Scientific
Research
Publishing

Microfinance and Poverty Eradication in the North African Countries: A Heterogeneous Panel Causality Analysis

Marwa A. Elsherif

Department of Economics, Helwan University, Cairo, Egypt
Email: marwassem@yahoo.com

Abstract

Microfinance is considered as an effective tool for poverty reduction and socioeconomic development. This paper examines the impact of microfinance on poverty eradication by analyzing the causal links between the intensity of microfinance and poverty estimates. It employs heterogeneous panel causality techniques on a sample of North African countries over the period 1990-2021. Furthermore, the paper studies the impact of other control variables on poverty namely: arable land; agricultural value added; inflation; youth population; trade openness; school expenditure; health expenditure; rural population and per capita GDP growth rate. Parameters are measured using the fixed-effect estimation. Results reveal that, access to microfinance through the increase in the number of active borrowers along with the average loan size reduce poverty significantly in the sample countries as measured by the headcount ratios and poverty gap. Policymakers and regulators should ensure that microfinance is targeted at more efficient and equitable lending which will create more opportunities, thus increasing income, economic empowerment and reducing poverty.

Keywords

Microfinance, Poverty, Panel Causality, Heterogenity

1. Introduction

Poverty has remained a continuous apprehension across many countries. Effort has been exerted to combat poverty, as a result, the number of people living below poverty line has declined from $2 billion in 1990 to $705 million in 2015 (World Bank, 2015).[1] The global poverty rate (at the $1.90 poverty line) in 2018

---

[1]This means that during these years 137,000 people exited the extreme poverty on daily basis.

counted 8.6% down from 9.1% in 2017, equivalent to a decline by $28 million poor people between the two years (World Bank, 2019b). Additionally, the global poverty fell by 2.8% between 2012 and 2015 (from 12.9% to 10.1%) and by 1.5 percentage points between 2015 and 2018 (World Bank, 2018). According to the 2018 report on sustainable development goals 75 out of 100 deprived people globally are women (United Nations, 2018) and 55% of world population have no access to social protection (United Nations, 2019).

While pre-pandemic global poverty rates had been cut by more than half since 2000, the COVID-19 pandemic could increase global poverty by as much as half a billion people or 8% of the total human population (United Nations, 2021). Progress with poverty alleviation which has already slowed prior to the start of the COVID-19 pandemic is anticipated to remain hindered as subdued per-capita income growth persists in many developing countries (World Bank, 2022c). According to the World Bank estimates, pandemic led to 97 million more people being in poverty in 2020, however, global poverty decreased by about 21 million people compared with 2020 (World Bank, 2022b). Extreme poverty declined by 2.9% from 2020 to 2021, which is nearly identical to the annual declines in poverty observed before the pandemic spread 2.3% - 3.7% (World Bank, 2023). This confirms a continued reduction in extreme poverty at the global level, although at a slower pace in more recent years.

Among various difficulties of the poor, lack of finance is a core issue which resists them to participate in income generating activities. As a result, situation becomes chronic (Roser & Ortiz-Ospina, 2017). In developing nations, microfinance is being used widely as a poverty reduction tool. Microfinance and its impact studies have got more importance during the last decade (Kessy & Temu, 2010). Various studies are conducted to measure the degree of success or failure of the microfinance programs. Albeit most of the studies show positive impact of microfinance on poverty but its consistency is often questioned (Maliszewska & Mensbrugghe, 2019; Medeiros et al., 2021).

By microfinance economically dependent members of the society are transformed into entrepreneurially active that are able to generate income (Anane et al., 2021; Samer et al., 2015). Maitrot and Nino-Zarazua (2017) estimated the effectiveness of microfinance program, yet suggested it to be a vital tool for the global efforts in the quest of poverty free world. Banerjee et al. (2015) pointed that by using microfinance individuals with pre-existed business got expansion in it, whereas those without any business showed low propensity to start a new venture rather they increased nondurable consumption. By exposing poor individuals to microfinance their conditions are improved in short run, however, when the given money is exhausted conditions become even more critical as they are left under additional burden of debt (Chowdhury et al., 2005; Yusuf et al., 2013).

To this end, this paper is divided as follows: following the abstract and the introduction, Section 2 reviews the recent literature on microfinance and poverty eradication. The socioeconomics insights for the North African countries are

discussed in Section 3. Section 4 and 5 lay down data description and collection methods, empirical methodology utilized in the analysis and empirical results. Finally, the paper is concluded in section 6.

2. Review of Literature

Microcredit is a method for providing small amounts of capital to poor people so that they can improve their existing income-generating activities or develop new ones, it is widely used in developing countries (Hulme, 2000).[2] The term "microcredit" has changed into "microfinance" (MF) in recent times due to its wider role, as microfinance adds the provision of savings and insurance services to that of credit (Imani et al., 2012). Microfinance can take the form of loans, savings accounts and other cash management assistance for those on low incomes especially in developing countries (Robinson, 2001).

Muhammad Yunus and the Grameen Bank became the benchmark for the proficient execution of microfinance activities (Jamal, 2008). It is evident, therefore, that the various microfinance is a vital tool in alleviating poverty. Yunus (2007) believed that such an alternative to traditional banking was essential in Bangladesh to ensure financial inclusion for the most deprived members of the society.[3] Moreover, the majority of traditional banks and financial institutions viewed women as not being bankable, due to not only their lack of collateral but also the incorrect premise that they are not as creditable as men.

In line with Velasco and Chiba (2004), inability to access credit prevented the poorest in developing countries from attaining education; thus, those individuals in greatest need were unable to lift themselves out of poverty. It was pointed out by Irobi (2008), the financial exclusion of the most deprived segments of society due to their lack of collateral was experienced worldwide.

In a nutshell, microfinance can play an effective role in achieving the long-cherished objectives of poverty alleviation and rural development by credit-deepening (Dadhich, 2001). If the success stories of Bangladesh and Malawi were repeated in other countries, this may ensure multiple benefits for the rural economies (Pitt & Khandker, 1998).

The large number of studies on the impact of microfinance on poverty reduction have been conducted especially in developing countries in the past years with the growth of microfinance institutions (MFIs) in these countries (Collin et al., 2022). There has been a surge in interest in microfinance in the recent past, particularly in the context of reaching poor families in a more effective way (Addae-Korankye, 2020).

Banerjee et al. stated "microcredit has spread extremely rapidly since its beginnings in the late 1970s, but whether and how much [it] helps the poor is the subject of intense debates" (Banerjee et al., 2015: p. 22). There is a wide range of

[2]It is based on the principle of providing credit to individuals within a group, where each person in the group is mutually responsible for the credit repayment of the other members.

[3]Who were not regarded as bankable, being without collateral, but still depended on credit to either set up a new or develop an existing business, lifting themselves out of poverty.

evidence that suggests that microfinance increase income, business profits and lift the people out of poverty. In contrast there are studies which support the contrast view that microfinance programs are successful in reducing poverty in few regions like Asia and Latin America but not in every region (Abrar & Javaid, 2016; Ullah & Khan, 2017; Ullah et al., 2020).

Studies that claim to have demonstrated a positive effect of microfinance on poverty include those by Abed & Matin, 2007; Ajit & Anu, 2012; Beklentileri & Alemu, 2018; Kaladhar, 1997; Kebede & Kebede, 2016; Khandker & Pitt, 2005; Littlefield et al., 2003; Mann, 2003; Manroth, 2001; Panjaitan-Drioadisuryo & Cloud, 1999; Phan et al., 2022; Rahman & Razzaque, 2000; Robinson, 2002; Swain et al., 2008; Vatta, 2003; Vonderlack & Schreiner, 2002 and others. From a review of the findings of 32 studies of microcredit programs around the world, Sebstad and Chen (1996) for example concluded that participation in microcredit programs had positive effects at the enterprise, household and individual levels.

However, Ghauri and Wang (2017) demonstrated that poverty reduction depends on cooperation between financial institutions, local firms and human capital development, which can enhance both the sustainable development of a society and the capabilities of national organizations, even the most minor actors can benefit society. Donou-Adonsou and Sylwester (2016) claimed that distinct progress has been made toward poverty reduction, while the possibilities MFIs may offer to national economies should be explored. In addition, Billah et al. (2023) suggested that MFIs should provide training before extending loans because the majority of their borrowers might not be highly educated or talented and require support and training in entrepreneurship and business.

Tiberti et al. (2018) adopted a macro-micro methodology to discover that improvements, albeit small, and a decline in poverty were achieved for the population as a whole. Furthermore, Bongomin et al. (2020) claimed that, reducing poverty also reduced the possibility of defaulting on credit as around 95% of loans being repaid. Samer et al. (2015) proved that availability of credit helps diversify household income and smoothens household expenditure, allowing them to absorb economic shocks and fluctuations. Additionally, Chemin (2008) indicated that although microfinance has a positive impact on the per capita expenditure of the participants, this is less than formerly believed. While another study in India (Banerjee et al., 2015) claimed that microfinance has no impact on participants' average monthly expenditure per capita, health, education or women's decision making. In this respect, Altay (2007) argued that microfinance approach does not offer sufficient solutions to reduce poverty.

Mosley (2001) highlighted that microfinance in Bolivia is successful in reducing poverty for those who are near the poverty line, but ineffective in reducing extreme poverty. On the contrary, Hulme and Mosley (1996) investigated 12 programs of microcredit from seven developing countries demonstrated that household income rose due to microcredit intervention, but with a qualification. They postulated that the increase of income from a microcredit loan depended on the socio-economic condition of borrowers.

Other researchers have argued that the poorest of the poor are excluded from microfinance programs (Adjei et al., 2009; Ahmed et al., 2006; Basu, 2013; Chomen, 2021; Christensson, 2017; Hashemi, 2001; Matin & Hulme, 2003; Pronyk et al., 2007). Gulli and Berger (1999) for example showed that in six Latin American countries microfinance did not reach many of the poor households, with the proportion of poor people reached by each program ranging from 7% - 77%. As mentioned "the widespread exclusion of the very poor from MFIs client rolls contradicts the image of microfinance as a tool for global poverty alleviation" (Woller, 2002a: p. 306).

According to Gehlich-Shillabeer (2008), microcredit creates indebtedness and leads to poverty traps. While Daley-Harris and Zimmerman (2009) emphasized that when microfinance is used to meet consumption, it can lead to debt for the borrowers. A comparative study of microenterprise programs in Vanuatu and El Salvador showed that the increase of income for poor people and the development of successful microenterprises were conflicting instead of complementary objectives. The poorest were excluded from the programs due to the selection of people who were likely to succeed (Tomlinson, 1995). Banerjee and Jackson (2017) found that microfinance led to increasing levels of indebtedness among already impoverished communities and exacerbated economic, social and environmental vulnerabilities.

As previously noted that microfinance is a powerful tool for certain groups of poor people: those just below the poverty line (the moderately poor) and those just above it (the vulnerable non-poor). García-Pérez et al. mentioned that "while microfinance may increase income, its main impact is reducing a poor person's vulnerability to external shocks and economic stress" (García-Pérez et al., 2020: p. 4). In this perspective, Morduch (2000) claimed that access to financial services helps poor people avoid becoming even poorer. Many poor people, especially the extremely poor may not benefit from microfinance. Despite that practitioners should develop financial services especially savings and insurance that could help the extremely poor build up an asset base, which over time could enable them to grasp an economic opportunity when it arises.

From the studies reviewed above it is concluded that although many of them showed that microfinance has had a positive impact on poverty reduction, there is debate about the level of impact on poverty and about whether microfinance is reaching the poorest of the poor.

This paper represents a try to fill a crucial gap in the existing literature and sets the stage for future investigation. It takes a deeper dive into the specific impacts and conceptual factors that shape the effectiveness of microfinance programs in alleviating poverty. By doing so, it provides a more comprehensive understanding of the complex dynamics involved with focus on the North African Countries.

3. Socioeconomic Insights for the North African Countries

This study focuses on the countries of North Africa as they share a large amount

of their ethnic, cultural and linguistic identity with the Middle East along with the economic conditions.[4] This work follows the United Nations' definition for the North Africa region, which includes: Algeria, Egypt, Libya, Morocco, Sudan Tunisia and Western Sahara.[5,6,7] North Africa has registered strong economic recovery in the wake of the COVID-19 pandemic and concomitant oil price collapse (IMF, 2022). After an economic recession of 0.3% in 2020 (excluding Libya), the North Africa region rebounded in 2021 with a regional of GDP growth averaging 3.9%, estimated as 4.5% in 2022 and projected to reach 4.2% in 2023 (AfDB, 2022).[8]

As reported by North Africa Economic Outlook (2022), the strong economic recovery in 2021 is largely attributed to the policy measures implemented, including fiscal stimulus and accommodative monetary policy that governments in the region undertook to mitigate the impact of those exogenous shocks and protect populations, small and medium enterprises (SMEs) and economic activities. However, the uncertainty brought by the Russia-Ukraine conflict dampened the speed of the post-COVID-19 recovery (World Bank, 2022a) and had influential implications on employment, inflation and poverty (Mahler et al., 2022a). Other macroeconomic projections indicated that North Africa's inflation follows the increasing global trend but remain subdued at 6.7% in 2022 and 6.4% in 2023 (World Bank, 2023).

North Africa needs to consider measures to maintain welfare and counteract inflationary forces which reduce consumer purchasing power and increase poverty and inequalities in the region (AfDB, 2022). Despite fiscal space constraints, public social safety net programs such as cash transfers are an important tool at hand, especially for the poorest populations providing a buffer against the negative impact on household consumption (OECD, 2019).[9]

Mahler et al. (2022b) reported that while North Africa fares better than Sub Saharan Africa in terms of the proportion of populations in extreme poverty, the incidence of poverty has recently trended upward. As estimated by the World Bank, extreme poverty rates in the North Africa region were doubled to 7.2% in 2018 from 2.3%t in 2013 (World Bank, 2019a). The pandemic has exacerbated

---

[4]North Africa is associated with West Asia in the realm of geopolitics to form the Middle East and North Africa region.

[5]See: Division, United Nations Statistics. "UNSD-Methodology". *United Nations Statistics Division*. Archived from the original on 16 January 2023.

[6]The African Union defines the region similarly, only differing from the UN in excluding Sudan.

[7]Western Sahara region, is a territory that was subject to Spanish colonialism from 1884 to 1975, despite many Moroccan claims to retrieve it and put its file by the Moroccan government in the mid-sixties in the Committee on Decolonization and Special Political Issues, but before its exit from the territory, the Spanish Kingdom instilled the separatism of a Saharan group resulted in a long-running regional conflict between the Kingdom of Morocco and the Polisario organization, which is supported militarily and diplomatically by the state of Algeria, within the framework of the regional competition for leadership in the North African region between Algeria and Morocco.

[8]If Libya, with an impressive economic growth of 177.3% in 2021, is included, North Africa's economic growth (11.7%) becomes the largest on the continent.

[9]Many countries in the region are food importers (notably wheat) and will be the hardest hit by the war in Ukraine. Rising food and commodity prices in the current context of uncertainty lead to significant inflationary pressures that have negative consequences in terms of increasing poverty.

the outlook for poverty in the region.[10] Additionally, the ongoing Russia-Ukraine tension and its implications on food prices and food security are expected to push additional households into poverty (FAO, 2022).

In December 2020, Egypt's rate of poverty was estimated at 29.7% and extreme poverty at 4.4% (WRI, 2021a).[11] Post-conflict Libya continues to struggle with poverty and food insecurity as well as health-related shocks (UNOCHA, 2021). According to the 2020 World Food Program-World Bank survey, more than half of households declared their income insufficient to cover their basic expenses and about 10% of them to cover their food consumption.[12] Moreover, Algeria continues to experience a tepid job market, the number of unemployed doubled from 1.16 million in August 2021 to 2.10 million in November 2021 after the government decided to provide unemployment benefits to the jobless population. Prior to the crisis, the rate of employment was estimated at 11.4% in 2019 (AfDB, 2021).[13]

In Tunisia, according to a joint study of the AfDB and Institut Arabe des Chefs d'Entreprise in (2022), the rate of poverty is at 15.3%, mostly concentrated in rural areas. Most poor families, estimated at around 900,000 according to the national register of poverty, benefit from subsidy programs and a monthly aid of 180 dinars (54 euros) per family. With the recent crisis, additional financial support was provided to them.[14]

In Morocco, the rate of poverty which had been on a trend down from 6.2% in 2011 to 4.8% in 2014 increased by at least one percentage point in 2021, whilst the incidence of absolute poverty characterized by unmet needs increased sevenfold from 1.7% in 2014 to 11.7% in 2022, subsequently dropped due to the government's swift programs (Africa Watch-OHCHR, 2022). SMEs which provided 73% of jobs prior to the crisis were also hit hard (AfDB, 2022).[15] The new development model has put human capital at the center of its vision and intends to set up universal social security by 2025 (WRI, 2021b). Currently 15% of the population of Western Sahara lives below the poverty line.[16]

---

[10]While public interventions may have mitigated the worst effects of the pandemic, the welfare loss is expected to have long-lasting effects.

[11]Several initiatives have been launched to ensure a decent life for the country's large and fast-growing population, particularly in remote rural areas. In addition, most public investment projects have targeted labor-intensive construction projects, which have contributed to the decrease in the unemployment rate to 7.4% in 2021, compared to 7.9% in 2020.

[12]See: https://docs.wfp.org/api/documents/WFP-0000114546/download/

[13]In addition, the devaluation of the local currency has had adverse effects on Libyans' purchasing power.

[14]The economy has lost 130 000 jobs because of the pandemic. The rate of unemployment reached 18.4% at the third trimester of 2021, or one percentage point higher from the beginning of 2021. The situation is more complex for women (unemployment rate at 24.1%) and people with a high school diploma (30% unemployed).

[15]Consequently, unemployment increased from 9.2% in 2019 to 12.8% in the second quarter of 2021. Due in part to the recovery, the unemployment rate fell by close to one percentage point in the third quarter of 2021.

[16]See poverty statistics and rates in Western Sahara provinces for the month of October 2022 on the database of the Oxford Initiative on Poverty and Human Development (OPHI). Available at: https://ophi.org.uk/wp-content/uploads/CB_MAR_2022.pdf.

Small enterprises and most of the poor population in North Africa have limited access to deposit and credit facilities and other financial services provided by formal financial institutions (Alattas & Tayachi, 2021).[17] To meet the unsatisfied demand for financial services, a variety of MFIs has emerged over time in North Africa (Basu et al., 2004). Some of these institutions concentrate only on providing credit, others are engaged in providing both deposit and credit facilities and some are involved only in deposit collection (Parvin et al., 2020).[18]

4. Data and Methodology

The main focus of this paper is to examine the impact of microfinance on poverty eradication in the North African countries, data has been collected for six countries including: Egypt, Sudan, Libya, Tunisia, Algeria and Morocco.[19] Data is on annual basis covering the period from1990 to 2021. The chosen timeframe encompasses economic reforms, political changes and social transformation in the region, herby the study can capture the dynamics and effects of microfinance within the context of these substantial shifts. Additionally, many microfinance initiatives and interventions were implemented during this period, making it crucial to assess their effectiveness on poverty eradication.

To identify the association between poverty and microfinance, this study is estimating poverty (which is the dependent variable) by three measures; HC1: poverty headcount ratio at national poverty lines (% of population), HC2: the poverty head count ratio at $2.15 a day (percentage of population living at less than $2.15 per day) and *PGAP*: the poverty gap at $2.15 a day. This permits to check the robustness of the results. On the other hand, this work employs two intensity indicators for microfinance: 1) the breadth of outreach which indicates the number of poor participate in microfinance program,[20] measured by the number of active borrowers from MFIs weighted by the total population of the country (AB) and 2) the depth of outreach which captures the value of net gain of a borrower measured by the average loan size weighted by GDP per capita of the country (LN).[21] Microfinance data collected from Microfinance Information Exchange (MIX) (http://mixmarket.org), which is an authentic source providing uniform data all over the world.[22] To assess transmission channels between microfinance and poverty, the following relationship is analyzed:

---

[17]Same as most of the African countries. For example, in Ghana and Tanzania, only about 5% - 6% of the population has access to the banking sector. This lack of access to financial services from the formal financial system is quite striking, when one considers that in many African countries the poor represent the largest share of the population and that the informal sector is an important part of the economy.

[18]The Central Bank of Egypt (CBE) has announced that the size of microfinance offered by banks and financial institutions increased to EGP 64.6 billion for 4.5 million beneficiaries in June 2022, compared to EGP 6.4bn in December 2016.

[19]Western Sahara is excluded because of data unavailability.

[20]It is expected that the larger the number of borrowers the better the outreach and more the poorest population is served.

[21]Different dimensions of outreach are discussed in the literature. Please see: Attuel-Mendes, 2016; Bhatt & Tang, 2001; Cull et al., 2007; Mersland & Strom, 2010; Schreiner, 2002; Woller, 2002b.

$$Pov_{it} = \alpha \frac{AB_{it}}{POP_{it}} + \beta \frac{LN_{it}}{GDP_{it}} + \gamma CVS_{it} + \varepsilon_{it} \tag{1}$$

where *Pov* is poverty, AB_{it} is the number of active borrowers from MFIs and the volume of loans is LN^{it}. However, given that $LN_{it} = I_{it} AB_{it}$ with I_{it} the average unit value of the loans; we can transform this initial relationship and reformulate it according to I_{it}.

$$Pov_{it} = \alpha \frac{AB_{it}}{POP_{it}} + \beta \frac{AB_{it} I_{it}}{GDP_{it}} + \gamma CVS_{it} + \varepsilon_{it} \tag{2}$$

$$Pov_{it} = \alpha \frac{AB_{it}}{POP_{it}} + \beta \frac{AB_{it}}{POP_{it}} * \frac{I_{it}}{pcGDP_{it}} + \gamma \cdot CVS_{it} + \varepsilon_{it} \tag{3}$$

This indicates that collinearity problem have to be taken into account between the two microfinance indicators. Meanwhile, these two variables are separately estimated following the above transformed model:

$$Pov_{it} = \alpha' MI_{it} + \gamma CVS_{it} + \varepsilon_{it} \tag{4}$$

$$MI_{it} = \alpha \frac{AB_{it}}{Pop_{it}} \quad \text{or} \quad MI_{it} = \frac{I_{it}}{pcGDP_{it}}$$

where *MI* stands for microfinance intensity and GDPPC is the GDP per capita of countries under study. In a summary, this paper aims to analyze the following models:

Model 1: $\text{HC1}_{it} = \beta_0 + \beta_1 AB_{it} + \beta_2 LN_{it} + \sum_k \lambda_k X_{kit} + \epsilon_{it}$

Model 2: $\text{HC2}_{it} = \beta_0 + \beta_1 AB_{it} + \beta_2 LN_{it} + \sum_k \lambda_k X_{kit} + \epsilon_{it}$

Model 3: $\text{PGap}_{it} = \beta_0 + \beta_1 AB_{it} + \beta_2 LN_{it} + \sum_k \lambda_k X_{kit} + \epsilon_{it}$

where; β_1 is the coefficient of *AB*, β_2 is the coefficient of *LN* and λ_k are the coefficients of the control variables X_{kit}. Parameters are measured individually using the fixed-effect estimation, *CVS* is the control variables set which includes other determinants of poverty, these determinates are as follows: arable land (in percentage of land area), agricultural value added (in percentage of GDP), inflation (consumer prices annual growth), youth (population ages 0 - 14 as % of total), trade openness (trade to GDP ratio), school expenditure (total public spending on education as % of GDP), health expenditure (total health expenditure as % of GDP), rural population (in percentage of total population) and per capita GDP growth rate. Selected variables descriptions and sources are presented in **Table 1** below.

Table 2 below shows the description of the variables under study through computing some descriptive measures such as: mean, minimum, maximum,

---

[22]MIX Market is the industry-leading data and intelligence platform for socially responsible investors focused on inclusive finance in emerging markets.

Table 1. Selected variables descriptions and sources.

Symbols	Descriptions	Sources
Dependent variables		
HC1	Poverty headcount ratio at national poverty lines (% of population)	
HC2	Poverty headcount ratio at $2.15 a day (% of population)	World Bank Dataset[23]
PGap	Poverty gap at $2.15 a day (%)	
Independent variables		
AB	Number of active borrowers (per 1000 adults)	MIX Market[24]
LN	Average loan balance per borrower/GNI per capita (%)	
CVS: Control variable set		
AL	Arable land (% of land area)	Food and Agriculture Organization (FAO) dataset[25]
AGR	Agriculture, forestry, and fishing, value added (% of GDP)	World Bank Dataset
CPI	Inflation, consumer prices (annual %)	International Monetary Fund (IMF), International Financial Statistics (IFS)
POP	Population ages 0 - 14 (% of total population)	United Nations Population Division. World Population Prospects: 2022 Revision
TR	Trade (% of GDP)	World Bank Dataset
EDU	Government expenditure on education, total (% of GDP)	UNESCO Institute for Statistics (UIS)[26]
HE	Current health expenditure (% of GDP)	World Health Organization (WHO), Global Health Expenditure database[27]
FDI	Foreign direct investment, net inflows (% of GDP)	International Monetary Fund (IMF), International Financial Statistics (IFS)
RPOP	Rural population (% of total population)	United Nations Population Division's World Urbanization Prospects

[23]Available at: http://databank.worldbank.org.
[24]Available at: https://databank.worldbank.org/source/mix-market.
[25]Available at: http://www.fao.org/faostat/en/?#data.
[26]Available at: https://apiportal.uis.unesco.org/bdds.
[27]Available at: http://apps.who.int/nha/database.

Continued

GDPPC	GDP per capita growth (annual %)	World Bank dataset
GDPG	GDP growth (annual %)	World Bank dataset
	IV: Instrumental variables	
DC	Domestic credit provided by financial sector (% of GDP)	International Monetary Fund (IMF), International Financial Statistics (IFS) and World Bank and OECD GDP estimates
AE	Access to electricity (% of population)	World Bank Global Electrification Database from "Tracking SDG 7: The Energy Progress Report"
AW	People using safely managed drinking water services (% of population)	WHO/UNICEF Joint Monitoring Program (JMP) for water supply, sanitation and hygiene (washdata.org)
GE	Government Effectiveness: Estimate	World Bank Group: Detailed documentation of the WGI

Table 2. Descriptive statistics of the selected variables.

	N	Minimum	Maximum	Mean	Std. Deviation
		Dependent variables			
HC1	192	4.8	62.4	25.9	13.6
HC2	192	0.1	18.8	6.9	5.5
PGap	192	0.0	5.2	1.5	1.4
		Independent variables			
AB	192	16.6	250.4	89.4	48.6
LN	192	2.7	53.4	19.3	10.8
		Control Variables			
AL	192	1.0	20.4	8.6	7.2
AGR	192	1.4	45.0	14.4	9.7
CPI	192	−9.8	382.8	14.0	35.4
POP	192	23.6	47.8	34.3	6.2
TR	192	0.8	114.3	59.1	25.9
EDU	192	1.0	8.9	4.2	2.0
HE	192	2.4	7.3	4.9	1.0
FDI	192	−0.5	9.4	1.9	1.7
RPOP	192	19.0	71.4	43.6	15.3
GDPPC	192	−47.9	97.0	1.8	9.6
GDPG	192	−50.3	86.8	3.5	9.3

Continued

		Instrumental variables			
DC	192	1.6	94.8	33.0	25.4
AE	192	20.0	100.0	82.7	24.0
AW	192	29.6	99.9	72.3	17.8
GE	192	−1.9	11.0	−0.5	1.0

standard deviation and coefficient of variation. While Figure 1 presents the trends of the poverty estimates of the sample countries.

From Figure 1, it is concluded that all poverty ratios almost increase over years. The highest average for the poverty headcount ratio at national poverty lines (% of population) is in Sudan, while the least average is for Morocco. However, the highest average for the poverty headcount ratio at $2.15 a day (% of population) is in Sudan, while the least average is for Algeria. It is also noted that the highest average for the poverty gap at $2.15 a day (%) is in Sudan as well, while the least average is for Egypt.

Previous studies have proven the endogenous nature of the correlation between poverty and microfinance. Arif et al. (2019), Brooks (2008), Miled and Rejeb (2018) and Musibau et al. (2019) asserted that the causal relationship between the intensity of microfinance and poverty is bidirectional and thus a source of endogeneity. Therefore, the impact of microfinance on poverty can be distorted by the fact that MFIs tend to concentrate in areas where poverty is high. On the contrary, Do et al. (2021), Henaff et al. (2009), Larcher (2007) and others emphasized on the endogenous nature of the relationship between poverty and countries' socioeconomic conditions, such as access to healthcare and education. For this reason, variables that can be a source of endogeneity are recognized by conducting the Davidson-MacKinnon endogeneity test. Results presented in Table 3 below show the variables that should be counted as endogenous. The classifications of these variables depend on the individual test of each variable.

As presented in Table 3, variables in group 1 should be treated as endogenous (*LN*, *AGR*, *CPI*, *POP*, *EDU*, *RPOP*, *GDPG*), while group 2 variables are counted as exogenous (AB, AL, TR, HE, FDI). Once the endogenous variables are identified, instrumental variables (IV) measures should be specified to address the endogeneity problems. The main difficulty in using IV techniques is selecting the correct instruments to overcome endogeneity. In this context, the dependent variable (poverty which is measure by: HC1, HC2 and PGap) with potential instruments are quantified, then indicate those that are insignificantly correlated with the dependent variable. However, for these tools to be valid they must meet several conditions. The focal condition for verification is the identification hypothesis (Baum et al., 2007). Two preliminary tests are conducted: Over-Identification test, the resulting statistic is the p-value of the Sargan (1988) test and Anderson's Under-Identification test (Anderson, 1951). The second condition is to have sufficient
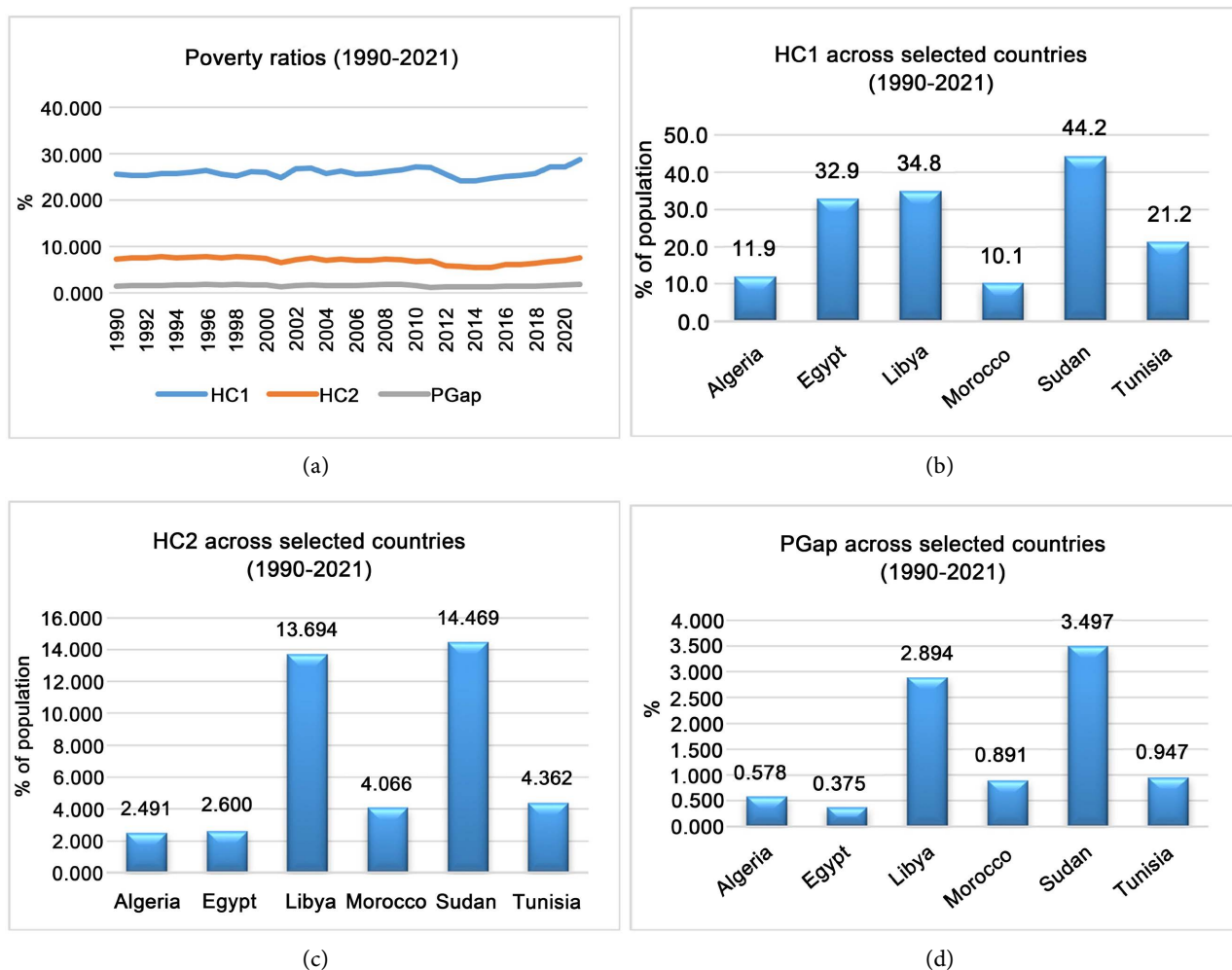
(a)

(b)

(c)

(d)

Figure 1. (a)-(d). Trends of poverty estimates of the North African countries (1990-2021). Source: Author's computation.

Table 3. Davidson-MacKinnon endogeneity test (Chi-2 stat).

Variables	HC1	HC2	PGap
Group 1 (Variable for which individual tests reveal endogeneity)	32.103***	29.82***	30.27***
Group 2 (Variable for which individual tests reveal exogeneity)	2.005	1.08	0.291

Note: Group 1: LN, AGR, CPI, POP, EDU, RPOP, GDPG, Group 2: AB, AL, TR, HE, FDI. Source: Author's computation using Stata software version 17.

correlation between the endogenous regressors and the excluded instruments. If this correlation is weak, then the quality of the inference will be affected. Thus, the weak instruments test developed by Stock and Yogo (2005) is employed. The following table summarizes the tests and their null hypotheses (**Table 4**).

In the following step, the instruments that fit the Sargan and other validation tests are identified and the lagged values of the independent variables along with

Table 4. Tests conducted and their null-hypotheses.

Kleiberg-Paap test for under identification (Anderson Canon. correlation LM statistic)	H0: Model is under-identified. Rejection of H0 implies that the model is well identified.
Weak instrument test (Cragg-Donald Wald F statistic)	H0: Weakly identified. Rejection of H0 & t statistic >10 (= rule of the thumb) implies that the model is not weak.
Sargan-Hansen J statistic	Test if instruments are uncorrelated with error term. Rejection of H0: instruments are invalid.

a set of additional instruments were adopted. These instruments are as follows; domestic credit provided by the financial sector (% of GDP) collected from International Monetary Fund (IMF) dataset, access to sanitation facilities (% of population) from WHO/UNICEF Joint Monitoring Program, access to electricity (% of population) and the government effectiveness estimate are gathered from World Bank dataset (see Table 1).

5. Empirical Results and Discussion

This section presents the results of the suggested model described above.

5.1. Correlation Estimates

To check the multicollinearity between the control variables and the independent variables, correlation estimates are excused. Results presented in Table 5 illustrate that there is high correlation between the independent and control variables except for the correlation between AGR and each of POP and RPOP, the correlation between POP and RPOP, the correlation between TR and RPOP and the correlation between GDPPC and GDPG.

However, to emphasize that there is no true multicollinearity problem, Variance Inflation Factor (VIF) is used for this check. Table 6 states the values of VIF. It is concluded that the variables which are highly correlated are GDP per capita growth and GDP growth, thus, one of them is used as a control variable in the model, namely GDP per capita growth.

5.2. Fixed Effect OLS Estimation

With confidence level of 95%, Table 7 denotes that the estimated model explained around 63.2% of the poverty headcount ratio at national poverty lines (% of population), 57.4% of the poverty headcount ratio at $2.15 a day (% of population) and 53.5% of the poverty gap at $2.15 a day (%). Borrowers from commercial banks have significant negative impact on each of poverty headcount ratio at national poverty lines, poverty headcount ratio at $2.15 a day and poverty gap at $2.15 a day (%), the estimated coefficients are −0.0293, −0.0433 and −0.0156 respectively, which signals that with an increasing and wider

Table 5. Correlations estimates.

	AB	LN	AL	AGR	CPI	POP	TR	EDU	HE	FDI	RPOP	GDPPC
AB	1											
LN	0.118	1										
AL	0.207**	−0.277**	1									
AGR	−0.262**	0.484**	0.060	1								
CPI	−0.028	0.228**	−0.044	0.334**	1							
POP	−0.421**	0.475**	−0.254**	0.767**	0.430**	1						
TR	0.327**	−0.297**	0.287**	−0.675**	−0.464**	−0.770**	1					
EDU	0.040	−0.595**	0.533**	−0.397**	−0.330**	−0.696**	0.576**	1				
HE	0.416**	−0.183*	0.336**	−0.068	−0.166*	−0.389**	0.216**	0.497**	1			
FDI	0.074	−0.050	0.257**	0.094	−0.093	−0.134	0.185*	0.058	−0.026	1		
RPOP	−0.339**	0.156*	0.069	0.810**	0.398**	0.709**	−0.717**	−0.335**	−0.114	0.209**	1	
GDPPC	−0.026	0.040	0.023	−0.004	−0.072	−0.023	0.100	0.045	−0.013	0.065	−0.018	1
GDPG	−0.052	0.062	0.000	0.016	−0.061	0.009	0.070	0.025	−0.055	0.057	0.005	0.985**

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). Source: Author's computation using Stata software version 17.

Table 6. Variance Inflation Factor (VIF) test results.

	Model 1		Model2		Model3	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
AB	0.391	20.558	0.393	20.546	0.393	20.545
LN	0.352	20.844	0.358	20.793	0.357	20.803
AL	0.462	20.165	0.466	20.148	0.465	20.149
AGR	0.146	60.871	0.146	60.848	0.146	60.851
CPI	0.688	10.454	0.691	10.447	0.690	10.448
POP	0.122	80.221	0.122	80.191	0.122	80.196
TR	0.234	40.276	0.235	40.249	0.236	40.238
EDU	0.169	50.921	0.175	50.725	0.174	50.742
HE	0.458	20.183	0.485	20.063	0.483	20.069
FDI	0.580	10.723	0.580	10.723	0.580	10.723
RPOP	0.164	60.091	0.165	60.060	0.165	60.068
GDPPC	0.026	380.762	0.970	10.031		
GDPG	0.026	380.982			0.964	10.037

Source: Author's computation using Stata software version 17.

coverage of MFI help fighting poverty. Furthermore, average loan balance per borrower/GNI per capita (%) has significant negative impact on each of poverty headcount ratio at national poverty lines, poverty headcount ratio at $2.15 a day

Table 7. Panel Fixed OLS estimation results.

Variables	Model 1 HC1	Model 2 HC2	Model 3 PGap
AB	−0.0293***	−0.0433***	−0.0156***
	(0.0107)	(0.00442)	(0.00139)
LN	−0.107**	−0.0568***	−0.0130**
	(0.0502)	(0.0208)	(0.00654)
AL	−2.487***	−1.003***	−0.386***
	(0.387)	(0.160)	(0.0504)
TR	0.00259	−0.395	−0.147
	(0.390)	(0.161)	(0.0508)
HE	−0.0688***	−0.0544***	−0.0173***
	(0.0249)	(0.0103)	(0.00324)
FDI	0.159	0.00861	−0.00910
	(0.202)	(0.0836)	(0.0263)
AGR	−0.447***	−0.0453	−0.00716
	(0.131)	(0.0543)	(0.0171)
CPI	0.00200**	0.00156**	0.000167**
	(0.0011)	(0.00455)	(0.00143)
POP	0.447***	0.255***	0.0515**
	(0.0167)	(0.0690)	(0.0217)
EDU	−0.0121*	−0.370*	−0.106*
	(0.0172)	(0.0195)	(0.0614)
RPOP	0.280	0.0722	0.00690
	(0.168)	(0.0697)	(0.0219)
GDPPC	−0.0288***	−0.0124***	−0.00138***
	(0.0274)	(0.0113)	(0.00356)
Constant	−21.55**	−15.03***	−4.387***
	(8.314)	(3.440)	(1.082)
Observations	192	192	192
F-test	24.87***	19.51***	16.70***
R-squared	0.632	0.574	0.535
Number of cid	6	6	6

Robust Standard errors in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

and poverty gap at \$2.15 a day (%). Hence, this indicates with every increase in average loan balance per borrower/GNI per capita (%) by 1 unit, poverty headcount ratio at national poverty lines, poverty headcount ratio at \$2.15 a day and

poverty gap at $2.15 a day (%) decrease by 0.107, 0.0568, 0.0130 respectively. Thus, the size of individual loans affects the poverty elimination strategy through the improvement of income levels.

With respect to the control variables, inflation and population age 0 - 14 have significant positive impact on poverty headcount ratio at national poverty lines, poverty headcount ratio at $2.15 a day and poverty gap at $2.15 a day (%). Moreover, both current health expenditure and government expenditure on education have significant negative impact on poverty reduction. The importance of the agricultural sector in the North African countries can be confirmed through the negative correlation between arable land and the poverty indicators, which means when the percentage of arable land increases, poverty decreases.

In line with previous studies, this piece of work emphasizes on the significant inverse association between economic growth and the three indicator of poverty (−0.0288***, −0.0124***, −0.00138*** respectively). The poverty-reducing effect of growth has been corroborated in several researches, amongst: Adams, 2003; Anser et al., 2020; Dudzevičiūtė & Prakapienė, 2018; Fosu, 2015; Khan et al., 2019; Moser & Ichida, 2001; Ozili, 2022; Popa, 2012; Roodman & Morduch, 2013; Roser & Ortiz-Ospina, 2017; Seven & Coskun, 2016; Zaman et al., 2020. These authors investigated the systematic relationship between economic growth and poverty reduction, they found a robust pattern across countries and regions, as well as they uncovered a strong and positive relationship between these two variables with a significant correlation coefficient. Dollar et al. (2015) also evaluated the extent to which policies and institutions that have been identified in the literature as promoting growth can play a role in reducing poverty by increasing the share of income of the poorest quantile. The main conclusion of this analysis is that growth-enhancing policies and institutions do benefit the poor and the rest of the society in equal proportions.

With respect to trade, results show that there is a weak correlation between trade and poverty estimates, it is justified that trade openness does not have systemic effect on poor (Berg & Kruger, 2003; Goff & Singh, 2014; Minot et al., 2010). Trade policy is only one of many determinants of growth (WTO, 2015). Additionally, as reported in a joint publication by the World Trade Organization and the World Bank Group, trade openness has important positive spillover on other aspects reform (WTO, 2018). On the contrary, other control variables have insignificant impact on the three measures of poverty.

5.3. Instrumental Variables (IV) Estimation

As presented in Table 8, the estimated model explained around 52.7% of the poverty headcount ratio at national poverty lines (% of population), 55% of the poverty headcount ratio at $2.15 a day (% of population) and 50.4% of the poverty gap at $2.15 a day (%). Borrowers from commercial banks have a significant negative impact on the three measures of poverty with magnitudes of −0.0245 for the poverty headcount ratio at national poverty lines (% of population), −0.0477 for the poverty headcount ratio at $2.15 a day (% of population)

Table 8. Instrumental Variables (IV) estimation results.

Variables	Model 1 HC1	Model 2 HC2	Model 3 PGap
AB	−0.0245**	−0.0477***	−0.0182***
	(0.0121)	(0.00451)	(0.00142)
LN	−0.197**	−0.0886***	−0.0160***
	(0.0865)	(0.0324)	(0.00102)
AGR	−0.833***	−0.0490	−0.0327
	(0.279)	(0.104)	(0.0330)
CPI	−0.0255	−0.00300	−0.00290
	(0.0190)	(0.00710)	(0.00224)
POP	1.095***	0.229**	0.0687*
	(0.310)	(0.116)	(0.0367)
EDU	−0.163*	−0.344*	−0.152**
	(0.517)	(0.0193)	(0.0611)
RPOP	−0.438	0.165	0.0295
	(0.495)	(0.186)	(0.0589)
GDPPC	0.0900***	0.00182***	−0.00177***
	(0.0056)	(0.00249)	(0.00788)
AL	−1.683***	−0.812***	−0.312***
	(0.613)	(0.230)	(0.0727)
TR	−1.290	0.547	0.208
	(1.172)	(0.442)	(0.140)
HE	−0.0737	−0.0513***	−0.0159***
	(0.0339)	(0.0127)	(0.00401)
FDI	0.0634	−0.000597	−0.00972
	(0.226)	(0.0847)	(0.0268)
Observations	186	186	186
F-test	19.9***	17.67***	15.1***
R-squared	0.527	0.550	0.504
Weak identification test (Cragg-Donald Wald F-stat)	22.32***	23.21***	21.33***
Over identification test (Sargan p-value)	0.224	0.299	0.589
Under identification test (Anderson p-value)	0.0005	0.0002	0.0002
Number of cid	6	6	6

Robust Standard errors in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

and −0.0182 for the poverty gap at $2.15 a day (%). This result aligns with average loan balance per borrower/GNI per capita (%), similarly it has significant negative impact on the poverty estimates, these effects are −0.197, −0.0886, −0.0160 respectively.

Regarding the control variables, countries with younger populations tend to perform worse in the fight against poverty. This result counters arable land which has significant negative association with all measures of poverty. Current health expenditure has significant negative impact on each of poverty headcount ratio at $2.15 a day and poverty gap at $2.15 a day (%). In addition, agriculture, forestry and fishing value added (% of GDP) have significant negative impact on poverty headcount ratio at national poverty lines. As agriculture is mostly for subsistence and constitutes a principal source of revenue for many people in the region. The importance of the agricultural sector can be confirmed through the negative correlation between arable land and the poverty indicators, when the percentage of arable land increases, poverty decreases.

Moreover, results of expenditure on education, inflation, trade and GDP per capital growth are lining up with those obtained from Fixed OLS estimations. All other control variables have insignificant impact on the three measures of poverty. With reference to the values of all validity tests, it is worth noting that the model is well identified and the instruments are valid.

5.4. Causality Analysis with Country Heterogeneity

In this part heterogeneous causality is examined, Granger's (1969) causal theory for panel data analysis encounters a significant obstacle in the form of individual heterogeneity. In fact, certain group members may not be affected by a causal relationship that has been observed in the group as a whole. Interpretations cannot be generalized when the causal link is not homogeneous.

Meanwhile, panel Granger non-causality testing approach developed by Juodis et al. (2021) is implemented. This test stems from the use of a pooled estimator that has a faster convergence rate. The test has several useful properties: it can be used in multivariate systems; it has power against both homogeneous and heterogeneous alternatives and it allows for cross-section dependence and cross-section heteroskedasticity. As a result, the following model is applied:

$$pov_{it} = \sum_{l=1}^{p} \alpha_{il} pov_{i(t-1)} + \sum_{l=0}^{p} \beta_{il} MI_{i(t-1)} + \mu_i + \epsilon_{it} \quad \text{for } i = 1, \cdots, N; t = 1, \cdots, T \quad (5)$$

Considering that stationary series are necessary for the study of causality, stationarity tests in panel data should count potential cross-sectional dependence in heterogeneous panels, as indicated by Pesaran (2003). As a result, before determining the panel unit-root test, Pesaran's test of cross-sectional independence is run.

Table 9 points to the absence of individual dependence in collected data, which implies that it is redundant to use unit-root tests that take this dependence into account. Alternatively, Levin-Lin-Chu unit-root test for unit roots in heterogeneous panels is employed. This test is based on the mean of the

Table 9. Pesaran's test of cross-sectional independence.

Variables	Model 1 HC1	Model 2 HC2	Model 3 PGap
χ^2	0.516	0.370	0.532

Source: Author's computation using Stata software version 17.

individual Dickey-Fuller (DF) or Augmented Dickey-Fuller (ADF) t-statistics of each unit in the panel. The test may be viewed as a pooled DF test or an ADF test when lags are included.

Table 10 depicts that all variables are stationary in the level form at 5% significance, since the null hypothesis is rejected.

Table 11 reports that, there is heterogeneous bidirectional relationship between AB and HC1, also there is heterogeneous bidirectional relationship between LN and HC1. On the contrary, heterogeneous unidirectional relationship between AB and HC2 is spotted which flashes that AB significantly causes HC2 and not vice versa. Furthermore, heterogeneous bidirectional relationship between LN and HC2 is detected. While, it is noticed that heterogeneous unidirectional relationship between AB and PGap, indicating that AB significantly causes PGap and not vice versa. Besides, it is noted that heterogeneous bidirectional relationship between LN and PGap is perceived.

Overall, results designate the strong validation of heterogeneous and bidirectional causality between levels of microfinance intensity and the various measures of poverty. This implies that the two levels of microfinance intensity have a cumulative relationship with poverty which supports poverty eradication. Consequently, with easier access than to financial services, those living in deprivation can at least meet their basic needs and improve their living standards. The findings of this study is aligned with previous researches carried out by: Bangoura et al., 2016; Billah et al., 2023; Gatti et al., 2022; Hamdani & Naeem, 2012; Hossain, 2012; Kashif & Sridharan, 2012 and Noreen et al., 2011. Nevertheless,

Table 10. Levin-Lin-Chu unit-root test.

Variable	T-statistics	P-value
HC1	−6.4221	0.0000
HC2	−8.1860	0.0000
PGap	−8.9791	0.0000
AB	−6.7501	0.0000
LN	−10.9399	0.0000

Source: Author's computation using Stata software version 17.

Table 11. Juodis, Karavias and Sarafidis causality test.

Variables (X-Y)	X not cause Y	Y not Cause X
AB-HC1	18.0769***	9.6804***
Ln-HC1	15.6656***	12.8879***
AB-HC2	6.5678***	2.263
Ln-HC2	27.044***	4.0257**
AB-PGap	28.830***	3.466*
Ln-PGap	46.498***	4.15**

***the reported values are HPJ Wald test. Source: Author's computation using Stata software version 17.

there remains scope for further investigation for instance, contribution of combining other indicators with microfinance to mitigating poverty in other countries or group of countries.

6. Conclusion

Microfinance is a substantial tool of alleviating poverty, which is thought to be caused by the scarcity of financial resources. Those living in deprivation can at least meet their basic needs and improve their living standards, subsequently this contributes to mitigating the challenges arising from low incomes and lack of investment opportunities. This paper employed a heterogeneous panel causality analysis on annual datasets stretching from 1990 to 2021 to investigate the relationship between microfinance and poverty alleviation for six North African countries namely Algeria, Egypt, Libya, Sudan, Morocco and Tunisia. The results indicate that microfinance intensity is negatively and significantly associated with poverty, providing access to loans through microfinance gives the poor the potential for income-generating activities. It is demonstrated that poverty is negatively correlated with the rise in active borrowers, if the country fosters the number of borrowers from MFIs, poverty will decline. However, it appears that MFIs have a greater impact on poverty when the value of each borrower's loan is high (insignificant loans may trap the poor in a debt cycle).

Additionally, several indicators are examined that are expected to support poverty eradication. For instance, improving social conditions such as access to schools and healthcare, economic growth, arable land and agriculture. From these outcomes, it can be reasoned that in spite of the fact that microfinance is a significant driver in the fight against poverty, this cannot be viewed as an adequate arrangement in itself. While extending access to microfinance, legislatures need to carry out different social strategies like abilities improvement that are additionally significant in the battle against disparity.

Results also support the heterogeneous causality hypothesis, meaning that the link between microfinance and poverty is country-specific. Since this relationship is perceived to be dependent on the targeting strategy, each nation must tailor its policies in order to make microfinance an enormously effective tool for reducing poverty.

To sustain microfinance and make it effective and fulfilling, efforts should be made to reach the poor who are the target of microfinance policies and programs. Education and training should be provided for microfinance beneficiaries on how to efficiently utilize the funds because there are numbers of educated but unemployed individuals who require the funds and business support in terms of management and entrepreneurial skills. Due to the risk of default, it is necessary to observe the borrowers and their businesses in order to ensure their viability by repaying the capital loaned and the interest revenue. However, due to the fact that some eligible borrowers may be deemed to be high risk, measures must be taken to minimize these issues. Furthermore, it is important to note that the involvement of the government is crucial to optimize the effectiveness of micro-

finance, which has the authority to resolve infrastructure-related issues such as gas supplies, access to electricity, and effective transportation systems that have an impact on living standards. Lastly, government should create sound political and economic environments for smooth operations and performance. Without such an environment, no business will thrive, borrowers need sound economic environments to make a return on their borrowed funds.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Abed, F. H., & Matin, I. (2007). Beyond Lending: How Microfinance Creates New Forms of Capital to Fight Poverty. *Innovations, 2,* 3-17. https://doi.org/10.1162/itgg.2007.2.1-2.3

Abrar, A., & Javaid, A. Y. (2016). The Impact of Capital Structure on the Profitability of Microfinance Institutions. *South Asian Journal of Management, 10,* 21-37. http://sajms.iurc.edu.pk//paper.php?id=Spring2016V10N1P3 https://doi.org/10.21621/SAJMS.2016101.03

Adams, R. H. (2003). *Economic Growth, Inequality, and Poverty: Findings from a New Data Set.* Policy Research Working Paper No. 2972, World Bank Group. http://hdl.handle.net/10986/19109

Addae-Korankye, A. (2020). *A Framework for Understanding Microfinance as a Tool for Poverty Reduction in Ghana.* PhD Thesis, Cardiff Metropolitan University.

Adjei, J., Arun, T., & Hossain, F. (2009). Asset Building and Poverty Reduction in Ghana: The Case of Microfinance. *Savings and Development, 33,* 265-91.

AfDB (2021). *North Africa Economic Outlook 2021, Debt Dynamics: The Path to Post-Covid Recovery.* African Development Bank. https://www.afdb.org/en/documents/north-africa-economic-outlook-2021

AfDB (2022). *African Economic Outlook.* https://www.afdb.org/en/knowledge/publications/african-economic-outlook

AfDB and Institut Arabe des Chefs d'Entreprise (2022). *Impact de la crise Covid-19 sur les TPME et l'emploi en Tunisie.* https://www.afdb.org/en/documents/impact-de-la-crise-covid-19-sur-les-tpme-et-lemploi-en-tunisie

Africa Watch-OHCHR (2022). *Thematic Report on the Nature of Poverty and Inequality in the Kingdom of Morocco.* The UN Special Rapporteur on Extreme Poverty and Human Rights. https://www.ohchr.org/sites/default/files/documents/issues/poverty/visitscontributions/morocco/2022-11-15/Africa-Watch.docx

Ahmed, S. H., Petzold, M., Kabir, Z. N., & Tomson, G. (2006). Targeted Intervention for the Ultra-Poor in Bangladesh: Does It Make Any Difference in Their Health-Seeking Behavior? *Social Science and Medicine, 63,* 2899-2911. https://doi.org/10.1016/j.socscimed.2006.07.024

Ajit, K. B., & Anu, B. (2012). Microfinance and Poverty Reduction in India. Integral Review. *Journal of Management, 5,* 31-35.

Alattas, N. F., & Tayachi, T. (2021). Microfinance in the Middle East and North Africa.

Palarch's Journal of Archaeology of Egypt/Egyptology, 18, 725-735.

Altay, A. (2007). The Challenge for Global Women Poverty: Microfinance (or Microcredit) as a Solution for Women Poverty in Turkey. In *Proceedings of the International Conference on Globalization and its Discontents* (pp. 4-21). http://eco.ieu.edu.tr/wp-content/proceedings/2007/0701.pdf

Anane, I., Zhang, Y., & Nie, F. Y. (2021). The Sources of Microfinance Capital and Its Effects on Farmers Access to Credit in Ghana. *SVU-International Journal of Agricultural Science, 3,* 112-128. https://doi.org/10.21608/svuijas.2021.61143.1080

Anderson, T. W. (1951). Estimating Linear Restrictions on Regression Coefficients for Multivariate Normal Distributions. *Annals of Mathematical Statistics, 22,* 327-351. https://doi.org/10.1214/aoms/1177729580

Anser, M. K., Yousaf, Z., Nassani, A. A. et al. (2020). Dynamic Linkages between Poverty, Inequality, Crime, and Social Expenditures in a Panel of 16 Countries: Two-Step GMM Estimates. *Economic Structures, 9,* 124-154. https://doi.org/10.1186/s40008-020-00220-6

Arif, M., Ismail, M., & Santoso, D. (2019). Does Microfinance Affect Poverty Reduction and Inequality in Indonesia? *International Journal of Scientific & Technology Research, 8,* 24-45.

Attuel-Mendes, L. (2016). Crowdfunding and Crowdmicrofinance, an Evolution of Models for Entrepreneurship of the Poor. *Open Access Library Journal, 3,* e3251. https://doi.org/10.4236/oalib.1103251

Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The Miracle of Microfinance? Evidence from a Randomized Evaluation. *American Economic Journal: Applied Economics, 7,* 22-53. https://doi.org/10.1257/app.20130533

Banerjee, S., & Jackson, L. (2017). Microfinance and the Business of Poverty Reduction: Critical Perspectives from Rural Bangladesh. *Human Relations, 70,* 63-91. https://doi.org/10.1177/0018726716640865

Bangoura, L., Mbow, M. K., Lessoua, A., & Diaw, D. (2016). Impact of Microfinance on Poverty and Inequality a Heterogeneous Panel Causality Analysis. *Revue d'Économie Politique, 126,* 789-818. https://doi.org/10.3917/redp.265.0789

Basu, A., Blavy, R., & Yulek, M. (2004). *Microfinance in Africa: Experience and Lessons from Selected African Countries.* IMF Working Paper, No. WP/04/174. https://doi.org/10.5089/9781451858723.001

Basu, K. (2013). *Shared Prosperity and the Mitigation of Poverty: In Practice and in Precept.* World Bank Policy Research Working Paper, No. 6700. https://doi.org/10.1596/1813-9450-6700

Baum, C. F., Schaffer, M. E., & Stillman, S. (2007). Enhanced Routines for Instrumental Variables/Generalized Method of Moments Estimation and Testing. *The Stata Journal, 7,* 465-506. https://doi.org/10.1177/1536867X0800700402

Beklentileri, Z. V., & Alemu, S. (2018). The Performance of Ethiopian Microfinance Institutions, Challenges and Prospects. *Karadeniz Teknik Üniversitesi Sosyal Bilimler Enstitüsü̈ Sosyal Bilimler Dergisi, 8,* 307-324.

Berg, A., & Kruger, A. (2003). *Trade, Growth and Poverty: A Selective Survey.* IMF Working Paper, No. WP/03/30. https://www.imf.org/external/pubs/ft/wp/2003/wp0330.pdf https://doi.org/10.5089/9781451844931.001

Bhatt, N., & Tang, S.-Y. (2001). Delivering Microfinance in Developing Countries: Controversies and Policy Perspectives. *Policy Studies Journal, 29,* 319-333. https://doi.org/10.1111/j.1541-0072.2001.tb02095.x

Billah, M., Islam, S., Ahmmed, M., Nobi, M. N., Mannan, M. A., & Hoque, M. (2023). The Impact of Microfinance on Basic Needs and Standard Living Level of Rural People: Empirical Evidence from Bangladesh. *Seybold Report, 18,* 472-486.

Bongomin, G. O., Woldie, A., & Wakibi, A. (2020). Microfinance Accessibility, Social Cohesion and Survival of Women MSMEs in Post-War Communities in Sub-Saharan Africa: Lessons from Northern Uganda. *Journal of Small Business and Enterprise Development, 27,* 749-774. https://doi.org/10.1108/JSBED-12-2018-0383

Brooks, C. (2008). *Introductory Econometrics for Finance.* Cambridge University Press. https://doi.org/10.1017/CBO9780511841644

Chemin, M. (2008). The Benefits and Costs of Microfinance: Evidence from Bangladesh. *The Journal of Development Studies, 44,* 463-484. https://doi.org/10.1080/00220380701846735

Chomen, D. A. (2021). The Role of Microfinance Institutions on Poverty Reduction in Ethiopia: The Case of Oromia Credit and Saving Share Company at Welmera District. *Future Business Journal, 7,* Article No. 44. https://doi.org/10.1186/s43093-021-00082-9

Chowdhury, M. A., Ghosh, D., & Wright, R. E. (2005). The Impact of Micro-Credit on Poverty: Evidence from Bangladesh. *Progress in Development Studies, 5,* 298-309. https://doi.org/10.1191/1464993405ps116oa

Christensson, L. (2017). *Microfinance Institutions and Poverty Reduction: Evidence from Nigeria.* Master Thesis, Jönköping University. https://www.diva-portal.org/smash/get/diva2:1103573/FULLTEXT01.pdf

Collin, C., Vengesai, E., & Mandude, P. (2022). The Impact of Microfinance Institutions on Poverty Alleviation. *Journal of Risk and Financial Management, 15,* 393-411. https://doi.org/10.3390/jrfm15090393

Cull, R., Demigüc-Kunt, A., & Morduch, J. (2007). Financial Performance and Outreach: A Global Analysis of Leading Microbanks. *Economic Journal, 117,* 107-133. https://doi.org/10.1111/j.1468-0297.2007.02017.x

Dadhich, C. L. (2001). Microfinance—A Panacea for Poverty Alleviation: A Case of Oriental Grameen Project in India. *Indian Journal of Agricultural Economics, 56,* 419-422.

Daley-Harris, S., & Zimmerman, J. (2009). Microfinance Does Not Usually Serve the Very Poor, for Whom It Can Represent a Route into Debt Rather than a Way Out of Poverty. *Enterprise Development and Microfinance, 20,* 79-85. https://doi.org/10.3362/1755-1986.2009.010

Do, Q. A., Le, Q. H., Nguyen, T. D., Vu, V. A., Tran, L. H., & Nguyen, C. T. (2021). Spatial Impact of Foreign Direct Investment on Poverty Reduction in Vietnam. *Journal of Risk and Financial Management, 14,* 292-301. https://doi.org/10.3390/jrfm14070292

Dollar, D. T., Kleineberg, A., & Kraay, A. (2015). Growth, Inequality and Social Welfare: Cross Country Evidence. *Economic Policy, 30,* 335-377. https://doi.org/10.1093/epolic/eiv001

Donou-Adonsou, F., & Sylwester, K. (2016). Financial Development and Poverty Reduction in Developing Countries: New Evidence from Banks and Microfinance Institutions. *Review of Development Finance, 6,* 82-90. https://doi.org/10.1016/j.rdf.2016.06.002

Dudzevičiūtė, G., & Prakapienė, D. (2018). Investigation of the Economic Growth, Poverty and Inequality Inter-Linkages in the European Union Countries. *Journal of Security and Sustainability Issues, 24,* 839-854. https://doi.org/10.9770/jssi.2018.7.4(19)

Food and Agriculture Organization (FAO) (2022). *The State of World Fisheries and Aquaculture: Towards Blue Transformation.* FAO.

Fosu, A. K. (2015). Growth, Inequality and Poverty in Sub-Saharan Africa: Recent Progress in a Global Context. *Oxford Development Studies, 43,* 44-59. https://doi.org/10.1080/13600818.2014.964195

García-Pérez, I., Fernández-Izquierdo, M. Á., & Muñoz-Torres, M. J. (2020). Microfinance Institutions Fostering Sustainable Development by Region. *Sustainability, 12,* Article 2682. https://doi.org/10.3390/su12072682

Gatti, R., Lederman, D., Asif, M., Islam, A., & Christina, A. (2022). *Reality Check: Forecasting Growth in the Middle East and North Africa in Times of Uncertainty—MENA Economic Update.* World Bank Group. https://doi.org/10.1596/978-1-4648-1865-3

Gehlich-Shillabeer, M. (2008). Poverty Alleviation or Poverty Traps? Microcredits and Vulnerability in Bangladesh. *Disaster Prevention and Management, 17,* 396-409. https://doi.org/10.1108/09653560810887310

Ghauri, P. N., & Wang, F. (2017). The Impact of Multinational Enterprises on Sustainable Development and Poverty Reduction: Research Framework. In P. N. Ghauri, X. Fu, & J. Väätänen (Eds.), *Multinational Enterprises and Sustainable Development* (pp. 13-39). Emerald Publishing Limited. https://doi.org/10.1108/S1876-066X20170000033002

Goff, M. L., & Singh, R. J. (2014). Does Trade Reduce Poverty? A View from Africa. *Journal of African Trade, 1,* 5-14. https://doi.org/10.1016/j.joat.2014.06.001

Granger, C. W. J. (1969). Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. *Econometrica, 37,* 424-438. https://doi.org/10.2307/1912791

Gulli, H., & Berger, M. (1999). Microfinance and Poverty Reduction—Evidence from Latin America. *Small Enterprise Development, 10,* 16-28. https://doi.org/10.3362/0957-1329.1999.027

Hamdani, S. M. Q., & Naeem, H. (2012). The Impact of Microfinance on Social Mobility, an Empirical Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research Business, 3,* 81-89.

Hashemi, S. M. (2001). *Including the Poorest: Linking Microfinance and Safety Net Programs.* CGAP Occasional Paper 20, Consultative Group to Assist the Poor (CGAP).

Henaff, N., Lange, M.-F., & Martin, J.-Y. (2009). Revisiter les Relations Entre Pauvreté et Education. *Revue Française de Socio-Économie, 1,* 187-194. https://doi.org/10.3917/rfse.003.0187

Hossain, M. K. (2012). Measuring the Impact of BRAC Microfinance Operations: A Case Study of a Village. *International Business Research, 5,* 112-123. https://doi.org/10.5539/ibr.v5n4p112

Hulme, D. (2000). Impact Assessment Methodologies for Microfinance: Theory, Experience and Better Practice. *World Development, 28,* 79-98. https://doi.org/10.1016/S0305-750X(99)00119-9

Hulme, D., & Mosley, P. (1996). *Finance against Poverty, 1 and 2.* Routledge.

Imani, K. S., Gaiha, R., Thapa, G., & Annim, S. K. (2012). Microfinance and Poverty—A Macro Perspective. *World Development, 40,* 1675-1689. https://doi.org/10.1016/j.worlddev.2012.04.013

International Monetary Fund (IMF) (2022). *World Economic Outlook.* IMF. https://www.imf.org/en/Publications/WEO

Irobi, N. C. (2008). *Microfinance and Poverty Alleviation: A Case of Obazu Progressive Women Association, Mbieri Imo State-Nigeria.* Doctoral Dissertation, Sveriges Lantbruksuniversitet.

Jamal, H. (2008). *Exploring the Impact of Microfinance in Pakistan.* Social Policy and Development Centre, Research Paper No. 77.

Juodis, A., Karavias, Y., & Sarafidis, V. A. (2021). Homogeneous Approach to Testing for Granger Non-Causality in Heterogeneous Panels. *Empirical Economics, 60,* 93-112. https://doi.org/10.1007/s00181-020-01970-9

Kaladhar, K. (1997). Microfinance in India Design, Structure and Governance. *Economic and Political Weekly, 32,* 2687-2706.

Kashif, M., & Sridharan, P. (2012). Microfinance: The Challenges and Opportunities in Rural India. https://doi.org/10.2139/ssrn.2333145

Kebede, M. S., & Kebede, T. (2016). The Impact of Microfinance on Household Saving: The Case of Amhara Credit and Saving Institution Feres Bet Sub-Branch, Degadamot Woreda. *Journal of Poverty, 27,* 64-82.

Kessy, S., & Temu, S. S. (2010). The Impact of Training on Performance of Micro and Small Enterprises Served by Microfinance Institutions in Tanzania. *Research Journal of Business Management, 4,* 103-111. https://doi.org/10.3923/rjbm.2010.103.111

Khan, H., Nassani, A. A., Aldakhil, A. M., Abro, M. M. Q., Islam, T., & Zaman, K. (2019). Pro-Poor Growth and Sustainable Development Framework: Evidence from Two Step GMM Estimator. *Journal of Cleaner Production, 206,* 767-784. https://doi.org/10.1016/j.jclepro.2018.09.195

Khandker, S. R., & Pitt, M. M. (2005). Microfinance and Poverty: Evidence Using Panel Data from Bangladesh. *The World Bank Economic Review, 19,* 263-286. https://doi.org/10.1093/wber/lhi008

Larcher, P. (2007). Principales Répercussions De La Pauvreté Sur La Santé. *Laennec, 4,* 15-26. https://doi.org/10.3917/lae.074.0015

Littlefield, E., Murduch, J., & Hashemi, S. (2003). *Is Microfinance an Effective Strategy to Reach The Millennium Development Goals?* Focus Note Series No. 24. CGAP-Consultative Group to Assist the Poor.

Mahler, D. G., Yonzan, N., Hill, R., Lakner, C., Wu, H., & Yoshida, N. (2022a). *Updated Estimates of The Impact of COVID-19 on Global Poverty: Turning the Corner on the Pandemic in 2021?* World Bank Group. https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty-turning-corner-pandemic-2021 https://doi.org/10.1596/1813-9450-10198

Mahler, D. G., Yonzan, N., Lakner, C., Aguilar, R. A., & Wu, H. (2022b). *Pandemic, Prices, and Poverty*. World Bank Group. https://blogs.worldbank.org/opendata/pandemic-prices-and-poverty

Maitrot, M., & Nino-Zarazua, M. (2017). *Poverty and Wellbeing Impacts of Microfinance: What Do We Know?* WIDER Working Paper 190/2017. https://ssrn.com/abstract=3076781 https://doi.org/10.35188/UNU-WIDER/2017/416-2

Maliszewska, M., & Mensbrugghe, D. (2019). *The Belt and Road Initiative: Economic, Poverty and Environmental Impacts.* Policy Research Working Paper 8814, World Bank Group. https://doi.org/10.1596/1813-9450-8814

Mann, M. L. (2003). *A New Foundation for Microfinance Impact Studies: An Empirical Analysis on the Household Level in Uganda.* Master Thesis, Department of Economics, The College of Wooster. https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-paper-a-new-foundation-for-microfinance-impact-studies-an-empirical-analysis-on-the-household-level-in-uganda-3-2003.pdf

Manroth, A. (2001). *How Effective Is Microfinance in CEEC and the NIS? A Discussion of Impact Analysis to Date.* MSc Dissertation, The London School of Economics and

Political Science, The European Institute.

Matin, I., & Hulme, D. (2003). Programs for the Poorest: Learning from the IGVGD Program in Bangladesh. *World Development, 31,* 647-665. https://doi.org/10.1016/S0305-750X(02)00223-1

Medeiros, V., Ribeiro, R. M., & Amaral, P. M. (2021). Infrastructure and Household Poverty in Brazil: A Regional Approach Using Multilevel Models. *World Development, 137,* 105-118. https://doi.org/10.1016/j.worlddev.2020.105118

Mersland, R., & Strøm, R. (2010). Microfinance Mission Drift? *World Development, 38,* 28-36. https://doi.org/10.1016/j.worlddev.2009.05.006

Miled, K. B., & Rejeb, J.-E. (2018). Can Microfinance Help to Reduce Poverty? A Review of Evidence for Developing Countries. *Journal of the Knowledge Economy, 9,* 613-635. https://doi.org/10.1007/s13132-015-0348-2

Minot, N., Chemingui, M. A., Thomas, M., Dewina, R., & Orden, D. (2010). *Trade Liberalization and Poverty in the Middle East and North Africa.* IFPRI Research Monograph.

Morduch, J. (2000). The Microfinance Schism. *World Development, 28,* 617-629. https://doi.org/10.1016/S0305-750X(99)00151-5

Moser, G., & Ichida, T. (2001). *Economic Growth and Poverty Reduction in Sub-Saharan Africa.* IMF Working Paper, African Department, WP/01/112. https://doi.org/10.5089/9781451853605.001

Mosley, P. (2001). Microfinance and Poverty in Bolivia. *The Journal of Development Studies, 37,* 101-132. https://doi.org/10.1080/00220380412331322061

Musibau, H. O., Yusuf, A. H., & Gold, K. L. (2019). Endogenous Specification of Foreign Capital Inflows, Human Capital Development and Economic Growth. *International Journal of Social Economics, 46,* 454-472. https://doi.org/10.1108/IJSE-04-2018-0168

Noreen, U., Imran, R., Zaheer, A., & Saif, M. I. (2011). Impact of Microfinance on Poverty: A Case of Pakistan. *World Applied Sciences Journal, 12,* 877-883.

North Africa Economic Outlook (2022). *Supporting Climate Resilience and a Just Energy Transition.* African Development Bank.

Organization for Economic Co-operation and Development (OECD) (2019). *Agricultural Policy Monitoring and Evaluation.* https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation_22217371

Ozili, P. K. (2022). Sustainability and Sustainable Development Research around the World. *Managing Global Transitions, 20,* 259-293. https://doi.org/10.26493/1854-6935.20.259-293

Panjaitan-Drioadisuryo, D. R., & Cloud, K. (1999). Gender, Self-Employment, and Microcredit Orograms: An Indonesian Case Study. *Quarterly Review of Economics and Finance, 39,* 769-779. https://doi.org/10.1016/S1062-9769(99)00028-9

Parvin, S. S., Hossain, B., Mohiuddin, M., & Cao, Q. (2020). Capital Structure, Financial Performance, and Sustainability of Micro-Finance Institutions (MFIs) in Bangladesh. *Sustainability, 12,* 22-26. https://doi.org/10.3390/su12156222

Pesaran, M. H. (2003). *A Simple Panel Unit Root Test in The Presence of Cross Section Dependence.* Cambridge Working Papers in Economics 0346, Faculty of Economics, University of Cambridge. https://ideas.repec.org/p/cam/camdae/0346.html https://doi.org/10.2139/ssrn.457280

Phan, C. T., Vo, T. T., & Vo. D. T. H. (2022). Can Microcredit Reduce Vulnerability to

Poverty? Evidence from Rural Vietnam. *Review of Development Economics, 27,* 608-629. https://doi.org/10.1111/rode.12951

Pitt, M. M., & Khandker, S. R. (1998). The Impact of Group-Based Credit Programmes on Poor Households in Bangladesh: Does the Gender of Participants Matter? *Journal of Political Economy, 106,* 958-996. https://doi.org/10.1086/250037

Popa, A. M. (2012). The Impact of Social Factors on Economic Growth: Empirical Evidence for Romania and European Union countries. *Romanian Journal of Fiscal Policy (RJFP), 3,* 1-16.

Pronyk, P. M., Hargreaves, J. R., & Morduch, J. (2007). Microfinance Programs and Better Health: Prospects for Sub-Saharan Africa. *Journal of American Medical Association, 298,* 1925-1927. https://doi.org/10.1001/jama.298.16.1925

Rahman, A., & Razzaque, A. (2000). On Reaching the Hard Core Poor: Some Evidence on Social Exclusion in NGO Programs. *Bangladesh Development Studies, 26,* 1-36.

Robinson, M. S. (2001). *The Microfinance Revolution: Sustainable Finance for the Poor.* The World Bank Group. https://doi.org/10.1596/0-8213-4524-9

Robinson, M. S. (2002). *The Microfinance Revolution: Lessons from Indonesia.* The World Bank Group. https://doi.org/10.1596/0-8213-4953-8

Roodman, D., & Morduch, J. (2013). The Impact of Microcredit on the Poor in Bangladesh: Revisiting the Evidence. *The Journal of Development Studies, 50,* 583-604. https://doi.org/10.1080/00220388.2013.858122

Roser, M., & Ortiz-Ospina, E. (2017). *Global Extreme Poverty.* https://ourworldindata.org/extreme-poverty

Samer, S., Majid, I., Rizal, S., Muhamad, M. R., & Rashid, N. (2015). The Impact of Microfinance on Poverty Reduction: Empirical Evidence from Malaysian Perspective. *Procedia-Social and Behavioral Sciences, 195,* 721-728. https://doi.org/10.1016/j.sbspro.2015.06.343

Sargan, J. (1988). Testing for Misspecification after Estimation Using Instrumental Variables. In J. Sargan, & E. Maasoumi (Eds.), *Contributions to Econometrics* (Vol. 1). Cambridge University Press.

Schreiner, M. (2002). Aspects of Outreach: A Framework for Discussion of the Social Benefits of Microfinance. *Journal of International Development, 14,* 591-603. https://doi.org/10.1002/jid.908

Sebstad, J., & Chen, G. (1996). *Overview of Studies on the Impact of Microenterprise Credit: Assessing the Impact of Microenterprise Services.* Management Systems International. https://pdf.usaid.gov/pdf_docs/Pnabz074.pdf

Seven, U., & Coskun, Y. (2016). Does Financial Development Reduce Income Inequality and Poverty? Evidence from Emerging Countries. *Emerging Markets Review, 26,* 34-63. https://doi.org/10.1016/j.ememar.2016.02.002

Stock, J. H., & Yogo, M. (2005). Testing for Weak Instruments in Linear IV Regression. In D. W. K. Andrews, & J. H. Stock (Eds.), *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg* (pp. 80-108). Cambridge University Press. https://doi.org/10.1017/CBO9780511614491.006

Swain, R. B., Sanh, N. V., & Tuan, V. V. (2008). Microfinance and Poverty Reduction in the Mekong Delta in Vietnam. *African and Asian Studies, 7,* 191-215. https://doi.org/10.1163/156921008X318736

Tiberti, L., Maisonnave, H., Chitiga, M., & Mabugu, R. (2018). Reforming Grants to Tackle Child Poverty: An Integrated Macro-Micro Approach. *World Development, 112,* 272-281. https://doi.org/10.1016/j.worlddev.2018.08.023

Tomlinson, P. (1995). *The Role of Small-Scale Enterprise Promotion in Economic and Social Development*. Unpublished MSc Thesis, University of Bristol.

Ullah, A., Pinglu, C., Ullah, S., Aslam, N., & Zaman, M. (2020). Role of Microfinance in Poverty Alleviation in the Least Developed Area of Pakistan. *Asian Economic and Financial Review, 10,* 1430-1452. https://doi.org/10.18488/journal.aefr.2020.1012.1430.1452

Ullah, I., & Khan, M. (2017). Microfinance as a Tool for Developing Resilience in Vulnerable Communities. *Journal of Enterprising Communities: People and Places in the Global Economy, 11,* 237-257. https://doi.org/10.1108/JEC-06-2015-0033

United Nations (2018). *The Sustainable Development Goals Report 2018*. Revisited Report. https://unstats.un.org/sdgs/files/report/2018/thesustainabledevelopmentgoalsreport2018-en.pdf

United Nations (2019). *The Sustainable Development Goals Report 2019.* https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf

United Nations (2021). *Peace, Dignity and Equality on a Healthy Planet: Global Issues.* https://www.un.org/en/global-issues/ending-poverty

United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and Libya Inter-Sector Coordination Group (2021). *Multi-Sector Needs Assessment 2021: Libyan Population.* https://reliefweb.int/report/libya/libya-2021-multi-sector-needs-assessment-msna-libyan-population-may-2022

Vatta, K. (2003). Microfinance and Poverty Alleviation. *Economic and political Weekly, 38,* 32-33.

Velasco, C., & Chiba, S. (2004). *Expanding Impact: Innovations in Cost-Effectively Integrating Microfinance with Education in Health.* Pro Mujer Bolivia.

Vonderlack, R. M., & Schreiner, M. (2002). Women, Microfinance, and Savings: Lessons and Proposals. *Development in Practice, 12,* 602-612. https://doi.org/10.1080/0961452022000017614

Woller, G. M. (2002a). From Market Failure to Marketing Failure: Market Orientation as the Key to Deep Outreach in Microfinance. *Journal of International Development, 14,* 305-324. https://doi.org/10.1002/jid.883

Woller, G. M. (2002b). The Promise and Peril of Microfinance Commercialization. *Small Enterprise Development, 13,* 12-21. https://doi.org/10.3362/0957-1329.2002.042

World Bank (2015). *Global Monitoring Report 2014/2015: Ending Poverty and Sharing Prosperity.* World Bank Group. https://openknowledge.worldbank.org/handle/10986/20330

World Bank (2018). *Ending Poverty and Investing in Opportunities.* The World Bank Annual Report 2018, World Bank Group. https://doi.org/10.1596/978-1-4648-1296-5

World Bank (2019a). *Poverty and Shared Prosperity 2019: Piecing Together the Poverty Puzzle.* World Bank Group. https://openknowledge.worldbank.org/server/api/core/bitstreams/34b63a7c-7c89-5474-b9d3-f4f35085fe83/content

World Bank (2019b). *World Development Report 2019: The Changing Nature of Work.* World Bank Group. https://documents1.worldbank.org/curated/en/816281518818814423/pdf/2019-WDR-Report.pdf

World Bank (2022a). *Commodity Markets Outlook: The Impact of the War in Ukraine on Commodity Markets.* World Bank Group.
https://openknowledge.worldbank.org/bitstream/handle/10986/37223/CMO-April-2022.pdf

World Bank (2022b). *Poverty and Inequality Platform.* World Bank Group.
https://pip.worldbank.org/home

World Bank (2022c). *Poverty and Shared Prosperity 2022: Correcting Course.* World Bank Group.

World Bank (2023). *Global Economic Prospects.* World Bank Group.

World Resource Institute (WRI) (2021a). *Egypt: Transitioning Away from Subsidizing Fossil Fuels.* WRI, World Resources Institute.
https://www.wri.org/update/egypt-transitioning-away-subsidizing-fossil-fuels

WRI (2021b). *Morocco: Fuel Subsidy Reform Designed to Support a Just Transition to Renewable Energy.* WRI.
https://www.wri.org/update/morocco-fuel-subsidy-reform-designed-support-just-transition-renewable-energy

World Trade Organization (WTO) (2015). *The Role of Trade in Ending Poverty*. World Trade Organization.

WTO (2018). *Trade and Poverty Reduction: New Evidence of Impact in Developing Countries*. Joint Publication between World Bank Group and the World Trade Organization.

Yunus, M. (2007). *Banker to the Poor: Micro-Lending and the Battle against World Poverty.* Public Affairs.

Yusuf, M. B. O., Shirazi, N. S., & Ghani, G. M. (2013). The Impact of Pakistan Poverty Alleviation Fund on Poverty in Pakistan: An Empirical Analysis. *Middle-East Journal of Scientific Research, 13,* 1335-1344.

Zaman, K., Al-Ghazali, B. M., Khan, A., Rosman, A. S. B., Sriyanto, S., Hishan, S. S., & Bakar, Z. A. (2020). Pooled Mean Group Estimation for Growth, Inequality, and Poverty Triangle: Evidence from 124 Countries. *Journal of Poverty, 24,* 222-224.
https://doi.org/10.1080/10875549.2019.1678553