

Assessing Internal Processes of a Community-Based Microfinance Model to Alleviate Extreme Poverty in Society

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ABSTRACT

The Shari'ah-based and Information and Communication Technology (ICT)-driven Microfinance Model (SIMM) represents a community-oriented initiative designed to combat severe poverty within society. A notable limitation of existing microfinance institutions (MFIs) is their inability to incorporate extremely impoverished individuals into their client base. This longitudinal study employed a quantitative methodology to assess the internal processes of SIMM through a pilot study involving 421 rural households in Kalainagar village, Bangladesh. The evaluation of SIMM's internal processes was grounded in five critical factors: microfinance model (MFM), ICT utilization, investment values (IV), entrepreneurial values (EV), and business values (BV). To explore the interrelationships among these factors, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed. The findings revealed significant and positive relationships among the constructs. Additionally, a robustness test was conducted to further substantiate the internal processes of SIMM. As a community-based microfinance model, SIMM exhibits substantial potential for alleviating extreme poverty in rural communities.

Keywords: Microfinance Model, Performance Evaluation, Poverty Alleviation, Religious Studies, Longitudinal Study

ARTICLE INFO

Article History:

Received: 1 June 2025

Accepted: 29 July 2025

Available online: 1 August 2025

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INTRODUCTION

Poverty remains a significant concern for global society, consistently occupying a prominent position on the international agenda. Despite the implementation of various strategies and policies aimed at alleviating poverty, it continues to endure. Over the past four decades, microfinance has emerged as a crucial tool for poverty reduction, facilitating the generation of additional income for economically disadvantaged clients (Alkhan and Hassan, 2021; Hassan et al., 2021; Mushtaq and Bruneau, 2019). Nevertheless, the alarming statistic of 700 million individuals living in extreme poverty—defined as those subsisting on less than US\$ 2.15 per day—poses a considerable challenge for microfinance institutions (MFIs) in their endeavors to eradicate poverty (World Bank, 2022). The United Nations (UN) has established a target to eliminate extreme poverty globally by 2030, as articulated in its first Sustainable Development Goal (SDG), which aims to “End poverty in all its forms everywhere.” The UN envisions that stakeholders across various societies will be inspired to implement the SDG within their communities. Furthermore, the UN anticipates that community stakeholders will employ appropriate, innovative, and sustainable methods to achieve the SDG (United Nations, 2015).

Among the various microfinance models, conventional models dominate the global microfinance market share. Scholars have expressed concerns regarding the efficacy of these interest-based models in alleviating poverty within society. These models often impose high interest rates and prioritize minimal poverty reduction to ensure the repayment of microloans by economically disadvantaged clients. Unfortunately, many of these clients, who are only moderately impoverished, become ensnared in a cycle of debt, resulting in repayment challenges, over-indebtedness, and debt traps. This predicament contributes to heightened levels of anxiety, depression, and significant pressure on small entrepreneurs engaged in microfinance. In such scenarios, microfinance clients frequently seek additional credit from other microfinance institutions and local moneylenders, perpetuating a cycle of debt, hardship, and uncertainty. This ongoing cycle can precipitate severe mental health issues, potentially driving individuals from moderate poverty into conditions of extreme poverty (Ali et al., 2017; Chowdhury and Willmott, 2019).

As an alternative strategy, Sharī'ah-compliant microfinance models have been implemented in Muslim-majority countries to cater to economically disadvantaged clients. These initiatives have positively influenced societal advancement and the economic well-being of low-income individuals, as they do not impose interest charges and facilitate the equitable distribution of profits and losses (Hassan and Saleem, 2017). Despite the potential of Sharī'ah-compliant approaches to uphold principles of equity and justice in wealth distribution, the operational scale of Sharī'ah-based microfinance remains limited. A significant limitation of the current Sharī'ah-compliant microfinance models in Bangladesh is their adherence to conventional methods of loan disbursement and collection. Consequently, individuals classified as moderately poor are prioritized in the selection criteria, enabling them to access microfinance for their small enterprises. As a result, the most impoverished members of the community are often excluded from accessing microfinance services provided by Sharī'ah-compliant microfinance institutions (MFIs) (Bhuiyan et al., 2017).

In an effort to eradicate extreme poverty within society, Khalequzzaman et al. (2023) proposed an innovative community-based microfinance model known as the SIMM. This model was characterized by the active involvement of key stakeholders, including affluent individuals (microfinance providers), impoverished individuals (microfinance recipients), and rural elites (management personnel). The SIMM model incorporated both charity funds and investment funds aimed at supporting the most disadvantaged members of society. Charity funds were allocated as non-repayable grants to the extremely poor, enabling them to acquire tangible productive resources that can generate income. Furthermore, to address the working capital needs associated with these assets, impoverished clients were afforded the opportunity to engage in SIMM's microfinance activities, which encompassed a range of Sharī'ah-compliant investment products. The research conducted by Khalequzzaman et al. (2023) involved 421 household members in a village in Bangladesh, who affirmed the SIMM's efficacy as a community-based microfinance model for alleviating the plight of extremely poor individuals within the community. Nevertheless, it is imperative to evaluate the internal processes of the SIMM through a pilot study to ensure its sustainability as a community-based microfinance initiative in practice, along with its broader implications.

In assessing the internal processes of microfinance operations, Balammal et al. (2019) highlighted two critical aspects: the efficiency of microfinance, which pertains to the effective utilization of resources, and the outreach of microfinance, which concerns the ability to serve impoverished clients. Notably, existing microfinance models have been criticized for their failure to incorporate the extremely poor into their client portfolios (Mohamed and Elgammal, 2023). In response to this gap, the SIMM was specifically designed to assist the extremely poor within society. Consequently, this article posed the following research questions: (1) How effective was SIMM as an emerging community-based microfinance model for alleviating extreme poverty? and (2) What metrics can be employed to evaluate the internal processes of SIMM in a pilot study? The objectives of this research were delineated as follows: (1) to investigate the effectiveness of SIMM in alleviating extreme poverty, and (2) to assess the internal processes of SIMM in a pilot study.

RELATED WORK AND RESEARCH MODEL

Microfinance is widely recognized as a small credit facility designed to assist impoverished individuals. Clients of microfinance utilize these modest loans for productive endeavors aimed at generating supplementary income, which subsequently exerts a positive influence on their families' income, consumption, health, education, and overall living standards (Khandker, 2005; Mizanur Rahman and Ahmad, 2010; Sahu et al., 2024). Numerous scholarly investigations have been conducted to evaluate the efficacy of microfinance in alleviating poverty, taking into account various factors since its inception in the rural village of Zobra, Bangladesh, in 1976 (Hassan and Islam, 2019). To effectively address poverty, Subramaniam and Masron (2024) emphasized the significance of integrating digital technologies into microfinance operations. The incorporation of digital technology not only diminished overhead costs but also enhanced operational efficiency within microfinance institutions. Although existing microfinance models have not yet fully integrated information and communication technology (ICT) as a fundamental component of their operations (Ascarya and Sakti, 2022), there has been a gradual adoption of mobile phones for organizing center meetings with microfinance clients (Ashta, 2017). Furthermore, in their assessment of the impact of microfinance on the subjective well-being of

impoverished clients, Bhuiyan and Ivlevs (2019) identified a concerning outcome: microfinance borrowing had a negative indirect effect on the overall life satisfaction of poor entrepreneurs. This adverse effect was attributed to the high interest rates imposed by microfinance institutions and the pressure on clients to repay their loans on a weekly basis. Conversely, Sanhueza (2019) contended that current microfinance operations, which are primarily based on microfinance institutions (MFIs), facilitated access to financing for small entrepreneurs; however, these individuals do not represent the truly impoverished demographic. This observation implied that those who are extremely poor are often ineligible for microfinance services. Additionally, Nawaz's (2010) research indicated that the predominant MFI-based microfinance models in Bangladesh have been unsuccessful in reaching the extremely poor individuals residing in rural areas, as they tend to prioritize moderately poor clients.

In an effort to eradicate extreme poverty within society, the SIMM has been developed as a community-driven, fully online microfinance initiative. The SIMM was conceived through a grounded theory methodology, which involved qualitative research that engaged various community stakeholders, including affluent individuals (microfinance providers), impoverished individuals (microfinance beneficiaries), and members of the rural elite (microfinance management). During the initial qualitative phase of the study, the perspectives of 36 participants from the target village were solicited to inform the development of the emergent SIMM. Following this, a quantitative phase was conducted in which feedback was gathered from 421 rural households in the same village in Bangladesh. This feedback was analyzed in relation to three components of the Theory of Planned Behavior (TPB): attitude, subjective norm, and perceived behavioral control, in order to validate the model. For the practical implementation of the SIMM, a pilot study was conducted that established several livestock and cultivation projects aimed at extremely impoverished individuals in the target village. These projects were funded through charitable contributions from the wealthier members of the community. Consequently, these individuals were able to become microfinance clients, thereby enabling their participation in SIMM investments to address the working capital requirements of their projects (Khalequzzaman *et al.*, 2023). Figure 1 presents the updated version of the SIMM web-based application, which was designed in response to feedback from stakeholders, including wealthy investors, impoverished

clients, and rural elite management personnel, regarding the earlier prototype of the SIMM web-based application (Khalequzzaman *et al.*, 2023).



Figure 1: SIMM web system (Final Version)
Source: Khalequzzaman *et al.* (2023)

It is essential to evaluate the internal processes of the SIMM web system within the framework of the pilot study to determine its potential impact on alleviating extreme poverty. The research conducted by La Torre *et al.* (2006) and Sierra *et al.* (2024) identified various factors relevant to the assessment of microfinance model. La Torre *et al.* (2006) highlighted the significance of project financing, sustainability, and outreach, while Sierra *et al.* (2024) focused on the microfinance model's ability to meet the financial and social needs of impoverished clients. In assessing the internal processes of SIMM, it was vital to consider factors such as its project financing capabilities as an emerging microfinance model, the incorporation of information and communication technology (ICT) in its operations, the variety of investment products available for income generation, its effectiveness in empowering entrepreneurs from the most disadvantaged communities through charitable initiatives, and its role in enhancing business activities by providing essential working capital.

Microfinance Model: Similar to existing microfinance frameworks that rely on microfinance institutions (MFIs) (Mizanur Rahman and Ahmad, 2010; Bhuiyan and Ivlevs, 2019; Hassan *et al.*, 2021), SIMM also aimed to provide financial assistance to impoverished clients, particularly those who are extremely poor in rural areas and often excluded from the microfinance services offered by current models (Mohamed and Elgammal, 2023). Recently, several integrated microfinance models have been proposed to enhance the roles of Islamic MFIs and banks in serving the extreme poor (Haneef *et al.*, 2015; Ascarya and Sakti, 2022). Despite empirical evidence supporting these models in alleviating severe poverty, Islamic microfinance institutions have yet to adopt them in accordance with national legal and regulatory frameworks, resulting in the persistence of poverty in rural regions. To improve the conditions of rural communities, SIMM, as a novel community-driven microfinance model, aimed to establish a poverty-free rural community by uplifting the extremely poor through a two-step approach: first, by providing charitable funds as non-repayable grants to establish productive assets for the extreme poor, and second, by offering investment funds as repayable microfinance to address the working capital needs associated with these assets (Khalequzzaman *et al.*, 2023). Therefore, SIMM, as an emerging microfinance model, aligned with its core values of investment, entrepreneurship, and business development.

Use of ICT: Numerous studies have highlighted the importance of ICT in microfinance frameworks (Mushtaq and Bruneau, 2019; Alshater *et al.*, 2022; Subramaniam and Masron, 2024). However, existing microfinance models have yet to fully incorporate ICT-driven operations into their methodologies. To combat extreme poverty within society, Ascarya and Sakti (2022) had proposed an integrated fintech microfinance model specifically tailored for Islamic microfinance institutions (MFIs) and banks. This fintech model enabled online fund collection, while the disbursement of funds to microfinance clients occurred offline during weekly center meetings. The SIMM was a community-driven, fully online microfinance framework. The stakeholders involved in the SIMM were geographically dispersed, comprising microfinance providers and affluent individuals in urban areas, as well as impoverished microfinance recipients and rural elite management personnel in rural regions. The utilization of ICT was a fundamental component of the SIMM microfinance model. Notably, stakeholders could engage in investment, entrepreneurial, business,

and various other microfinance activities through their mobile devices. Consequently, the ICT-driven SIMM web system was essential to its microfinance operations, investment strategies, entrepreneurial initiatives, and business endeavors.

Investment Values: The integration of Islamic investment products within microfinance embodies a vision of equity and justice, aimed at promoting socioeconomic development among impoverished rural clients (Ahmad *et al.*, 2020; Rahim Abdul Rahman, 2010). While current Shari‘ah-compliant microfinance models primarily employed Bai Muajjal (Hassan *et al.*, 2021), both Islam and Ahmad (2020) had strongly advocated for the incorporation of Islamic equity-based investment products, such as Mudaraba and Musharaka, into microfinance. These products can significantly assist underprivileged rural entrepreneurs, particularly women, in enhancing their earnings and achieving financial sustainability. However, the SIMM included a diverse array of Islamic investment products, which can be categorized into four distinct types: profit and loss sharing (Mudaraba and Musharaka), sales-based (Bai Murabaha, Bai Muajjal, Bai Salam), manufacturing-based (Bai Istisna), and rental-based (Ijara). Through the SIMM, investors—comprising microfinance providers and affluent community members—engage in the investment products associated with SIMM microfinance activities alongside rural clients, who were the recipients of microfinance services and represent the economically disadvantaged members of the community, thereby generating income for themselves (Khalequzzaman *et al.*, 2023). Thus, the value of SIMM’s investment products was a critical determinant in evaluating the internal processes of the SIMM.

Entrepreneurial Values: Microfinance models emerged to provide financial assistance to impoverished rural entrepreneurs who have historically been excluded from obtaining financing from traditional banking institutions, often being classified as ‘not creditworthy’ (Yunus and Yusus, 2007). Numerous studies have underscored the entrepreneurial values associated with microfinance in transforming the livelihoods of economically disadvantaged clients (Archer and Jones-Christensen, 2011; Bruton *et al.*, 2013). The emergent SIMM, as a community-driven microfinance model, aimed to support individuals living in extreme poverty who are unable to access financial assistance through existing microfinance institutions

(MFIs). In its initial phase, SIMM leveraged social funds, including Islamic charitable contributions such as Zakah, Sadaqah, and Waqf, provided by affluent community members to create productive assets for these extremely poor individuals, thereby facilitating their social empowerment. This process enabled the extreme poor to evolve into microfinance-supported entrepreneurs, allowing them to engage in the final investment stages of SIMM to generate income (Khalequzzaman et al., 2023). Consequently, the entrepreneurial value of SIMM in empowering the extreme poor was a critical metric for evaluating the model's internal processes.

Business Values: Numerous studies have underscored the significance of business values in microfinance for enhancing the entrepreneurial capabilities of economically disadvantaged clients (Karlan and Valdivia, 2011; Mahmood and Rosli, 2013; Banerjee and Jackson, 2017). The primary objective of SIMM was to improve the living conditions of the extremely poor through entrepreneurial ventures. In this context, individuals classified as extremely poor were provided with valuable assets—such as livestock, small retail establishments, or transportation vehicles—funded by SIMM's charitable contributions to initiate asset-based business activities. Subsequently, to meet their working capital requirements, the owners of these productive assets (the extremely poor individuals) may engage in one of SIMM's investment products to generate income and sustain the operations of their small enterprises (Khalequzzaman et al., 2023). Consequently, SIMM's emphasized on income generation through business activities was a critical factor in evaluating its internal processes.

In a prior investigation, the constructs (attitude, subjective norm, and perceived behavioral control) of the Theory of Planned Behavior (TPB) were employed to validate the Shari'ah-based and ICT-driven Microfinance Model (SIMM). TPB is a widely recognized theoretical framework for understanding human behavior, particularly in assessing research participants' intentions regarding specific phenomena (Ajzen, 1991), such as the implementation of SIMM. Building on the findings of Khalequzzaman et al. (2023), the present study integrated factors such as microfinance model, information and communication technology (ICT) usage, investment values, entrepreneurial values, and business values as extensions of TPB to evaluate the internal processes of SIMM. Numerous past studies have incorporated additional factors into TPB constructs to

refine their models (Perdana *et al.*, 2019; Purwanto *et al.*, 2022; Rifas *et al.*, 2023). Figure 2 illustrates the research model tested in this study. The following hypotheses were developed based on the study by Khalequzzaman *et al.* (2023) and relevant previous research.

The SIMM is a web-based microfinance model. The stakeholders participated in the SIMM's investments in the pilot study using their smartphones. To participate in the SIMM, comprehensive training was conducted online during the global pandemic from June 2021 to August 2021. In the initial phase of the training program, fifteen (15) household members, identified as rural elites, participated in three distinct training sessions conducted by the researchers via Google Meet. Upon completion of their training, these fifteen (15) individuals proceeded to train an additional four hundred and six (406) participants through one-on-one sessions in the target village. This training adhered to government guidelines, which included the use of gloves and masks, as well as the maintenance of adequate physical distance. Household members were trained on the SIMM web system based on three criteria: navigation (through links), input (text, number, selection list in form fill-up), and execution (submit or cancel form).

Jeyaraj *et al.* (2023) mentioned that in a longitudinal study, researchers can measure user intention to use a system, along with behavioral attitude, for the actual use of the system. Similarly, in a study by Khalequzzaman *et al.* (2023), the intention of 421 rural households to use the SIMM web-system validated the SIMM as an innovative microfinance approach aimed at eradicating extreme poverty from society. These same households were trained on the SIMM to assess their behavior in using the system in a pilot study. Several past studies have also measured various systems such as an e-learning system (Shee and Wang, 2008), the Obamacare (health) system (Venkatesh *et al.*, 2017), an e-government system (Verkijika and De Wet, 2018), and an airline system (Khan *et al.*, 2025). The use of ICT is a critical factor of the SIMM web-system's internal processes to alleviate extreme poverty, which encompasses other factors such as microfinance model (MFM) operations, investment values (IV), entrepreneurial values (EV), and business values (BV) of the SIMM model. Therefore, the following hypotheses were developed.

H1: ICT has a positive impact on the MFM.

H2: ICT has a positive impact on the IV.

H3: ICT has a positive impact on the EV.

H4: ICT has a positive impact on the BV.

Additionally, the SIMM is an emerging, community-driven microfinance model aimed at eradicating extreme poverty from rural communities (Khalequzzaman *et al.*, 2023). Existing microfinance models have failed to achieve social, financial, and ICT inclusion of extremely poor clients in their operations. The recent Covid-19 pandemic significantly disrupted existing microfinance operations in Bangladesh from 2020 to 2022. The countrywide lockdown brought immense hardship to the livelihoods of rural, poor microfinance clients. Microfinance institutions (MFIs) utilized mobile and mobile banking platforms to communicate and disburse urgent financial assistance for healthcare and food expenses for the poor clients, albeit at a limited level (Rönkkö *et al.*, 2022; Murshid and Murshid, 2022; Arman *et al.*, 2025). Researchers recommended immediate adoption of technology into the internal processes of microfinance models. In contrast, the SIMM is a comprehensive web-based microfinance model (MFM) designed to provide financial assistance to extremely poor clients in rural communities, highlighting critical factors in measuring the internal processes of SIMM, which also encompass other factors such as investment values (IV), entrepreneurial values (EV), and business values (BV) of the SIMM model. Similarly, Haneef *et al.* (2015) also developed a Waqf-based microfinance model in Bangladesh and measured the internal processes of the model through formulating several hypotheses. Therefore, the following hypotheses were developed.

H5: MFM has a positive impact on the IV.

H6: MFM has a positive impact on the EV.

H7: MFM has a positive impact on the BV.

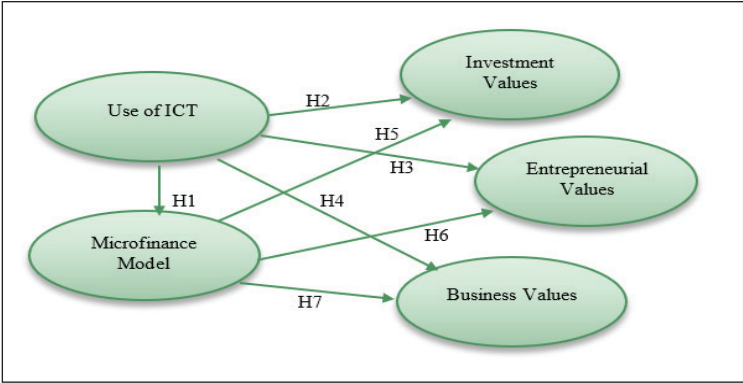


Figure 2: Research Model
Source: Researchers Design

METHOD

A quantitative approach, specifically a survey, was employed in a longitudinal study to assess the internal processes of the SIMM microfinance system. Longitudinal studies involve the collection of data through repeated observations of the same participants over a designated period (Ma, 2003), as illustrated in Table 1. The SIMM microfinance model was initially developed utilizing grounded theory methodology. Additionally, a survey was conducted to validate the emergent SIMM deductively, thereby transitioning it from a specific theory to a general theory (Khalequzzaman et al., 2023).

Table 1: Periodic Phases of Longitudinal Study

Period	Longitudinal Study
April 2020 to May 2020	The SIMM microfinance system was validated by all 421 household members in Kalainagar village, Bangladesh. This marked the first phase of data collection in a longitudinal study (Khalequzzaman et al., 2023).
June 2020 to May 2021	Several livestock and cultivation projects were developed for individuals living in extreme poverty as part of a pilot study funded by the charity wing of SIMM.
June 2021 to August 2021	Investors and clients participated in investments through the SIMM microfinance system, an online-based web system, as part of a pilot study to generate income for themselves.
August 2021 to September 2021	The internal processes of the SIMM microfinance system were assessed online by the same 421 household members in the second phase of data collection in a longitudinal study.

Population and Sample

A total of four hundred and twenty-one (421) household members from Kalainagar village in Bangladesh participated in the validation of the Sharī'ah-based and ICT-driven Microfinance Model (SIMM) as an innovative community-based microfinance initiative aimed at alleviating severe poverty in rural communities (Khalequzzaman *et al.*, 2023). In the present study, the same cohort of 421 household members also contributed their perspectives to assess the internal processes of the SIMM during the pilot study.

Instrumentation

The SIMM was developed through a grounded theory methodology using a mixed method (qualitative-quantitative) approach by Khalequzzaman *et al.* (2023). Based on existing literature and identified themes in the qualitative study, a quantitative instrument was developed to validate the SIMM with 421 household members from the Kalainagar village (available at <https://kalainagar.com/householdsurvey/create>). In this longitudinal study, we tested the internal processes of the SIMM (available at <https://kalainagar.com/performanceurvey/create>) in a real-life application through a pilot study with the same 421 household members who validated the SIMM in the previous study. In the practical implementation of the SIMM, several livestock and cultivation projects were developed for the extremely poor residents of the Kalainagar village. When developing the instrument (constructs and items under each construct) for this study, we considered previous relevant literature (Haneef *et al.*, 2015; Rahman, 2016; Jeyaraj *et al.*, 2023), the identified themes (Khalequzzaman *et al.*, 2023), and the survey instrument used by Khalequzzaman *et al.* (2023). The instrument comprises five constructs, each containing six items, as illustrated in Appendix Table A1.

Data Collection and Analysis

Data were collected via an online survey conducted from the first week of August to the fourth week of September 2021. Descriptive statistical analysis was performed using the SPSS software. For the analysis of the PLS-SEM model, we utilized the Smart PLS software. Additionally, a robustness test was conducted to assess the predictive significance of the model.

Pilot Study

According to Hussain *et al.* (2019), rural areas in Bangladesh are characterized by a diverse array of farming systems. These include cultivating agricultural farms focused on crop production, non-cultivating agricultural farms such as livestock operations, and non-agricultural enterprises like small retail shops. For the purposes of this pilot study, both cultivating and non-cultivating agricultural farms were established (Figure 3) to evaluate the investment products associated with the SIMM model. In Kalainagar village, seven livestock projects and twenty cultivation projects (each encompassing 30-40 decimal plots) were implemented to assess the effectiveness of various investment products within the SIMM framework. These products include Mudaraba, Musharaka, Bai Murabaha, Bai Muajjal, Bai Salam, Bai Istisna, and Ijara. Charity funds from the SIMM initiative were utilized to establish these productive assets, serving as the practical application of the initial operational step of the SIMM model. This model employed a two-step microfinance approach (Khalequzzaman *et al.*, 2023). The primary objective of the first step of the model is to enhance the livelihoods of the extremely poor by providing them with productive assets.

Consequently, the second operational step of the SIMM was implemented to enhance the effective management of the newly established livestock farms and agricultural cultivation projects. The proprietors of these initiatives, primarily originating from economically disadvantaged backgrounds, became microfinance clients within the framework of the SIMM model. They required working capital, which was provided by affluent members of the community who served as microfinance providers and investors within the SIMM model. To fulfill the working capital needs of the projects and to generate income, these economically disadvantaged entrepreneurs, representing the microfinance clients, engaged in investments through the SIMM's web-based system. The specifics of the livestock and agricultural cultivation projects associated with these investments are detailed in Table 2 below.

Table 2: Brief Description of the Projects Under the Pilot Study

Brief Description of the Projects	Participants	Investments
Projects 1 through 7 involve establishing livestock farms for the extremely poor who are landless but own some land near their households.	Client1-Client7 Investor1- Investor7	Mudaraba, Musharaka, Bai Murabaha, Bai Muajjal, Bai Salam, Bai Istisna, Ijara
Project 8 to Project 27 involves the establishment of cultivation projects for the extremely poor individuals who are not only landless but also lack sufficient land to start livestock farms.	Client8-Client27 Investor8-Investor27	Ijara

RESULTS

To validate the SIMM (Khalequzzaman et al. 2023) and subsequently assess its internal processes in a pilot study, feedback was collected from 421 household members (Table 3) through online surveys. Among the respondents, 65.6% identified as male and 34.4% as female. A significant proportion of participants, approximately 62.9%, possessed only a primary level of education. The remaining respondents included 22.1% with secondary education, 7.1% with higher secondary education, 4.0% holding a bachelor's degree, 2.9% with a master's degree, 0.2% with a PhD, and 0.7% with other qualifications. Furthermore, the majority of participants (48.2%) were conventional microfinance clients, while 20.2% were clients of Shari'ah-based microfinance, and the remaining 31.6% did not fit into a specific category. All participants reported ownership of a mobile phone. Additionally, a substantial number of participants (47%) were engaged in agricultural activities, with the largest age group represented being individuals aged 35-40 years (35%). Notably, 5.5% of families were landless, 8.3% reported earning less than Tk 7,500 (approximately US\$ 2.15 per day), and 11.3% had no savings, indicating that the target village is home to a considerable percentage of individuals living in extreme poverty.

Table 3: Household's Demographic Information

Demographic	Variables	Frequency	Percentage	Total Respondents
Gender	Male	276	65.6	421
	Female	145	34.4	
Microfinance Client	Conventional	203	48.2	421
	Sharī'ah	85	20.2	
	None	133	31.6	
Own Mobile Phone / Computer	Yes	421	100	421
	No	0	0	
Age	20-29 years old	32	7.6	421
	30-39 years old	167	39.7	
	40-49 years old	144	34.2	
	50-59 years old	60	14.3	
	60 and above	18	4.3	
Education	Primary	265	62.9	421
	Secondary	93	22.1	
	Higher Secondary	30	7.1	
	Bachelor	17	4.0	
	Master	12	2.9	
	PhD	1	0.2	
	Others	3	0.7	
Occupation	Agricultural Work	201	47.7	421
	Business	47	11.2	
	Service	41	9.7	
	Housewife	130	30.9	
	Student	1	0.2	
	Others	1	0.2	
Amount of Land	No Land	23	5.5	421
	Less than 0.50 Acre	83	19.7	
	0.50 to 0.99 Acre	104	24.7	
	1.0 to 1.49 Acres	132	31.4	
	1.50 to 1.99 Acres	62	14.7	
	2.0 to 2.49 Acres	11	2.6	
	2.50 Acres and Above	6	1.4	
Monthly Income	Less than Tk. 7,500/-	35	8.3	421
	Tk. 7,500/- to Tk. 14,999/-	20	4.8	
	Tk. 15,000/- to Tk. 22,499/-	113	26.8	
	Tk. 22,500/- to Tk. 29,999/-	131	31.1	
	Tk. 30,000/- to Tk. 37,499/-	72	17.1	
	Tk. 37,500/- to Tk. 44,999/-	24	5.7	
	Tk. 45,000/- and above	26	6.2	
Monthly Saving	No Saving	49	11.6	421
	Less than Tk. 2,500/-	30	7.1	
	Tk. 2,500/- to Tk. 4,999/-	74	17.6	
	Tk. 5,000/- to Tk. 7,499/-	107	25.4	
	Tk. 7,500/- to Tk. 9,999/-	65	15.4	
	Tk. 10,000/- to Tk. 12,499/-	45	10.7	
	Tk. 12,500/- to Tk. 14,999/-	24	5.7	
	Tk. 15,000/- and above	27	6.4	

Phase One Study

The Phase One study aimed to validate the SIMM and consists of three constructs: Attitude (ATT), Subjective Norm (SN), and Perceived Behavioral Control (PBC). The results of the Phase One study are illustrated below (Khalequzzaman *et al.* 2023):

Table 4: Results of Phase One Study

Descriptive Statistics	The mean values of the study variables ATT, SN, and PBC are 4.77, 4.87, and 4.84, respectively. The correlations between ATT and SN ($r = 0.734$, $p < 0.05$), ATT and PBC ($r = 0.757$, $p < 0.05$), and SN and PBC ($r = 0.663$, $p < 0.05$) are significantly and positively correlated (Khalequzzaman <i>et al.</i> 2023).
Measurement Model	Factor loadings: All factor loadings (FL) values in Phase One of the study are higher than the threshold value of 0.708, which is considered reliable (Khalequzzaman <i>et al.</i> 2023). Internal consistency: All Cronbach's α values and composite reliability (CR) values were above 0.7, which is considered acceptable (Khalequzzaman <i>et al.</i> 2023). Convergent validity: The average variance extracted (AVE) for each construct was greater than 0.5, indicating that the model has sufficient convergent validity (Khalequzzaman <i>et al.</i> 2023). Discriminant validity: The discriminant validity, based on the heterotrait–monotrait ratio (HTMT) being less than 0.90, indicates sufficient discriminant validity for the constructs (Khalequzzaman <i>et al.</i> 2023).
Structural Model	Hypothesis H1 states that ATT has a potentially positive impact on PBC ($\beta = .586$, $t = 7.283$, $p < .001$) with a moderate effect size ($F2 = .361$). Hypothesis H2 suggests that SN has a significant and positive impact on PBC ($\beta = .222$, $t = 2.616$, $p = .013$), with a small effect size ($F2 = .05$). Both H1 and H2 were supported. Additionally, 58.9% of the Perceived Behavioral Control was explained by the entire model, indicating moderate variance (Khalequzzaman <i>et al.</i> , 2023).

Phase Two Study

The Phase Two study aimed to assess the internal processes of the SIMM in a pilot study and consists of five constructs: Microfinance Model (MFM), use of ICT (ICT), Investment Values (IV), Entrepreneurial Values (EV), and Business Values (BV).

Descriptive Statistics

Table 5 presents the mean values of the variables under investigation. The correlations among the study variables were found to be positive and statistically significant. Based on Cohen's (1988) strength scale, all correlations were categorized as ranging from moderate to strong.

Table 5: Analysis of Descriptive Statistics

Construct	Mean	SD	MFM	ICT	IV	EV	BV
MFM	4.82	0.30	1				
ICT	4.84	0.29	.710**	1			
IV	4.81	0.37	.686**	.737**	1		
EV	4.84	0.31	.607**	.627**	.750**	1	
BV	4.85	0.28	.598**	.643**	.754**	.746**	1

N = 421, **p < .05

Measurement Model

The measurement model incorporates reflective constructs for evaluation, as outlined by Sarstedt *et al.* (2019). Consequently, factor loadings (FL) and assessments of internal consistency were performed to ascertain the model’s reliability. To evaluate the model’s validity, both convergent and discriminant validity assessments were conducted. All items presented in Table 6 exhibited loadings greater than 0.50, in accordance with the criteria established by Hair *et al.* (2021). Furthermore, the values for Cronbach’s α and composite reliability (CR) exceeded the requisite threshold of 0.7, as indicated by Hair *et al.* (2021). The model’s convergent validity scores, represented by the average variance extracted (AVE) for each individual construct, were greater than 0.5, surpassing the defined criteria. The discriminant validity scores, measured by the Heterotrait–Monotrait ratio (HTMT) as illustrated in Table 6, were less than 0.90, indicating sufficient discriminant validity and thus deemed satisfactory, as supported by Hair *et al.* (2017), Hair *et al.* (2019), and Hair *et al.* (2021).

Table 6: Analysis of Measurement Model (Reliability and Validity)

Construct	Item	FL	CA	CR	AVE	HTMT				
						MFM	ICT	IV	EV	BV
MFM	MFM1	.756								
	MFM2	.825								
	MFM3	.780								
	MFM4	.803	0.870	0.902	0.606	-	-	-	-	-
	MFM5	.769								
	MFM6	.735								
ICT	ICT1	.773								
	ICT2	.801								
	ICT3	.761	0.871	0.903	0.609	0.767	-	-	-	-
	ICT4	.776								
	ICT5	.790								
	ICT6	.781								

IV	IV1	.819								
	IV2	.822								
	IV3	.825	0.916	0.935	0.706	0.537	0.576	-	-	-
	IV4	.830								
	IV5	.878								
	IV6	.864								
EV	EV1	.852								
	EV2	.794								
	EV3	.806	0.905	0.926	0.678	0.657	0.682	0.745	-	-
	EV4	.836								
	EV5	.830								
	EV6	.818								
BV	BV1	.796								
	BV2	.801								
	BV3	.799	0.884	0.912	0.634	0.767	0.748	0.606	0.798	-
	BV4	.752								
	BV5	.809								
	BV6	.818								

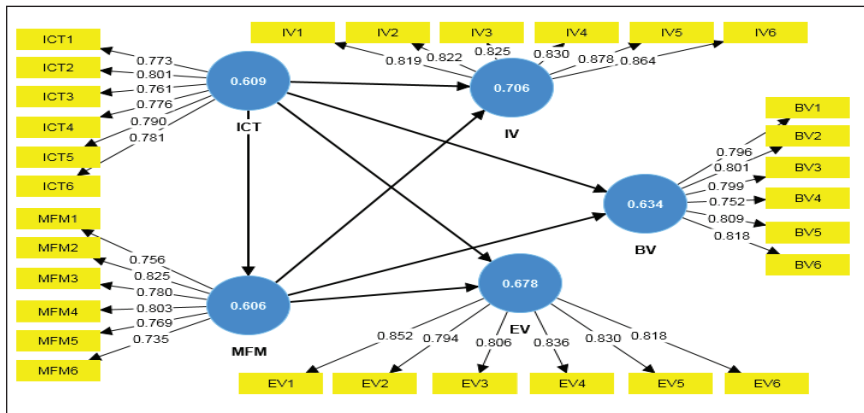


Figure 4: Measurement Model

Source: SmartPLS Software

Structural Model

In accordance with the methodology outlined by Hair *et al.* (2019), the evaluation of the structural model was conducted using multicollinearity (Variance Inflation Factor), effect sizes (F^2), the coefficient of determination (R^2), and overall model fit as measured by the Standardized Root Mean Square Residual, as detailed in Tables 7 and 8. The statistical analysis indicated that all seven hypotheses were supported, as presented in Table 7. The results pertaining to the hypotheses are as follows:

ICT had a significant and positive influence on MFM ($\beta = .669$), t-value ($t = 10.347$), and p-value ($p < .001$). This finding demonstrated a large effect size ($F^2 = .808$), as defined by Cohen (1988), thereby providing support for Hypothesis 1 (H1).

ICT also had a significant and positive influence on IV ($\beta = .349$), t-value ($t = 3.528$), and p-value ($p < .001$). The effect size is small, with $F^2 = .096$, thereby providing support for Hypothesis 2 (H2).

Additionally, ICT had a significant and positive influence on EV ($\beta = .390$, $t = 4.310$, $p < .001$), demonstrating a moderate effect size ($F^2 = .146$). This finding provided support for Hypothesis 3 (H3).

Moreover, ICT significantly and positively impacted BV ($\beta = .377$, $t = 4.760$, $p < .001$), demonstrating a moderate effect size ($F^2 = .168$), thereby providing support for hypothesis 4 (H4).

MFM had a significant and positive effect on IV ($\beta = .248$, $t = 2.748$, $p = .006$), exhibiting a small effect size ($F^2 = .048$), thereby providing support for Hypothesis 5 (H5).

Furthermore, MFM had a significant positive effect on EV ($\beta = .323$, $t = 3.659$, $p < .001$), with a small effect size ($F^2 = .101$), thereby providing support for Hypothesis 6 (H6).

Lastly, the results indicated that MFM had a significant and positive effect on BV ($\beta = .423$, $t = 5.123$, $p < .001$), demonstrating a moderate effect size ($F^2 = .212$). This finding provided support for Hypothesis 7 (H7).

Table 7: Summary of Hypotheses Tests

Path	Estimate	T	P	VIF	F ²	Status
ICT → MFM	0.669	10.347	<.001	1.000	0.808	H1: Supported
ICT → IV	0.349	3.528	<.001	1.808	0.096	H2: Supported
ICT → EV	0.390	4.310	<.001	1.808	0.146	H3: Supported
ICT → BV	0.377	4.760	<.001	1.808	0.168	H4: Supported
MFM → IV	0.248	2.748	0.006	1.808	0.048	H5: Supported
MFM → EV	0.323	3.659	<.001	1.808	0.101	H6: Supported
MFM → BV	0.423	5.123	<.001	1.808	0.212	H7: Supported

To mitigate collinearity concerns, Variance Inflation Factors (VIFs) were maintained below the threshold of 3.3. The R^2 values elucidated the overall variance explained by the model, with values of 44.7% for MFM, 29.9% for IV, 42.5% for EV, and 53.3% for BV, which indicated small to medium levels of variance (where $R^2 > 0.25$ is considered small, $R^2 > 0.50$ is medium, and $R^2 > 0.75$ is large). The Standardized Root Mean Square Residual (SRMR) is typically anticipated to fall within the range of 0.05 to 0.10 (Hu and Bentler, 1998). The observed SRMR value of 0.047 suggested a close fit, as SRMR values less than 0.05 indicate a close fit, values between 0.05 and 0.08 represent a fair fit, values between 0.08 and 0.10 are indicative of a mediocre fit, and values exceeding 0.10 are classified as a poor fit.

Table 8: Quality Assessment of Structural Model

Construct	R^2	SRMR
MFM	0.447	0.047
IV	0.299	
EV	0.425	
BV	0.533	

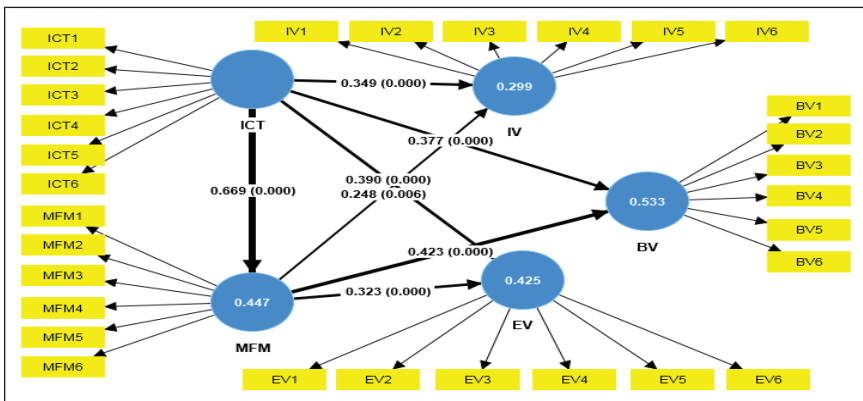


Figure 5. Structural Model

Source: SmartPLS Software

Additionally, this study employed the PLS Predict utility ($r = 10$, $k = 10$) within the SmartPLS software to evaluate the robustness of the measurement model (Shmueli et al., 2019). The results indicated that the prediction errors were symmetrically distributed, thereby justifying the use of the Root Mean Square Error (RMSE). However, the study also incorporated

the Mean Absolute Error (MAE) to eliminate any potential ambiguities. As detailed in Appendix (Table A2), all indicators of the endogenous variables (BV, EV, IV, and MFM) exceeded the naïve benchmarks, as evidenced by Q^2 values greater than zero for both the Partial Least Squares (PLS) and linear regression model (LM) benchmarks. Furthermore, a comparative analysis of RMSE and MAE revealed that all PLS values were lower than those of the LM for both metrics, with the exception of MFM2, which demonstrated strong predictive relevance (Shmueli et al., 2019). Similarly, a comparison of Q^2 values between PLS and LM indicated that the Q^2 for PLS was superior to that of LM, with the Q^2 values remaining positive post-comparison, except for MFM2. Moreover, the overall Q^2 values for the endogenous variables were also positive (BV = .419, EV = .350, IV = .215, MFM = .429). Considering all these comparisons, it was concluded that the PLS prediction for the measurement model met the requisite standards at a higher level. Therefore, it was reasonable to assert that the measurement model for this study exhibited strong predictive relevance and accuracy (Shmueli et al., 2019).

DISCUSSION AND IMPLICATIONS

The research (Phase One) conducted by Khalequzzaman et al. (2023) focused on the development and validation of the SIMM model, which was proposed as a potential strategy for eradicating extreme poverty within society. Consequently, the implementation of the SIMM model commenced with a pilot study that involved the establishment of seven livestock and twenty cultivation projects (see Figure 3), funded through the resources allocated by the SIMM model. These farms were specifically designed for individuals experiencing extreme poverty, serving as a testing ground for various investment products aimed at generating income for both investors (represented by a microfinance provider) and clients (the extreme poor, represented by microfinance beneficiaries). Nonetheless, concerns were expressed regarding the efficacy of the SIMM microfinance model, particularly in light of its internal processes during the pilot study. To evaluate the research model, five factors were identified based on prior research and relevant literature: microfinance model (MFM), use of information and communication technology (ICT), investment values (IV), entrepreneurial values (EV), and business values (BV). Additionally,

previous studies had investigated the role of microfinance in improving the livelihoods of impoverished clients (Mahmood and Rosli, 2013; Bhuiyan and Ivlevs, 2019).

Existing microfinance models had not yet fully integrated Information and Communication Technology (ICT) into their operational activities. However, Ascarya and Sakti (2022) had proposed an online-based fintech microfinance model specifically designed for Islamic microfinance institutions (MFIs) and banks. This model aimed to facilitate the collection of funds online from donors and affluent community members, subsequently disbursing these funds offline to microfinance clients. This indicated that the proposed fintech model did not enable prospective microfinance clients to access services through an online platform. In the pilot study, both investors and microfinance clients, particularly those from extremely impoverished backgrounds, engaged in investments via their smartphones using an online-based SIMM web system to generate income. Figure 6 presents the ledger balance along with the final calculations of the Mudaraba investment, highlighting the participation of Client 1 and Investor 1 in the pilot study, as detailed in Table 2. Notably, rural elites, who also served as management personnel of SIMM, not only provided training and assistance to the extremely poor in their participation in SIMM microfinance activities but also monitored the entire process to ensure a stable income for both parties (Khalequzzaman *et al.*, 2023). The effective, efficient, and comprehensive application of ICT in microfinance operations was likely to encourage other microfinance models to fully embrace ICT in their practices.

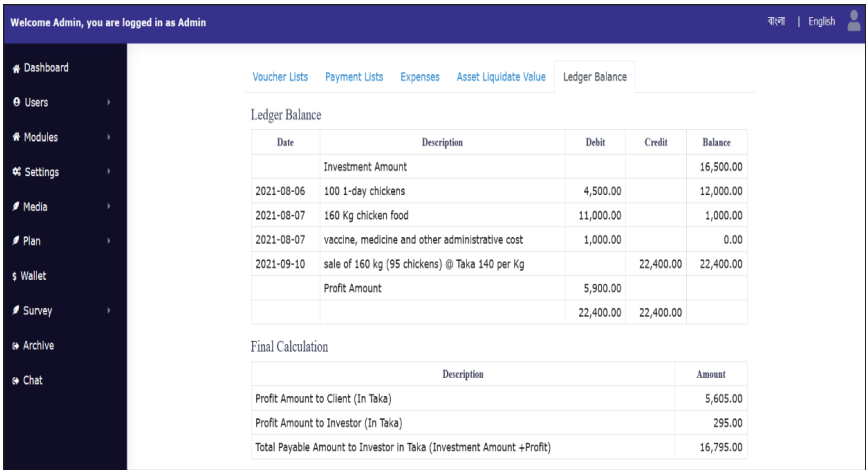


Figure 6: Ledger Balance with Final Calculation of the Mudaraba Investment
Source: SIMM website (www.kalainagar.com)

Moreover, Oyong *et al.* (2023) conducted an examination of several hypotheses and assessed the performance of Islamic investment products within microfinance operations, specifically focusing on Bai Murabaha and Ijara. The authors concluded that Ijara funding did not exert a significant effect; however, the return on assets of Islamic microfinance institutions (MFIs) was positively and significantly influenced by Bai Murabaha financing. Additionally, a range of Islamic investment products, including Mudaraba, Musharaka, Bai Murabaha, Bai Muajjal, Bai Salam, Bai Istisna, and Ijara, were evaluated in the pilot projects of this study. Consequently, several hypotheses pertaining to Islamic investment products were formulated, which were corroborated by the findings of Oyong *et al.* (2023). Furthermore, Hassan *et al.* (2023) investigated the repayment performance of Islamic MFIs, revealing that repayment performance plays a crucial role in enhancing the social economy and alleviating poverty among disadvantaged clients. In this study, seven hypotheses were tested to evaluate the internal processes of the SIMM in the pilot study. The results (Phase Two) demonstrated significant relationships among various factors, including information and communication technology (ICT) and microfinance model(MFM), ICT and investment values (IV), ICT and entrepreneurial values (EV), ICT and business values (BV), MFM and IV, MFM and EV, as well as MFM and BV. Given that all hypotheses related

to SIMM microfinance operations were supported, it can be concluded that SIMM has the potential not only to mitigate extreme poverty in Kalinagar village but also to contribute significantly to the establishment of a prosperous, poverty-free, and sustainable Kalinagar village prior to the United Nations' projected year of implementation (2030), a finding that is further substantiated by the research of Hassan *et al.* (2023).

CONCLUSION AND FURTHER RESEARCH

This study conducted an evaluation of the SIMM within a real-world context. In this pilot study, investors allocated funds to established farms while management personnel supervised the investment activities. The newly established microfinance initiative provided support to entrepreneurs from the most impoverished segments of society, who had previously been marginalized by existing microfinance institution (MFI)-based models. These entrepreneurs became clients of the microfinance program with the expectation of generating income and enhancing their socioeconomic conditions. The results of the study provided significant support for all seven hypotheses.

The findings presented herein are anticipated to make significant contributions not only to the field of microfinance aimed at alleviating extreme poverty but also to the broader domain of rural development in Bangladesh and beyond. The importance of community-driven SIMM microfinance is unequivocal, as it leverages both charitable and investment funds to improve the socioeconomic conditions of marginalized populations. Beyond its role in reducing extreme poverty through charitable contributions, the implementation of SIMM has the potential to address various rural challenges. These include the provision of access to clean drinking water, the establishment of robust communication networks, enhancements to supply chains, the development of effective drainage systems, the strengthening of healthcare services, and the promotion of automated irrigation and smart farming practices within the Kalainagar community, as supported by initiatives from the United Nations, with a target completion date of 2030.

ACKNOWLEDGEMENTS

We are grateful to the web development team for creating the updated version of the SIMM web system, and to the participants of the pilot projects for their contributions to generating income using the SIMM. Additionally, we would like to thank the anonymous reviewers for their helpful comments on improving the article.

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APPENDIX

Table A1: Items of Constructs

Constructs	Items
Microfinance Model	• The SIMM is highly effective as a new microfinance model to serve the rural poor. • The SIMM prioritizes the poorest rural individuals. • The SIMM specifically aims to bridge the gap between the rich and poor individuals in the rural community to generate income. • The SIMM offers various investment products to meet the business needs of its clients. • The SIMM is flexible, allowing individuals to access loans either individually or as a group. • Overall, the application process for investment, investment agreements, disbursement, monitoring, repayment schedules, and investment ratings within the SIMM are simple and efficient.
Use of ICT	• The use of ICT allows clients to apply for a loan quickly. • The use of ICT enables investors to respond to loan applications promptly. • The use of ICT helps management personnel efficiently monitor each loan. • The use of ICT makes the entire microfinance operation more flexible and effective. • The use of ICT ensures fair microfinance transactions. • The use of ICT helps make microfinance communication globally accessible.
Investment Values	• The various investments offered by the SIMM model meets the business needs of the firms. • Investors may choose to take on the risks associated with the Mudaraba (profit-sharing) investment contract, as any losses incurred will be shared solely by the investor. • Both investors and clients may prefer the Musharaka (profit and loss-sharing) investment contract, as profits and losses are shared by both parties. • Through participation in buying and selling-based investment products (Bai Murabaha, Bai Muajjal, Bai Salam, and Bai Istisna), investors and clients can establish a fair buyer-seller relationship to earn income. • Ijara (Lease) investments are highly beneficial for generating income, as investors lease their assets to clients for a specific period. • Overall, the Shari'ah-based investment products of the SIMM model are highly effective in generating income for both clients and investors.
Entrepreneurial Values	• New ideas introduced into productive work through the SIMM model. • Learning skills enhanced in productive work through the SIMM model. • Management skills refined in productive work through the SIMM model. • Teamwork strengthened in productive work through the SIMM model. • Risk-taking encouraged in productive work through the SIMM model. • Creativity fostered in productive work through the SIMM model.
Business Values	• Islamic charity funds can be used to build small projects for financially sustainable business projects for poor clients. • The establishment of business projects create entrepreneurial opportunities for the poorest people. • Owning a business firm will encourage poor clients to develop a strong business plan. • Investors have also shown their utmost support to participate in the business plans as microfinance providers. • Management personnel efficiently monitor the investment process. • Overall, all the projects produce good income for both investors and clients.

Table A2: PLS Predict Assessment

Variable	PLS			LM			PLS-LM		
	RMSE	MAE	Q ²	RMSE	MAE	Q ²	RMSE	MAE	Q ²
BV2	0.313	0.191	0.242	0.317	0.195	0.226	-0.003	-0.004	0.017
BV4	0.315	0.193	0.216	0.319	0.198	0.193	-0.005	-0.005	0.023
BV5	0.324	0.203	0.237	0.328	0.208	0.219	-0.004	-0.005	0.018
BV3	0.297	0.175	0.273	0.300	0.174	0.258	-0.003	0.000	0.014
BV1	0.301	0.183	0.302	0.302	0.177	0.295	-0.002	0.007	0.007
BV6	0.295	0.176	0.310	0.301	0.175	0.284	-0.006	0.001	0.027
EV2	0.335	0.215	0.238	0.335	0.208	0.238	0.000	0.007	0.000
EV3	0.342	0.221	0.223	0.347	0.224	0.198	-0.005	-0.003	0.024
EV5	0.323	0.193	0.214	0.326	0.198	0.197	-0.003	-0.005	0.017
EV1	0.321	0.191	0.234	0.327	0.197	0.205	-0.006	-0.006	0.028
EV4	0.319	0.194	0.260	0.326	0.195	0.231	-0.006	-0.001	0.029
EV6	0.322	0.198	0.257	0.327	0.198	0.230	-0.006	0.000	0.028
IV3	0.423	0.262	0.175	0.425	0.259	0.168	-0.002	0.003	0.008
IV2	0.420	0.255	0.159	0.421	0.255	0.154	-0.001	0.000	0.004
IV5	0.394	0.210	0.176	0.398	0.216	0.161	-0.004	-0.006	0.015
IV6	0.383	0.197	0.188	0.385	0.196	0.178	-0.002	0.001	0.010
IV4	0.416	0.249	0.169	0.420	0.250	0.154	-0.004	-0.001	0.015
IV1	0.398	0.227	0.202	0.400	0.218	0.192	-0.002	0.008	0.009
MFM6	0.324	0.207	0.286	0.330	0.200	0.261	-0.006	0.007	0.025
MFM4	0.321	0.199	0.307	0.325	0.194	0.291	-0.004	0.005	0.016
MFM5	0.342	0.216	0.215	0.347	0.223	0.190	-0.005	-0.007	0.025
MFM3	0.333	0.211	0.269	0.337	0.211	0.252	-0.004	0.001	0.017
MFM2	0.330	0.202	0.266	0.325	0.196	0.289	0.005	0.006	0.023
MFM1	0.354	0.234	0.214	0.355	0.235	0.210	-0.001	-0.001	0.004
BV	0.770	0.503	0.419						
EV	0.816	0.501	0.350						
IV	0.954	0.449	0.215						
MFM	0.765	0.484	0.429						