The Impact of Socio-Economic Development on Microfinance: Evidence from Developing Countries

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Abstract

Microfinance has expanded considerably in recent years as a tool for supporting individuals who face difficulties in access to finance, especially in developing countries. The socio-economic development in the economy and the macroeconomic environment affect the functioning of microfinance institutions (MFIs). This study examines the impact of socio-economic development measured by the Human Development Index (HDI) on the size and performance of MFIs. The size is measured by the natural log of total assets, and the performance is captured by the solvency of MFIs, which is measured by the leverage ratio. The analysis is conducted by employing a Panel Generalized Estimated Least Squares model by using data for 81 MFIs in 16 developing countries from 2014-2022. The results of the study imply that socioeconomic development has a positive and significant impact on the size and performance of MFIs in developing countries, in which a 1% increase in HDI results in a 1.04% increase in the size and a 6.85% decrease in the leverage, implying an increase in solvency and improvement in the performance of MFIs.

Keywords: Socio-Economic Development, Microfinance, Developing Countries.

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أثر التنمية الاجتماعية والاقتصادية على التمويل البالغ متناهي الصغر: أدلة من البلدان النامية

الملخص

تهدف هذه الدراسة إلى تحليل تأثير التنمية الاجتماعية والاقتصادية، التي تم قياسها باستخدام مؤشر التنمية البشرية(HDI) ، على حجم وأداء مؤسسات التمويل متناهي الصغر في البلدان النامية. تم قياس حجم المؤسسات من خلال لوغاريتم إجمالي الأصول، بينما تم قياس الأداء باستخدام نسبة الرفع المالي كمؤشر للملاءة المالية. تم تحليل النموذج باستخدام المربعات الصغرى المقدرة المعممة من خلال جمع بيانات 81 مؤسسة تمويل متناهي الصغر في 16 دولة نامية خلال الفترة من 2014 إلى 2022. أظهرت نتائج الدراسة أن التنمية الاجتماعية والاقتصادية لها تأثير إيجابي ومعنوي على كلا من حجم وأداء مؤسسات التمويل متناهي الصغر. حيث تبين أن الزيادة بنسبة 1% في مؤشر التنمية البشرية يؤدي إلى زيادة بنسبة 1.04% في حجم المؤسسات، بينما يؤدي إلى انخفاض بنسبة 6.85% في نسبة الرفع المالي، مما يشير إلى تحسن في الملاءة المالية. تشير هذه النتائج إلى أن تعزيز التنمية الاجتماعية والاقتصادية يعزز قدرة مؤسسات التمويل متناهي الصغر على التوسع والنمو بشكل مستدام، ويزيد من قدرتها على تحسين أدائها المالي واستقرارها. كما تساهم هذه الدراسة في تسليط الضوء على أهمية التنمية الاجتماعية والاقتصادية كعامل مؤثر في تحسين استدامة المؤسسات المالية الصغيرة في الاقتصاديات النامية.

الكلمات المفتاحية: التمويل متناهي الصغر ، التنمية الاجتماعية والاقتصادية، الدول النامية.

1. Introduction

Microfinance originated in the 1970s and has subsequently gained considerable international recognition from researchers, policymakers, and financial institutions. It comprises a diverse array of financial services, such as microcredit, micro-savings, micro-banking, micro-insurance, and micro-remittances.

Microfinance is defined as *"the provision of small-scale financial services to people who lack access to traditional banking services"*. (World Bank, 2007). It typically involves providing small loans to low-income individuals to support self-employment ventures, often coupled with savings mobilization. This definition emphasizes the goal of enabling individuals to raise their income levels and improve their living standards. Microfinance is a development tool that provides financial services and money transfers to help extremely poor individuals to establish or expand their businesses. It is primarily used in developing economies to address the lack of access to traditional financial resources for small and medium-sized enterprises (SMEs). Hence, it plays a significant role in poverty alleviation and economic development (Dhakal and Nepal, 2017). The definition of microfinance has evolved from its initial focus on microcredit, which provided small loans to entrepreneurs and small businesses that had limited access to the traditional formal financial sector, to encompass a broader range of financial services. Thus, the expansion of microfinance reflects a more holistic approach to financial inclusion, recognizing the need for diverse financial tools to empower low-income individuals and improve their livelihoods and living standards.

Initially, microcredit aimed to replace commercial banks by focusing on social welfare goals such as poverty reduction and social reform. During this period, nongovernmental organizations (NGOs) played a crucial role in delivering microcredit services, prioritizing community empowerment and financial inclusion over profits. This mission underscored the belief that access to credit could significantly improve the lives of marginalized individuals and foster sustainable development (Thai-Ha, 2021).

The origins of modern microfinance can be traced back to the Grameen Bank in Bangladesh, founded by Nobel laureate Muhammad Yunus in 1976. The Grameen Bank pioneered the concept of providing microcredit to financially disadvantaged individuals, challenging the belief that the poor were not financially viable. This innovative approach demonstrated that access to capital could significantly transform lives. Over time, microfinance gained recognition as a powerful tool for poverty alleviation and economic development, expanding beyond individual loans to include savings accounts, microinsurance, and various financial services tailored to the needs of low-income populations. Today, MFIs operate globally, as nonprofit organizations and for-profit entities, to serve millions of clients. (Bali, 2024)

Microfinance organizations often extend their services beyond financial resources by providing financial advice, education, and support that contribute to social development. These initiatives may include healthcare programs, educational support, and environmentally sustainable projects, which in turn enhance the overall impact of microfinance on communities through promoting social improvement. (Cull and Morduch, 2018). MFIs also play a crucial role in stimulating economic

growth by fostering entrepreneurship, which creates new job opportunities and increases household incomes, leading to business expansion and diversified growth in developing areas. Consequently, it contributes to poverty reduction by empowering individuals and families to achieve higher incomes, enabling them to meet their basic needs, send children to school, and access healthcare services. Additionally, microfinance institutions address the gaps left by traditional banking systems, promoting financial inclusion for those previously excluded from the formal financial sector while enhancing financial literacy and responsible practices. The social impact of microfinance is significant, particularly for women, as it enhances their financial and decision-making power, promoting gender equality, and enabling active community participation (Bali, 2024).

The rationale of this study is to investigate the effect of socio-economic conditions on the functioning of MFIs. The level of development of the economy is impacting considerably the activities of MFIs, which consequently affects their size and financial performance indicators. The contribution of this research is to analyze the socio-economic conditions captured by the HDI and employ macroeconomic control variables to investigate how the macroeconomic environment can affect the size and performance of MFIs.

The findings of this study imply that socio-economic development affects positively the size and the performance of MFIs. A better socio-economic environment in terms of a higher level of per capita income, improved education, and better healthcare service creates the demand for the MFIs'

activities, which supports their expansion and improves their solvency.

The rest of the paper is organized to cover in section 2, the related literature review that discusses the existing studies of microfinance, followed by section 3 which analyzes the global trends of microfinance and its relationship to socio-economic development, then section 4 presents the data and research methodology including the data sources and model specification, and the results of the empirical analysis is discussed in section 5, followed by the conclusion and policy implications in section 6.

2. Literature review

The interconnected insights from the empirical studies provide an understanding of the role of microfinance in economic development. They highlight the potential benefits and challenges faced by different demographics, emphasizing the need for tailored approaches that consider the economy-specific characteristics, the importance of financial literacy, and the sustainability of microfinance initiatives. Together, these studies contribute to a more holistic view of microfinance as a tool for socio-economic development.

Empirical studies emphasized that microfinance improves families' income and consumption levels (Jamal, 2008; Tahir et al., 2016; and Anjum, 2020). In the meantime, it has a positive and significant effect on education, especially on child education, which underscores a common benefit of microfinance (Jamal, 2008 and Anjum, 2020). Consequently, it improved school enrollment among borrowers' children and

caused a shift from government to private schooling. Adhikari (2019) found a significant improvement in the socio-economic status of loanees, who fared better than non-loanees. The study concluded that microfinance effectively raises the socio-economic status of poor individuals, particularly women, by generating additional income. This extra income enables families to afford nutritious food, modern healthcare, and education for their children, highlighting microfinance as a valuable tool for positive socio-economic change.

Anjum (2020) assessed the impact of microfinance on various aspects of socio-economic status including income, health, education, living standards, food diet, and transportation by collecting primary data from 300 borrowers of microfinance institutions and examining the challenges that borrowers face in obtaining loans. The results showed that 72.2% of respondents reported increased income due to microcredits, which allowed them to improve their health through facilitating access to better healthcare services. Additionally, 82.2% noted a positive effect on their children's education, with many families transferring from government to private schools. Furthermore, 85.1% observed a significant enhancement in their family's living standards, and over 50% reported improvements in their food diet. Overall, the study concluded that microfinance positively and significantly impacts the socio-economic status of farmers in rural areas, affecting positively their income, health, education, and their overall standards of living.

The findings of the study of Parray et al. (2022) demonstrate that microfinance significantly facilitates social development, enhances financial empowerment, and improves decision-making related to education and healthcare among

beneficiaries. Additionally, they indicate that microfinance plays a crucial role in developing entrepreneurial skills among participants through supporting grassroots entrepreneurship, which has a noticeable positive impact on economic development. Similarly, Amudha and Banu (2009) and Adhikari (2020) found that microfinance promotes social entrepreneurship through women's empowerment and enables self-help groups to venture into new businesses to earn income. Access to small loans allows individuals to start or expand businesses, resulting in increased productivity, income generation, and improved living standards. Morduch and Cull (2017) highlight that microfinance initiatives are associated with micro-enterprise growth, higher self-employment rates, and the development of domestic economies. Thus, microfinance not only boosts individual livelihoods but also contributes to broader economic growth and job creation through enhancing economic activities within communities.

The importance of microfinance is significant through its contribution to poverty alleviation by providing impoverished individuals access to credit, allowing them to invest in income-generating activities such as agriculture, small-scale trade, and artisan production. According to the report of the Consultative Group to Assist the Poor (CGAP, 2019), microfinance services have helped millions of low-income households to enhance their income levels and escape the cycle of poverty. It was found that microfinance is most effective when paired with education and training programs, which equip beneficiaries with the skills to manage their loans effectively, further improving their economic stability. Furthermore, Churchill et al. (2018) concluded that the macroeconomic environment significantly affects MFIs' success regarding financial sustainability and growth, suggesting that evaluations of MFIs

should account for the national context to ensure a more accurate assessment. Hence, high economic growth is associated with better microfinance performance, while wage-employment opportunities hinder growth. Murad (2017) examined the impact of MFIs on economic growth. The findings revealed that microfinance significantly boosts short-term economic performance by increasing per capita consumption, indicating that access to microfinance enhances individual spending and stimulates economic activity. However, the study also concluded that microfinance loans do not significantly contribute to long-term economic growth, suggesting that while microfinance can provide immediate financial relief, it may not be a sustainable solution for enduring economic development.

Other macroeconomic conditions, such as inflation and income inequality, significantly impact MFIs functioning. High inflation rates can impoverish individuals, leading to increased demand for credit to meet basic needs. This surge in demand strains the resources of MFIs and may negatively impact their financial sustainability due to potential declines in overall financial performance (Ahlin et al. 2011, Memon et al. 2021, and *Maeenuddin* et al. 2023)

Iqbal et al. (2015) examined the accessibility of microcredits for farmers in Sub-Saharan Africa, specifically focusing on small-scale farmers. The study revealed that only 48% of households were using microfinance services. It concluded that microfinance could enhance the living standards of small-scale farmers, as 90% of those using microcredits obtain their income from agriculture. However, the study highlighted that high interest rates negatively affected farmers. To improve

outcomes, it is recommended to reduce interest rates, foster strong relationships between farmers and MFIs, and enhance financial literacy among farmers to effectively manage and expand their income.

It can be concluded from the empirical studies that microfinance is a crucial tool for socio-economic development, especially in areas with limited access to traditional banking services. By fostering entrepreneurship, reducing poverty, and empowering marginalized communities, it serves as a powerful mechanism for inclusive growth. However, to maximize its effectiveness, microfinance must be integrated into broader development strategies that tackle the root causes of poverty and inequality, ensuring sustainable and comprehensive improvements in the lives of those it aims to help.

This study contributes to the growing literature and fills the research gap by analyzing the impact of socio-economic development on the size and solvency of MFIs. This effect is examined by conducting two multiple regression models that are estimated by including other macroeconomic factors that may influence the size and solvency of MFIs in developing countries while they are not yet addressed in the existing literature.

3. Microfinance Global Trends and Socio-economic Development

The microfinance sector has developed considerably in recent years. This expansion and development have affected positively micro and small businesses, especially in developing countries in which a large portion of the population is suffering from the

lack of access to formal financial services through the traditional banking sector.

Figure 1: Global Number of Borrowers from MFIs per 1000 Adults from 2014-2023
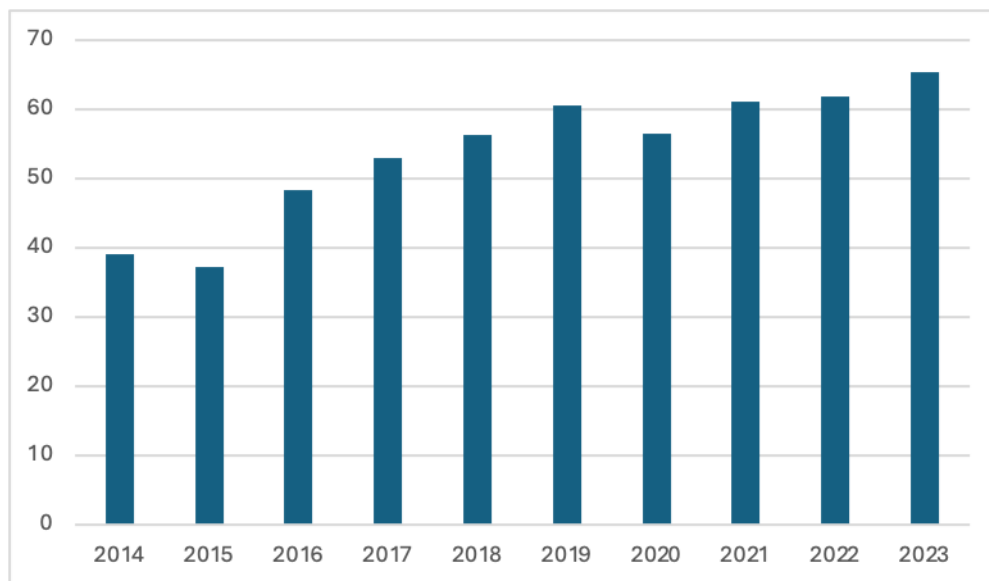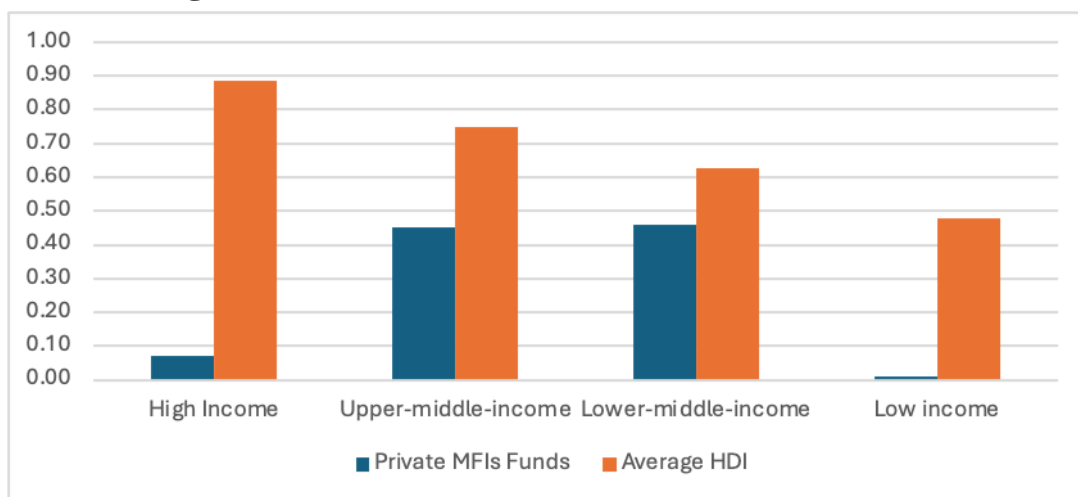

Source: Plotted by the authors by using data retrieved from the IMF Database.

Figure (1) shows the increase in the number of borrowers due to the expansion of microfinance services globally. This indicates that MFIs are expanding to provide services to financially disadvantaged individuals to support micro and small businesses. This is attributed to the global initiatives of financial inclusion in many countries of the world. The World Bank report (2022) highlighted that the number of adults without access to an account has decreased from 2.5 billion in 2011 to 1.4 billion in 2021 showing significant progress in financial inclusion. It has been reported that in 2021, 76% of adult people worldwide had an account. However, despite the presence of a higher percentage of adults without bank accounts

in developing countries, many of them have introduced digital financial services, resulting in the inclusion of low-income individuals who were previously marginalized and underserved. The figure shows a slight decrease in the number of borrowers in the year 2020 due to the COVID-19 pandemic. The CGAP report (2021) mentioned that despite the portfolio levels starting to grow post to the pandemic, the number of borrowers globally continues to decline. This slow trend in borrower growth is probably the result of cautious lending policies and weaker demand. In the meantime, these factors highlight the risk of excluding poor customers. Following this slight decline, the microfinance sector exhibited a recovery shown by an increase in the number of borrowers over the subsequent three post-pandemic years. This was primarily attributed to the mitigation of adverse pandemic effects in most global economies and a higher demand stimulated by the revitalization of the business environment.

Figure 2: Portfolio Concentration by Country Income Level and Average HDI, 2022

Source: Plotted by the authors by using data retrieved from the United Nations Development Program (UNDP) database and the 60 Decibels Microfinance Index.

Figure (2) shows that the portfolio concentration measured by the MFIs funds provisions varies across different income groups. It correlates the MFIs funds in different income groups to the average HDI for each income group. The figure indicates that middle-income countries have the highest portfolio concentration compared to high-income and low-income countries. This is because middle-income countries are often experiencing rapid economic growth, creating a favorable environment for microfinance institutions to thrive. These countries represent emerging markets with significant potential for growth and development, making them attractive to investors. For low-income countries, the high levels of poverty that is accompanied by lower levels of education and consequently lower financial literacy resulted in lower potential for entrepreneurship activities, which in turn shrank the size of MFIs in this group of countries. Moreover, the high levels of poverty lead to lower levels of loan repayment which discourages microfinance providers from expanding in low-income countries. Furthermore, low-income countries suffer from a lack of financial and technological infrastructure that limits access to financial services and increases operating costs. Thus, it hinders the expansion of MFIs. On the contrary, high-income countries have well-developed traditional financial sectors and advanced financial and technological infrastructure that allows a large portion of the population to access the services of traditional financial institutions which creates higher levels of competition for the MFIs. This is consistent with the findings of Beck et al. (2009) who found that banks in developing countries provide lower levels of investment loans for SMEs in addition to charging higher fees and interest rates compared to banks in developed countries. This emphasized that MFIs have greater opportunities in developing countries

than in developed countries. Additionally, MFIs target low-income population segments to support their economic activities, while high-income countries have a large portion of the population of high-income levels which reduces the opportunity of MFIs to expand in this group of countries. Thus, it can be concluded that the expansion of MFIs is positively correlated with the level of development of the economy to a specific level of development, then it turns to be negatively correlated with the level of development as the economy continues to grow and reach further higher levels of development that make MFIs not attractive to the population in the economy.

4. Data and Methodology

This section presents the data sources for the indicators of the variables employed in the empirical analysis and the models specifications used to estimate the impact of HDI on each of the size and performance of MFIs.

4.1. Data Collection

Table (1) presents the variables employed in the empirical analysis and the indicators used to capture the impact of these variables. In addition to the data sources for the variables.

Table (1): Variables and Data Sources

Variable	Indicator	Source
Size of MFIs	Natural Log of Total Assets of MFIs	Refinitiv Database
Solvency of MFIs	Leverage Ratio measured by Debt/Equity	Refinitiv Database
Socio-Economic Development	Human Development Index (HDI)	United Nations Development Program (UNDP)
Monetary Policy Effectiveness	Inflation, consumer prices (annual %)	World Bank database

Country Openness	Foreign direct investment, net inflows (% of GDP)	World Bank database
Interest Rate	Real interest rate (%)	World Bank database
Urbanization	Urban population (% of total population)	World Bank database
Regulatory Framework	Economic Freedom Score	The Heritage Foundation

Source: Designed by the authors

4.2. Model Specification:

The impact of socio-economic development on the size and performance of MFIs is analyzed by using data for 81 MFIs in 16 developing countries over the period 2014-2022. The study conducts two multiple regression models using the panel Estimated Generalized Least Squares (EGLS) following the studies of Egbunike (2019) and Mara (2023). This method is widely used for panel data analysis to correct heteroscedasticity problems that arise from the variance of errors that change from one period to another resulting in an autocorrelation problem. Thus, the period weights scale the observations to correct for differences in error variances and hence stabilize the variance over time which contributes to reducing the effects of serial correlation and resulting in more reliable estimates. The cross-section weights correct heteroscedasticity across cross-sections, which leads to more accurate parameters.

Following the studies of Barry and Tacneng (2013), Hermes and Hudon (2018), and Memon et al. (2021), MFIs size is captured by the natural log of total assets. While solvency is captured by the leverage ratio which is the debt-to-equity ratio, following the study of Dang et al. (2024) and Microfinance Financial Reporting Standards (MFRS), (2010).

Model (1) examines the impact of socio-economic development measured by HDI on the size of MFIs. The control variables employed in model (1) are lagged total assets of MFIs, inflation, foreign direct investment, interest rate, urbanization, and economic freedom. While model (2) analyzes the impact of socio-economic development on the solvency of MFIs. The macroeconomic control variables employed in the model are inflation, foreign direct investment, interest rate, urbanization, and economic freedom.

Model (1) is estimated by panel EGLS (period-weights) in a log-log form for all the non-negative variables and the equation is represented as follows:

$$Log(Size)_{ijt} = \beta_0 + \beta_1 Log\ (Size)_{ijt-1} + \beta_2 Log(HDI)_{jt} + \beta_3 INF_{jt} + \beta_4 FDI_{jt} + \beta_5 IR_{jt} + \beta_6 Log(URB)_{jt} + \beta_7 Log(EF)_{jt} + \varepsilon_{ijt} \ldots\ldots\ldots(1)$$

$$i = 1,....,81$$
$$j = 1,......,16$$
$$t = 1,......,9$$

Model (2) ia estimated by Panel EGLS (cross-section weights) and the equation is represented as follows:

$$DTE_{ijt} = \beta_0 + \beta_1 HDI_{jt} + \beta_2 INF_{jt} + \beta_3 FDI_{jt} + \beta_4 IR_{jt} + \beta_5 Log(URB)_{jt} + \beta_6 EF_{jt} + \varepsilon_{jjt} \ldots\ldots\ldots(2)$$

$$i = 1,....,81$$
$$j = 1,......,16$$
$$t = 1,......,9$$

Where:

$Size_{ijt}$ = Total assets of microfinance company i in country j, year t.

DTE_{ijt} = Debt-to-equity ratio of microfinance company i in country j, year t.

$Size_{ijt-1}$ = the lagged total assets (one-period lag) of microfinance company i in country j, year t-1.

HDI_{jt} = Human Development Index in country j, year t.

INF_{jt} = Inflation, consumer prices (annual %) in country j, year t.

FDI_{jt} = Foreign direct investment, net inflows (% of GDP) in country j, year t.

IR_{jt} = Real interest rate (%) in country j, year t.

URB_{jt} = Urban population (% of total population) in country j, year t.

EF_{jt} = Economic freedom score in country j, year t.

ε_{ijt} = the error term.

5. Empirical Results and Discussion:

This section presents the empirical results of estimating the two multiple regression models that examine the impact of HDI on each of the size and solvency of MFIs. Before proceeding with the regression analysis, a unit-root test is conducted to determine the order of integration of each variable as shown in Table (2). Following the study of Jia et al. (2023), the Levin-Lin-Chu (LLC) test is used as it is more suitable for testing the stationarity of the panel data variables. The test results indicate that all the variables are stationary at the level. Thus, the variables are integrated of order zero I(0).

Table (2): Unit-Root Test Results:

Variable	Statistic	Prob.	Order of Integration
DTE	-33.3321	0.0000	Level, I(0)
Log (Size)	-55.6649	0.0000	Level, I(0)
Log (Size$_{t-1}$)	-49.0545	0.0000	Level, I(0)
HDI	-22.0750	0.0000	Level, I(0)
Log (HDI)	-23.2029	0.0000	Level, I(0)
INF	-5.92903	0.0000	Level, I(0)
FDI	-19.0226	0.0000	Level, I(0)
IR	-8.69433	0.0000	Level, I(0)
Log(URB)	-30.6414	0.0000	Level, I(0)
EF	-3.75016	0.0001	Level, I(0)
Log(EF)	-3.86638	0.0001	Level, I(0)

Source: Authors' calculation by using E-views.

To assess the degree of correlation and the direction of the relationships among the variables, a correlation matrix is constructed. Following Kennedy (2003), a correlation coefficient exceeding 0.8 among the explanatory variables indicates the presence of multicollinearity (Memon et al., 2021). The correlation matrix in Table (3) reveals that all pairwise correlations were below this threshold, indicating that there is no multicollinearity problem in the proposed regression models.

Table (3) Correlation Coefficients Matrix

Variable	Log (Size)	DTE	Log(Size$_{t-1}$)	HDI	INF	FDI	IR	URB	EF
Log (Size)	1.000								
DTE	0.223	1.000							
LOG(Size$_{t-1}$)	0.910	0.185	1.000						
HDI	0.610	0.028	0.607	1.000					
INF	-0.383	-0.023	-0.381	-0.637	1.000	0.071	-0.217	-0.377	-0.593
FDI	-0.003	-0.035	0.008	0.183	0.071	1.000	-0.168	0.334	0.183
IR	-0.287	0.029	-0.273	-0.299	-0.217	-0.168	1.000	-0.142	-0.166
URB	0.425	0.091	0.421	0.613	-0.377	0.334	-0.142	1.000	0.684
EF	0.525	0.106	0.515	0.768	-0.593	0.183	-0.166	0.684	1.000

Source: Authors' calculation by using E-views

To further verify the absence of multicollinearity among the explanatory variables, the Variance Inflation Factor (VIF) is used. The results in Table (4) reveal that the value of VIF is below 10 for all variables which emphasizes that there is no multicollinearity problem in both models.

Table (4): Multicollinearity Test Results - Variance Inflation Factor

Variable	LOG(Size$_{t-1}$)	HDI	INF	FDI	IR	URB	EF
VIF- Model (1)	2.911	3.232	2.077	1.276	1.366	2.882	3.110
VIF- Model (2)	-	3.352	2.101	1.269	1.377	2.932	3.160

Source: Authors' calculation by using E-views.

The results of the two regression models are shown in Table (5). Model (1) is estimated in a log-log form because of using the value of total assets as a proxy for the firm size. The results shown in Table (5) indicate that according to the Adjusted R-squared, the change in the explanatory variables explains 95% and 81% of the variation in the size and solvency of MFIs,

respectively. In addition, the Durbin-Watson statistic is 2.04 and 2.15 in models (1) and (2), respectively, indicating no autocorrelation. It is important to note that the autocorrelation problem was detected in both models, and the lagged dependent variable ($Size_{ijt-1}$) was included in model (1) as an explanatory variable to remove the autocorrelation problem. While in model(2), the autoregressive term AR(1) is used to address the autocorrelation problem and obtain reliable estimates.

Table (5): The Regression Models Results

	Model (1)				Model (2)		
Variable	Coefficient	t-Statistic	Prob.	Variable	Coefficient	t-Statistic	Prob.
C	1.735906	1.097800	0.2729	C	6.649694	2.759822	0.0059*
Log($Size_{t-1}$)	0.981983	47.92652	0.0000*	AR(1)	0.849193	74.97358	0.0000*
Log(HDI)	1.039495	4.820776	0.0000*	HDI	-6.848658	-6.596954	0.0000*
INF	-0.003991	-0.531174	0.5956	INF	0.040910	5.004583	0.0000*
FDI	-0.040759	-2.217119	0.0271**	FDI	-0.025995	-2.187889	0.0290**
IR	-0.019354	-2.433063	0.0154**	*IR*	0.006416	0.734090	0.4632
Log(URB)	-0.197165	-2.041805	0.0418**	Log(URB)	-0.120272	-0.217337	0.8280
Log(EF)	-0.034518	-0.111603	0.9112	EF	0.004758	0.625799	0.5317
R-squared	0.948344				0.816125		
Adjusted R-squared	0.947507				0.814178		
S.E. of regression	0.935559				2.297719		
F-statistic	1133.007				419.1191		
Prob(F-statistic)	0.000000				0.000000		
Durbin-Watson stat	2.045084				2.150418		

Source: Authors' calculation by using Eviews.
*Significance Level at 1%.
** Significance Level at 5%.

The results in Table (5) reveal that the estimate of the size of MFIs is positively and significantly affected by their lagged values, Log ($Size_{t-1}$). The coefficient of the HDI indicates that it affects positively and significantly the size of the MFIs in which a 1% increase in HDI results in a 1.04% increase in the total assets of the MFIs, while it has a negative and statistically

significant impact on the leverage of MFIs; a 1% increase in HDI, leads to a 6.85% decrease in the leverage of MFIs which in turn increases their solvency. This can be justified by the tendency of countries with higher levels of HDI to have better education, which is reflected in higher financial literacy rates and more tendency of entrepreneurs to obtain funds for their micro and small businesses. Hence, this results in a higher demand for financial services that positively affects the size of MFIs. Agbloyor et al. (2021) have argued that some MFIs have been established in response to agricultural development in some developing countries. In addition, the recent digitalization advancements in African countries to cope with the global technological changes created the need for the creation and expansion of MFIs to allow populations in these countries to be financially included on the national and international levels. Thus, the higher levels of HDI are accompanied by the expansion of the MFIs in developing countries. Similarly, the higher the level of HDI, the lower the leverage of MFIs, which consequently increases their solvency. This is because countries with higher HDI typically have more stable economies and better risk management practices, which can lead to better financial performance. For inflation, it has an insignificant impact on the size of MFIs, while it has a positive and statistically significant impact on the leverage of MFIs; a 1% increase in inflation rate leads to a 0.04% increase in the leverage of MFIs and consequently a reduction in their solvency. This result is consistent with Batayneh et al. (2021), who confirmed a short- and long-run statistically significant negative impact of inflation on financial sector development. Higher inflation rates discourage financial institutions from offering long-term financing. It is also in line with the study of Rousseau and Wachtel (2002) who emphasized that higher

inflation rates increase uncertainty for the financial intermediaries about investments and returns. Moreover, the policy decision that accompanies the high levels of inflation can distort the functioning of the financial institutions. Furthermore, Lensink et al. (2018) found that inflation adversely affects the performance of MFIs measured by financial self-sustainability because it increases their operation costs.

FDI has a negative and statistically significant impact on the size and leverage of MFIs; a 1% increase in FDI results in a 0.04% decrease in the size of MFIs and a 0.03% decrease in their leverage. This is attributed to the tendency of foreign investors to invest in huge projects that maximize their profits rather than focusing on the social aspects. Additionally, this brings higher competition that affects the micro and small businesses, which in turn would limit the expansion of MFIs. Moreover, foreign investors are unwilling to invest in MFIs in developing countries because of the high default risk due to the high poverty rates, resulting in low collaterals in this group of countries. This is consistent with the results of Ahlin et al. (2011) and Xu et al. (2015), who found that FDI limits the extensive growth of MFIs and negatively affects their depth and outreach. This negative impact on the expansion and the growth of MFIs improves their solvency due to better control over their operations through more personalized service and improved risk management.

The interest rate has an insignificant impact on MFIs leverage, while it has a negative and statistically significant effect on the size of MFIs in which a 1% increase in real interest rate leads to a 0.02% decrease in the size of MFIs. This can be explained by the negative relationship between the interest rate that increases the cost of borrowing for small businesses and the level of investments in the economy. The higher interest rate makes it

difficult for small businesses to meet their repayment obligations, leading to higher default rates, which in turn adversely affects the functioning of MFIs and consequently shrinks their size. This result is in line with the findings of Cull and Kunt (2006) who found a negative impact of higher interest rates on the size and profitability of MFIs. Hence, higher interest rates lead to a lower customer base that diminishes the size of these institutions. For urbanization, the results indicate that it has an insignificant impact on the leverage of MFIs, while it has a negative and statistically significant impact on their size in which a 1% increase in urbanization leads to a 0.2% decrease in the size of MFIs. This is explained by the higher concentration of financial institutions in urban areas, including banks and other formal financial services, making it harder for MFIs to attract and retain clients. Moreover, MFIs main focus is to serve the poor, in developing countries, the poor segments of the population are usually located in rural areas rather than urban areas. In addition, MFIs support the agriculture sector in many developing countries by offering loans to farmers; this widens the activity of MFIs in rural areas compared to urban areas. This result is in line with the study of Agbloyor et al. (2021), who argued that MFIs in developing countries lend more to rural borrowers compared to urban ones. According to economic freedom, results indicate that it is statistically insignificant for both the leverage and size of MFIs. This is because economic freedom implies fewer restrictions, and the regulatory environment in some developing countries may still pose challenges for MFIs.

6. Conclusion and Policy Implications:

This research has analyzed the impact of socio-economic development on microfinance in developing countries. The

results of the study demonstrated a significant positive impact of socio-economic development on the size and solvency of MFIs in developing countries. Hence, countries with higher HDIs tend to have larger and more financially stable MFIs. This is because higher HDIs are often associated with more developed economies and better financial and technological infrastructure. These factors create a more favorable environment for MFIs to operate and reducing their operational risks. Moreover, countries with higher HDIs tend to have higher levels of education and financial literacy among the population. This can lead to increased demand for financial services, including microfinance, that enable MFIs to operate on a larger scale and improve their financial performance. Furthermore, stronger institutions, such as regulatory bodies and legal systems, in countries with higher HDIs can provide a more stable and predictable environment for MFIs to operate in. This can reduce the risks associated with lending and allow MFIs to maintain higher levels of solvency.

The findings of this research have important implications for policymakers and practitioners in the field of microfinance. Promoting policies that foster socio-economic development through improving the standards of living of individuals, providing better education, and improving health care services is essential for enhancing the expansion and performance of MFIs in developing countries. Governments can create a more conducive environment for the growth and sustainability of MFIs. This can help to alleviate poverty, promote financial inclusion, and contribute to overall economic development.

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