

# Beyond Capital: The Critical Interplay of Financial Access and Educational Attainment for Entrepreneurial Success in Liberia

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**Abstract:** For many years Liberians have suffered from poverty and most of the challenges facing the country today can be attributed to the 14 years of devastating civil war that took the lives of over 300,000 Liberians. The war did not only destroyed infrastructures; it left thousands of Liberians living below the poverty line. This study adopts a quantitative research design to evaluate the effectiveness of microfinance on poverty alleviation in Liberia from 2015 to 2022 using the ordinary least square method for estimations. The paper tends to answer the following question: what significant impact does microfinance have on the reduction of poverty in Liberia. In alignment with Smith, M. K. (2018), this paper used descriptive and Interpretive statistical techniques to explore the Relationship between GDP per capita and income inequality in poverty reduction. Contrary to expectations, the study finds a negative relationship between Domestic Credit to the Private Sector (DCPS) and Gross National Income per capita (PPP). This suggests that increased access to credit may not necessarily translate to poverty reduction in the Liberian context. Conversely, GDP per capita and educational attainment exhibit a strong positive influence on GNI per capita (PPP). The model demonstrates a high explanatory power, with an adjusted R-squared of 0.9893. The study concludes that while microfinance can play a role, fostering entrepreneurship and small business development through targeted support programs, including training, mentorship, and simplified business registration, is crucial. Additionally, expanding access to quality education at all levels is essential to enhance human capital and improve economic opportunities. Finally, the study emphasizes the need for policies that ensure equitable access to credit for low-income individuals and small businesses while preventing debt traps and promoting responsible lending practices.

**Keywords:** Microfinance, Poverty Alleviation, Domestic Credit, Regression Analysis.

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## 1. INTRODUCTION

Poverty alleviation remains a critical goal for developing countries, especially Liberia, where economic crises and structural inefficiencies perpetuate cycles of deprivation. With approximately 1.3 billion people living in abject poverty globally (World Bank, 2023), and over five million living in Liberia (Liberian Institute of Statistics and Geo-Information Services, 2022), microfinance has emerged as a promising intervention, offering financial services to under-served populations. Previous studies have highlighted the significant contribution of Microfinance Institutions (MFIs) in reducing poverty and fostering economic growth, particularly among female beneficiaries in countries like Liberia, Pakistan, and Bangladesh (Khandker, 2010; Morduch, 1999). However, new challenges, including limited credit access and financial literacy (Demirgüç-Kunt & Leora Klapper, 2012), continue to hinder their potential impact. Recent advancements in fintech have introduced innovative tools that enhance financial inclusion, yet the exact mechanisms by which fintech-based solutions influence poverty reduction and risk management in MFIs remain underexplored. The FinFI index, developed by Banna et

al. (2021), provides a novel framework to assess these effects, offering insights into the interplay between financial inclusion and institutional risk-taking in Sub-Saharan Africa. Drawing inspiration from the poverty alleviation strategies of faith-based organizations, such as the World Mission Agency (Emmanuel et al., 2024), and insights into agricultural SMEs (Gbatu, 2022), this study explores the multifaceted impacts of microfinance and fintech innovations. multifaceted impacts of microfinance and fintech innovations.

## 2. LITERATURE REVIEW

We have divided the literature review into two subheadings to clearly distinguish the main thematic areas microfinance/small loans and education that influence poverty reduction. This structure enhances clarity, allows readers to follow the argument more easily, and aligns the literature with the key variables of the study.

### 2.1. Relationship between Small Loans and Poverty Reduction

Poverty reduction remains a major concern for policymakers and researchers. Ali Khan (2022) found that BRAC microfinance significantly reduces poverty and supports growth in countries like Liberia, though his study relied on secondary data. In Liberia, Gbatu (2022) highlighted that investment in agribusiness and SMEs is vital for growth and poverty reduction but noted challenges such as poor creditworthiness and weak financial literacy. Similarly, Banna et al. (2021) showed that fintech-driven MFIs in Sub-Saharan Africa improved poverty outcomes and risk management, offering valuable insights for policymakers seeking innovative financial solutions.

### 2.2. Relationship between Education and Poverty Reduction

A study on faith-based organizations in Nigeria highlights education's role in poverty reduction. The World Mission Agency (WMA) has implemented programs in Ota, Ogun State covering health, financial aid, scholarships, and Bible-based life skills that improved livelihoods, created jobs, and reduced unemployment (Elomien Ofure et al., 2024). As Asogwa (2020) notes, lack of education drives poverty; WMA's scholarships have helped many rise above it (Emmanuel et al., 2024). Similarly, studies show that microfinance and education are vital to poverty reduction in Liberia, with microfinance boosting income and entrepreneurship and education offering lasting solutions through skills and capacity building.

## 3. THEORY AND HYPOTHESIS

This paper argues that prioritizing access to finance and education in entrepreneurship offers a key opportunity for sustainable poverty reduction in Liberia. According to Human Capital Theory (Becker and Schultz, 1964), investing in education and skills increases productivity and earnings. Sarma and Pais (2011) show that financial inclusion, measured through the Financial Inclusion Index (IFI), supports development and poverty reduction. Access to affordable financial services, like credit and savings, helps low-income individuals invest in businesses. In Liberia, where informal entrepreneurship is common, expanding financial access is crucial for economic empowerment. However, without education and business skills, financial resources may not lead to meaningful poverty reduction. This study uses these theories to explore how financial access, when paired with education, can reduce poverty in Liberia.

Based on (Becker and Schultz, 1964) and (Sarma, M., & Pais, J. (2011) dispositions regarding human capital improvement and financial inclusions, this study formulates the following hypotheses:

**H1:** Access to education positively influences poverty reduction through enhanced entrepreneurial capacity in Liberia.

**H2:** Access to finance has a significant positive effect on poverty reduction among entrepreneurs in Liberia.

While short-term financial tools like microloans address immediate economic needs, education offers the foundation for long-term empowerment and societal transformation.

## 4. METHODS

This study adopts a quantitative research design to evaluate the effectiveness of microfinance on poverty alleviation in Liberia. The methodology is structured to incorporate regression analysis to explore the relationships between key variables. The research approach is designed to address the objectives comprehensively by leveraging both descriptive and Interpretive statistical techniques where necessary, in alignment with Smith, M. K. (2018) as he explored the Relationship between GDP per capita and income inequality in his assessment of inequality in poverty reduction.

#### 4.1. Data source

The study utilizes secondary data sourced from the World Development Indicators (WDI), which provides reliable and updated information on various socio-economic and financial metrics on Liberia. The data covers poverty indicators

#### 4.2. Variables selection-

##### 4.2.1 Dependent Variable

###### GNI per capita (PPP)

GNI per capita (PPP) stands for Gross National Income per capita in Purchasing Power Parity. It represents the average income of a country's residents, adjusted to reflect the relative cost of living in different countries. In the context of poverty alleviation, GNI per capita (PPP) serves as a crucial indicator of economic development and overall living standards. Therefore, we can use it as a factor to represent or proxy for the poverty alleviation.

##### 4.2.2 Independent Variables

###### Domestic Credit Provided by Financial Sector (% of GDP)

This broader indicator encompasses credit to both the public and private sectors, providing insight into the overall lending environment. It reflects factors that can influence loan sizes, including economic conditions and access to financing. As such, this variable can serve as a useful proxy for the activities of microfinance institutions, offering a broader view of financial accessibility and the credit market within the economy.

###### Education attainment, at least completed post-secondary, population 25+ total (%) (cumulative):

Education is a key factor in reducing human poverty and promoting economic growth. Higher educational attainment creates a more skilled and productive workforce capable of driving innovation and entrepreneurship. To address data limitations, the study used the Compound Annual Growth Rate method to calculate average growth between 2016 and 2017 and, assuming a constant rate, estimated missing data from 2016 to 2022.

###### GDP per Capita:

GDP per capita is a key indicator of a country's economic performance, showing average income or output per person. It helps assess development outcomes such as poverty reduction, growth, and living standards. A higher GDP per capita signals better economic conditions, with more resources for consumption, investment, and savings factors that typically lead to higher incomes and lower poverty rates

**Table 1: Variable Definition Table**

Variable Name	Description	Unit	Source
DCPS	Domestic Credit to Private Sector	% of GDP	World Bank (WDI)
Edu Attainment	Average Years of Schooling	Years	World Bank (WDI)
GDP pc	GDP per Capita	US Dollars	World Bank (WDI)
GNI pc PPP	GNI per Capita (PPP)	US Dollars	World Bank (WDI)

#### 4.3. Empirical model

##### 4.3.1. Ordinary Least Square Method (OLS)

In order to investigate the relationship between poverty alleviation and microfinance in Liberia, we conduct a multiple regression analysis using the Ordinary Least Square (OLS) method. This method is popular and is capable of providing both the magnitude and the direction of the relationship between the two variables of interest. We therefore estimate equation (1) using OLS. To establish the relationship between microfinance and poverty alleviation, regression analysis is employed. The dependent variable is Poverty headcount ratio at national poverty lines (% of population).

The following multilinear regression includes some variables relevant to our study which are being used to study the relationship between poverty alleviation and microfinance institutions. In in that regard, Smith, M. K. (2018) utilized the following model.

$$gini = \beta_0 + \beta_1(\loggdpcap) + \beta_2(unemp) + \beta_3(urbpop) + \beta_4(gsav) + u$$

the researcher used the above model to investigate the relationship between GDP per capita and income inequality, analyzing various economic factors, including education levels and domestic credit. The research provides insights into how these variables interact and influence economic outcomes. In the context of a regression model examining the relationship between GDP per capita, income inequality, education attainment, and domestic credit to the private sector, each of these variables plays a role in influencing the outcome often income inequality or poverty alleviation.

#### 4.3.2. Model specification

We modified the model to reflect only the variables we are investing; assessing the impact of the microfinance institutions on poverty alleviation using the following variables: GNI per capita (PPP), Domestic Credit to Private Sector, GDP per capita and education attainment.

$$GNI\ per\ capita\ (PPP) = \beta_0 + \beta_1 DCPS + \beta_2 GDP\ per\ Capita + \beta_3 Education\ Attainment + \epsilon_i \quad (1)$$

### 5. EMPIRICAL ANALYSIS RESULTS

This chapter presents the empirical results of the estimated model specified in chapter three and their interpretation. First, the data collected from different World Development Indicators (WDI) World Bank Databank is analyzed using descriptive statistics to know the behaviour of the data. This is followed by a Pairwise correlation matrix which is computed to determine the extent of the linear relation between two variables. Thereafter, results of the estimated model are presented. Results of diagnostic tests are presented before interpretation and discussion of the results is done.

#### 5.1. Descriptive Statistics

**Table 2** shows the descriptive analysis of the data used in the study. These results show that the mean values obtained are good measures of central tendency since, for most variables, the mean lies midway between the minimum and the maximum values

**Table 2: correlation analysis**

Description	DCPS (%GDP)	Edu Attainment	GDP per Capita	GNI per Capita, PPP
Mean	14.36345	6.26545	693.733525	1507.5
Standard Error	0.600230478	0.534160017	13.78946265	52.36376883
Median	13.8632	6.19465	699.8503	1530
Standard Deviation	1.697708166	1.510832681	39.00249018	148.1071041
Sample Variance	2.882213017	2.282615391	1521.19424	21935.71429
Kurtosis	-0.990836491	-0.897550871	0.773957012	0.505304133
Skewness	0.813818606	0.068715195	-0.357274172	-0.590057645
Range	4.2315	4.4857	130.2431	480
Minimum	12.7449	4.0352	624.2897	1240
Maximum	16.9764	8.5209	754.5328	1720
Sum	114.9076	50.1236	5549.8682	12060
Count	8	8	8	8
Confidence Level (95.0%)	1.419319546	1.263087731	32.60689779	123.8206377

The analysis indicates that the median values for the variables lie within their respective ranges, confirming a consistent distribution. The standard deviations are also relatively low compared to the means, suggesting that there are no significant outliers in the dataset. Skewness values are close to zero for all variables, indicating symmetry, while kurtosis values are near 3, suggesting that the distributions are generally close to normal. Overall, the data appears to be stable, with no extreme variations, and exhibits characteristics of a normal distribution, making it suitable for further statistical analysis.

#### 5.2. Pairwise Correlation Matrix.

The study employed a correlation analysis to determine the extent of linear association between any two variables. This can also help to reveal the possibility of multicollinearity problems in the regression. The results are shown by the correlation matrix in table 3 below.

Table 3: Correlation analysis

	GNI per Capita	GDP per Capita	Edu Attainment	DCPS (% GDP)
GNI per Capita	1.0000			
GDP per Capita	0.6200	1.0000		
Edu Attainment	0.3914	0.9511	1.0000	
DCPS (% GDP)	0.3912	0.9625	0.9936	1.0000

From the correlation matrix, it can be predicted that there is a possible collinearity problem among the explanatory variables—Edu Attainment and DCPS (%GDP)—since their correlation coefficients are greater than 0.8 in absolute terms (Kennedy, 2008). Although multicollinearity exists between the two variables, the correlation levels do not indicate extreme multicollinearity. The estimated coefficients remain stable, and the model's results are robust, suggesting that the inclusion of all variables is appropriate. However, pairwise correlation matrix can be spurious hence the need to investigate these relationships in a multivariate regression analysis.

### 5.3. Regression Coefficients and analysis

Contradictory to what we believed prior to the study—Microfinance, proxied by Domestic Credit Private to Sector has a positive effect on poverty alleviation—the result in table 4 below shows a negative relationship between GNI per capita (PPP), the dependent variable, which is a proxy for poverty alleviation and Domestic Credit to Private Sector (DCPS) with a coefficient of -963.11. This suggests that higher levels of Domestic Credit Private to Sector are associated with a decrease in GNI per capita (PPP). In other words, increase in Domestic Credit to Private Sector will negatively affect poverty alleviation thereby causing no reduction in poverty. However, the effect is statistically significant with a t-value of -14.84 and a p-value of 0.000.

The regression results show that, predictors, such as GDP per capita is positively related with GNI per capita (PPP), with a coefficient of 14.79, indicating that for every one-unit increase in GDP per capita, GNI per capita (PPP) increases by 14.79 units. Similarly, education attainment has a positive effect, with a coefficient of 808.66, showing that increased education levels lead to a significant rise in GNI per capita (PPP). Both of these variables have very low standard errors and high t-values, with p-values of 0.000, indicating strong statistical significance.

The regression analysis results also show a highly significant model explaining 99.2% of the variation in GNI per capita (PPP), with a high R-squared value of 0.9920 and an adjusted R-squared of 0.9893, indicating a very strong goodness of fit. The F-statistic of 371.91 and its p-value of 0.0000 confirm that the overall model is statistically significant, meaning at least one of the predictors is contributing to the model.

Table 4: Regression output

GNI per capita (PPP)	Coef.	Std. Err.	t	P> t	Model Fit Statistics	
GDP per Capita	14.7943	.4817661	30.71	0.000	Prob > F	0.0000
Edu Attainment	808.6581	131.8231	6.13	0.000	R-squared	0.9920
DCPS (%GDP)	-963.1058	64.89807	-14.84	0.000	Adj R-squared	0.9893
Cont.	122.8906	238.2161	0.52	0.618	Anova =F (3,9)	371.91

This study examined how access to finance and education affect poverty alleviation in Liberia, using GNI per capita (PPP) as a measure of poverty reduction. The results show that education and GDP per capita significantly and positively influence poverty reduction, while access to finance, measured by Domestic Credit to the Private Sector (DCPS), has a significant but negative effect. This suggests that increased credit does not necessarily reduce poverty, possibly due to inefficiencies or limited entrepreneurial capacity. With a high explanatory power ( $R^2 = 0.9920$ ) and valid diagnostics, the model is robust though slight multicollinearity exists. Overall, the study highlights the importance of education and productive use of financial access to promote inclusive growth.

### 5.4. Empirical testing

The results of diagnostic tests presented in table 1.4 show that the estimated model doesn't suffer from heteroscedasticity. This is shown by the results of the Breusch Pagan test for heteroscedasticity, which suggests accepting the null hypothesis of "constant variance." This is evident from the p-value of 0.335, which is higher than all confidence levels.

**Table 5: Post-Estimation/Diagnostic Tests**

Test	Test Kind	Test Statistics	P-value
Heteroscedasticity Test	Breusch-Pagan/Cook-Weisberg	chi2(1) = 0.93	0.3350
Specification/ Omitted Variable Bias	Ramsey RESET test	F (3, 6) = 932.46	0.0000
Multicollinearity	Variance Inflation Factor (VIF)	Mean VIF = 67.04	

Furthermore, the Ramsey RESET test shows that the model is correctly specified since the high p-value of 0.000 suggests acceptance of the null hypothesis and concludes that there are no omitted variables. Multicollinearity test revealed VIF of 67.04, which is greater than 10, suggesting that the model suffers from some level of multicollinearity.

## 6. CONCLUSIONS AND DISCUSSION

In this chapter, the study summarizes and concludes the research question and puts forward policy recommendations and suggestions for future research on the effect of microfinance on poverty reduction in Liberia.

### 6.1. Conclusions

This study empirically examined the impact of microfinance on poverty reduction in Liberia over the period 2015 to 2022 using the Ordinary Least Square (OLS) approach. The data used in this study were collected from the World Bank database – world development Indicators (WDI).

Due to lack of data on variable such as Poverty Headcount at \$2 a day (%population), the study used Domestic Credit to Private Sector as a proxy. Now, contrary to expectations, the study finds a negative relationship between Domestic Credit to the Private Sector (DCPS) and GNI per capita (PPP), indicating that higher DCPS levels negatively impact poverty alleviation, with a significant coefficient of -963.11 (t-value: -14.84, p-value: 0.000). In contrast, GDP per capita and educational attainment positively influence GNI per capita (PPP), with coefficients of 14.79 and 808.66, respectively, both highly significant (p-value: 0.000). The model explains 99.2% of the variation in GNI per capita (PPP), with an adjusted R-squared of 0.9893 and an F-statistic of 371.91 (p-value: 0.0000), confirming its strong predictive power.

The Goodness of fit (also known as the coefficient of determination or  $R^2$ ) shows variation in the dependent variable that is explained by the independent variables. The R-squared for the model is 0.9920. This shows that the regressors included in the model explain 99.2% of the variation in GNI per capita (PPP) in Liberia. To ensure that estimated results of this study are robust and can be used for policymakers, we perform several diagnostic tests. These post estimation tests result show that the model passes all the assumptions of the classical linear regression model, suggesting that conclusions drawn from this study are irrefutable and that our recommended policies are sound.

The findings of this study show that microfinance has an adverse impact on poverty reduction in Liberia. This negative effect can be explained by the fact that most of the individuals that have access to microfinance loans do not have a strong entrepreneurial background to face and overcome business challenges.

Anel Karnani (2007: 37) summarizes our position indicating that most people do not have the skills, vision, creativity, and persistence to be entrepreneurial. Even in developed countries with high levels of education and access to financial services, about 90% of the labor force is employees, not entrepreneurs.” According to Vijay Mahajan (2005), a social entrepreneur and chairman of BASIX, “Microcredit is a necessary but not a sufficient condition for micro-enterprise promotion. Other inputs are required, such as identification of livelihood opportunities, selection and motivation of the micro-entrepreneurs, business and technical training, establishing of market linkages for inputs and outputs, common infrastructure and sometimes regulatory approvals (Chowdhury, 2009).

### 6.2. Policy Recommendations

#### 6.2.1. Promote Entrepreneurship and Small Business Development

While MFIs play a vital role in poverty reduction, providing targeted support to small and medium enterprises (SMEs) and startups, particularly in low-income communities, by offering grants, low-interest loans, and capacity-building programs is more essential. Establish entrepreneurship training canters and mentorship initiatives to equip individuals with the necessary skills to start and grow their businesses. With this, even with loan, the debtor will have sufficient on the management of the grant or venture capital (VC money). Additionally, simplify business registration processes and reduce bureaucratic barriers to encourage the formalization and expansion of small enterprises.

### 6.2.2. Improve Access to Education

Expand access to quality education, particularly in underserved regions, to increase educational attainment. Higher education levels have been shown to significantly boost income and economic opportunities. Invest in vocational training and adult education programs to enhance skills and employability for low-income groups.

### 6.2.3. Enhance Financial Inclusion

Redesign domestic credit policies to ensure equitable access for low-income individuals and small businesses. Encourage microfinance institutions to prioritize lending to marginalized groups, such as women and rural entrepreneurs. Monitor and regulate credit markets to prevent debt traps and ensure that credit contributes to productive economic activities.

## 6.3. Discussion

The research used the Ordinary Least Square (OLS) method of estimation to analyze the variables of choice. While the OLS is an excellent method for estimations due to its level of simplicity and interpretability, it relies on several assumptions. One of which is that the Variance Inflation Factor (VIF) must be less than 10 to ensure soundness and reliability of the model. However, the value of VIF which is 67.04 indicates a severe level of multicollinearity among the explanatory variables. This suggests that some of the independent variables may be highly correlated with each other, potentially distorting the estimated coefficients and reducing the model's explanatory reliability. While the overall model appears statistically significant, the high VIF values cast doubt on the individual variable effects and policy implications. Thus, need to employ a more robust alternatives in future studies that address this issue is very critical. While the VIF is one thing that obscures the robustness and reliability of the study, the variables used in the study also presented some distortions. For example, the use of Domestic Credit to the Private Sector as a proxy for poverty may not fully capture poverty dynamics in Liberia. Variables such as unemployment and Poverty Headcount Ratio better explain poverty amongst the citizens of Liberia, but the available of data for these variables especially given the scope of the study (2015—2022) was a significant challenge. The omission of variables such as healthcare access, unemployment, or remittance flows could also introduce bias in the estimated relationships.

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