESULT

Reliability Tests before EFA

This study evaluated the reliability of the indicators used to measure the latent variables, focusing on the internal consistency of items within the constructs. The reliability assessment involved several steps, including:

i) Analysing the SD
ii) Examining inter-item correlations
iii) Evaluating corrected item-total correlations
iv) Assessing internal consistency through Cronbach's alpha

The results indicated that all items had an SD greater than zero (SD > 0), inter-item correlations fell between 0.3 and 0.9, and the corrected item-total correlations were higher than 0.3, confirming the reliability of the items. Furthermore, as indicated in Table 2, all Cronbach's alpha values exceeded 0.7, providing additional evidence of the items' reliability.

Exploratory Factor Analysis (EFA)

EFA was conducted to develop the scale and determine whether groups of questions accurately measured their respective variables. Table 2 presents the results for the various stages, which are explained in detail below.

Factor Suitability

First, factor suitability analysis was performed to confirm that the variables were appropriate for factor analysis. As provided in Table 2, the KMO values were above 0.6, indicating suitability for EFA. Additionally, Bartlett's test p-values were less than 0.05 for all variables, further supporting the appropriateness of factor analysis.

Factor Extraction

PCA was conducted to examine the factor structure of the 126 items in the microfinance and HEP model. Three primary factor extraction techniques were used to determine the appropriate number of factors to retain. Based on Kaiser's eigenvalue criterion (eigenvalue > 1), all variables formed a single factor, except for the risk management dimension of FMPs, which resulted in two factors. Specifically, Factor 1 had an eigenvalue of 3.879, explaining 64.642% of the variance, while Factor 2 had an eigenvalue of 1.246, explaining 20.773% of the variance. To confirm these findings, Cattell's scree test was applied, yielding consistent results, where all variables retained one factor, except for the risk management dimension, which was split into two components.

Rotation

The Direct Oblimin method was selected for factor rotation instead of Orthogonal Rotation, as human data are often correlated. This method facilitated the interpretation and refinement of items for specific constructs. The Pattern Matrix table indicated that most items were grouped under the first component for the risk management construct, with only two unrelated items in the second component. The item with the lowest factor loading was removed, and the EFA was performed again. The final outcome resulted in all five items being grouped under a single component, effectively measuring the risk management dimension. Table 2 presents the final EFA output.

Reliability Test (Cronbach's alpha) after EFA

After EFA, reliability testing was performed again to examine item consistency. Accordingly, Cronbach's alpha values remained above 0.7, confirming the consistency of the variables. After the item deletion process, the reliability test results indicated that the reliability coefficients for each construct were satisfactory.

Table 2: Pilot test results

Construct	Dimension	Reliability Results before Factor Analysis		Factor Suitability		Factor Extraction			
		Number of items	Cronbach Alpha	Bartlet Test (p<0.05)	Kaiser-Mayer-Olkin (KMO> 0.6)	Eigenvalues		Variance Explained (%)	Scree Plot
FS	MC	5	0.930	.000	0.897	Factor 1	3.919	78.371	One Factor
	MS	5	0.925	.000	0.900	Factor 1	3.854	77.075	One Factor
	DS	5	0.943	.000	0.912	Factor 1	4.079	81.581	One Factor
TP	BE	5	0.941	.000	0.912	Factor 1	4.052	81.033	One Factor
BC	PC	5	0.946	.000	0.911	Factor 1	4.114	82.289	One Factor
	SC	5	0.948	.000	0.910	Factor 1	4.417	82.932	One Factor
FMP	BF	6	0.948	.000	0.938	Factor 1	4.765	79.421	One Factor
	BCM	5	0.932	.000	0.873	Factor 1	3.942	78.850	One Factor
	CM	5	0.946	.000	0.901	Factor 1	4.120	82.402	One Factor
	RM	6	0.881	.000	0.870	Factor 1	3.548	70.967	One Factor
	OA	5	0.829	.000	0.804	Factor 1	3.036	60.723	One Factor
EC	CMC	5	0.874	.000	0.882	Factor 1	3.349	66.971	One Factor
	CC	6	0.902	.000	0.852	Factor 1	4.042	67.371	One Factor
	ORC	5	0.902	.000	0.826	Factor 1	3.497	69.945	One Factor
	OC	7	0.892	.000	0.937	Factor 1	4.763	68.050	One Factor
	RC	5	0.861	.000	0.863	Factor 1	3.220	64.391	One factor
	SC	5	0.801	.000	0.811	Factor 1	2.839	56.771	One Factor
MIE	CR	8	0.951	.000	0.933	Factor 1	5.963	74.539	One Factor
	RS	6	0.914	.000	0.906	Factor 1	4.208	70.137	One Factor
SW	LS	7	0.949	.000	0.949	Factor 1	5.361	76.579	One Factor
	PO	3	0.835	.000	0.720	Factor 1	2.256	75.190	One Factor
EW	EP	5	0.940	.000	0.907	Factor 1	4.045	80.892	One Factor
ES	BS	7	0.887	.000	0.770	Factor 1	4.363	62.326	One Factor

Final Factor Structure of the Instrument

Following the rotation process, the retained items for the six variables were consistent with the original instrument adapted from the literature. Only items with factor loadings above 0.3 were included. As a result of the EFA, 125 items across eight constructs were preserved (see Table 3). These items were subsequently reviewed in relation to four research areas identified by experts: microfinance effectiveness, human capital development, service efficiency, and sustainable socioeconomic development. This review ensured that the instrument remained effective for future applications.

Table 3: Final retained items

Microfinance Financial Services	
Microcredit	**Loading**
"Management charges are reasonable"	0.924
"The loan application procedure is simple"	0.862
"The loan amount approved is sufficient"	0.841
"The loan repayment tenor is adequate"	0.855
"The loan repayment procedure is easy"	0.940
Micro-savings	
"The savings interest rate is reasonable"	0.825
"The procedures for opening savings are simple"	0.881
"The savings withdrawal is easy"	0.836
"The compulsory savings amount is reasonable"	0.921
"Mandatory savings are affordable"	0.921
Death-Benefit Fund	
"TKK benefits are comprehensive"	0.906
"Method of contributing in TKK is simple"	0.885
"Contributing to TKK is mandatory"	0.863
"TKK contribution premium is affordable"	0.932
"TKK claims are paid within a reasonable period"	0.928
Training Program	
Basic Entrepreneurship	
"Motivational courses are useful in managing my business"	0.907
"Basic business training is effective in running my business"	0.905
"Basic account training is beneficial for my business"	0.873
"Basic marketing training is useful in running a business"	0.886
"Basic digital marketing training is beneficial for my business"	0.928
Business Coaching	
Product Development Coaching	
"Product development coaching is useful in helping me improve product innovation"	0.905
"Product promotion and rebranding coaching is done adequately"	0.867
"Product exhibition is an important platform to boost my business sales"	0.888
"The use of online applications by Bazar Sahabat and Pasar Sahabat helps in increasing product sales"	0.926
"Coaching in building business networks is useful to increase business profits"	0.946
Service Coaching	
"Start-up business assistance is very helpful in starting up my business"	0.912
"Business recovery assistance helps to overcome my business challenges"	0.899
"Scaling-up business assistance really helps my business to grow"	0.898
"Business transformation assistance is effective in helping my business to diversify products"	0.890
"Digital marketing assistance is very important in helping my business keep pace with technological developments"	0.953
Financial Management Practices	
Basic Finance	
"I was able to set short-term financial goals"	0.917
"I was able to plan long-term financial goals"	0.873
"I was able to compare multiple options for a financial transaction"	0.900
"I was able to make good financial decisions"	0.879
"I was able to review my financial situation on a regular basis"	0.868
"I was able to discuss my financial problems and goals with others"	0.909

Opportunity Awareness	
"I was regularly able to allocate money for savings"	0.714
"I was regularly able to allocate money for investments"	0.878
"I was regularly able to look for investment opportunities"	0.861
"I was able to take advantage of the marketing opportunity to improve sales"	0.573
"I was able to diversify my investment opportunities"	0.829
Risk Management	
"I was able to minimise risk impact to my business"	0.938
"I was able to do a risk assessment for business benefit"	0.880
"I was able to establish procedures to avoid potential risks"	0.866
"I was able to create a safe project environment for all staff and clients"	0.933
"I was able to regularly set aside money for possible unexpected expenses"	0.970
Credit Management	
"I was able to spend business cash flow wisely"	0.905
"I was able to monitor loan status efficiently"	0.895
"I was able to assess expense status effectively"	0.890
"I was able to avoid the additional cost of credit"	0.938
"I was able to plan a clear credit control process"	0.911
Budgeting and Cash Management	
"I was able to make a business budget"	0.879
"I was able to estimate income and expenditures"	0.889
"I was able to keep a record for expenditures"	0.884
"I was able to compare actual expenditures to the budget"	0.902
"I was able to keep business records"	0.886
Entrepreneurial Competencies	
Commitment Competency	
"I was able to strive for business success"	0.807
"I was able to allocate time and resources to keep the business running smoothly"	0.801
"I was able to maintain high internal motivation"	0.793
"I was committed to long-term business goals"	0.857
"I was able to face stiff competition"	0.832
Strategic Competency	
"I was able to prioritise work in line with business goals"	0.803
"I was able to act in line with business goals"	0.721
"I was able to monitor the progress of the business to achieve goals"	0.754
"I was able to compare actual business results with goals"	0.739
"I was able to take action after considering all matters"	0.748
Relationship Competency	
"I was able to build trust for long -term business with others"	0.654
"I was able to easily negotiate with others"	0.862
"I was able to interact with others"	0.821
"I was able to maintain good relationships with business partners"	0.817
"I was able to understand the meaning of others through their words and actions"	0.841
Opportunity Recognition Competency	
"I was able to identify goods and services that customers want"	0.904
"I was able to discover unfulfilled customer needs by others"	0.890
"I was able to provide products and services that provide real benefit to customers"	0.914
"I was able to seize profitable business opportunities"	0.778
"I was able to understand the use of new technological tools to improve business performance"	0.668
Conceptual Competency	

"I was able to apply ideas, issues, and views in business dealings"	0.875
"I was able to accept a job with reasonable risk"	0.785
"I was able to monitor risk to achieve business goals"	0.759
"I was able to solve problems with new methods"	0.886
"I was able to explore new ideas"	0.880
"I was able to create opportunities out of problems"	0.725
Organising Competency	
"I was able to plan the operations of the business"	0.863
"I was able to use a variety of resources to plan a business"	0.850
"I was able to keep the enterprise running smoothly"	0.885
"I was able to organise resources"	0.873
"I was able to coordinate my work"	0.865
"I was able to handle my staff"	0.526
"I was able to give priority to business matters"	0.852
Microfinance Institutions' Efficiency	
Credibility	
"AIM provides all services in a timely manner (e.g., loan disbursement)"	0.856
"AIM genuinely tries to resolve problems"	0.846
"AIM regularly shares information through fieldworkers"	0.857
"AIM is fair in decision-making"	0.836
"AIM fulfils its promises"	0.876
"AIM maintains quality services"	0.877
"AIM staff are responsive to any queries"	0.902
"AIM maintains transparency in the transaction processes"	0.856
Responsiveness	
"AIM listens to our suggestions"	0.888
"AIM helps us in dealing with other organisations"	0.861
"AIM gives attention towards our welfare"	0.902
"AIM's staff gives attention to our problems"	0.887
"AIM's staff understand the needs of the individual beneficiary"	0.918
"AIM's location is convenient"	0.485
Households' Social Well-being	
Level of satisfaction	
"I was satisfied with my Family's level of income"	0.887
"I was satisfied with my family's level of savings"	0.879
"I was satisfied with my family's standards of living"	0.860
"I was satisfied with my family's level of employment"	0.895
"I was satisfied with my children's education"	0.875
"I was satisfied with my family's health status"	0.883
"I was satisfied with my family's supply of daily goods"	0.846
Provision of Opportunities	
"My Project was able to provide employment opportunities to family members"	0.877
"I was able to provide financial resources for my children's education"	0.878
"I had the opportunity to gain knowledge and skills"	0.845
Households' Economic Well-being	
Economic Performance	
"My income keeps increasing"	0.896
"My household expenditure keeps increasing"	0.909
"My assets keep increasing"	0.904
"My savings keep increasing"	0.878
"My confidence level keeps increasing"	0.910

Households' Entrepreneurial Success	
Business Success	
"The profits from my project keep increasing"	0.888
"The sales from my project keep increasing"	0.899
"The number of employees from my project is starting to increase"	0.642
"The total products from my project keep increasing"	0.915
"The number of buyers from my project keeps increasing"	0.927
"My entrepreneurship skills keep increasing"	0.513
"The use of technological equipment keeps increasing"	0.629

DISCUSSION

The main objective of this study is to create a novel tool for assessing microfinance and HEP models in Malaysia. Specifically, the research aims to develop and validate the factor structure and dimensionality of the constructs within this model. A comprehensive methodology was employed to accomplish this, including an in-depth review of existing constructs and applying suitable statistical methods. Therefore, EFA was employed to validate and evaluate the instrument's factor structure. Considering the ongoing challenges of poverty and economic hardship, authorities continuously seek effective tools to improve the socioeconomic conditions of disadvantaged individuals. Similarly, researchers are investigating various interventions designed to enhance socioeconomic performance. This study contributes significantly by developing a new microfinance and household socioeconomic model, emphasising the importance of microfinance services and household-specific factors in addressing poverty. Thus, by creating a reliable measurement tool, this research identifies several key variables that could play a crucial role in improving households' socioeconomic status and alleviating poverty. These variables include FS, TP, BC, FMP, EC, MIE, and households' socioeconomic outcomes: SW, EW, and ES.

This study offers valuable contributions to the existing literature by providing a valid and reliable instrument for assessing the impact of microfinance services on household socioeconomic performance. The instrument has been proven to accurately measure key microfinance and household-specific factors, creating opportunities for future empirical research. In particular, the study introduces BC as a new explanatory factor within the microfinance and household economic model. This addition is expected to have important implications for human capital development in Malaysia, especially for low-income entrepreneurs, who often lack the skills to compete in the market. With proper support and consultation from microfinance coaches, these entrepreneurs could develop the necessary strategies to achieve their business goals. Furthermore, the mediating factors, FMP and EC, were also validated as reliable constructs. Existing studies (Koh et al., 2021; Solarin et al., 2020; Loke et al., 2020) focus on the direct impact of microfinance, often overlooking the mechanisms that explain how these services lead to improved socioeconomic outcomes. This research identifies FMP and EC as key mediating factors that illustrate the pathway through which microfinance services enhance household performance. Accordingly, these capabilities empower low-income households and improve the effectiveness of microfinance in reducing poverty. Therefore, authorities should prioritise the development of these skills through TPs and coaching services for poor households.

Additionally, this study introduces a reliable measure of MFIs' service efficiency, marking another significant contribution to the field. Moreover, by including service efficiency as a potential moderator, the research addresses a gap in the literature, where the role of service delivery in microfinance has been largely overlooked. Most existing studies focus on technical efficiency (Jaiyeoba et al., 2018), neglecting the significance of service delivery in achieving socioeconomic outcomes (Abdullah et al., 2021b). Note that efficient service delivery is crucial to successfully utilising financial support, as highlighted by Chowdhury and Mukhopadhaya (2011). Therefore, MFIs should enhance service delivery to improve clients' SW and EW. Lastly, the study provides

three distinct measures for household well-being—SW, EW, and ES. These indicators offer a comprehensive understanding of the socioeconomic impact of microfinance services on households.

In general, this research represents a significant advancement in microfinance studies, filling a gap where established constructs have been lacking (Bernard et al., 2016). Previous studies (Al-Shami et al., 2017; Al-Mamun et al., 2018; Al-Mamun et al., 2019) have relied on objective measures such as loan amounts, participation length, and training hours, while others (Koh et al., 2021; Hameed et al., 2019) have used subjective measures. This research provides a validated and reliable tool that paves the way for future studies to investigate the role of microfinance in poverty reduction in Malaysia. The results indicate that by strengthening entrepreneurial skills and FMPs, microfinance services enable households to effectively manage their financial and business endeavours, improving overall socioeconomic outcomes.

CONCLUSION

Economic deprivation continues to be a significant challenge for households in developing nations. In response, governments have introduced various microfinance initiatives to alleviate poverty and empower households. However, there remains considerable debate in the literature about the effectiveness of these interventions in improving socioeconomic outcomes for households. Some research suggests that fostering human capital through quality education can amplify the benefits of microfinance services on household performance. Despite this, there is a significant lack of established tools to assess the relationship between microfinance and socioeconomic variables. Consequently, researchers are still investigating how microfinance can empower households and support SMEs.

The development of reliable and valid measurement tools is crucial for high-quality research that can enhance the effectiveness of microfinance in poverty reduction. Thus, this study addresses this gap by creating and validating instruments to measure key variables in the microfinance and household economic model. The model includes socioeconomic well-being as a dependent variable, with various microfinance services serving as key explanatory factors. Moreover, EC and FMPs function as mediating variables, while the efficiency of MFIs serves as a moderating variable. Based on a thorough literature review and consultations with industry experts, measurement items were developed and validated through EFA using data from Malaysian respondents who received microfinance services.

This research offers valuable insights by validating the measurement constructs for microfinance and household socioeconomic variables. The results confirm the validity of the instrument for future research. However, the findings are specific to Malaysia, and future studies should extend the research to other contexts to draw more generalisable conclusions. Based on the findings, the study recommends that Malaysian authorities design additional programs to enhance the effectiveness of microfinance in empowering low-income households. Hence, improving human capital, particularly through training and coaching programs, could significantly boost the impact of microfinance interventions in addressing economic deprivation. Furthermore, MFIs should improve service efficiency to better support clients in overcoming poverty.

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