IMPACT OF MICROFINANCE BANKS ON POVERTY IN THE NIGERIAN ECONOMY

ODEMWINGIE, Ekpen Isoken
B.Sc Economics, BIU
PG/ECO/030692

DEPARTMENT OF ECONOMICS, BANKING AND FINANCE
BENSON IDAHOSA UNIVERSITY
BENIN CITY,
NIGERIA.

MAY, 2025

IMPACT OF MICROFINANCE BANKS ON POVERTY IN THE NIGERIAN ECONOMY

ODEMWINGIE, Ekpen Isoken
B.Sc Economics, BIU
PG/ECO/030692

A DISSERTATION WRITTEN IN THE DEPARTMENT OF ECONOMICS, BANKING AND FINANCE AND SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.Sc.) DEGREE IN ECONOMICS, BENSON IDAHOSA UNIVERSITY, BENIN CITY, NIGERIA.

MAY, 2025

DECLARATION

I, **ODEMWINGIE, Ekpen Isoken** do hereby declare that this dissertation titled, "**IMPACT OF MICROFINANCE BANKS ON POVERTY IN THE NIGERIAN ECONOMY"** is entirely my work and composition. The work embodied in this dissertation has not been submitted in candidature for any degree and is not concurrently being submitted for any other degree. All references made to works of other persons have been duly acknowledged.

_____ _____

ODEMWINGIE, Ekpen Isoken **DATE**

CERTIFICATION

We certify that this dissertation was carried out by **ODEMWINGIE, Ekpen Isoken** with matriculation number PG/ECO/030692 of the Department of Economics, Banking and Finance, Faculty of Social and Management Sciences, Benson Idahosa University, Benin City.

_____

Prof. Friday O. OVENSERI-OGBOMO
Supervisor,
Department of Economics, Banking and Finance,
Benson Idahosa University,
Benin City, Nigeria.

_____

Date

_____

Prof. Moses A. ERHI
Head of Department,
Department of Economics, Banking and Finance,
Benson Idahosa University,
Benin City, Nigeria.

_____

Date

DEDICATION

This research work is dedicated to God Almighty for His unceasing love, mercy, guidance and protection towards me throughout the programme, also this work is dedicated to my Mother Rev. Dr. (Mrs) H. E. Atekha-Odemwingie JP, my ever loving and caring wife Dns. (Mrs.) Amen Odemwingie and lovely children.

ACKOWLEDGEMENT

With a deep sense of joy and appreciation, I acknowledge the goodness and the mercies of the Almighty God over my life throughout this program.

My sincere gratitude goes to my amiable and painstaking supervisor- Prof. Friday O. Ovenseri-Ogbomo for his thoughtful guidance, relentless phone calls, and resilience, throughout this research work, and most especially when I was at the verge of throwing in the trowel in this programme

A special appreciation to the distinguished Head of Department, Economics, Banking and Finance - Prof. Moses Erhi who has been a huge encouragement to me in the pursuit and conclusion of this course.

I equally appreciate all my lecturers; Prof. Mike Asekome, Prof. O. A. Ihensekhein, Prof. Leonard Nosa Aisien, Dr. Georgina Asemota, Dr. Mrs. Ewere F. Okungbowa, Dr.(Mrs). Courage Eburajolo, Dr Oluleye. Prof Sam Guobadia. My special thanks goes to Dr. Edobor and his family of Edo State Polytechnic, Usen for his fatherly role in my life. Thank you all.

Finally, I am grateful to all the people who contributed directly or indirectly to this research and my studies at Benson Idahosa University. I remain forever indebted to you all.

TABLE OF CONTENT

Cover Page		i
Title Page		ii
Declaration		iii
Certification		iv
Dedication		v
Acknowledgement		vi
Table of Content		vii
List of Tables		xi
List of Figure		xii
Abstract		xiii
CHAPTER ONE: INTRODUCTION		
1.1	Background to the Study	1
1.2	Statement of Problem	4
1.3	Research Questions	5
1.4	Objectives of the Study.	5
1.5	Hypotheses of the Study	5
1.6	Significance of the Study	6
1.7	Scope of the Study	7
1.8	Limitations of the study	7
1.9	Structure of the study	7
CHAPTER TWO: LITERATURE REVIEW		
2.1	Conceptual Literature Review	9
2.1.1	Microfinance banks	9

2.1.2 Poverty 11

2.1.3 Microfinance Bank in Nigeria. 14

2.1.4 Ownership of Microfinance Banks 16

2.1.5 Categories of Microfinance Banks. 17

2.1.6 Number of Licensed Microfinance Banks 18

2.1.7 Distribution of the Microfinance Banks in Nigeria (MFB's) 19

2.1.8 The Challenges of Microfinance Banks in Nigeria 19

2.1.9 Prospects of Microfinance Banks in Nigeria 23

2.2 Theoretical Literature Review 24

2.2.1 Demand following and Supply leading hypotheses 25

2.2.2 Theory of Financial Services 25

2.2.3 Short Term Repayable Loan Theory 26

2.2.4 Grameen Bank Model Theory. 26

2.3 Theories of poverty 27

2.3.1 Classical Theory 27

2.3.2 Behavioural/decision-based theory: 28

2.3.3 Neoclassical Theory of Poverty 30

2.3.4 The monetary approach 31

2.3.5 Assets and financial/income risk 32

2.3.6 Incentives, market failures and access to credit markets Theory 33

2.3.7 Keynesian/Liberal Theory 35

2.3.8 Provision of capital and public goods 35

2.3.9 A macro perspective 36

2.3.10 Marxist/Radical Theories 38

2.3.11 Dual Labour Markets 39

2.4 Empirical Literature Review 40

2.5 Gaps in Existing Literature 56

CHAPTER THREE: METHODOLOGY

3.0 Introduction 58

3.1 Theoretical Framework 58

3.2 Model Specification. 60

3.3 Estimation Technique 61

3.3.1 Descriptive statistics 61

3.3.2 Correlation Test 62

3.3.3 Unit Root Test 62

3.3.4 Co-integration 62

3.4 ARDL Estimation 63

3.5 Data Sources 63

CHAPTER FOUR: PRESENTATION AND INTERPETATION OF RESULTS

4.0 Introduction 64

4.1.1 Descriptive Statistics. 64

4.1.2 Correlation Analyses 65

4.1.3 Stationarity Test 66

4.2 ARDL Model 67

4.3 Diagnostic Test 72

4.4 Evaluation of Research Hypotheses 74

4.5 Discussion of Findings 75

4.6 Policy Implications 76

CHAPTER FIVE: SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.0	Introduction	78
5.1	Summary of findings	78
5.2	Policy Recommendations	79
5.3	Further studies	80
5.4	Contribution to Knowledge	81
5.5	Conclusion	81
References		83
Appendices		89

LIST OF TABLES

Table 3.1	Description of Variables	61
Table 4.1	Descriptive Statistics	64
Table 4.2:	Correlation Matrix	66
Table 4.3	Unit Root Test for Stationarity	67
Table 4.4	Bounds Test for Co-integration	68
Table 4.5	ARDL Error Correction Regression	69
Table 4.6	Long Run ARDL model	71
Table 4.7	Breusch-Godfrey Serial Correlation LM Test:	72
Table 4.8	Heteroskedasticity Test: Breusch-Pagan-Godfrey	73
Table 4.9	Ramsey RESET Test	74

LIST OF FIGURE

Figure 4.1 Histogram Normality Test 73

ABSTRACT

The overview of the study is to investigate the impact of Microfinance banks on poverty in Nigeria. The study utilized data sourced from Central Bank of Nigeria statistical bulletin, financial statements of some microfinance banks and World Bank development indicators ranging from 1990 to 2023. Various statistical and econometric tools were employed for this analysis using the Autoregressive distributed lag model as an estimator. The estimated results indicated that microfinance bank assets base have a positive and insignificant impact on poverty index in the short run but negative and significant impact in the long run period. It therefore denotes that Microfinance banks assets base hampered poverty in Nigeria during the study period. The results however showed that RGDP had a positive and significant impact on poverty in both the short run and the long run estimation. The findings further showed that microfinance bank loans had a negative and significant impact on poverty both in the short and in the long run in the Nigerian economy.The coefficient of the error correction term (ECMC-1) was properly signed with negative (-0.792) and significant at the 5 percent level. This indicated that about 79.2 percent of the deviations of the model from its equilibrium value in previous period were corrected in the current period. The study hence, recommends that; policies aimed at stabilizing the economy and stimulating foreign investment in the microfinance segment of the economy should be encouraged by the monetary authorities in order to stimulate credit giving capacity of the microfinance banks in the Nigerian economy.

Key words: Microfinance Banks, Poverty, Capital Adequacy, Interest Rate, Loans to Depositors

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Poverty has been a talking point of all governments across the globe. I hand seen poverty first hand in Nigeria. All over the world, many people in different societies have been plagued by extreme poverty. Approximately 40% of the global population lives below the poverty line (World Bank, 2019). The same report from the World Bank shows that most residents in developing countries, Nigeria inclusive, lack access to formal financial services, and are impoverished as a result. Consequently, countries have promoted sustainable economic development through diverse financial policies targeted at poverty reduction. One of such financial policies is the microfinance scheme. To effectively eradicate poverty, the finance and economic experts have extensively commented on the potency of microfinance banking. Hence, microfinance policies have predominantly been featured as a poverty reduction strategy across the world (Thrikawala, Locke, & Reddy, 2013). It is based on this premise that microfinance banks are established to extend affordable and accessible financial services to the low-income earners who are often excluded from accessing formal financial services due to high lending rate and collateral demands associated with large financial institutions like commercial banks, lack of bank branches and financial illiteracy in the rural areas, the high tendency of credit default risk among the poor, etc. (CBN, 2020). In Nigeria, like other developing countries, microfinance institutions avail the major source of funds for microenterprises that are usually owned by low-income earners (or the economically active poor). Consequently, the underlying idea behind the rising of microfinance banks is the fact that low-income/poor people are financially empowered to undertake economically productive ventures that could generate income and push them above

the poverty line (Awojobi, 2019; Mecha, 2017). At this point, a natural question that arises is; what is poverty and how do microfinance banks aid poverty reduction?

It is true that an idle mind is the Devil workshop, there is the need of a constant engagement of the mind of the youth to keep them engaged in by productive ventures that will enable them to earn a living, create jobs and contribute meaningful to nation building. In recognition of these, successive government in Nigeria has initiated different programs in an attempt to eradicate poverty and improve the lots of the poor in the country. Some of these programs include small and medium scale development agency of Nigeria (SMEDAN), introduction of entrepreneurship development study as a compulsory course across Nigerian Universities and the introduction of microfinance banks by the central bank of Nigeria (CBN) in the country in 2004 among others. The latter is seen as a deliberate effort on the part of government to swiftly and effectively contend and minimize the tide of poverty that have eating deep into the fabrics of the Nigerian society.

Thus, the introduction of microfinance banking led to the phasing out of the 'Community Banks' which were once known as 'The Peoples' Bank'. According to CBN (2005) and the revised new regulatory guidelines CBN (2012), microfinance entails providing financial assistance to the poor who cannot have access to micro-financial services from the conventional financial institutions; also the microfinance banks perform three basic distinct functions from the other financial institutions. These are (i) the small nature of loans given to customers as well as the savings that are collected; (ii) no collateral security attached, and (iii) simplicity of operations. In the same policy framework, it was evidently stated that the formal financial sector provides financial assistance to about 35 per cent of the economically active population while the remaining 65 percent that are excluded and can't have access to the financial services are left at the mercy of the unregulated financial activities of informal financial sector made up of Non-Governmental Organizations (NGO), microfinance institutions, credit unions, moneylenders, Osusu scheme,

friends and families among others (Egboro, 2015). Most of these informal financial institutions have shifted focus and compromised their original social mission of reaching to the poorest of the poor; for mere profit oriented ventures. Hence, the establishment of microfinance banks in Nigeria is to primarily cater for this unserved populace.

The microfinance institutions constitute critical credit source to agriculture particularly in developing countries like Nigeria, Pakistan, Bangladesh, etc., due to their offer of small advance loans and or savings, lack of asset-based collateral, in addition to simplicity of operations. The microfinance plays a critical role in farm production, as it constitutes the bedrock upon which increased food production and employment rest, especially for these countries where agriculture constitutes a major part of developing countries' GDP and employment generation, particularly the rural populations.

Given the debilitating poverty in Nigeria and the quest to significantly reduce poverty to barest minimum, as encapsulated in the Millennium Development Goals (MDGs), the place of financial empowerment to enable people engage in meaningful economic ventures through the microcredit cannot be over-emphasized. Through microcredit, the latent entrepreneurial capabilities of the large segment of the people is sufficiently stimulated and sustained, leading to substantial poverty reduction employment creation. Suffice to say, in this regard, that the microfinance through its credit intermediation channel can significantly enhance economic incentives, develop and create enterprise which can reduce poverty to a sustainable level. In the light of the critical role of credit in the stimulation of productive economic activities, entrepreneurial spirit, creative and innovative endeavors that can reduce poverty, there is a need to investigate the empirical nexus between the microfinance bank and poverty reduction, using the evidence from their credit intermediation role.

1.2 Statement of Problem

To effectively curb poverty in Nigeria, the Central Bank of Nigeria (CBN) mandates the licensed Microfinance Banks to target "economically poor individuals", that is, "individuals or groups with meager means of livelihood and whose personal income within a period of one year falls short of the minimum taxable limit stipulated in the tax laws." According to the CBN revised supervisory and regulatory guideline for Microfinance Banks.

However, most studies on Microfinance Banks with emphasis on poverty started to emanate after the collapse of the community banks with the ensuing financial crisis across the globe as conducted by different researchers (Odhiambo, 2011; Acha, 2012; Thrikawala, Locke, & Reddy, 2013; Onyele and Nwokocha, 2016; Mecha, 2017; Tafamel, 2019, Awojobi, 2019; Nwobu, 2019; Ezeanyeji, Usifoh, Obi, and Ejefobihi 2020; and Akhter and Cheng, 2020). Outcome of their studies were mixed and inconclusive, hence the need to validate these studies. Most of the microfinance banks in Nigeria has weak asset base and may not be able to contribute to poverty reduction. This is because these banks have been established to make profit for their various owners. As asserted by Ezeanyeji, Usifoh, Obi, and Ejefobihi (2020), as the economy grows and expands, it has the capacity to generate wealth for the less economically endowed individuals in the economy. This could be in the form employment generation and self-employment. Also, inflow of capital in the form of FDI, particularly in the microfinance sub-sector can stimulate employment and access to loans thereby reducing poverty in the long run in an economy. The fundamental drawbacks to microfinance institutions in Nigeria is their capacity to grants loans to the growing numbers of Micro Small Medium Enterprises (MSMEs) and monitor their activities. It is against this backdrop that this research is carried out. In view of the above challenges facing microfinance banks and their capacity to release the needed fund that can impact on poverty reduction, the following research questions can be developed.

1.3 Research Questions

The research study specifically asked the following questions based on the statement of the problem:

i. What is the impact of Microfinance Banks Assets base on reducing poverty in Nigeria?

ii. What is the impact of interest rate of Microfinance Banks on reducing poverty in Nigeria?

iii. What is impact of Microfinance Banks loans on reducing poverty in Nigeria?

1.4 Objectives of the Study.

The broad objective of this study is to investigate the impact of microfinance on poverty in Nigeria. In view of the above broad objective, the specific objectives of the research are outlined below are to:

i. Examines the impact of Microfinance banks assets on reducing poverty in Nigeria;

ii. Determine the impact of interest rate of Microfinance Bank in reducing poverty in Nigeria

iii. Assess the impact of Microfinance Banks' loans on reducing poverty in Nigeria.

1.5 Hypotheses of the Study

From the research objectives stated above, the hypotheses of this study which need to be validated through empirical analysis are stated in the null forms as follows:

H_{01}: Microfinance banks assets has no significant impact on reducing poverty in Nigeria;

H_{02}: Interest rate has no significant impact on reducing poverty in Nigeria;

H_{03}: Microfinance banks' loans have no significant impact on reducing poverty in Nigeria.

1.6 Significance of the Study

This study is particularly of immense significance to policymakers who often seek such research findings to measure the effectiveness of various fiscal policies in achieving target objectives. Despite the fact that numerous Microfinance Banks are operating in the country coupled with several policy initiatives aimed at reducing poverty level among Nigerians. It will add to existing stock of knowledge in similar studies of this nature. It will also be of great benefit to the following groups:

Firstly, it will be of interest to the government that has initiated several poverty alleviation schemes in the country. It will assist government policy makers in both Fiscal and Monetary policies and Microfinance Banks of Nigeria as well in handling issues relating to poverty in Nigeria. The government through this study can fine tune their recent poverty schemes so as to meet the needs and aspiration of the poverty stricken population and the underserved banking community in Nigeria.

Secondly, the study will be of immense benefit to the academic society as it will further contribute to existing economic literature in the field of microfinance as it relates to poverty alleviation. It will be a useful material to students, lecturers and researchers undertaking research in this area especially in terms of reference purpose.

Lastly, managements of microfinance banks can further examine their fund disbursement to determine how far reaching it is reducing poverty in Nigeria from the findings of this research. Furthermore, managements can evaluate the performance of their loans disbursement and craft out new areas in which their loan schemes can become more useful. It will enlighten management of Microfinance Banks on issues surrounding the roles as it relate to poverty in Nigeria. The study will enable microfinance banks managers to take and make decisions that will further strengthen

their operational base and eventually leads to poverty reduction, which is a key component of the Sustainable Development Goals (SDGs).

1.7 Scope of the Study

This study focuses on the microfinance banks as a measure for poverty reduction in the Nigerian economy. The study shall span a period of 33 years (1990 to 2023). The choice of this period is based first on when the idea of microfinance banks was formally established in Nigeria which started in 1988. Similarly, the period incorporates the period of various reforms initiated by the Federal Government of Nigeria through the instrumentality of the apex bank (the Central Bank of Nigeria) in the microfinance banks took place during this era. This period suffice also as it includes recent economy realities that have occurred in the country including the advent of Covid-19 which has significantly transformed the business scenery in the past 2 years.

1.8 Limitations of the study

The study like any research work thus far has been limited by the problem of data. Data on chosen variables were found inconsistent. Contradicting figures were observed on the variables in different data base. Hence, this study only relay on the data from CBN statistical bulletin and annual reports and statement of account and the world development indicators of the World Bank for data on poverty. Similarly, the study has observed the issues of insufficiency of literature or contrasting ideas. Another limitation by this study is that it focused only on poverty in Nigeria and not the entire scope of microfinance banks, therefore it could affect the reliability of the results.

1.9 Structure of the study

This study will be structured into five chapters. Chapter one would cover introductory background of the study, statement of the problems, objective of the study, hypotheses of the study,

justification of the study, scope and significance of the study. Chapter two would focus on the conceptual review, theoretical review and the empirical literature including relevant issues connected to the study. Chapter three would examine the theoretical framework of human capital development and discuss the research methodology as well as the specification of the models related to the study. In chapter four, empirical analysis and results of the study would be presented and discussed accordingly. Chapter five would present the summary of findings, recommendations and conclusion of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Microfinance banks

Microfinance banks are financial institution designed to cater for the financial needs of the underserved community within financial space of any economy. It is fundamentally aimed at serving the financial needs of the poor through a viable financial system. It is also averred as documented by Mago (2014), that microfinance banks aim at providing a wide range of financial services such as deposit mobilization, the advancement of micro-loans, money transfer and other forms of payment services to the low-income earners and poor persons, households as well as their micro or small-scale enterprises. Succinctly put, the idea is that the poor earn more, accumulate assets, and become less vulnerable to external shocks as they can have financial services they need (Christensson, 2017; Obayagbona, 2024).

Micro-financing means developing a financial system that effectively and efficiently meet the needs of the poor and are a powerful tool for fighting poverty across the globe (Osamwonyi & Obayagbona, 2012). The reason is when the poor are able to get financial services; they can earn more, build assets and protect themselves against external shocks as they arise (NMDS, 2012). According to the Asian Development Bank (2011) and the Central Bank of Nigeria (2013), Micro financing is the provision of a wide variety of financial services primarily to assist the poor and low income persons, households and their small businesses. Rodman (2012) sees microfinance bank as the provision of financial services to low income earners, who were hitherto not serviced by the formal deposit money banks. In other words, it is the provision of microcredit to poor people to enable them engage in meaningful ventures and grow them accordingly.

However, Seibel (2001) defines it in a wider term as comprising formal and non-formal financial institutions that offer micro financial services to the low income people, and are regulated along -side the banking sector. According to MIX (2010), microfinance is the provision of micro-credit facilities, including savings and other relevant services to the poor. It added that the word 'micro' is a reflection of the smallness of the amount involved and which makes it peculiar to the poor who specifically need them to run their small business and earn a living.

In line with Osamwonyi and Obayagbona (2012), microfinance involves building efficient financial systems that function to meet the requirements of the poor. It involves providing wide-ranging financial services that include savings, loans, payment services, transfer of money, insurance to the poor, as well as persons with low income, households, in addition to their microenterprises CBN, (2013). Through the microfinance, clients can protect, diversify and increase their incomes, in addition to accumulating assets that reduce their vulnerability to income and consumption shocks. To this end, it entails providing small loans (microcredit) to the poor, which allow them to take part in economically productive activities or nurture and develop their businesses. It is a critical tool for the enhancement of economic growth, employment creation and poverty reduction through the support of entrepreneurial initiatives and small-scale enterprise.

Micro-finance is a term used to refer to different methods for giving poor people access to financial services. Irobi (2008) defined microfinance as the provision of financial services such as credits (loans), savings, micro-leasing, micro-insurance, and payment transfers to economically active poor and low income household to enable them engage in income generating activities or expand/grow the small businesses. Microfinance is sectional defined asa financial intervention that focuses on the low-income group of a given society. The intervention primarily involves credit services and may also include savings, insurance on credits and savings.

Furthermore, Robinson (2001) defined microfinance as the supply of loans, savings and other basic financial services to the poor. Microfinance evolved as an economic development approach intended to benefit the low-income part of a given society, both men and women (Irobi, 2008).

According to World Bank (2007), the term refers to provision of financial services (including saving and credit) to the poor. Micro-finance banks therefore are institutions that are established to provide financial services to the poor. Microfinance institutions can be non-governmental organizations, savings and loan cooperatives, loan unions, government banks, commercial banks, or non-bank financial institutions Ledgerwood, (1997). The policy seeks to make financial services available on a sustainable basis to the economically active poor, low-income earners and micro, small and medium enterprises through privately owned enterprises.

2.1.2 Poverty

The study of poverty and its alleviation are not new. Rather what are revisited are the spatial differences in levels of poverty among real units. Poverty is a global phenomenon, which affects continents, nations and peoples differently. It afflicts people in various depths and levels, at different times and phases of existence Oyeyomi, (2003). The most commonly way to measure poverty is based on income or consumption line. A person is considered poor if his or her consumption level falls below 1USD per day, a level necessary to meet basic needs. This minimum level s called the poverty line The World Bank, (2002). The Central Bank of Nigeria(1999) views poverty as a state where an individual is not able to cater adequately for his or her basic needs of food, clothing and shelter; is unable to meet social and economic obligations, lacks gainful employment, skills, assets and self-esteem; and has limited access to social and economic infrastructure such as education, health, portable water, and sanitation; and consequently, has limited chance of advancing his or her welfare to the limit of his or her capabilities".

Narayan et al (2000) systematically defined poverty when he said that "don't askme what poverty is because you have met it outside my house. Look at the house and count thenumber of holes. Look at my utensils and the clothes that I am wearing. Look at everything andwrite what you see. What you see is poverty".

The issue of poverty, measurements and its implications on human lives, particularly those who are in African continent (Nigeria inclusive) and the third world, has been a recurrent subject of numerous debates for well over three decades till date. The World Bank (2012) sees poverty in absolute terms; that extreme poverty is living on less than US$1.90 per day, and moderate poverty as less than $3.10 a day. It is all time argument that while about 112 million Nigerians currently live below poverty level, the total number of poor persons globally is approximately one billion. Also, the World Bank's Development Report (2000, 2001) argues that the poor people often do not have enough food, shelter, education and health, hence, they are unable to live quality lives that is most desirable by all. They are also very vulnerable to sicknesses, diseases, economic dislocation, and epidemic. The poor are always exposed to ill treatment by governments and society, and do not have what it takes to influence the key government decisions affecting their lives (World Bank, 2000; Ganga, 2012). According to Ganga (2012), at the very heart of these debates is the question of whether poverty is merely about material deprivation or is an issue that also affects a broader set of needs beyond mere material needs. On his part, Sen (1999) submitted that poverty is an issue of deprivation (with respect to capability) rather than low incomes. However, capability approach to poverty does not ignore the fact that low income is also responsible for poverty, since lack of resources is also a primary reason for a person's capability deprivation. More emphatically, deprivation that poor people are facing really on daily basis goes beyond mere income poverty but encompasses issues such as vulnerability, ill-health, social inferiority, powerlessness, humiliation and isolation among others Chambers, (1995). In another

related definition, ADB (2004) sums it up as follows: 'poverty is characterized by the inability of a person to have all the relevant services to lead a normal life. Food, peace, access to education and convenient health care services are the basic necessities of human life. The poor should be able to work and sustain themselves and have protection to a certain extent from external attacks'.

One of the factors attributed to the rising poverty rate in developing countries is the lack of finance. Finance plays a significant role in the fight against poverty World Bank, (2008). While increasing access to formal financial services through micro financing has generated positive responses, this has also been questioned with critics averring that high-interest rates hold the poor back in poverty (Ayyagari, Beck, and Hoseini, 2013). However, finance is seen to influence poverty from three (3) major channels viz; entrepreneurship, inter-state and credit channels. First, the entrepreneurship channel entails that the poverty-reducing impact of finance falls majorly on the self-employed in rural areas Odhiambo, (2011). Second, it has been averred that inter-state migration of labour towards more financially developed states is a recipe for poverty alleviation (Clarke, Xu, & Zhou, 2006). The migration induced by finance is motivated by the job search, suggesting that poorer population segments in rural areas migrated to urban areas. Lastly, the credit channel entails that higher credit extension has a poverty-reducing effect (Ayyagari et al., 2013).

To effectively curb poverty in Nigeria, the Central Bank of Nigeria (CBN) mandates the licensed Microfinance Banks to target "economically poor individuals", that is, "individuals or groups with meager means of livelihood and whose personal income within a period of one year falls short of the minimum taxable limit stipulated in the tax laws." According to the Central Bank of Nigeria revised supervisory and regulatory guideline for Microfinance Banks;

"A microfinance bank (MFB), unless otherwise stated, shall be construed to mean any company licensed to carry on the business of providing microfinance services such as savings, loans,

domestic fund transfers, and other financial services that economically active poor, micro-enterprises and small and medium enterprises need to conduct or expand their businesses as defined by these guidelines (CBN, 2012)."

In view of empowering the economically poor Nigerians, the Central Bank of Nigeria (CBN) guideline stipulates that an MFB customer should have the following features: must have a monthly income of not more than twice the monthly per capita income of Nigeria or minimum wage, whichever is higher, must have a total productive asset (inclusive of those arising from loans but excluding the cost of land) of not more than five hundred thousand Naira (₦500, 000.00) only, is not a regular employee of any organization, and age between 18 and 60 years.

2.1.3 Microfinance Bank in Nigeria.

Long before the advent of modern microfinance banking in Nigeria, the issue of credit has been an important aspect of Nigeria's economic and socio-political relations among the various ethnic groups, particularly the low income earners or the poor. Credit has often been used as a tool for helping the poor and stimulating economic growth. Over the years, government and international donor agencies have tried to provide credit at a subsidized rate to small farmers in the developing countries, particularly Nigeria, not available to all. According to Anyanwu (2004), the very failure of the reduce loans to get to the poor, led to the introduction of another microcredit scheme that would enable the poor have convenient access to financial services on a regular basis. Indeed, microfinance has metamorphosed through three basic stages or types in the last decades in Nigeria.

The introduction of microfinance banking led to the facing off of the 'Community Banks' which were once known as 'The Peoples' Bank'. According to CBN (2005) and the revised new regulatory guidelines CBN (2012), microfinance entails providing financial assistance to the poor

who cannot have access to micro-financial services from the conventional financial institutions; also the microfinance banks perform three basic distinct functions from the other financial institutions. These are (i) the small nature of loans given to customers as well as the savings that are collected; (ii) no collateral security attached, and (iii) simplicity of operations. In the same policy framework, (Egboro, 2015).

Microfinance banking is about providing financial services to the economically active poor and low income household, who are traditionally not served by the conventional financial institutions. These services include credit savings, micro-leasing, micro-insurance and payment transfers to enable them engage in income generating activities. (Asemota, 2023)

Ana (2008), says microfinance banking in Nigeria is guided by the microfinance regulatory policy and guideline of 2005. No micro banker may, therefore, operate outside the dictates of this policy. In Nigeria, micro finance banks render services to the poor and small and medium scale entrepreneur (SME's) while the poor is defined as a person living with less than two dollars (about, N290) a day. However, those living with less than a dollar a day are said to beliving below the poverty line. The small medium enterprises (SME's) are defined as persons doing business with less than N1.5 billion. Recent studies according to Ana (2008), indicate that poor people in Nigeria number some 126 million or 90% of the population while those living below the poverty line are N100,000 (One Hundred Thousand Naira only) as against N200,000 (Two HundredThousand Naira only)for mega banks. Statutorily, a microfinance bank is not allowed to lend more than N500,000(Five Hundred Thousand Naira) to a single individual or business, Microfinance banks credit classification is more stringent than the mega banks. For instance, while a mega bank may only classify an account as loss if it stays unpaid for interest and capital for up to 365 days, microfinance banks must classify such loans as loss if they remain unpaid for 90 days. Micro bank operators opt for very short term liquid loans. Microfinance banks do all

banking business except that they are not allowed to do foreign exchange business. They serve their forex customers by making use of their correspondence banks. Because a microfinance bank is not allowed in the meantime to access the clearing house operations, its cheque books bear the names of their correspondence banks.

2.1.4 Ownership of Microfinance Banks

To achieve the objectives of an organic growth path microfinance banks licensed to operate as a unit bank shall be allowed to open new branches in the same state. Subject to meeting the prescribed prudential requirements and availability of minimum free funds of N20.0 million for each new branch. It can also attain the states of a state Microfinance Banks by spreading organically from one location to another until it covers at least two-thirds of the local government areas of that state subject to meeting the prescribed prudential requirements and availability of minimum free funds of N20.0 million for each branch to be opened in the new state.

Microfinance Banks licensed to operate in a state shall be allowed to open a branch in another state. Subject to opening branches at least two-thirds of local governments of the state it is currently licensed to operate in subject to the provision of N20 million free funds and if in the view of the regulatory authorities. It has satisfied all the requirements stipulated in the guidelines Alegieuno (2024).

Microfinance banks can be established by individuals, groups of individuals, community development associations, private corporate entities or foreign investor. Universal banks that intend to set up any of the two categories of MFB as subsidiaries shall be required to deposit the appropriate minimum paid up capital and meet the prescribed prudential requirements

Alegieuno (2024).

2.1.5 Categories of Microfinance Banks.

According to Central Bank of Nigeria (CBN, 2005). There are there three categories of Microfinance Banks depending on the size in terms of capital base and their operational coverage as specified by the regulatory frame work:

Unit Microfinance Bank

The unit is situated in one location where it concentrates all activities, it has a capital base of N20 million. They can only operate within a particular town or local government area. The bank is prohibited from having branches and cash centres outside the area of operation.

State Microfinance Bank

These are Microfinance Banks with a minimum paid up capital based of N100 million and above which can operate outside a particular local government area but within a state. They are described as state based Microfinance Banks.

National Microfinance Bank

These type of Microfinance Banks is licensed to operate branch offices in all state of the federation subject to a minimum capital based structure of N2 billion. The National Microfinance Banks is allowed to open branches in all State of the federation with the approval of Central Bank of Nigeria (CBN).

Summary of the Categories of Microfinance Banks.

Name of Microfinance Banks	Capital Based	Area of Operations
Unit Microfinance Bank	₦100 million	Only one branch in a town or local government area
State Microfinance Bank	₦200 million	More than one branch but operate within the local government area of the State
National Microfinance Bank	₦2 billion	Have branches more than one state. Operates across the states of the federation.

Source: Central Bank of Nigeria recapitalization policy on Microfinance Banks 2021.

2.1.6 Number of Licensed Microfinance Banks

As at October 31, 2020, the Central Bank of Nigeria (CBN) had granted 916 licenses for the establishment of Microfinance Banks (MFB's) across the country including 600 community banks that converted. The CBN, inaugurated the National microfinance policy consultative committee (NMFPCC) on April 5th, 2006 to give direction for the implementation of microfinance policy, conduct capacity building on microfinance banking for microfinance banks (MFB's) those with Approval in Principles (AIP's) provisional Licenses, Community Banks converting to Microfinance Banks (MFB's) other Microfinance Institutions (MFI's) and officers of universal banks in charge of microfinance in collaboration with the German technical Cooperation (GTC) and for selected Microfinance Institutions (MFI's) in collaboration with United Nation Development Programme (UNDP) (Alegieuno, 2008).

Microfinance Banks (MFB's) spread across geopolitical zones in Nigeria is shown in the table below.

2.1.7 **Distribution of the Microfinance Banks in Nigeria (MFB's)**

Geo-Political Zones	**Number of MFB's**	**Number of States**	**Percentage Share**
South West	340	6	37%
South East	164	5	18%
South-South	99	6	11%
North Central	154	7	17%
North West	123	7	13%
North East	36	6	4%
Total	**916**		**100%**

Source: Central Bank of Nigeria License Microfinance Banks 2020

The total numbers of Microfinance Banks in the northern part of the country is three hundred and thirteen (313) (MFB's) while the total numbers of Microfinance Banks in the southern part of the country is six hundred and three (603) with a total percentage of thirty-four(34%) and sixty-six (66%) respectively. The number of Microfinance Banks (MFB's) that have been licensed in the northern part of the country is quite low and this is likely to hamper outreach in these areas.

2.1.8 The Challenges of Microfinance Banks in Nigeria

The most fundamental difficulties Microfinance Banks in Nigeria have is the near absence of basic infrastructure. This lack of basic infrastructure compounds the operational difficulties of these banks, which ordinarily are faced by high operational costs because of their nature of business. By dealing with many small clients Microfinance Banks' transaction costs are usually higher than those of conventional banks. Unfortunately, these banks are also forced to incur additional costs to provide themselves with electricity and water. The absence of good roads

especially in the rural areas also distorts their outreach (Bamisile, 2006). All these work in concert to drive cost of operations up and put them at a very big competitive disadvantage.

The lack of Banking culture in the rural areas and among the urban poor is another factor militating against the progress of Microfinance Banks. Traditionally, these people borrow money from friends and relatives and repay the same amount of money borrowed no matter the tenure of such loans. They therefore find it difficult to understand the payment of interest on bank loans.

In the northern part of the country, the issue of frowning at interest on loans takes a religious dimension. This part of the country is populated by mainly Muslims, a religion which abhors usury. This has hampered the development of Microfinance Banking in that part of the country. This was buttressed by (Mohammed and Hassan, 2009) who opined that "conventional Microfinancing violates Islamic principles by charging interest. This matter is of concern for Muslims due to the consequences of dealing with interest (ribia)". This may account for the lopsided location of Microfinance Banks in country as over 75% of them are located in the southern part of the country while the northern part with a higher incidence of poverty has less than 25% of Microfinance Banks (Bamisile, 2006).

The failure of many community banks and the withdrawal of the licence of Two hundred and twenty-four (224),Microfinance Banks in 2010 have badly damaged public confidence in these banks. Many Microfinance Banks established in communities where failed community banks existed are faced with an uphill task of convincing these communities that they will not go through the unfortunate experience of losing money in a bank failure. The sudden withdrawal of the licence of Two hundred and twenty-four (224) of these banks has fuelled the lack of public confidence which community banks bequeathed them. Many of the customers of these banks have refrained from dealing with them in fearing the same fate would befall them. On the other hand, the Central Bank of Nigeria has constantly assured the public that it will not allow any commercial

bank to fail; this, places the Microfinance Banks at a great disadvantage by tilting public confidence in favour of commercial banks that are normally bigger and stronger.

Another important factor identified to militate against the performance of Microfinance Banks in Nigeria as identified by CBN, (2005), Irobi, (2008) is limited support for human an institutional capacity building. The paucity of human capacity in the Microfinance sub-sector in Nigeria has been an issue from the days of community banking. According to Ikeanyibe, (2009) one of the major problems of the Microfinance sub-sector is recruitment of effective and appropriate manpower. This he ascribed to the inability of the sector to adequately remunerate staff. Other human resource problems faced by Microfinance Banks include lack of training opportunities and poor conditions of service. The quality of manpower in these banks is reflected in the poor performance of many of them, inefficiency and high levels of frauds and forgeries. The banks also suffer from high labour turnover a further indication of low staff motivation and poor personnel practices.

Corruption is a cankerworm that has wrecked-havoc in many sectors of the Nigerian economy. The microfinance sub-sector is not left out of the ravages of corruption. This manifests in many ways, such as, corporate governance failures, frauds and forgeries, theft and refusal by customers to repay loans. The standard of corporate governance in many Microfinance Banks in Nigeria is poor. Board members are known to misuse their positions to obtain facilities way above the regulatory limit for insider related loans and worse still with no intentions of repaying such facilities. They also use their positions to unduly influence and manipulate the recruitment processes in favour of their cronies. Frauds and forgeries by both insiders and outsiders to the banks are rife and people generally obtain loans with no intention to repay.

It is important to note that there is over nine hundred (900) Microfinance Banks today in Nigeria and they are regulated and supervised by the Central Bank of Nigeria (CBN). The CBN also has

the responsibility of supervising deposit money banks, development finance institutions, primary mortgage institutions, and bureau de change and credit bureaus. The multiplicity of the institutions and their diverse nature possess a regulatory challenge. This is against the backdrop that deposit money banks and Microfinance banks differ in operational method and scope, a regulator trained to inspect/supervise the activities of one may be handicapped in the supervision of another.

The emergence of miracle or magic banks from time to time has done a lot of disservice to the image of Microfinance Banks. These banks spring up without any license, promise to pay outlandish interest on deposits, mobilize deposits from the uninformed and/or greedy and disappear. Most of the victims of these scams are customers that Microfinance Banks should service but become skeptical about banking after the miracle bank experience. Many others do not see any difference between those magic banks and the licensed Microfinance Banks.

Another prevalent problem among Microfinance Banks is the copying, competing and mimicking the practices of deposit money banks. Many Microfinance Bank managers and other management staff were deposit money banks' staff who were either retired or sacked by their former employers. To these staff Microfinance Banking is just an extension of the deposit money banks they know. They also come with their organizational orientation, philosophy and culture. They refuse to understand that Microfinance is not Micro-deposit money banks but a different kind of banking requiring a different approach, philosophy and client base. This may be why many Microfinance Banks spend colossal sums on office complex, exotic cars and the wardrobe of their staff. They also engage in inordinate competition with the deposit money banks. This class of staff lack orientation as to the essence of Microfinance.

The constant government policy changes offer its set of challenges to the Microfinance Banks. In 2007, deposit money banks were consolidated; they became so big obviously leaving the not too

wealthy client segment to Microfinance Banks. Today banks have been reclassified into regional, national and international, fuelling fears that the regional banks might be in direct competition with Microfinance Banks. In addition to this, Islamic Banks are being licenced and may end up in the same market segments as Microfinance Banks.

The rate of interest charged by Microfinance Banks leaves a lot to be desired. According to a study carried out by UNDP, (2009), Microfinance Banks charge between 30% - 100% interest on loans while they pay 4.5% to 6% on savings.Anyanwu,(2004), confirmed that the Microfinance Banks rates are way too high and may not augur well for the smooth development of this sector.

2.1.9 Prospects of Microfinance Banks in Nigeria

That a lot of opportunities exist in the Microfinance subsector in Nigeria is unarguable. Scholars are unanimous in their agreement that there exist a large untapped market for Microfinance Banks. Olaitan,(2006) , Oluyombo and Oundimu, (2006), buttresses this by pointing out that about 70% of the Nigerian population is engaged in the informal sector or agricultural production. Going by the country's population of over one hundred and fifty million people we can deduce that about one hundred and five million are in this sector. In the same line though differing in figures, Mohammed and Hassan, (2009), held that Microfinance Banks in Nigeria only serve less than one million people against the over 40 million that require their services. The gap in this subsector was further demonstrated by CBN, (2005), when it showed that microcredit facilities in Nigeria account for about 0.2 percent of GDP and less than one percent of total credit to the economy.

The scenario above is indicative of an enormous market which Microfinance Banks can take advantage of. This large untapped market in the Microfinance subsector is further enhanced by the fact that over 65% of the entire population of Nigeria has no access to banking services CBN,

(2005). To say that this leaves a lot of room for existing Microfinance Banks to expand their scope of operations and for new ones to enter will be stating the obvious.

Government's renewed interest and improved regulatory environment in the Microfinance sub-sector also enhances the prospects for development and success of Microfinance Banks. One indication of this is the implementation of training programmes for regulators, promoters and practitioners by the Central Bank of Nigeria (CBN). The CBN has even gone ahead to adapt the suggestion of Irobi, (2008), that it subsidizes the training of practitioners in the sector to reduce the burden on the banks. Today the CBN pays 60 per cent of the cost of training the management staff of these banks, this is aimed at improving capacity in the industry. The programmes which the CBN runs in collaboration with Nigerian Deposit Insurance Corporation (NDIC) will culminate in these managers passing a certification examination set by the Chartered Institute of Bankers of Nigeria (CIBN). The regulators are taking this certification/human capacity building programmes so seriously that they have issued a guideline that only certified persons will qualify to manage Microfinance Banks in the near future.

Another sign of regulatory will to ensure vibrancy in the Microfinance Banks subsector is the inclusion of Microfinance Banks' deposits in the deposit insurance scheme. This has improved public confidence in the subsector. Furthermore, the review of the deposit insurance limit from one hundred thousand (N100, 000.00) naira as stipulated by the NDIC Act of 2006 to two hundred thousand (N200, 000.00) naira is a further sign of regulatory intention to build confidence in these banks.

2.2 Theoretical Literature Review

Several theories have been used to explain Microfinance Banks. This study examined four theories of Microfinance Banks as related to this study. These are discussed below:

2.2.1 Demand following and Supply leading hypotheses

The role of financial institutions in enhancing economic productivity could be explained by the demand following and supply leading hypotheses. The demand following the hypothesis is based on the premise that financial development reacts positively to economic growth. On the other hand, the supply leading hypothesis is hinged on the notion that the establishment of financial institutions comes first before the demand for financial services. As such, the demand following and supply leading hypotheses are based on the premise that the development of financial institutions can be concurrently growth-inducing and growth induced (Addae-Korankye, 2012). However, many studies support the supply leading hypothesis that the efficiency with which financial institutions operates is the most important issue for the economy (Taiwo, Agwu, Aregan, & Ikpefan, 2016). These studies considered the supply of innovations as well as initiatives, enterprise, and finance as the major tool for creating, transforming and expanding the industrial sector and other business-oriented activities in the economy (Kaidi, Mensi, & Amor, 2019). Consequently, based on the supply leading hypothesis, it is established that finance-led economic growth would as well generate significant poverty reduction.

2.2.2 Theory of Financial Services

Agene (2011) viewed microfinance as the provision of a full range of financial services comprising micro-credit (including micro-leasing), micro-saving, insurance, and fund transfers to low-income (poor) clients, including consumers and the self-employed, who traditionally lack access to deposit money banks and related financial services, to help them grow microenterprises or engage in other productive economic activities.

Aigbokhan and Asemota (2011) argued that access to credit affects welfare outcomes by alleviating the capital constraints on poor households for their agricultural and micro and small

scale non-agricultural enterprises. They further asserted that access to credit also increases the poor household's risk-bearing and risk-coping abilities and enables consumption smoothing over time. One inference that can be drawn from the above arguments is that microfinance means integrating the financial needs of the poor and low income into a country's mainstream financial system. This is based on the assumption that they are economically active and can empower themselves if they have access to credit.

2.2.3 Short Term Repayable Loan Theory

Anyanwu (2004) defined microfinance as the provision of very small loan that are repayable within short periods. He submitted that clients of microfinance institutions (MFIs) are basically low-income individuals and households with minimal assets that can be used as collateral and includes financial products and services targeted at the poor.

Zeller and Sharma (1998) supported this school of thought when they posited that microfinance can help to establish or expand family enterprises, potentially making a difference between grinding poverty and an economically secure life. Hulme (1998) concluded from his studies of thirteen (13) Microfinance Institutions (MFI's) in seven developing countries that access to microfinance could increase income and improve the asset holding position.

2.2.4 Grameen Bank Model Theory.

Microfinance banks were specifically established to enhance the social wellbeing of low-income earners. In this regard, social microfinance banking is tied to the Grameen Bank model proposed in 1976 by Muhammad Yunus in Bangladesh (Taiwo et al., 2016). The model focused on the low-income earning households while the bank functions as a unit headed by a Field Manager and bankers (workers) to oversee approximately 15 to 22 villages. These villages were usually visited by the manager and workers of the bank to familiarize themselves with their potential clients and

to explain the functions, purposes, and operations of the bank. Under the Grameen Bank model, to receive a loan, prospective borrowers were grouped into five from which two groups received loans at first while the other groups took theirs in turns on a later date. Hence, the two groups that received loans were closely observed for one month to ensure that they conform to the rules of the bank. In a situation where the two beneficiaries of the loan repay principal over fifty-two (52) weeks, others became qualified to obtain loans. As such, there was enormous pressure from the groups to make one comply with the rules and regulations guiding the banking operations, particularly with respect to loan repayments. In the Grameen bank framework, the formation of groups was also used for other purposes such as educating the members, awareness creation, and collective bargaining (Anyanwu, 2004).

Having examined the various theories, we anchored this study on the Grameen Bank Model theory because Microfinance Banks were initiated by the Central Bank of Nigeria (CBN) for the interest of the poor (low income earners) in the society.

2.3 Theories of poverty

We now turn to the analysis of the main economic theories of poverty. This analysis is divided into sections describing the broad economic frameworks to which each of the theories belong. We begin with the treatment of poverty by the classical and neoclassical schools, or the so-called "orthodox" approaches, which initiated the formal analysis of poverty in the 19th century. We then proceed to those theories that emerged partially as a reaction to the assumptions, hypotheses and conclusions derived by the classical economists.

2.3.1 Classical Theory

Broadly speaking, classical theory typically assumes that the outcomes of the exchanges taking place in the marketplace are efficient, and hence wages faithfully reflect individual

productivity. Accordingly, poverty is mainly seen as a consequence of poor individual choices (e.g. the poor lack “self-control”) that affect productivity negatively, although it is also acknowledged that pure differences in underlying genetic abilities are also potential causes of poverty. As discussed below, the "wrong" choices made by individuals may lead them to find themselves in a "poverty or welfare trap". Beyond a minimum level to prevent destitution, state intervention is generally viewed adversely as a source of economic inefficiency; by generating incentives that are misaligned between poor individuals and society as a whole, welfare programs are perceived as a potential cause for or reinforcement of poverty (through welfare dependence). The government is, at most, justified to intervene whenever poor people need supportive activities or threats to correct for perverse economic incentives. A large majority of the policy prescriptions under this view focus on efforts to raise the productivity of deprived individuals in order for them to join the labour force as soon as possible (although it is acknowledged that some individuals – the young, the sick, the old - cannot participate and will need alternative support).

Given these broad defining characteristics, several different approaches can be distinguished within the classical tradition, each of them underscoring different factors as causes for the incidence of poverty. We discuss each of them in turn.

2.3.2 Behavioural/decision-based theory:

Esping-Andersen (1990) argues in his "three regime" classification of different welfare models currently in use in different developed nations, classical views on poverty correspond for the most part to the market-espousing, laissez-faire principle that tends to attribute responsibility for the outcomes of individuals, such as their well-being, to their own economic decisions. Hence, in this view, people are to be held accountable for their experiences of poverty, which are ultimately linked to purely individual deficiencies. Rank (2003) point out that these individual characteristics can range from "the lack of an industrious work ethic or virtuous morality to low

levels of education or competitive market skills", a view which they contend has gained ground since the mid-1970s. This implies that there is virtually no role for the state to intervene, given that the individual traits that cause poverty are either "given" or determined by market forces.

The behavioural view was also pervasive during the 19th century, when it was generally believed that "poverty was necessary because otherwise the labourers would not be motivated to work" (De Silva &Sumarto, 2014). Policy was therefore interwoven with notions of laissez-faire, which at the time linked "virtue with work". This stance on poverty was also highly influenced by the prevailing principle of "conditional welfare for the few" as in the Victorian Poor Law. The policy prescriptions derived from this principle focused on keeping public redistributive expenditure low and subject to means testing, while maximizing relief through charity and voluntary effort. Hence, this understanding of the issue of poverty revolves around the belief that the poor self-select into deprivation, which is not the result of market failure, but, rather, the result of shortcomings in their own effort and capabilities. Roughly speaking, the only reason left to support the poor is out of morality: help or aid is not conceived of in any other way (such as, for example, as a form of investment in their skills).

The "sub-culture" theory of poverty

Theories of intergenerational poverty claim that behavioural preferences highlighted in classical theories are passed across generations within dynastic families, due either to a genetic component or upbringing. Hence, "poverty begets poverty" as children growing up in dysfunctional families feed from the deviant behaviour of their progenitors, who act as role models (Blank, 2010). Contributions arising from this perspective assert that the intergenerational transmission of attitudes relating to poverty can be perpetuated via a persisting "culture of poverty" which may help poor families cope with low economic means Buddelmeyer and Cai (2009).

Among the most prominent figures of the so-called "subculture of poverty" is Oscar Lewis, who suggested that the poorest sections of society tend to form a special sub-group with distinctive traits that are "largely self-perpetuating". He stated that "poverty, in short, is a way of life, remarkably stable and persistent, passed down from generation to generation along family lines" (Lewis, 1965). He enumerated a number of social and psychological characteristics that underpin this sub-culture such as lack of ability to defer gratification, crowded quarters and frequent resort to violence. However, the sub-culture of poverty should not be equated with poverty: "only about 20% of the population below the poverty line in the US could be classified as belonging to a culture of poverty" (Blank, 2010).

2.3.3 Neoclassical Theory of Poverty

The publication by Alfred Marshall of his "Principles of Economics" in 1890 is considered to be the most important step forward towards the advent of neoclassical economics. Marshall explained price by the intersection of supply and demand curves. The introduction of different market "periods" was an important innovation of Marshall. He took supply and demand as stable functions and extended supply and demand explanations of prices to all time horizons. He argued supply was easier to vary over longer time horizons, and thus became a more important determinant of price in the very long run.

Building on the classical tradition, neoclassical theory stresses the role of the unequal initial endowments of talents, skills and capital which determine productivity of an individual in generating poverty, within a market-based competitive economic system. Market failures such as externalities, moral hazard and adverse selection as well as incomplete information are also viewed as aggravators of poverty (Davis, 2007). Uncertainty may play a major role in causing poverty because the poor are more vulnerable to shocks to their well-being (e.g. recessions, sickness, family breakdown). As in the classical tradition, there is also skepticism about the role

of government among neoclassical thinkers, although targeted policies to address market failures may be warranted in some cases. For example, micro-credit are seen as potentially valuable from a purely economic point of view. This is because they can overcome the risk of moral hazard involved in lending to poor individuals, when they are faced with fluctuations in their income or wish to start a small business. Moral hazard otherwise causes a high social cost and/or limited availability of credit. Finally, poor choices, as criticised by the classical approach, can sometimes be rationalized as information problems which can partly be solved via "small-scale policies" aimed at shifting incentives (Banerjee and Duflo, 2012).

2.3.4 The monetary approach

At a most basic level, the monetary approach, as suggested inter alia by Laderchi (2003) mirrors the fundamental elements of the neoclassical literature rather precisely. It is seen as compatible with the utility-maximizingbehaviour which means welfare can be measured by consumption. In this view, income and consumption take the centre of the stage by simultaneously constituting the main variables of interest and the main units of measurement to be employed in any analysis of poverty, whereas the neoclassical approach assumes income depends on marginal productivity. The key assumption in this perspective is that uniform monetary metrics can successfully capture all the relevant heterogeneity across individuals and their situations. Bhalla (2002) argues that income should be the primary consideration in the alleviation of poverty because it enables the poor to gain purchasing power, provides access to resources otherwise unavailable to the poor (thereby addressing the problem of resource inequality) and, enables the poor to purchase or receive free public goods. In their money-based measures, they also use different methods to input the value of non-marketed goods and services. (Laderchi, 2003).

For economists following this approach, the main appeal of the monetary measurements of poverty is that welfare can be quantified as the total consumption of individuals, approximated

by either expenditure or income data, while poverty is simply defined as a shortfall below some minimum level of resources given by the specific poverty line. As noted before, under the monetary approach, indicators expressed in monetary units are believed to identify those who are poor in many fundamental dimensions.

2.3.5 Assets and financial/income risk

Building from the monetary approach, a neoclassical explanation of poverty and social exclusion that has been extensively cited recently is the incidence of asset scarcity. The general theory underlying this is that households which own an adequate level of assets are less affected by fluctuations in their incomes since asset holdings can be varied. Hence, the risk of becoming poor when they are hit by a negative income shock is lower than for asset-poor households (i.e., they can withstand income risk more easily). In this context, Ulimwengu (2008) claims that the lack of income diversification resulting from the holding of too few assets affects both the probability of becoming poor and the length of poverty episodes, especially when the principal job is not secure and a family's own internal situation is prone to instability (a common trait among poor households). He also indicates that it is not only the inability to accumulate private assets but also social assets (such as health and education) that matters in increasing both poverty rates and their persistence. Furthermore, a household's stock of wealth might play a large role in causing and perpetuating poverty for yet another reason: since assets can be transferred from one generation to the next, they might reduce social mobility across time.

These points apply to differing degrees to all types of economically-valuable assets, ranging from cash to human capital. Housing is also a valuable asset although, like life insurance and pension schemes, it is less liquid and thus less effective in ameliorating the impact of income shocks. The poor are characterised by finding it difficult to save, which means that they are often without bank accounts and, moreover, may face discrimination in financial markets.

2.3.6 Incentives, market failures and access to credit markets Theory

This theory was first introduced into economic literature by Bamoul in 1972. According to Banerjee and Duflo (2012) there are three main reasons why the poor seem to make decisions contrary to their own interests; first, the poor have so few resources that they may have to trade off health for other desirable ends; second, deviations from, for example, the optimal diet, which in an advanced country may entail obesity, may reflect lack of information; and third, there are behavioural constraints such as procrastination, self-control and present-consumption bias, etc. The authors claim the latter argument can be confounded with poor people just being lazy and indulgent, but they argue that richer people are no different, it is just that they do not face these costs in the first place (e.g., they have pension plans that force them to save for old age and postpone consumption, and they have a better quality and more varied diet.

All these factors are symptomatic of market failures in the form of information asymmetries and other constraints giving rise to adverse incentives. These circumstances have in turn been identified as potential causes for inadequate savings (in which effort/transaction costs as well as expensive administrative costs are also involved). What these authors propose are interventions that can marginally improve the life of the poor. They propose a radical rethinking in the sense of a change in focus from deep institutional reforms as proposed by Sachs (2005) to practical, on-the field direct assistance. This assistance includes small scale transfers, behavioural-change inducing policies and subventions. So for example if the poor believe the returns to education are low at low levels and only high at higher levels, and that it is unlikely they will ever get to the higher levels, they may not want to make the effort to invest in the lower levels and keep their children away from school even when it is free. If this is the case, interventions which change information and beliefs can have powerful effects. Other issues

addressed include problems in setting up businesses, needs for birth control and incentives to choose good nutrition.

Lack of access to credit markets has also been identified as an additional cause for poverty, given that it prevents individuals with not enough collateral from starting business activities that might lead them out of poverty (Granville & Mallick, 2006). This problem is clearly linked with the problem of a low level of relevant economic assets as well as asymmetric information, moral hazard and adverse selection inherent to credit markets. There can be a "vicious cycle" since the direction of causality between the lack of access to credit and the lack of assets runs both ways and in a perverse manner: permanent constraints (e.g., liquidity and collateral constraints) prevent people from accumulating enough resources/assets to escape poverty, which in turn leads to a lower likelihood of being able to access credits. This feedback process effectively induces a poverty trap (Ulimwengu, 2008).

Besley and Burgess (2003) suggest that the role played by access to credit in making people escape poverty may need to be qualified if it may also be difficult for poorer individuals to exploit these opportunities, due to a lower level of education in basic financial concepts and the sound management of financial instruments These authors nonetheless argue that these shortcomings do not nullify the advantages of expanding access to credit for the poor, which, as with education, may not only increase the (positive) elasticity between economic growth and the reduction of poverty (by making them more likely to reap the returns to the opportunities that economic growth offers), but also act as a form of redistribution (thereby lowering inequality) in terms of business opportunities and ownership of financial resources. Furthermore, it can be argued that, despite typically lower levels of education, low income households have to be excellent money managers, not least because every penny counts when they have no access to flexible and low cost credit lines. In this context, micro credit is seen as particularly valuable from

an economic point of view, as it overcomes the moral hazard problem of lending to the poor. Collateral is not needed as there is peer monitoring of use of the loan by groups of local people (who get a loan in rotation), and lending to women who are usually more responsible than men.

2.3.7 Keynesian/Liberal Theory

Liberal theory revolves around the idea that not only market distortions, but also broad underdevelopment in its multiple facets cause poverty. Meanwhile, Keynesians suggest growth can promote economic development and thus relieve poverty, hence further justifying government intervention at the macroeconomic level (via fiscal and monetary policy), mainly to tackle involuntary unemployment.

2.3.8 Provision of capital and public goods

In explaining the desire of the government in providing public goods to bridge the gap between the rich and the poor, Professor Joseph Stiglitz in 1968 initiated the theory of provision of capital and public goods. In a typical liberal approach (Sachs, 2005) the main signs of underdevelopment in a country or region include: poor levels of human capital (health, skills and education), business capital (machinery and buildings), infrastructure (transport, power and sanitation), natural capital (viable land), public institutional capital (rule of law and security) and knowledge capital (technical know-how needed to raise productivity). Although the role played by most of these deep-rooted structural factors was originally explained for developing nations.

Sachs' approach is innovative in being "clinical" in designing anti-poverty intervention and needing to adapt to circumstances rather than "one size fits all". Economies, like persons, should be seen as complex systems, where failures in one part (e.g. corruption) lead to failure elsewhere (e.g. market systems), and "diseases" differ (Davis, 2007). Factors to be taken into account include the existence of a poverty trap, the economic policy framework, the fiscal

framework and fiscal traps, physical geography, governance patterns and failures, cultural barriers and geopolitics. In this regard, poverty in a given country might be heavily affected by the presence of a very weak institutional environment including corruption, for example, which adversely influences the functioning of markets, whereas in another context the most crucial factor may be geographical isolation, which may impede the import of basic goods and services needed for individuals to attain a certain level of well-being. Hence, under this view, the importance of this wide range of factors at the macro level needs to be weighed in each specific case, and only then can a particular, tailor-made policy agenda be designed to combat poverty. Similar arguments can apply in advanced countries at the level of the locality or region.

2.3.9 A macro perspective

The major shift in perspective with respect to neoclassical theory lies in the greater emphasis placed on the macro side in liberal theory in comparison with the more micro orientation of preceding models. Hence, Keynes also embraced the significance of education, but the emphasis in the promotion of this crucial aspect of human capital was not so much on the individual decisions leading to its accumulation, but, rather, on the promotion of human capital accumulation through aggregate investment in public education. The role of the government in the economy therefore takes the centre of the stage. It is contended that government intervention against poverty is needed in a wide variety of economic issues, from tackling involuntary unemployment to promoting human capital accumulation through investment in public education, which can both encourage economic growth via the famous multipliers and tackle poverty through the development of abilities it entails. This is in stark contrast with the classical and neoclassical view that the presence of the government in all spheres of the economy should be limited.

In a Keynesian/liberal perspective, poverty is mainly explained by "the misfortune of certain minorities who fall out of work, cannot work or are not expected to", although they wish

to do so. It therefore follows that the state needs to act to "regulate, supplement and exhort, but not impose" (Townsend, 1979). This theory contends that poverty can be a reflection of market failures that under certain circumstances justify redistributive taxation in cash and kind. From the set of macroeconomic variables that Keynes and the new-Keynesians stress, aggregate investment, with its positive effect in employment, emerges as the key element in generating the type of growth that permits poverty relief. If entrepreneurial investment is low, this in turn raises unemployment and poverty rates among suppliers of labour. It is thus suggested that government revenue, raised via taxes or bond issue, should be funneled to public investment. This was viewed, in Keynes' own words, as the "socialization of investment" (Jung & Smith, 2007). Entrepreneurs would at the same time be prompted to invest in profitable projects rather than saving if direct taxes were raised.

To reduce poverty, growth must be sustainable. It should be if a rise in demand is accompanied by aggregate supply in terms of growth in labour and capital. But often demand accelerates ahead of supply leading to unsustainable booms followed by deep recessions. Such patterns may accompany financial liberalisation. Cline (2002) suggests that there is a disproportionate effect of financial crises on the poor whereby a decline in GDP of 5% as is typical of crises would raise the poverty rate by 10% in the same year. Arestis and Craner (2004) also contend that financial liberalisation, if poorly designed, can exacerbate poverty, partly by causing unsustainable booms followed by financial crises. On the other hand, in this respect, Dollar and Kraay (2002) suggest that there is a one-to-one relationship between income of the bottom fifth of the income distribution and per capita GDP. Contrary to Cline (2002) they also find no evidence that economic crises affect the income of the poor disproportionately (i.e., to a larger extent than other groups).

In the Nigerian context, as more widely round the world it is well-known that SMEs account for the majority of employment in the country. Hence, in line with the Keynesian focus on the most relevant sectors, freer flow of credit into SMEs can have a large impact in the incorporation of poor individuals into the workforce, thereby alleviating poverty. The policy prescription that follows from this view is then that the financial needs of growth-oriented small entrepreneurs and businesses must be addressed in a way that helps the generation of a more even distribution of credit across borrowing firms, so as to have as largest an impact on poverty as possible (Granville and Mallick, 2006). The main structural issue underlying restrictions on SME lending is lack of collateral leading to credit rationing due to risk perception and opacity, and not the Keynesian cost of capital per se. Constraints vary with institutional and structural development in the economy and financial system (Beck 2013) and can be enhanced by certain policies such as credit guarantees. There are also regulatory factors that are worsening such as high risk weights on SME loans for banks in Basel III and inability to securitise SME loans. Cyclical restrictions on credit to UK SMEs in the wake of the financial crisis are of concern in this regard (Armstrong, 2013).

2.3.10 Marxist/Radical Theories

Marxists contend that capitalism and related social and political factors based on class division cause poverty. Adherents to this school of thought advocate that "the market is inherently dysfunctional" (Blank, 2010). According to this view, capitalist societies keep the cost of labour unnaturally lower than its value added through the threat of unemployment (the “reserve army of unemployed”), and therefore poverty in a capitalist economy can only be alleviated via strict regulation of the market (e.g., in the form of minimum wages). A wide range of authors in the political economy field suggest that poverty is predominantly the result of structural factors, including stratified labour markets as well as prejudice and corruption. In both cases, the policy

message is that antidiscrimination laws and labour market reforms are essential to overcome structural barriers that impede employment and cause poverty.

Marx argued that the presence of unemployed workers, which is ultimately caused by the need of capitalists to have surplus labour, artificially lowers wages (by a simple labour supply argument) is the major cause of poverty. This was believed to be an inherent dysfunction of the labour market which only the state, when controlled by the working class, can regulate. One of the central elements of Marxist theory is that the primary aim of this state regulation should be to enhance the working conditions of labourers and promote higher wages among them (Blank, 2010)

2.3.11 Dual Labour Markets

This theory was first introduced by Karl Heinrich Marx in 1881 to explain the welfare of workers in a dual labour market. The existence of long-lasting, low-paid jobs is widely seen as explicable in terms of a "dual market" character of the labour market. Dual market theory is based on the premise that the labour market is stratified into the "primary" and the "secondary" sectors. In contrast with the primary sectors, the "secondary" sectors are distinguished by unstable employment, depressed pay levels and very poor prospects for promotion. According to Rank (2003), these issues reflect a situation where the experience of poverty is the consequence of vulnerabilities inherent in the system rather than in their personal traits and characteristic. Thus, in explaining poverty, Marxist theory places greater emphasis on the disadvantageous characteristics of the secondary labour market than on the specific individual features of workers (Townsend, 1979).

The most radical current in Marxist tradition, in the sense of being farthest apart in spirit from the neoclassical paradigm, stresses the role played by employers in perpetuating inequality

by taking advantage of the above mentioned dual feature of the labour market. (Although as noted above, inappropriate labour market regulations (employment protection) may also underlie dual labour markets.) The concept of social class represents the basic unit of analysis and it is thus a central element of radical theory. Class division and the relative distribution among classes within society are postulated as the ultimate determinants of the distribution of individual income, for members of different classes are believed to have unequal opportunities to access the fundamental precursors of marginal productivity such as complementary capital and social resources. And indeed empirical work in the UK shows social class to be the one of the most significant factors that influence poverty and income imbalance (Tackey, 2011).

In this respect, Ayittey (2005) argues that, for poverty to be properly addressed, it should be the lowest classes in society, normally consisting of workers/labourers at the bottom of the resource distribution that gain control of production and governance. This radical view implicitly contains the idea that it is actually those affected by deprivation who are the ones that can best find a solution for it, without the need of external advice/expertise on the matter, hence including an important participatory element in their interpretation of poverty ((Morazes and Pintak, 2007).

2.3 Empirical Literature Review

Several empirical works abound on the relationship between poverty reduction and microfinance banks activities across the globe, especially in the developing economies. Most of the empirical literature affirmed that the presence of microfinance banks led to poverty reduction in developing countries, mostly in South East Asia (India, Bangladesh, Sri Lanka, and Burma). Others owe different opinion.

Obadire (2022) examined the extents to which microloans are available to develop small and medium enterprises. Primary data were analyzed using Chi-square Test, Pearson correlation

and Analysis of Variance (ANOVA) test. The results revealed that the relationship between the standard of living of the respondents and the impact of microfinance banks loans on their household was positive and significant; the result also revealed that the poor have good access to credit facilities from microfinance bank for the development of micro-enterprises. Given the result of the evaluation of the impact, a conclusion was drawn that microfinance banks have the potential to alleviate poverty especially by improving the standard of living of the poor and making available microloans for micro-enterprise.

Similarly, Obayagbona (2024) empirically examined the impact of microfinance bank on poverty alleviation in Nigeria. The study covers a period of 33 years (1990 to 2023). The correlation coefficient and the ordinary least square (OLS) econometric technique were used for the empirical investigation. The results from the empirical analysis reveal that microfinance assets and loan-to-deposit ratio are major determinants of poverty alleviation in Nigeria; Mnicrofinance deposits and liquidity ratio failed the 5 percent level of significance indicating that they do not have any significant impact on poverty reduction in Nigeria. On the other hand, microfinance gross earnings and microfinance bank loans have significant negative impact on poverty alleviation in Nigeria. The study recommends among others that there is need for the relevant regulatory authorities and the government to evolve a holistic policy framework that will assist microfinance banks to properly utilize their total earnings in creating more credit facilities to the productive MSMEs firms.

Also, Nwanna and Okeke (2023) examined the relationship between microfinance credit and alleviation of poverty in Nigeria. The study covered a period of eleven years from 2008 to 2022. Ordinary least square regression analysis was used in testing the hypotheses of the study. The regression result found that there is a significant relationship between microfinance bank and unemployment rate in Nigeria, there is a significant relationship between microfinance bank and

capital formation in Nigeria and there is a significant relationship between microfinance bank and per capita income in Nigeria. The study therefore recommends that the Central Bank of Nigeria should regulate and monitor the activities of Microfinance and also administer specialized funds set aside to improve microcredit access at affordable cost, especially SME Credit Guarantee Schemes.

Corroborating the earlier views, Chikwira, Vengesai and Mandude (2022) examined the role of microfinancing in poverty alleviation in Zimbabwe by employing a Vector Error Correction Model on quarterly time-series data. The results reveal a significant long-run relationship among the variables poverty, microfinancing, SMEs, and agricultural growth. Contrary to expectations, Microfinancing was found to increase poverty in the long run. SMEs and agricultural development were found to reduce the level of poverty in the long run. In the short run, regression results reveal that SMEs' growth alleviates poverty, and poverty increases the growth of microfinance loans in the country. The findings imply that the growth of microfinance loans is not being put to its intended and efficient use. These findings bring to the fore that it is not only the provision of funds that matters.

Similarly, Onyele and Onyele (2020) investigated the nexus between microfinance banking and poverty reduction from 1992 to 2018 using the Autoregressive Distributed Lag (ARDL) approach to regression analysis. The long-run estimates suggested that the MFBs loans-to-deposit ratio and liquidity ratio caused poverty reduction in the long-run. On the other hand, the short-run estimates indicated that the MFBs were unable to ensure poverty reduction within a short period, though all the variables exhibited significant coefficients within one year. These findings imply that the ability of MFBs to reduce poverty takes a long period.

Usifo and Ezeanyeji (2017) exploredmicrofinance banks as a panacea for poverty alleviation and economic growth in Nigeria from 1992 – 2016. The study employed the time

series data generated from the Central Bank of Nigeria Statistical Bulletin. The study used the Error Correction Model (ECM) for the analysis. The research findings show that the asset of microfinance has a significant effect on poverty alleviation and economic growth in Nigeria; deposit liabilities of microfinance banks have a positive but insignificant effect on poverty alleviation and economic growth in Nigeria; and loans and advances of microfinance banks have negative significant effect on poverty alleviation and economic growth in Nigeria. However, the overall significance of the model found that the activities of the microfinance banks cannot be undermined in the pursuance of poverty alleviation and sustainable economic growth in Nigeria. It therefore recommends that the government should create a conducive and secure environment by supporting the microfinance banks in microcredit delivery.

Olasupo, Afolami, Adebayo and Agboola (2014) investigated the performance and productivity changes of MFBs in South-West Nigeria, from 2006 to 2010. From the use of relevant accounting ratios, the study revealed that only 16% of the sampled MFBs met the recommended maximum PAR value of 5% in 2006. It was also revealed that 31% of the sampled MFBs reported a debt/equity ratio above the recommended value of 2 in 2006, while 32% had gearing of over 2 in 2010. The Malmquist productivity index revealed that the MFBs experienced fluctuating performances in their productivity changes, with pure technical efficiency improvements in 2007 and 2009. Overall, the performance and productivity changes experienced by the MFBs depicted a sub-sector with huge potentials and hence require nurturing to achieve its goals. The study recommended the restructuring of those Microfinance banks to meet their objective.

Murad and Idewele (2017) examined the impact of microfinance institution on economic growth of Nigeria. The study employs the multiple regression analysis given that the data are cross-sectional and time series in nature. Secondary data of all commercial banks spanning 1992

to 2012 were extracted from the Central Bank of Nigeria statistical Bulletin and Annual Reports. The findings of the study show that microfinance loans have a significant positive impact on the short run economic performance in Nigeria. Microfinance loans enhanced consumption per capita in short run with an impressive coefficient, although these banks loans do not have a significant impact on economic growth in the long run. Microfinance investment however, has a significant impact on economic performance in Nigeria in the long run. They recommend that, microfinance institutions should give loans to improve consumption in the short run, while the long run goal should be to improve investment and other capital accumulation.

Olakojo and Olanipekun (2011) empirically examined the impact of microfinance bank on the Nigerian economy. They employed pooled regression and ordinary least square econometric technique on annual time series data for the period 1992-2008. The empirical findings show that the current level of sectoral output is positively influenced by loans and advances from the banking sector. However, a sectorial analysis using OLS reveals that while loans and advances from microfinance banks positively affect output of manufacturing, building and construction, mining and quarrying sector, the same could not be established for the agricultural sector. They concluded that microfinance banking is very critical to the well-being of the economy as it does not only provide financial assistant to small and medium scale enterprises but also to the real sector of the economy, thereby fast tracking economic growth in Nigeria.

Idowu and Oyeleye (2012) examined the impact of microfinance banks on poverty alleviation in selected Local Government Areas of Oyo State. Standard of living of the respondents was examined; relationship between size of loans and standard of living and the extent to which women has benefitted from microfinance bank activities were also evaluated. Primary data were analyzed using Foster Greer Thorbecke; Matching Framework Analysis and Partial Correlation. The results revealed that poverty index of the respondents reduced from

0.1668 to 0.1551 after collection of loans which implied that microfinance banks has impacted positively on their living standards. The extent at which women has benefitted from microfinance banks ranges from 65% to 74% between 2007 and 2010. The result indicated that women are increasingly benefitting from microfinance activities in contrast to yester years when there was gender disparity skewed against women. Moreover, the relationship between size of loan, asset acquisition and profit after loan were positive and significant. It was recommended that the size of loans given to customers should be increased in order to enhance their standard of living and consequently alleviate poverty. Microfinance banks should encourage formation of cooperative societies through which they can give out loans to customers.

Okafor (2015) scrutinized the impact of microfinance banks activities on poverty alleviation in Nigeria. Annualized time series data for 20 years, covering the period 1993-2012, were collated from the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). Poverty Index (PI) was the dependent variable while microfinance banks activities was adopted as independent variable. Multiple linear regression model was adopted for the test of the hypothesis. The result showed that microfinance banks activities do not have a significant positive impact on poverty alleviation in Nigeria. This portends that the operation of the microfinance banks activities in Nigeria need a review. Recommendations offered included; the establishment of core microfinance banks and not micro-money deposit banks masquerading as microfinance banks; the establishment of microfinance banks in rural and semi-urban rather than urban areas; and the establishment of women-friendly microfinance banks in Nigeria.

Oladejo (2013) evaluated the convenience at obtaining credit, adequacy of the credit supplied relative to demand, timeliness of credit to operation, and cost of credit as a component of total overhead to selected SMEs located in Osun state of Nigeria. Data were collected through Questionnaire administered on SMEs as well as the annual reports and accounts of the selected

MFBs. Analysis of the data and hypotheses tested showed positive and significant relationship between microcredit delivery service of selected MFBs and SMEs performance. However most MFBs seem to be competing with the commercial banks in universal banking rather than the microfinance banking they were purposely established to undertake. This manifested in the hesitation of credit to SMEs for fear of repayment. The study thus recommends the issuance of credit facility by Microfinance banks in Nigeria.

Otekunrin, Onyegiri, Eluyela, Okoye and Ibrahim (2022) ascertained the effect of microfinance banks on the economic development of Nigeria. Secondary data were obtained from the CBN Bulletin and records of the National Population Commission from 1996 to 2019. The study used Vector Autoregressive (VAR) estimates to test the effect of the independent variables (microfinance banks' total loans and advances, total investments, and total deposits) on the dependent variable (per capita income). The VAR results show that the activities of microfinance banks have a positive but insignificant effect on Nigeria's economic development in the short term. The study recommends that microfinance banks will help to improve the standard of living in the country by granting more credits to rural dwellers through the creation of corporative societies, age grades, and unions that are predominant in rural areas.

Anyanwu (2004) examined the outreach performance of microfinance institutions (MFIs) in Nigeria, based on a survey of ten major MFIs. The findings indicate that the operations of MFIs have grown phenomenally in the last ten years, driven largely by expanding informal sector activities and the reluctance of banks to fund the emerging micro enterprises. The financial services provided by the MFIs have neither been given any publicity nor captured explicitly in the official financial statistics. The study also reveals that the sub sector faces a number of challenges which include the urgent need to approve and implement a policy framework that

would regulate and standardize MFI operations; accessing medium to long term sustainable commercial sources of fund.

Ochonogor (2020) explored the performance of microfinance institutions (MFIs) and its impact in promoting economic development in Nigeria using error correction model. The OLS was used for long-run analysis following findings from the cointegration result that established the existence of a long run equation. The study found a positive relationship between human development index and microfinance loan. The findings suggest that microfinance institutions promote economic growth and social capital formation in Nigeria. The paper therefore recommends that relevant stakeholders should create more awareness to the general public on the importance of microfinance loans to the livelihood of the citizens

Okereke (2016) examined the impact of microfinance banks on the economic growth of Nigeria. Secondary data through the use of Central Bank of Nigeria statistical bulletin was used and applying linear regressions analysis method of statistical analysis. The study revealed that assets base, loans and advances of microfinance banks and deposit liabilities has a significant impact on economic growth while cash reserve of microfinance banks has no significant impact on economic growth in Nigeria. It is therefore recommended that high reserve ratio by the Central Bank of Nigeria should be made low in order to encourage micro-financing in Nigeria. The microfinance banks should make sure that inexperienced management is not applied on their funds for projects because they may mismanage funds instead of putting them into a better projects and government should create an enabling environment capable of supporting the microfinance banks in microcredit delivery.

Akosile and Ajayi (2014) evaluated impact of Microfinance Institutions (MFIs) in reducing poverty in Nigeria. The study adopts the survey and descriptive research designs. Five MFBs and three (CICSs) in the rural, semi-ban and urban centres constitute the population while

forty (40) customers of MIFBs, twenty (20) members of CICSs and eighteen (18) officials of both institutions are the sample size. Primary and secondary data were collected through questionnaires, personal interview and related publications through desk research respectively. It was found out that credit and financial services provided by the MFBs and CICSs enable the poor and low income group and MSMEs to engage in economic activities that make them self-reliance, enhances their income and help them create wealth and thereby reduce poverty. For the MFIs to overcome their various challenges and discharge their roles effectively. It is recommended that they should be strengthened in terms of adequate capitalization, vigorous and regular training of customers and staff, effective regulation, monitoring and supervision by CBN and incorporation of good corporate governance.

Ozekhome (2019) empirically assessed the effect of microfinance institutions on poverty reduction in Nigeria, using the evidence from the credit intermediation transmission channel, over the period 1992- 2018. Employing the techniques of Cointegration and dynamic error correction modeling (ECM), the empirical results show evidence of a short-run dynamic and a long-run equilibrium relationship exists between the microfinance activities and poverty reduction in Nigeria. In particular, the results show that the microfinance deposit, micro finance credit, agricultural production, and government expenditure on economic and social infrastructure have significant effect on poverty reduction in Nigeria. It is also evident that microfinance investment has a positive but weak effect on poverty alleviation. Therefore, the policies to enhance microfinance activities through efficient credit intermediation to the real sector should be put in place. Increased government expenditure on critical economic and poverty-reducing infrastructure is also important. Sound and stable macroeconomic policies and supporting institutional and regulatory structures are also imperative to reduce poverty to sustainable levels in Nigeria.

Acha, (2012) Since the advent of microfinance banking in Bangladesh in the mid 1970's, several countries have copied this financing model. The seeming popularity of this model among developing countries is predicated on poverty reduction prospect it offers. The Nigerian government cued into this popular thinking in 2005 when it inaugurated the microfinance banking scheme. This was founded to provide finance to economically active poor excluded from financing by conventional banks, provide employment, engender rural development and reduce poverty. This paper theoretically examines the challenges these banks have had to grapple with from their inception. Furthermore, it scans the business environment to assess the prospects of microfinance banks in Nigeria. The paper shows that microfinance banking in Nigeria faces enormous challenges in infrastructural inadequacies, social misconception, poor legal and regulatory framework, unbridled competition from other financial institutions and abandonment of core microfinance function and paucity of qualified manpower. Despite this plethora of challenges, the study identified several areas where opportunities exist for these banks. The growing entrepreneurial awareness, increasing government interest, large unbanked rural area and high population of poor people were identified as some of these opportunities. The paper argues that with proper regulatory interventions and commitment of other stakeholders to the core mission of microfinance banking, its challenges can be addressed and its prospects enhanced. This paper therefore concludes that the future of microfinance banking in Nigeria is bright.

Onyele and Onyekachi-Onyele,(2020). The nexus between microfinance banking and poverty reduction is well documented in banking and finance literature. As a poverty reduction strategy, the microfinance initiative is expected to create room for financial accessibility to the economically active poor people. Consequently, this study estimated the effect of microfinance banks' (MFBs) on poverty reduction in Nigeria from 1992 to 2018 using the Autoregressive Distributed Lag (ARDL)

approach to regression analysis. With a VAR lag order selection of two, the ARDL bounds test revealed that the poverty rate and MFBs activities were bound by a long-run relationship. The long-run estimates suggested that the MFBs loans-to-deposit ratio and liquidity ratio caused poverty reduction in the long-run. On the other hand, the short-run estimates indicated that the MFBs were unable to ensure poverty reduction within a short period, though all the variables exhibited significant coefficients within one year. These findings imply that the ability of MFBs to reduce poverty takes a long period.

Obayabgona, (2018). This study empirically examines the impact of microfinance bank on poverty alleviation in Nigeria, and the implications of such findings. The study covers a period of 25 years (1992 to 2016). The correlation coefficient and the ordinary least square (OLS) econometric technique were used for the empirical investigation. The results from the empirical analysis reveal that microfinance assets and loan-to-deposit ratio are major determinants of poverty alleviation in Nigeria; microfinance deposits and liquidity ratio failed the 5 percent level of significance indicating that they do not have any significant impact on poverty reduction in Nigeria. On the other hand, microfinance gross earnings and microfinance bank loans have significant negative impact on poverty alleviation in Nigeria. The study recommends among others that there is need for the relevant regulatory authorities and the government to evolve a holistic policy framework that will assist microfinance banks to properly utilize their total earnings in creating more credit facilities to the productive MSMEs firms such that it will have the needed positive impact on the ordinary poor in the street of Nigeria and in turn result in drastic improvement in the overall living standard of the Nigerian populate.

Ozekhome, (2019). Microfinance credit is a viable and strategic poverty-reducing tool in the financial architecture. It is on this premise the study empirically assesses the effect of microfinance institutions

on poverty reduction in Nigeria, using the evidence from the credit intermediation transmission channel, over the period 1992- 2018. Employing the techniques of Cointegration and dynamic error correction modeling (ECM), the empirical results show evidence of a short-run dynamic and a long-run equilibrium relationship exists between the microfinance activities and poverty reduction in Nigeria. In particular, the results show that the microfinance deposit, micro finance credit, agricultural production, and government expenditure on economic and social infrastructure have significant effect on poverty reduction in Nigeria. It is also evident that microfinance investment has a positive but weak effect on poverty alleviation. Therefore, the policies to enhance microfinance activities through efficient credit intermediation to the real sector should be put in place. Increased government expenditure on critical economic and poverty-reducing infrastructure is also important. Sound and stable macroeconomic policies and supporting institutional and regulatory structures are also imperative to reduce poverty to sustainable levels in Nigeria.

Ashamu and Ogundina, (2015).This research study investigates the impact of microfinance on poverty alleviation in Nigeria. The researchers used questionnaire as an instrument to collect data. Tables and percentage distribution analysis were used in data presentation. For clear analysis, the study center on two broad variables: poverty alleviation as the dependent variable and microfinance loan disbursement as the independent variable. Three different hypotheses were formulated and tested using various statistical tools such as chi-square test, F-test and T-test. The study reveals that (i) there is, a significant difference between those people who used microfinance institutions and those who do not use them; (ii) there is a significant effect of microfinance institutions in alleviating poverty by increasing income and changing economic status of those who patronize them and (iii) that there is a significant effect of microfinance activities in predicting sustainable development. The researchers

conclude that microfinance institution is indeed a potent strategy of poverty reduction and a viable tool for surveying credit to the poor. However, microfinance

can be more viable tool for sustainable poverty alleviation if more is done on programme outreach and depth than the present outreach.

Ubani, (2012).This study explores the immense role of the microfinance banks in the alleviation of poverty in Nigeria. The researcher revealed that the rate at which rural dwellers deposit their money in their pillows rather than in microfinance banks is high. Data were collected through primary and secondary sources. As regarded to primary sources, questionnaires and interviewed were used. The chi-square (x^2) method was used for testing of hypotheses. Responses to the questionnaires were analyzed using percentage method of analysis. Based on the findings of this study, an attempt on the role of microfinancing as stimulus to poverty alleviation in Nigeria may lack adequate knowledge of various financial transactions available and how the rural dwellers can access them. In conclusion, it hoped that the recommendation will help the microfinance banks to strengthen its weakness for better and effective services in order to achieve its sets of goals and socio-economic advancement for the alleviation of poverty in Nigeria.

Thom-Otuya and Chukuigwe, (2014). Microfinance is an economic development strategy intended to provide financial services such as credit, savings, micro insurance micro leasing and payment services to the poor and low income client. This paper shall be dealing with emerging issues in microfinance banks in Nigeria. This paper is divided into eleven sections. Introduction, microfinance concept and needs, characteristics and ownership of microfinance banks microfinance banking in Nigeria will be discussed. The paper also discusses functions and number of licensed Microfinance Banks, forms of lending and microfinancing challenges. This paper concludes by recommending measures for improvement of microfinancing services in Nigeria.

Ezeanyeji, Usifoh, Obi, and Ejefobihi (2020) investigated the linkages between microfinancing, poverty alleviation, and economic growth in Nigeria from 1992 to 2018. The data analysis was based on the Autoregressive Distributed Lag (ARDL) model. The research findings showed that microfinance banks' loans contributed significantly negative to poverty in the long-run, but failed to make any significant contribution to economic growth.

Akhter and Cheng (2020) analyzed the effectiveness of microcredit as an instrument to enhance financial accessibility among poor women in rural areas. The study used poor rural women to investigate the empowerment performance of microcredit beneficiaries compared to non-beneficiaries in the same socio-economic environment. A regression analysis was employed to accomplish these objectives. The outcome of the empirical analysis showed that there was a significant effect of microcredit on sustainable women empowerment.

Sohn and Ume (2019) investigated the impact of microfinance on poverty alleviation using cross-country data of ninety-six (96) countries. It was found that such bank establishments had a significant effect on poverty alleviation and were effective for long-term economic and financial development. The results also showed that a good number of female recipients of micro-loans and active borrowers were likely to step out of poverty based on the random-effect and fixed-effect models applied for the data analysis.

Okezie, Bankoli & Ebomuche (2013) examine the effectiveness of microfinance bank in eradicating poverty in Nigeria, using descriptive statistics on primary data involving 382 respondents for 3 Senatorial districts in Imo state. The empirical results revealed that high income class has the ability to save the poor living in the rural areas. Akosile & Ajayi (2014) examine the impact of microfinance Banks credit facilities on micro small and medium enterprises in reducing poverty level and achieving rapid economic growth in Nigeria. Employing the survey and descriptive research designs on five microfinance banks and three customer information control

system (CICSs) in the rural, semi-urban and urban centers, the empirical results revealed a strong positive impact of microfinance credits and financial services on poverty reduction or low income group as well asmicro, small and medium scale enterprises in Nigeria.

Kasali, Ahmad & Lim (2015) investigate microfinance bank and poverty reduction nexus in the South-West Zone of Nigeria. Employing descriptive statistics and Binary Logit Regression Model, the empirical results indicate that microfinance loan significantly impacts positively on the loan beneficiaries and hence, poverty reduction.

Kamel & Jalel-Eddine (2015) examines the effect of microfinance on poverty reduction for about 596 microfinance banks in 57 emerging economies for the period 2005 to 2011. Employing the panel data analysis, the empirical findings revealed that an economy with higher microfinance institutions' gross loan portfolio per capita tends to reduce poverty level among the people. This is an indication that microfinance banks have the ability to effectively alleviate poverty in these countries.

Tafamel (2019) investigated the linkages between microfinance institutions and poverty in Nigeria. Specifically, the study analyzed the impact of microfinancing on sampled two-hundred (200) Small and Medium Enterprises (SMEs) operating in Ikpoba Okha Local Government Area of Edo State, Nigeria. Using Pearson correlation and multiple regression analysis, a positive and significant linkage between microfinance banks and poverty alleviation was found.

Mustapha, Yusuf, and Abdullahi (2019) examined the impact of Rima Microfinance Bank on income and poverty in the Goronyo Local Government Area of Sokoto State, Nigeria. A multistage sampling technique was applied for the sampling and a structured questionnaire was used for data collection. The result showed that the income increased as beneficiaries used the Rima Microfinance Bank credit facility, while poverty declined by six percent (6%).

Nwibo, Okonkwo, Eze, Mbam, and Odoh (2019) analyzed the effectiveness of microfinancing on poverty reduction among rural farmers in Nigeria. The study applied multi-stage random and purposive sampling in selecting two-hundred (200) farmers. Data were collated primarily through a structured questionnaire and analyzed with descriptive as well as inferential statistics. The results reaffirmed that microcredit is a prominent source of finance for rural farm households in Nigeria.

Obayagbona (2018). Investigated the impact of microfinance banks on poverty reduction using the financial ratio. The study covered the time period of 1992 to 2016. The econometric techniques of correlation and ordinary least squares (OLS) were applied for the empirical investigation. The results revealed that gross earnings, loan-to-deposit ratio, and assets of microfinance institutions were significant determinants of poverty reduction in Nigeria while liquidity ratio and deposits were less significant. Again, Khanam, Mohiuddin, Hoque, and Weber (2018) evaluated the impact of microfinance services on poverty alleviation in Bangladesh. Using regression analysis, it was indicated that micro-loans by the microfinance institutions had a statistically significant positive impact on poverty alleviation.

Usifoh and Ezeanyeji (2017) explored the effectiveness of microfinance banks as a means for poverty alleviation and economic growth in Nigeria from 1992 to 2016. The study used the regression technique for data analysis. The research findings showed that microfinance assets had a significant effect on poverty alleviation and economic growth; deposit liabilities of microfinance banks had a positive but insignificant effect on poverty alleviation and economic growth; loans and advances had a negative significant effect on poverty alleviation and economic growth.

Jegede, Kehinde & Akinlabi (2011) empirically examined the effect of microfinance credit on poverty reduction in Nigeria. Using the chi-square test, F-test and T-test, the results showed that there is a significant difference between those that used microfinance banks and those who do not

use them. Thus, microfinance institutions significantly influenced poverty alleviation by increasing the income and changing economic status of those who patronize them.

Oladejo (2013) examines the impact of access to credit and other specific microfinance bank's related variables on selected Small and Medium Enterprises (SMEs) located in Osun State of Nigeria. Using the descriptive statistics on primary and secondary data, the empirical analysis indicates significant positive impact of microcredit delivery services on Small and Medium Enterprises (SMEs) performance.

2.4 Gaps in existing Literature

There exist an assortment of studies on the impact of microfinance banks and how they affect various facets of the economy. The researcher first observed that most of the studies were focused on either the impact of microfinance banks on economic growth or economic development which does not really report how microfinance banks impacts individuals in the economy through poverty reduction. This is because the indices of economic growth are not sufficient to tell how microfinance bank impacts on poverty in the economy. More also, growth in the economy does not always mean or translate to reduction in poverty in the economy. For instance, Olakojo and Olanipekun (2011), Okereke (2016), Ochonogor (2020) and Otekurin*et al* (2022) all focused either on the impact of poverty on economic growth or economic development and not exactly on poverty.

The findings of those who researched on Microfinance banks and poverty rather provided conflicting findings. For instance, Usifo and Ezeanyeji (2017), and Otekurin et al found a positive and insignificant relationship between Microfinance bank assets base and deposits on poverty in Nigeria, Murad and Idewele (2017), Akosile and Ajayi (2014) and Ozekhome (2019) found a positive significant impact on poverty.

In the past 5 years, there has been an upsurge of the number of microfinance banks in Nigeria including Digital banks like Palmplay, Kuda bank, Rubies bank, goMoney, Branch International offering various loan instruments. This study fills the gap in literature by driving further to evaluate if an impact relationship exists between poverty and asset base and credits offered by microfinance banks.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter deals with the theoretical underpinning underlying the relationships between Microfinance banks and poverty. The chapter is categorized into theoretical framework, model specification and estimation techniques use and data sources.

3.1 Theoretical Framework

The theoretical underpinning of this study is the access to credit markets theory of poverty which is an offshoot of the neoclassical theory of poverty which emanated from Alfred Marshal (1890). The theory links the prevalence of poverty and its causes to a lack of access to credit and other incentives.The theory states that individuals with not enough collateral from starting business activities are prone to poverty (Granville &Mallick, 2006). This issue is unmistakably related to the issue of a lack of pertinent economic assets as well as the inherent asymmetry of information, moral hazard, and adverse selection in the lending markets. Since the causality between the lack of access to credit and the lack of assets runs both ways and perversely, there may be a "vicious cycle": long-term restrictions (such as liquidity and collateral constraints) prevent people from amassing sufficient resources or assets to escape poverty, which in turn decreases the likelihood that they will be able to access credits. A poverty trap is effectively created by this feedback process (Ulimwengu, 200).

According to Besley and Burgess (2003), the benefits of increasing access to credit for the poor outweigh any potential drawbacks, such as the fact that poorer people may find it more difficult to take advantage of these opportunities due to a lack of knowledge about basic financial concepts and the prudent management of financial instruments. Despite these potential

drawbacks, the authors maintain that increasing access to credit for the poor is still beneficial as a poverty reduction strategy in Nigeria. (by making them more likely to reap the returns to the opportunities that economic growth offers), but also act as a form of redistribution (thereby lowering inequality) in terms of business opportunities and ownership of financial resources. Furthermore, it might be claimed that low income households must be effective money managers despite having normally lower levels of education, not the least because every dollar matters when they lack access to flexible and affordable credit lines. Given that it eliminates the moral hazard issue associated with lending to the poor, microcredit is viewed in this context as being particularly helpful from an economic perspective. Collateral is not required because lending to women, who are typically more responsible than men, and peer monitoring of how the loan is used by groups of locals (who receive loans in rotation), are in place.

This follows that investment, both domestic investment represented by gross fixed capital formation and all forms of foreign direct investments would increase the efficiency of the economic system and thus the functionality of microfinance banks which would in turn enhance the credit lending capacity and availability by microfinance banks, which has the potency to translate to poverty reduction if channelled properly. It can be noted that both the credit lending ability and how well these credit instruments can be utilised by individuals is sternly affected by inflation. More specifically, inflation would imply a decrease in credit lending capacity as well as make the economic environment unfavourable for lending. There is usually a lot of business uncertainty in times of persistent inflation, hence ensuring scepticism on the side of both microfinance banks and borrowers.

3.2 Model Specification.

The study examined the impact of microfinance banks on poverty in Nigeria by adopting of Usifoh and Ezeanyeji (2017) and Okafor 2016 and modified it to incorporate, Domestic investment proxied by Gross fixed capital formation, Foreign direct investment (FDI), and inflation. Thus, the functional form of the model can be specified as follows:

PI = f (MFA, LNS, RGDP, INTR, FDI, INF)- - - - - (3.1)

Since poverty rate is not only a function of Microfinance banks, other determinants of poverty in Nigeria are thus included as controlled variables in order to avoid the problem of omitted variable bias in the estimation process, The model is thus modified as follows;

PI = f (MFA, LNS, RGDP, INTR, FDI, INF)- - - - - (3.2)

Taking the econometric specification as well as the log of variables in order to avoid the problem of large coefficient variables, the autoregressive distributed lag model is specified as thus;

$$\Delta PI_t = \beta_0 + \sum_{i=1}^{p-1} \beta 1 \Delta PI_{t-1} + \sum_{i=1}^{p-1} \beta 1 \Delta LnMFA_{t-1} + \sum_{i=1}^{p-1} \beta 2 \Delta lnLNS_{t-1} + \sum_{i=1}^{p-1} \beta 4 \Delta lnRGDP_{t-1}$$

$$+ \sum_{i=1}^{p-1} \beta 2 \Delta INTR_{t-1} + \sum_{i=1}^{p-1} \beta 4 \Delta lnFDI_{t-1} + \sum_{i=1}^{p-1} \beta 5 \Delta INF_{t-1} + \lambda ECT_{t-1} + \varepsilon_{t-1} \text{ - - (3.3)}$$

Where,

ECT = Error correction Term

Ɛ = Stochastic Error Term

Table 3.1 Description of Variables

Variable	Description	Measurement	A priori Sign	Source of Data
PI	Poverty	Poverty Index		World Development Indicators
MFA	Microfinance Banks Assets base	Microfinance Banks Assets base (Billion Naira)	Positive	CBN Statistical Bulletin
LNS	Microfinance Banks Loans	(Billion Naira)	Positive	Financial Statements of leading Microfinance Banks
RGDP	Real Gross Domestic Product	RGDP (GDP Discounted by price)	Positive	CBN Statistical Bulletin
INTR	Interest Rate	Lending rate (Percent)	Negative	CBN Statistical Bulletin
FDI	Foreign Direct Investment	FDI (Million Dollars)	Positive	World development Indicators
INF	Inflation Rate	INF (Total percentage)	Negative	World development Indicators

Source: Author's Compilation

3.3 Estimation Technique

3.3.1 Descriptive statistics

Descriptive statistics are used to summarize data in an organized manner by describing the relationship between variables in a sample or population. Calculating descriptive statistics represents a vital first step when conducting research and should always occur before making inferential statistical comparisons. Descriptive statistics include types of variables (nominal, ordinal, interval, and ratio) as well as measures of frequency, central tendency, dispersion/variation, and position. Since descriptive statistics condense data into a simpler

summary, they enable public decision-makers to assess specific populations in a more manageable form, Yellapu (2018)

3.3.2 Correlation Test

The Correlation test was used to measure how strong a relationship is between two variables. The absolute value of the correlation coefficient gives the relationship strength. The larger the number the stronger the relationship. Hence, the correlation coefficient gives you an idea of how well data fits a line or curve; stating the measure of collinearity that exist among the variables.

3.3.3 Unit Root Test

This is the pre-Cointegration test. It is used to determine the order of integration of a variable that is how many times it has to be differenced or not to become stationary. It is to check for the presence of a unit root in the variable that is, whether the variable is stationary or not. The null hypothesis is that there is no unit root. This test is carried out using the Augmented Dickey Fuller (ADF) technique of estimation. The rule is that if the ADF test statistic is greater than the 5 percent critical value we accept the null hypothesis that is, the variable is stationary but if the ADF test statistic is less than the 5 percent critical value i.e. the variable is non-stationary we reject the null hypothesis and go ahead to difference once. If the variable does not become stationary at first difference, we difference twice. However, it is expected that the variable becomes stationary at first difference.

3.3.4 Co-integration

After the test for the order of integration, the next step is to test for co-integration. This test is used to check if long run relationship exists among the variables in the model (Granville, and Mallick, 2004). This will be carried out using the Johansen technique or Engle-Granger

technique. Co-integration tests identify scenarios where two or more non-stationary time series are integrated together in a way that they cannot deviate from equilibrium in the long term. The tests are used to identify the degree of sensitivity of two variables to the same average price over a specified period of time.

3.4 ARDL Estimation

The auto regressive distributed model was the model adopted for the estimation process in this study. This technique addresses all the objectives earlier stated in this study. It simultaneously provided both short- and long-run parameter estimates of the specified model given that there is a co-integration among the variables. Both the restricted and unrestricted versions of this technique were considered for robustness of the analysis. Although the estimation was preceded by optimal lag length selection and the Aikaike Information Criterion was considered in this regard.

Post-diagnostic tests were also conducted to ascertain the validity or otherwise of the estimated models. Such tests as Breusch-Godfrey Lagrange Multiplier test for serial correlation, autoregressive conditional heteroscedasticity test, Jacque-Bera normality test, Cusum and CusumQ specification error test, stability was conducted.

3.5 Data Sources

The data used in this study are secondary data obtained from published documents. The time series data are obtained from various issues of the Central Bank of Nigeria (CBN) annual statistical bulletins, World Bank statistical indicators and annual abstract of Nigerian Bureau of statistics.

CHAPTER FOUR

PRESENTATION AND INTERPETATION OF RESULTS

5.0 Introduction

This chapter presents the estimated results of the models specified in the previous chapter. It is structured into four sections. The first section provides the preliminary analyses including characteristics of the variables used by way of presenting a statistic, correlation analysis as well as unit root test for stationarity. The second section displays all the estimate results of the models specified for the study. The third section evaluates all the hypotheses stated for the study while the fourth section discusses the policy implications of the findings.

4.1.1 Descriptive Statistics.

Descriptive statistics are concise informational coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of a population. The descriptive statistics of each variable used in the study are presented in the table below;

Table 4.1 Descriptive Statistics

	PI	MFA	LNS	INTR	INF	FDI	RGDP
Mean	65.85351	77.39168	42.60042	15.29714	16.15437	3.36E+09	45598.55
Median	69.35000	85.25062	41.68055	15.81000	12.38637	2.35E+09	44467.46
Maximum	71.50000	173.5545	123.9321	19.55000	72.83550	8.84E+09	71387.83
Minimum	54.10000	1.324700	10.74789	11.31000	5.388008	3.00E+08	19979.12
Std. Dev.	6.419654	62.45379	29.94879	2.008198	14.71667	2.65E+09	19519.20
Skewness	-0.881486	0.033906	0.944015	-0.483577	2.918464	0.721691	0.004960
Kurtosis	2.092464	1.383176	3.261471	2.812701	10.80387	2.309395	1.390699
Jarque-Bera	4.586977	3.055171	4.238526	1.132212	110.7984	2.986999	3.021606
Probability	0.100914	0.217059	0.120120	0.567732	0.000000	0.224585	0.220733
Sum	1843.898	2166.967	1192.812	428.3200	452.3223	9.41E+10	1276759.
Sum Sq. Dev.	1112.723	105312.8	24217.11	108.8872	5847.667	1.89E+20	1.03E+10
Observations	28	28	28	28	28	28	28

Source: Authors compilation (2024)

Table 4.1 showed descriptive statistics of the variables used in this study. Annual poverty index (PI) was ranged from 54.1 to 71.5 with an average of 65.9 in the period; 1995 to 2020. The standard deviation of PI was 6.42. The coefficient of variation (standard deviation divided by mean) value was 0.1. This suggested that there was a very small variation in the economy over the period. The skewness value of -0.88, and kurtosis value of 2.09, indicated that annual PI data was negatively skewed and platykurtic, respectively. The Jarque-Bera value of 4.6 was not significant at the 5 percent level. This meant that PI data was normally distributed.

In summary, the Mean, Median, Maximum and Minimum data as well as Standard Deviation of all other explanatory variables are given in Table 4.1 above. The results show that all explanatory variables are positively skewed except for interest rate (INTR) that was negatively skewed. The kurtosis showed that microfinance banks assets (MFA), INTR, foreign direct investment (FDI) and Real GDP (RGDP) were platykurtic distribution which indicates a flat peakness these variables. On the other hand, while Microfinance loans (LNS) showed a mesokurtic distribution, inflation rate (INF) was a leptokurtic distribution indicating a steep peakness of distribution set.

The Jarque-Bera which reveals the normality of distribution showed that, all the independent variables used in the study were normally distributed given their respective Jarque bera value and their corresponding p-values except for INF which was not normally distributed as seen in the table above. Since most variables were normally distributed, the statistical analysis was conducted using the two tail test.

4.1.2 Correlation Analyses

Correlation Analysis is a statistical method that is used to discover if there is a relationship between two variables/datasets, and how strong that relationship may be. The correlation coefficient of dataset are presented below;

Table 4.2: Correlation Matrix

	PI	MFA	LNS	INTR	INF	FDI	RGDP
PI	1						
MFA	0.435240	1					
LNS	-0.092790	-0.201713	1				
INTR	-0.174473	0.351824	-0.402419	1			
INF	-0.430054	-0.379067	0.015294	-0.140235	1		
FDI	0.209647	0.595246	-0.62833	0.612084	-0.29693	1	
RGDP	0.454789	0.728851	-0.040092	0.24306	-0.37944	0.40749	1

Source: Authors compilation (2024)

Table 4.2 provided the correlation matrix of the variables in the model. The results showed that the pairwise Pearson's correlation coefficients ranged from -0.63 to 0.61. This indicated that all the pairwise Pearson's correlation coefficients were less than 0.9. The implication is to expect an absence of multicollinearity among regressors in the estimated regression model. This supports the assumption of no multicollinearity in the estimated real gross domestic product regression results.

4.1.3 Stationarity Test

Any type of time series estimate must first pass the stationarity test. Knowing whether or not a time series statistical features change over time is crucial for being able to trust the estimation output. This research uses the Augmented Dickey Fuller (ADF) to test for a unit root in the time series as well as the KPSS as a confirmatory test. Results are shown below;

Table 4.3 Unit Root Test for Stationarity

Variable	ADF Results		KPSS Results		Order of Integration
	Levels	1St Difference	Levels	1st Difference	
PI	-2.987812 (-2.876263*)		0.323000 (0.463000*)		I(0)
MFA	-1.132195 (-2.976263)	-5.433045 (-2.981038*)	0.564770 0.463000	0.152244 (0.463000*)	I(1)
LNS	-1.908427 (-2.976263)	-6.305144 (-2.981038*)	0.119061 (0.463000*)		I(1)
INTR	-2.443139 (-2.976263)	-6.628748 (-2.981038*)	0.188782 (0.463000*)		I(1)
INF	-3.407064 (-2.976263*)		0.355041 (0.463000*)		I(0)
FDI	-2.988675 (-2.998064*)		0.226220 (0.463000*)		I(0)
RGDP	-2.973035 (-2.998064*)		0.642642 0.463000	0.197348 (0.463000*)	I(0)

Source: Authors compilation (2024)

The unit root tests presented above indicates that PI, INF, and FDI moved in synchronicity for the ADF and KPSS to show that these variables were stationary level form implying that they are I(0) variables. While MFA, LNS and INTR was found stationary after the first difference as shown by both the ADF and KPSS. Lastly, while RGDP was stationary at levels according to the ADF test, the KPSS showed the presence of unit root in the data set at levels and became stationary only after the first difference. Summarily, the unit root test indicates the presence of both I(0) and I(1) variables in the model.

4.2 ARDL Model

In ARDL modelling, it is first imperative to determine if variables are co-integrated especially if they are stationary at different levels of stationarity. For this study, the Bounds test for co-integration was employed. Bound testing as an extension of ARDL modelling uses F and t-statistics to test the significance of the lagged levels of the variables in a univariate error correction system when it is unclear if the data generating process underlying a time series is trend or first

difference stationary. This test is carried out on ARDL estimates in order to prove that co-integrating relationship exists in the model or not.

Table 4.4 Bounds Test for Co-integration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	4.240954	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

Source: Authors compilation (2024)

From table 4.4 above, the results of the autoregressive distributed lag (ARDL) bounds test of co-integration of the model were displayed. In the bounds test of co-integration, a null hypothesis of no co-integration among the variables in a model is rejected if the F-statistic is greater than the 5 percent upper bound value. The results showed that there was co-integration among the variables in the model. A null hypothesis of no co-integration among the variables in the model was rejected since the F-statistic value of 4.2 was greater than the 5 percent upper bound value of 3.28. The existence of co-integration among variables in this model implied that a long run and short run ARDL estimations can be performed. This is also referred to as the error correction model version of ARDL estimation.

Table 4.5 ARDL Error Correction Regression

Dependent Variable: D(PI)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(MFA)	0.047268	0.038231	1.236378	0.2382
D(LNS)	-0.070016	0.037179	-1.883213	0.0822
D(INTR)	-1.525831	0.460702	-3.311972	0.0056
D(INF)	0.125747	0.064387	1.952971	0.0727
D(FDI)	8.32E-10	2.63E-10	3.328870	0.0067
D(RGDP)	0.000184	0.000311	0.591022	0.5646
CointEq(-1)*	-0.791901	0.125902	-6.289842	0.0000
R-squared	0.703309	Mean dependent var		0.591348
Adjusted R-squared	0.614302	S.D. dependent var		5.578641
Durbin-Watson stat	2.304849			

Source: Authors compilation (2024)

Table 4.6 provided the short run result of the ARDL model based on the (1,1,1,1,1,1,) process selected. The coefficient of the error correction term (ECM-1) was properly singed with negative (-0.792) and significant at the 5 percent level. This met with *a priori* expectation and indicated that about 79.2 percent of the deviations of the model from its equilibrium value in previous period were corrected in the current period. The model therefore converges to its equilibrium value over time. The coefficient of determination is 0.703 while the adjusted R-squared is 0.614 when adjustments were made for the degree of freedom. This implies that 70.3 percent of the variations in poverty index (PI) was explained by all the explanatory variables (MFA, LNS, INTR, INF, FDI RGDP). This is a good fit as only about 29.7 percent of the systematic variation is left unexplained. We characterize this unexplained variation to variables not explicitly included in the model and measurement errors both of which effects are captured by the stochastic error term.

The Durbin- Watson Statistic of 2.3 which is approximately 2 reveals the absence of autocorrelation in the short run though Durbin Watson lacks the sufficiency to test for Autocorrelation due to the presence of lag of dependent variable among the explanatory variables. We will there for test for the presence of Autocorrelation in the model employing the instrumentality of other methods. Given the soundness of goodness of fit as analyzed above, we could thus rely on the estimated parameters of the variable.

The results showed that the estimated coefficient of microfinance banks investment captured by their asset base (MFA) was positive thereby refuting the apriori sign expectation. The result was similarly non-significant at the 5% level. The coefficient value of 0.047 indicated that a 1 unit rise in MFA would lead to a 0.05 unit fall in PI.

Estimated coefficient of loans disbursed (LNS) was negative and significant at the 10 percent level. The coefficient value of 0.07 implied that, on average, a 1 unit increase in LNS led to 0.07 unit decrease in PI, this findings consequently supports the apriori expectation that loans from microfinance banks limits the sting of poverty . This therefore suggested that there was a negative and significant relationship between loans and poverty in the country. Furthermore, the estimated coefficient of microfinance interest rate (INTR) was negative. This was found significant at 5 percent level of significance. Specifically, the result showed that a 1 unit increase in INTR led to 1.5 unit decrease in PI. This outcome suggested that interest rate and poverty are negative and significantly related over the period considered.

Consequently, inflation rate (INF) was found to maintain a positive and statistically significant relationship with PI as given by the t-test. This result further supports the *a priori* expectation; more explicitly, the results show that ceteris paribus, a 1 unit increase in INF will translate into an increase in poverty by 0.13 units. The results further showed that foreign direct investment (FDI) has a positive and statistically significant impact on poverty in Nigeria during the period

evaluated. The result indicates that as FDI inflow into the economy grows, poverty is rather on the increase as against the theoretical apriori expectation. In particular, it indicates that a 1 unit increase in FDI led to 8.32 unit increase in poverty; the highest among the explanatory variables.

Finally, the independent variable; Real gross domestic product (RGDP) was found to be positively associated with Poverty in Nigeria. This finding did not meet our theoretical apriori expectation because; an increase RGDP implies an improvement in poverty. It was further found to exhibit a statistically non-significant impact on poverty in Nigeria. It explicitly denotes that a 1 unit increase in RGDP would result to a negligible 0.0002 unit rise in poverty.

Table 4.6 Long Run ARDL model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MFA	-0.169554	0.085384	-1.985783	0.0645
LNS	-0.204320	0.065980	-3.096688	0.0069
INTR	-3.157794	0.776569	-4.066338	0.0009
INF	0.076985	0.083898	0.917609	0.3724
FDI	6.30E-10	7.13E-10	0.883426	0.3901
RGDP	0.000660	0.000260	2.540176	0.0218
C	104.2183	11.36125	9.173134	0.0000

Source: Authors compilation (2024)

The long run result of the model is presented in Table 4.6 above. The estimated coefficient of microfinance bank investment (MFA) was negative and statistically significant at the 10 percent level. Its coefficient valueimplied; a 1 unit rise in MFA led to 0.17 percent rise in poverty in Nigeria in the long run. Also, microfinance bank loans (LNS) had a negative coefficient significant at the 5 percent level. Its coefficient value of showed that, ceteris paribus, a 1 unit increase in LNS led to 0.2 unit increase in poverty in Nigeria. This result depicts that loans depletes the incidence of poverty in Nigeria. In addition, interest rate had a negative coefficient which was significant at the 5 percent level. This coefficient value implies that, on average, a 1

unit increase in INTR led to a 3.15 unit decrease in poverty in the long run. Thus, a negative relationship existed between the two variables in the long run.

Consequently; the findings for the long run estimation show that both inflation rate (INF) and foreign direct investment (FDI) had a positive coefficient that was not significant at the 5 percent level of significance. The coefficient value indicated, holding other factors constant, a unit rise in both INF and FDI led to 0.08 unit and 6.3 units increase in poverty respectively in the long run. Lastly, the long run result indicates that, RGDP has a positive and significant impact on poverty in the long run period. This findigs negates the apriori sign expectation. Its coefficient value showed that ceteris paribus, a 1 unit increase in RGDP caused poverty to surge by 0.0006 units.

4.3 Diagnostic Test

After the ARDL estimation the test for autocorrelation and heteroscedasticity was carried out. The Breusch-Godfrey Test is used to test for autocorrelation above the Durbin Watson statistics. The Durbin-Watson Test is restricted to detecting first-order autoregression, the Breusch-Godfrey (BG) Test can detect autocorrelation up to any predesignated order p. It also supports a broader class of regressors. The Breush-Pagan test measures how errors increase across the explanatory variable, Y. The test assumes the error variances are due to a linear function of one or more explanatory variables in the model. That means heteroskedasticity could still be present in your regression model, but those errors (if present) are not correlated with the Y-values.

Table 4.7 Breusch-Godfrey Serial Correlation LM Test:

F-statistic	19.07979	Prob. F(2,4)	0.4390
Obs*R-squared	23.53318	Prob. Chi-Square(2)	0.1274

Source: Authors compilation (2024)

The test for serial correlation has its null hypothesis that there is no serial correlation in the residuals. From the test carried out; the p-values of the chi-square distribution is greater than 0.05(5% critical value) so therefore we cannot reject the null hypothesis of no serial correlation in the residuals for the model.

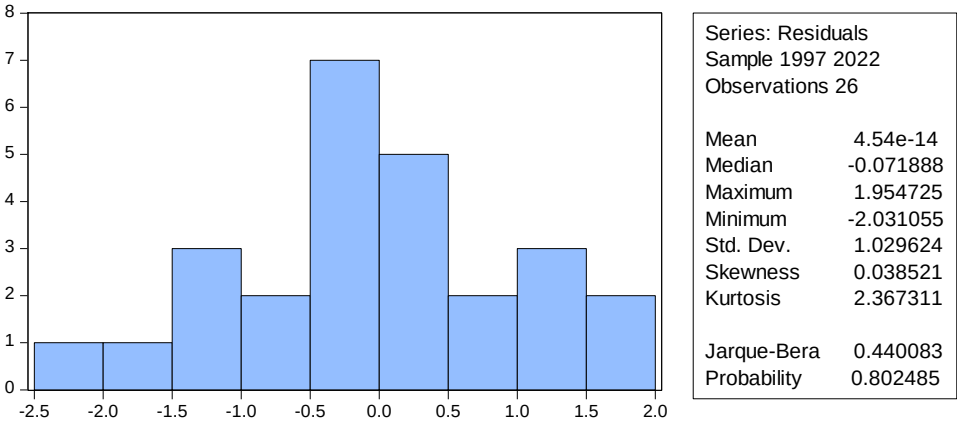
Table 4.8 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.551049	Prob. F(19,6)	0.1250
Obs*R-squared	23.13603	Prob. Chi-Square(19)	0.2314
Scaled explained SS	0.842330	Prob. Chi-Square(19)	1.0000

Source: Authors compilation (2023)

The test for heteroscedasticity carries a null hypothesis that there is homoscedasticity. From the table below, the p-values of the chi-square distribution is greater than 0.05(5% critical value) so therefore we cannot reject the null hypothesis of homoscedasticity for estimated Model.

Figure 4.1 Histogram Normality Test



Source: Authors compilation (2023)

The Jarque-Bera value of 0.44 and its probability value of 0.8 (5% level of significance) indicates that the residual series maintained a normal distribution as shown above and thus, we cannot reject

the null hypothesis that the residual series are normally distributed. Further, the histogram diagram maintained a bell shape indicative of a normal distribution of the residual series.

Table 4.9 Ramsey RESET Test

	Value	Df	Probability
t-statistic	0.489571	5	0.6452
F-statistic	0.239679	(1, 5)	0.6452

Source*: Authors compilation (2024)*

The Ramsey RESET test of misspecification of the estimated model indicated that the model was adequately specified. This was based on the Ramsey RESET F-statistic value 0.24 that was not significant at the 5 percent level. Thus; we conclude that the model was correctly specified and void of specification bias; indication the stability of the overall specification.

4.4 Evaluation of Research Hypotheses

The null hypotheses stated earlier in this study were evaluated in this section. The evaluations were based on the results obtained and presented above. Investments into microfinance banks have no significant impact poverty reduction in Nigeria; the estimated results showed that investments into microfinance banks had a positive and non-significant relationship with poverty in the short run period; while in the long run; it indicated a negative but statistically significant relationship at the 10 percent level of significance. From the foregoing; the null hypothesis cannot be rejected for the short run period. However in the long run, the null hypothesis of no significant relationship was rejected in favour of the alternative hypothesis. Hence; while investments into microfinance banks does it translate to a reduction in poverty in Nigeria in the short run period; the contrary is the case for the long run period.

The second hypothesis states that: Interest rate by microfinance banks has no significant impact on poverty reduction in Nigeria; the estimated results indicates that interest rate has a negative

relationship with poverty and was statistically significant in both the long run and the short run periods. Therefore; the null hypothesis as stated was rejected in favour of the alternative hypothesis. Finally, the third hypothesis states that; Loans to depositors by microfinance banks has no significant impact on poverty reduction in Nigeria. The estimated results show that loans has a negative and statistically significant impact on poverty in both the short run and long run periods. The null hypothesis was therefore rejected for the alternative hypothesis that states that loans by microfinance banks has a significant impact on poverty in Nigeria.

4.5 Discussion of Findings

The estimated results for the Autoregressive distributed lag model showed that investments into microfinance banks had a positive and non-significant relationship with poverty in the short run period; while in the long run; it indicated a negative but statistically significant relationship at the 10 percent level of significance. It therefore implies that investments into Microfinance bank enhanced poverty in Nigeria in the short run period, while in the long run, it impeded poverty. Theoretically, it can be adjudged that investments into microfinance banks takes a certain period of time to begin to significantly impact on poverty as buttressed by this study. These findings were in tandem to those of Usifo and Ezeanyeji (2017), Murad and Idewele (2017) as well as Okereke (2016) who all established the significance of microfinance bank assets inform of various investments directed into this banks as it does cause a reduction in poverty in Nigeria. Similarly, the results purported the findings of Idowu and Oyeleye (2012) who also established that assets acquisition by microfinance banks in Nigerian significantly reduced poverty in the economy.

The results also showed that Microfinance banks loans had a negative and significant impact on poverty in both the short run and the long run estimation. More explicitly, it indicated that loans and advancement by microfinance banks against apriori sign did not significantly affect poverty in Nigeria. This findings were supported by those of Usifo and Ezeanyeji (2017) whom

established that loans and advances of microfinance banks have negative significant effect on poverty alleviation and consequently; economic growth in Nigeria. The results of Murad and Idewele were also re-emphasized as they had stated that even though microfinance bank credits has a significant impact on poverty reduction in Nigeria, the relationship between both variables was a positive one. Likewise, the results negated those of Idowu and Oyeleye (2012), Okereke (2016) and Ozekhome (2019) who also found a negative and significant relationship between microfinance credits to poverty in Nigeria.

Lastly, The findings of the estimated ARDL short run results showed that microfinance bank interest rates has a negative impact on poverty index in both the long run and the short run periods, this findings while the portray economic reality, it was found to contravene apriori expectation. Consequently; the findings differ from those of Usifo and Ezeanyeji (2017) who found a positive and insignificant relationship between microfinance bank deposit on poverty reduction in Nigeria in both the short and the long run. The results however were in consonance to those of Okereke (2016) and Ozekhome (2019) who found a negative and significant relationship between these variables.

4.6 Policy Implications

From the results of the autoregressive lag model for poverty index as the dependent variable, the explanatory variables (MFA, LNS, INTR, INF, FDI and RGDP) were found to be of huge relevance as shown by the t-ratios as well as the probability values at either the short run or the long run periods. The implication of this is that, for poverty alleviation to be achieved in Nigeria, due recognition must be given to these variables captured in the study. This indicates that, the volume of investment into microfinance bank, the loans disbursed by these banks, and the rate at which they are issuing this loans along with inflation rate, foreign direct investment inflow into

the economic as well as the rate of economic activity are generally key factors to be considered when designing macroeconomic policies targeted at reducing poverty in Nigeria.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.0 Introduction

This chapter contains five sections. The first section is a summary of the findings of this study. In the second section were the policy recommendations made in line with the findings of the study. The third section discussed the contributions made by this study to the body of knowledge while the fourth section highlighted some areas for further research work. The study was concluded in the fifth section.

5.1 Summary of Findings

The estimated results for the Autoregressive distributed lag model showed that investments into microfinance banks had a positive and non-significant relationship with poverty in the short run period; while in the long run; it indicated a negative but statistically significant relationship at the 10 percent level of significance reflecting the apriori expectation. This finding specifically illustrates that while investment into microfinance banks does not translate to a reduction in poverty in Nigeria in the short run period; in the long run, its impact is significant in deterring poverty. Similarly, the interest rate at which microfinance banks issue loans had a negative relationship with poverty and was statistically significant in both the long run and the short run periods. Finally, the estimated results found that loans have a negative and statistically significant impact on poverty in both the short run and long run periods. Adding that loans issued by microfinance banks does reduce the effect of poverty in the economy.

5.2 Policy Recommendations

Drawing from the discussions of findings of this study, it is expedient that meaningful deductions be made to further support or advice policy makers and government on the best way(s) to handle policy issues and programmes. In the light of this, the following policy recommendations and suggestions are germane to ensure progress and growth of the Nigerian economy.

(i) Microfinance banks investments as a variable was able to significantly impact on poverty both in the long run hence; government, policy makers and microfinance bank managers should seek to build robust and stable assets base for microfinance banks through adequate investment structures as it hence solidifies the existence of such banks as well as their ability to disburse loans and other advancements which could cause a reduction in poverty in Nigeria.

(ii) With the growing popularity of microfinance banks in Nigeria through various fintech platforms, and with the discovery that loans has the influence to pull the populace out of poverty, policy makers should investigate the various schemes these loans have been directed to ensuring that loans obtained are not used for other endeavours like household or private consumption, rather, they are utilised for various kinds of small scale businesses and investments which can translate to poverty reduction in the long run.

(iii) Increased credit controlling from the microfinance institutions to the real sector of the economy should be heartened through sectorial policies that will create productive enterprise and significantly reduce poverty in Nigeria rather than simply consuming those loan advances.

(iv) Policies to increase the microfinance deposit and encourage microfinance activities should be implemented by the monetary authorities in order to stimulate their loan or credit giving

capacity as these deposits as seen by the findings of the study causes a reduction in poverty in the short run.

(v) Micro finance institutions should put in place policies and strategies to increase their investment in order to increase their credit portfolio size, and consequently enhance their financial intermediation role to the real sector of the economy. As thus far, credit advances has been able to significantly affect poverty in Nigeria. Sufficient credit instruments will further do more in curtailing the crunch of poverty in the economy.

5.3 Further studies

This research contributes to consider microfinance banks as a new variable to towards the reduction of poverty which is endemic in Nigeria. Econometric estimation helps policymakers understand the importance of structural change for the social and economic development of countries. Hence, the study indicates those relevant aspects of microfinance banks that significantly reduce poverty of the region as well as those aspects of the system that needs improvement. Hence, this section attempts to suggests new areas for which knowledge is scarce and studies in those areas would shed light on more precisely vent out policies and strategies on how to utilize microfinance banks as a tool towards the eradication of poverty in Nigeria.

In the last 5 years, there has been an avalanche of micro banks with the advent of technology that has produced several fintech companies in Nigeria. This maiden financial system seems to be paving wave amongst the populace and a redirection of focus may result to reaching more viable solution towards the reduction of poverty in Nigeria. Hence, further studies is therefore suggested to investigate the impact of these fintech companies on poverty reduction in Nigeria and how these companies, their activities including the issuing of credit instruments has translated to poverty reduction in Nigeria. A shift away from the tradition microfinance system might just be the secret remedy towards reaching more people and pulling them out of the clutches of poverty.

The study shows that increase in interest rate helps to curb the effect of poverty in Nigeria but by theory, high interest rate would dissuade the poor from borrowing as they often lack the collateral to do so. Thus; further studies should be carried out on interest rate threshold for which it will begin to drive the populace back into poverty.

5.4 Contribution to Knowledge

The idea of microfinance banking is to offer financial services to the underprivileged. The eradication of poverty is seeming to be reoccurring goal of every administration. According to studies, the impoverished are creditworthy and eager to borrow which has assisted in reducing poverty in many developed and some developing economies around the globe. Thus this study contributes to knowledge by evaluating the performance of the various components of microfinance banks especially as the affect poverty in Nigeria. In another light, this study analyzes the concept of microfinance banks and its implication on enhancing the economic life of the people and contributes to literature in various ways. First of all, while there is a general consensus among the literature on the fundamental role of microfinance banks and they very idea of creating a microfinance banks, the real impacts heavily varies hence, this study contribute to knowledge by putting forward the real time impact of microfinance banks on poverty reduction in Nigeria by evaluating empirically the effect of microfinance banks on poverty index in Nigeria. Further, this study contributes to the literature by issuing a more recent empirical view of the performance of this variable as the last research according to the empirical review was in 2022.

5.5 Conclusion

It is beyond dispute that microfinance institutions play a crucial role in the significant reduction of poverty through the credit (financial) intermediation channel, as well as in other productive endeavours, thanks to their enormous multiplier effects on investment, entrepreneurship

development, and employment creation. The study experimentally examined the impact of microfinance operations on poverty in Nigeria based on this concept. The study hence concludes that microfinance bank investments significantly cause a reduction in poverty in Nigeria. While it further concludes based on the findings of the study that microfinance bank loans so far have significantly caused a reduction of poverty in Nigeria. Similarly, microfinance bank interest rate in Nigerian causes a reduction in poverty.

Consequently, the study also concludes loans advances have been able to significantly impact poverty reduction in Nigeria. The inability to meet up with the collateral demands from this microfinance banks, also, loans from microfinance banks are employed into ventures that do not have the capacity to translate into poverty reduction; could some of the factors keeping some part of small scale entrepreneurs in poverty. The problem information paucity, lack of productive resources and social networks that have restricted their access to this loan instruments could be a hindering factor. Further, labour burden, weak infrastructure, and limited access to markets, weak business organizations and limited enabling environment and the political influence to easy access the loan and lack of awareness regarding micro finance facilities are the issues for accessing loan facilities. Poverty reduction resulting from the activities of microfinance banks has been limited because no relationship between staff members of the organizations and the people and among the group members. In fact, recently there has been a constant harassment of those who received loans from these microfinance banks. Essential recommendations have therefore been advanced by the study to ensure that microfinance banks and their various instruments remain viable tools that can be deployed in certainly the effect of poverty on the citizenry.

References

Acha, I.A. (2012). Microfinance banking in Nigeria: problems and prospects. *International Journal of Finance and Accounting*, 1(5), 106-111. DOI: 10.5923/j.ijfa.20120105.04.

Addae-Korankye, A. (2012). Microfinance: a tool for poverty reduction in developing countries. *Journal of Business and Retail Management Research*, 7(1), 138-149.

Agene, C. E., (2011). Microfinance Banking, Principles and Practice. (Gene Publications Abuja).

Aigbokhan, B. & Asemota, A. (2011). An Assessment of Microfinance as a Tool for Poverty Reduction and Social Capital formation. Evidence on Nigeria. Semanticsholar.org/paper.

Akhter, J & Cheng, K. (2020). Sustainable Empowerment Initiatives among Rural Women through Microcredit Borrowings in Bangladesh. Political Science, Women and Polities Research, Women Empowerment Sustainability 12(6).

Akhter, J., & Cheng, K. (2020). Sustainable empowerment initiatives among rural women through microcredit borrowings in Bangladesh. *Sustainability*, 12, 22-75. DOI: 10.3390/su12062275.

Akosile, A.I., & Ajayi, O.A. (2014). The impact of microfinance institutions on poverty reduction in Nigeria.

Alegieuno, J. (2008). Microfinance Policy Issues and Prospects. Lagos: The Guardian News Paper, Wednesday July 16,An empirical investigation. *European Journal of Humanities and Social Sciences*, 2(1), 97-111.

Ana, I. (2008). Fa Microfinance Banking? What is that" Lagos the Guardian Newspaper, Saturday March 22, P.47.

Ana, I. (2008). Survival Tool for the Active Poor. Lagos the Guardian Newspaper, Saturday February, 23rd, P. 47.

Anyanwu, C.M. (2004) Microfinance institutions in Nigeria: policy, practice and potentials. Retrieved from https://www.findevgateway.org/paper/2004/11/microfinance-institutions- nigeria-policy-practice-and-potentials.

Asemota, R.A (2002). State Sponsored Rural Microfinance Programmein Gjance. A performance Review. *International Journal of Economy and Development Issues*Vol. 3, No. 2.

Ashamu, S. and Ogundina, J. A. (2015). An Assessment of Impact of Microfinance Banks on Poverty Alleviation in Nigeria: An Empirical Investigation. Journal of Policy and Development Studies 9(2).

Asian Development Bank.(2004). Annual Report Administration and Governance. ADB funds and products, Economics, Finance sector development pp 306-370.

Asian Development Bank.(2011). Annual Report adb.org/documents 6 ADB Avenue, Mandaluying City 1550, Metro Manila, Philippines.

Awojobi, O.N. (2019). Microcredit as a strategy for poverty reduction in Nigeria: A systematic review of literature. *Global Journal of Social Sciences,* 18, 53-64. DOI: 10.4314/gjss.v18i1.5

Ayyagari, M., Beck, T., & Hoseini, M. (2013). Finance and poverty: evidence from India. Retrievedhttps://assets.publishing.service.gov.uk/media/57a08a54e5274a27b200053f/61070_Finance_PovertyIndia.pdf. *Bank,* Washington. bank-members-from-nobel-laureat.

Bamisile. O. R. (2006). Developing a Long Term Sustainable Microfinance Sector in Nigeria. The way forward Washington D. C USA 23-27

CBN (1999). The Conduct of Monetary Policy https//www.cbn.gov.ng

CBN (2005). *Microfinance Policy, Regulatory and Supervisory Framework for Nigeria*. Retrieved from https://

CBN (2012). Revised regulatory and supervisory guidelines for microfinance banks (MFBs) in Nigeria.https://www.cbn.gov.ng/out/2013/ccd/amended%20regulatory%20and%20supervisory%20guidelines%20for%20mfb.pdf.

CBN (2012). *Revised Regulatory and Supervisory Guidelines for Microfinance Banks (MFBs) in Nigeria*. Retrieved

CBN (2013). *Microfinance Certification Program Study Manual: microfinance Certification Unit, Nigeria.*Retrieved

CBN (2020). Guidelines for the regulation and supervision of microfinance banks in Nigeria. Retrievedhttps://www.cbn.gov.ng/Out/2020/FPRD/MFB%20REGULATION%20DRAFT%20MERGED.pdf.cgdev.org/sites/default/files/archive/doc/full_text/DueDiligence/Roodman_Due_Diligence.html

Chambers R. (1995). Poverty and Livelihoods: Whose Reality Counts? ID Discussion Paper 347, IDS Brighton

Christensson, L. (2017). Microfinance institutions and poverty reduction: evidence from Nigeria.Retrievedfromhttps//www.divaportal.org/smash/get/diva2:1103573/FULLTEXT01.

Clarke, G., Xu, L.C., & Zhou, H. (2006). Finance and income inequality: what do the data tell us?". *Southern Economic Journal*, 72(3), 578-596. DOI: 10.2307/20111834. *Economics, Management & Trade,* 7(3), 158-174.economy. *Finance and Banking Review (FBR), 6, (1&2),* 46- 64.

Egboro, E. M. (2015). Creation of microfinance banks in Nigeria: what is their main object? *British Journal ofEuropean Journal of Business and Management*, 6(35), 1-8.evidence from South-West Nigeria. *Asian Social Science*, 11(21), 183-198.

Ezeanyeji, C., Usifoh, S., Obi, C., & Ejefobihi, U. (2020). Microfinancing, poverty alleviation and Nigeria's economic growth: the nexus. *European Journal of Economic and FinancialResearch,*10.5281/zenodo.3732438.fromhttps://www.cbn.gov.ng/out/2011/pressrelease/gvd/revised%20microfinance%20policy%20fromhttps://www.cbn.gov.ng/out/2013/ccd/amended%20regulatory%20and%20supervisory% 20

Ezeanyiji, C. I., Usifoh,K., Obi, C. O. S. & Ejefobih, U. F. (2020). Micro financing Poverty Alleliviation and Nigeria Economic and Financial Research. International FinanceDOI: 105281/Zenodo.3732438, 4(1).

Ganga, M.T. (2012). *Dimensions and Dynamics of Clientship in the Microfinance Sector: Evidence from Sri Lanka*.guidelines%20for%20mfb.pdf

Irobi, N.C. (2008). *Microfinance and Poverty Alleviation: A Case Study of Obazu Progressive Women Association*irobi_n_170920.pdf

Jegede, C.A., Kehinde, J.A., & Akinlabi, B.H. (2011). Impact of micro finance on poverty alleviation in Nigeria:*Journal of Microfinance*. 2(1). july%2012%202011.pdf

Kaidi, N., Mensi, S., & Amor, M. (2019). Financial development, institutional quality and poverty reduction: Worldwide evidence. International and Interdisciplinary Journal for Quality-of-Life Measurement, Springer, 141(1), 131-156.

Kasali, T.A., Ahmad, A.S., & Lim, H.E (2015). The role of microfinance in poverty alleviation: Empirical

Ledgerwood, J. (1997). *Sustainable banking for the poor project*. (World Bank),South Asia. International journal of economic and development issue.

Ledgerwood, J. (999), *Sustainable Banking for the Poor Project*. (World Bank) South Asia.

Littlefield, et al. (2005), "CGAP focus Note 24: Is Microfinance an Effective Strategy to Reach

Mago, S. (2014). Microfinance and poverty alleviation: an empirical reflection. *Journal of Asian Finance, Economics and Business*, 1(2), 5-13. *Mbieri*, (Master's thesis, Imo State- Nigeria, 1-25). Retrieved from https://stud.epsilon.slu.se/10927/1/

Mecha, N.S. (2017). Effect of microfinance on poverty reduction: a critical scrutiny of theoretical literature. *Global Journal of Commerce and Management Perspective*, 6(3), 16-33. DOI: 10.24105/gjcmp.6.3.1702. medium scale enterprises operations. *International Review of Management and Business Research*, 2(2), 505-

MIX.(2010). *Microfinance Information Exchange.* Retrieved from http://www.themix.org.

Mohammed. A. D and Hasan (2009). Financial Inovations and the interest Elasticity of Money Demand in the United Kingdom. " 1963-2009'' International Journal of Social Sciences 8(1).

Narayan et al (2000), "Microfinance Impact Report". Trihcirappalli, India: The Activists for Nigerian economy. *Finance and Banking Review (FBR),* 6(1 & 2), 46–65.

NMDS.(2012).Non-Metric-Multi-Dimensional-Scaling-Ordination-Stress-Value https//www.researchgate.net 1644 of fungal

Nwibo, S.U., Okonkwo, T.O., Eze, A.V., Mbam, B.N., & Odoh, N.E. (2019). Effect of microcredit on poverty reduction among rural farm households in Northeast, Nigeria. *Asian Journal of Agricultural Extension, Economics and Sociology*, 35(2), 1-9. DOI: 10.9734/AJAEES/2019/v35i230218.

Nwobu, A. (2019). Repackaging microfinance banking for impact. Retrieved from https://www.vanguardngr.com/2019/02/repackaging-microfinance-banking-for- impact/Feburuary, 28, 2019.

Obayagbona, J. (2024). Microfinance bank and poverty alleviation in Nigeria: an impact assessment. *Amity Journal of Finance,* 3(2), 1-12.

Odhiambo, N. (2011). Growth, Empowerment and Poverty in South Africa. In Search of a Trickle-Down Effect. Journal of Income Distribution 20(1), 49-62.

Odhiambo, N.M. & Ho. (2011). Finance and poverty reduction in China: an empirical investigation, *International Business & Economics Research Journal,* 10(8), 103-114.

Okezie, A.I., Bankoli, B., & Ebomuche, N.C. (2013). The impact of Nigerian microfinance banks on poverty

Oladejo, M. (2013). Evaluation of the Nigerian microfinance banks credit administration on small and

Olaitan. M. A (2006). Finance for Small and Medium enterprises: Nigeria's agricultural credit guarantee scheme fund. J ournal of International Farm Management. 3(2) 1-9.

Onyele Onyekachi, K. & Onyele Onyekachi, C. (2020). The Effect of Microfinance Banks on Poverty Reduction in Nigeria. Management dynamics in the knowledge economy. 8(2020) 257-275.

Onyele, K.O., & Nwokocha, B.E. (2016). The relationship between capital flight and poverty: the case of Nigeria. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development,* 16(3), 225-236.

Osamwonyi, I.O. & Obayagbona, J. (2012). The role of microfinance banking in the development of the Nigerian

Osamwonyi, I.O., & Obayagbona, J. (2012). The role of microfinance banking in the development of the

Oyeyomi, O.E. (2003), "An Assessment of Poverty Reduction Strategies in Nigeria (1983-

Ozekhome, H. O. (2019). Does Capital Adequacy influence the Finance Performance of Listed Banks in Nigeria? Oradea Journal of Busines and Economics 4(2), 69-80.
p.33.reduction: Imo State Experience. *Mediterranean Journal of Social Sciences*,4(6), 97-114.

Robinson, M. (2001). The Microfinance Revolution: Sustainable Finance for the Poor. W*orld*

Roodman, D. M. (2012). *Due diligence: An impertinent inquiry into microfinance.* Retrieved from https://www.

Seibel, H.D. (2001). Mainstreaming informal financial institutions: United Nations poverty line definition

Sen Anaryta (1999). "On Ethics and Economics'' OUP Catalogue Oxford University Press number 9780195627619.

Simanowitz, A. (2003), Client Exist Surveys: A Tool for Understanding Client Drop-out. Social Alternatives.

Sohn, W. & Ume, L. (2019). Impact of Microfinance on Poverty Alleviation: A Global Analysis Journal of Economics and Development Studies.

Tafamel, E.A. (2019). Analysis of the effect of microfinance institutions on poverty reduction in zNigeria. *Academic Journal of Economic* Studies, 5(2), 114–119.

Taiwo, J.N., Agwu, M.I., Aregan, A.I., & Ikpefan, O.A. (2016). Microfinance and poverty alleviation in Southwest Nigeria: empirical evidence. *International Journal of Social Sciences and Management,* 3(4), 256-266. DOI: 10.3126/ijssm.v3i4.15960. the doctor of philosophy of the St Clement University.the Millennium Development Goals?" *Washington, D.C.*: Consultative Group to Assist *the occasion of his departure from Grameen Bank.* Retrieved from www.grameen.com/a-letter-addressed-togrameen-the Poor.

Thomas-Otuya, V. C & Chukuigwe, N. (2014). Emerging Issues in Microfinance Banks in Nigeria. European Journal of Business and Management. Corpus ID:212529913.

Thrikawala, S., Locke, S., & Reddy, K. (2013). Social performance of microfinance institutions (MFIs): does existing practice imply a social objective? *American Journal of Business and Management,* 2(2), 173-180. DOI: 10.11634/216796061302340.

Ubani, A. C.(2012). The role of Microfinance Banks in the Alleviation of poverty in Nigeria. pub.abuad.edu.ng/Open Access Research Projects of Universities.

UNDP (2009). Annual Report: Poverty Reduction and Inequality undp.org/arab-states/publications.

Usifoh, K.S., & Ezeanyeji, C.I. (2017). Impact of microfinance banks on poverty alleviation and economic growth in Nigeria. *NG - Journal of Social Development,* 6(5), 22-34. DOI: 10.12816/0042815.

World Bank (2000). Attacking Poverty, World Development Report. Openknowledge.worldbank.org/handle/10986/11856

World Bank (2002), Globalization, Growth and Poverty: Building an Inclusive world Economy.

World Bank (2002). Globalization Growth and Poverty Building an Inclusive world Economy. (World Bank Policy Report), New York: Oxford University Press.

World Bank (2007). *Globalization, Growth and poverty.* Building an Inclusive World of economy. World Bank Policy Research Report. New York: Oxford University Press.

World Bank (2008). *Finance for all? Policies and pitfalls in expanding access*. Washington, DC: World Bank.

World Bank (2012). The World Bank Annual Report: World Bank https://dol.org/10.1596/978-0-8213-9568-4

World Bank (2019). Jumpstarting inclusive growth: Unlocking the productive potential of Nigeria's people and resource endowments. Retrieved from http://documents.worldbank.org/curated/en/394091575477674137/Jumpstarting-Inclusive-Growth-Unlocking-the-Productive-Potential-of-Nigeria-s-People-and-Resource-Endowments. *World Bank Policy Research Report*, New York: Oxford University Press.

World Bank Report (2002). *World Development Report*. Washington, DC: World Bank. www.cbn.gov.ng/Out/2011/publications/dfd/Reviewed%20Microfinance%20Policy%20July%2012%20

Yunus, M. (2011). *A letter addressed to Grameen Bank members from Nobel Laureate*

Yunus, M.(2012). *Journal of Developmental Entrepreneurship*, 6(1), 83-95.

Zeller, M. & Shama, M. P.(1998). Rural Finance and Poverty Alleviation.researchgate.net/search?

APPENDICES

RDL Long Run Form and Bounds Test

Dependent Variable: D(PI)

Selected Model: ARDL(1, 1, 1, 1, 0, 0, 0)

Case 2: Restricted Constant and No Trend

Date: 01/22/24 Time: 12:44

Sample: 1990 2023

Included observations: 27

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	87.84017	20.98228	4.186398	0.0007
PI(-1)*	-0.842848	0.184479	-4.568813	0.0003
MFA(-1)	-0.142908	0.059891	-2.386131	0.0297
LNS(-1)	-0.172211	0.050036	-3.441720	0.0034
INTR(-1)	-2.661541	0.769084	-3.460663	0.0032
INF**	-0.064887	0.074748	-0.868075	0.3982
FDI**	5.31E-10	5.96E-10	0.890718	0.3863
RGDP**	0.000556	0.000182	3.061708	0.0075
D(MFA)	0.033421	0.056112	0.595606	0.5598
D(LNS)	-0.074120	0.056083	-1.321612	0.2049
D(INTR)	-1.855430	0.640432	-2.897154	0.0105

* p-value incompatible with t-Bounds distribution.

** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MFA	-0.169554	0.085384	-1.985783	0.0645
LNS	-0.204320	0.065980	-3.096688	0.0069
INTR	-3.157794	0.776569	-4.066338	0.0009
INF	-0.076985	0.083898	-0.917609	0.3724
FDI	6.30E-10	7.13E-10	0.883426	0.3901
RGDP	0.000660	0.000260	2.540176	0.0218
C	104.2183	11.36125	9.173134	0.0000

EC = PI - (-0.1696*MFA -0.2043*LNS -3.1578*INTR -0.0770*INF + 0.0000 *FDI + 0.0007*RGDP + 104.2183)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	4.240954	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
			Finite	
Actual Sample Size	27		Sample: n=35	
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326
			Finite Sample: n=30	
		10%	2.334	3.515
		5%	2.794	4.148
		1%	3.976	5.691

ARDL Error Correction Regression
Dependent Variable: D(PI)
Selected Model: ARDL(1, 1, 1, 1, 1, 1, 1)
Case 2: Restricted Constant and No Trend
Date: 01/22/24 Time: 12:47
Sample: 1990 2023
Included observations: 27

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MFA)	0.047268	0.038231	1.236378	0.2382
D(LNS)	-0.070016	0.037179	-1.883213	0.0822
D(INTR)	-1.525831	0.460702	-3.311972	0.0056
D(INF)	0.125747	0.064387	1.952971	0.0727
D(FDI)	8.32E-10	2.63E-10	3.328870	0.0067

D(RGDP)	0.000184	0.000311	0.591022	0.5646
CointEq(-1)*	-0.791901	0.125902	-6.289842	0.0000

R-squared	0.703309	Mean dependent var	0.591348
Adjusted R-squared	0.614302	S.D. dependent var	5.578641
S.E. of regression	3.464591	Akaike info criterion	5.541480
Sum squared resid	240.0678	Schwarz criterion	5.877438
Log likelihood	-67.80998	Hannan-Quinn criter.	5.641378
Durbin-Watson stat	2.304849		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.240954	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

	PI	MFA	LNS	INTR	INF	FDI	RGDP
Mean	65.85351	77.39168	42.60042	15.29714	16.15437	3.36E+09	45598.55
Median	69.35000	85.25062	41.68055	15.81000	12.38637	2.35E+09	44467.46
Maximum	71.50000	173.5545	123.9321	19.55000	72.83550	8.84E+09	71387.83
Minimum	54.10000	1.324700	10.74789	11.31000	5.388008	3.00E+08	19979.12
Std. Dev.	6.419654	62.45379	29.94879	2.008198	14.71667	2.65E+09	19519.20
Skewness	-0.881486	0.033906	0.944015	-0.483577	2.918464	0.721691	0.004960
Kurtosis	2.092464	1.383176	3.261471	2.812701	10.80387	2.309395	1.390699
Jarque-Bera	4.586977	3.055171	4.238526	1.132212	110.7984	2.986999	3.021606
Probability	0.100914	0.217059	0.120120	0.567732	0.000000	0.224585	0.220733
Sum	1843.898	2166.967	1192.812	428.3200	452.3223	9.41E+10	1276759.
Sum Sq. Dev.	1112.723	105312.8	24217.11	108.8872	5847.667	1.89E+20	1.03E+10
Observations	28	28	28	28	28	28	28

	PI	MFA	LNS	INTR	INF	FDI	RGDP
PI	1	0.435240319103325	-0.092790973241455	-0.174473800952442	-0.430054822559470	0.209647364086048	0.454789228418523
MFA	0.435240319103325	1	-0.201713486431692	0.351824753966458	-0.379067892632803	0.595246873531176	0.728851413332645
LNS	-0.092790973241455	-0.201713486431692	1	-0.402419205379166	0.015294668012504	-0.628336112683827	-0.040092161629089
INTR	-0.174473800952442	0.351824753966458	-0.402419205379166	1	-0.140235783985701	0.612084560686418	0.243069206538487
INF	-0.430054822559470	-0.379067892632803	0.015294668012504	-0.140235783985701	1	-0.296935072303557	-0.379440721533102
FDI	0.209647364086048	0.595246873531176	-0.628336112683827	0.612084560686418	-0.296935072303557	1	0.407497486492347 6
RGDP	0.454789228418523	0.728851413332645	-0.040092161629089	0.243069206538487	-0.379440721533102	0.407497486492347 6	1

Null Hypothesis: PI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.787812	0.0733
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(PI)

Method: Least Squares

Date: 01/23/24 Time: 09:51

Sample (adjusted): 1990 2023

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PI(-1)	-0.419830	0.150595	-2.787812	0.0100
C	28.16379	9.936476	2.834385	0.0090

R-squared	0.237151	Mean dependent var	0.591348
Adjusted R-sq3uared	0.206637	S.D. dependent var	5.578641
S.E. of regression	4.968947	Akaike info criterion	6.115480
Sum squared resid	617.2608	Schwarz criterion	6.211468
Log likelihood	-80.55898	Hannan-Quinn criter.	6.144022
F-statistic	7.771895	Durbin-Watson stat	1.863868
Prob(F-statistic)	0.009991		

Null Hypothesis: PI is stationary

Exogenous: Constant

Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.323000
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	39.74010
HAC corrected variance (Bartlett kernel)	84.35178

KPSS Test Equation

Dependent Variable: PI

Method: Least Squares

Date: 01/23/24 Time: 09:54

Sample: 1990 2023

Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	65.85351	1.213201	54.28081	0.0000

R-squared	0.000000	Mean dependent var	65.85351
Adjusted R-squared	0.000000	S.D. dependent var	6.419654
S.E. of regression	6.419654	Akaike info criterion	6.591666
Sum squared resid	1112.723	Schwarz criterion	6.639245
Log likelihood	-91.28333	Hannan-Quinn criter.	6.606212
Durbin-Watson stat	0.735667		

Null Hypothesis: MFA has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.132195	0.6879
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MFA)
Method: Least Squares
Date: 01/23/24 Time: 10:19
Sample (adjusted): 1990 2023
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MFA(-1)	-0.073160	0.064618	-1.132195	0.2683
C	10.07100	6.312937	1.595296	0.1232

R-squared	0.048774	Mean dependent var	4.534641
Adjusted R-squared	0.010725	S.D. dependent var	20.85884
S.E. of regression	20.74669	Akaike info criterion	8.973837
Sum squared resid	10760.63	Schwarz criterion	9.069825
Log likelihood	-119.1468	Hannan-Quinn criter.	9.002380
F-statistic	1.281865	Durbin-Watson stat	2.152624
Prob(F-statistic)	0.268296		

Null Hypothesis: D(MFA) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.433045	0.0002
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MFA,2)
Method: Least Squares
Date: 01/23/24 Time: 10:20
Sample (adjusted): 1990 2023
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.

D(MFA(-1))	-1.105122	0.203408	-5.433045	0.0000
C	5.143084	4.317472	1.191226	0.2452

R-squared	0.551553	Mean dependent var	0.466065
Adjusted R-squared	0.532867	S.D. dependent var	31.56364
S.E. of regression	21.57284	Akaike info criterion	9.054550
Sum squared resid	11169.30	Schwarz criterion	9.151327
Log likelihood	-115.7092	Hannan-Quinn criter.	9.082419
F-statistic	29.51798	Durbin-Watson stat	2.009959
Prob(F-statistic)	0.000014		

Null Hypothesis: MFA is stationary

Exogenous: Constant

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.564770
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	3761.173
HAC corrected variance (Bartlett kernel)	16056.53

KPSS Test Equation
Dependent Variable: MFA
Method: Least Squares
Date: 01/23/24 Time: 10:21
Sample: 1990 2023
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	77.39168	11.80266	6.557141	0.0000

R-squared	0.000000	Mean dependent var	77.39168
Adjusted R-squared	0.000000	S.D. dependent var	62.45379
S.E. of regression	62.45379	Akaike info criterion	11.14179
Sum squared resid	105312.8	Schwarz criterion	11.18937
Log likelihood	-154.9851	Hannan-Quinn criter.	11.15634
Durbin-Watson stat	0.112689		

Null Hypothesis: D(MFA) is stationary
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.152244
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	418.9768
HAC corrected variance (Bartlett kernel)	349.5238

KPSS Test Equation

Dependent Variable: D(MFA)

Method: Least Squares

Date: 01/23/24 Time: 10:22

Sample (adjusted): 1990 2023

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.534641	4.014286	1.129626	0.2689

R-squared	0.000000	Mean dependent var	4.534641
Adjusted R-squared	0.000000	S.D. dependent var	20.85884
S.E. of regression	20.85884	Akaike info criterion	8.949767
Sum squared resid	11312.37	Schwarz criterion	8.997761
Log likelihood	-119.8218	Hannan-Quinn criter.	8.964038
Durbin-Watson stat	2.202211		

Null Hypothesis: LNS has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.908427	0.3236
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LNS)

Method: Least Squares

Date: 01/23/24 Time: 10:24

Sample (adjusted): 1990 2023

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNS(-1)	-0.304252	0.159426	-1.908427	0.0679
C	14.65034	7.900018	1.854470	0.0755

R-squared	0.127159	Mean dependent var	2.262072
Adjusted R-squared	0.092245	S.D. dependent var	24.55573
S.E. of regression	23.39575	Akaike info criterion	9.214173
Sum squared resid	13684.03	Schwarz criterion	9.310161
Log likelihood	-122.3913	Hannan-Quinn criter.	9.242716
F-statistic	3.642094	Durbin-Watson stat	2.086773
Prob(F-statistic)	0.067882		

Null Hypothesis: D(LNS) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.305144	0.0000
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LNS,2)

Method: Least Squares

Date: 01/23/24 Time: 10:24

Sample (adjusted): 1990 2023

Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNS(-1))	-1.247009	0.197776	-6.305144	0.0000
C	2.455191	4.863321	0.504838	0.6183

R-squared	0.623558	Mean dependent var	-0.008177
Adjusted R-squared	0.607873	S.D. dependent var	39.47301
S.E. of regression	24.71802	Akaike info criterion	9.326745
Sum squared resid	14663.53	Schwarz criterion	9.423522
Log likelihood	-119.2477	Hannan-Quinn criter.	9.354614
F-statistic	39.75484	Durbin-Watson stat	2.039256
Prob(F-statistic)	0.000002		

Null Hypothesis: LNS is stationary

Exogenous: Constant

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.119061
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	864.8966
HAC corrected variance (Bartlett kernel)	2344.188

KPSS Test Equation

Dependent Variable: LNS

Method: Least Squares

Date: 01/23/24 Time: 10:27

Sample: 1990 2023

Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	42.60042	5.659789	7.526857	0.0000

R-squared	0.000000	Mean dependent var	42.60042
Adjusted R-squared	0.000000	S.D. dependent var	29.94879
S.E. of regression	29.94879	Akaike info criterion	9.671916
Sum squared resid	24217.11	Schwarz criterion	9.719494
Log likelihood	-134.4068	Hannan-Quinn criter.	9.686461
Durbin-Watson stat	0.653081		

Null Hypothesis: INTR has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.443139	0.1401
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INTR)
Method: Least Squares
Date: 01/23/24 Time: 10:30
Sample (adjusted): 1990 2023
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR(-1)	-0.386111	0.158039	-2.443139	0.0220
C	5.917783	2.443773	2.421576	0.0230

R-squared	0.192739	Mean dependent var	-0.002593
Adjusted R-squared	0.160449	S.D. dependent var	1.791619
S.E. of regression	1.641607	Akaike info criterion	3.900415
Sum squared resid	67.37181	Schwarz criterion	3.996403
Log likelihood	-50.65560	Hannan-Quinn criter.	3.928957
F-statistic	5.968930	Durbin-Watson stat	2.141439
Prob(F-statistic)	0.021964		

Null Hypothesis: D(INTR) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.628748	0.0000
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(INTR,2)

Method: Least Squares

Date: 01/23/24 Time: 10:31

Sample (adjusted): 1990 2023

Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INTR(-1))	-1.320978	0.199280	-6.628748	0.0000
C	-0.016281	0.347565	-0.046844	0.9630

R-squared	0.646749	Mean dependent var	0.093462
Adjusted R-squared	0.632030	S.D. dependent var	2.918258
S.E. of regression	1.770231	Akaike info criterion	4.053901
Sum squared resid	75.20924	Schwarz criterion	4.150677
Log likelihood	-50.70071	Hannan-Quinn criter.	4.081769
F-statistic	43.94030	Durbin-Watson stat	2.022796
Prob(F-statistic)	0.000001		

Null Hypothesis: INTR is stationary

Exogenous: Constant

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.188782
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	3.888828
HAC corrected variance (Bartlett kernel)	10.66991

KPSS Test Equation

Dependent Variable: INTR

Method: Least Squares

Date: 01/23/24 Time: 10:32

Sample: 1990 2023

Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.29714	0.379514	40.30722	0.0000

R-squared	0.000000	Mean dependent var	15.29714
Adjusted R-squared	0.000000	S.D. dependent var	2.008198
S.E. of regression	2.008198	Akaike info criterion	4.267413
Sum squared resid	108.8872	Schwarz criterion	4.314992
Log likelihood	-58.74379	Hannan-Quinn criter.	4.281959
Durbin-Watson stat	0.766459		

Null Hypothesis: INF has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.407064	0.0196
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(INF)

Method: Least Squares

Date: 01/23/24 Time: 10:37

Sample (adjusted): 1990 2023

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.399927	0.117382	-3.407064	0.0022
C	4.887605	2.572937	1.899621	0.0691

R-squared	0.317091	Mean dependent var	-1.612286
Adjusted R-squared	0.289774	S.D. dependent var	10.64443

S.E. of regression	8.970582	Akaike info criterion	7.296965
Sum squared resid	2011.784	Schwarz criterion	7.392953
Log likelihood	-96.50903	Hannan-Quinn criter.	7.325508
F-statistic	11.60808	Durbin-Watson stat	1.857474
Prob(F-statistic)	0.002227		

\

Null Hypothesis: INF is stationary

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.355041
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	208.8453
HAC corrected variance (Bartlett kernel)	385.3157

KPSS Test Equation

Dependent Variable: INF

Method: Least Squares

Date: 01/23/24 Time: 10:42

Sample: 1990 2023

Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.15437	2.781188	5.808441	0.0000

R-squared	0.000000	Mean dependent var	16.15437
Adjusted R-squared	0.000000	S.D. dependent var	14.71667

S.E. of regression	14.71667	Akaike info criterion	8.250899
Sum squared resid	5847.667	Schwarz criterion	8.298478
Log likelihood	-114.5126	Hannan-Quinn criter.	8.265444
Durbin-Watson stat	0.515776		

Null Hypothesis: FDI has a unit root

Exogenous: Constant

Lag Length: 4 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.988675	0.0509
Test critical values:	1% level	-3.752946	
	5% level	-2.998064	
	10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FDI)

Method: Least Squares

Date: 01/23/24 Time: 10:46

Sample (adjusted): 2000 2023

Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI(-1)	-0.338127	0.113136	-2.988675	0.0083
D(FDI(-1))	-0.187458	0.195930	-0.956758	0.3521
D(FDI(-2))	0.191530	0.180003	1.064041	0.3022
D(FDI(-3))	0.655383	0.189257	3.462922	0.0030
D(FDI(-4))	0.369196	0.225475	1.637415	0.1199
C	1.37E+09	4.95E+08	2.767480	0.0132

R-squared	0.498265	Mean dependent var	85513260
Adjusted R-squared	0.350695	S.D. dependent var	1.45E+09
S.E. of regression	1.17E+09	Akaike info criterion	44.81252
Sum squared resid	2.31E+19	Schwarz criterion	45.10874
Log likelihood	-509.3440	Hannan-Quinn criter.	44.88702
F-statistic	3.376481	Durbin-Watson stat	2.043808
Prob(F-statistic)	0.026703		

Null Hypothesis: RGDP has a unit root

Exogenous: Constant

Lag Length: 4 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.973035	0.0526
Test critical values:	1% level	-3.752946	
	5% level	-2.998064	
	10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RGDP)

Method: Least Squares

Date: 01/23/24 Time: 10:52

Sample (adjusted): 2000 2023

Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP(-1)	-0.046099	0.015506	-2.973035	0.0085
D(RGDP(-1))	0.393123	0.196071	2.005007	0.0612
D(RGDP(-2))	0.081675	0.277441	0.294387	0.7720
D(RGDP(-3))	-0.240973	0.290915	-0.828330	0.4190
D(RGDP(-4))	0.718627	0.243958	2.945704	0.0090
C	2310.320	808.0549	2.859112	0.0109

R-squared	0.647170	Mean dependent var	2045.847
Adjusted R-squared	0.543396	S.D. dependent var	1676.818
S.E. of regression	1133.068	Akaike info criterion	17.12270
Sum squared resid	21825321	Schwarz criterion	17.41892
Log likelihood	-190.9111	Hannan-Quinn criter.	17.19720
F-statistic	6.236359	Durbin-Watson stat	1.695322
Prob(F-statistic)	0.001850		

Null Hypothesis: RGDP is stationary

Exogenous: Constant

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic	0.642642

Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	3.67E+08
HAC corrected variance (Bartlett kernel)	1.61E+09

KPSS Test Equation
Dependent Variable: RGDP
Method: Least Squares
Date: 01/23/24 Time: 10:53
Sample: 1990 2023
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45598.55	3688.782	12.36141	0.0000

R-squared	0.000000	Mean dependent var	45598.55
Adjusted R-squared	0.000000	S.D. dependent var	19519.20
S.E. of regression	19519.20	Akaike info criterion	22.63125
Sum squared resid	1.03E+10	Schwarz criterion	22.67882
Log likelihood	-315.8374	Hannan-Quinn criter.	22.64579
Durbin-Watson stat	0.015516		

Null Hypothesis: D(RGDP) is stationary
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.197348
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	2562948.
HAC corrected variance (Bartlett kernel)	6039379.

KPSS Test Equation
Dependent Variable: D(RGDP)
Method: Least Squares
Date: 01/23/24 Time: 10:54
Sample (adjusted): 1990 2023
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1829.935	313.9665	5.828440	0.0000

R-squared	0.000000	Mean dependent var	1829.935
Adjusted R-squared	0.000000	S.D. dependent var	1631.418
S.E. of regression	1631.418	Akaike info criterion	17.66862
Sum squared resid	69199604	Schwarz criterion	17.71661
Log likelihood	-237.5264	Hannan-Quinn criter.	17.68289
Durbin-Watson stat	0.706222		

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	19.07979	Prob. F(2,4)	0.4390
Obs*R-squared	23.53318	Prob. Chi-Square(2)	0.1274

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 01/24/24 Time: 05:58
Sample: 1990 2023
Included observations: 26
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PI(-1)	0.041695	0.116309	0.358486	0.7381
PI(-2)	0.032511	0.136719	0.237793	0.8237
MFA	-0.003150	0.018344	-0.171703	0.8720

MFA(-1)	0.003744	0.033191	0.112802	0.9156
MFA(-2)	0.015593	0.040702	0.383108	0.7211
LNS	-0.003693	0.029559	-0.124951	0.9066
LNS(-1)	0.036564	0.018167	2.012639	0.1145
LNS(-2)	0.003730	0.021548	0.173096	0.8710
INTR	0.293264	0.192062	1.526923	0.2015
INTR(-1)	0.207294	0.305672	0.678160	0.5349
INTR(-2)	0.269142	0.254228	1.058667	0.3494
INF	0.045436	0.084238	0.539375	0.6183
INF(-1)	-0.011501	0.040366	-0.284931	0.7898
FDI	7.88E-11	5.00E-10	0.157705	0.8823
FDI(-1)	1.64E-10	5.83E-10	0.280497	0.7930
FDI(-2)	2.38E-10	3.39E-10	0.702644	0.5210
RGDP	-0.000826	0.000462	-1.786304	0.1486
RGDP(-1)	0.000395	0.000811	0.487138	0.6517
RGDP(-2)	0.000313	0.000469	0.667360	0.5411
C	-13.96592	11.85267	-1.178293	0.3040
RESID(-1)	-1.440573	0.427527	-3.369544	0.0281
RESID(-2)	-0.401346	0.546113	-0.734914	0.5032

R-squared	0.905122	Mean dependent var	4.54E-14
Adjusted R-squared	0.407015	S.D. dependent var	1.029624
S.E. of regression	0.792868	Akaike info criterion	2.194184
Sum squared resid	2.514556	Schwarz criterion	3.258728
Log likelihood	-6.524397	Hannan-Quinn criter.	2.500734
F-statistic	1.817123	Durbin-Watson stat	2.475058
Prob(F-statistic)	0.299136		

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.551049	Prob. F(19,6)	0.1250
Obs*R-squared	23.13603	Prob. Chi-Square(19)	0.2314
Scaled explained SS	0.842330	Prob. Chi-Square(19)	1.0000

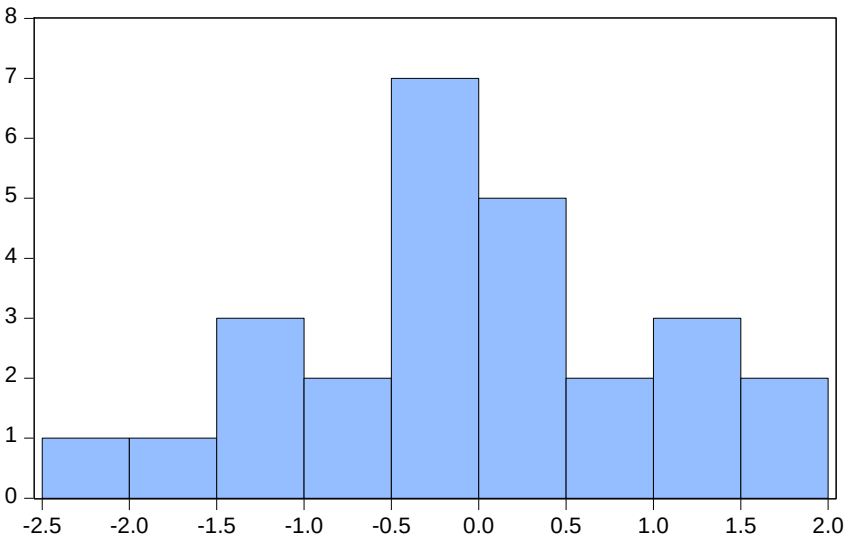
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 01/24/24 Time: 06:13

Sample: 1990 2023

Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.803434	10.20733	0.372618	0.7222
PI(-1)	-0.048366	0.116000	-0.416950	0.6912
PI(-2)	-0.021406	0.119126	-0.179691	0.8633
MFA	0.003967	0.018948	0.209350	0.8411
MFA(-1)	0.037768	0.033769	1.118425	0.3062
MFA(-2)	0.023278	0.042119	0.552675	0.6005
LNS	0.021064	0.029989	0.702392	0.5088
LNS(-1)	0.025759	0.017802	1.446953	0.1981
LNS(-2)	-0.005247	0.018957	-0.276791	0.7912
INTR	0.106587	0.177047	0.602023	0.5692
INTR(-1)	0.258862	0.272714	0.949207	0.3792
INTR(-2)	0.434704	0.258669	1.680543	0.1439
INF	-0.047799	0.070411	-0.678853	0.5225
INF(-1)	-0.067954	0.035033	-1.939701	0.1005
FDI	5.92E-11	5.08E-10	0.116497	0.9111
FDI(-1)	-7.84E-11	5.90E-10	-0.132924	0.8986
FDI(-2)	2.48E-10	3.30E-10	0.752479	0.4802
RGDP	-0.000935	0.000440	-2.126652	0.0776
RGDP(-1)	-1.45E-05	0.000838	-0.017279	0.9868
RGDP(-2)	0.000654	0.000440	1.485916	0.1878

R-squared	0.889847	Mean dependent var	1.019352
Adjusted R-squared	0.541031	S.D. dependent var	1.215555
S.E. of regression	0.823505	Akaike info criterion	2.521630
Sum squared resid	4.068961	Schwarz criterion	3.489396
Log likelihood	-12.78119	Hannan-Quinn criter.	2.800311
F-statistic	2.551049	Durbin-Watson stat	2.503608
Prob(F-statistic)	0.125001		



Series: Residuals	
Sample 1997 2022	
Observations 26	
Mean	4.54e-14
Median	-0.071888
Maximum	1.954725
Minimum	-2.031055
Std. Dev.	1.029624
Skewness	0.038521
Kurtosis	2.367311
Jarque-Bera	0.440083
Probability	0.802485

Ramsey RESET Test

Equation: UNTITLED

Specification: PI PI(-1) PI(-2) MFA MFA(-1) MFA(-2) LNS LNS(-1) LNS(-2) INTR INTR(-1) INTR(-2) INF INF(-1) FDI FDI(-1) FDI(-2) RGDP RGDP(-1) RGDP(-2) C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.489571	5	0.6452
F-statistic	0.239679	(1, 5)	0.6452

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	1.212337	1	1.212337
Restricted SSR	26.50315	6	4.417192
Unrestricted SSR	25.29082	5	5.058163

Unrestricted

Test Equation:

Dependent Variable: PI

Method: ARDL

Date: 01/24/24 Time: 06:51

Sample: 1992 2023

Included observations: 26

Maximum dependent lags: 2 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic):

Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PI(-1)	0.040874	0.319019	0.128125	0.9030
PI(-2)	2.716028	3.669876	0.740087	0.4925
MFA	-0.085706	0.123142	-0.695992	0.5175
MFA(-1)	-1.009697	1.360394	-0.742209	0.4913
MFA(-2)	-0.269954	0.379543	-0.711261	0.5087
LNS	-0.778657	1.048969	-0.742307	0.4913
LNS(-1)	-0.028996	0.061447	-0.471881	0.6569
LNS(-2)	-0.197035	0.266852	-0.738370	0.4935
INTR	-2.808642	3.769997	-0.744999	0.4898
INTR(-1)	-1.423658	1.988500	-0.715946	0.5061
INTR(-2)	-4.411108	5.915369	-0.745703	0.4894
INF	-2.119808	2.862013	-0.740670	0.4922
INF(-1)	1.282234	1.719363	0.745761	0.4894
FDI	-3.62E-09	5.01E-09	-0.721907	0.5027
FDI(-1)	6.85E-09	9.31E-09	0.736244	0.4947
FDI(-2)	-4.08E-09	5.59E-09	-0.728729	0.4989
RGDP	0.001869	0.002727	0.685274	0.5236
RGDP(-1)	0.010222	0.013875	0.736752	0.4944
RGDP(-2)	-0.007505	0.010057	-0.746237	0.4891
C	18.57836	33.36828	0.556767	0.6017
FITTED^2	-0.015082	0.030807	-0.489571	0.6452

R-squared	0.973321	Mean dependent var	66.49225
Adjusted R-squared	0.866606	S.D. dependent var	6.157836
S.E. of regression	2.249036	Akaike info criterion	4.425606
Sum squared resid	25.29082	Schwarz criterion	5.441761
Log likelihood	-36.53288	Hannan-Quinn criter.	4.718222
F-statistic	9.120731	Durbin-Watson stat	3.454939
Prob(F-statistic)	0.011108		

*Note: p-values and any subsequent tests do not account for model selection.