Financial Sustainability of Microfinance Institutions in Nepal

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RECOMMENDATION

CERTIFICATION

DECLARATION OF AUTHENTICITY

I, Sarita Kunwar declare that this Graduate Research Project is my own original work and that it has fully and specifically acknowledged wherever adapted from and other sources. I also understand that if at any time it is shown that I have significantly misrepresented material presented to SOMTU, any credits awarded to me on the basis of that material may be revoked.

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Signature

Sarita Kunwar

Date: July 2021

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List of Abbreviations

CGPA	Consultative Group to Assist the Poorest
DE	Debt to Equity ratio
DTA	Debt to Total Assets ratio
DW	Durbin Watson
FSS	Financial Self-Sufficiency
MFC	Masters of Finance and Control
MFIs	Microfinance Institutions
MFOs	Microfinance Organizations
NRB	Nepal Rastra Bank
OETA	Operating Expenses to Total Assets
PCI	Per Capita Income
ROA	Return on Assets
SOMTU	School of Management, Tribhuvan University

Executive Summary

Sustainability is considered as the major issue considering microfinance in developing countries. The topic has also drawn attention of finance scholars especially microfinance scholars in recent years. Sustainability plays a major role towards the bright future of the developing economy and has significant impact towards the development of its citizens from the poor and developing economy. The purpose of this study is to identify the factors affecting financial sustainability of microfinance in Nepal. Financial Self-Sufficiency has been taken as dependent variable whereas breadth of outreach, depth of outreach, debt to equity ratio, cost per borrower and productivity has been taken as independent variables.

Panel data regression procedures were applied on the pooled data set of thirteen MFIs. Hausman test with correlation matrix has been used for the variability and normality of the data used. Descriptive statistics were also used to analyze the findings of the study.

The major findings of the study shows that depth of outreach is considered as the most important variable in determining financial sustainability of microfinance institutions in Nepal. However, no significant association was found between breadth of outreach, debt equity ratio and cost per borrower and financial sustainability of microfinance institutions, and the same is true for staff productivity.

CHAPTER I
INTRODUCTION

1.1 Background of the Study

Since the late 1990s, microfinance institutions have developed as a means of promoting economic growth for the low-income population. For an economy to remain viable and satisfy its citizens' aspirations for a brighter future, the sustainability of such a financial organization is crucial. Since Nepal is a developing nation, microfinance in these nations shouldn't fail since it may upgrade the quality of life for the poor in any economy by offering loans and specialized training that will enable them to earn a living and raise their standard of living. Additionally, they offer awareness training to uplift the underprivileged as well as skill-based training to help productivity and organizational support.

Such an organization targets the underprivileged with its financial services by offering collateral alternatives and reasonable payback schedules. There are 74 microfinance financial institutions in total, with several commercial banks opening their own distinct microfinance institutions and merging as a result of their vision for the future growth of microfinance (NRB, 2020).

Ledgerwood (1999) asserts that microfinance institutions' objectives as development organizations are to satisfy the financial needs of underserved or unserved markets as a way of achieving growth targets like empowering women as well as other underrepresented demographic groups and promoting the formation of new companies. Briefly put, it has been predicted that microfinance initiatives will contribute to eradicating poverty, which is seen as the most important development objective (World Bank, 2000). The financial viability of MFIs is a prerequisite for institutional viability because there are several other sectors that support diversified decision-making (Hollis & Sweetman, 1998). According to a few, unsustainable MFIs won't continue to assist the poor since they would collapse. As a result, sustainability is essential for the development and improvement of the poor (Schreiner, 2000). Beg (2016) asserts that it is preferable to have no MFIs than ones that are not sustainable, highlighting the significance of MFI sustainability. The health of MFIs is crucial to the health of the economy overall because so many people in Nepal live in poverty.

The beneficial impacts of microfinance institutions on the socioeconomic well-being of the poor can only be maintained, though, if the institutions can demonstrate excellent financial and outreach performance. Financial sustainability of these institutions has recently caught the attention of several scholars due to its significance in assuring the existence of financial institutions around the world. Financial stability is a need for institutional sustainability for microfinance institutions (Hollis & Sweetman, 1998). Unsustainable MFIs may help the needy now, but since they won't be around in the upcoming years, they won't be able to do so (Schreiner, 2000, p. 425). Additionally, it has already been suggested that having unstable MFIs may be preferable to not having any at all (Ganka, 2010). This demonstrates how important MFI sustainability is, making it crucial to research these aspects as well as how MFIs might become financially viability. Therefore, the goal of this study is to identify the variables influencing MFIs' ability to sustain their financial operations in Nepal, a country with a vast and deep level of poverty.

Sustainability is the capacity of a civilization, ecology, or other continuing system to keep functioning into the coming years without being compelled to decrease owing to the depletion of its primary resources. This idea is rooted in natural science (Robert, 1990). In the early years of the formation of microfinance, the World Bank Group's main goal was to promote the capacity of microfinance which would be accessible to the poor (Counts, 2008). This can be significant because the emergence of microfinance in Bangladesh by Prof. Muhammed Yunus in 1976 had a significant impact on the lending to the poor in the world. He did this by using his own money to lend $27 to 42 village women with the aid of the organization known as "Garmeen Bank." The advent of microfinance services has been seen as a means of improving the living standards for the world's poor (Counts, 2008). The foundation of microfinance in the global financial sector began with this.

As of the Sixth Five Year Plan (1980/80-1984/85), which indicated that microfinance activities were identified as the active instrument for the eradication of poverty, microfinance services are still a relatively new idea in Nepal. Frequently, microfinance services are seen as a successful way to provide a range of financial services to the underprivileged and marginalized members of society (Nepal Rastra Bank, 2011). The people's quality of life might rise as a result of this.

Microfinance sustainability is a phase toward profitability; both are accomplished when institutions can lower their transaction costs, provide better goods and services that fulfill customer needs, earn enough revenue, and be able to discover new sources of funding for the unbanked poor households.

Given the prevalence of poverty, securing funding is regarded as essential to attaining the objective of reducing poverty. The microfinance paradigms, according to Ganka (2010), are focused on eliminating poverty levels by better access to capital and financial resources. But achieving financial sustainability for microfinance institutions is still difficult (Dunford, 2003). According to Randhawa and Gallardo (2003), various scholars have been interested in this subject recently, and as a result, many solutions have been implemented to guarantee the longevity of MFIs. This is also evident in Ethiopia, but without continued financing and technical support from sponsors, it is unlikely that their operation will be able to last. Therefore, strategies for making these MFIs viable should be investigated in order to guarantee sustainable microfinance delivery of services and continuous reduction of poverty. Understanding the factors influence the financial sustainability of microfinance institutions is therefore the first step towards achieving this.

1.2 Statement of Problem

The primary aspect of microfinance sustainability is undoubtedly the financial sustainability of microfinance institutions. It refers to an MFI's capacity to finance all of its expenses out of its own operating income (Thapa et al., 1992), independent of outside assistance or financial support. Dunford (2003) further defines financial sustainability as the capacity to continue pursuing microfinance goals in the absence of ongoing donor funding. The ability to rely on self-operation is the main focus of these definitions. The definitions also suggest that the microfinance operations may generate a profit.

Operational sustainability and financial self-sufficiency are the two components of financial sustainability that may be measured. Operational sustainability, according to Meyer (2002), is the capacity of the MFI to pay its operating expenses out of its operating income whether or not it is being funded. On the other side, MFIs are economically self-sufficient when they can cover all of their operational, financing,

and other types of subsidies with their own sources of income. An MFI that experiences losses or has subpar financial performance would not be deemed financially sustainable, in terms of the meanings of financial sustainability provided above. Once more, a profit-making MFI that calculates its profitability after paying for some of its running costs with donated resources or cash would also not be viewed as having a sustainable financial future.

Numerous studies have also been conducted to identify the factors influencing the economic viability of MFIs using big, well-established MFIs in different countries. However, several studies have discovered variable degrees of relevance in these traits' effects on MFIs' capacity to make a profit. It is demonstrated that some of the variables are significant in a certain economy or to a subset of MFIs, while others are not (Cull et al., 2007 & Christen et al., 1995). Additionally, a few studies on the subject of sustainability in Nepal have been conducted that have just considered aspects of financial sustainability. Even though they didn't perform statistical tests of significance, they still reported the results of several performance indicators.

Because sustainable microfinance can currently satisfy the poor but cannot in the future due to its disappearance, sustainability is crucial (Schreiner, 2000). Microfinance that is not sustainable may be worse than microfinance that is, as it may damage the true needs of the poor in their tough moments (Gonzalez-Vega, 1994). Therefore, it is necessary to examine the sustainability of microfinance in order to address these types of issues. In order to close this research gaps, this study conducts an empirical investigation of the variables influencing MFIs' ability to sustain their financial operations in Nepal. Regarding the above mentioned concerns, the study is limited to providing answers to the following research questions.

a. What is the impact of number of borrowers/clients on sustainability of microfinance in Nepal?
b. Does the average loan size affect the sustainability of Nepalese MFI's?
c. Is there any impact of capital structure of MFIs on the sustainability of Microfinance institutions?
d. Is there any significant relationship between efficiency and sustainability of microfinance institution in Nepal?

1.3 Research Objectives

Finding the factors influencing the financial viability of Nepal's microfinance institutions is the study's primary objective. The study's specific objectives are as follows**:**

a. To identify the impact of number of borrowers on sustainability of microfinance in Nepal.
b. To evaluate the effect of average loan size on sustainability of microfinance in Nepal.
c. To analyze the impact of Capital structure of MFIs on Sustainability of microfinance in Nepal.
d. To examine the impact of efficiency on the sustainability of microfinance in Nepal.

1.4 Research Hypotheses

The study's main goal is to comprehend the variables that affect how sustainable and profitable microfinance is in Nepal. This leads to the following theory being proposed:

Hypothesis 1

The scope of outreach and financial sustainability have a significant link, according to research by Ganka (2010) on Tanzanian microfinance institutions.

H1: There is significant relationship between Breadth of outreach and financial sustainability of MFIs.

Hypothesis 2

Woller and Schreiner (2002) found a complicated relationship seen between scope of outreach and financial self-sustainability. They found that the extent of outreach and financial self-sustainability are related in their research.

H2: There is significant relationship between Depth of outreach and financial sustainability of MFIs.

Hypothesis 3

According to Ganka (2010), having a variety of capital sources does not increase financial sustainability, even though how the capital has been structured has an impact on it. Ganka noted that equity is a significantly less expensive source of funding, which enhances financial sustainability.

H3: There is significant relationship between Capital structure and financial sustainability of MFIs.

Hypothesis 4

The number of borrowers and the cost per borrower were two parameters that had the highest relationships with financial stability, according to Woller's (2000) study on the financial sustainability of village banking, which re-evaluated prior results and long term prospects of community banking.

H4: There is significant relationship between Cost per borrower (CPB) and financial sustainability of MFIs.

Hypothesis 5

In their 2002 study on the factors influencing financial sustainability, Woller and Schreiner discovered that productivity was a major factor in determining profitability.

H5: There is significant relationship between Prodvty and financial sustainability of MFIs.

1.5 Significance of the Study

This study intends to use an effective statistical approach to analyze the variables influencing the financial sustainability of microfinance in Nepal. The majority of research on this topic has been done in developing nations like Nepal. This study will help to solve the stated issue, which will be highly beneficial.

Since unsustainable microfinance can currently meet the needs of the poor but will eventually disappear, sustainability is crucial (schreiner, 2000). Therefore, the regulator and the management of the relevant MFIs may find this study to be useful.

This study can be useful for both educated people and MFI clients, who are primarily uneducated and underprivileged.

This study will assist various microfinance institutions in reconsidering their strategies to cope in order to learn more about the variables that impact the sustainability of MFIs. It will also assist in the selection of techniques that are suitable for sustaining a financially viable position that may survive for many more years. It will be helpful for regulators to determine the extent to which structural reforms are accountable for MFIs' sustainability-related decisions.

Since this subject is novel in the context of Nepal, the study makes a significant contribution to the field's body of knowledge. In turn, this enhances the health of the financial sector of the economy and society at large. The clients of the MFIs and the country's society as a whole are the study's primary benefactors, along with the regulatory agencies, academic personnel, and each MFI.

1.6 Limitations of the Research

The limitations of the research are as follows:

- The ratio of operating costs to total assets, debt to equity, debt to total assets, the natural logarithm of borrowers, the return on assets, and the natural logarithm of assets have all been considered in this study as factors affecting the sustainability of microfinance. Other factors like return on equity and firm development were not included in this study, because these variables are already investigated before.
- Due to recent microfinance company emergences and data availability issues, the study was unable to include all of Nepal's microfinance organizations. The regulator has not yet implemented publishing their yearly report on their website because microfinance is emerging in the setting of Nepal. Leading to a shortage of data availability, it has been difficult to include all MFI in the sample.
- Some scholars have utilized opportunity cost of money to compute the factors that define sustainability, however the researcher in this study was unable to use this model because it is unclear in what context opportunity cost of funds calculations should be made. The problem with this is that

what portion of funds should be considered and determined as extremely intense in determining sustainability, therefore this was not considered in these variables.

1.7 Structure of the Study

The study is divided into three primary sections: an introduction, a report's body, and a supporting section. The title page, authenticity declaration on the certificate, acknowledgement, table of contents, listing of figures, and executive summary make up the introductory portion. Five chapters make up the report's main body: introduction, linked literature and theoretical framework, research methodology, analysis and results and discussion, conclusion, and implications. Bibliography and an appendix are included in the report's closing part.

The background of the study, problem statement, research purpose, hypothesis, limitation, and study structure are all included in the introduction chapter within the body of the study.

The findings of earlier studies that are relevant to the current investigation are covered in the chapter on literature reviews. In order to lay the groundwork for the study, many research projects about the factors that influence the sustainability of microfinance are discussed. The chapter also includes a theoretical framework that defines each dependent and independent variable using research from earlier publications.

The third chapter outlines the study's research methods. It includes the population and sample, the sources of the research's data, the data analysis, and the many techniques adopted.

The study's analysis and findings are given in the fourth chapter. It consists of various tables and figures that are meant to address the study's purpose and research issue.

The discussion, conclusion, and application of the study are covered in the final chapter. Comparisons between the current study and prior findings are presented in the discussion section. Finally, a conclusion and an inference were formed.

The references and appendix that were used in the study are presented in the supplementary section.

CHAPTER II
RELATED LITERATURE AND THEORETICAL FRAMEWORK

This chapter's purpose is to review the research that other academics and researchers have done on the microfinance industry. An attempt is made to understand microfinance at the beginning. This also discusses the theories supporting the idea of sustainability and the elements affecting Nepal's microfinance industry's sustainability. Second, it offers empirical data that other researchers and writers have gathered to show what influences microfinance sustainability. The following list includes empirical evidence that has helped the field of research. Theoretical framework also distinguishes between dependent and independent factors. This chapter examines the body of writing on topics linked to the current research's question. A review of the variables impacting those variables has been done in order to increase theoretical and conceptual knowledge of the variables affecting the sustainability of microfinance.

2.1 Theoretical Review

Microfinance is the provision of financial services in the form of modest loans to the underprivileged in order to launch or grow their little businesses, which may raise their level of living by increasing their earning potential as well as empower women by giving them the ability to manage their own finances and reduce poverty. Poor business owners and low-income households without collateral or access to traditional bank loans can get micro-financing. Microfinance programs have been created with the goal of fostering the growth of microenterprises, as well as assisting existing businesses in expanding by diversifying their operations and addressing poverty among the poor in emerging nations. Poor people are not allowed to participate in official financial systems anywhere in the globe. In wealthier countries, exclusion can range from partial exclusion to complete exclusion, whereas in less developed ones, it might be almost completely complete (LDCs). The poor have created a wide range of informal, community-based financial arrangements because they lack access to official financial services. Over the past 20 years, an increasing number of formal sector institutions (non-governmental, federal, and commercial) have been created with the intention of fulfilling those same needs. The phrase "microfinance" now refers broadly to these official and informal structures that provide financial services

to the underprivileged although the words "microfinance" and "micro" technically imply "little credits," the concept of microfinance goes beyond giving the impoverished access to tiny amounts of credit (Kiru & Kenia, 2007). The primary characteristics of a microfinance institution that set it apart from other commercial institutions are that it serves as an alternative to formal credit, typically requires no collateral, and has members of the group who can lend money in an emergency, effectively targets the most underprivileged segments of the population, and, last but not least, has group intentions (Momba, 2013). Microfinance is defined as the delivery of banking services to low-income individuals and their small companies, including deposits, loans, payment services, money transfers, and insurance, by the Asian Development Bank (Manila) (Bank, 2000).

The concept of establishing new banks with social and economic purposes gave rise to the microfinance movement (De Aghion & Morduch, 2004). This broad term often refers to the availability of a set of economic services, including deposits, loans, payment services, wire transfers, and insurance to minimal households and their microbusinesses (Hanning &Katimba-Mugwanya, 2000; Hanning & Omar, 2000). In addition to financial mediation, many MFIs also offer social mediation services such group creation, confidence-building exercises, marketing training, financial literacy instruction, and managerial skills training. As a result, both financial and social mediation are frequently included in the concept of microfinance.

In other words, microfinance is more than just banking for the poor; it is also a strategy for development. Using data from the 1991–1992 survey, Ghatak (1999) compiles findings from numerous studies carried out in Bangladesh, highlighting three key microfinance initiatives, including the Garmeen Bank and Bangladesh Rural Advancement Committee (BRAC). Effect is assessed using a double-difference method comparing program and non-program villages, as well as between qualified and unqualified families, as was previously noted .The key finding, after accounting for other variables such as family characteristics, is that the program has a favorable impact on household consumption, with the effect being much bigger for female borrowers.

Meyer (2000) uses panel data to build on this prior research. He makes use of data from the same homes from the 1991–1992 survey from the BIDS World Bank survey,

which was completed in 1998–89. He uncovers what appear to be substantial and promising findings. When ladies, who make up the majority of the clients, tend to have a positive impact on consumption whereas borrowing by men seems to have no effect. According to this data, a 100 taka loan to a female consumer results in an increase in consumption of 10.5 taka (comparing to the preceding research' comparison of 18 taka).

Estimates of the effects of poverty take into account the influence of increased consumption. Engagement in microfinance programs is believed to have decreased severe poverty by about 18 percentage points and mild poverty by 8.5 percentage points among program participants over the course of seven years. Additionally, he discovers evidence of beneficial spillovers from non-participants in the program in the villages, with those living in extreme poverty seeing the most benefit. The results of the seven-year study show that programs reduce poverty for non-participants by 1 percentage points while reducing extreme poverty by approximately 5 percentage points. The sole cause of this effect is female borrowing.

The self-sustainability strategy focuses on less-poor customers who are on the periphery of the legal financial system. Like development initiatives, its effectiveness is determined by how well it broadens the frontier of the industrialized economy over time (Von Pischke, 1998). In the self-sustainability strategy, donations pay for startup costs and experiment funding aimed at identifying breakthroughs that lower the cost of supply to the point where long-term client revenue can cover costs.

2.1.1 Definition and scope of Microfinance

It appears that the definitions of microfinance institutions put out by several academics and organizations differ from one another. The definitions' core concepts, however, are typically the same. Small-scale financial services are provided through microfinance to low-income or unbanked individuals (Hartarska, 2005). Providing "a broad variety of financial services, including deposits, loans, payment services, money transfers, and insurance to the poor and low income households and their farm or non-farm micro-enterprises" is the focus of this article (Mwenda and Muuka, 2004, p.145). Microfinance as the provision of a wide array of financial services to low-income people and their microbusinesses, including deposits, loans, payment services,

money transfers, and insurance (ADB, 2000). Over 200 clients are thought to use microfinance, and much of this growth was made possible during periods of rapid expansion in the early 2000s when microfinance was seen as a crucial development necessity and its commercialization as a means of producing both financial and social benefits (World Bank Organization, 2017). The microfinance bank does not require applications, unlike commercial banks.

The formal registration of the firm, the provision of security, and the business's age are significant considerations when making a loan application. This makes it simpler for micro entrepreneurs, especially those who have been excluded, to obtain business financing from microfinance institutions and assists businesspeople in enhancing their performance (Casmir, 2014). Micro-finance arose with the intention of bridging the credit gap created by banks in extending loans to people and the growing number of micro, small, and medium-sized businesses during that time (Ogindo, 2006; Mbithe, 2013). Microfinance offers unsecured loans with group members serving as collateral, such that if one member defaults, the entire group is responsible for repaying the loan.

In reality, a several of microfinance banks provide socioeconomic intermediation services to low-income women and men, such as team building, consciousness building, teaching in money management, and managerial skills for group members (Ledgerwood, 1999). This means that in addition to granting low-income people access to finance, it is also necessary to build their skills and confidence. Microfinance organizations are thought of as a tool for MFIs efficiently complement the traditional banking sector in offering financial services to the disadvantaged, according to Basu et al. (2004). The justification for improving finance stems from the idea that empowering the poor and needy through the development of income-generating capacity enables them to access all development necessities in order to escape the complex facets of poverty and Reducing poverty by enhancing access to capital and financial services.

Microfinance's primary goal is to maintain and expand its assistance to the disadvantaged so that they can improve their level of living. Microfinance has been shown to be an important tool for promoting economic growth, preventing the effects of economic instability, and empowering women. Due to the fact that women are more likely to repay loans than males are, there is a strong focus on gender-related

issues, and because women are more concerned with the welfare of their families, investing in women has a "multiplier impact" that increases the efficiency of credit funds (Nadar, 2008). As a result, microfinance promotes business and provides a walking light for those who are poor and lack collateral.

2.1.2 Microfinance Institutions

There are two most debate in the field of microfinance as to whether MFIs should be minimalist and integrated.

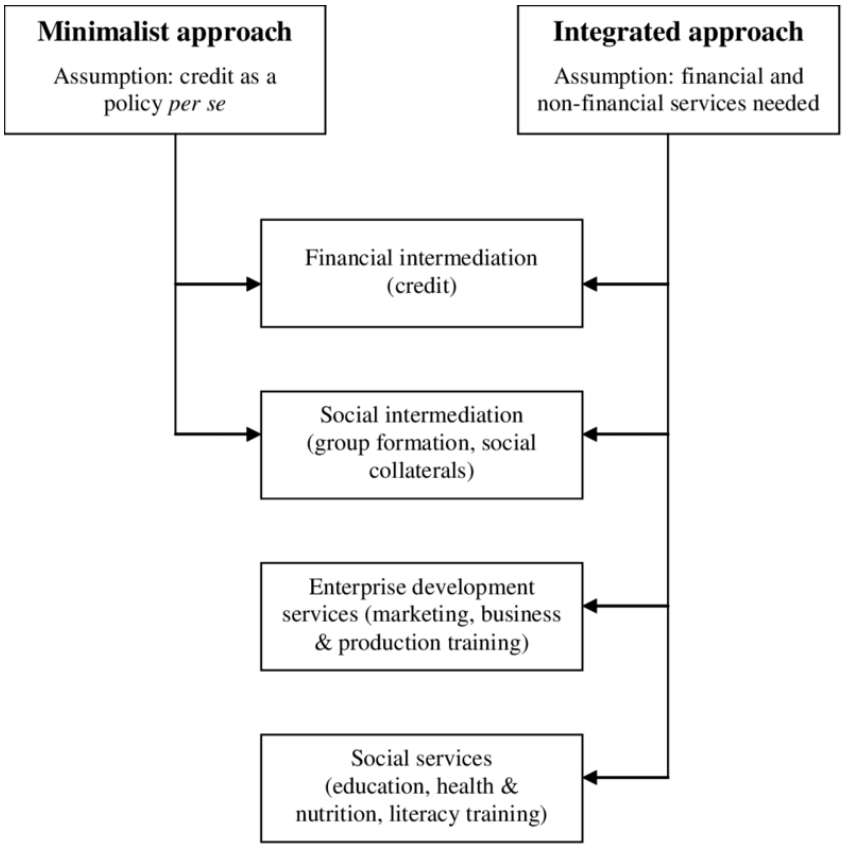

Figure 1: Minimalist and integrated approaches of microcredit (adapted from Ledgerwood 1999)

According to the minimalist perspective, low-income people's lack of access to credit is the only factor preventing them from generating revenue, and as a result, the provision of microcredit lending are seen as development tactics in itself. On the other side, the integrated approach highlights the significance of offering the poor not only credit but a variety of services focused on progress in order to combat the structural reasons of poverty. These non-financial services should often consist of courses, community-based initiatives for growth, company and capability development

training, etc. Operating expenses for the minimal strategy are, undoubtedly, far lower than those for integrated microcredit programs in terms of economic viability. While avoiding the expenditures of additional development-oriented services or policies, minimalist programs frequently use particular risk-management and Techniques for creditworthiness that require some social intervention through the use of lenders (Figure 1).

In different parts of the world, microfinance institutions utilize different loan lending models. There are some of the models mentioned on Scribd (2010). Some of them are:

- Grameen model

The Grameen Bank, a grass-roots organization founded in Bangladesh by professor Mohammed Yunus and dedicated to helping the underprivileged, is where the Garmeen model was born. It basically uses the methods described below:

A bank unit is established, covering a region of between 15 and 22 villages, with a Field Manager and a number of bank employees. The manager and staff begin by traveling to villages to become familiar with the community in which they would be working, identify potential clients, and inform the local populations about the goals, responsibilities, and method of operation of the bank. Five potential borrowers are gathered together, but only couple of them are granted loans in the first round. For a month, the club is scrutinized to see if the participants are abiding by the bank's rules. The other borrowers in the group are not eligible for loans until the first two borrowers have paid back the principle plus interest over a fifty-week period. Due to these limitations, there is intense peer pressure to maintain clean individual records. In this way, the group's joint duty acts as security for the loan.

- Credit Unions

A credit union is a special kind of self-help, member-driven economy entity. It is a group or organization created by and made up of members who have made an agreement to pool their funds and lend to one another at reasonable interest rates. A democratic, non-profit financial cooperative is a credit union. Each is owned and run by its members, who also elect the directors and committee members with a majority vote.

- Groups

The fundamental element of the Group Model is that individual flaws and weaknesses are addressed by the collective accountability and security provided by the establishment of groups of those persons. The grouping of people together serves a variety of functions, including peer pressure, collective bargaining power, education and awareness raising, and establishing collective awareness.

- Association

Those who are less fortunate in the intended community form organizations to offer themselves microcredit services (micro savings, micro - credit, micro - insurance, etc.).. The associations then collect funds and act as an intermediary between banks, MFIs, and their members. These associations may develop based on the gender, religion, or political and cultural views of their members.

- Bank Guarantees

A type of capital guarantees program is the bank guarantee. Guaranteed money can be applied to a variety of things, like insurance claims and loan recoveries. International guarantee funds are being developed by a number of UN and international organizations, and banks and NGOs can subscribe to these funds to provide loans or launch microcredit programs.

- Cooperatives

A co-operative is an autonomous group of people who have come together voluntarily to work for the same economic, social, and cultural goals through a company that is collectively owned and democratically run. Some cooperatives have member savings and funding as part of their mandate.

- Community Banking

Community banks and village banks are formalized forms of associations founded by individuals of the target community who want to raise their standard of living and create jobs. These banks aim to improve their communities by providing microfinance services.

- Individual

In this simple credit lending scheme, the borrower is granted a small loan directly. It excludes group formation and instigating peer pressure to secure payback. The individual approach is frequently a component of a larger "credit plus" program that also offers socioeconomic services including skill development, education, and outreach.

2.1.3 Sustainability of Microfinance

The primary aspect of microfinance sustainability is undoubtedly the financial sustainability of microfinance institutions. It refers to an MFI's capacity to finance all of its expenses out of its own operating income (Thapa et al., 1992), independent of outside assistance or financial support. Dunford (2003) further defines financial sustainability as the capacity to continue pursuing microfinance goals in the absence of ongoing donor funding. The ability to rely on self-operation is the main focus of these definitions. The definitions also suggest that the microfinance operations may generate a profit. Sustainability also means that individuals who are excluded from traditional financial services, such as the impoverished, have access to financial services, which has a direct and beneficial effect on reducing poverty through the usage of its high-quality services. Because most previous aid policies have failed, it is stated that microfinance cannot be dependent on outside assistance in order to be a vehicle for development (Ayayi & Sene, 2010). Therefore, microfinance must generate enough cash to support itself without relying on government assistance.

Operational sustainability and financial self-sufficiency are the two components of financial sustainability that may be measured. Operational sustainability, according to Meyer (2002), is the ability of the MFI to pay its operating expenses out of its operating income whether or not it is being subsidized. On the other end, when they can pay, MFIs are financially self-sufficient to pay their operational, financing, and other forms of subsidies out of their own sources of income. An MFI will not be regarded as financially sound if it is losing money (or performing poorly financially) in accordance with the definitions of financial sustainability provided above. Once more, a profit-making MFI whose competitiveness is determined after using supported resources or funds to settle for some of the operating costs will also not be recognized as fiscally viable.

Analysis of the viability of MFIs in general and microfinance in particular must take into account subsidy. The sustainability of the programs is a concern for academics and researchers because the majority of microfinance programs worldwide receive subsidies in various ways. Due to its greater emphasis on the social sector, Grameen Bank of Bangladesh, a front-line institution, may have a high lending rates but also depends on grants (Morduch, 2000).

According to a 2007 work by Peter, there is an insignificant correlation between an institution's ability to maintain its financial sustainability and the amount of subsidies it receives on a quarterly basis. The financial viability of the corresponding institution declines as the level of subsidy income increases. Subsidies, according to many, aid microfinance organizations in growing to the necessary operating size. However, as highlighted in numerous other studies, it's possible that as they acquire more support, these institutions are really performing worse.

Additionally, banks that receive more subsidies have larger scale loans that are due at higher levels. The fact that more funds and other support are going to microfinance companies that have already reached the level of operation required for their own continuous progress may be the cause of this result, which may be a reflection of the crowding out effect previously discussed. Similarly, Kereta (2007) discovered a link between dependency ratio and financial sustainability, and he goes on to explain that the decline in dependency ratio over time in the MFI sector is evidence that MFIs are capable of being self-sustaining, profitable, and fulfilling their social missions while also encouraging the sector to become financially self-sufficient.

In their report, Mersland and Storm (2007) stated that technology and good employee management through ongoing training play a crucial role in equipping MFIs with the demonstrated technical expertise in the microfinance area. To achieve financial sustainability, loan officers with the right training and incentives, including an effective bonus system, are essential. In the past, empirical data on the topic of whether or not outreach emphasizes or complements institutions' sustainability and profitability has provided conflicting results. Despite the majority of the data pointing to trade-offs between sustainability and profitability focused on outreach to the underprivileged, these prospective evidences point to a strong correlation between them (Kipesha & Zhang, 2013).

The microfinance movement aims to address the issues that prevent people with good ideas from being implemented because they lack collateral. The idea is that by utilizing novel new contracts, micro lenders can benefit financially while also helping those who are underserved. In the new world of microfinance, many institutions want to become completely profitable, independent organizations by avoiding subsidies for all but start-up costs. According to De Aghion and Morduch, the fundamental goal of microfinance is to establish a sustainable route for capital infusions from regular sector banks, charities, and authorities (2004). Various "informal sector" credit channels are cited by these authors, including intra-family loans, revolving saving and credit, and regional moneylenders.

Since the 1950s, millions of dollars in subsidies have been routed through state-run development banks with the goal of reaching the poor because it has long been recognized that the absence of formal financial institutions in rural economies is a barrier to development. However, the projects were poorly planned, financing was distributed based on political rather than humanitarian considerations, management was negligent, and payback rates dropped. Donors were persuaded by the Grameen Bank that lending to the poor might result in high payback rates and that lending organizations in rural areas could be protected from political intervention.

The benefit to the borrowers, according to Casmir (2014), in spite of these projects may generally provide a lower return, if they are productive, their revenue from such ventures can be quite significant. Tensions arise when the borrower does not fully bear the costs of failure (because of restricted liability). If a third, knowledgeable party doesn't force the borrowers to choose hazardous projects, In order to cover the additional risk, the bank will demand comparatively high interest rates.

There are two reasons, according to Dunford (2000)'s study, why micro lenders cannot solely rely on progressive lending. One of these reasons is that, threats to refuse to refinance clients become less potent when there are numerous micro lenders available since defaulting borrowers can always find another micro lender. One more issue is that as loan sizes grow, defaults become more and more appealing, particularly if there is a clear expiration date for the relationship between the micro lender and the borrower.

2.2 Empirical Review

Dehejia et al. (2005) shown in their research that the poor's desire for loans is not inelastic. MFIs may find it difficult to assist potential customers who are poorer because to the high interest rates charged. Competition and emphasis on financial sustainability are being promoted by donor agencies, local governments, and others as means to maximize the scope of outreach (De Aghion & Morduch, 2004). Theoretical justifications for what must be done to increase the sustainability and reach of MFIs abound in the microfinance literature. According to Rhyne and Otero (1992), MFIs must have considerable sustainability and outreach in order to succeed. The commercialization and change of microfinance, which have had strong linkages to regulations, have been included in the argument (Ledgerwood & White, 2006). There were numerous discussions on whether or not to regulate MFIs from the late 1990s to the early 2000s (CGAP, 2004). What effect does financial regulation of MFIs have on their viability and outreach is a crucial topic in this context that needs an answer.

The amount of low-income people a microfinance institution serves is referred to as the breadth of outreach (Hishigsurem, 2004). The number of borrowers has been used in many studies as a proxy for the reach of microfinance (Ganka, 2010); Mersland and Strom, 2009; Harmes et al., 2008). It is usually believed that the outreach will be more effective the more borrowers there are. On the other hand, Ganka (2010) reveals an insignificant and substantial association between breadth of outreach and financial viability. LOGOTRI (2006) revealed that a bigger number of borrowers was the biggest sustainability indicator. The conclusion reached by Ganka is that an increase in the number of borrowers does not by itself improve the financial viability of microfinance businesses. Increased inefficiency brought on by an increase of debtors may be the cause. However, according to Hartarska (2005), the quantity of borrowers had no noticeable influence on the viability of the financial system.

Without the poor, the purported MFI is no longer distinct from a bank, claim Hulme and Musley (1996). They contend that outreach should be evaluated based on the proportion of low-income clients rather than just the total number of customer. Furthermore, according to Ledgerwood (1999), the number of customers or borrowers used to gauge outreach only takes into account the total number of clients served by different MFI products, not their relative level of poverty. Therefore, the average loan amount is used as a potential determinant of the depth of outreach given the

proportional degree of poverty. Smaller loans indicate borrowers who are less wealthy (Mersland and Strom, 2009; Cull et al., 2007).They counter that the proportionate number of the poorest borrowers with tiny loan sizes is not taken into account when calculating average loan size. Additionally, the majority of microfinance customers can be averagely in or out of poverty with relatively big loan amount, which might easily affect the calculated average loan size value.

Woller and Schreiner (2002) found a complex association between the breadth of outreach and financial self-sustainability. In their research, they discovered a link between financial self-sustainability and the breadth of outreach. The findings of Woller and Schreiner provide data that refutes the widely held idea that small loans are extremely dangerous and are linked to less stable financial situations. Additionally, according to Cull et al. (2007), lending institutions that make smaller loans are not less profitable than lending institutions that make larger loans, and Paxton (2003)'s study supports the existence of a negative correlation between the depth of outreach and the subsidy dependency index. This demonstrates that profitability and scope of outreach have a beneficial relationship. Contrary to what was stated earlier, Hulme and Musley (1996) claim that providing small amount of loans to the underprivileged and those who are generally difficult to reach is intrinsically expensive.

Researchers suggest that self-sufficiency will ensure the long-term viability of MFI operations and enable them to provide financial services to large populations of the poor. This, in turn, will increase the depth and breadth of outreach, which will suggest that MFIs will scale up and then lower transaction costs, minimize risk, and increase the likelihood that they will be able to help the poor (Nurmakhanova, Kretzschmar, &Fedhila, 2015). Therefore, we may conclude that pursuing financial sustainability does not contradict or call into question existence, which is also microfinance's primary goal, which is to provide financial services to the underprivileged.

The interplay of different financing sources may have an impact on the sustainability of microfinance institutions in terms of profitability. Loans, savings, deposits, and shares are some of the different sources (Woller and Schreiner, 2002). To clarify if the capital structure affects the sustainability of microfinance institutions, several studies have been carried out. For instance, Kyereboah (2007) discovered that highly leveraged microfinance institutions are better equipped than their counterparts with

lower leverage ratios to deal with moral hazard and adverse selection. Furthermore, according to Ganka (2010), having several sources of capital does not increase financial sustainability, even though how the capital has been structured has an impact on it. Ganka noted that equity is a significantly less expensive source of funding, which enhances financial sustainability.

The most efficient method of providing small loans to the extremely poor in the context of microfinance is through efficiency, which is defined as the capacity to produce the highest output at a given amount of input (Woller, 2000). This entails minimizing expenses and maximizing revenue at a particular level of operation, and it has a long-term effect on the financial viability of microfinance institutions. Therefore, productivity (such as the number of borrowers per employee) and controlling costs (such as the cost per borrower) characteristics can be used to quantify efficiency.

According to a study by Woller (2000) on the financial stability of community banking to review the previous results and Potential for village banking in the coming years, the variables with the highest correlation to financial sustainability were determined to be the number of clients and the cost per clients. Productivity was proven to be a significant contributor of profitability in a later study by Woller and Schreiner (2002) of the factors influencing financial sustainability. Furthermore, a recent study on rural microfinance in Tanzania by Ganka (2010) discovered a conflicting and highly statistically remarkable association between the number of borrowers per staff and long-term financial viability. He defended this by claiming that rural MFI employees are ineffective at managing borrowers when their numbers increase, which leads to the unviability of the institutions. Christen et al. (1995), on the other hand, found no connection between production and financial sustainability. Additionally, Ganka (2010) found no statistically significant link between cost per borrower and the ability to sustain one's finances.

The primary aspect of microfinance sustainability is undoubtedly the financial sustainability of microfinance institutions. It describes MFIs' capacity to pay all of their operating expenses out of the money they create on their own, independently of any outside assistance or subsidies (Thapa, Chalmers, Taylor & Conroy, 1992). Dunford (2000) further defines financial sustainability as the capacity to continue pursuing microfinance goals in the absence of ongoing donor funding. The ability to

rely on self-operation is the main focus of these definitions. The term also suggests that microfinance operations may be profitable. Operational self-sustainability and financial self-sustainability are two areas under sustainability.

2.2.1 Financial self- sufficiency (FSS)

Meyer (2002) argues that MFIs are financially self-sufficient when they are able to pay all of their operating, financing, and other forms of subsidies out of their own created income. An MFI that is losing money (or performing poorly financially) will not be regarded as financially sustainable in accordance with the definitions of financial sustainability provided above. Once more, a profit-making MFI whose profitability is judged after covering some of the operational costs with subventions or grants will likewise not be viewed as having a financially stable future. Once again, a revenue generating MFI whose profitability is determined after paying for portion of the operational cost with supported resources or money will also not be recognized as financially sustainable.

According to Norwa and Emeka (2012), the high rate of loan default among SMEs has major ramifications for microfinance institutions. To ascertain the effect of clients on the sustainability of microfinance, the researchers gathered data using the questionnaire approach from 85 enterprises in Nigeria. Similar to this, Kind (2012) conducted study in Ethiopia using a sample of 14 MFIs and data gathered from 2002 to 2010. The researcher found that the breadth, depth, dependency ratio, and cost per borrower of microfinance had an impact on the financial viability of Ethiopian microfinance institutions.

According to Rai and Rai (2012), self-sustainability is significantly influenced by the borrower's size, the MFIs' age, the debt-to-equity ratio, the capital-to-assets ratio, and the return on equity. In order to determine if the results are consistent or not, the research was conducted over two distinct time periods. The years involved were 2005–2006 and 2009–2010. There were 26 samples collected from Bangladesh and India, two distinct nations, and the results were unexpectedly identical in both.

Nurmakhanova, Kretzschmar, and Hassouna (2015) concluded that financial sustainability has no bearing on the breadth and depth of outreach using 450 data points from 450 global MFIs collected between 2006 and 2008. The size of the borrowers and the depositor-borrower ratio, according to Schafer and Fukasawa

(2011), were determined to be significant factors in determining the sustainability of MFIs throughout the same time period. To determine if the element impacting sustainability has the same effect on results or not, sample data from two separate years were obtained. And the outcome was the same. A total of 1000 samples were collected from around the world, of which 500 samples were from 2006 and the same firms were chosen for 2008.

Table 2.1

Summary of empirical studies on Factors affecting financial Sustainability

S.N	Researchers and Date	Major findings
1	Trong Vi Ngo, Andrew W. Muineux and Anh Hoang LY (1994)	Large MFIs can increase their productivity, profitability, sustainability, and reach (breadth and depth)
2	LOGOTRI (2006)	The greatest stability element was shown to be the rising quantity of borrowers.
3	Ganka (2010)	Reveals a negative and substantial association between breadth of outreach and financial sustainability, also found out that equity is relatively cheaper source of funding.
4	Hartarska (2005)	The article finds no significant impact of number of borrower on sustainability
5	Mersland and Strom (2009)	Make the case that the average loan size does not accurately reflect the situation of the poorest borrower..
6	Woller and Schreiner (2002)	Found out that small loans are not dangerous and are linked to stable financial situations. Also, later productivity was found to be a significant contributor of sustainability
7	Paxton (2003)	According to research, there is an unfavorable association between the subsidy dependency index and the breadth of outreach.
8	Nurmakhanova, Kretzschmar, &Fedhila, (2015)	Financial Sustainability does not have any impact on depth and breadth of outreach.
9	Woller (2000)	The highest correlation to financial sustainability were determined to be the number of borrowers and the cost per borrower
10	Bayeh Asnakew Kinde (2012)	The financial viability of Ethiopian microfinance institutions is impacted by the breadth, depth, and cost per borrower of microfinance.
11	Anand k. Rai and Sandhya Rai (2012)	Self- sustainability is positively dependent on borrower's size, age of MFIs, Debt Equity ratio, Capital Assets ratio, and ROE.
12	Schafer and Fukasawa (2011)	Size of the borrowers, depositor-borrower ratio were found to be an important factor in determining the MFIs sustainability

2.3 Research Gap and Theoretical Framework

There hasn't been any research on this subject because microfinance is still a relatively new concept in developing nations like Nepal. However, in other nations like Bangladesh, India, and other nations, this subject is a hot one in the microfinance industry. The empirical study demonstrates that there is no one single component that determines the actual factors affecting MFIs' ability to sustain their financial viability in the modern world.

Numerous research, as mentioned above in the literature review, demonstrate that operating and financial self-sustainability are just two indicators that determine sustainability. Only microfinance organizations are required to raise the standard of living for the impoverished (CGAP, 2004). These institutions must also be maintained because microfinance significantly raises the standard of living for its citizens in our nation, which is also a developing nation.

The Nepal Rastra Bank (NRB), the country's top banking and financial institution regulator, works to ensure that all financial institutions are fully equipped to assist the underprivileged. Even to those who, due to their social standing, are unable to access financial services? Microfinance may significantly contribute to the empowerment of women in this position, who are regarded as the foundation of every family. In order to ensure that women have access to competent financial services, microloans must also be maintained. Consequently, it was vital to conduct this investigation. According to studies like those by Nyamsogoro (2010) and Ayayi & Sene (2010), outreach is crucial for maintaining microfinance. However, outreach is not enough to ensure the long-term viability of microfinance. To comprehend the elements affecting their financial viability, numerous additional factors are taken into account. Other characteristics, such as Depth of outreach (DOUTCH), Breadth of outreach (BOUTCH), Dependency Ratio (DE), Cost per Borrower (CPB), and Productivity (PROVDTY), are also thought to have an impact on the financial sustainability of MFIs in developing nations, according to research by Kinde (2012).

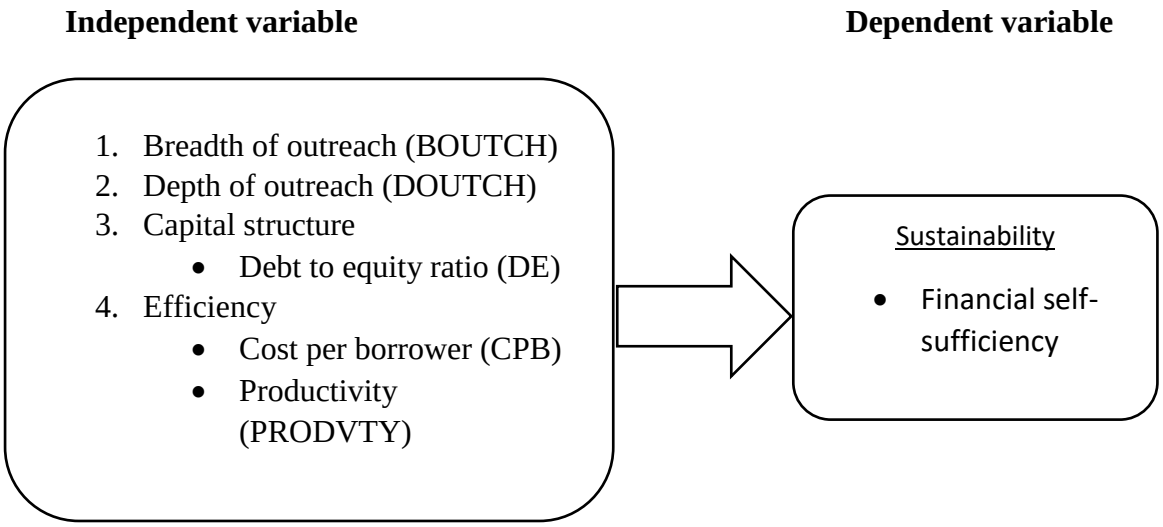

Figure 2.2. Theoretical Framework

Dependent variable

The main parts of the study are microfinance institutions. The participation of sample MFIs is crucial in determining the variables influencing the financial sustainability of MFIs in Nepal, which is assessed with the aid of the institution's OSS.

- **Financial Self- Sufficiency (FSS)**

Financial self-sufficiency (FSS) is necessary for microfinance institutions (MFIs) to reach and benefit a sizable portion of the poorest households for those living in the bottom 50% of poverty in addition to providing financial services for poverty reduction, according to Gibbons and Meechan (1999). According to Christen et al (1995), international organizations or charitable organizations, an MFI's FSS shows its "ability to function at a level of profitability that supports continued service delivery with little to no dependence on donor inputs."

FSS= Operating Revenue/ (Financial Expenses + loan –loss provision expense+ operating expense)

Independent Variables

Breadth of outreach, depth of outreach, depth to equity ratio, cost per borrower and productivity are taken as the independent variable.

1. **Breadth of outreach (BOUTCH):** It is determined by the number of borrowers a microfinance institution serves. Increasing the amount of sales as the number of clients grows is one way to enhance profitability.

2. **Depth of outreach (DOUTCH):** The size of the average loan reveals the breadth of outreach. The average outstanding loan balance is a proxy's measure of a client's socioeconomic condition.

3. **Capital Structure (DE):** It represent debt financing scheme of MFIs in Nepal

    a. **Debt to Equity ratio:** This suggests that MFIs' primary loan financing strategy in Nepal. The ratio of debt to equity is represented here by the variable.

4. **Efficiency:** Efficiency is defined as the maximum output at a given level of input; cost per borrower and productivity are used to quantify efficiency.

    a. **Cost per borrower (CPB):** CPB is required to detail how efficiency helps to lower various cost-per-borrower components, such as administrative costs, financial costs, and staff-related personal expenses.
    b. **Productivity (Prodvty):** By dividing the number of borrowers by the number of staff members, productivity is employed as a proxy for efficiency.

CHAPTER III
RESEARCH METHODS

The study's methodology is described in this chapter. There are five sections in this study. The research that was employed in this study is described in the first section. The type and source of the data are covered in the second part. The demographic, sample, and MFIs chosen for the study are all described in the third part. In a similar manner, the fourth section discusses the analysis' method, which includes empirical models. The variables and their measurements are explained in the fifth section.

3.1 Research Design

This study is quantitative in nature and has made use of secondary data. The features of the variables utilized in this study are described using a descriptive research design, which also uses the data to make it more manageable. In this investigation, relevant data including historical financial statements with a balance sheet and a profit & loss account were employed. The objective of the research project is to investigate the factors influencing the financial viability of MFIs in Nepal. The study has used descriptive, correlation, and other statistical approaches to accomplish the goal. Thus, secondary data were used to fulfill the study panel's requirements.

3.2 Population and sample

There are 67 microfinance firms registered with the NRB in Nepal, of which 16 have merged, 33 have nationwide coverage, and the remaining 18 are district-level organizations (NRB, 2020). 13 national MFIs were chosen among the companies using purposive sampling. Only those microfinances that haven't merged or been around since before 2016 were chosen. For the study, five-year and one-year observations are made.

3.3 Nature and Source of Data

The study is based on secondary data, and the relevant data and information were taken from yearly reports from a selected MFIs that cover various time periods. 13 MFIs are used in the study as the population to examine the relationships between the various variables. The sample was chosen by taking into account the established date,

which is before mid-2016 AD and includes a 5-year period from 2015–16 to 2019–2020. Only latest five year data is undertaken for the study, in order to know their financial situation.

3.4 Data Collection Technique

The precise parameters influencing the financial sustainability of MFIs in Nepal have been identified using secondary data that has been gathered and evaluated from many angles. Appropriate tables have been instructed with pertinent data. With the use of numerous statistical as well as financial instruments, it is helpful to draw a conclusion from the data that is accessible.

Table 3.1

Selection of MFIs, period of study, and Number of observations

S.N.	Name of MFI	Study period	Observation (in yrs.)
1	Nirdhan Uthan Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
2	Deprose Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
3	Chhimek Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
4	Swabalambhan Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
5	Nerude Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
6	Sworojagar Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
7	Mirmire Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
8	Laxmi Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
9	Vijaya Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
10	NMB Laghubitta Bitiya Sanstha Ltd.	2015/16 to 2019/2020	5
11	Forward Microfinance	2015/16 to 2019/2020	5
12	Mero Microfinance	2015/16 to 2019/2020	5
13	NADEP	2015/16 to 2019/2020	5

i. The observation period is divided into two parts, Model A and Model B
ii. Model A contains five year observation period from 2016 to 2020
iii. Model B contains first year observation period i.e., 2016 only.

3.5 Data Analysis Tools and Models

In order to analyze the data, the study used tools like descriptive statistics, correlation, the Hausman Test, and panel data regression analysis. The Statistical Package for Social Science (SPSS), MS Excel, and E-Views software were used in the study for the data analysis.

3.5.1 Descriptive Statistics

To explain the variables during the sample period, the study used a summary of the descriptive statistics relating to the dependent and explanatory variables of the sample. The determination of the sustainability of samples over the various study periods has been described using descriptive analysis tools like mean, median, standard deviation, minimum and maximum values of various variables like operating expenses to total assets, ROA, CPB, number of borrowers to staff members, etc.

3.5.2 Correlation Analysis

Additionally, correlation analysis was used in the causal comparative research design of this study. Correlation analysis has mostly been used in this study to determine the nature and strength of relationships between various pairs of dependent variables and explanatory variables. It displays the changes in two variables' relationships. Bivariate analysis has been used to explain the association. Two variables are said to have complete negative correlation when their Pearson correlation coefficient is exactly -1 and they move together precisely in opposing directions. On the other side, the variable is said to be entirely positively connected if the correlation coefficient is +1.

3.5.3 Panel Data Regression

Regression using panel data has been used for inferential statistics. The SPSS (Statistical Package for the Social Science) program was utilized in the study to assist with the analysis. In order to assess whether the study had a random effect or a fixed impact while analyzing the data inferred for analysis, the Hausman test was applied. In a regression model, the Hausman Test (also known as the Hausman specification test) can identify endogenous regressors, or predictor variables. The values of endogenous variables are influenced by other variables in the system. Ordinary least

squares estimators will not work in the presence of endogenous regressors since one of their basic premises is that there is no correlation between the predicator variable and the error term. Multiple regression analysis is performed after the Hausman test, and it entails determining the optimal straight-line relationship to describe how the variation in a predictor (or independent or explanatory) variable, X, depends on the variation in an outcome (or dependent) variable, Y. Each model's regression equation is the same. Only by including a sample in the results can there be a difference in the results. These are the regression equations:

$$FSS_{i,t} = \beta 0 + \beta 1\, BOUTCH_{i,t} + \beta 2\ DOUTCH_{i,t} + \beta 3\ DE_{i,t} + \beta 4\ CPB_{i,t} + \beta 5\ PRODVTY_{i,t} + \varepsilon_{i,t}$$

Were,

$OSS_{i,t}$ = ratio of operating expenses to total assets for firm *i* in period *t*

$FSS_{i,t}$ = ratio of total revenue to adjusted expense for firm *i* in period *t*

$\beta 1\ BOUTCH_{i,t}$ = log of number of borrowers for firm *i* in period *t*

$\beta 2\ DOUTCH_{i,t}$ = average loan size for firm *i* in period *t*

$\beta 3\ DE_{i,t}$ = Debt to equity for firm *i* in period *t*

$\beta 4\ CPB_{i,t}$ = cost per borrower for firm *i* in period *t*

$\beta 5\ PRODVTY_{i,t}$ = borrowers per staff member for firm *i* in period *t*

$\varepsilon_{i,t}$ = The error term.

CHAPTER IV
ANALYSIS AND RESULTS

The findings of the statistical analysis of the data are presented and explained in this chapter. It offers a systematic presentation and analysis of secondary data to address a number of issues related to the factors that influence the financial viability of MFIs in Nepal. In order to uncover the factors that determine sustainability, the research presents descriptive statistics, multiple regression, and Pearson correlation of various MFI in Nepal. This chapter's primary goal is to outline the factors that influence microfinance sustainability in underdeveloped nations like Nepal. Data from the past five and one years have been used for the analysis.

4.1 Descriptive Analysis

Table 4.1 displays all of the descriptive statistics for the independent and dependent variables. The table shows the arithmetic means, standard deviation, lowest and maximum values for each variable.

Model A

Table 4.1

Descriptive statistics for dependent and Independent Variable

Variables	Mean	Std. deviation	Minimum	Maximum
FSS	0.59	0.92	0.02	7.59
BOUTCH	11.19	0.78	9.49	12.47
DOUTCH	77.11	23.93	42.54	145.61
DE	18.30	6.372	6.18	40.79
CPB	569093.95	506694.20	39350.67	2068460.37
Prodvty	180.35	67.01	75.38	396.06

Were,

FSS = Financial Self Sustainability

BOUTCH = Breadth of outreach

DOUTCH = Depth of outreach

DE = Debt to equity ratio

Prodvty = Productivity

Table 4.1 provides descriptive statistics for the variables used in the financial sustainability analysis, including their means, standard deviations, minimum and maximum values for 13 MFIs from 2016 to 2020.

A MFI's capacity to cover all of its operational expenses and capital costs without relying on supported fund is measured by its financial sustainability (FSS). Financial sustainability is indicated by the mean FSS of 0.5943 (or 59.43 percent), as seen in table 4.1. As evidence of the variability in the sustainability of the microfinance institutions under study, the standard deviation for this measure is very large (0.9246).

The mean breadth of outreach (BOUTCH) is expressed as a natural logarithm of the number of borrowers. The average number of BOUTCH is 11.192, demonstrating the range of services offered to the disadvantaged. The fact that the standard deviation is lower than the mean value also shows that some MFIs in Nepal have a wider range of clients.

The size of the average loan reflects the breadth of outreach (DOUTCH). To gauge a client's financial situation, the average loan sums of outstanding loans are employed as an indicator. Here, the average outstanding loan is calculated by dividing the total number of borrowers by the outstanding client loan. However, the median value for this variable is 77.117, which, according to the MIX Benchmark methodology, represents a poor level of outreach (average loan size: USD 150). Serving clients who are comparatively not poor is indicated by the highest average loan size of 145.619.

When the DE ratio is taken into account, the average value is 18.30, which suggests that the MFI has 18 times as much debt as it does capital to pay it off. Lowest debt means that MFI takes on debt to the smallest extent that its capital can support.

The cost per borrower (CPB) is a way of describing how efficiency helps to lower the cost per borrower's two main components, administrative and financial costs. By dividing administrative, financial, and staff costs by the total number of borrowers, it is possible to calculate the cost per borrower in this case. Effective institutions reduce the cost of providing services. Several methods can be used to determine an MFI's efficiency; in this study, costs per borrower are examined as a measure of efficiency.

In this study, the mean cost per borrower is 569093 and the maximum cost per borrower is 2068460. According to reporting African MFIs, the average cost per borrower is USD 72, which is more expensive than MFIs in other parts of the world (Anne-Lucie et al.., 2005). According to Anne-Lucie et al. (2005), East African MFIs are extremely effective in the broadest sense within Africa because they only spend USD 58 per borrower. Unlike MFIs in the Indian Ocean region, however pay the most to sustain each loan, at more than USD 240. The aforementioned information demonstrates that Nepalese MFIs are ineffective at reducing the cost of providing services to the clients. However, there may be some restrictions when comparing the effectiveness of microfinance institutions across nations because it has been documented that country impacts, such as operational and regulatory frameworks, have an impact on their effectiveness (Harmes et al.., 2008; Balkenhol, 2007).

Borrower per employee was the productivity metric employed in this study. The ratio of borrowers to staff members is used to calculate it. In the event that all other factors remained constant, the MFI staff's ability to manage a greater number of borrowers would demonstrate efficiency.

According to the descriptive statistics, there are 180.35 borrowers on average per employee in Nepalese MFIs. There are 75.38 and 396.067 borrowers per employee, respectively. In comparison to the global average of 139 borrowers per staff member, MFIs in Africa are among the most productive in terms of the number of borrowers (143) per staff member, according to Anne-Lucie et al. (2005). As a result, it shows that the Nepalese MFIs' staff is more effective when serving loan clients, which is more time-consuming and expensive because it necessitates the procedure of interviews and site inspections before the loan can be granted.

4.2 Inferential Analysis

Due consideration was given to protecting against data being normal before running the regression. A probable relationship between dependent variables and independent factors is carefully examined in this section.

4.2.1 Correlation Analysis

The statistical technique of correlation analysis assesses the strength of a connection between two continuously observed numerical variables (e.g. height and weight). When a researcher wishes to determine whether there may be connections between variables, this particular form of analysis is helpful. The Pearson Correlation Coefficient is used to evaluate the hypothesis and draw conclusions.

Table 4.2

Pearson correlation Matrix analysis

		FSS	BOUTCH	DOUTCH	DE	CPB	Prodvty
BOUTCH	Pearson Correlation	.310*	1				
	Sig. (2-tailed)	.012					
DOUTCH	Pearson Correlation	.138	.134	1			
	Sig. (2-tailed)	.273	.288				
DE	Pearson Correlation	.013	.317*	-.107	1		
	Sig. (2-tailed)	.921	.010	.396			
CPB	Pearson Correlation	.286*	.861**	.255*	.245*	1	
	Sig. (2-tailed)	.021	.000	.040	.050		
Prodvty	Pearson Correlation	.156	.780**	-.097	.336**	.649**	1
	Sig. (2-tailed)	.215	.000	.442	.006	.000	

*Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

As seen in the table, FSS and BOUTCH and CPB have substantial and positive relationships, with coefficients of 0.31 and 0.28, respectively. When the number of borrowers is expressed as a natural logarithm, as is the case with BOUTCH, it is clear that as the number of borrowers rises, so does the volume of sales, which is one way to maximize profitability and ultimately ensure long-term financial stability. BOUTCH is significant with FSS at a 5% level of significance.

Similar to FSS, DOUTCH, and DE, CPB, which measures cost management dimensions such as (financial expense and personnel expenses), has a positive and significant link with each of them at a 5% level of significance, as well as a 1% level of significance with BOUTCH. It illustrates how CPB enhances financial sustainability while lowering costs.

FSS claims that DOUTCH has nothing to do with Nepal's sustainability. This demonstrates that the average balance of outstanding loans (DOUTCH) has little bearing on whether microfinance in underdeveloped nations like Nepal is sustainable.

FSS indicates that DE and BOUTCH have a positive and significant connection at the 5% level of significance with a coefficient of 0.31. It demonstrates that there is a positive influence on the sustainability of microfinance with an increase in the DE ratio, and that this benefit is adversely connected with DOUTCH and unrelated to FSS.

Similar to PRODVTY, It has a strong and significant association with BOUTCH, DE, and CPB at the 1% level of significance. PRODVTY is calculated by dividing the number of borrowers by the number of staff employees. It shows how the financial sustainability increases with an increase in the number of borrowers per employee. On the other hand, it does not correlate with FSS and has a negative correlation with DOUTCH.

4.3 Regression Analysis (Model A)

Hausman Test

A formal test known as the Hausman test, which is based on the null hypothesis in favor of the estimator for the random effect model, is used to decide between the fixed and random effects models. Random effects are preferred if the p value is greater than 0.05 (i.e., it is unimportant), whereas fixed effects are preferred if the p value is less than 0.005 (i.e., it is significant) (Gujarati, 2004). A statistical hypothesis in econometrics known as the Hausman test is named after James Durban, De-Min Wu, and Jerry A. Hausman. It helps in examining whether a statistical model matches the data. In panel data, the Hausman test can be used to distinguish between fixed effect and random effect models. The hypothesis for Hausman test is:

Ho: Random effect model is appropriate

H1: Fixed effect model is appropriate

Table 4.3

Correlation Random Effects – Hausman Test

Test Period random effects for OSS for Model A

Test Summary	Chi-Sq Statistics	Chi-Sq. df	Prob.
Period random	15.478318	5	0.0085

We reject the null hypothesis and accept the alternative hypothesis since the Prob-values are less than 5%. Therefore, the Fixed Effect model is the best suitable model for the hypothesis testing in this study. This indicates that the F SS depends more on the time component than the grouping.

Effects of BOUTCH, DOUTCH, DE CPB, Prodvty on FSS

The study's econometric analysis findings on the variables that influence Nepal's microfinance institutions' ability to sustain their financial viability are presented in this section.

The beta coefficient, which shows how much each variable influences the dependent variable, may be negative or positive for the following regression's results. The P-value identifies the percentage or degree of precession at which each variable is significant. R-square values are used to measure a model's explanatory power, and in this study, R-square values were derived to assess the models' explanatory abilities.

The operational panel regression model used to determine whether there is a favorable or unfavorable relationship with statistically significant factors affecting the sustainability of microfinance as measured by FSS is:

$$FSS_{i,t} = \beta 0 + \beta 1\, BOUTCH_{i,t} + \beta 2\ DOUTCH_{i,t} + \beta 3\ DE_{i,t} + \beta 4\ CPB_{i,t} + \beta 5\ PRODVTY_{i,t} + \varepsilon_{i,t}$$

Table 4.4

Regression Results of FSS

Variables	Coefficient	Std.Error	t-statistics	Prob
BOUTCH	4.028172	8.232262	0.489315	0.6270
DOUTCH	1.047684	0.489215	2.141559	0.0377**
DE	-0.191519	0.411761	-0.465122	0.6441
CPB	-0.861157	0.333651	-2.581010	0.0100*
Prodvty	1.075014	0.802595	1.339423	0.1872

Coefficient estimates are significant at the 1% (**) and 5% (*) level.

Notes: R-Square = 0.6508; Adjusted R-Square = 0.5034; F-statistics = 4.4149;

Prob F- Statistics = 0.0000

Table 4.4 shows the outcomes of financial self-sustainability as the dependent variable, and depth equity, breadth outreach, cost per borrower, and productivity as the independent variables for microfinance in Nepal.

The R2 value of the regression model indicates that the independent variable, or 0.650, can account for 65% of the variance in the dependent variables. Which means that 65% of the variations in FSS can be accounted for by changes in BOUTCH, DOUTCH, DE, CPB, and Productivity. This suggests that the independent variables in the model cannot account for 35% of the changes in the dependent variable. The significance level of F-probability, which is 0.0000 and significant at 1%, indicates that independent variables and FSS are significantly correlated. Regression fits the data if the sig is less than 0.00, and the F statistic is 4.4149. Even at a 1% level of significance, the null hypothesis should be rejected, according to F-statistics related to test statistics.

The natural logarithm of the number of borrowers serves as the basis for measuring the breadth of outreach (BOUTCH). The number of customers that measure (BOUGHT) increases the financial viability of microfinance organizations. The econometric findings for this variable show a negative correlation between the number of borrowers and the financial sustainability of the MFI. The rise in inefficiency is brought on by an increase in the number of borrowers, according to

Ganka's (2010) analysis on the relationship between the number of borrowers and financial sustainability. Contrary to what this research suggests, Kereta (2007) affirms that financial sustainability and outreach go hand in hand. This is due to the fact that when customer numbers increase, MFIs gain from economies of scale and may reduce costs, benefiting in their own financial sustainability.

The average loan size estimates the breadth of outreach as well (DOUTCH). To determine a client's socioeconomic status, proxy measures such as the average balance of outstanding loans are employed. By dividing the overall number of borrowers by the entire amount of loans outstanding, it is determined. At a level of 5%, the average loan size's coefficient is statistically significant and positive. This suggests that bigger loan amounts are related with better microfinance profitability since larger loans are linked to improved profitability and cost effectiveness. The results support the mission drift in which MFIs serve primarily affluent consumers. The findings support the assertions made by Ganka (2010) and Adongo and Stork (2006) that offering larger loans is more profitable.

The ratio of debt to equity is shown here via the capital structure (DE) variable. The econometric research' findings show that the Variable has a detrimental but statistically insignificant impact on financial sustainability. This shows that the capital structure of microfinance does not support their ability to be financially solvent. ; hence, the negative coefficient shows that a 1-point rise in the DE ratio will result in a 0.0001-point fall in FSS.

The impact of cost per borrower (CPB) on the viability of Nepal's microfinance institutions was also examined in the study. According to the analysis's findings, microfinance institutions' ability to remain financially viable is compromised by the rise in cost per borrower. At the 1% level, this variable's negative coefficient is statistically significant.

By dividing the number of loan officers on staff by the number of active borrowers, one may calculate productivity (Prodvty) (CGAP, 2003). However, because certain loan officer responsibilities overlap with those of other microfinance workers, By dividing the total number of borrowers by the total number of employees, productivity can be estimated.. It is referred to as employee productivity. If everything remained

the same, the efficiency of microfinance in employing its staff would be indicated by the increased number of borrowers per employee.

Econometric analysis for (prodvty) reveals a positive relationship between the number of debtors per employee and the stability of the financial situation, however this relationship is not significant at the 10% level. The increased number of borrowers per employee boosts the financial viability of MFIs in Nepal, according to the positive coefficient of this variable, even though the effect was not significant.

4.4 Descriptive Analysis (Model B)

Table 4.5 provides an overview of the descriptive statistics for each independent and dependent variable. Arithmetic means, standard deviation, minimum and maximum for all the variables are presented on the table. Model B represent the one year data for observation.

Table 4.5

Descriptive statistics for dependent and Explanatory Variable for model B

Variables	Mean	Std. deviation	Minimum	Maximum
FSS	0.61	0.34	0.19	1.47
BOUTCH	10.91	0.96	9.49	12.34
DOUTCH	53.01	5.77	42.54	61.62
DE	18.47	7.49	6.18	34.32
CPB	302135.13	314722.45	39350.67	1018997.66
Prodvty	194.60	77.00	98.46	361.19

Were,

FSS = Financial Self Sustainability
BOUTCH = Breadth of outreach
DOUTCH = Depth of outreach
DE = Debt to equity ratio
Prodvty = Productivity

Table 4.5 provides the mean, standard deviation, lowest and maximum values for each variable that was used to analyze the financial sustainability of 13 MFIs in 2016

during the course of that year. Financial sustainability is represented by the FSS mean of 0.61 (61%) in Table 4.5. With a BOUTCH average of 10.91, services for the poor are provided across a wide range. Similar to the mean value, the standard deviation is lower, showing that some MFIs in Nepal have a wider range of services.

Average outstanding loan balances are used as proxies to measure the breadth of outreach (DOUTCH). According to MIX bench mark methodology, the mean for this variable is 53.01, which represents low end depth of outreach (average loan size: USD 150). The largest average loan amount is $53.11, demonstrating that MFIs in Nepal serve primarily low-income customers. The average DE ratio is 18.47, which indicates that the MFI has 18 times as much debt as it does capital to pay it off. Lowest debt means that MFI takes on debt to the smallest extent that its capital can support.

Here, the effectiveness of the MFI is determined by the cost per borrower (CPB). The mean CPB value in this study is 302135.13, and the maximum value is 1018997.66. This demonstrates how Nepalese MFIs are ineffective at reducing the cost of providing services; instead, they spend the most on maintaining each loan. According to the descriptive statistics, there are 194.60 borrowers on average for each employee at a Nepalese MFI. The number of borrowers per staff might range from 98.46 to 361.19, correspondingly. It demonstrates the effectiveness of MFI personnel, who manage more borrowers in comparison.

Table 4.6

Pearson's correlation matrix analysis for model B

Correlations

		FSS	BOUTCH	DOUTCH	DE	CPB	Prodvty
FSS	Pearson Correlation	1					
	Sig. (2-tailed)						
BOUTCH	Pearson Correlation	.620*	1				
	Sig. (2-tailed)	.024					
DOUTCH	Pearson Correlation	.224	-.012	1			
	Sig. (2-tailed)	.461	.968				
DE	Pearson Correlation	.272	.420	-.597*	1		
	Sig. (2-tailed)	.369	.153	.031			
CPB	Pearson Correlation	.687**	.902**	.146	.337	1	
	Sig. (2-tailed)	.009	.000	.635	.260		
Prodvty	Pearson Correlation	.389	.875**	.052	.379	.861**	1
	Sig. (2-tailed)	.189	.000	.867	.201	.000	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

As stated by FSS, it has a 620- and 0.687-coefficient positive and substantial connection with BOUTCH and CPB. By expressing BOUTCH as the natural logarithm of the number of borrowers, it can be seen that as the number of borrowers rises, so does the volume of sales. Increasing sales volume is one way to maximize profitability and, ultimately, financial sustainability. When combined with FSS, BOUTCH is significant at a 5% level of significance and CPB at a 1% level of significance.

Similarly, at the 1% level of significance, Prodvty is determined by dividing the total number of borrowers by the total number of employees, has a strong and significant association with BOUTCH and CPB. It shows how the financial sustainability

increases with an increase in the number of borrowers per staff. However, there is no correlation between it and the FSS, DOUTCH, or DE.

Similar to FSS and BOUTCH, CPB, which measures cost management dimensions such as (financial expense and staff expenses), too has a positive and significant association with them at the 1% level of significance. It demonstrates that CPB has a favorable effect on cost reduction and enhances financial stability.

On the other hand, there is no connection between DOUTCH and DE and sustainability in Nepal. This demonstrates that the average balance of outstanding loans (DOUTCH) has no impact on the viability of microfinance in developing nations like Nepal.

Only BOUTCH and CPB have a positive and significant link with financial self-sustainability among the variables affecting financial sustainability. The other explanatory factors are unrelated to the dependent variable FSS.

4.5 Regression Analysis (Model B)

Additionally, panel data can be divided into fixed effect and random effect models using the Hausman test. The hypothesis for Hausman test is:

Ho: Random effect model is appropriate

H1: Fixed effect model is appropriate

Table 4.7
Correlation Random Effects – Hausman Test
Test Period random effects for OSS for Model B

Test Summary	Chi-Sq Statistics	Chi-Sq. df	Prob.
Period random	14.3565	5	0.0065

We reject the null hypothesis and accept the alternative hypothesis since the Prob-values are less than 5%. Therefore, the Fixed Effect model is the best suitable model for the hypothesis testing in this study. This indicates that the F SS depends more on the time component than the grouping.

Effects of BOUTCH, DOUTCH, DE CPB, Prodvty on FSS

In this section, the paper discusses the econometric findings about the variables influencing the financial viability of microfinance institutions in Nepal. The operational panel regression model is to determine whether there is a positive or negative correlation with statistically significant factors of the sustainability of microfinance as evaluated by FSS is:

$$FSS_{i,t} = \beta 0 + \beta 1\, BOUTCH_{i,t} + \beta 2\ DOUTCH_{i,t} + \beta 3\ DE_{i,t} + \beta 4\ CPB_{i,t} + \beta 5\ PRODVTY_{i,t} + \varepsilon_{i,t}$$

Table 4.8

Regression Results of FSS

Variables	Coefficient	Std.Error	t-statistics	Prob
BOUTCH	4.031	7.328	0.476	0.612
DOUTCH	1.028	0.456	2.2132	0.047**
DE	-0.186	0.540	-0.3456	0.6422
CPB	-0.676	0.321	-2.673	0.010*
Prodvty	1.056	0.735	1.323	0.173

Coefficient estimates are significant at the 1% (**) and 5% (*) level.

Notes: R-Square = 0.6208; Adjusted R-Square = 0.5024; F-statistics = 4.2568;
Prob F- Statistics = 0.0000

Table 4.8 presents results of financial Self Sustainability as dependent variable and breadth of outreach, depth of outreach, depth equity, Cost per borrower and productivity as independent variables for microfinance in Nepal.

The independent variable can account for 65% of the variance in the dependent variables, according to the regression model's R2 value. Or 0.650, which means that 65% of the variations in FSS can be accounted for by changes in BOUTCH, DOUTCH, DE, CPB, and Productivity. That is, the independent variables are unable to account for about 35% of the changes in the dependent variable. In the model. F-probability is 0.0000, which is significant at 1 percent, indicating that independent variables collectively have a significant association with FSS. F-statistics is calculated as 4.2568, and a sig of 0.00 indicates that regression fits the data. The null hypothesis

should be rejected even at a 1% level of significance, according to F-statistics that are related to the test statistics.

The number of borrowers who use the indicator "BOUGHT" increases the financial viability of microfinance organizations. According to the econometric results for this variable, the number of borrowers and the MFI's ability to sustain its financial position are negatively correlated. Here, the variable shows that a higher outreach results in a higher transaction cost to learn about a client's creditworthiness, rendering an MFI unsustainable financially.

A client's socioeconomic status is shown by the average loan size (DOUTCH). At a statistical significance level of 5%, the average loan size coefficient is statistically significant and positive. Given that larger loans are linked to improved cost efficiency and, consequently, profitability, this suggests that microfinance profitability is correlated with higher loan sizes.

A negative and statistically insignificant influence on financial sustainability is shown by the capital structure (DE) indicator. This suggests that the capital structure of microfinance is not combined to improve their financial sustainability; as a result, the negative coefficient shows that a 1-point increase in the DE ratio will result in a 0.0000-point fall in the FSS.

The cost per borrower (CPB) indicator demonstrates that a rise in this cost lowers the financial viability of microfinance institutions. The coefficient of this variable is negative and statistically significant at the 1% level. Financial viability was positively correlated with the number of borrowers per employee, according to a regression result for (prodvty), however this relationship was not significant at the 10% significant level. The rise in borrowers per employee boosts the financial viability of MFIs in Nepal, as indicated by the positive coefficient of this variable, even though the effect was not significant.

4.6 Summary of Findings

The hypothesis has been accepted or rejected on the basis of result obtained from random effect regression. The acceptance and rejection of hypothesis has been presented below:

Table 4.9

Hypothesis result from Regression analysis

Hypothesis	Results
H1: There is significant relationship between Breadth of outreach and financial sustainability of MFIs.	Failed to accepted
H2: There is significant relationship between Depth of outreach and financial sustainability of MFIs.	Accepted
H4: There is significant relationship between Capital structure (DE) and financial sustainability of MFIs.	Failed to accepted
H4: There is significant relationship between Cost per borrower (CPB) and financial sustainability of MFIs	Accepted
H5: There is significant relationship between Prodvty and financial sustainability of MFIs	Failed to accepted

The main conclusions of the study are presented in this section along with the statistical methods that were utilized in the investigation, such as the panel data regression model and descriptive statistics. Both the models results are similar in nature, they are moving in same direction. So, the results as summarize as single model i.e. model A. The following is a summary of the key conclusions from the data analysis:

- The FSS has a mean value of 0.59 and a range of 0.02 to 7.59, respectively. The FSS for the chosen MFIs in Nepal is dispersed from its mean, as indicated by the standard deviation of 92.46 percentage.
- The breadth of outreach's mean value is 11.19 with dispersion rate being 78.81% and 12.4731 being maximum.
- Serving largely non-poor consumers can be shown by the average depth of outreach, which is 77.11, the dispersion rate, which is 239.3 percent, and the highest average loan size, which is 145.619.
- The DE score varies from 6.18 to 40.79 with a mean of 18.30. It demonstrates that DE is out of the range of its mean value (18.30 times), with a standard deviation of 63.72 percent.
- Cost per Borrower, which is one of the independent variables, has the highest mean value (i.e., 569093) and maximum value (2068460), indicating that MFIs in Nepal spend the most on maintaining each loan.

- With a mean value of 180.35 and lowest and maximum borrowers per staff of 75.38 and 396.067, respectively, Productivity shows the effectiveness of MFI staffs, who typically handle a greater volume of borrowers.
- The dependent variable FSS, the breadth of outreach, and the cost per borrower all have positive correlations with each other, as per correlation analysis. The FSS is not affected by any of the other explanatory variables.
- We accept the alternative hypothesis since the Hausman test's P-value is less than 5% and it is significant. As a result, the fixed Effect model is the best suitable model for this study's hypothesis testing.
- The results of the regression analysis between the independent variable and the OSS demonstrate that DOUTCH and CPB are significant, however BOUTCH, DE, and Prodvty are not. As a result, these variables have no effect on the FSS of MFIs.

CHAPTER V
DISCUSSION, CONCLUSION AND IMPLICATION

This chapter presents the discussions of the results and findings which has been obtained from data analysis, conclusion and implications that could be drown from the study. The chapter has been divided into three segments. The first segments is driven towards discussing which involves comparison of the findings of this study and to give answer for the research questions to meet the objective of the research. Likewise, the conclusion is drawn in the second segment from the result obtained from the data analysis inferred in the study where as an implication of the study is in the third segment.

5.1 Discussions

The study's overarching goal is to determine the elements that influence Nepal's microfinance industry's ability to survive. Numerous hypotheses looked at the connections between various factors that could have an impact on how long MFIs in Nepal could survive. Depth of outreach and cost per borrower were revealed to be significant factors in predicting the financial viability of microfinance institutions in Nepal, according to empirical data from the regression analysis. The relationship between capital structure, productivity, and breadth of reach, however, was not particularly strong.

The study's findings are in line with those of prior research in this field, such as those by Ganka (2010) on Tanzanian microfinance organizations, which found an insignificant and substantial link between the scope of outreach and long-term financial viability. The conclusion reached by Ganka is that an increase in the number of borrowers does not by itself improve the financial viability of microfinance businesses. Increased inefficiency brought on by an increase of borrowers may be the cause. However, according to Hartarska (2005), the number of borrowers had no noticeable influence on the sustainability of the financial system.

The research demonstrates a significant relationship between the breadth of outreach and financial sustainability. The results of Woller and Schreiner (2000) point to a complex link between the breadth of outreach and financial self-sustainability. In their research, they discovered a link between financial self-sustainability and the breadth

of outreach. The findings of Woller and Schreiner provide data that refutes the widely held idea that small loans are extremely dangerous and are linked to less stable financial situations. Additionally, according to Cull et al. (2007), Lending institutions that issue smaller loans are equally profitable to those that issue larger loans., and Paxton (2003)'s study supports the existence of a detrimental association between the depth of outreach and the subsidy dependency index. This demonstrates that profitability and scope of outreach have a positive relationship.

Okumu (2007) revealed that DE has a detrimental effect on MFIs' ability to be sustainable. But contrary to the findings of the other researchers, it was shown in this study that DE has little to no effect on sustainability. Okumu (2007) used 53 MFI as a sample, which is nearly four times greater than that employed in this study by the researcher, which may account for the difference in the outcome. One of the causes of a variation in the results can be the study's time frame. Due to the fact that both Nepal and Uganda are developing countries, their economies are similar. The primary cause of the discrepancy in the results the researcher obtained in this study is also the data used as a sampling. Although Okumu (2007) and Kipesha and Zhang (2013) employed samples of a similar nature and worked in the same locations, their findings differed from those of Okumu and were comparable to those of this study's researchers. The question now is whether DE has a less impact on sustainability as we get closer to the current day. According to our study's findings and those of Kipesha and Zhang (2013), this is a theory that might be correct.

According to Woller and Schreiner (2002), the cost per borrower and financial sustainability have a favorable relationship. However, this study discovered that Cost per Borrower (CPB) had a negative coefficient that was statistically significant at the 1% level; this suggests that a rise in CPB decreases the financial viability of microfinance companies in Nepal. This outcome is consistent with Ganka's (2010) findings, according to which there is no statistically significant link between the cost per borrower and financial sustainability. Given the amount of borrowers an MFI serves, the cost per borrower measures how effective the MFI is at reducing costs. This suggests that cutting costs can increase financial sustainability.

The findings show that the number of borrowers per employee and financial sustainability are positively correlated, but this association is not statistically

significant at the 10% level. The increase in the number of borrowers per employee in Nepal has improved the financial viability of MFIs, according to the positive coefficient of this variable in the regression analysis, even if the effect was relatively small. As a result, it is likely that microfinance will be more financially viable the more borrowers a staff is able to assist. Ganka discovered a negative and highly statistically significant correlation between the number of borrowers per staff and financial viability (2010) although the findings contradict his conclusions. He argues that inefficient staff at rural MFIs makes it impossible for them to supervise borrowers as their numbers increase, making the MFIs unsustainable. The results of this study are consistent with those of Christen et al. (1995), who discovered no connection between productivity and long-term financial viability.

5.3 Conclusion

This study set out to find the variables that would influence the sustainability of MFIs. The sample for this study has been selected from Nepalese MFIs, two separate models of observation is made which is five year period and one year period. Sustainability is a key factor in all MFI activities in Nepal, regardless of their scale. The main concern for microfinance in Nepal is being competitive in the market.

The breadth of outreach, the depth of outreach, and productivity were determined to be the explanatory variables. Which were counted in terms of the number of borrowers, the average amount of loans still due, and the number of borrowers per employee. Cost per borrower is used to quantify how well efficiency contributes to lowering costs for employees, money, and administration. The ratio of debt to equity is shown here via the capital structure DE variable. The dependent variable, financial sustainability, is evaluated and contrasted with each of these variables.

When considering the factors, the depth of outreach is thought to be the one that will have the biggest impact on the financial viability of microfinance organizations in Nepal. The extent of outreach, debt equity ratio, cost per borrower, and financial viability of microfinance institutions, however, were not shown to be significantly correlated. The same is true for staff productivity.

The analysis confirms that just one variable would fit and be used as a determinant of financial sustainability in this study out of the five explanatory variables considered.

The remaining variables are not appropriate for this study's attempt to assess the financial viability of microfinance institutions. With this, the goal may also be stated as the MFIs needing to increase the number of borrowers in order to raise the amount of sales (loan). Selling a lot of loans, meanwhile, could not be enough to provide financial stability. It must be complemented by efficient follow-ups in order to guarantee a greater payback rate and work toward maintaining a reasonably low operational cost per borrower. In order to remain sustainable, microfinance organizations should raise the average loan size (depth of outreach). Similarly, model B represent the one year observation of data, which gave the same pattern of result as the model A. In model B also, depth of outreach is regarded as the important variable for the sustainability of microfinance institutions in Nepal.

In other words, greater average loan sizes will improve financial sustainability but increase risk in the event of payment defaults. Therefore, MFIs ought to use every effort to balance the average loan size. Similar to this, neither capital structure nor efficiency significantly affect the financial sustainability of microfinance institutions.

5.3 Implication

The study's findings may have important policy implications for academics and decision-makers. Due to the early stages of microfinance, the study is one of the newest subjects in the Nepalese financial sector. As a result, this study aimed to provide a starting point for further research into the sustainability of MFIs in Nepal in terms of their missions, programs, and human resources. Only limited microfinance has been chosen for this investigation. There is still a plenty of more information on other financial institutions like cooperatives, and other MFIs can also be included. Additional research may also take into account the geographic location, growth stages, ownership, age, and product delivery strategy of MFIs. Additionally, this study only focused on aspects of financial sustainability.

This study also sheds some light on the significance of clients, cost per borrower, and staff productivity, as well as how these factors affect the sustainability of microfinance in Nepal. To examine the precision and real determinant of sustainability, the future researcher can use all MFIs as a sample. Future studies could also include a number of additional explanatory variables that would aid in

pinpointing the aspects that should be taken into account the most when discussing sustainability. This study contradicts with what the theory says, where the theory says that for sustainability there must be more number of borrowers, which is one of the main indicators to determine sustainability of microfinance.

The management teams of the chosen MFIs have received some insightful recommendations from the study regarding which variables should be prioritized when thinking about the sustainability of microfinance in the context of Nepal. This study demonstrates how the relevance levels of characteristics such as productivity, cost per borrower, debt equity, and reach of outreach vary. This does not imply that the management team should neglect those elements, but rather that they should give other factors more importance in order to ensure the sustainability of microfinance. Because MFI are the primary contributors to directly eradicating poverty from developing countries like Nepal, the regulators should also try to assist the management team and let their focus be generated to the recognized variables that determine the sustainability of microfinance in the Nepalese context. This can be done by creating a separate modified policy for microfinance institutions. Therefore, maintaining those institutions is essential and should be handled by regulators.

This study expands on the body of knowledge regarding the variables affecting microfinance sustainability. Additionally, it significantly adds to the body of financial and economic literature already present in Nepal, benefiting future research.

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