CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Financial Performance, Sustainability, and Outreach Link in Micro Finance Banks and Impact of Financial Inclusion on Socio-Economic Development in Pakistan

by

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To my parents, particularly my Grand Father (Muhammad Rafique), for all their sacrifices and devotion towards me. Furthermore, to all my teachers who contributed a lot in polishing me and my skills, and making me who I am. Without their unconditional support and love, I would have stumbled a long time ago.

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This is to certify that the research work presented in the thesis, entitled "**Financial Performance, Sustainability and Outreach Link in Micro Finance Banks and Impact of Financial Inclusion on Socio-Economic Development in Pakistan**" was conducted under the supervision of **Dr. Arshad Hassan**. No part of this thesis has been submitted anywhere else for any other degree. This thesis is submitted to the **Department of Management Sciences, Capital University of Science and Technology** in partial fulfillment of the requirements for the degree of Doctor in Philosophy in the field of **Management Sciences.** The open defence of the thesis was conducted on **January 05, 2023**.

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Abstract

Poverty is the greatest evil therefore its eradication is at distinctive priority in SDGs as well. The goal of overall socio-economic development (poverty reduction, women empowerment, improving living standards, enterprise development, etc) is attainable with the financial inclusion of the impoverished segment. Microfinance, as a tool of financial inclusion, is an anti-poverty vaccine and MFBs could be the catalyst for socio-economic development but their own existence is at stake due to stunted financial performance (lack of self-sustainability). For better outreach (serving a greater number of customers) this effectual financial performance (to be self-sustainable at least) is inevitable. To attain sustainability, MFBs need to emphasize revenue growth and keep their operations cost-efficient. But cost-efficiency restricts their outreach, lessening their social performance. This discussion ends up with an important question, whether or not these MFBs can contribute toward the socio-economic development of impoverished segments while maintaining their financial performance.

This study provides empirical evidence for the narrative that good financial performance promotes the sustainability of MFBs as well as augments their social performance (better outreach). Better outreach of MFBs shall result in a more financially inclusive impoverished segment of society. Furthermore, this financial inclusion through MFBs contributes to the socio-economic development of this underprivileged class. This study addressed this complex phenomenon more dynamically with a novel empirical lens.

Net interest income, operating profit, cost efficiency, and higher average loan positively affect the financial performance of MFBs. Financial performance significantly contributes to sustainability, however, KIBOR adversely affects this relationship. It is revealed that more sustainable and larger MFBs shall have greater outreach.

Furthermore, advanced empirical investigations revealed the positive impact of financial inclusion on sustainable livelihoods, living standard, multidimensional poverty reduction, women empowerment, and enterprise development. The indices for multidimensional poverty (MPI), living standard (LSI), and Enterprise

Development Index (EDI) also provide additional insight into the dynamics of socio-economic development.

It is noteworthy that financial inclusion improves the income levels of the borrowers, and consequently the spending on clothing, education of children, and medication. An increase in this income ignites economic development by supporting day-to-day expenditures and infrastructural development. In addition to this, the improvements in roof material, overall condition of the facility, accessibility to clean drinking water, and ownership status of the house are positively influenced by financial inclusion. This impact is greater on the women borrowers. Moreover, the potential for this improvement in economic conditions is more prevalent in urban areas than rural ones.

Microfinance has positively contributed to income level, living conditions, access to livelihoods, and empowerment of impoverished women. This study has also yielded significant insight into the matter of entrepreneurial development, along with the socio-economic development of micro-entrepreneurs. It is concluded that access to microfinance accelerates enterprise development and improves the economic conditions of micro-entrepreneurs. These results confirm the significant contribution of financial inclusion to the economic development of impoverished people. However, the impact of financial inclusion on social development in the short run is not positive.

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Abbreviations

ADB	Asian Development Bank
AGFI	Adjusted Goodness of Fit Index
ANOVA	Analysis of Variance
ASA	Association for Social Advancement
AMOS	Analysis Of a Moment Structures
ATT	Average Treatment effect on Treated
BRAC	Bangladesh Rural Advancement Committee
CA	Capacity Approach
CFI	Comparative Fit Index
CGAP	Consultative Group to Assist the Poor
CIDA	Canadian International Development Agency
CISDA	COORDINAMENTO ITALIANO SOSTEGNO DONNE AFGHANE (CISDA association has been developing projects of solidarity in favor of Afghan women since. 1999.)
CPI	Consumer Price Index
DED	Dimensions of Enterprise Development
DSED	Dimensions of Socio-Economic Development
EDI	Enterprise Development Index
EU	European Union
FATA	Federally Administrated Tribal Area
FDI	Foreign Direct Investment
FINCA	Foundation for International Community Assistance
GDP	Gross Domestic Product
GLP	Gross Loan Portfolio

GO	Government
GOP	Government of Pakistan
GNP	Gross National Income
HDI	Human Development Index
IMF	International Monetary Fund
KIBOR	Karachi InterBank Offered Rate
LSI	Living Standard Index
MDGs	Millennium Development Goals
MFB	Microfinance Bank
MFI	Microfinance Institution
MIX	Microfinance Information Exchange
MPI	Multidimensional Poverty Index
MSEs	Medium-Sized Enterprises
MSMEs	Micro, Small and Medium Enterprises
NFI	Normal Fit Index
NGO	Non-Governmental Organization
OR	Odd Ratio
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
OPHI	Oxford Poverty and Human development Initiative
OSS	Operational Self-Sufficiency
PCA	Principal Component Analysis
PMN	Pakistan Microfinance Network
PMR	Pakistan Microfinance Review
RMSEA	Root Mean Square Error of Approximation
ROA	Return on Asset
ROE	Return on Equity
PSM	Propensity Score Matching
SBP	State Bank of Pakistan
SDGs	Sustainable Development Goals
SEM	Structural Equation Modelling
SHGs	Self Help Groups

SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences
UN	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations International Children's Emergency Fund
USAID	U.S. Agency for International Development
WB	World Bank
WHO	World Health Organisation
WID	World in Development
WoEmp	Women Empowerment

Chapter 1

Introduction

1.1 Background

In this world where the growth of GDP (Gross Domestic Products) (on average) is as highest as ever before, wonders of science & technological advancements happen every single day, and where luxury keeps redefining itself while almost 40% of the population lives below the poverty line (earning less than $2.0 per day) and almost 20% infants die within first 5 years of their lives. Moreover, the economic gap between the rich and poor is expanding rapidly. This situation needs critical policy intervention at the macro-level. On the verge of this, the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs), designed by the United Nations (UN) are comprised of targets to be attained for socio-economic and environmental development (Sachs, 2012). SDGs simultaneously focus on the sustainability of the environment and society as well as the economic sustainability of people. SDGs not only focus on policymaking but also emphasize the individuals' lifestyles. It has a holistic approach to addressing the issue of growth with environmental protection. SDGs are comprised of 17 main goals with embedded 169 targets to be attained by everyone by 2030 for safe & sustainable growth and space for everyone on the planet. These goals define moral as well as economic principles for the individuals as well as for the community. However, different level of effort and policymaking is required for developed, developing, and underdeveloped countries in order to attain these goals (UNDP, 2016).

Uneven distribution of wealth in society is a major obstacle to overall economic prosperity (Islam & McGillivray, 2020). Equitable and inclusive growth in all aspects is important for prosperity with sustainability, called 'Sustainable Development'. Individual-level socio-economic development could lead to sustainable development but it is quite challenging for both developing and developed nations (UNDP, 2016). The individual-level socio-economic development will ensure the accomplishment of other development goals as well (Montgomery & Weiss, 2011). Therefore, poverty reduction by ensuring the provision of sustainable livelihood should be the fundamental policy (Mazumder & Lu, 2015). Poverty can also be reduced by addressing the issue of resource scarcity and economic disparity (Bruton, Ketchen Jr, & Ireland, 2013; Peredo & Chrisman, 2006).

Macro-economic development could be triggered by the people's accessibility to sustainable livelihood (Mok, 2000). In the developing and underdeveloped countries of the world (Africa, some regions of Asia, and America), along with other factors, uneven distribution of wealth causes a slum in economic progression (Islam & McGillivray, 2020; Zulfiqar, 2017) A vast majority lack economic resources because of which they cannot participate in the economic development of the country. Therefore, the World Bank, International Monetary Fund (IMF), UN, Asian Development Bank (ADB), and governments of developing and developed countries have put serious efforts to eradicate poverty and to attain equity in society (Lopatta, Tchikov, et al., 2017).

Along with poverty reduction, women's empowerment is another important development goal. Gender equality by empowering women, and poverty alleviation are essential for socio-economic development (UNDP, 2016). Gender equality is a distinctive priority among MDGs and SDGs. Among the 1.3 billion poor of the world, the majority are women and children (UNDP, 2016; WHO, 2007).

Women's socio-economic empowerment is vital to promote gender equality and alleviate poverty in society (Zulfiqar, 2017) because women spend most of their income on the expenditures related to food, health, and education of their children (Al-Shami, Razali, & Rashid, 2018). Women face discrimination in society and family in all economic, social, and political affairs (Addai, 2017). Women were treated unjustly and faced many hurdles in the routine course of life which resulted

in limiting their inner potential. Because of limited mobility, participation, and freedom women are unable to contribute effectively to household development and the development of society at large (Kar & Swain, 2014; Reiter & Peprah, 2015).

Women are considered to be equal according to the constitution of Pakistan. Moreover, according to Islam, females have a very prestigious and distinctive place in our society. Because of these reasons, women in Pakistan are having a comparatively better status, unlike other developing and underdeveloped countries. But still, they are not participating in resource planning and economic decision-making. Women as human resources are unable to participate in socio-economic activities (Benería, Berik, & Floro, 2015), therefore unable to contribute to economic development (UNDP, 2016). Furthermore, countries could not grow where half of the population is not contributing to GDP (Khan, Rashid Gill, & Noreen, 2012). According to Annan (2006), 'There is no tool more effective than the empowerment of women for economic development. That's why Women's empowerment is vital as well as a critical issue (Binaté Fofana, Antonides, Niehof, & van Ophem, 2015), which needs to be addressed at the micro as well as macro level.

The impoverished segment of society does not have employment opportunities due to a lack of skills and education (Niaz & Iqbal, 2019). Therefore, resources should be channelized in a way that provides business opportunities to the poor (Banerjee & Jackson, 2017; Islam & McGillivray, 2020). Developing enterprises and expanding entrepreneurial activities is an effective tool to eradicate poverty (Maengwe & Otuya, 2016), that could bring in socio-economic development (Bank, 2015). Enterprise development traveled from opportunity identification, exploiting that opportunity, and developing entrepreneurial activity to achieve economies of scale and sustainable growth (Bygrave & Hofer, 1992; Sutter, Bruton, & Chen, 2019). The lack of economic resources restrains this development process. Social and financial exclusion are the primary problems, therefore financial inclusion through microfinance services is a recommended remedial measure (Binaté Fofana et al., 2015; Khanam, Mohiuddin, Hoque, & Weber, 2018). Microfinance is very important for the rehabilitation of the poor because it has the power to increase micro-entrepreneurship which would help poor people improve their incomes and overall social & economic well-being (Kiiru, 2007; Sutter et al., 2019).

Entrepreneurial development could play a significant role in the economic development of any country. The basic issue of any economy is the vicious cycle of poverty, which restrains that country from the accomplishment of its goal of economic prosperity. According to Ranger Nurkse, "Vicious circle of poverty is the basic reason behind under-development of poor countries." If people don't have the resources to buy their basic necessities of life, how could they invest in their children's health and education! Furthermore, in any economy, a large-scale industry is always insufficient to provide employment opportunities to all people. Therefore, developing MSEs is inevitable for economic development (Beisland & Mersland, 2014).

All over the world, microenterprise development programs advance loans, take initiatives for training, and capacity building of impoverished people. Because of such initiatives, micro-enterprises have grown significantly (Langer & Orwick, 1999), promoted the working poor, reduced unemployment, and poverty (Balkenhol, 2007; Friedman & Lichter, 1998). It supports economic & social growth, activates the economic cycle, generates work opportunities, handles the economic recession, eliminates chronic poverty reduction, adds value to the industrial domestic product, supports large scale industry, develops human capital, positively contributes toward the balance of payment, and proper exploitation of domestic resources. This uplift of economic status positively affects the social status of this underprivileged class of society.

The unavailability of financial resources restrains impoverished people to unleash their natural talent and inner potential. Moreover, the inability to generate funds from external sources further augments their vulnerability to poverty (Hermes & Lensink, 2007). Conventional financial institutions do not facilitate impoverished people (Bakhtiari et al., 2006) because they lack verifiable credit history, good financial health, and stable employment history (Weber & Ahmad, 2014). Microfinance Institutions (MFIs) have filled this financing gap with an orientation to pull people out of poverty (Chowdhury & Mukhopadhaya, 2012; Valead, Diagne, & Honvoh, 2018). Since its inception, the microfinance industry is considered a tool for the economic development of impoverished people (Bakhtiari et al., 2006; Binaté Fofana et al., 2015), especially women (Kabeer, 2005). Providing

microfinance to the poor is a powerful mechanism for fighting against poverty till its elimination and attaining sustainable economic development (Lopatta et al., 2017). This phenomenon of including these un-bankable people into the financial structure is called Financial Inclusion. MFIs had proven that poor people can improve their businesses if they are provided with little financial and moral support (Mutua, Nataradol, Otero, & Chung, 1996).

Financial inclusion is an important phenomenon to attain individual-level socio-economic development by reducing poverty (Bruton et al., 2013; Das, 2018; Hermes & Lensink, 2007; Lopatta et al., 2017; Noreen, 2011), improving their livelihoods (Montgomery & Weiss, 2011; Solesbury, 2003), and increases micro-entrepreneurship (Adams & Page, 2003; Francis, Nassar, & Mehta, 2013; Brohi, Jantan, Sobia, & Pathan, 2018; Lopatta et al., 2017). This will also accelerate macroeconomic development (Osunde & Mayowa, 2012). Microfinance is a credit methodology to provide financial assistance to this underserved segment of society, which improves their income (Chowdhury & Mukhopadhaya, 2012), enhances overall wellbeing (Mazumder & Lu, 2015), uplifts their socio-economic status, and ensures dignity. In this way, we could provide working capital to micro-entrepreneurs, which nurture them during their embryonic stage or by enhancing the strength of the existing business (Copisarow, 2000; Fraser, Bhaumik, & Wright, 2015), resulting in enterprise development (Bruton et al., 2013). Through microfinance, people grow financially and become part of the 'Human Capital' of the country which leads to less dependency on Government and external funding (Ross & Denzer, 2001).

Microfinance positively contributed to decision-making power, skill development, participation in family development, knowledge, confidence, courage, legal awareness, self-worthiness, and social status (Alshebami, Khandare, et al., 2015; Sutter et al., 2019). This ultimately translates into growth in family income level, household assets, savings, the standard of living, better education of children, and well-being of the family (Addai, 2017; Al-Shami et al., 2018). Financial inclusion basically enables the poor to attain self-sufficiency and sustainability, which ensure prosperity, foster peace, promote harmony and evolve a just society. Therefore, SDGs could also be achieved through financial inclusion (Lopatta et al., 2017).

Researchers such as Copestake (2003) and Simanowitz and Brody (2004) argued that microfinance played a pivotal role in achieving SDGs by building a sound financial system for impoverished people (Simanowitz & Brody, 2004).

MFIs are considered to be the development agents by catering to the financial needs of an impoverished segment of society (Ledgerwood, 1998; Niaz & Iqbal, 2019). Evidently, MFIs are the source of providing business opportunities to the poor (Banerjee & Jackson, 2017; A. Islam, Nguyen, & Smyth, 2015), particularly for those who don't even have employment opportunities due to a lack of skills and education (Niaz & Iqbal, 2019). Therefore, MFIs can create a job market, enhance employment opportunities, reduce poverty, empower women (Banerjee & Jackson, 2017; Ofeh, Jeanne, et al., 2017), and bring economic prosperity by enhancing entrepreneurial activities. Fundamentally, there are two types of MFIs, one is NGOs or rural support programs, and the second is commercially operated microfinance organizations formally known as Microfinance Banks (MFBs) (Brau & Woller, 2004; Khan, Haider, & Asad, 2011). The MFBs are commercially operated financial institutions but they have smaller capital requirements and target only the poorer segment of society (Sukmana, Ajija, Salama, Hudaifah, et al., 2020). Over time, microfinance services have augmented from just microcredit to a broad range of financial services like micro-insurance, savings, mortgage, fund transfers, and other financial services (Newman, Schwarz, & Ahlstrom, 2017).

1.2 Poverty in Pakistan

Pakistan is one of the fastest developing countries in the world (5th in number) with a 5.3% growth of GDP (Government of Pakistan, 2017), which further grew to 5.8% in 2018. Pakistan is the fastest growing economy in the Muslim world, but still, there are some astonishing facts available as far as poverty is concerned. In Pakistan, 39% of people are multidimensional poor (UNDP, 2016). Furthermore, there is a significant difference in the poverty level of urban (9.3%) and rural (54.6%) areas. Whereas the poverty headcount ratio indicated that there are only 5.23% of people living in extreme poverty and there is a significant growth in this headcount ratio over the last 3 decades (Shanker, Marian, & Swimmer,

2015). Along with this, as per the survey of 2013-14, 29.5% of people are living below the poverty line. The condition has been improved significantly as it was 63.3% in 2001-02. In the context of MPI, according to (UNDP, 2016), 4 out of 10 people in Pakistan are living in Poverty. **Table 1.1** indicates that there is a huge difference in the poverty level of urban and rural areas of Pakistan. To mitigate this poverty and diversity of development, MFIs could play a pivotal role (Shakeel, Takala, & Shakeel, 2016). However, there are mixed pieces of evidence in the literature about the impacts of microfinance on the different aspects of socio-economic development. Every country is struggling for economic growth and prosperity, and Pakistan is not an exception.

TABLE 1.1: Poverty Levels in Various Provinces of Pakistan

Province/State	**Poverty Level**	**Province/State**	**Poverty Level**
Punjab	31%	FATA	73%
Sindh	43%	Gilgit Baltistan	43%
KPK	49%	Azad Jammu and Kashmir	25%
Baluchistan	71%		
Poverty Level with regard to Urban & Rural Area			
Rural	54.60%	Urban	9.30%
Overall			39%
Source: United Nation Development Program Pakistan (2016)			

1.3 Microfinance in Pakistan

The microfinance sector in Pakistan is growing very rapidly under the governance of the State Bank of Pakistan (SBP). Eleven banks are providing microfinance services to poor people of Pakistan (MicroWatch, 2017) and there are many Non-Government Organizations (NGOs) contributing to the socio-economic development of the poor through micro-financing. MFIs working in Pakistan provide agricultural loans, loans for livestock, loans for starting small-scale businesses, and for starting or improving micro businesses. SBP is playing a very important role in the development of the microfinance sector.

Pakistan's microfinance sector is right on track, but due to a lack of support by the Government and its inconsistent policies, MFIs are not cost-efficient because

of which their outreach and sustainability both are at risk. Even though MFIs working in Pakistan play a very pivotal role to enhance the living standards and income of poor people in rural as well as urban communities (Montgomery & Weiss, 2011).

1.4 Introduction to Microfinance

Microfinance is a word that is very common in the modern age of development. It consists of two words Micro – which means small, and Finance – money or monetary resource, the concept of microfinance is related to the lending of a small amount of money to poor people by formal or informal means (Brau & Woller, 2004).

According to CGAP (Consultative Group to Assist the Poor), Microfinance is "The provision of financial services to low-income people". Asian Development Bank (ADB) explained that "Microfinance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and/or low-income households and their microenterprises".

In the last thirty years, many institutes and non-government bodies have taken initiative. Now MFIs have attained a status of an industry, whose prime objective is to help a larger segment of impoverished people to make them economically stable (Littlefield & Rosenberg, 2004). During the last two decades microfinance industry has grown at a revolutionary pace (Manos & Yaron, 2009). Microfinance, formerly known as micro-credit, is not so limited in its implication. MFIs are now providing micro-credit along with a complete range of other financial services such as lending, savings, insurance, etc at a micro-level.

1.4.1 History of Microfinance

The concept of microfinance is not new, rather it has ancient roots. In European countries, it has been developed in the eighteenth century. In Ireland, microfinance evolves as informal banking for impoverished people, later with financial innovation, regulation of the procedures, and legal backing makes microfinance a vibrant

mechanism of financial inclusion. The Irish loan fund was offering interest-free loans, but these are totally donor-dependent institutions (Hollis, Sweetman, et al., 1996)

They were soon replaced by financial intermediaries that follow orthodox promotional and recovery procedures (follow a strict monitoring procedure). Therefore, the concept of microfinance got confused, whether to be known as a charitable organization or a commercial venture. In South Asia, the known history starts in 1976, when Muhammad Younus started micro-financing with a small fund to lend to some villagers (Abdul Rahman, 2007). This phenomenon had begun in the 1970s and become a practice in the 1990s. In 1983, Grameen Bank of Bangladesh started its operations officially (as a formal bank), which brought a revolution in the field of economic development in Bangladesh. He started Grameen Bank near the outskirts of Chittagong University campus in the Village of Jobra, Bangladesh. He gave $27 to a woman in an ordinary village in Bangladesh (Kyndt, Dochy, Michielsen, & Moeyaert, 2009). Now Grameen Bank is providing services in 81,379 villages and it covers 97% of the total villages in Bangladesh (Kyndt et al., 2009). In response to this revolutionized concept and his contribution to humanity, he was awarded with a Nobel Prize (Banuri & Texas, 2006).

In the 21st century, the scope of MFIs is not limited to micro-credit, rather MFIs were offered a complete set of financial services to the poor (Mutua et al., 1996). People grow financially and become part of the 'Human Capital' of the country, which could, in turn, contribute to economic development (Lopatta et al., 2017; Ross & Denzer, 2001; Sultana, Jamal, & Najaf, 2017).

1.5 Microfinance Institutions and Institutionalization

This war against poverty and search for a viable solution created an industry in 1985. Which is exclusively for the poor known as the Microfinance Industry. Professor Muhammad Yunus was the first man who institutionalized the idea of microfinance. He practically implemented this idea in the form of a Bank (called

Grameen Bank) in1980s and took initiative for poverty alleviation. An institution that started from minor lending of just $27 has now become the world's largest MFB (Kyndt et al., 2009). After Grameen bank, many MFBs have aroused with the same idea of helping the poor, to start their business at a small level, and raising their standard of living. They devised multiple strategies to fulfill their goals. These institutes started providing collateral-free loans to people at full-cost interest rates that were repayable in easy installments. Till 1995, hundreds of MFIs were operative around the globe and provided financial services to millions of poor (Christen, 1997), that has grown to thousands by the end of the 20th century (Littlefield & Rosenberg, 2004). According to the survey of 2011, there is a total of 8.349 million borrowers, out of which 97% are women and these poor were served through 2,565 branches of MFIs globally. This increasing number of active MFIs created positive competition among them. This competition shall add value to the operational efficiency of MFIs that will translate into customers' well-being (Mersland & Strøm, 2010).

The world's largest MFIs are found in Asia and Africa. According to Ghana Statistics Service (2007), Only Bank Rakyat in Indonesia is serving 3.3 million clients. Almost 5 million clients were served by Grameen Bank, ASA, and BRAC of Bangladesh each. But the outreach to poor people in China and India is comparatively low. Now the whole world (including Governments and major regulatory authorities like World Bank, IMF, ADB, State Banks/Central Banks of countries) is focusing on building, flourishing, and strengthening the formal institutions in the field of Microfinance. Eighteen different Microfinance projects, worth $350 million, have been approved by ADB during 1988 to 1998. Total 6 projects with microfinance components (valued at about $53 million) and the rest were spent on technical assistance activities to support microfinance operations (worth $18 million). ADB provided this loan without any well-defined strategy due to this these projects were not been able to reduce poverty significantly. In the 21st century, ADB is helping MFIs by providing them with technical support to make them operationally efficient (Cohen et al., 2000).

Even after such and many other tangible steps many MFIs ceased to exist due to high cost and increased donor dependency. MFBs are the means of providing a

variety of financial services to the poor based on market-driven and commercial approaches. Along with financial services MFBs' are providing nonfinancial services, such as skills development through training and formal & informal education (Ocasio, 2012).

1.6 Sustainability and Outreach of MFBs

The microfinance industry has the potential to increase the economic activity of the country through enterprise and entrepreneurial development (Copisarow, 2000; Kiiru, 2007; Mutua et al., 1996), which can further stimulate the economy by creating demand for goods and services. But this prospective development has a major hindrance which is related to MFI's own financial health and sustainability. MFIs are striving for their survival and sustainability (Kimando, Kihoro, Njogu, et al., 2012). MFIs are dependent on the donors (Quayes, 2012), which is not only limiting their role and contribution but also become a threat to their existence (Delgado, Ramos, Gallardo, Ramos, et al., 2003). No matter how good the model of MFI is, its existence depends on donations and donor agencies (Huber et al., 2012). Whereas, commercially operated MFBs operate at the self-sufficiency level, which is more crucial. MFBs charge interest to not only meet their expenses but to generate returns for the shareholders as well.

MFBs, as banks, are commercially operated bodies and they focus on the cost-efficient and self-sustainable model (Badunenko, Kumbhakar, & Lozano-Vivas, 2021). The performance of MFBs is the center of attraction for managers, economists, Government, and policymakers because they all are concerned about the proclaimed social impact of microfinancing (Gaganis et al., 2016) along with the sustainability of MFBs. Therefore, the performance analysis of MFBs has two-fold implications. The financial performance as an organization and the social performance (social impact as outreach leading to socio-economic development of impoverished people) need to be addressed. Meyer (2015) presented a contradictory relationship between social and financial performance. This highlights a tradeoff between financial sustainability and outreach (Nurmakhanova, Kretzschmar, & Fedhila, 2015; Shu & Oney, 2014). However, there are studies (Yeshi,

2015) that support the argument that outreach and financial sustainability are positively associated with each other. It is of prime importance to address this contradictory relationship because to have a consistent social impact, MFBs need to operate for a longer period (Balkenhol, 2007; Quayes, 2012). Hence it is of paramount importance for MFBs to attain financial sustainability, which could be attained through their financial performance. Furthermore, it is important to identify the factors affecting their financial performance. The consistency of the profitability makes them sustainable particularly to resist economic or operational shocks (Sharma, 2022). There is a significant non-linear relationship between sustainability and interest rate exists (Sharma, 2022). This is nebulous enough for policymakers because the efficiency of administration is greatly influenced by the interest rate that prevails in the economy. Actually, the interest rate has a moderating effect on the relationship between financial performance and sustainability, which will be empirically tested in this study.

An efficient financial system ensures the productive mobility of finances in an economy. An efficient financial system (credits, savings, and payments services) fosters economic growth, enhances productivity, generates employment, and expands the overall size of micro-entrepreneurs (P. R. Sharma, 2015). As described by Olasupo, Afolami, Shittu, and Agboola (2014), as a financial intermediary, the role of MFBs is significant but the issue of their sustainability needs to be addressed keenly. Therefore, it is pertinent to identify and assess the factors contributing to the financial performance of MFBs because to attain real socio-economic development this system of financial inclusion must be efficient with greater outreach (Sherwani & Sabiha, 2015).

Greater outreach, lending smaller amounts to the larger number of poor particularly in the far areas, is a costly business. The higher cost of lending and overall administrative cost makes micro-lending expensive and MFBs less sustainable. To meet this higher cost MFBs charge higher interest rates which adversely affect the borrowers. So MFBs opt to compromise outreach and prefer to lend a larger amount in only urban areas. Keeping this in view, there is always a tradeoff between financial sustainability and outreach (Nurmakhanova et al., 2015; Shu & Oney, 2014).

1.7 Rational of the Study

The underlying rationale is that only MFBs with good finance performance could be sustainable (Janda & Turbat, 2013) and only sustainable MFBs are able to enhance their social performance. As a financial intermediary, the role of MFBs is important; however, their sustainability with better outreach is a significant milestone yet to achieve. Because a considerable amount of literature reported a tradeoff between the financial performance, sustainability, and outreach.

Socio-economic development of an impoverished segment of society is significant for sustainable development and only sustainable MFBs could support this development agenda. Therefore, it is proposed that the financial performance complements the social performance of the MFBs. This study had addressed the issues of financial performance, its determinants, sustainability, outreach of MFBs, and its social impact (socio-economic development of impoverished people) simultaneously. This must be realized at the strategy level that sustainability can complement the outreach. This study has provided the empirical evidence for this relationship.

1.8 Significance of the Study

Since the inception of microfinance and MFIs, several studies contributed to the literature with insight into their social performance (socio-economic impact) and financial performance (financial efficiency and sustainability). Social performance means the socio-economic development of impoverished people (including poverty alleviation, living standard improvement, women empowerment, enterprise development, and improvement in social status). Whereas the financial performance means the operational and financial efficiency of MFBs as a commercial entity. This study addressed both areas and try to produce empirical evidence for the interdependence of these two areas. The underline preposition is that operationally and financially efficient MFBs could have a greater impact on socio-economic development of impoverished segment of society (social performance). Even the commercially operated MFBs are able to have significant social performance.

Therefore, here the social, as well as financial performance of MFBs of Pakistan, has been investigated, simultaneously. This study tried to have a holistic view of the whole phenomenon of microfinance, starting from the assessment of financial performance of MFBs and the factors effecting this performance. This financial performance complement to their sustainability and outreach. Furthermore, the social performance of these commercially operated MFBs has been investigated with more robust empirical investigation. For the social performance of MFBs, existing literature only considered income and expenditure-based measures of poverty and poverty alleviation, such as Akram and Hussain (2011); Jamal (2008); Montgomery and Weiss (2011); Noreen (2011) and Shirazi and Khan (2009). But in the new regime poverty is considered to be a multidimensional factor in its implications and impact, therefore it must be measured and assessed multidimensionally. Internationally few researchers like Jamal (2008, 2009); Chowdhury and Mukhopadhaya (2012); Sheel, Mukherjee, and Rahman (2018) tried to estimate multidimensional poverty but those measures had limitations and were unable to assess the change in multidimensional poverty over time. This study contributes to the existing literature with empirical inferences about the impact of microfinance on impoverished people of Pakistan, multidimensionally. This socio-economic development caused by MFBs leads toward attaining key SDGs, in developing countries like Pakistan. This work has produced concrete evidence in the support of the institutionalist approach as its theoretical contribution to the body of knowledge. Furthermore, it could help the policymakers to have a clearer idea about the role of financial inclusion in the socio-economic development of an impoverished segment of society. It also provides a roadmap to the managers and strategic decision-makers for strengthening the MFBs and reaping the benefits in the form of financial inclusion as well as financial deepening at the later stage.

1.9 Research Gap

MFIs were evolved and existed because of their social mission (serving and socio-economic uplifting the impoverished segment) but their dependency on donors and weak financial position hindered this mission. Therefore, in recent times they

are also concerned about their financial performance (Khan & Sulaiman, 2015; Quayes et al., 2019). This signifies altogether new dimensions of investigation. In literature, researchers try to identify the impact of microfinance on the people living in poverty (Chowdhury & Mukhopadhaya, 2012; Sheel et al., 2018), most of the time with a special focus on women (Al-Shami et al., 2018). For MFIs financial self-sufficiency and social performance seems to be contradictory, therefore, a discussion over the tradeoff between these two was started (Kiiru, 2007; Navajas, Schreiner, Meyer, Gonzalez-Vega, & Rodriguez-Meza, 2000), which resulted in a new concept of 'mission drift'. Contrarily some researchers such as Quayes et al. (2019) found an association between financial and social performance. Later some evidences were observed that outreach augments the financial performance.

There is a significant amount of literature available on impact assessment. But, does the impact truly exist? and what are the pre-requisites of that impact? These questions need a careful investigation. For precise impact assessment, methodological novelties are one of the core contributions of this study. Furthermore, starting from the strength of MFBs to the contribution of MFBs in various dimensions of socio-economic development of impoverished segments is a breathtaking novelty of this research.

Assessment of the financial performance and its association with the sustainability and outreach of the MFBs is a vital research area that was unaddressed. Studies such as Olasupo et al. (2014) analyzed the factors which may affect the efficiency of the MFBs but they are unable to identify whether or not this efficiency leads to sustainability or contribute to outreach. The interest rate in the economy is associated with OSS (Operational Self-Sufficiency) (Nwachukwu, 2014) but this does not directly explain sustainability it could be the association between financial performance and sustainability. Therefore, in this study, the moderating role of KIBOR in the relationship between financial performance and sustainability is estimated. Sustainability is a major factor contributing towards outreach but size of the MFB could also play a significant role in the outreach. So the role of size may influence the relationship of sustainability and outreach which is again an important but unaddressed area. Poverty is not a unidimensional phenomenon in its implication and effects, therefore it must be assessed multidimensionally. Sheel

et al. (2018) evaluated the poverty level by developing MPI with their unique weighted average methods. They assign weights to different dimensions of deprivation to develop a novel measure of poverty. Similarly, Feeny and McDonald (2016) have their unique MPI with a different set of dimensions. But the MPI developed by OPHI is more concrete, dynamic, and robust, therefore adopted in this study to assess poverty level and use in further empirical investigations.

Empowerment is a process as well as an outcome, this study takes the concept of empowerment as an outcome. Socio-economic empowerment could be estimated through multiple dimensions. To our knowledge this study incorporated the most comprehensive questionnaire with maximum dimensions of empowerment. Therefore, this study explains empowerment more dynamically and comprehensively. The impact of microfinance on entrepreneurial development has already been explored but those studies have methodological limitations. Most of the surveys have only captured a single or quite a few dimensions of entrepreneurial development, which has limited scope. Actually, funds received by a business may be invested in multiple dimensions depending on their immediate needs. Each type of investment requires a variable amount of time to yield visible overall benefits. Therefore, it is recommended to incorporate multiple dimensions to capture true entrepreneurial development. Social status is a very important factor, social status is explained by economic status and it affects economic development as well. The impact assessment studies such as Banerjee and Jackson (2017); Das (2018); Uddin (2017) only consider the economic status and ignore the social status completely. Bhuiyan and Ivlevs (2019) worked on the overall subjective well-being by mixing economic and social development, which lack clarity about social development. This study incorporated the improvement in perceived social status in the analysis as well. This study also addressed the key SDGs, which could be attained through financial inclusion.

1.10 Research Questions

The main research question of this study is;

"What contributes to the financial performance of MFBs and could it lead to sustainability and better outreach? and Does the financial inclusion through commercially operated MFBs could lead to the socio-economic development of the impoverished segment of the society? Moreover, does strengthening the MFBs help in attaining SDGs"

The basic purpose of microfinance is the socio-economic development of the underprivileged segment of society. But how could MFBs uplift others when their own existence is fragile and uncertain. Therefore, it is important to identify, what are the factors contributing to the financial performance of MFBs. Furthermore, how much MFBs are actually contributing to the socio-economic development of an impoverished segment of society? For precise inferences, the study is conducted in two parts which are statistically and theoretically apart from each other but connected enough for the policymakers and academicians. Research questions in each part are presented as follows.

The First Part of the study concerns the questions related to the Financial Performance and its impact on the Sustainability and Outreach.

1. What are the factors which contribute to the Financial Performance of MFBs?
2. Does Financial Performance contribute to the Sustainability of MFBs?
3. Does the sustainability of MFBs contribute to the outreach?
4. Does Sustainability mediate the relationship between Financial Performance and Outreach?
5. Does KIBOR moderate the relationship between Financial Performance and the Sustainability of MFBs?
6. Does Size moderate the relationship between Sustainability and Outreach of MFBs?

The second part addresses the questions related to the effect of financial inclusion through microfinance on the socio-economic development of impoverished people (Social Performance)

1. Does Financial Inclusion through microfinance help impoverished people to attain sustainable livelihoods?
2. Does Financial Inclusion through microfinance reduce Multidimensional Poverty?
3. Does Financial Inclusion through microfinance improve Living Standard?
4. Does Financial Inclusion through microfinance improve the Social Status of impoverished people?
5. Does Financial Inclusion through microfinance influence the multidimensional poverty and empowerment of women?
6. Does Financial Inclusion through microfinance contribute to Enterprise Development?
7. Does Financial Inclusion through microfinance contribute to socio-economic development of Entrepreneurs?
8. Does Financial Inclusion through microfinance helps in attaining keys SDGs?

1.11 Research Objectives

The objective of this study is to identify the factors contributing towards financial performance of MFBs and to investigate whether or not the better financial performance lead to better sustainability and outreach of MFBs. Furthermore, whether or not the commercially operated MFBs are able to cause socio-economic development of impoverished people.

The First Part of the study is about identifying the different factors affecting the financial performance of MFBs and estimating its impact on the sustainability and outreach of MFBs. Following are some of the key objectives of the first part of the study.

1. To estimate the Financial Performance of MFBs and the factors contributing (determinants) to this Financial Performance.

2. To estimate the impact of Financial Performance on the Sustainability of MFBs.

3. To estimate the impact of Sustainability on the Outreach of MFBs.

4. To estimate the mediated effect of Sustainability on the relationship between Financial Performance and Outreach of MFBs.

5. To estimate the moderated effect of KIBOR on the relationship between Financial Performance and Sustainability.

6. To estimate the moderated effect of Size on the relationship between Sustainability and Outreach.

The Second Part of the study is about estimating the effect of financial inclusion through microfinance on the socio-economic development of the impoverished segment of the society (Social Performance). Followings are some of the key objectives of the second part of the study.

1. To estimate the contribution of financial inclusion (through microfinance) to attain Sustainable Livelihood.

2. To assess multidimensional poverty by estimating the Multidimensional Poverty Index (MPI).

3. To estimate the betterment in living standard by estimating Living Standard Index (LSI).

4. To estimate the women empowerment by calculating an empowerment score (WoEmp).

5. To estimate the development of micro and small enterprises by developing an Enterprise Development Index (EDI).

6. To estimate the impact of Financial Inclusion on multidimensional poverty.

7. To estimate the impact of Financial Inclusion on the Living Standard.

8. To estimate the impact of Financial Inclusion on Enterprise Development.

9. To estimate the impact of Financial Inclusion on Multidimensional poverty and empowerment of women.

10. To estimate the contribution of financial inclusion towards Social Status.

11. To evaluate the contribution of financial inclusion towards attaining SDGs.

1.12 Research Contribution

Microfinance is an emerging area in mainstream finance, therefore getting a higher share in the research literature. Since the start of the 21st century in the existing literature, it has been observed that people worked on two broader areas. First is the impact of microfinance on the lives of its users (called the social performance of MFIs). Second, the financial performance of MFIs and their expected trade-off with outreach. This covers research on the issue related to profitability, efficiency, sustainability, and outreach. The question of mission drift arises due to a tradeoff between financial performance and social performance of MFIs.

The basic motive behind this study is the proposition that these two areas are positively associated and dependent. Here we have also tried to identify causal relationships in these two major areas. As previously done, studying these areas separately does not truly infer about microfinance, its efficacy, and its impact. Therefore, simultaneously investigated in this study.

This study identifies the determinants of operational efficiency which lead to financial sustainability. This sustainability leads to better outreach. Our model has identified the determinants of financial performance leading to sustainability and outreach. It enables the policymakers to improve the outreach by enhancing the underline operational and financial performance of MFBs. This research work hypothesized that lack of operational and financial efficiency is a major hindrance to social performance of MFBs. Therefore, by focusing on financial performance the self-sustainability improves which lead to better outreach and ultimately better social impact. KIBOR is a key factor for the financial industry. Therefore, the moderating role of KIBOR in the relationship between financial performance and sustainability has also been empirically tested. Size of the organization has

multifold implications in the financial performance, sustainability and outreach. Therefore, the moderating role of Size in the relationship between sustainability and outreach has also been analyzed.

The evaluation mechanism of financial inclusion's impact was vague, due to which the results reported in the literature were quite variable. The variability in the measurement methodology and impact assessment techniques make this phenomenon very confusing. This study incorporated more dynamic measures and robust empirical investigations to have more concrete inferences. This study tried to fill the gap in the literature by simultaneously evaluating the impact of microfinance on economic development, social development, women empowerment, social status & poverty level of women, and enterprise development by empirically testing multiple models.

This study introduces the conceptual and methodological novelties to posit a more concrete analysis in this area. The overall socio-economic development is a complex phenomenon to measure. Therefore, multiple dimensions of sustainable livelihood, multidimensional poverty, social status, and socio-economic empowerment of women have been incorporated as different proxies of overall socio-economic development. In this study, poverty level and poverty reduction are assessed through various unidimensional and multidimensional measures. As poverty is a multidimensional phenomenon in its implications and effects, its precise assessment is a controversial issue in the impact assessment literature (Valead et al., 2018). The researchers normally miscue some important dimensions. In this study, a Multidimensional Poverty Index (MPI) is estimated by following the guidelines of OPHI (Oxford Poverty and Human Development Initiative).

How sustainable the socio-economic development is? It could be witnessed in one's living standard and growth in living standard. Economic development is evident in the betterment of infrastructure, household assets, availability of clean drinking water, sanitation, and electricity. Therefore, all these variables were incorporated in the empirical investigations. Moreover, a novel measure of living standard (Living Standard Index-LSI) has been introduced in this study that covers nine dimensions related to the betterment of the living standard.

One of the key contribution of microfinance is the socio-economic development and empowerment of impoverished women. A rich literature is available which addressed this very important aspect of microfinance. In this study, the empowerment of impoverished women has been assessed through a multidimensional measure of socio-economic empowerment. Along with empowerment, in this study the empirical inferences about the impact of financial inclusion on the socio-economic development of women have also been presented. Furthermore, financial inclusion ignites the enterprise development process. This study has addressed the issue of micro-enterprise development and the impact of financial inclusion on it in a more dynamic manner. An index has been introduced, to substantiate enterprise development, by incorporating eight important dimensions of entrepreneurial activities, which is called the Enterprise Development Index (EDI). Overall this study signifies the importance of microfinance in the socio-economic development of impoverished people, particularly women and micro-entrepreneurs.

The methodological contributions of this study includes that along with unidimensional measure, multidimensional measures of socio-economic development were incorporated. For robustness check multiple empirical models and techniques were also incorporated. To our knowledge, this is the first study to consider and focus on Microfinance Banks (MFBs) as an industry and assess the impact of financial inclusion through MFBs on socio-economic development, which is important empirical evidence against the argument of mission drift. This study explained that only financially sustainable MFBs shall contribute toward impoverished segment of the society. The results of this study shall lay a road map for policy makers (the Government and SBP) to strengthen MFBs as institutions, overall as an industry as well as to enlarge their social performance. In this way, they will reap the benefits of financial inclusion and financial deepening. This mechanism shall be better as well as cost-effective than the rural support programs.

1.13 Structure of the Dissertation

This study is in two parts one is about in-depth analysis of the financial performance of MFBs and the second part is related to the social performance of MFBs

working in Pakistan. Multiple empirical investigations have been carried out to infer about the questions highlighted above. Therefore each chapter of this study addresses these two parts categorically. The structure of this thesis dissertation is presented below.

Chapter 1, provides a general overview of the study and briefly explains the significance of this study. This chapter also proposed the research questions and research objectives covered in both parts. It also highlights the research gap and contributions of the study.

Chapter 2, provides a brief background, historical overview, and theoretical background of this research. Along with a theoretical explanation and explanation of related terms, a brief but comprehensive overview of previous studies on the said area has been presented. It presents the theoretical foundation along with the research hypothesis of this study.

Chapter 3, this chapter outlined the methodological aspect of the underline study. As the study has two parts and both have different methodological and empirical requirements, therefore, both were explained separately. This chapter defines population, sampling technique, sampling procedure, sample size, and techniques to evaluate the association among the latent constructs along with the operationalization and measurement of the variables of both parts.

Chapter 4, will explain the data analysis and results based on the research methodology proposed in chapter 3. Moreover, it will also present the discussion based on the empirical findings of both parts of the study.

Chapter 5, will outline the conclusions based on the empirical findings and discussion documented in chapter 4. It also outlines the future research directions along with the limitation and managerial implications of the present study.

Chapter 2

Literature Review

In this chapter, a brief background of this research, its theoretical linkage, and related terms in the light of previous studies on microfinance have been presented. Initially, we shall discuss the theories related to this research and then a comprehensive literature review will be presented in line with our models. As discussed earlier, this study is in two parts, therefore this chapter also presents the literature in two parts. The first part presents the literature related to the determinants of financial performance of MFBs and their impact on sustainability and outreach. The second part presents the theoretical and empirical literature concerning the microfinance and impact of microfinance on different dimensions of poverty, poverty reduction, multidimensional poverty, women empowerment, and enterprise development. At the end of each segment of the review, related hypotheses are presented.

2.1 Theoretical Framework

The main objective of this section is to define and describe the theoretical framework supportive of this study. This section highlight the importance of the underline research design in the light of the objectives to test the research questions.

Several theories are partially associated with our work. Such as, the social entrepreneurship theory highlights the importance of entrepreneurship with embedded social motives (Austin, Stevenson, & Wei-Skillern, 2006). Social entrepreneurs

try to come up with a solution within the existing practices for the social well-being and prosperity of society at large. To achieve social impact social entrepreneurs, find innovative vistas in the existing form and practices of business enterprises (Gratton & Ghoshal, 2005).

Muhammad Younus is an example of a social entrepreneur who has just come up with a brand-new idea within the existing structure to perform for the betterment of society as well as for the shareholders. MFIs are continuously facing the challenge of balancing social and financial performance. He considers society at large as a significant stakeholder of corporates, therefore, all stakeholders must focus on inclusive growth and prosperity of every segment of the society. Dr. Younus describes that the world is getting bigger and this will have bigger problems accordingly, which will be a threat to its own existence. In the capitalist world, profits are always preferred over people, which is against the basic concept of humanity. According to him, capitalists must prefer people over profit, and for this, they have to go through comprehensive reforms and adopt the concept of "Social Businesses" practically.

Financial liberalization theory highlights the importance of an independent and market-driven approach for financial institutions. Therefore, researchers such as Goldsmith and Lipsey (1963); Marty (1961) and Shaw (1973) proposed the independent working of financial institutions with the assumption of perfect markets and no information asymmetry. This theory of liberalization suggested removing the interest rate ceiling and reducing the requirement of reserves. In this way, the MFBs shall help promote financial inclusion that shall lead to financial deepening.

We may also theorize the endogenous and exogenous growth theories in our research. These theories explained that internal factors and external are the determinants of growth respectively. This study asserted that internal management, resource planning, and utilization shall explain the performance of MFBs. Whereas, external factors KIBOR - (Karachi InterBank Offered Rate) and GDP could also affect the performance of MFBs. This theorization highlights that the efficient management of internal and external factors of MFBs could contribute positively to the overall performance (Social and Financial) of MFBs. Financial performance shall lead to better outreach and overall growth, which eventually translated into

better social performance. Furthermore, in the rural areas, the provision of capital to the poor shall ignite the macro-economic progression as well.

Along with these theories, the main theory which could be linked with our study is the Welfarist vs Institutionalist approach.

2.1.1 Welfarists vs Institutionalists

The main objective of establishing MFIs is to alleviate poverty. They are not supposed to work for profit their prime motive is to serve society, it is the basic argument of the welfarist school of thought and if MFIs try to achieve financial sustainability, they call it 'Mission Drift' . Others don't mind the higher amount of interest charged by MFIs and their focus on sustainability along with poverty alleviation. Those who are in support of financial self-sustainability belong to the institutionalist school of thought. This study tried to find evidence with the novel empirical lens in support of the institutionalist approach.

2.1.1.1 Welfarist Approach

The welfarist Approach focuses on the social side of the corporations that uphold the social aspects. According to the welfarists, MFIs must only focus on serving the poor at the minimum cost rather than trying to generate profits from lending. MFIs can sustain (remain liquid and operative) without achieving self-sustainability (Bateman & Chang, 2009; Brau & Woller, 2004; Carroll, 1979; Woller, Dunford, & Woodworth, 1999). Otherwise, it increases the dependency on donors and financial aid. According to welfarist, it is useless to put efforts into financial self-sustainability because MFIs are having a high cost of operations so this will lead them towards low outreach or increase the operating cost per unit amount lent because of extended outreach (Ghatak & Guinnane, 1999). For Self-sustainability and growth, MFIs shall have to generate enough revenue which not only fulfills their operating needs but also serves the shareholders and have a reserve (retained earnings) for growth and better outreach. This is not possible without charging high-interest rates, which leads MFIs toward mission drift (Zeller & Meyer, 2002). Therefore, according to the welfarists' school of thought, MFI's

performance must only be evaluated through its outreach (Social Performance) rather than financial performance.

2.1.1.2 Institutionalist Approach

The Institutionalist Approach advocates that if MFI remains dependent on subsidy or below then its financial self-sufficiency level sooner or later it shall cease to exist. According to the institutionalist approach, for an organization, in the long-run social performance is not possible to be achieved without its financial performance. MFBs could only serve others (having better outreach), if they are able to generate enough to fulfill their operating requirements and they are no more subsidy-dependent (Ejigu, 2009). Therefore, Institutionalists evaluate the performance of MFIs based on their financial performance, also called financial self-sustainability. Here certainly a trade-off exists between profitability and serving the poor (mission drift) but attaining self-sustainability is inevitable for the long-run survival of the MFIs. This school of thought as a critique to welfarists describes that focusing only on social performance causes more dependency on subsidies (donors), low recovery rate, high operating cost, and a threat to going concerned of MFIs, which ultimately leads toward an inability to have better social performance.

By studying these theories and approaches we may infer that considering the people living below the poverty line as the un-bankable segment of society is not a wise approach. Earlier it was thought that the people living in poverty are not aware of banking services or they are not willing to take banking services. Furthermore, these poor people are unable to meet their day-to-day expenditures how could they bear the interest expenses. Over the period, research literature witnessed the willingness, of these poor to take loans and their ability to pay it back with interest not only well in time but in some cases well before time. Furthermore, along with microcredit, they are also willing to avail other banking services like savings, insurance, etc.

This resulted in two objectives for MFIs, one is to serve a larger number of low-income borrowers and the second is to make these MFIs operationally and financially efficient. This led to the need for the development of such a mechanism,

which could have greater outreach with cost-efficiency. Initially, MFIs are operationally viable because of donors' support but in the current regime, even donors require the MFIs to be financially self-sustainability. In the effort of increasing operational efficiency and lower loan losses the outreach was compromised which hindered the very purpose of MFIs. Complete financial sustainability could be attained when operating expenses, financial expenses, and loan losses are recovered completely through revenues. This situation is called self-sustainability and institutionalists are the strong advocate of it. This leads us toward the following research hypothesis.

To refine the Institutionalist's school of thought we shall review the existing literature. In accordance with our research question and objectives, this study is divided into two parts. Therefore, the review of literature is also presented in two parts explaining the background of both models.

2.2 Model – I, Financial Performance Leading to Sustainability and its Impact on Outreach

2.2.1 Performance and Sustainability of MFIs

As MFBs are the financial intermediaries for impoverished segments of society (Qayyum & Ahmed, 2006), therefore, their performance must be evaluated accordingly. In order to perform well and help impoverished people, MFIs must be sustainable. MFIs may be sustainable by minimizing their cost of serving the poor (Borbora & Sarma, 2007; Huber et al., 2012; Quayes et al., 2019). The reduced operating cost can help MFIs to serve more poor (Ifelunini & Wosowei, 2012), increasing their outreach. But the higher interest rate is a major hindrance to their outreach as well. Economic sustainability refers to the ability of an organization to generate profits and/or the spread between revenue & cost is sufficiently large. MFIs can only be sustainable when they minimize their cost of operations because they must not have higher revenues by charging higher interest (Parveen, 2009). A sustainable microfinance system is contributing to the economic development of developing countries as well (Tahir & Tahrim, 2015).

This signals a trade-off between the cost of lending (broadly called financial performance) and outreach. Consider the case study of Bangladesh where the microfinance industry is comparatively mature and stable, therefore grows rapidly. In Bangladesh, Market-oriented economic reforms and deregulations in the early 1990s led to a more stable macroeconomic environment (Parveen, 2009). The self-sufficiency and sustainability of MFIs depend upon many internal factors, external factors such as governing bodies (Mersland & Strøm, 2010), dependency on donors, securitization of funds, and recovery rates (Schwarcz, 2010). However, for sustainable growth, MFIs must focus on internal factors.

Literature witnessed a number of studies that identify the determinants of efficiency (performance) of banks such as Issaoui et al. (2009) in Tunisia, Ongore and Kusa (2013) in Kenya, Dawit (2016) in Ethiopia, Shor (2014); Javers (2012) in China, Sarita, Zandi, and Shahabi (2012) in Indonesia, Dietrich and Wanzenried (2009) in Switzerland, Sufian (2011) in Korea, and Elfeituri (2018) in Bangladesh. These determinants vary with the socio-economic dimensions of the countries and regions, further these determinants also vary over time. Some also inferred that performance is independent of any determinants. Therefore, this study explored the determinants of operational and financial efficiency of the MFBs of Pakistan.

If the average loan size to individual customers increases, it increases ROA but it also increases the risk associated with lending and it reduces the outreach probability. If we reduce the size of the loan the outreach (the number of customers served) shall increase but it lowers the ROA and financial sustainability (Daher & Le Saout, 2013; Mersland & Strøm, 2010). Therefore, MFIs must become cautious while dealing with small loans as it increases cost inefficiency, therefore harming the sustainability of MFIs (Mian, Muhammad, & Usman, 2010). Whereas, the competition among MFIs further hindered their sustainability (Assefa, Hermes, & Meesters, 2013). These determinants vary with the socio-economic dimensions of the countries and regions, further these determinants also vary over time. The interest rate in the economy has a tricky relationship with the performance of the financial sector. Low-interest rate increases the loan portfolio due to the low cost of borrowing but increases inflation in the economy. Whereas, inflation has an adverse impact on the sustainability of MFIs (Bassem, 2009).

2.2.2 Outreach of Microfinance Institutions

The strategy of every MFI is different for reaching out poor and those who efficiently reach out to the poor are better able to contribute to poverty reduction (Salapki et al., 2015). In Uganda before the 21st century, MFIs provided limited services to the poor and the outreach to the poor was also very limited. Later, they enhanced the portfolio of their services as well as their outreach which has contributed significantly to the economic development in Uganda (Barnes, Gaile, & Kimbombo, 2001). Government bodies should take steps to support MFIs to enhance outreach (serving a greater number of impoverished people). Furthermore, group lending is the better strategy for recovery which leads to higher sustainability (Ihugba, Odii, & Njoku, 2014).

A trade-off between profitability and outreach has been reported in the literature and this trade-off is also pronounced as a reason for the mission drift of MFIs (Mersland & Strøm, 2010). Thus as long as an MFI become financially sustainable, the Government and donors (like NGOs, etc) must take the obligation of MFI's sustainability through subsidies or donations. Competition among the MFIs plays a contributing role in the overall development of the sector as well by enhancing their operations. The state must also play an effective role in managing the competition. This will be a major contribution to the development and strengthening of the microfinance sector (Mersland & Strøm, 2010). Because competition among MFIs has positive outcomes for customers but has adverse outcomes for MFIs (Assefa et al., 2013). Resultantly, the poor will not be able to have a financing facility if there is high competition and low outreach.

However, over the long run, outreach and sustainability may be improved by attaining economies of scale, improving operations, reducing operating costs, improving operating models, and introducing new methods (Manos & Yaron, 2009). Some researchers pointed out that impoverished people are not efficient users of the loan amounts. Therefore, it is the responsibility of the MFIs to provide them with relevant training and motivation them (Kaburi, Ombasa, Omato, Mobegi, & Memba, 2013). This training enables efficient utilization and restrains the wastage of funds (Kaburi et al., 2013), which will increase the recovery by reducing bad

debts. MFIs should formulate strategies that will help people in establishing new micro-enterprises (Isola, Omoluabi, Victor, & Leke, 2016) and become successful entrepreneurs. By safeguarding the poor people will have a low default rate, resulting in a low portfolio at risk and high sustainability of MFIs (Addae-Korankye, 2014).

To work effectively, MFIs should attain internal efficiency, particularly the human element, as a service industry it's very important to have an efficient team (Mula & Sarker, 2013). Training is pivotal (Sila, 2014) because the staff of MFIs needs to be vibrant and skillful in reaching out the poor. It helps them to be an effective part of the economic development of the country (Jones, 2009). Lack of exposure and religious factor may restrain impoverished segments to take microfinance. Trained field staff shall eliminate these obstacles from the path of greater outreach. All this will be a byproduct of good financial performance. However, Huber et al. (2012) explained that internal factors are more important than external factors.

2.2.3 Performance of MFIs

The efficiency of any organization is mainly named for its efficiency. The efficiency of the MFI is largely dependent on the performance of the loans. ROA, cost per borrower, cost per unit amount landed, cost vs revenue, collection cost, recovery rate, re-loaning, profitability, breadth of outreach, and depth of outreach are some common measures of the MFI's performance. The performance of the MFIs increases over time, as an MFI grows older and gets mature in operations (Caudill, Gropper, & Hartarska, 2009).

Studies revealed that Non-Governmental (Not for Profit making) MFIs are more efficient as compared to commercial MFIs in Asia, Africa, and Latin America. NGOs-MFIs are better able to alleviate poverty in the developing region of the world (Haq, Skully, & Pathan, 2010). NGOs are more efficient MFIs and have a higher social impact (Bassem, 2009).

But the MFIs of Latin America, the Middle East, and North Africa are comparatively inefficient. It has been found that MFIs of this region are not wasting their resources even though they are unable to produce much out of their resources

(Hassan & Sanchez, 2009). However, the efficiency of formal MFIs is higher compared to informal MFIs (Ally, 2013; Isik & Hassan, 2002).

Ahmad, Ahmad, and Khan (2014) explained the performance of MFIs could be measured through sustainability/profitability, outreach, and operational & financial efficiency. Sustainability is measured through Return on Assets (ROA) and Return on Equity (ROE). Operational Efficiency is measured through the Number of Borrowers per Staff Member, for financial efficiency Cost per Borrower and Number of Active Borrowers are the proxy for outreach.

Zeller and Meyer (2002) present a model in which they measure the performance of the MFI with the help of a three-dimensional framework. Outreach of MFIs, Sustainability of MFIs, and welfare impact of MFIs. Performance assessment is impossible without measuring its level of accomplishment (Isik & Hassan, 2002). Cost-benefit analysis is also the best way to go for efficiency or performance analysis (Manos & Yaron, 2009).

MFI's performance also depends greatly on the economic performance of the country. MFIs can cover the costs, able to grow, reduce the cost & default rate, charges lower interest rates, and be less dependent on the donor during the period of economic prosperity and growth. MFIs grow with the economy so we can say that MFI's performance is dependent on the environment in which it exists (Ahlin, Lin, & Maio, 2011).

The loan amount and interest rate are inversely associated and have a complex relationship. Higher the amount of the loan lesser will be the cost of lending but the demand for the loan shall also decrease because customers feel safe with small amounts. But due to small loan amounts the administrative cost increases which adversely affects financial performance (Mian et al., 2010). Large loans are cost-effective and contribute positively to the efficiency and sustainability of MFIs. Furthermore, lending to females increases their financial performance due to low default and better payback (Janda & Turbat, 2013). Portfolio yield has been used as the measure of financial performance that's why the concept of mission drift had found its place in academic literature. A high Portfolio yield could be earned by charging a higher amount of interest and this is quite possible where

the competition is low. Further, this measure is ineffective for NGOs and other welfare organizations (A. Nawaz & Iqbal, 2015).

2.2.4 Factors Affecting the Financial Performance of MFBs

MFIs have a vital role in the socio-economic development of impoverished people and the economic development of the country at large (G. Bruton, Khavul, Siegel, & Wright, 2015; Hermes & Lensink, 2007; Niaz & Iqbal, 2019). But the dependency on the donors makes the very important objective of social development vulnerable and fragile (Hardini & Wasiaturrahma, 2020). The increasing number of MFIs and reliance on donors emphasized the need for their sustainability, operational efficiency, and improved financial performance (Tucker, 2001). The social performance (outreach and poverty alleviation) of MFIs could only be witnessed if they are having good financial performance or at least able to attain financial self-sustainability (Hollis et al., 1996; Huber et al., 2012; Ofeh et al., 2017) otherwise they will have vanished (Schreiner, 2000). This goal of poverty alleviation could be attained through the sustainable existence of MFIs (Armendáriz & Morduch, 2010; Battilana & Casciaro, 2012; Battilana & Dorado, 2010). This implies both the social welfare approach as well as the commercial approach (Pache & Chowdhury, 2012; Pache & Santos, 2013) emphasizing a balance between social and financial performance (Battilana & Casciaro, 2012). Therefore, it is pivotal for the sustainable economic position of impoverished people, MFIs must also be self-sustainable (Arora, 2021). Conclusively, for better social performance MFBs must have better and more stable financial performance (Ofeh et al., 2017).

But due to the high-interest rates they are blamed for mission drift (Cull, Demirgüç-Kunt, & Morduch, 2011), as they prefer financial performance and financial sustainability over serving the poor called outreach (Hermes, Lensink, & Meesters, 2011). This higher interest rate hindered the outreach because people perceive it as unjust as well (Khakhan & Siddiqui, 2015). Focusing on outreach shall result in a high cost of operations which hinders their sustainability (Meyer, 2015) Because smaller loans lead to charge higher interest rates and higher administrative costs.

Therefore, MFIs must focus on cost reduction strategies (Kipesha, 2012). But small loans to a higher number of individuals and staff productivity can lead to cost efficiency and operational sustainability (Aveh, 2011). Risk management also plays a pivotal role in their sustainable performance (Ebenezer & Omar, 2016).

As a commercial organization, MFBs are better in their operations, cost management, and delivery (Abate, Borzaga, & Getnet, 2014) by devising a cost-efficient and self-sustainable business model (Badunenko et al., 2021). MFBs are able to transform themselves into more competitive and up-to-date by adopting a sustainable business model. MFBs are also effective in attaining their goal of socio-economic development (social performance) of the impoverished segment of society (Kiiru, 2007; Kipesha, 2012; Niaz & Iqbal, 2019; Nurmakhanova et al., 2015). Moreover, the MFBs working in rural areas are proven to be more efficient and profitable (Hardini & Wasiaturrahma, 2020). The debate on financial and social performance translated into financial sustainability and welfare approaches respectively (Robinson, 2001). The financial sustainability approach highlights the importance of financial performance and proclaimed no mission drift (no trade-off between outreach and sustainability). MFBs must work as conventional banks to become operationally efficient and financially sustainable.

Maiti and Jana (2017) analyzed the determinants of performance of the Banks. They inferred that it's pivotal to increase profitability for the sustainability of the banks and for this they started focusing on increasing the interest rate spread. In the case of MFBs, financial sustainability shall lead to better about the outreach (Nurmakhanova et al., 2015). Whereas, the advocator of the welfare approach highlight that the focus on financial performance shall jeopardize social performance (Shu & Oney, 2014), called mission drift (Hermes et al., 2011). Furthermore, the performance and its parameters vary across countries and regions.

The performance of MFBs is the center of attraction for managers, economists, Government, and policymakers because they all are concerned about the proclaimed social impact of microfinancing (Gaganis et al., 2016). Due to this dual task, the performance and the analysis of the performance of MFBs have two-fold implications. The financial or operational performance of an organization (typically called profitability analysis and its determinants) and its social impact

(social performance as outreach) need to be addressed empirically (Sun & Im, 2015). Mahmood, Khan, Mehmood, Khan, et al. (2014) carried out a comparative analysis of the efficiency of conventional and Islamic MFIs working in Pakistan. The comparison was done based on two input factors total assets and cost per borrower. GLP and the number of borrowers (breadth of outreach) are the output variables. The Islamic MFIs are found to be efficient and sustainable in comparison to the conventional MFIs.

Gaganis et al. (2016) and Ofeh et al. (2017), have analyzed the financial performance of MFIs by taking the data for 32 years. They found that portfolio at risk, operating expenses, and size are significantly affecting the ROA. Recommending to focus on strategies of cost reduction and efficient utilization of resources. Kinde (2012) found the positive effect of breadth & depth of outreach, dependency ratio, and cost per borrower on the financial sustainability of the MFIs working in Ethiopia. However, capital structure and staff productivity have no significant impact on the financial sustainability of MFIs. Quayes (2015) finds a contributing relationship between outreach and financial performance. They have taken average loan size as an indicator of social performance and the number of borrowers as a measure of outreach which is fundamentally a better measure. A higher average loan size brings cost efficiency but it does not necessarily give a social impact. Schäfer and Fukasawa (2011) analyzed the factors affecting the OSS of 500 MFIs operating worldwide. They concluded that outreach, write-off ratio, and regional difference are significantly affecting the OSS. Whereas deposit to GLP and depositors to borrowers' ratios are insignificant. They emphasized the importance of measuring the social performance of the MFBs. Overall supporting the argument that MFIs could only contribute toward their social goals if they can achieve a good financial performance.

Gaganis et al. (2016) has analyzed the performance of over 2000 MFIs operating worldwide. He has proposed a performance evaluation mechanism with the amalgamation of social and financial performance of MFIs. The impact of firm-level indicators on the overall performance of MFIs was also analyzed and concluded that size has a non-linear impact on overall performance. Age has an inverse relationship with the overall performance and NGOs are better performers. GDP also

has a positive impact on overall performance, whereas financial development, CPI, political risk, economic freedom, and flow of FDI are insignificant. Furthermore, the performance and its determinants vary across countries and regions. Aveh (2011) had focused on internal factors such as governance, institutional characteristics, ownership, dependency ratio to assess the success and sustainability of the MFIs working in Ghana. It is inferred that the reduction in drop out positively influences the outreach and sustainability that lead to the success of MFIs. An increase in the number of active borrowers and a reduction in drop-outs help in the reduction of operating costs. Staff productivity and loans of a small amount (depth of outreach) are also positively contributing toward cost efficiency and operational sustainability (Javid & Abrar, 2015). MFIs must reduce their costs (operational, financial, and administrative) or increase their revenues and profits to attain sustainability. Quayes (2012) inferred that to enhance the social welfare caused by MFIs, their sustainability is inevitable. Financial sustainability and social outreach are coherently dependent on each other. MFIs working as NGOs and the MFBs both focus on financial performance to attain self-sustainability. It will enable them to reduce dependency on donors and serve the shareholders respectively. Depth of outreach could explain the profitability and this profitability translated into sustainability.

Kimando et al. (2012) have analyzed the factors affecting the sustainability of MFIs. They concluded that the number of clients, financial regulations, amount of credit, and financial coverage are the main determinants of sustainability. Opening new branches and serving the maximum number of possible clients is a way to attain sustainability. They inferred that the outreach explains sustainability. This led us to our research hypothesis, that the performance (ROA) of MFBs is dependent on the matrix of covariates, such as cost ratios, efficiency ratios, liquidity, profitability ratio, average loan size, Leverage, and GDP. Keeping in view the above discussion, the following hypotheses have been developed.

Research Hypothesis – 1

1.1. GDP is affecting the Financial Performance (ROA) of MFBs.

1.2. Operating Expenses to Total Assets is affecting the Financial Performance of MFBs.

1.3. Average loan size (depth of outreach) affects the Financial Performance of MFBs.

1.4. Liquid Assets to Deposits ratio is affecting the Financial Performance of MFBs.

1.5. Net Interest Income to Total Asset ratio is affecting the Financial Performance of MFBs.

1.6. Debt to Equity (Leverage) ratio is affecting the Financial Performance of MFBs.

1.7. Total Asset turnover ratio is affecting the Financial Performance of MFBs.

1.8. Operating Profit to Total Asset ratio is affecting the Financial Performance of MFBs.

1.9. Operating Expenses to Total Expenses ratio is affecting the Financial Performance of MFBs.

1.10. Equity to Deposit ratio is affecting the Financial Performance of MFBs.

1.11. Advances to Deposit ratio (Loan ratio) is affecting the Financial Performance of MFBs.

2.2.5 Interdependence of Financial Performance, Sustainability, and Outreach of MFBs

Yeshi (2015) analyzed the 11 year's data (2003 to 2014) of 14 MFIs working in Ethiopia. It has been observed that MFIs are operationally sustainable but they are not financially self-sustainable (after adjusting subsidy) due to subsidized lending rates. The study concluded that an increase in depth and breadth of outreach shall increase financial sustainability. However, a tradeoff exists between serving the poor (with smaller loan amount at lower interest rate) and the financial sustainability of the MFI, as loan size negatively affect financial sustainability. He has analyzed the impact of the breadth of outreach, depth of outreach, and cost of outreach on the financial sustainability of MFIs. A significant association has been found between outreach, financial sustainability, and gross loan to asset ratio. However, the breadth of outreach is inversely associated with financial

sustainability. Operating cost is inversely affecting sustainability and outreach. It is recommended to increase the number of borrowers. Shu and Oney (2014) has investigated the relationship between performance and outreach of MFIs in Cameroon against the benchmark of Africa. The data of six MFIs operative in all Cameron were analyzed and concluded that there is a tradeoff between performance and outreach of MFIs.

Hermes et al. (2011) have analyzed the trade-off between outreach and efficiency of MFIs and found a negative association between them. They have empirically tested the data of 435 MFIs gathered over 11 years. Furthermore, average loans and the number of women borrowers (both are the measure of the depth of outreach) are also contributing negatively toward efficiency. Similarly, Sun and Im (2015) investigated the link between outreach and profitability. They explored that MFIs have a moderate level of profitability on average and the loan officers are the key players in the efficiency of the MFIs (both cost efficiency as well as outreach). They suggest that profitability is negatively associated with outreach. Higher profitability shall lead to a lower level of outreach.

Meyer (2015) investigated the linkage between the social and financial performance of MFIs. Two measures of outreach (%age of female borrowers and Avg. loan to GNI ratio) were taken as a dimension of social performance and three measures of performance (ROA, ROE, and OSS) were analyzed. The impact of women's outreach on performance is very small and not statistically significant. Portfolio yield and cost increase with the outreach, reflecting an inverse relationship between social and financial performance. Abate et al. (2014) confirmed the trade-off between outreach and financial efficiency of MFIs. They inferred that outreaching to the poor and cost-efficiency are inversely associated with each other. Lending to women and lending in small amounts both make the MFIs financially inefficient. Financial cooperatives that deal in microfinancing are efficient in their cost management.

Tehulu (2013) inferred that to make people economically sustainable, MFIs must also be financially sustainable. The empirical investigation revealed that the size of the loan, GLP to asset ratio, and size positively explain the financial sustainability of MFIs. Financial sustainability is not associated with Breath of outreach.

Whereas, inefficient management (operating expenses to total asset ratio) and portfolio at risk are negatively associated with sustainability

Olasupo et al. (2014) inferred that MFBs are significantly contributing as a catalyst for financial inclusion. However, their sustainability with better outreach is a milestone yet to achieve. As a financial unit, MFBs are efficient but their outreach is not up to the mark. It is concluded that there must be a balance between the level of outreach and financial sustainability. The average number of clients, gross loan portfolio, location, and source of funds are the determinants of efficiency. They further inferred that a cheaper source of external finance shall help to attain efficiency and enhance outreach at a reduced cost.

Quayes (2015) analyzed the data of 764 MFIs operating in 87 countries of the world and inferred that outreach is positively affecting financial performance. Contrary to the literature they found no trade-off between outreach and financial performance. Nurmakhanova et al. (2015) have also analyzed the social mission (outreach) and financial sustainability to determine the link between these two very important dimensions. They concluded that improving financial sustainability is not contrary to the outreach Breadth and Depth both). It means that financially sustainable institutions shall be better able to attain their social objectives (poverty reduction by serving the financial needs of the poor). They concluded that focusing on sustainability does not affect the outreach, supporting the financial system approach. Size is positively affecting sustainability and leverage is negatively affecting sustainability. MFBs are equally good in their social cause (serving the poor) as Non-profit making MFIs.

Kereta (2007) has also investigated the MFIs with regard to their outreach and financial sustainability. They found that MFIs working in even small towns are financially efficient and sustainable. Furthermore, there is no trade-off between outreach and financial sustainability. Mia and Chandran (2016) have empirically tested the major concern of policymakers to attain greater outreach with sustainability. They emphasized the balanced approach for sustainability and outreach.

Karanja (2014) explained the relationship between financial efficiency and the outreach of MFIs. Average loan size, yield, and net borrowers are positively associated with the outreach. Furthermore, outreach is positively associated with financial

performance. MFIs have a larger number of borrowers their financial performance is positively associated with the outreach. It is signified that without proper outreach MFIs may not survive for a longer period. Resultantly breadth, depth, & scope of outreach, size, cost of operations, financial performance, and scope of contracts all are interconnected.

Savyanavar and Trivedi (2016) has analyzed the performance of 62 commercial banks providing microfinance based on the parameters such as operating self-sufficiency, efficiency, and productivity. The private banks were observed with high costs per borrower. They emphasized that the MFBs must be self-sustainable to continue serving the poorer segment of society. They concluded that those who have achieved self-sufficiency are better able to achieve their social objectives. However, MFBs must serve marginally poor clients and use IT tools to reduce the risk and cost of operations. Furthermore, Sun and Im (2015), described that profitability is positively affecting the outreach. This highlights a contradictory association between financial performance, sustainability, and outreach. It is more logical that financial performance is positively affecting outreach but this relationship is mediated by sustainability and it is empirically tested in this study. This led to our next research hypotheses;

Research Hypothesis - 2: Financial Performance (ROA) leads to Operational Self-sufficiency (OSS).

Research Hypothesis - 3: Operational Self-sufficiency (OSS) leads to outreach (Number of borrowers).

Bhanot and Bapat (2015) have created an index of sustainability to have a holistic view of sustainability by incorporating financial efficiency and outreach of MFIs. The index (developed by amalgamating the sustainability, breadth, and depth of outreach) is significantly influenced by Gross loan portfolio, Number of borrowers per staff member, portfolio at risk>30 days, and return on assets.

Kumar Kar (2011) investigated the determinants of several performance indicators to explore that's why some MFIs are performing comparatively better. Profitability is considered as the sustainability of the MFIs. OSS, ROA, Portfolio at Risk

(30 & 90), operating expenses & total expense per dollar lent, and cost per borrower was taken as performance indicators. Unlike other researchers, ROA is also taken as a measure of self-sufficiency. He concluded that efficiency can be attained without increasing the interest rate and loan size. Breath of outreach and better lending policies can attain sustainability. In this way, there will not be any question of mission drift.

Limited evidence is available that Operational Self-Sustainability (OSS) explains the outreach of the MFIs (Schäfer & Fukasawa, 2011). Hermes et al. (2011) explain the negative impact of outreach on efficiency. Some researchers (Bhanot & Bapat, 2015) amalgamate outreach and sustainability to explain the overall strength of the organization. But it's fundamentally not right, because financial performance leads to sustainability (Mia & Chandran, 2016), and if resources were properly channelized, outreach may be the cause as well as the effect of this relationship. It means outreach and financial performance may complement each other (Adhikary & Papachristou, 2014; Javid & Abrar, 2015; Quayes, 2012). This implies a mediated effect of sustainability to the effect of efficiency on the outreach.

Research Hypothesis - 4: Sustainability (OSS) mediated the relationship between efficiency (ROA) and Outreach (number of borrowers) of MFBs.

Nwachukwu (2014) explained the role of interest rate and institutional design in attaining financial self-sufficiency. The data analysis of 426 MFIs operating in 41 countries for the period of 2004 to 2008 inferred a U-shaped function for the relationship between interest rate and sustainability. Those MFIs who are open are more likely to have better outreach with financial sustainability. Village banks are better in their outreach (smaller loan size).

The interest rate in the economy determines the lending and borrowing rate for all financial institutions therefore it is pivotal to analyze the impact of interest rate fluctuations on the relationship between efficiency and sustainability. This enables us to test the moderated effect of KIBOR on the relationship between ROA and OSS

Research Hypothesis - 5: There is a moderated effect of KIBOR on the relationship between ROA and OSS.

Banerjee and Jackson (2017) have taken the data of 162 MFIs operating in 30 countries of the world to investigate their financial and social performance. They have divided the MFIs into 2 groups (one is commercially operating MFIs and the second is NGO-based MFIs) to investigate the social and financial efficiency of each group separately. In the first stage, they find that MFBs are unable to maintain a balance between social and financial efficiency. Furthermore, larger MFIs are better able to attain efficiency in their social as well as financial performance.

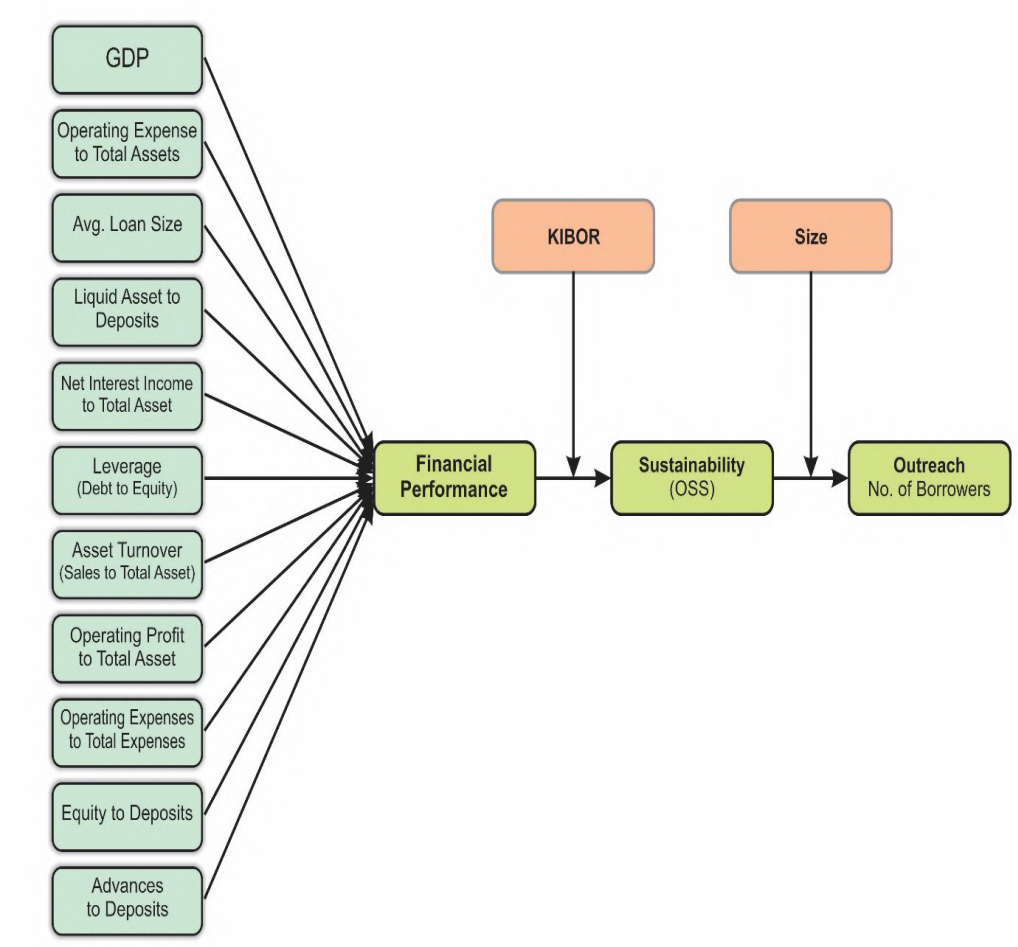

FIGURE 2.1: Conceptualization of Model – I, Determinants of Financial Performance of MFBs and its Impact on Sustainability & Outreach

Javid and Abrar (2015) analyzed the determinants and dimensions of outreach. They inferred that Size is also associated with outreach in all regions of the world. This implies that size has a significant role to play in the relationship between sustainability and outreach. Therefore, we hypothesized that

Research Hypothesis - 6: There is a moderated effect of Size on the relationship between OSS and outreach.

2.3 Model – II, Social Performance (Effect of Microfinance on Socio-Economic Development)

In this study, Model – II is concerned with the social performance of MFBs. This part shall present the theoretical and empirical literature related to a sustainable livelihood, poverty reduction, women empowerment, and enterprise development.

2.3.1 Impact on Poverty Reduction and Sustainable Livelihood

According to Lindvert (2006), the biggest problem in the world is poverty and due to this many other problems arise. Poverty refers to the economic status of people where they lack financial resources. This lack of capital restrained them to unleash their natural talent and inner potential. These people may become successful entrepreneurs if they don't have this financial constraint. Impoverished people's lack of economic resources and their inability to generate external financing further worsen the condition (Rashid & Samat, 2018). To solve these problems, the solution is to give funds to the poor for development purposes. According to Muhammad Younus (founder of Grameen Bank), the main problem is the non-availability of finances, which leads to deterrence in progression. If there is the availability of funds, then this will lead to courage and stamina to achieve something great.

Lack of economic resources is poverty, furthermore, the inability to generate or to have access to external financing is enhancing the vulnerability to poverty (Hermes & Lensink, 2007). These impoverished people do not have financial assistance from conventional financial institutions because they lack a verifiable credit history, good financial health, and stable employment history (Hashemi & De Montesquiou, 2011). That's why, microfinance is considered as a tool for poverty reduction because it provides funds to the poor (Copisarow, 2000; Lopatta et al., 2017). MFIs provide funds to the poor, that give them a launching pad for

their economic wellbeing and socio-economic empowerment (Noreen, 2011; Pitt & Khandker, 1998). Microfinance helps in reducing poverty (Audu & Achegbulu, 2011; Bakhtiari et al., 2006; Lopatta et al., 2017; Rashid & Samat, 2018), improve education, uplifts living standards (S. Nawaz, 2010), improves house construction, better assets and net worth (P. R. Sharma, 2015).

MFIs played a significant role in building a financial system for poor people and have proven to be an active agent for poverty reduction (Chowdhury & Mukhopadhaya, 2012). People use these funds in different ways, some might establish a micro-enterprise, meet healthcare expenditures, and/or meet other domestic needs. Eventually, microcredit contributes positively to the overall well-being of the poor by improving literacy, better earnings, better access to healthcare services, better food, clean drinking water, better-constructed house, better assets, and improved net worth (Littlefield & Rosenberg, 2004). This access to external financing will reduce their vulnerability to poverty (Noreen, 2011) and could get them out of the vicious cycle of poverty (G. Bruton et al., 2015; Hermes & Lensink, 2007; Lopatta et al., 2017; Uddin, 2017).

Microfinance also has a positive impact on health, nutritional status as well as the education of kids. As people with sufficient income prefer to have access to education for their kids and this education is a roadway to growth and prosperity (F. Hossain & Knight, 2008). An increase in income level is pivotal and has been used as a proxy for poverty reduction in many studies, this increase will raise the level of children's education and standard of living. Better education and exposure ultimately help them to raise their income and come out of this poverty circle (Nasir, Zhou, Durrani, & Kennedy, 2013; Uddin, 2017). Microfinance helps the poor to protect their source of income as well as meet their needs and hunger (Littlefield & Rosenberg, 2004). Poverty badly affects the social status of the individual and family on the whole. Because of the lack of resources and relatively difficult life, these people often seek financial help from people around them because of which their self-respect and self-esteem are compromised, which ultimately results in pathetic social status. While having access to financial resources, these poor people will have better social status (Tahir & Tahrim, 2015). Empirical evidence all over the world explains that microfinance promotes the

well-being of the poor by reducing their poverty (Littlefield & Rosenberg, 2004) and is a source of economic development (Westover, 2008). Microfinance has a significant contribution to developing countries of Asia and Africa. MFIs serve poor people to strengthen them financially, which results in significant poverty alleviation over time (Zeller & Meyer, 2002). Furthermore, empirical literature from India (Das & Guha, 2019; Nasir et al., 2013), Ghana (Valead et al., 2018), Nigeria (Agbaeze & Onwuka, 2014), Solomon Islands, and Vanuatu (Feeny & McDonald, 2016), Uganda (Barnes et al., 2001), Indonesia (Patten, Johnston, et al., 2001), Sub-Sahara Africa (Meyer, 2015), Sri Lanka (Kumari, Azam, & Khalidah, 2019; Mohanty, Mohapatra, & Khuntia, 2013), Bangladesh (R. Amin & Becker, 1998; Chowdhury & Mukhopadhaya, 2012; Mazumder & Lu, 2015; Sheel et al., 2018; Westover, 2008), and Pakistan (Durrani, Usman, Malik, & Shafiq, 2011; Montgomery & Weiss, 2011; Niaz & Iqbal, 2019), confirms that microfinance is an effective strategy to reduce poverty.

Microfinance NGOs in Bangladesh are outreaching the poor which has resulted in the economic welfare of their families (R. Amin & Becker, 1998). NGOs working in Africa help poor women by empowering them financially, this resulted in the economic development of those poor and the county as a whole (Audu & Achegbulu, 2011). In Malaysia, it has been found that microfinance contributed positively to the economic well-being of the poor (Al-Shami, Razali, Majid, Rozelan, & Rashid, 2016; Al-Shami et al., 2018; Rashid & Samat, 2018). Along with this, some studies in literature, such as Attanasio, Augsburg, De Haas, Fitzsimons, and Harmgart (2015); Banerjee and Jackson (2017); Rajbanshi, Huang, and Wydick (2015); Stewart, Van Rooyen, Dickson, Majoro, and De Wet (2010) concluded that there is only a marginal impact or no impact on microfinance on the economic well-being of the impoverished people.

Empirical studies confirmed that government, non-government and commercial MFIs are reducing poverty by promoting micro-enterprises (Jones, 2009; Meyer, 2015), and boosting the economy (Patten et al., 2001). Furthermore, the government must play its role in promoting MFIs (Appah, John, & Wisdom, 2012) to end poverty, as the provision of funds motivates to establish small businesses in order to support their families (Deaton & Zaidi, 1999; Khandker & Samad, 2014).

Hossain (2012) has conducted a study to analyze the impact of BRAC on the social well-being of its targeted population. They infer that overall BRAC's services have a positive impact on the social well-being of its customers. That's why microfinance is known as Anti-Poverty Vaccine, having the capability to empower poor people, especially women, of the world (Kabeer, 2005; Reiter & Peprah, 2015).

Microfinance programs promote micro-enterprises and reduce poverty significantly. All over the world MFIs played a significant role such as Grameen Bank in Bangladesh (Chowdhury & Mukhopadhaya, 2012; Hashemi, Schuler, & Riley, 1996; Murshid, Akincigil, & Zippay, 2016; Westover, 2008), Bank Rakyat and other such institutes in Indonesia (Patten et al., 2001; Sanrego & Yulizar, 2008; Tahir & Tahrim, 2015),Khushali Bank and Akhuwat in Pakistan (A. Ali & Alam, 2010; Khan et al., 2011). Along with the development of micro-enterprises, skill acquisition-based education, academic qualification, training, stable jobs, and job training are some of the other ways to get rid of poverty (Bhatt & Tang, 2001; Schreiner & Woller, 2003).

Microfinance also helps their clients to raise their education, many scholarships are given to poor people to get an education and this ultimately helps them to raise their income and come out of this poverty circle (Nasir et al., 2013; Uddin, 2017). MFIs are very important for the progress of developing countries. Like the mainstream financial sector, MFIs are also offering a variety of financial services to the poor, which significantly contribute to poverty reduction by increasing the income level (Barnes et al., 2001; Littlefield & Rosenberg, 2004).

In Pakistan, microfinance has a positive impact on poverty alleviation by raising the income level of poor people. Akram and Hussain (2011) reported that 85.40% of users of microcredit said that their income increased. MFIs are working efficiently for poverty alleviation by helping the poor in the startup of their own businesses. Durrani et al. (2011) describe that if MFIs efficiently provide loans to poor people and they use these loans effectively, it will positively affect income levels and reduce poverty. Therefore, careful policy development for the efficiency of the microfinance sector leads to economic development by reducing poverty (Canale, 2010; Mahmood et al., 2014). Wattoo et al. (2015) describe that microfinance and MFIs are playing an important role in supporting women of Pakistan,

especially in rural areas, which contribute significantly towards their social and economic empowerment. MFIs are working efficiently for poverty alleviation by helping the poor to start a new business at micro-level. Poverty shall be reduced, if MFIs efficiently provide loans to the poor and they use these loans effectively (Durrani et al., 2011). A. Ali and Alam (2010) confirms that in Pakistan credit distribution among impoverished people reduces the poverty level from 6.621% to 3.07%.

Chowdhury and Mukhopadhaya (2012) conducted a study on the 78 villages in Bangladesh. They compared the performance of Government (GO) and Non-Government (NGO) initiatives to mitigate multidimensional poverty. They develop a dynamic model to measure the social, political, cultural, and economic dimensions of poverty. They inferred that NGOs are more effective in poverty reduction.

Lopatta et al. (2017) explained that MFIs must align their social and financial objectives. By applying the Granger causality test, they concluded that microfinance contributed to economic development by developing labor participation and enhancing entrepreneurial activities. Rashid and Samat (2018) conducted a study in Malaysia and concluded that financial assistance to microlevel enterprises improves entrepreneurial venturing, therefore, eliminating poverty as well. Because of tough and bureaucratic elements, the poor were reluctant in getting loans from the formal MFIs and prefer the informal sources of micro-loans. Even then the microcredit contributed significantly towards the attainment of Sustainable Development Goals in Malaysia.

Valead et al. (2018) conducted a study in Ghana to not only evaluate the impact of microfinance but also to study the factors contributing to access to microfinance. They used the poverty index and analyzed the impact through the PSM technique. They concluded that access to microfinance has a significant contribution to poverty alleviation. Furthermore, age, gender (being female), marital status, having a job, and land ownership are the pivotal factors that increase the likelihood of getting microcredit.

Microfinance emerged in many countries as a tool for development and poverty reduction. Africa, Asia, Latin America, and countries of Eastern Europe like

Germany, Norway, and England witnessed the development of the microfinance sector (De Aghion & Morduch, 2004). Over the last ten years, the EU took many initiatives to promote the microfinance sector. Microfinance in Europe is slowly and gradually strengthening itself and it is emerging as an important tool for self-employment, it supports people to start new businesses at the micro-level and to become self-sufficient (Jayo, González, & Conzett, 2010). Cohen et al. (2000); McCulloch and Baulch (2000), and Wright (2000) inferred that microfinance has a positive impact on the well-being of impoverished people.

It increases the incomes of poor people. Microfinance has also a positive impact on health, nutritional status as well as primary education of people (Morduch, 1999). A review of several microfinance projects in Uganda, Zimbabwe, Indonesia, Bangladesh, and India concluded that microfinance has a significant role in poverty reduction (Littlefield & Rosenberg, 2004).

Singh, Mahapatra, Mukherjee, and Bhar (2014) concluded that however microfinance contributed a lot to the economic empowerment of the poor and reduced poverty in the economy significantly but still, there are some limitations of the microfinance sector because of which it cannot attain its target of poverty reduction. So, MFIs should work on their policies to increase their outreach. Therefore, it is inferred that if appropriate policies are designed for smooth working and development of the microfinance sector then MFIs will contribute to economic development by reducing poverty (Canale, 2010). Furthermore, MFIs should expand their resources in the right direction and in the right manner to reduce poverty. One significant way is to increase outreach by promoting micro-entrepreneurship, through the training and motivation of individuals (Arestis & Caner, 2009).

Microfinance enables the poor to attain economic self-sufficiency, and sustainability, which reduces poverty (Audu & Achegbulu, 2011; G. Bruton et al., 2015; Das & Guha, 2019; Lopatta et al., 2017; Rashid & Samat, 2018), improves living standards, improves the education of children (Holvoet, 2004; Noreen, 2011), ensures prosperity (Knight, Hossain, & Rees, 2009), fosters peace, promotes harmony, nurtures economic growth (Ocasio, 2012), and overall rural development (Agbaeze & Onwuka, 2014). Along with exposure to microfinance, the education of the borrower is also a contributing factor to poverty (Awan, Malik, Sarwar, & Waqas,

2011). Eventually, microfinance contributes positively to the overall well-being of the poor by improving literacy, better earnings, better access to healthcare services, better food, safe drinking water, better infrastructure of the house, better assets, and improved net worth (Atmadja, Su, & Sharma, 2016).

In Pakistan, scholars such as Akram and Hussain (2011) and Durrani et al. (2011) mentioned that income levels have been increased and poverty has been reduced among users of microfinance. According to Niaz and Iqbal (2019), among women of Pakistan the social status, empowerment, and income level have been improved, whereas poverty has been reduced significantly. Some other studies in the literature (Augsburg, De Haas, Harmgart, & Meghir, 2015; Banerjee, Duflo, Glennerster, & Kinnan, 2015; Rajbanshi et al., 2015) concluded that there is only a marginal impact or no impact of microfinance on the economic well-being of impoverished people. These diverse opinions in the impact assessment studies are because of different outcome measures and assessment methodologies (Holvoet, 2004; Weiss & Montgomery, 2005), which makes this impact a controversial phenomenon (Noreen, 2011). Sustainable livelihood as an outcome is the recommended measure of poverty reduction (Solesbury, 2003), therefore, adopted as one of the proxies of socio-economic development. Our measurement methodologies and econometric model address the limitations of previous studies with a robust impact assessment framework. Based on this discussion, we hypothesized the following:

Research Hypothesis - 7: Financial inclusion through microfinance significantly influences the sustainable livelihood of impoverished people.

Over time it has been observed that poverty is a multidimensional phenomenon in its implication and effects, therefore must be accounted for in multiple dimensional ways (Asante, 2018; Chowdhury & Mukhopadhaya, 2012). Previously, daily income, expenditure level, nutrition, and food quality were used as an indicator of poverty because according to those researchers, lack of finances and purchasing power is called poverty (Barrett, Carter, & Little, 2006; Dev, 2005). Such single-dimensional measures of poverty lack clarity in quantifying poverty and poverty reduction (Sheel et al., 2018). The World Bank defines poverty as deprivation of well-being (Asante, 2018). Therefore, apart from unidimensional measures, a comprehensive and multidimensional framework must be applied to measure

poverty and poverty reduction in a concrete manner (Ara, Das, Kamruzzaman, & Quayyum, 2017). Therefore, the level of basic needs, human rights, social status versus social exclusion, level of infrastructure of a house, health, and nutritional deprivation are considered as poverty measures (UNDP, 2016).

Over the period, it has been observed that poverty is not unidimensional in its implication nor its effects. Poverty always affects an individual in a multidimensional way therefore poverty reduction must also be observed and accounted for in multiple dimensions rather than just in terms of income per annum (Asante, 2018; Chowdhury & Mukhopadhaya, 2012; Kohl, 1996). Previously, the per day income was the most widely used measure of poverty. Some researchers only use nutrition and food quality as an indicator of poverty, according to their lack of purchasing power to buy the food of the lowest calories intake is called poverty. Such single-dimensional measures of poverty lack clarity in quantifying poverty and poverty reduction (Sheel et al., 2018). Apart from income and expenditure-based measures, a comprehensive and multidimensional framework must be there which could measure poverty and poverty reduction in a more concrete manner (Ara et al., 2017). The level of basic needs, human rights, social status vs social exclusion, level of infrastructure of the house, health, and nutritional deprivation is considered as poverty measures (UNDP, 2020). The education, number of children, number of earning hands in the family, living standard, and access to medical services are considered as variables to assess the dynamics of poverty and poverty reduction (Niaz & Iqbal, 2019). World Bank defines poverty as deprivation of well-being (Asante, 2018). So, it is advisable to incorporate all kinds of basic deprivations to measure the poverty level concretely.

Oxford Poverty & Human Development Initiative (OPHI) introduced a dynamic and comprehensive measure of poverty called the Multidimensional Poverty Index (MPI). It incorporates multiple factors to gauge poverty rather than just relying on income & expenditure-based measures (Alkire & Robles, 2017). In this study, MPI for each respondent has been calculated and incorporated into the analysis. It incorporated deprivations in different facets of life (like education, health, and living standard), faced by an individual, each measure has a further dimension

(sub-classification) with its specified weights. Studies in literature (Akram & Hussain, 2011; Durrani et al., 2011; Jamal, 2008; Montgomery & Weiss, 2011; Noreen, 2011; Shirazi & Khan, 2009) only considered unidimensional measures of poverty and described that microfinance has a positive impact on the livelihood, poverty, and housing. But the methodology of estimating the betterment in livelihood, housing, and poverty reduction had limitations. They have taken improvement in income as a proxy for poverty reduction and quality of life. But multidimensional poverty measures are appropriate and must be preferred (Feeny & McDonald, 2016). Internationally scholars (Chowdhury & Mukhopadhaya, 2012; Feeny & McDonald, 2016; Sheel et al., 2018; Valead et al., 2018) had tried to estimate multidimensional poverty but those measures have limited scope, especially in estimating poverty reduction.

This study incorporates the multidimensional poverty index (MPI) and proposes a living standard index (LSI) as a more dynamic proxy of poverty reduction and growth in living standards respectively. In Pakistan, the evidence related to the impact of microfinance on multidimensional poverty and living standards is limited. It drives the following hypotheses:

Research Hypothesis - 8: Financial inclusion through microfinance significantly influences multidimensional poverty.

Research Hypothesis - 9: Financial inclusion through microfinance significantly influences the living standard of impoverished people.

Poverty badly affects the social status and recognition of individuals and families on the whole. Because of the lack of resources and relatively difficult life these people often seek financial help from people around them due to which their self-respect and self-esteem are compromised, which ultimately results in wretched social status. Improvement in social status is important as this 'could be a driving force for economic progression. Factors like self-esteem and self-respect compel individuals to work harder and leave a sluggish attitude towards their socio-economic condition (Emler, 2001). Access to financial resources shall result in better social status (Durrani et al., 2011; Tahir & Tahrim, 2015). Therefore, it is hypothesized that

Research Hypothesis - 10: Financial inclusion through microfinance significantly influences the social status of impoverished people.

The provision of microfinance through NGOs is considered to be more effective and able to reduce poverty (R. Amin & Becker, 1998; Audu & Achegbulu, 2011; Chowdhury & Mukhopadhaya, 2012). MFBs are blamed to be commercial, less focused on the development of impoverished people (Montgomery & Weiss, 2011), and more focused on their profitability rather socioeconomic well-being of impoverished people (Lopatta et al., 2017). But the commercially operated MFBs may also help in socio-economic development because MFBs are more focused on viable lending and ensure the productive use of funds (Blanco-Oliver & Irimia-Diéguez, 2021). This discussion raises an important question, do commercially operated MFBs really able to contribute towards this goal of the socio-economic development of impoverished people? This compels to the hypothesis given under;

Research Hypothesis - 11: Microfinance through commercially operated MFBs significantly influences the socio-economic development of impoverished people.

2.3.2 Impact of Microfinance on Poverty and Empowerment of Women

Gender empowerment and development go side by side. According to Western Liberal Feminism, gender equality is inevitable for efficiency and economic development. World in Development (WID) developed in the 1970s focuses on multidimensional efforts to make women more empowered. Later Capability Approach (CA) evolved; this is the framework that linked the concept of human development with gender discrimination. They evaluate inequalities in different social arrangements by addressing the issues of freedom and capability (Sen, 1995). In the last three decades governments, non-government organizations, and development agencies of the world have been exerting significant efforts to uplift impoverished people, especially women, to attain equity in society (Benería et al., 2015; Lopatta et al., 2017).

The dictionary (Merriam-Webster) meaning of the word empower is "to give somebody the power or authority to do something or to give somebody more control over their lives or the situation they are in."

Empowerment is the ability to make a strategic choice, which requires power, choice, option, and control in one's day-to-day affairs. According to Narayan (2002), empowerment is "the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control and held others accountable, which affect their lives". Kabeer (1999) describes empowerment as "the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them". Empowerment is a status where one exercises the power of usage over the available resources, which includes self-esteem, autonomy, agency, and self-determination over life and economic resources to affect positively their own and dependent's well-being (Malhotra, Schuler, & Boender, 2002). Furthermore, empowerment is also a process where someone's inability to make a decision turns into the ability to make decisions. Empowering women results in a better living standard, social status, household assets, quality of life, and wellbeing of the whole family (Hermes & Lensink, 2007). In short, uplifting women in all spheres of life and enhancing their socio-economic participation is the objective of MFIs (Aninze, El-Gohary, & Hussain, 2018; Laha & Kuri, 2014).

Women empowerment refers to the ability of women to explore their full potential by owning and controlling material assets, having freedom of choice, determining their destiny, choice of mobility, and autonomy that directly or indirectly affect their lives and the lives of their family members (Battilana & Dorado, 2010; Malhotra et al., 2002; Vaessen et al., 2014).

Women spend most of their income on the expenditures related to food, health, and education of their children (Al-Shami et al., 2018). It means eradicating their poverty means the socio-economic development of the whole family. Therefore, their empowerment is vital to promote gender equality and alleviate poverty. Exposure to microfinance contributed positively to consumption expenditures and entrepreneurial development among women (Aninze et al., 2018; Dutta & Banerjee, 2018). Females have an inherent ability to be responsible, committed, and

innovative (Sultana et al., 2017). The economic uplifting of impoverished women and enhancing their socio-economic participation is the objective of MFIs (Aninze et al., 2018), which will increase empowerment (Basheer, 2017; Noreen, 2011; Weber & Ahmad, 2014) and reduce violence against them. Before using the services of MFIs, impoverished women were taking loans from informal means which increase their social vulnerability. Therefore, women trust MFIs and consider them a source of economic growth and empowerment (Aggarwal, Goodell, & Selleck, 2015; Bakhtiari et al., 2006). Microfinance become a major source of their financial independence (Binaté Fofana et al., 2015).

Microfinance gives financial independence to poor women. Women use microfinance in a better way and play a vital role in poverty reduction and microfinance is playing a vital role in the empowerment of women (R. Amin & Becker, 1998). With this financial inclusion, women can improve their education, start a new business, support children's education, and promote an existing business. Microfinance helps women to be more innovative, resourceful, intellectual, and investigative thinkers. For this very reason, many MFIs particularly target women (through direct lending and/or through SHGs and provide them financial and non-financial services. Lending in groups (SHGs) shall increase their social penetration and build confidence, which makes them feel empowered (Pitt, Khandker, & Cartwright, 2006) and help in building social capital (Feigenberg, Field, & Pande, 2010; Rankin, 2002). In SHGs, they work together and support each other, which improves their exposure, empowerment, efficiency, and income (Batool & Batool, 2018; Palmkvist & Lin, 2015).

According to Al-Shami et al. (2018) and Addai (2017), access to microfinance empowers women psychologically and socially. This availability of financial resources positively contributed to decision-making power, skill development, participation in family development, knowledge, confidence, courage, legal awareness, self-worthiness, and social status (Alshebami et al., 2015; Sutter et al., 2019). This empowerment ultimately translates into growth in family income level, household assets, savings, the standard of living, better education of children, and well-being of the family (Al-Shami et al., 2018; Pitt et al., 2006). Better education further

augments the poverty reduction process (Awan et al., 2011). Providing microfinance to women enables them to contribute to the economic and social well-being of their families, which ultimately leads to the economic development of the country and region (Tariq, Aleemi, Iqbal, et al., 2015). Furthermore, lending to women is far safer for MFIs, the MFI's lending to women yielded high portfolio returns with lesser portfolio risk (Janda & Turbat, 2013; Niaz & Iqbal, 2019; Zulfiqar, 2017). Boehe and Cruz (2013) conducted a study on MFIs operating in Asia, Africa, Latin America, and Eastern Europe, and explained lending to women increases the efficiency of MFIs. Because of better payback and lower default rate lending to women is good for the operational health of MFIs (Al-Shami et al., 2018).

Microfinance plays a significant role in developing countries, particularly in Asia and Africa. MFIs played a positive role in women empowerment by increasing their income and decision making power in India (Biswas & Rao, 2014; Imai & Azam, 2012; Murshid et al., 2016; Murthy et al., 2002; Pitt et al., 2006), Africa (Audu & Achegbulu, 2011; Barrett et al., 2006; Binaté Fofana et al., 2015; Ifelunini & Wosowei, 2012), Kenya (Kiiru, 2007), Ghana (Valead et al., 2018), Yemen (Alshebami et al., 2015) and Malaysia (Al-Shami et al., 2018). In Pakistan, due to microfinance the social status, income and empowerment have been improved (Montgomery & Weiss, 2011; Weber & Ahmad, 2014) and multidimensional poverty has been reduced particularly in rural areas (Niaz & Iqbal, 2019). Wattoo et al. (2015), describe that microfinance and MFIs are playing a significant role in supporting women of Pakistan, especially in rural areas, which contribute towards social and economic empowerment. According to Murshid et al. (2016), more than 30 million women living in Bangladesh are using microfinance services and this figure is increasing with the passage of time. The goal of microfinance programs is not only financial improvement of women but also the improvement of their position in the society. Microfinance NGOs in Bangladesh become a key factor for financial empowerment of impoverish women, which ultimately resulted in the economic welfare of their families (R. Amin & Becker, 1998). Different schemes of MFIs empower the women all over the world, which in turn increase social, economic, political, and household well-being.

On the contrary, the response of people towards microfinance and the success rate of microfinance usage is not the same all over the world (Feigenberg et al., 2010). There is also a piece of evidence that microfinance has no impact on income (Nghiem, Coelli, & Rao, 2012), multidimensional poverty (Asante, 2018), and women empowerment (S. Rahman, Junankar, & Mallik, 2009). Whereas, in some cases, access to microfinance becomes a reason for women's disempowerment and increases violence, particularly when the women lose control over borrowed money (Ganle, Afriyie, & Segbefia, 2015; Garikipati, 2013). Furthermore, the expected socio-economic advantages were postponed when the women are not the true users of funds and the male members take over the decision-making process (Dutta & Banerjee, 2018; Goetz & Gupta, 1996; Rankin, 2002).

According to Alshebami et al. (2015), Empowerment, in its implication, has a number of dimensions and could be measured through these dimensions. Economic, socio-cultural, political, and skill-based indicators are some recommended dimensions to assess empowerment.

Economic Indicator – focuses on the economic side of empowerment and is measured through additional savings, extra earnings, new employment opportunities, additional savings, better control over available resources, and finally participation in financial decision making.

Socio-Cultural Indicator – is the dimensions related to social empowerment. Measure through confidence level, self-esteemed, participation in household decision making, routine purchases, have better education, and confidence in social affairs.

Political Indicator – is the dimension of empowerment related to exercising the right regarding voting and participating in political activities independently. Skill indicator – is the dimension of empowerment related to the skills required to manage the business and day-to-day economic and social affairs. It is measured through education, ability to read, write & record, handle banking transactions, and related processing and job training.

In under-developed countries, women are deprived and powerless as compared to men. They don't have access to education, the right to claim property, and many other facilities of life. According to Kabeer (1999) resources, agency, and outcomes (achievements) are the important dimensions of empowerment. Resources mean

decision-making regarding the available resources. Agency means the ability and authority to make a decision and implement it accordingly. Participation in important decisions of family and control over economic resources to make strategic life choices etc and this is considered to be the main indicator of empowerment (Malhotra et al., 2002). Outcomes mean positive development in socio-economic and socio-cultural issues of women's lives, outcomes reflect betterment in gender relations, mobility, and spending choice over households (decision making regarding the number of children, health issues, food & medical expenditures and educational expenditures, etc). Women empowerment refers to the ability of women to exploit their full potential by owning and controlling material assets, having freedom of choice, determining their own destiny, choice of mobility, and autonomy that directly or indirectly affects their lives and the lives of their family members (Batliwala, 2007; Malhotra et al., 2002; Vaessen et al., 2014). Exercising the power of usage over the available resources is called empowerment. The availability of resources is a prerequisite for exercising that empowerment. Furthermore, in the presence of resources and empowerment, the effective utilization of resources will result in prosperity and development (Kabeer, 1999; Zafar, Afzal, & Khan, 2009).

Microfinance encourages and supports women to start a business at the micro-level and helped them to increase their income and achieve self-sufficiency (Ifelunini & Wosowei, 2012). It reduces inequality and discrimination by empowering women economically which adds value through appropriate decision-making in their families and ultimately in the society at large (Aninze et al., 2018; Laha & Kuri, 2014). MFIs since their inception focuses on women's empowerment, particularly through reducing poverty among women. It enables women to make strategic decisions in their lives. It gives them a way to get rid of extreme poverty (Pokhriyal, Rani, & Uniyal, 2014). This is because 'to support a woman is to support a family and safeguard the future of the kids. Tariq et al. (2015); Weber and Ahmad (2014), and Wattoo et al. (2015) narrated the positive impact of microfinance on women's empowerment and poverty reduction in Pakistan (Basheer, 2017), however, Zulfiqar (2017) reported otherwise.

Participation of women in any kind of microfinance program resulted in their social,

political, and economic empowerment. Membership of women in microfinance programs increases their decision-making power, ability to manage domestic issues, and enables contribution to their family's well-being. These programs also reduced women's vulnerability to family violence (Al-Shami et al., 2018; Hashemi et al., 1996). Family violence, physical or psychological abuse, health-related issues, forced prostitution, and/or unwanted pregnancies are some of the issues faced by women in developing and least-developed countries (Addai, 2017; Yeboah, 2010). Due to financial independence, the probability of such violence reduced significantly (Al-Shami et al., 2018; Hashemi et al., 1996). Women empowerment through financial independence increases the security, self-esteem, social and economic status of women and along with this, It also boosts the living standard of the whole family (Malhotra et al., 2002). With the help of microfinance, women can increase their education, start a new business, support their children's education, and promote an existing business. Females have an inherent ability to be responsible, committed, and innovative (Sultana et al., 2017). Therefore, if women received financial support, then they could serve their families well and could contribute productively towards building a better and more prosperous society. Membership of the microfinance program affects the empowerment of women (R. Amin, Hill, & Li, 1995) increasing their decision-making power, ability to manage domestic issues (Hashemi et al., 1996), and reducing vulnerability to family violence.

Microfinance could empower women, but we cannot say that response of people towards microfinance and the success rate is the same all over the world (Feigenberg et al., 2010). There is evidence that microfinance has no impact on the income of the borrowers (Nghiem et al., 2012) and on women empowerment (Goetz & Gupta, 1996; Leach & Sitaram, 2002; S.-u. Rahman & Smith, 2000) Whereas in some cases access to microfinance has a negative impact on women's empowerment (Ganle et al., 2015), increasing marital violence particularly when the women lose control over the use of loans (Haile, Bock, & Folmer, 2012). Furthermore, the social and economic benefits expected from empowering women were postponed because in some cases women are not the true users of funds raised through microcredit. Though microfinance is not the source of empowerment for every woman on earth however most women do get some empowerment by using the services of

MFIs.

This ends up with a contradictory opinion over the impact of microfinance, which varies with the underline region and socio-economic environment. These different results may be because of different socio-economic environments, different time-frames, different tools used (method of measuring empowerment), different nature of studies (cross-sectional or longitudinal), and socio-political conditions. This study tried to get clarity on the said topic at least for a developing country like Pakistan. This leads us to our next hypothesis

Research Hypothesis - 12: Financial inclusion through microfinance help in reducing the poverty of women.

Research Hypothesis - 13: Financial inclusion through microfinance promotes women empowerment.

2.3.3 Impact of Microfinance on Enterprises Development

SMEs are the backbone of any economy (Tsai, 2015) and catalysts for economic development (Gbandi & Amissah, 2014). Microenterprise development programs take initiatives for training, capacity building, as well as financing the micro-entrepreneurs. Because of such initiatives micro-enterprises have grown significantly (Langer & Orwick, 1999). The development of micro-enterprises is key to promoting the working poor, reducing unemployment and poverty (Balkin, 1989; Friedman & Lichter, 1998; Ilg & Clinton, 1998; Raheim & Alter, 2014; Sutter et al., 2019). But SMEs face many obstacles on their pathway towards economic growth, out of which the major is the financial constraint and inaccessibility to financing facilities (Sutter et al., 2019) because of high risk, lack of traceable credit history, and unavailability of collateral. The source of external financing is key for the development and growth of small industries (Fraser et al., 2015). Small scale businesses could turn into medium-scale and eventually large-scale enterprises, which could also contribute significantly toward job creation. Furthermore, it significantly contributed to the subjective well-being (also known as multidimensional well-being) of the individuals (Bhuiyan & Ivlevs, 2019).

Microfinance encourages and supports people to start a business at the micro-level and helps them to increase their income and achieve self-sufficiency (Afridi, Dinkelman, & Mahajan, 2018; Ifelunini & Wosowei, 2012) microfinance help women entrepreneurs to augment their personal and macroeconomic development through poverty reduction (Peter, Juster, & Judy, 2013; Pokhriyal et al., 2014) and socio-economic empowerment (Omar & Wel, 2014; Wattoo et al., 2015). Overall microfinance positively affects the business performance of women entrepreneurs (Skoufias, Leite, & Narita, 2013), along with the increase in their socio-economic satisfaction and overall wellbeing (Bhuiyan & Ivlevs, 2019; Ekpe, 2011; Reavley & Lituchy, 2008). People with socially and economically humble backgrounds are the target of MFIs (Basargekar, 2011), Microfinance helps in reducing their poverty as well as motivates low-income holders to establish small businesses (Deaton & Zaidi, 1999).

Internationally, microfinance services have been widely adopted for microenterprise development and poverty eradication strategy (Peattie, 1987; Sutter et al., 2019). There are a number of studies in the literature that try to find that there is a significant impact of microfinance on entrepreneurial development. Impoverished people who could not employ in any large-scale organization because of their unskillfulness may become the owner of their own businesses. Small loans to businesses could make a significant difference in their operational and financial efficiency (Francis et al., 2013). MFI turns jobless and poor people into businesses entrepreneurs (Eversole, 2003; Khandker & Samad, 2013; Olu, 2009). Therefore, MFIs are the source of economic prosperity at large (Jocumsen, 2004) as they directly or indirectly affect all the stakeholders (individuals, corporations, Government, etc) of the society (Samson, Olubunmi, & Adekunle, 2013). But this contribution is greatly hindered because of the low demand for the loan in the least developed countries. This is because of the collateral requirement (Nendakulola, 2015), socio-cultural factors (Niaz & Iqbal, 2019), high-interest rate, and low level of education (Raza, 2014), which discouraged individuals to take a loan from MFIs. However, customer orientation (Nendakulola, 2015; Quaye, 2011) and instrumental freedom (Kimmitt & Munoz, 2017) are the solutions to all these problems.

There is a significant difference in the financial performance of entrepreneurs who

availed the facility of microcredit and those who don't (Adams & Page, 2003). MFIs become the catalyst of prosperity by developing skillful entrepreneurs in the economy (Osunde & Mayowa, 2012). Access to financing reduces the poverty level and its effects on other facets of one's life. Sustainable MFIs could outreach to a greater number causing a greater impact (P. R. Sharma, 2015).

The role of microfinance in entrepreneurship development is more than significant (G. Bruton et al., 2015; Langer & Orwick, 1999). Microfinance programs develop personal entrepreneurial skills, improve confidence level, decision-making abilities, and ability to stand in front of tough circumstances, which ultimately increase their self-esteem. Microfinance enables borrowers to not only start their own businesses rather they enhance their structural and relational social capital. This social capital causes greater mobility of resources, diversity in the business activity, and expansion in the size (Ojong & Simba, 2019). Greater social capital and higher inter-personal entrepreneurial skills will lead to more productive use of loan amounts (Basargekar, 2011).

Limited depth and breadth of outreach, lack of skills, and skill-oriented training of micro-entrepreneurs are the basic hurdles in enterprise development (P. R. Sharma, 2015). In order to use micro funds properly many MFIs are providing training to nurture Micro-Entrepreneurs. Many organizations are giving compulsory training of different time spans to lending group/s during weekly or monthly meetings (Karlan & Valdivia, 2011). Especially in the case of women, the impacts of initial training to start a new business help them not only in successful start of new business but also encouraged them and gave them hope that they can increase their incomes and support their families (Dumas, 2001). MFIs not only contributed to entrepreneurial development by training the entrepreneurs to enhance productivity, customer satisfaction, profitability, and the overall expansion of the existing business ventures. The process of development also contributes toward educating them regarding the marketing techniques, which significantly transform poor individuals into more trained and seasoned business entrepreneurs (Akinbola, Ogunnaike, & Tijani, 2013).

Good entrepreneurship skills can be taught through proper training & development mechanisms (Lahimer, Dash, & Zaiter, 2013; Nag & Das, 2015). The

workshop, seminars, and (formal & informal) training contributed significantly to entrepreneurial development, which leads to the growth of MSEs (Waithaka, Marangu, & Ngondu, 2014). So proper training must be given to micro-entrepreneur by the MFIs so that they can use their funds in setting up new micro-enterprises effectively. MFIs can teach people how to do effective business, and how to increase sales & profits (Delmar, Davidsson, & Gartner, 2003; Karlan, Ratan, & Zinman, 2014). Manaf (2017) has found a significant impact of training provided by the MFIs to entrepreneurs. The higher the frequency of the training higher the will be entrepreneurial development (Musau, 2015). MFIs should develop those strategies which are flexible and address individual issues effectively (Bauchet, Marshall, Starita, Thomas, & Yalouris, 2011). In this regard, the role of the Government is pivotal; Government should create awareness regarding entrepreneurial development (Akpan & Nneji, 2015; Samson et al., 2013) presence of Government support may cause less impact but the absence of the government's positive and effective intervention shall be disastrous (Kulemeka, Kululanga, & Morton, 2015).

The reform perspective inferred that microfinance enables entrepreneurship to flourish (Sutter et al., 2019) by strengthening the operations of Small and Medium Enterprises (SMEs) (Chirkos, 2014). The capital formation through microfinance will eventually support the large-scale industry as well. The lack of finances causes a reduction in stamina to take initiatives and risks which ultimately limits the growth potentials of micro-entrepreneurs.

Financial inclusion through microfinance contributes positively to the growth of MSEs (Micro and Small Enterprises) (Ihugba et al., 2014; Isola et al., 2016). MFIs must understand that workshops and seminars for entrepreneurial skill development and comprehensive counseling and consultancy are very important for microenterprise development and growth (Waithaka et al., 2014). Along with this, forward and backward integration through social linkages also plays a pivotal role in the development of microenterprises (Ramakrishna, 2014). Lending in SHG, particularly to women ignites the entrepreneurial career of women, developing structural and relational social capital (Ojong & Simba, 2019). With this initial capital, they start business-like agriculture, manufacturing, trading, and services. Eventually, this entrepreneurial development positively contributes to the overall

well-being of the poor by improving literacy, women's empowerment, better earnings, better healthcare services, better food & drinking water, improved house construction, better assets, and net worth (P. R. Sharma, 2015).

There are some pieces of evidence about the role of financing in the betterment of organizational performance. But the exact impact of the extra financing facility and the performance of the organization is not known. This exact relationship, if known, will help micro-entrepreneurs significantly (Engström & McKelvie, 2017). The type of financing is also affecting organizational performance, growth pattern varies with the variation in the type of financing. One way to decide about the type of financing is to carefully consider the policy decision about the creation of institutional infrastructure (Fraser et al., 2015).

Microfinance reduces the dependency of micro-enterprises by increasing their financial liquidity (Isola et al., 2016), enabling micro-entrepreneurs to put dedicated effort, improve quality, better care for all stakeholders, and ultimately attain sustainability (Majukwa, 2019; Rousseau, 2015). Microfinance causes poverty reduction, with better access to food, education, and medical facility. Furthermore, it also influences human capital development, child labor, housing, job creation, social cohesion, and business expansion (Brau & Woller, 2004; Hartarska, Parmeter, & Nadolnyak, 2011; Kiiru, 2007; Kimmitt & Munoz, 2017; Van Rooyen, Stewart, & De Wet, 2012).

Makorere (2014) has analyzed the SMEs receiving microfinance and inferred that access to microfinance services causes growth in sales and profits of the business. It also increases business outreach (in terms of branches and services) and employment. The services of MFIs to enhance entrepreneurial skills like business training and grace period performed better than others. The supportive policy framework of the government and the financial sector of the country is vital for the success and sustainable growth of SMEs, which could translate into poverty alleviation. It is not just the provision of microfinance that could ensure the success and growth of SMEs. The right size of the loan at the right time with more customer-oriented policies is the key to SME development (Nendakulola, 2015; Grace & Tomola, 2008). Owners' education, loan size, loan terms, location of the business, incorporation of the technology into business operations, and the size of the business are

the significant contributing factors toward SME growth.

Microfinance helped micro-entrepreneurs to have greater market share, competitive advantage, and growth by having innovation in the business process and practices (Bagudu, Khan, & Roslan, 2016). Access to micro-credit has a significant positive impact on sales and employment growth. However, the interest rate charged (Mohd Ruslan, 2018), loan size, and tenure (Omodolapo, 2017) is the major determinant of financing decision. Wu, Si, and Wu (2016) explained that innovation in business operations is the key to entrepreneurial success whereas financial constraints are the major hindrances to this success. Oleka, Maduagwu, and Igwenagu (2014) inferred that the size of the loan, tenure of the loan, and interest rate have a significant impact on the growth and expansion capacity of micro-entrepreneurs. Ravi and Roy (2014) explained that there is a significant impact of microfinance on the survival, growth, and productivity of micro-small and medium enterprises.

Therefore, microfinance is inevitable for the development of MSEs (Gyimah & Boachie, 2018; Mohamud & Awale, 2016). However, the productivity associated with microfinance is greatly dependent on entrepreneurial skillfulness (Basargekar, 2011). The provision of microfinance does not solve all problems of impoverishing people but it ignites the process through financing their business ideas. Microfinance is a major source of strengthening the operations of SMEs (Chirkos, 2014).

MFBs contributed significantly to the entrepreneurial environment through the provision of financial and non-financial services (Akpan & Nneji, 2015). However, the performance of micro-enterprises and the utilization of funds are linked with innovation, technological factors, business skills, and awareness (Ferdousi, 2015).

On the contrary, Babajide (2011) observed no significant effect of activities of MFIs on entrepreneurial development. Some studies (Banerjee et al., 2015; G. Bruton et al., 2015; Kar & Swain, 2014) indicated that the impact of microfinance on entrepreneurial development is not as enchanting as it is expected. Furthermore, the risk-averse attitude of MFIs due to their profit orientation resulted into a barear for the start-ups of micro-enterprises (Shahriar, Schwarz, & Newman, 2016). But the core theme of supporting individuals who have financial constraints for new

ventures is compromised by the for-profit MFIs, which hindered the development of micro-entrepreneurship and new micro-enterprises (Banerjee & Jackson, 2017; Newman, Schwarz, & Borgia, 2014; Shahriar et al., 2016). This leads to a need to assess the impact of financial inclusion through commercially operated MFBs on enterprise development in Pakistan.

Research Hypothesis - 15: Financial inclusion through microfinance significantly influences Enterprise Development.

2.3.4 Sustainable Development Goals (SDGs)

SDGs are comprised of moral and economic principles for individuals and corporates designed to attain safe and sustainable growth for everyone. UN set seventeen goals along with 169 targets (to make this world a better place to live for everyone) to be attained by the year 2030. Developed and developing countries face unique challenges in attaining these targets (UNDP, 2016). A considerable transformation in the routine course of life is required to make the social and economic environment more sustainable. Therefore, it covers the goals of sustainable consumption, production, and energy utilization to have sustainable growth, along with countering the causes and effects of climate change. Among seventeen SDGs, the six (end poverty, end hunger, ensure healthy lives, quality education, clean and safe drinking water, and Gender equality) are directly associated with the socio-economic status of the impoverished segment of the society (Sachs, 2012). Uplifting this socioeconomic status could be the gateway to economic prosperity (Rashid & Samat, 2018) and ultimately sustainable development (Kulb, Hennink, Kiiti, & Mutinda, 2016). The provision of microfinance to impoverished women could be a launching pad for these development goals (Tariq et al., 2015) by reducing their poverty (Montgomery & Weiss, 2011). Therefore, these are under discussion in this study. As poverty eradication is the gateway to economic development and equity in society so it is asserted that these goals could be achieved through financial inclusion.

MFIs are considered as a major tool for achieving MDG and poverty reduction (Rashid & Samat, 2018). When small loans have been given to poor people they

can set up their new micro-level businesses and/or invest in the existing business (Montgomery & Weiss, 2011). Through consumer-oriented services of MFIs and by utilizing their skills, they can increase their income, and the level of education of their children, build and reconstruct their houses and get socio-economic empowerment (Audu & Achegbulu, 2011; Bakhtiari et al., 2006; Niaz & Iqbal, 2019). Canadian International Development Agency (CIDA) is committed to achieve international development goals set by OECD and MDGs set by the UN to end poverty by supporting those who live below the poverty line (Morduch & Haley, 2002). Research literature has a piece of rich evidence that microfinance increases income (Khandker & Koolwal, 2011; Pitt & Khandker, 1998; UNICEF., 1996; Wright, 2000), reduced poverty (Cohen et al., 2000; McCulloch & Baulch, 2000; Wright, 2000), and helps in achieving MDGs. The 50% poverty has been reduced because of such an initiative (Sarkar & Dhar, 2011).

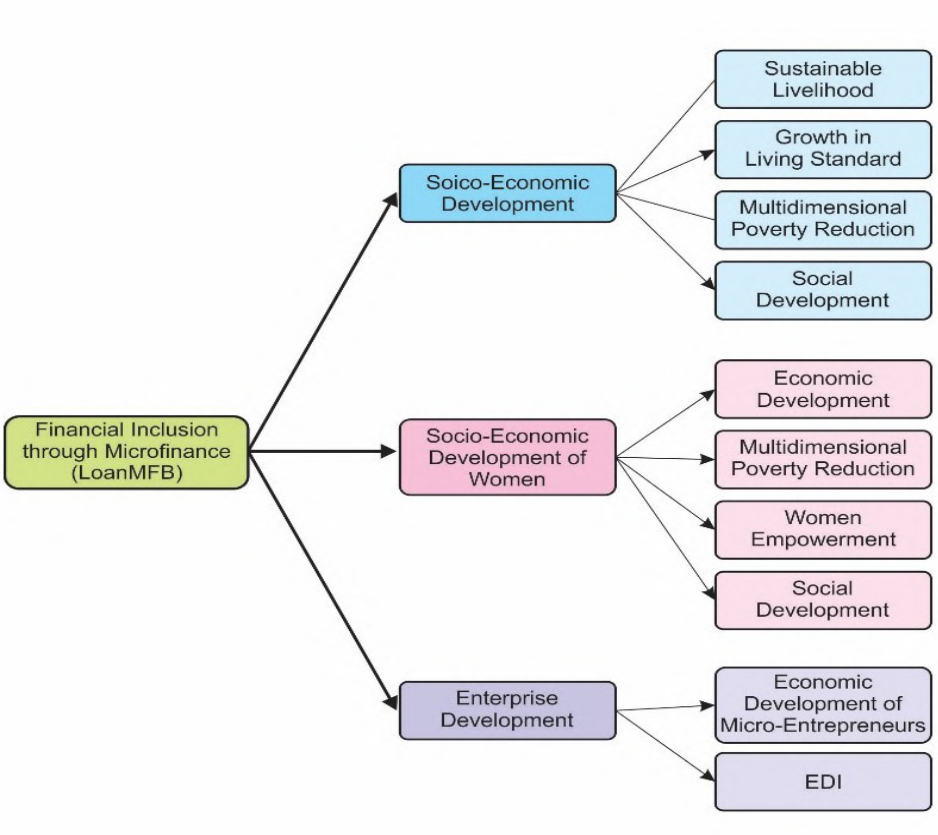

FIGURE 2.2: Conceptualization of Model – II: Social Performance of MFBs.

The tendency of the state to adopt MDGs and SDGs is another contributing factor to alleviating poverty. Asadullah and Savoia (2018) evaluated 89 developing economies for the period 1990 to 2013. They have concluded that the adaption

of MDGs and the implementation of relevant policies resulted in a significant poverty reduction. Furthermore, the impact on poverty reduction is more in the countries where the income poverty was higher previously. Sustainable growth in their livelihoods shall improve their socio-economic status, particularly in the poorer (Asadullah & Savoia, 2018; Mazumder & Lu, 2015), which will result in the accomplishment of these development goals (Montgomery & Weiss, 2011). Financial inclusion is considered to be a catalyst for the accomplishment of these goals. As poverty eradication is the gateway to economic development (Ocasio, 2012) and equity in society, therefore, other development goals could be achieved by eradicating poverty (Rashid & Samat, 2018). The tendency of the state to adopt these development goals and implement relevant policies is another contributing factor to alleviating poverty significantly. Only inclusive growth shall result in real sustainable development and for this financial inclusion could play a pivotal role (Wilson, 2012). Based on these arguments it is hypothesized that:

Research Hypothesis - 16: Financial inclusion through microfinance significantly contributes to the accomplishment of SDGs.

Chapter 3

Research Methodology

This chapter shall describe the research design with the detailed methodology adopted in this study. Here the sample, sampling technique, sources of data, and related empirical investigation (according to the model) shall be described comprehensively. As discussed earlier, this study is comprised of two parts, first part is related to the financial performance, its impact on sustainability, and outreach of the MFBs working in Pakistan. The variable description, model comprehension, and related analysis techniques related to Model-I shall be presented in the first part of this chapter.

The second part is related to the impact of microfinance on the socio-economic status of people living in poverty (social performance of MFBs). As social performance is related to the socio-economic development of impoverished people therefore primary data has been gathered to estimate multiple measures of this socio-economic development. The variable description, data collection instruments, data collection procedure, variables & variable measurement, model comprehension, and related analysis techniques related to Model-II shall be presented in the second part of this chapter. The research methodologies followed in each part are described accordingly. In this research work multiple statistical techniques were used to make inferences. Then those inferences were retested with other statistical techniques to check the robustness of the results. Those finds which were aligned in all the techniques were reported and others were dropped. To analyse the socio-economic development, most of the Dependent variables used are binary variable in nature so Logistic regression has been used for the inferences.

3.1 Model – I: Determinants of Financial Performance and its Impact on Sustainability and Outreach of MFBs

3.1.1 Research Design

A causal research design is followed in this study. What causes the financial performance of MFBs and how well does it causes the sustainability and outreach of MFBs.

3.1.2 Time Frame of the Study

The first part of the present study is quantitative and based on the secondary dataset of MFBs working in Pakistan. Therefore, the panel dataset from the period 2010 to 2020 has been taken.

3.1.3 Unit of Analysis

Considering the research questions/objectives, the present study will consider the MFBs operating in Pakistan as a unit of analysis.

3.1.4 Sampling Frame

The population is defined based on the unit of analysis; this could be individuals, groups of individuals, and organizations (Sekaran & Bougie, 2016). As the present study considered the MFBs of Pakistan, therefore all MFBs are the population for this part of the study. Panel data, is the set of data comprised of cross sections over time. It has the properties of corss-sectional as well as the longitudinal data. As of longitudinal data the observation were collected over time and as cross sectional data, it has many identities/individuals who's data has been collected. It contain more information than any other form of data set. Table – 3.1 presents the details

related to the panel data taken for analysis. The data is downloaded from the data bank of SBP and the websites of respective MFBs.

TABLE 3.1: Panel Data of MFBs for Analysis

MFBs	**Years** [Data Availability]
APNA Microfinance Bank Ltd	2010-2020
FINCA Microfinance Bank	2010-2020
Khushhali Bank Ltd.	2010-2020
National Rural Support Program Bank Ltd	2010-2020
Pak-Oman Microfinance Bank Ltd.	2010-2020
Telenor Microfinance Bank Limited	2010-2020
The First Microfinance Bank Ltd	2010-2020
Sindh Microfinance Bank Limited	2015-2020
U Microfinance Bank Ltd.	2010-2020
Mobilink Microfinance Bank Limited	2011-2020
Advance Microfinance Bank	2010-2020

3.1.5 Missing Value

After searching from multiple resources, cross-validation, and basic screening of the data, it has been observed that some values were missing in the dataset. To meet the methodological requirements (related to SEM) it is pivotal to treat these missing values. Therefore, the missing values were replaced with the mean value of the three years accordingly.

3.1.6 Research Methods

This part of the study emphasized the identification of the determinants of financial performance of MFBs, which could lead to sustainability and ultimately to better outreach. It is asserted that lack of OSS is the major hindrance in the outreach, therefore, higher OSS shall result in better outreach. The moderating role of Size in the relationship between financial performance and OSS has also been analyzed. Furthermore, the moderating role of KIBOR in the relationship between OSS and outreach has also been empirically tested.

Unlike univariate analysis based on ratios (Agarwal & Sinha, 2010; Bi & Pandey, 2011; Tucker, 2001) and separate two-stage analysis (Gaganis et al., 2016), this

study carried out an empirical investigation to account for financial performance and social outreach with a mediated role of self-sufficiency. For assessing the performance of underline MFBs, ratio analysis has been carried out, later these ratios have been used for further empirical inferences. Ratios are an important tool as they help to identify and to assess bank-specific factors. This study uses secondary data (gathered from SBP and financial reports of the MFBs) for the calculation of these ratios. **Table 3.2** shows the ratios, their description, and calculation. Along with the ratios, different variables like one year KIBOR (Karachi Inter-Bank Offer Rate), and GDP have also been incorporated into the analysis. Structural Equational Modeling (SEM) technique has been adopted for empirical investigation and causal inferences.

3.1.7 Model Fit

To analyze a structural relationship between a set of variables, SEM is a trusted multivariate statistical tool. To estimate the structural model, maximum likelihood estimates with S.E and Chi-square statistics were used. In this multivariate statistical tool 'GFI' (goodness-of-fit index) is used to ensure the fitness of the model and data. This tool further allows to ensure the goodness of the data with the help of 'RMSEA' (Root Mean Square Error of Approximation), Comparative Fit Index (CFI), Normed Fit Index (NFI), Normed Chi-Square (CMIN/df), and the Adjusted Goodness of Fit Index (AGFI).

The model is considered good fit if CFI $\geq$ 0.93, GFI $\geq$ 0.90, AGFI $\geq$ 0.90, and NFI $\geq$ 0.90, furthermore, CMIN/df $<$ 3.0, RMSEA $<$ 0.06 (Byrne, 2010). Limitation of Chi-square the assumption of normality is critically important, if the model is appropriately specified but the data is not normal then the model may be rejected by the chi-square statistics (McIntosh, 2007). Secondly, the chi-square test is highly sensitive to the sample size used for analysis (Bollen & Long, 1993), for a large sample the results shall reject the model, and for a small sample test is not reliable to differentiate between a good fit and a bad fit model (Bentler & Bonett, 1980). Data of all the banks have been taken from the financial reports of the Banks. After careful screening of the data financial ratios were calculated (formulas were explained in **Table 3.2**). The macroeconomic condition affects the

banking operations and their profitability greatly (Maiti & Jana, 2017; Samad et al., 2015), such as GDP (Gaganis et al., 2016). Data of macroeconomic variables such as GDP and KIBOR was taken from the websites of the World Bank and State Bank of Pakistan (SBP).

As advocated by Nurmakhanova et al. (2015) and Quayes (2015) sustainability explains the outreach. The same shall be tested for the MFBs working in Pakistan. Depth of outreach explains the profitability and this profitability translated into sustainability. The performance of any organization is dependent on the efficiency of the business model, governance, resource utilization, and managerial quality. This performance could be observed through the ratio analysis of the firm.

3.1.8 Operationalization of Variables

In outreach, sustainability, and mission drift relation studies, the selection of the variables is critically important because due to the difference in the selection of variables the results change significantly (Kipesha, 2013). According to Odero (n.d.), sustainability is the point where one fights for its existence and serves others simultaneously. As recommended by Bhanot and Bapat (2015); Gaganis et al. (2016); Issaoui et al. (2009); Kereta (2007); Maiti and Jana (2017); Meyer (2015); Ofeh et al. (2017); Quayes (2015), and Samad et al. (2015), ROA is used as a proxy of operational efficiency. In some studies such as Kumar Kar (2011), ROA is also taken as a measure of self-sufficiency, also called sustainability.

OSS is an important measure of performance for MFIs (Aveh, 2011; Kumar Kar, 2011; Quayes, 2015). Unlike Kumar Kar (2011), who has taken profitability as a measure of sustainability, we have taken a most appropriate measure of sustainability. It measures the self-sufficiency in generating the financial revenue to meet its costs (Schäfer & Fukasawa, 2011). It reflects that MFBs are delivering services to the customers in a profitable manner and are no more dependent on the subside (Nurmakhanova et al., 2015). The ratio of "1" or "100%" indicates the breakeven point where the MFB is fulfilling all its operating costs. OSS (if the ratio is higher than "1") shall also be treated as Financial Self-Sufficiency (FSS) (Quayes, 2015). It reflects the degree of independence from donors and donation amount.

As recommended by Savyanavar and Trivedi (2016), the independent variables used in this study, are the bank-specific performance indicators and the macroeconomic variables. Table – I describe all the variables. GDP is expected to contribute positively toward the efficiency, sustainability, and outreach of MFBs (Sun & Im, 2015) because it each raises funds in the larger economies (Woods & Baranowski, 2007) therefore, incorporated as an exogenous variable in the study.

The size of the institution has a direct influence on the overall performance (Gaganis et al., 2016; Sun & Im, 2015; Javid & Abrar, 2015; Kumar Kar, 2011; Quayes, 2015; Tehulu, 2013) as well as the outreach of MFIs (Nurmakhanova et al., 2015), therefore, incorporated in this study. As outreach could be influenced by the organization's resources, therefore, different studies (Bensalem & Ellouze, 2019; Javid & Abrar, 2015) concluded that size, as an exogenous factor, positively contributes to outreach. Size is not affecting the efficiency and outreach directly as considered by many researchers such as Bensalem and Ellouze (2019). The large size organization could also be a source of inefficiency. There is contrary evidence available on the direction and relationship of sustainability and outreach. Therefore, we have tried to identify the moderating role of size in the relationship between sustainability and outreach. Size is measured as the natural logarithm of the total assets owned by MFBs (Bensalem & Ellouze, 2019; Kumar Kar, 2011).

As emphasized by Bhanot and Bapat (2015); Kyereboah-Coleman (2007), and Wald (1999), we have incorporated the Leverage (Debt to Equity) ratio as an explanatory variable. Leverage is a key determinant to explain the efficiency and overall stability of the organization (Javid & Abrar, 2015; Quayes, 2015; Tehulu, 2013). As suggested by Hermes et al. (2011) average loan size is also an important determinant of the efficiency and performance of MFIs. The operating profit to total asset ratio is an important ratio to gauge the financial performance of MFIs as it covers the effect of total expenses as recommended by Gaganis et al. (2016) and the total revenue as recommended by KHAN (2010).

Interest rates are closely linked with the loan size (Meyer, 2015) and the overall performance of the financial institution. The borrowing rate is dependent on the KIBOR and it directly affects the lending rate. This lending rate directly

influences the number of loans, amount of loans, number of customers served, etc. The interest rate spread is critical for the efficiency and sustainability of the MFBs.

Along with others, one very important expense is the financial cost is born to borrow the funds. But this borrowing rate is also dependent on the monetary policy rate, KIBOR, etc. Furthermore, it is also important to see at what rate the MFBs are lending. Therefore, in this study, we incorporate the net interest income to the total asset ratio (to incorporate the borrowing and lending rate in the analysis) as an explanatory factor for the financial efficiency of MFBs.

Therefore, the Net Interest Income to Total Asset and the KIBOR are important factors to be included in the study. Net interest income to the total asset is incorporated as a potential determinant of efficiency and sustainability. Whereas KIBOR is another variable used as a moderator in the model. The figure of KIBOR in respective years has been taken from the website of SBP.

Sustainability is positively affected by interest rate (Javid & Abrar, 2015) but the interest rate is also an exogenous factor therefore in this study the KIBOR is used as a moderator in the relationship between efficiency and sustainability. Furthermore, the impact of efficiency on the outreach is mediated by sustainability. This reflects that not only the efficiency, but its persistence shall contribute to sustainability and outreach.

The number of borrowers is an important variable used as a proxy for outreach. As recommended by Aveh (2011); Sun and Im (2015); Kumar Kar (2011); Nurmakhanova et al. (2015); Schäfer and Fukasawa (2011), and Tehulu (2013) number of borrowers in 1000s is taken for empirical investigations.

The average loan balance is also an important factor contributing to the performance of MFIs (Aveh, 2011; Hermes et al., 2011; Kumar Kar, 2011; Quayes, 2012; Tehulu, 2013). It's calculated as Gross Loan Portfolio (also known as advances) divided by the number of active borrowers (Mia & Chandran, 2016).

Operating expenses explain the efficiency and sustainability of MFIs (Kumar Kar, 2011; Kipesha, 2012; Mahmood et al., 2014). Operating expenses are more important to consider (Bensalem & Ellouze, 2019; Kar & Swain, 2014), therefore incorporated in the analysis unlike Quayes (2015), who has considered the total

expenses as a determinant of profitability. Cost is associated with the level of activity (Aveh, 2011) that could be associated with the GLP, total assets (Kar & Swain, 2014), number of borrowers (Quayes, 2015), or the total number of clients. In this study, operating efficiency is estimated through the operating expense to total assets ratio (as prescribed by Kar and Swain (2014) and operating expenses to total expenses that can explain efficiency and sustainability. Cost efficiency is pivotal for the overall efficiency and performance (Hermes et al., 2011; Sun & Im, 2015; Meyer, 2015), therefore operating expense to total assets (also called Management Inefficiency) (Ledgerwood, 1998; Meyer, 2015; Tehulu, 2013) and operating expense to total expenses were incorporated as a prospective explanatory factor to the efficiency of MFBs. As small loan size is reported to be a source of inefficiency by increasing the operating expenses (Cull, Davis, Lamoreaux, & Rosenthal, 2006; Yeshi, 2015) therefore, in this study operating cost as a portion of the total cost is incorporated to gauge whether or not the higher operating cost led to inefficiency. The liquid Assets to Deposit ratio is also a significant determinant of the performance of financial institutions. This portrays the efficiency of management in managing the assets. Funds generated through deposits must be optimally utilized in lending rather than keeping them in liquid form. This ratio may also be termed as the measure of management inefficiency.

Following are the ratios calculated based on the data gathered from the financial reports of MFBs. These ratios shall be used as variables for further empirical investigation in SEM.

3.1.8.1 GDP

The Gross Domestic Product (GDP) of a country is the value (in monetary terms) of goods and services produced in a country over a specified period. GDP is the exogenous factor used in this study as an independent variable. GDP is generally affecting all the business enterprises working in the economy. In the case of MFBs, it affects the performance more rigorously. MFB's performance is dependent on the loan performance given to financially vulnerable individuals and macro-economic conditions could affect them rigorously. Therefore, annual GDP is added as a determinant of the financial performance of MFBs.

3.1.8.2 Operating Expenses to Total Assets (OEtTA)

Operating expenses to total assets is the measure of a bank's ability to manage its expenses. Total operating expenses are associated with its size, therefore, it's appropriate to calculate this ratio by dividing the total operating expenses by its total assets. This ratio reflects the cost efficiency of the management.

3.1.8.3 Average Loan Size (AvgLoan)

In the case of banks, the loans are profit-generating resources and a higher ratio may cause higher profitability with cost efficiency, therefore a higher average is preferable. But in the case of MFB average loan is the reflection of its outreach, therefore lesser is recommended as per the socialist school of thought. It is also known as depth of outreach.

3.1.8.4 Liquid Assets to Deposits (LAtDeposit)

Liquid assets to deposits are one of the most important measures of the liquidity of the bank. It indicates the percentage maintained as liquid assets out of total deposits to meet the bank's short-term obligation. The lesser the ratio better will be the performance, as in most cases, liquid assets are non-earning assets. The higher the portion of earning assets better will be performance, similarly lesser the liquid assets better will be the performance.

3.1.8.5 Net Interest Income to Total Asset (NInInctTA)

Banks take deposits and borrow an amount to generate a pool of funds, on these funds they use to give interest, called interest expense. Further banks lend that amount and charge interest, called interest income. The difference between interest income and interest expense is called net interest earned (which is due to the interest rate spread) and it is the major source of a bank's earnings. Net interest income may vary due to the size of the bank, therefore an appropriate measure of efficiency is the net interest income to total assets ratio. This ratio reflects the bank's ability to generate net interest income from its total assets.

3.1.8.6 Debt to Equity Ratio (Lev)

Debt to Equity Ratio is the measure of a bank's leverage. It indicates the debt and equity mix in the total financing of the firm (it means, how much of the assets were financed from debt and how much are financed from the equity). An appropriate level of capital may prevent the bank from bankruptcy.

3.1.8.7 Total Asset Turnover Ratio (AssetTO)

The total asset turnover ratio is a measure of the operational health and efficient utilization of assets. It reflects the ratio of revenue generated by MFB to its total assets employed.

3.1.8.8 Operating Profit to Total Assets (OPtTA)

This is another measure of the performance and operational health of an organization. It posits, how efficiently the management is utilizing its assets in the operations of the business to generate returns. It is the percentage of operating profit to its total assets. It reflects the strength of operations and the operating profit earned from its total assets.

3.1.8.9 Operating Expense to Total Expenses (OEtTE)

Operating expense to total expenses is the ratio to estimate the cost-efficiency of operations. Expenses related to the core operations of a bank typically include its administrative expenses and cost directly linked to the operations (such as the cost of lending). This ratio identifies the proportion of operating expenses in the total expenses. The lesser the ratio better will be the operational and ultimately financial performance.

3.1.8.10 Equity to Total Deposits (EtDeposit)

Equity to Total Deposits is the ratio of MFB's equity amount to its total deposit. It reflects the proportion of the bank's sources of funds with regard to the bank's

strength. It also reflects the bank's ability to pay the depositor's amount from its net worth.

3.1.8.11 Advance (Loans) to Deposits Ratio (AdvtDeposit)

The loans to deposits ratio (also called Loan Ratio) is one of the important measures of management's efficiency because it reflects the strength of banks' core operations. It indicates how much lending has been done out of the total deposits received. It is the conversion of deposits to earning assets, therefore the higher the ratio higher will be the efficiency of MFBs. As the loans are profit-generating resources so a higher ratio is recommended and there is a positive association between this ratio to the bank's profitability (Alexiou & Sofoklis, 2009; Kundid, Škrabić, & Ercegovac, 2011).

3.1.8.12 Financial Performance (FinPerf)

The net profit to total assets ratio called return on assets ROA and it is the measure of earning ability of the total assets of the bank and reflects the financial performance of the bank. Return on assets is the best measure of the strength of company operations and profitability (M. Ali, 2018; Sufian & Chong, 2008). It estimates the ability of the firm's total assets to generate returns, that's why widely used as a performance measure (Athanasoglou, Delis, & Staikouras, 2006; Olweny & Shipho, 2011; Pasiouras & Kosmidou, 2007). The larger banks report higher profits so their profit figures may be misleading, ROA avoids misleading inferences related to the amounts of profit, as it is measured by dividing the net profit by total assets.

3.1.8.13 Sustainability (OSS)

Also called operational self-sustainability (OSS) is the measure of MFB's ability to sustain itself financially without any external financial support or assistance. It is the operational efficiency that leads to its self-sustainability. It measures the ability of the bank to cover all its costs from its financial revenue with zero dependencies on donors.

Table 3.2: Variable Definition, Description, and Calculation

Symbol	Variable Name and Description	Formula
FinPerf	Financial Performance Return on Assets (ROA) This ratio presents the profit earned as a ratio of total assets. (net profit on the unit mount invested in assets)	$=\frac{NetProfit}{AverageTotalAssets}$
Sustainability (OSS)	Sustainability Operational Self-Sufficiency This reflects the ability of MFB to meet its expenses from the financial revenue generated from its operations.	$=\frac{Financial\ Revenue}{Financial\ Exp\ +\ Impairment\ loanloss\ +\ Operating\ Exp}$
Outreach	Outreach Also called Breadth of Outreach It's the number of active borrowers of the MFB (Quayes, 2015). Natural log of Number of Borrowers (Tehulu, 2013)	=Natural log of Number of Borrowers
GDP (in $Billion)	The Gross Domestic Product (GDP) of a country is the value (in monetary terms) of goods and services produced in a country over a specified period of time (normally a year) (Van den Bergh, 2009).	The value of annual GDP has been taken from the world bank website.

Continued Table 3.2 Variable Definition, Description, and Calculation

Symbol	Variable Name and Description	Formula
OEtTA	Operating Expenses to Total Assets It reflects the ratio of operating expenses of an MFB to its total assets (Kar & Swain, 2014), measuring the ratio of expenses with its magnitude (Im & Sun, 2015). The lesser the expenses, the better will be the efficiency and sustainability position (Gaganis, 2016; Tehulu, 2013)	$= \frac{OperatingExpenses}{AverageTotalAssets}$
AvgLoan	Average Loan per Borrower It is also known as depth of outreach. It's the amount of loan lent to each borrower (Quayes, 2015).	$= \frac{GrossLoanPortfolio}{AverageNo.ofBorrowers}$
LAtDeposit	Liquid assets to Deposit ratio Liquid assets divided by the deposits of MFBs are the common measure of liquidity (Muthee, 2020; Tata & Nimmagadda, 2016).	$= \frac{LiquidAssets}{TotalDeposits}$
NIntInctTA	Net Interest Income to Total Assets ratio Net Interest Income (Financial revenue – Financial expenses) divided by the total assets is an effective measure of the profitability of banks (Bhayani & Ajmera, 2019; Saleh & Abu Afifa, 2020).	$= \frac{NetInterestIncome}{AverageTotalAssets}$
Lev	Leverage (Total Debt to Shareholder's Equity)	$= \frac{TotalDebt}{ShareholdersEquity}$

Continued Table 3.2 Variable Definition, Description, and Calculation

Symbol	Variable Name and Description	Formula
	It is the ratio of Debt financing to equity financing in the MFBs. It is an important measure of the efficiency of MFBs (Kar, 2012; Nurmakhanova et al., 2015; Tehulu, 2013).	
AssetTO	Asset Turnover ratio Total revenue divided by total assets. It reflects the performance of the organization and the ability of management to effectively handle financial practices/management (Mabonga & Kimani, 2017).	= Total Revenue (financial & other) Average Total Assets
OPtTA	Operating Profit to Average Total Assets It's an important measure to capture the ability of assets to generate operating profit (Tata & Nimmagadda, 2016).	$= \frac{Operatingprofit}{AverageTotalAssets}$
OEtTE	Operating Expenses to Total Expenses Ratio It indicates the portion of operating expenses (percentage) to the total expenses.	$= \frac{OperatingExpenses}{TotalExpenses}$

Continued Table 3.2 Variable Definition, Description, and Calculation

Symbol	Variable Name and Description	Formula
EtDeposit	Shareholder's Equity to Deposit ratio Total shareholder equity is divided by the total deposits.	$= \frac{ShareholdersEquity}{TotalDeposits}$
AdvtDeposit	Total Advance to total Deposit ratio, Advances (also called GLP) are divided by total deposits received from the customers	$= \frac{TotalAdvances}{TotalDeposits}$
KIBOR	Karachi Inter-Bank Offer Rate	The data of KIBOR was taken from the State Bank of Pakistan (SBP)
Size	The assets owned by an MFB are the reflection of its size. Natural log of total assets (Kar & Swain, 2014; Tehulu, 2013).	Natural log of Total Assets

3.1.8.14 Outreach (Number of Borrowers)

It is also known as the breadth of outreach. It's the number of active borrowers of an MFB on a particular day (in this study at the end of each financial year). This is the ultimate social objective of MFBs operations. The higher the number of active borrowers, the better will be the outreach.

3.1.8.15 KIBOR

KIBOR (Karachi Inter-Bank Offer Rate) is also an important determinant to explain the performance of banks. In the case of MFBs, the cost of operations is already a major concern, and the cost of funds is the main component of the total cost. Therefore, KIBOR can hit the operations, performance as well as the sustainability of MFBs. In this study, KIBOR is added as a moderator to the relationship between financial performance (ROA) and sustainability (OSS).

3.1.8.16 Size

Size is the indicator of the overall magnitude of the bank. In literature, the amount of total assets or natural logarithm of total assets is used as a proxy of size. In this study, we used the natural logarithm of total assets as a proxy of size. In the case of MFBs, it is expected that the higher the size greater and easier will be the sustainability and outreach. In this study, Size is added as a moderator to the relationship between sustainability (OSS) and outreach.

3.2 Model – II – Social Performance (Effect of Microfinance on Socio-Economic Development)

3.2.1 Research Design

The second part of this study is about estimating the impact of financial inclusion through microfinance on the socio-economic development of impoverished segment

of society. A survey method is employed to assess this impact. A field survey is designed and carried out in different districts of Pakistan to gather responses from the customers of MFBs. A questionnaire was developed to administer this survey.

3.2.2 Population, Sample, and Sampling Design

The customers of all commercially operating microfinance organizations (Microfinance Banks – MFBs) are the part of this study, technically called population the study. According to PMR (2018), there are 8.03 million active borrowers (from all MFIs) in Pakistan. Out of this total, more than 45% of borrowers belong to 11 MFBs, which is a huge number. However, some of the MFBs are very recently established and have not a longer history.

3.2.2.1 Sampling and Data Collection

All customers of MFBs shall be under observation in this study and systematic random sampling technique is used for the selection of respondents. Keeping in view the empirical methodology and econometric models used in this study, there are two types of respondent involved in this study. One is the group of people who have availed the microfinance services called the treatment group. Second are those, who have not availed the microfinance services but have the similar demographics to the treatment group. The Snowball sampling technique is followed to select the control group. A questionnaire was used to administer an interview, by qualified and trained personnel.

3.2.2.2 Sampling Frame

The sampling frame is the set of objects and respondents from whom responses have to be taken. Here key districts like Lahore, Kasur, Rawalpindi, Mianwali, Bhakar, Gujranwala, Multan, Bahawalpur, Faisalabad, Jhelum, Peshawar, Sukur, and Karachi have been selected for data gathering. The respective branch managers of MFBs working in each area were approached for the identification of customers (treatment group). Furthermore, non-borrowers were selected in the same area with the help of borrowers (control group).

3.2.2.3 Unit of Analysis

The unit of analysis is the entity that will be analyzed in a study. In this study, the individual respondent is the unit of analysis.

3.2.2.4 Sampling Technique

Multiple sampling techniques have been followed. Systematic random sampling has been used in the sampling frames to collect responses from the borrowers (treatment group). Snowball sampling technique is used to gather responses of non-borrowers, after interviewing an individual next interviewee has been selected with the help of this first interviewee. In this way, the chance of endogenity and selection bias has been eliminated significantly. If the respondent is a customer of MFBs, then he/she became part of the treatment group otherwise counted in the control group. Almost the same number of respondents (for the control and treatment group) have been selected randomly from each area.

3.2.2.5 Sample Size

A total of 1184 interviewees have been conducted, but due to response errors, many questionnaires were not suitable to be incorporated into the analysis. Only 1003 questionnaires were considered to be worthwhile and incorporated into the analysis. 500 of the responses belong to the treatment group and 503 belong to the control group.

The respondents comprised two groups: customers of MFBs who have borrowed from MFBs (called the treatment group) and non-borrowers with similar demographics (called the control group). The individuals, who had taken loans in 2016, were interviewed in 2018, allowing a reasonable time to witness socio-economic development. For this very reason, the current customers, who have taken the loans recently for the first time, were not considered.

The formula of Yamane (1967) is used to determine the sample size (as described by (Israel, 1992).

$$n = \frac{z^2 P(1-P)N}{z^2 P(1-P) + Ne^2}$$

Where, n = sample size, z = 1.96 (the value of z at 95% confidence interval), P = proportion of variability, N = population size, and e = margin of error (at 95% confidence interval margin of error is 0.05).

A total of 1,485,165 borrowers received the loan, of which 550,263 were customers of MFBs (PMR, 2018). The formula recommends a sample size of 457 responses for the treatment group. We planned for 500 respondents from the treatment group and 500 from the control group to be on the safer side. Furthermore, the sampling target was increased, and we conducted 1,184 interviews in total, out of which 181 responses were declined due to response errors and unhealthy responses.

3.2.2.6 Response Rate

The response rate was very poor, people of a few areas like Hafizabad, Barakahu, Wazirabad, a few areas of Lahore, Pattoki, Ranalakhurd, and some other areas were very reluctant and had reservations to become a part of this research. Furthermore, the response from Sindh was also very discouraging. Many branches of MFBs have been contacted but almost only 30% of them responded. In the branches that agree to cooperate, some of their customers were not willing to respond, and the customer response rate is almost 60%. So overall lots of resources and time had gone wasted.

3.2.3 Semi Structure Interview

Semi structure interview technique is used to collect the data from the treatment and control groups. A questionnaire can't be used because the target audience is mostly illiterate or has very low exposure to fill a questionnaire.

The semi-structured interview is the qualitative data-gathering technique. In this technique, an interviewer asks questions as per the set sequence from the respondent. A questionnaire is normally used for guidelines of the interviewer and to report the responses. The sequence may be adjusted by the interviewer according

to the situation. This technique is useful when multiple interviewers are collecting data and due to any constraint, we don't have a chance to meet the respondent again and again (Russel Bernard, 1988). This technique has been followed by many researchers because

It allows the researcher to compute the response of the interviewee in a comprehensive manner.

- It saves the time of the interviewee and interviewer because both don't have to be very formal during the interview.
- It captures a more comprehensive response, unlike a formal questionnaire.
- If conducted properly, the chance of bias and misunderstanding of the questions is minimum in this data collection technique.
- A questionnaire, used in a semi-structured interview, helps the interviewer to be structured and right on the path.
- The questions of the questionnaire are a guide for the interviewer, and he/she may ask in different ways according to the situation.
- Reliable and comparable qualitative data may be collected through semi-structured interviews.
- The researcher prefers to use this technique because questions were prepared and properly tested well before the survey. Furthermore, it helps the interviewer to be confident and up to the mark during the interview.

3.2.4 Instrument

The questionnaire has been developed to administer semi-structured interviews for data gathering. The questionnaire is designed and structured in a way that enables the collection of concrete responses. It comprises four parts, one consists of demographics, and personal information, which is very important for the analysis and used as a control variable in empirical investigation. The second part consists of

several questions related to the socio-economic status of the respondents over two years. The third part contains the dimensions related to enterprise development, and the fourth part is comprised of dimensions related to women's empowerment. A combination of open-ended, dichotomous, and Likert-scale questions was incorporated to capture more concrete and reliable results.

These questions have been extracted from different studies. The MPI development guideline has been taken from Alkire and Robles (2017). For the portion related to poverty and sustainable livelihood, the basic inspiration is the HDI developed by UNDP, and Noreen (2011). The portion related to enterprise development has been extracted from the work of Nendakulola (2015). The basic portion of a questionnaire related to women empowerment has been extracted from the work ofKabeer (1999); Mayoux et al. (2000), and Rowlands (1997).

3.2.5 Data Collection

Data was collected through a survey conducted in the different districts of Pakistan. A paid team of qualified and trained members was sent to different destinations to gather responses from individuals. To begin with, the branches were contacted for the information of their customers and the customers were contacted at their workplaces (and in some cases their residences). Then from their workplace, we contacted non-customers in their near vicinity (for control group responses) to capture their responses. Lots of financial and personal resources were utilized during this survey.

This was a time taking the job, but still, we tried to be persistent. After this tedious exercise, still some responses failed to qualify for the quality check. That's why a total of 181 out of 1184 questionnaires were dropped.

3.2.6 Validity and Reliability of the Instrument

Both validity and reliability tests were applied to check the trustworthiness of the instrument.

Validity is the extent to which a measure taps the underlying concept that it wants to measure and

Reliability is the extent to which a measure is consistent in its results and the extent to which scores are free from random error. The questionnaire, extracted from different studies and models, was pilot tested. Although it is an adopted questionnaire, even though the pilot test with 50 individuals has been conducted. The responses gathered from the pilot study of the questionnaire and the translation of the questionnaire were presented in front of the experts in the field who have experience in subject, field, language, content, and instruments. Based on our objectives of the study some improvements have been suggested by the experts, and the said improvements in the questionnaire were done accordingly.

Test of validity and reliability was applied using SPSS. The Cronbach alpha (.78) shows significant results which indicates that the questionnaire is significantly capturing the desired information

3.2.7 Socio-Economic Development – Conceptualization and Measurement

This section shall describe the variables and their measurements. Primary data has been collected through interviews for empirical inferences from treatment and control groups. This part of the study (Model-II) is about the socio-economic development of MFBs.

Socio-economic development is a complex phenomenon and has many dimensions, some of which were hard to estimate as well. In this study, the socio-economic development of the impoverished segment is studied in detail. Multiple measures related to socio-economic development, women empowerment, and enterprise development were taken as outcome variables. Furthermore, the socio-economic development of women and enterprise development due to financial inclusion were empirically tested as well. The socio-economic development of women was empirically tested through their access to a sustainable livelihood, multidimensional poverty reduction, and empowerment. For precise assessment, the empirical models for the socio-economic development of women were incorporated separately. Furthermore, empirical models related to enterprise development were separately carried out. The number of other socio-economic and demographic indicators was

taken as explanatory. **Table 3.4** and **Table 3.5** briefly show the variable names of proxy of all (outcome and explanatory) variables, their descriptions, and measurements.

Outcome Variables

3.2.7.1 Socio-Economic Development of the Impoverished Segment of Society

The socio-economic development of impoverished people is the core objective and very purpose of the existence of microfinance institutions. Uplifting the socio-economic conditions of impoverished people is called their socio-economic development. It is a broader domain which means social capital development through attaining sustainable livelihood, improvement in living standards, social development, and poverty reduction. In this study, sustainable livelihood, social development, growth in living standards, and multidimensional poverty reduction are incorporated to conceptualize the overall socio-economic development of impoverished people. The number of unidimensional measures of poverty reduction such as growth in income level, ownership status of the house, roof material used, overall condition of the house, school-going children, household assets owned, cooking fuel used, and the betterment in access to safe drinking water is the reflection of the economic side of development. These dimensions are clubbed under the category of sustainable livelihood. Access to safe drinking water is the basic necessity of life but poverty restrains this accessibility. The impoverished people face multiple diseases because of this inaccessibility to safe drinking water. The improvement in the accessibility to safe drinking water reflects an improvement in the living and economic conditions, therefore used as a proxy of economic development.

As described in **Table 3.5** and **Figure 3.1**, attaining a sustainable livelihood is also measured through a number of dimensions.

In this study, we have taken the improvement in 1) income level, 2) living standard related items (roof material, sanitation, floor material, availability of washroom and drinking water, etc), 3) expenses on children's education, 4) expenditure on medical facility and 5) household Assets as dimensions of sustainable livelihoods. Along with these individual dimensions, the Multidimensional Poverty

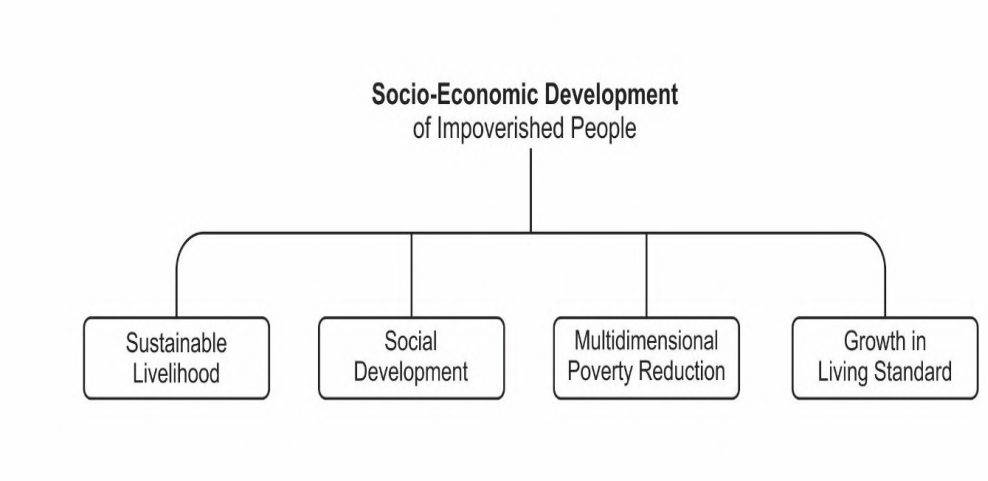

FIGURE 3.1: Conceptualization of Socio-Economic Development

Index (MPI) had also been developed and used for analysis as a proxy for poverty, and the difference in MPI over time is taken as a proxy for multidimensional poverty reduction. Improvement in social status has been incorporated as the dimension of social development.

Furthermore, improvement in living standards is the reflection of socio-economic development, therefore incorporated in this empirical investigation. A Living Standard Index – LSI have been developed by incorporating different dimension related to living standard. Principal Component Analysis (PCA) has been used to (estimate LSI) and encompass the improvement in living standards. It makes this research more dynamic and robust, resulting in more concrete findings.

3.2.7.1.1. Sustainable Livelihoods

MFBs are considered to serve the poor to have a sustainable livelihood and pull them out of poverty permanently. As a key indicator of their social performance, poverty reduction is critical to incorporate in the research as well as hard to measure precisely. There are a number of different dimensions to estimate sustainable livelihood and could be used as proxies.

Sustainable livelihoods ensure the sources of income that support the expenditure on necessities of life and basic household development, it is called the outcome of sustainable livelihoods (Solesbury, 2003). An increase in per-capita household income ensures the provision of necessities of life. If this growth persists, this will reflect in capital expenditures related to infrastructural development, which

reflects one's accessibility to a sustainable livelihood. Therefore, growth of accessibility to the medical facility, per-capita expenditure on clothes, cooking fuel used, accessibility to clean drinking water, children's education, ownership status of the house, roof material used in the house, overall condition of the house, and household assets are incorporated as proxies of sustainable livelihood. The growth in these variables is measured through dichotomous variables; therefore, Binary Logistic Regression Model and PSM analysis have been incorporated for statistical inferences. Table 4.5 describes the dimensions used to gauge sustainable livelihood and further use in the empirical analysis.

3.2.7.1.2. Social Development

Social status is the level of being respected and treated prestigiously in society. It's the relative rank of honor and value among the people of the society along with one's relative impact (Coie, Dodge, & Coppotelli, 1982). Poverty badly affects the social status of individuals and their families as a whole. Because of lack of resources and hardship in life, these impoverished classes seek financial help from people around them which deteriorates their self-respect and self-esteem. Poverty deteriorates the social status and poverty reduction improves the level of respect and honor in society, called social development. While having access to financial resources these poor people will have better self-respect and eventually better social status (Tariq et al., 2015). In this study, the improvement in the perceived social status has been incorporated as a proxy of social development. Data related to changes in social status has been collected through interviews. A dichotomous variable capturing the improvement in social status has been incorporated into statistical analysis.

3.2.7.1.3. Multidimensional Poverty Index (MPI)

MPI is a multidimensional measure to gauge poverty level. This was developed by Oxford Poverty & Human Development Initiative (Alkire, Santos, Seth, & Yalonetzky, 2010). This index is more dynamic and incorporates multiple factors to gauge poverty rather than just relying on the income-based list. This is the index used by the UN, World Bank , and other concerning development agencies. Pakistan has launched its first-ever MPI in 2017. It is good to use this index, as

this is useful to access the level and extent of poverty. Along with this MPI score helps in comparative analysis.

MPI incorporates deprivations, faced by an individual, in ten different resources classified into three basic groups. MPI incorporated deprivation of education, health, and living standard to measure the poverty level, each measure has a further dimension (sub-classification) with their specified weights mentioned in table-4.3. For each dimension deprivation has been gauged, if deprived then it will be allocated "1" and if not deprived then allocated with "0". Then from the gathered responses and specified weights, the weighted average score has been obtained, which is a score of MPI for an individual. If that score is 0.33 or higher then that individual is poor and if the score is less than 0.33 then the individual is not poor. In this study, MPI for each respondent has been calculated for two different points in time and the change in MPI over time has been estimated and used as a proxy for multidimensional poverty reduction.

Furthermore, economic development is a multidimensional phenomenon, therefore the 'Multidimensional Poverty Index' (MPI) has also been incorporated as a proxy for economic status. MPI score indicates the level of deprivation faced by an individual. In this study, Current MPI (MPINow) and older MPI (MPIBef) for the selected sample have been estimated by following the guideline of OPHI. Change in MPI 'MPIDiff' has been calculated by taking the difference in 'MPINow' and 'MPIBef', which is used as a proxy of multidimensional poverty reduction reflecting economic development.

Source: OPHI by Oxford Department of International Development.

3.2.7.1.4. Growth in Living Standard

After having sustainable access to livelihoods the next step is the improvement in living standards. The improvement in living standards is the more concrete reflection of income growth. Because people invest in living standard only after having sustainable access to food and health facilities. Unlike the measures used by M. A. Hossain and Asada (1984), this study has incorporated concrete dimensions (particularly related to capital expenditures), to encompass the growth in living standard. It includes the improvement in the ownership status of the house,

Table 3.3: Composition/Computation of Multidimensional Poverty Index (MPI)

Dimensions	Indicators	Weights
Education	Years of Schooling: Deprived, if no household member has completed six years of schooling	**1/6**
	Child School attended: Deprived, if any child (of school-going age) is not going to school (up till 8th standard)	**1/6**
Health	Child Mortality: Deprived, if any child had died in the last 5 years	**1/6**
	Nutrition: Deprived, if any member of the family has a stunted diet	**1/6**
Standard of Living	Electricity: Deprived, if the household has no electricity	**1/18**
	Sanitation: Deprived, if the household has not up to the mark sanitation.	**1/18**
	Drinking water: Deprived, if the household does not have safe drinking water.	**1/18**
	Floor: Deprived, if the household has a dirt, sand, or dung floor	**1/18**
	Cooking fuel: Deprived, if dung, wood, or charcoal used as cooking fuel	**1/18**
	Asset ownership: Deprived, if the household owns radio, TV, telephone, motorbike or refrigerator, or less. (does not own car or tractor)	**1/18**

roof material used in the construction, overall condition of the house, floor material used, household assets owned, cooking fuel used, access to safe drinking water, availability of electricity, availability of a personal bathroom, and a working sanitary system of the house. If there is a growth in the said dimensions, it will be allocated '1', and if not, then '0'.

The factor analysis method has been used to find commonalities and excludes the irrelevant factors (which have comparatively very high or low variability). The Extraction Method and the Varimax Rotation have been applied to get rigorous outcomes. Moreover, LSI has been developed with the help of the Principal Component Analysis (PCA), in order to combine the relevant elements of the living standards. The score of LSI reflects the average growth in the living standard of the respondents. This is important dimension used as a proxy to gauge the vulnerability to poverty. Followings are the individual dimensions related to living

standards that were incorporated in this study, the dummy variable shall be used to record the betterment/growth.

1. Growth in cooking fuel used – Dung, collected wood, purchased wood, and Kerosene oil/Gas are the different cooking fuels, one could use in routine life. If the fuel used for the cooking has been improved in the last two years then it is called growth.

2. Growth in drinking water – Piped water, own extracted water, water from community' well, and water from the pound are the different sources of drinking water. If the source has improved in the last two years then it is reported as growth with the help of a dichotomous variable.

3. Change in food expenditures – Change in food expenditure is one of the proxies of change in poverty level. If the expenditures on food have improved in the last two years then it is reported as growth and if not then it is the indication of an increase in poverty. A five-point Likert scale has been used to measure this change in food expenditures.

4. Growth in the condition of the house – seriously dwindling structure, dwindling structure, need minor repairs, moderate structure, and good structure (with modern material) are the possible conditions of the house. If there is an improvement in the overall condition of the house then the growth shall be reported with the help of a dichotomous variable.

5. Growth in roof material of house – Temporary roof (made of Thatched Roof, Branches, Twigs), a roof made of clay tiles, a roof made of wood, roof made of T-iron, and concrete roof are some of the options. If the roof material is improved in the last two years then growth in roof material shall be reported with the help of a dichotomous variable.

6. Growth in Household Assets – The valuable assets owned by the poor could be livestock, refrigerators, motorcycles, Tractor/Trolley, carts, Washing machines, Sewing machines, Television, Bed with foam, Cell Phone, and CD/DVD Player/Dish. If there is an improvement in the last two years then it is reported as growth with the help of a dichotomous variable.

Table 3.4: Description and Measurement of Outcome Variables

Variable Name Outcome Variables				Description
Socio-Economic Development	**Multiple Linear Regression**	Growth in Living Standard (LSI)		The growth in ten different dimensions related to livings standards (including infrastructural development) was captured through the survey. LSI has been developed from these responses, with the help of PCA.
		Multidimensional Poverty (MPINow)		An index is developed by following the guidelines of OPHI (2017). The score of the MPINow reflects the current multidimensional poverty status of the respondents.
		Multidimensional Poverty Reduction (MPIDiff)		The change in the MPI over time. Calculated by taking the difference of 'MPINow and (2 year's old MPI) 'MPIBef'.
	Logistic Regression	Social Development (SocDev)		A dichotomous variable reflecting improvement in social status. If improved then Yes=1, otherwise No=0
		Sustainable livelihood	Change in Income Level (ChngIncom)	An increase in per capita income is a fundamental indicator of poverty reduction and an indicator of sustainable livelihood. If improved Yes=1, otherwise No=0,

Continued Table: 3.4 Description and Measurement of Outcome Variables

Variable Name Outcome Variables			**Description**
	(Economic Development)	Growth in ownership status of the house (GOwnH)	The improvement in the ownership status of the house. If improved=1, otherwise No=0
		Growth in Roof material of the house (GRoofM)	Betterment in the infrastructure of the house is the reflection of better economic status. If the roof material used in the construction of the house improved, then Yes=1, otherwise No=0
		Growth in the overall condition of the house (GCondH)	If there is a betterment in the overall condition of the house, then Yes=1, otherwise No=0
		Growth in School going children (GSchCh)	If the number of children going to school increases than Yes=1, otherwise No=0 (it does not account for the children who have completed their HSSC education)

Continued Table: 3.4 Description and Measurement of Outcome Variables

Variable Name **Outcome Variables**		**Description**
	GrwthHousH (GHousH)	Overall, the household assets owned by an individual reflect the economic status, and the growth in the household assets reflects sustainable livelihood (economic development). If improved Yes=1, otherwise No=0
	Cooking fuel Growth (GCFuel)	Cooking fuel used in the kitchen reflects economic status, and healthy cooking fuel shall ensure a healthy family. If improved Yes=1, otherwise No=0
	Improvement in drinking water (GDWat)	If there is a growth in the accessibility to safe drinking water, this will reflect in growth in livelihood and economic development. If there is a betterment in the accessibility to safe drinking water, then Yes=1, otherwise No=0.
	Betterment in Medical Expenditure (Gmedexp)	If there is a growth in the ability to bear medical expenditures, then Yes=1, otherwise No=0.

Continued Table: 3.4 Description and Measurement of Outcome Variables

Variable Name		**Description**
Outcome Variables		
	Increase in Clothing Expenditure (Gclothexp)	An increase in the per capita expenditure on clothing is the outcome of sustainable livelihoods. If improved Yes=1, otherwise No=0
Others		
MPIBef	Multidimensional Poverty Index for the older (2016) economic status of respondents.	
Multiple Linear Regression		
WoEmp	A score of Women Empowerment was calculated from the responses taken.	
Enterprise Development	Enterprise Development means the start of a new business enterprise or the development of an existing business. The data related to change in the size of the business, launching of new products, enhancing the labor force, improvement in the product quality, change in total assets and earnings, productivity, and inventory management are collected through interviews. PCA has been used to develop an index of Enterprise Development (EDI).	

During the pilot study, it has been revealed that there are four types of houses such as slum houses, mud houses, houses with T-iron roofs, and concrete roof houses. These are their own, rented, or inherited houses (living with a joint family system). However, it is tricky to calculate the growth in the case of an inherited house. The marginal improvement in the infrastructure, such as building a personal bathroom, improvement in the kitchen, improvement in the floor, improvement in the roof, getting personal water boring, and expenditures on the renovation of the inherited portion of the house have also been incorporated.

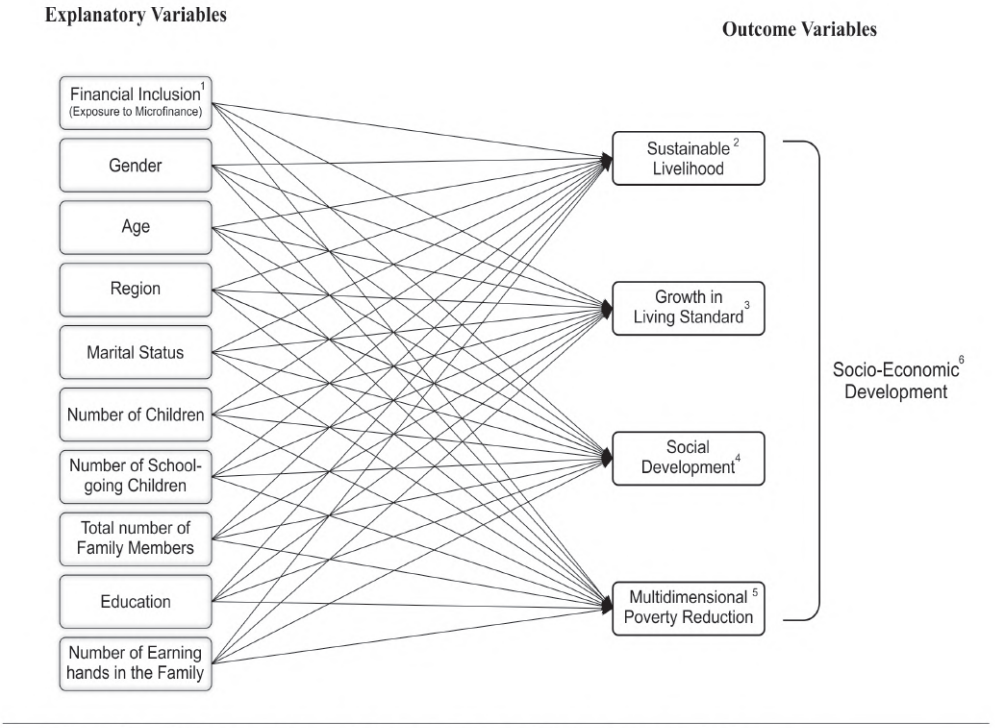

FIGURE 3.2: Impact of Financial Inclusion and Other Factors on Socio-Economic Development of Impoverished People

3.2.7.2 Socio-Economic Development of Women

One of the pivotal contributions of microfinance is the women empowerment of the impoverished segment of society. Literature witnessed mixed evidence of this impact.

Fundamentally, empowerment is dependent on other factors as well. In this study, the socio-economic empowerment of women is considered as the ultimate outcome of financial inclusion but it is only possible when the economic condition of these impoverished women has improved. Therefore, in this study, the impact of financial inclusion through microfinance on sustainable livelihood, social development, multidimensional poverty, and socio-economic empowerment has been investigated. Figure 3.2 presents its conceptual framework.

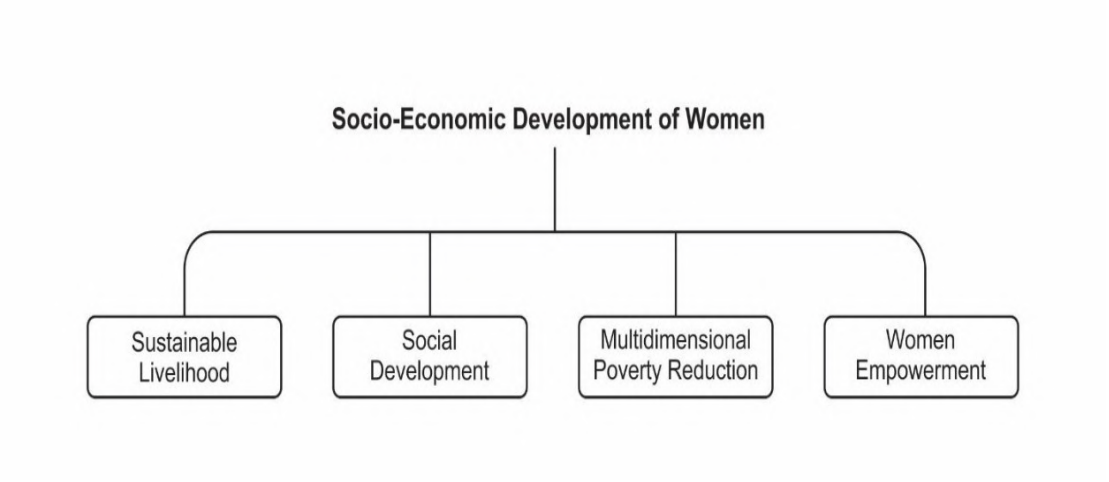

FIGURE 3.3: Conceptualization of Socio-Economic Development of Impoverished Women

3.2.7.2.1. Sustainable Livelihoods

The impact of financial inclusion on the sustainable livelihood of women is separately tested in this study. The methodology of this assessment is the same as employed over the complete sample, discussed above. Table-3.4 describes the dimensions used to gauge sustainable livelihood and further use in the empirical analysis.

3.2.7.2.2. Social Development (SoDevW)

As discussed earlier social development is expected to be another important outcome of financial inclusion. Improvement in social status may also influence economic development. In this study, the improvement in the perceived social status has been incorporated as a proxy of social development. A dichotomous variable capturing the improvement in social status has been incorporated into statistical analysis.

3.2.7.2.3. Multidimensional Poverty Index (MPIw)

The poverty level has been estimated according to the guideline provided by OPHI (Alkire et al., 2010), for the women respondents as well. As discussed above, MPI incorporates deprivations, faced by an individual, in ten different resources classified into three basic groups. If the score is 0.33 or higher than that woman is poor and if the score is less than 0.33 then not poor. The current and older multidimensional poverty level of women has been estimated and by taking the difference between these levels, the change in poverty level has also been estimated.

3.2.7.2.4. Socio-economic Empowerment of Women (WoEmp)

Empowerment means decision-making or at least participating in economic and social decisions, enhancing the individual's choice and capacities for self-reliance. Women's Empowerment is considered to be a process as well as an outcome. Considering this as a process enables us to gauge the impact appropriately, but in cross-sectional studies, it is viable to collect data on women's empowerment as an outcome (Garikipati, 2013). In the existing literature, women empowerment is measured in terms of economic empowerment and social empowerment (Ifelunini & Wosowei, 2012; Kabeer, 1999).

Empowerment is a complex and multidimensional phenomenon (Biswas & Rao, 2014), therefore this study presents a novel measurement tool for women empowerment. It comprises seven aspects of socio-economic empowerment including decision-making related to household, financial affairs (related to income, expenditures, assets, and investment), health and maternity, education, and other social aspects. A seven-point Likert scale has been used to gather the responses to the questions and the collective score has been incorporated into the econometric model, as a proxy of women empowerment. In this study, most of the dimensions for social and economic empowerment have been extracted from the works of Kabeer (1994); Malhotra et al. (2002); Pitt et al. (2006); Abdul Rahman (2007), and Weber and Ahmad (2014). Multiple dimensions of an underline construct were incorporated to have symmetric responses that help in comprehension of the phenomenon. The data has been collected through interviews, related to different dimensions of empowerment, and the collective score of women empowerment has

been used in the econometric model. Before going for an actual field survey the questionnaire was tested and retested.

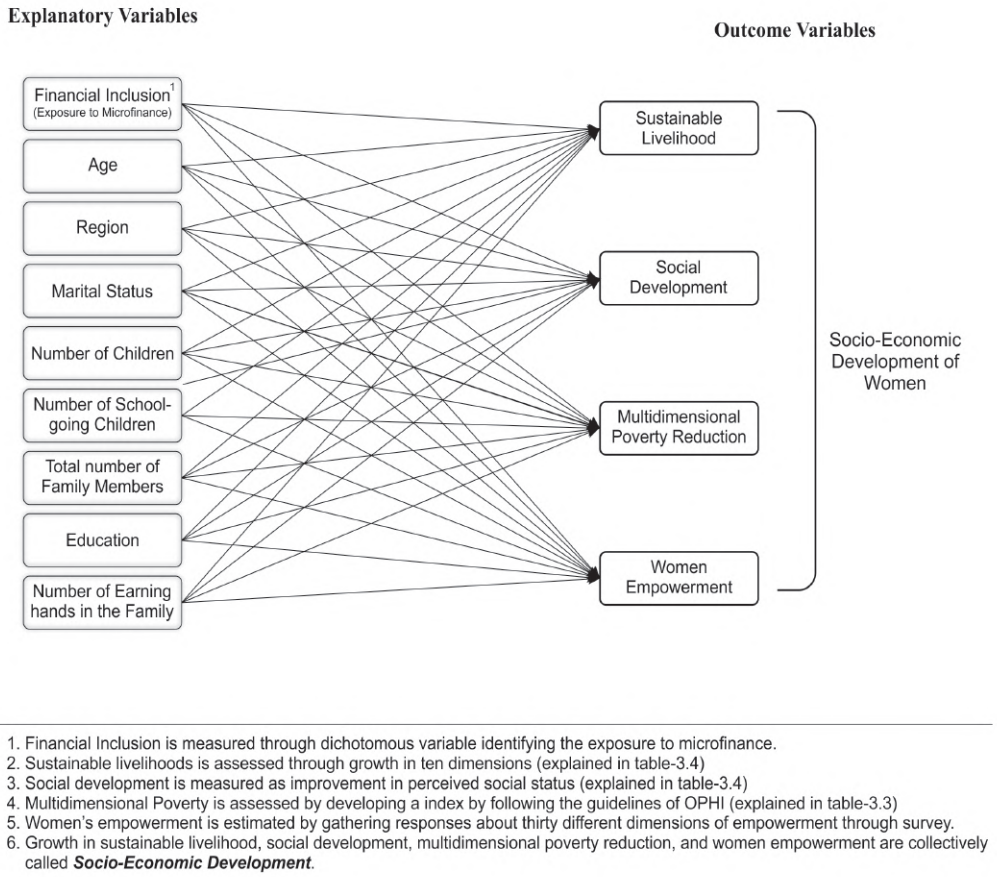

FIGURE 3.4: Impact of Financial Inclusion and other Factors on Socio-Economic Development of Impoverished Women

3.2.8 Enterprise Development

Enterprise development means starting a new business or betterment on existing businesses. The change in the total worth/size of the business, launching of new products, enhancing the labor force, improvement in the quality of the product, increase in profitability, incorporation of new machinery, change in production capacity (productivity), and improvement in inventory management has been used to estimate the Enterprise Development. The data relating to these dimensions have been collected through interviews to capture the multidimensional impact of microfinance. PCA has been used to develop an index of Enterprise Development (EDI) from the data of all dimensions discussed above. This index shall give a score

that is considered to be unbiased and more reliable as it allocates proper weight to each dimension. This index shall be used in OLS and PSM for empirical inferences regarding the impact of microfinance on enterprise development. Furthermore, the impact of financial inclusion through microfinance on each dimension of enterprise development has also been estimated.

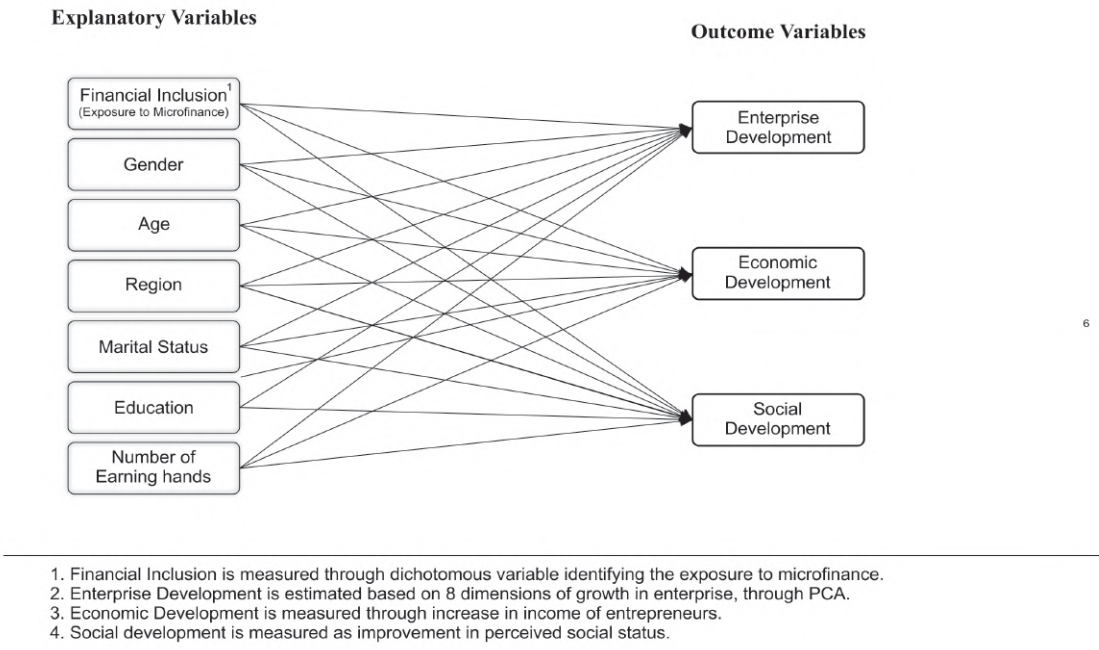

FIGURE 3.5: Impact of Financial Inclusion and other Factors on Enterprise Development

Explanatory Variables

3.2.9 Other Factors Affecting Socio-economic Development

As described by Batool and Batool (2018) and KHAN (2010), social and demographic dimensions also affect the economic status and empowerment of women. Therefore, along with exposure to microfinance, age, marital status, number of children, number of school-going children, education, total family members, and number of earning hands in the family have been incorporated as covariates. These factors are expected to augment or restrain the individual-level socio-economic development process.

TABLE 3.5: Explanatory Variables with their Description and Measurement

Variable	**Variable Description**
LoanMFB	Dummy Variable valued "1" if someone has taken a loan from MFBs and "0" if someone has not taken the loan from MFBs.
Age	Age of the respondent, less than 25 =1, 25 to 40=2, more than 40=3
Region	Region of the respondent, Urban=0, Rural=1
Gen	Gender of the respondent, if Male = 0, if Female = 1
MS	Marital Status Unmarried=0, Married=1, Divorced=2, Widow=3
NChild	No of Children
NSchChild	Number of School-going Children
TFMem	Total Number of Family Members (0-3)=1, (4-6)=2, (7-onward)=3
Edu	Education of the respondent, No education=0, Primary=1, Middle=2, Matric=3, Intermediate=4, Graduation=5, Other=6
EarnH	Total Number of Earning Hands in the Family
SFamilyInc	Major Source of Family Income Laborwork =1, Pension etc =2, Business/Agri =3, Other=4

3.3 Empirical Methodology (Model – II)

The above-cited phenomenon has been rigorously analyzed through empirical investigations by incorporating univariate and multivariate analysis. Statistical tools like logistic regression, multiple linear regression, and Propensity Score Matching (PSM) were employed to have robust inferences. The logistic regression technique has been used to analyze the impact of financial and other factors on sustainable livelihood (including unidimensional measures of poverty reduction) and social development. Multiple linear regression has been used for the continuous variable like multidimensional poverty reduction, growth in living standard, women empowerment, and enterprise development.

The selection for the loan is not a random phenomenon, it is always based on a predefined set of criteria, therefore the sample is not purely randomly distributed. For rigorous comparison and to avoid disadvantages of sample-selection bias the Propensity Score Matching (PSM) Technique has also been used. The basic structure of PSM is to compare the post-treatment outcome with the outcomes if there

is no treatment, which is practically not possible. Therefore, the outcome of the treated group and the outcome of the non-treated (control) group were compared to estimate this effect (marginal effect of the treatment). This method helps in drawing a comparison by obtaining a summary variable called propensity score (Rosenbaum & Rubin, 1983), which is obtained by using the probit model based on observable characteristics. Average Treatment effect on the Treated (ATT) was obtained by comparing treatment and control groups based on these propensity scores. There are several matching algorithms used for analysis such as Nearest Neighbour (NN) method (one to one), Nearest Neighbour (NN) method (one to many), kernel matching method (Common), kernel matching method (bwidth 0.01), Radius Calpier Matching method and Stratification matching methods. In this study, ATT is calculated and reported by using all matching methods to check the robustness.

3.3.1 Empirical Models

3.3.1.1 Regression Analysis

There are three multiple linear regression models and nine logistic regression models used in this study to assess the impact of microfinance on socio-economic development and empowerment of women.

Multiple Linear regression analysis has been carried out to assess the impact of microfinance on multidimensional poverty and women empowerment.

The logistic regression analysis has been used to assess the impact of microfinance on categorical variables (a unidimensional measure of economic development and social development).

Following is the functional form of the regression model:

$$Z_i = a_0 + \beta_i X_i + \varepsilon_i \tag{3.1}$$

Where Zi is the set of dependent variables for all the regression models fitted (see table 3.4). β_i is the vector of coefficients of the independent variables. Xi is the vector of independent variables (explained in table 3.5) of the ith respondent.

3.3.1.2 Propensity Score Matching (PSM)

PSM model has been specified over observable characteristics for both treated and control groups. Financial inclusion, measured as exposure to microfinance (LoanMFB), is the treatment variable. In this study, the model has been specified over observable characteristics (such as age, region, marital status, number of children, total family members, level of education, number of school-going children, and number of earning hands in the family) of the respondents. Based on PSM scores, ATT is estimated which indicates the effect of treatment on the outcome variables. The functional form to estimate ATT (τ) is given as:

$$\tau = E[X_{1i} - X_{0i}|LoanMFI_i = 1] \tag{3.2}$$

Where 'τ' represents the effect of treatment (ATT). Xi represents the outcome variable on which impact is expected to occur (see Table – 1). Furthermore, X1 represents the measures related to the treatment group and X0 represents the measures related to the control group.

3.4 Model Specification

3.4.1 Socio-economic Development

To measure the overall well-being of poor people different indicator has been used. Along with the direct measures and responses of the individuals (like improvement in income level, inability to meet medical expenditure, educational expenditures, social status, household assets, lifestyle, and standard of living), different indexes have also been incorporated in the study (like Multidimensional poverty index, Living standard and Index Enterprise Development)[2].

All these were taken as the dependent variable (in the regression model) and the dichotomous variable of financial inclusion (loan received or not) has been taken as an independent variable. Along with the regression, ATT is also calculated for these variables by applying PSM. The followings are the model specification for regression and PSM.

3.4.1.1 Regression Analysis

Following is the functional form of the regression model used for analysis:

Change in the socio-economic condition in response to financial inclusion (a receipt of microcredit) shall reveal the importance of microcredit. The functional form is as follows

Access to Microfinance = LoanMFB$_i$

Dimensions of socio-economic development = DSED$_{ij}$

$$DSED_{ij} = \beta_1 + \beta_2 LoanMFB_i + \beta_3 X_3 + ... + \beta_n x_n + \varepsilon_1 \tag{3.3}$$

To estimate poverty the number of indicators and indexes have been used as different dimensions of poverty (Table-3.4 enlist all the variables). ChngIncom, CFuelGrwth, DWaterGrwth, FoodExpCHNG, MedExpCHNG, CondHouseG, RoofMatGrwth, SchoolChildGrwth, EduExp, GrwthHouseH, social status, MPI, MPIDiff, and LSI are used as a proxy of socio-economic development.

3.4.1.2 Propensity Score Matching (PSM)

It has been expected that there is a significant difference in the socio-economic status of the recipient of microfinance in comparison to those who are non-recipients of microfinance.

The functional form of the said model employs various socio-economic and demographic variables are as under. The ATT for the use of microcredit can be given as:

$$\tau = E\{DSED_{1i} - DSED_{0i} | LoanMFB_i = 1\} \tag{3.4}$$

$$\tau = E\{SocDev_{1i} - SocDev_{0i} | LoanMFB_i = 1\} \tag{3.5}$$

$$\tau = E\{MPI_{1i} - MPI_{0i} | LoanMFB_i = 1\} \tag{3.6}$$

$$\tau = E\{MPIDiff_{1i} - MPIDiff_{0i} | LoanMFB_i = 1\} \tag{3.7}$$

$$\tau = E\{LSI_{1i} - LSI_{0i} | LoanMFB_i = 1\} \tag{3.8}$$

3.4.2 Socio-economic Development of Women

Out of 670 female respondents, 328 belong to the treatment group and 342 belong to the control group. To capture the women empowerment, the responses were captured on the Likert scale which is an effective tool to capture the response along with the intensity level of the responses.

A multilevel empirical investigation has been done to analyze the impact of microfinance on the poor women of Pakistan, separately. It analyses the impact of micro-credit on poverty alleviation as well as the social, political, and economic empowerment of women of Pakistan. For more rigorous analysis MPI for women has separately run for women respondents.

3.4.2.1 Regression Analysis

Following is the functional form of the regression model used for analysis and **Table 3.4** has shown the results of the general regression model for the selected sample.

$$Y_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_i$$

Where, Yi indicates the DSEDwi (as explained in table 3.4, different dimensions related to the socio-economic development of women), Social Status, MPI, Change in MPI (MPIDiff), and the score of Women Empowerment. 'LoanMFBi' represents the dummy variable for exposure to microfinance.

$$DSEDw_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_i \tag{3.9}$$

$$WoEmp_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_i \tag{3.10}$$

$$SocDevW_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_i \tag{3.11}$$

$$MPIw_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_i \tag{3.12}$$

$$MPIDiffw_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_i \tag{3.13}$$

3.4.2.2 Propensity Score Matching (PSM)

To capture the results of PSM estimations analysis had been done in STATA's psmatch and psmatch2 modules. The ATT for the use of microcredit can be given as:

$$\tau = E\{DSEDw_{1i} - DSEDw_{0i}|LoanMFB_i = 1\} \tag{3.14}$$

$$\tau = E[E\{DSEDw_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{DSEDw_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{WoEmp_{1i} - WomenEmp_{0i}|LoanMFB_i = 1\} \tag{3.15}$$

$$\tau = E[E\{WoEmp_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{WoEmp_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{SocDevW_{1i} - SocDevW_{0i}|LoanMFB_i = 1\} \tag{3.16}$$

$$\tau = E[E\{SocDevW_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{SocDevW_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{MPIw_{1i} - MPIw_{0i}|LoanMFB_i = 1\} \tag{3.17}$$

$$\tau = E[E\{MPIw_i|LoanMFB_i = 1, p(X_i)\} - E\{MPIw_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{MPIDiffW_{1i} - MPIDiffW_{0i}|LoanMFB_i = 1\} \tag{3.18}$$

$$\tau = E[E\{MPIDiffW_i|LoanMFB_i = 1, p(X_i)\} - E\{MPIDiffW_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

3.4.3 Enterprise Development

For Micro and Small Enterprises (MSE), the development can be assessed through a number of dimensions. Some of the dimensions change in the size of the business, launching of new products, enhancing the labor force, improvement in the

product quality, change in total assets, change in earnings, productivity, and inventory management. The impact of financial inclusion on each dimension has been empirically tested with the help of PSM. Furthermore, the impact of financial inclusion on income and social development has also been assessed through logistic regression and PSM analysis.

For a more comprehensive assessment of the impact of microfinance on enterprise development an enterprise development index (EDI) has been developed. This index is based on 8 dimensions. EDI has been taken as the dependent variable (in the regression model) and the dichotomous variable of financial inclusion (microfinance received or not) has been taken as an independent variable. Along with the regression, the effect of microfinance on EDI has also been assessed through PSM.

3.4.3.1 Regression Analysis

To estimate the impact on each dimension of enterprise development and social development logistic regression has been used. But for the impact assessment on the cumulative score enterprise development (EDI) multiple linear regression has been carried out. However, to estimate the impact on the social development of micro-entrepreneurs logistic regression has been carried out. The basic functional form of regression models are as follows;

Access to Microfinance = LoanMFB_i

Enterprise Development = EDI_i

Economic Development of Micro-Entrepreneurs = EcoDevEn_i

Social Development of Micro-Entrepreneurs = SocDevEn_i

$$EDI_i = \beta_1 + \beta_2 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_3 \tag{3.19}$$

$$EcoDevE_{ni} = \beta_1 + \beta_2 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_3 \tag{3.20}$$

$$SoDevE_{ni} = \beta_1 + \beta_2 LoanMFB_i + \beta_3 x_3 + ... + \beta_n x_n + \varepsilon_3 \tag{3.21}$$

3.4.3.2 Propensity Score Matching (PSM)

For a more robust analysis and impact assessment PSM analysis has also been carried out.

The impact of treatment (financial inclusion) can be estimated by comparing the outcomes of the treated and non-treated groups. It was expected that enterprises, that have exposure to microfinance will be better off in comparison to those who have no exposure to microfinance. To gauge this impact empirically the Average Treatment effect on Treated (ATT) is calculated for the economic and social development of micro-entrepreneurs. Furthermore, the ATT is estimated for each dimension (total eight) of enterprise development as well as of the Enterprise Development Index (EDI).

The functional form of the said model employs various socio-economic and demographic factors. The ATT for the use of microcredit can be given as:

$$\tau = E\{EDI_{1i} - EDI_{0i}|LoanMFB_i = 1\} \tag{3.22}$$

$$\tau = E[E\{EDI_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{EDI_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{EcoDevEn_{1i} - EcoDevEn_{0i}|LoanMFB_i = 1\} \tag{3.23}$$

$$\tau = E[E\{EcoDevEn_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{EcoDevEn_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{SoDevEn_{1i} - SoDevEn_{0i}|LoanMFB_i = 1\} \tag{3.24}$$

$$\tau = E[E\{SoDevEn_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{SoDevEn_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

$$\tau = E\{DED_{1i} - DED_{0i}|LoanMFB_i = 1\} \tag{3.25}$$

$$\tau = E[E\{DED_{1i}|LoanMFB_i = 1, p(X_i)\} - E\{DED_{0i}|LoanMFB_i = 0, p(X_i)\}|LoanMFB_i = 1]$$

Dimension of Enterprise Development (DED) = 1) change in the size of the business, 2) launching of new products, 3) enhancing the labor force, 4) improvement in the product quality, 5) change in total assets, 6) change in earnings, 7) productivity and 8) Inventory management

3.4.4 Summary

For Model – I, univariate and multivariate statistical analyses have been used to assess the financial performance of MFBs, their impact on sustainability (OSS), and outreach (Number of Borrowers). SEM analysis has been used for the empirical inferences of the model explained in figure – 3.2. For Model – II, OLS, logistic regression, and PSM techniques have been used to evaluate the impact of microfinance on the socio-economic development of impoverished people, women empowerment, and enterprise development. As explained in Figure – 3.3, socio-economic development is measured through sustainable livelihood, growth in living standards, multidimensional poverty reduction, and social development.

- Change in the different income and expenditures related dimensions (like income level, cooking fuel used, access to drinking water, food expenditure, medical expenditure, improvement in the condition of the house, improvement in roof material used, improvement in household assets, improvement in educational expenditure & Number of children going to school, and improvement in social status) were used as a proxy of sustainable livelihood.

- LSI was developed by using PCA and used as a proxy for socio-economic development.

- MPI was estimated to encompass the poverty level and the difference in MPI over two years is taken as a proxy of poverty reduction, reflecting socio-economic development.

- For women empowerment, a score of women empowerment reflecting socio-economic empowerment has been calculated from the responses gathered through interviews. Along with this the MPI and MPIDiff have separately

been estimated to measure the poverty and poverty reduction of impoverished women.

For enterprise development, with the help of PCA, an index (EDI) has been developed, from the responses gathered through interviews. Along with this, the impact of microfinance on different activities of business has also been assessed individually.

Chapter 4

Results

4.1 Data Analysis

This chapter shall explain the findings of the analysis conducted. As explained earlier, this study is comprised of two models, one is to evaluate the financial performance of MFBs that will explain their sustainability and outreach. This analysis is based on secondary data taken from financial reports of MFBs. For Model – I, univariate and multivariate statistical analyses have been used to assess the financial performance of MFBs, their impact on sustainability (OSS), and outreach (Number of Borrowers). For Model – II, OLS, logistic regression, and PSM techniques have been used to evaluate the impact of microfinance on the socio-economic development of impoverished people, women empowerment, and enterprise development. This chapter presents the results of both models and discuss the empirical inferences respectively.

4.2 Model – I – Determinants of Financial Performance Leading to Sustainability and Outreach

As advocated by Luzzi and Weber (2007), the relationship between efficiency, sustainability, and outreach is evident and their interdependence should be tested

empirically. In this study, the panel data of 11 commercially operated MFBs have been taken from 2010 to 2020. Structural Equational modeling (SEM) has been carried out to identify the determinants of financial performance and its impact on the sustainability and outreach of MFBs working in Pakistan.

4.2.1 Descriptive Statistics

Before moving towards testing of hypothesis, descriptive statistics comprehend the data and help in inferring about basic characteristics of the sample and ultimately population under study. The results of the descriptive analysis were reported in **Table 4.1**. The financial data of 11 MFBs were taken from the year 2010 to 2020 along with two macroeconomic variables KIBOR, and GDP for the same period. The results of descriptive statistics indicate that the mean GDP (in $ billions) of Pakistan is 256.9 with a high of 314.6 and a low of 177.2. During this period the GDP of Pakistan has shown an average growth of 3.67% with a minimum of 0.53% and a maximum of 5.84% growth. Interbank offer rate (KIBOR) is an important factor for the banking industry as well as the overall economy (Diaconu & Oanea, 2014). KIBOR has an average of 9.3% with a minimum of 5.9% and a maximum of 13.6% during the last 10 years with a high level of dispersion. This level of interest rate is not supportive of the growth of the industry (Awdeh & Hamadi, 2018). Furthermore, high dispersion reflects inconsistent economic policies.

Operating expenses to total asset ratio reflect a minimum of 0.02 and 0.70 maximum with an average of 0.13 and dispersion of 0.10. The lower average is of larger MFBs, reflecting that larger MFBs are operational and cost-efficient. The average loan size varies from Rs.7,447 to Rs.127,699 with an average of Rs.50,721 in the MFBs from 2010 to 2020. Reflecting that MFBs are focusing on the larger lending amount as it is higher than the average loan amount lent by MFIs of Pakistan, but it is far lesser than the lending of MFIs worldwide ($1839) (Dhib & Ashta, 2021), confirms that MFIs of developing countries lend smaller amounts (Cull & Morduch, 2018).

The liquid asset to deposits ratio reflects the asset management capabilities of the financial institution. The results indicate an average of 13.80 with a minimum of

0.09 and a maximum of 510.94, reflecting the inefficiency of managing the liquidity. This is because the MFBs in their initial years were unable to attract deposits and have high funds for lending. The negative figures of net interest income to total assets (Avg.=-0.09, Min=-0.38, & Max=-0.02) reflect the lack of efficiency of MFBs working in Pakistan. On average the whole industry is unable to maintain a positive net interest income. It means that interest earned is lesser than the interest paid which is less than the optimum level of operations. This operational inefficiency is due to the unutilized funds. The leverage of MFBs varies from "0" to "12.92" with an average of 4.30. This reflects that on average MFBs are high levered firms, therefore they are more sensitive to economic shocks and need to be very efficient in their asset management. Asset turnover ratio range from 0.01 to 0.64 with an average of 0.18, reflecting a good assets utilization tendency to generate revenue. High liquidity with high asset turnover indicates that the revenue (interest and non-interest) of MFBs is on the higher side. The average operating profit to the total asset is -0.04, ranging from -0.70 to 0.05. It reflects that on average whole industry is bearing 4.0% operating losses of its total assets. Higher revenue and operating losses indicate that the MFBs bear higher operating expenses. The operating expenses to total expenses ratio (with an average of 0.69, a minimum of 0.34, and a maximum of 1.00) indicates that the operating expenses are a major component of the total expenses of MFBs. Conclusively, it is inferred that overall, the revenue is good for the sustainability of MFBs but due to no utilization of funds (high liquidity) and relatively higher operational cost, the expenses set off the overall revenues. Equity to deposit reflects a huge level of diversity, indicating that the level of deposits varies significantly among the MFBs over the years. Similarly, the advances to deposit ratio with a mean value of 12.42 reflect that overall lending is significantly higher than the level of deposits. Furthermore, it varied to a great extent over the years from 0.01 to 379.05, reflecting an intense need to improve their operational policies. The size of MFBs varies significantly over the last 11 years, with an average of 15.71, ranging from 11.02 to 18.49. This is because of the fact that all MFBs have grown in their size over time, however, the momentum of growth varies among the sample. The number of Borrowers reflects consistent growth in all MFBs, with 184,580 average number of active borrowers in a year, with a minimum of 500 and

896,690 maximum number of active borrowers in a year. This is because during the inception period the MFBs have a very low level of outreach.

TABLE 4.1: Descriptive Statistics

	Min	**Max**	**Mean**	**S.D**
GDP (In $Billion)	177.17	314.57	256.89	38.51
OEtTA	0.02	0.7	0.13	0.1
AvgLoan	7447	127699	50722	27758
LAtDeposit	0.09	510.94	13.8	62.59
NIntInctTA	-0.38	-0.02	-0.09	0.05
Lev	0	12.92	4.3	3.47
AssetTO	0.01	0.64	0.18	0.07
OPtTA	-0.7	0.05	-0.04	0.11
OEtTE	0.34	1	0.69	0.17
EtDeposit	0.1	681.55	27.34	100.99
AdvtDeposit	0.01	379.05	12.42	53.14
ROA	-0.38	0.07	-0.01	0.06
KIBOR	5.94	13.62	9.29	2.65
Size	11.02	18.49	15.71	1.69
Sustainability (OSS)	0.13	2.55	0.89	0.32
Outreach (Number of Borrowers in thousands)	0.5	896.69	184.58	216.29
GDP (% growth)	0.53	5.84	3.68	1.85

ROA is a significant measure of the financial performance (operational as well as financial efficiency) of MFBs. The ROA of MFBs varied from -38% to 7%, with an average of -1.0%. This reflects that the overall industry is unable to earn (having negative returns) on their assets with a considerably high level of variations. This reflects the weak as well as an inconsistent performance of the MFBs. OSS reflects the ability of MFBs to be self-sufficient to meet their expenses from revenues. The OSS must be greater than 1, the higher the ratio greater will be the sustainability. The average OSS ratio of the overall industry in the last 11 years is 0.89 with a minimum of 0.13 and a maximum of 2.55, reflecting that on average the whole industry is below the point of self-sustainability. However, the low dispersion, positive skewness, and fair kurtosis posit that the performance of all MFBs is on average is consistently improving towards better sustainability.

4.2.2 Correlation Analysis

The correlation analysis identifies the direction and strength of association among the variables, which is also helpful in identifying the multicollinearity problem. The result of the correlation analysis of all the variables is reported in table 4.2. The results indicated that macroeconomic variables (GDP) are positively associated with the performance ratios except for the expense ratios (operating expenses to total assets & operating expenses to total expenses) and KIBOR. In Pakistan with the increase in GDP the cash flow in the market also increased, therefore, the Government increased the interest rate to control inflation. It also slows the GDP growth because of the weak financial structure of the country. So KIBOR and GDP are inversely associated. Furthermore, interest expense is the major component of the expenditure of MFBs, therefore, expense ratios are also inversely associated with GDP. Whereas the rest of the ratios (profitability, efficiency, and liquidity) are positively associated. Size, sustainability, and outreach are also positively associated with the GDP. Operating expenses to total assets (OEtTA) are negatively associated with the majority of the variables particularly the Net interest income to the total asset (0.793), return on total assets (0.715), and operating profit to total asset ratio (0.934). It is quite understandable that the expense ratios are negatively associated with the profitability, efficiency, and liquidity ratios. However, almost no association (0.002) is found with advances to deposit ratio. It is an important dimension that attracting deposits and turning those into advances (loans) is not associated with expenses. Therefore, it is significant to infer that efficiency in attaining deposits and lending does not cause more expenses. Similarly, a very low level of negative association is observed between the 'OEtTA' and outreach.

Average loan size is also called the depth of outreach, it is commonly considered an indicator of efficiency as well. Average Loan observes a mixed pattern of association with the other variables. It has a positive association with leverage, size, and breadth of outreach. It means those MFBs who observe higher average loans are larger, have a high amount of debt in their capital and have a higher number of borrowers. Whereas, almost no association is found with sustainability, asset turnover, operating profit to total assets, and ROA. It clearly negates those

studies, which promulgate that a higher average loan brings sustainability (Yeshi, 2015) and efficiency.

Liquidity (Liquid assets to Deposits) of MFBs is found to be strongly positively correlated with 'Equity to Deposits' and 'Advance to Deposits'. Whereas liquidity (Liquid assets to Deposit ratio) is almost having no association with profitability (Net Interest Income, operating profit, and ROA). An important dimension is that liquidity and size are negatively associated, it is because every bank has to maintain a minimum liquidity position, and with the increase in the size of the deposits size also increases. KIBOR is also negatively associated because banks prefer to have lesser liquidity when the KIBOR is high. Net interest income to the total asset (NIntInctTA) is certainly positively associated with the profitability ratios and inversely associated with the expense ratios. But it is positively associated with leverage reflecting that high levered MFBs are more profitable and able to manage handsome interest rate spreads. Furthermore, its negative association with KIBOR reflects that an increase in KIBOR adversely affects the interest rate spread of MFBs. Net interest margin is positively associated with the size, sustainability, and outreach of MFBs.

Leverage has a significant negative association with OEtTE, reflecting higher the MFBs having higher leverage observe lower expense ratios. Furthermore, the association of leverage, size, and outreach reflects that larger MFBs are high levered and observed better outreach. However, it has almost no association with the sustainability of MFBs. Asset turnover is a substantial measure of efficiency but in the case of MFBs, it shows mixed evidence. Asset turnover has an inverse association with operating profit and a positive association with outreach. It indicates that the magnitude of revenue is not the certainty of profitability. Furthermore, higher revenue is due to the higher number of borrowers. AssetTO has a positive but weak association with KIBOR and size. However, the negative association between AssetTO and sustainability highlights the importance of managing an operational and financial mix rather than just getting higher revenue. Higher revenue does not guarantee sustainability, from all results reported above it is inferred that overall efficiency (operational and financial) brings sustainability. Operating profit to total assets (OPtTA) is positively associated with ROA and sustainability. It also

endorses that managing all the expenses will result in positive returns and sustainability. It is also positively associated with outreach; however, the association is weak. Another important point is that it is negatively associated with KIBOR. It endorses the results presented above, reflecting that higher KIBOR is not in favor of MFBs. Another piece of evidence, highlighting the importance of managing the expense side is that the portion of operating expenses in total expenses (OEtTE) is inversely associated with the size. It reflects that larger MFBs can manage their operating expenses in a better manner. The higher the 'OEtTE' ratio lesser shall be the outreach. The relationship of 'OEtTE' with size and outreach is inverse but strong enough. As expected, it has a positive but weak association with KIBOR. A better economy (high GDP), high leverage, and a bigger size is associated with better outreach, whereas operating expenses are counter to it. A stronger negative correlation is observed between outreach and 'OEtTE'.

MFBs having higher equity to deposit ratio (EtDeposit) are better able to manage their advance from their deposits but have lesser outreach. But such MFBs are sustainable and smaller in size, as 'EtDeposit' has a positive and negative association with sustainability and size respectively. However, this association is weak. The advance to deposit ratio reflects the tendency of an MFB to convert its deposits into advances (loans), but it has a very weak association with other variables except for the Liquidity of MFBs. This ratio itself has a weak association with other factors but keeping in view the above results it is established the reasons for efficiency and sustainability. ROA is the most commonly used measure of efficiency and used as proxy of financial performance. The results of correlation reflect that it is positively associated with the sustainability and outreach of MFBs. The association of ROA with the size is also positive but not very strong. Furthermore, ROA is positively associated with GDP and inversely associated with KIBOR. ROA is inversely associated with the expense ratios. However, KIBOR is inversely associated with sustainability and outreach. In Pakistan, the success of MFBs (social and financial) is dependent on low KIBOR. This is a pivotal policy point for the Government and related authorities. Furthermore, size is positively associated with outreach and this association is significantly strong. Furthermore, size is greatly associated with the GDP and leverage.

TABLE 4.2: Correlation Matrix of Covariates of Model-II

Sr. No		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	**GDP**	1															
2	**OEtTA**	-0.288***	1														
3	**AvgLoan**	0.369***	-0.167*	1													
4	**LAtDeposit**	0.105	-0.08	-0.195**	1												
5	**NIntInctTA**	0.421***	-0.793***	0.243***	0.045	1											
6	**Lev**	0.386***	-0.296***	0.452***	-0.255***	0.400***	1										
7	**AssetTO**	0.001	0.709***	-0.081	-0.166*	-0.348***	-0.039	1									
8	**OPtTA**	0.275***	-0.934***	0.038	0.073	0.690***	0.149*	-0.557***	1								
9	**OEtTE**	-0.291***	0.431***	-0.418***	0.229***	-0.467***	-0.710***	-0.044	-0.315***	1							
10	**EtDeposit**	0.148*	-0.065	-0.232***	0.943***	0.008	-0.320***	-0.146*	0.088	0.260***	1						
11	**AdvtDeposit**	0.148*	0.002	-0.150*	0.612***	-0.054	-0.245***	0.009	0.031	0.077	0.744***	1					
12	**FinPerf**	0.332***	-0.715***	0.03	0.032	0.804***	0.131*	-0.170*	0.826***	-0.257***	0.046	0.013	1				
13	**KIBOR**	-0.487***	0.223***	-0.187**	-0.127	-0.358***	-0.194**	0.136	-0.187**	0.048	-0.114	-0.038	-0.258***	1			
14	**Size**	0.594***	-0.297***	0.377***	-0.207**	0.491***	0.738***	0.190**	0.235***	-0.700***	-0.250***	-0.134	0.328***	-0.269***	1		
15	**OSS**	0.335***	-0.493***	-0.016	0.162*	0.410***	0.059	-0.190**	0.598***	-0.171*	0.182**	0.069	0.542***	-0.173*	0.152*	1	
16	**Outreach**	0.484***	-0.129	0.163*	-0.193**	0.324***	0.631***	0.348***	0.126	-0.639***	-0.206**	-0.061	0.242***	-0.179**	0.896***	0.240***	1

Standard Errors in parentheses ().

***p<0.01, ** p<0.05, * p<0.10.

The sustainability of MFBs is strongly associated with outreach. It conforms to the basic hypothesis of the study that sustainability ensures the better outreach of MFBs. Sustainability is also positively associated with financial performance (ROA) of MFBs. from the above results, it is inferred that the net interest margin is the key area on which MFBs have to work along with a reduction in their operating cost. But the effective cost management is also dependent on the government policies (KIBOR) and overall economic conditions (GDP)

4.2.3 Normality Testing

To test the hypothesis and estimate the overall effect of different covariates on the efficiency, sustainability, and outreach of the MFBs, the SEM technique is used in SPSS-AMOS. Before going for SEM analysis, the normality of the data set is tested through Mardia's multivariate skewness and kurtosis (Cain, Zhang, & Yuan, 2017). According to Mardia's technique, the threshold values of kurtosis and skewness are '+ 20' and '+ 1' respectively. The results reported in **Table 4.3** indicate that data is not normally distributed.

TABLE 4.3: Multivariate Normality

	Skewness	**SE_skew**	**Kurtosis**	**SE_kurt**
GDP	-0.38	0.23	-0.5	0.457
OEtTA	3.73	0.23	20.479	0.457
AvgLoan	0.945	0.23	0.44	0.457
LAtDeposit	5.845	0.23	38.122	0.457
NIntInctTA	-1.59	0.23	2.61	0.457
Lev	0.252	0.23	-1.054	0.457
AssetTO	2.853	0.23	19.581	0.457
OPtTA	-3.753	0.23	18.722	0.457
OEtTE	0.222	0.23	-0.807	0.457
EtDeposit	4.663	0.23	23.035	0.457
AdvtDeposit	5.305	0.23	28.854	0.457
FinPerf (ROA)	-2.698	0.23	10.368	0.457
KIBOR	0.155	0.23	-1.311	0.457
Size	-0.573	0.23	-0.478	0.457
Sustainability (OSS)	-0.449	0.23	0.216	0.457
Outreach	-0.893	0.23	-3.876	0.457
Mardia's multivariate skewness and kurtosis				
	b	***z***	***p-value6***	
Skewness	134.0381	2457.3646	0.00	
Kurtosis	170.5757	-25.6574	0.00	

4.2.4 Testing of Hypothesis

Standardized estimates for SEM posit that most of the hypothesis are supported by the empirical findings. Results inferred that out of 11 independent variables eight are significantly impacting the efficiency of MFBs. However, their effect size varies up to a great extent. From results it is inferred that the GDP (β =-0.032, p = 0.00), Operating Expense to Total Assets (β = 0.616 , p = 0.00), Average Loan Size (β = 0.014, p = 0.05), Net Interest Income to Total Assets (β = 0.382, p = 0.00), Operating Profit to Total Assets (β = 0.683, p = 0.00), Operating Expenses to total Expenses (β = 0.023, p = 0.00), and Advance to Deposits (β = 0.019, p = 0.00) are significantly impacting the financial performance (ROA) of the MFBs.

However, contrary to Gaganis et al. (2016) and Iqbal-Hussain et al. (2020) GDP is negatively impacting the Financial Performance (ROA). This is astonishing, but it reveals an important fact that when the economy is performing well, the demand for microfinance decreases, and so does the performance of MFBs. Therefore, with the increase in GDP the ROA of MFBs decreases because the micro-enterprises could arrange internally generated funds. Furthermore, the interest rate spread reduces in a growing economy, that's why the ROA of MFBs decreases. Our findings confirm the inferences of Donou-Adonsou & Sylwester (2017).

As shown in table 4.4, conforming to the findings of Gaganis (2016) and Dissanayake (2012) operating expense to total assets is positively explaining the performance of MFBs. Our findings are contrary to Kumar Kar (2011); Ofeh et al. (2017), and Tehulu (2013). Operating expenses to total expenses are also significantly impacting the ROA. It infers that the higher the expense ratio better will be the performance of MFBs, however, the effect size is very small. These results highlight an important dimension that those MFBs who are incurring more expenses in their operations are having better performance. It means that the operating expenses they incurred are actually their investment in the market and it gave them better results. The indirect effect in the structural model inferred that Higher operating costs positively contributed toward outreach, confirming the results of Meyer (2015). Furthermore, Net Interest Income to Total Assets is

also positively contributes to ROA. Net interest rate (interest margin) is an important determinant of performance (Maiti & Jana, 2017) our findings illustrated the same.

Contrary to Siddiqui and Gilal (2012), results (indirect effect) posit that net interest margin is also positively contributing to sustainability and outreach. As shown in table 4.2, the negative association between net interest income to total asset ratio and KIBOR inferred that the lesser the borrowing rate higher will be the net interest income. A strong positive association between net interest income to total asset ratio and ROA inferred that the lesser the borrowing rate higher will be the efficiency. The operating expenses to total assets and operating expenses to total expenses ratio contributed positively to the performance of MFBs. This is an interesting finding that higher operating expenses shall enhance the performance, which will further translate into sustainability. However, a higher proportion of financial expenses in the total expense has an adverse effect on the efficiency and sustainability of MFBs.

The average loan size explains the performance (Yeshi, 2015) and sustainability of the microfinance institutes. As discussed by Quayes (2015) and Karanja (2014), our results inferred that average loan size positively affects the ROA. However, these findings are contrary to Hermes et al. (2011) which explains the negative relationship between loan size and performance. In the indirect effect model, the average loan size is also affecting positively OSS and outreach. It reflects higher the average loan, the higher will be the financial performance, OSS, and outreach (number of borrowers).

As mentioned by Maiti and Jana (2017) and Ofeh et al. (2017) profitability is inevitable for the efficiency and sustainability of the MFBs. Contrary to Cull et al. (2011), empirical findings of this study highlight that operating profit to total assets is positively influencing performance. Furthermore, the indirect effect measures identify that profitability also contributed positively to OSS, conforming to the results of Maiti and Jana (2017) and Quayes (2012). Furthermore, it also positively influences the outreach of MFBs, these findings are aligned with Nurmakhanova et al. (2015) and contrary to Sun and Im (2015); Hermes et al. (2011) and Shu and Oney (2014).

Advance (GLP) is an important determinant of efficiency and performance explain by (Mahmood et al., 2014). The Advances to Deposit ratio is an important measure of internal efficiency as it reflects how efficiently the MFBs manage their funds, generated from deposits, in lending to their customers. Results inferred that the 'Advance to Deposits' ratio is significantly impacting ROA. However, the size of this impact is very low. The empirical evidence of indirect effect posits that there is almost no impact on sustainability and outreach.

As anticipated, the financial performance (ROA) is positively affecting the sustainability (OSS) ($\beta = 0.932$, p = 0.00). Empirical evidence of indirect effect posits that the average loan is positively affecting the sustainability of MFBs, and the results are aligned with Schäfer & Fukasawa (2011). The indirect effect of GDP, average loan size, liquid asset to deposit, leverage, asset turnover, operating expenses to total expenses, equity to deposit, and advances to deposit ratio on sustainability is very small. However, a significantly large effect of operating expenses to total assets, net interest income to total assets, operating profit to total assets, and financial performance (ROA) on sustainability (OSS) is observed. Furthermore, KIBOR is moderating the relationship between ROA and OSS.

The interaction term (KIBOR * ROA) is statistically significant, reflecting that it moderates the relationship between efficiency and sustainability. As identified by Nwachukwu (2014) and Memon et al. (2021), the negative association inferred that the higher the KIBOR lesser will be the sustainability. This signifies our finding that performance contributes to sustainability, but a higher interest rate negatively affects the loaning process and economic viability of loans. Conforming to the findings of Siddiqui & Gilal (2012), the indirect effect of KIBOR on the outreach is also negative, however, the results are not statistically insignificant.

The direct effect of OSS ($\beta = 0.435$, p = 0.00) on the outreach is significantly positive. There is an indirect effect of ROA ($\beta = 0.109$, p = 0.00) on the number of borrowers is also reported. Conclusively, the performance and sustainability explain the outreach of MFBs. Overall, the sustainable MFBs shall have better outreach, the result of SEM support this argument of Ofeh et al. (2017); Kinde (2012); Hollis et al. (1996).

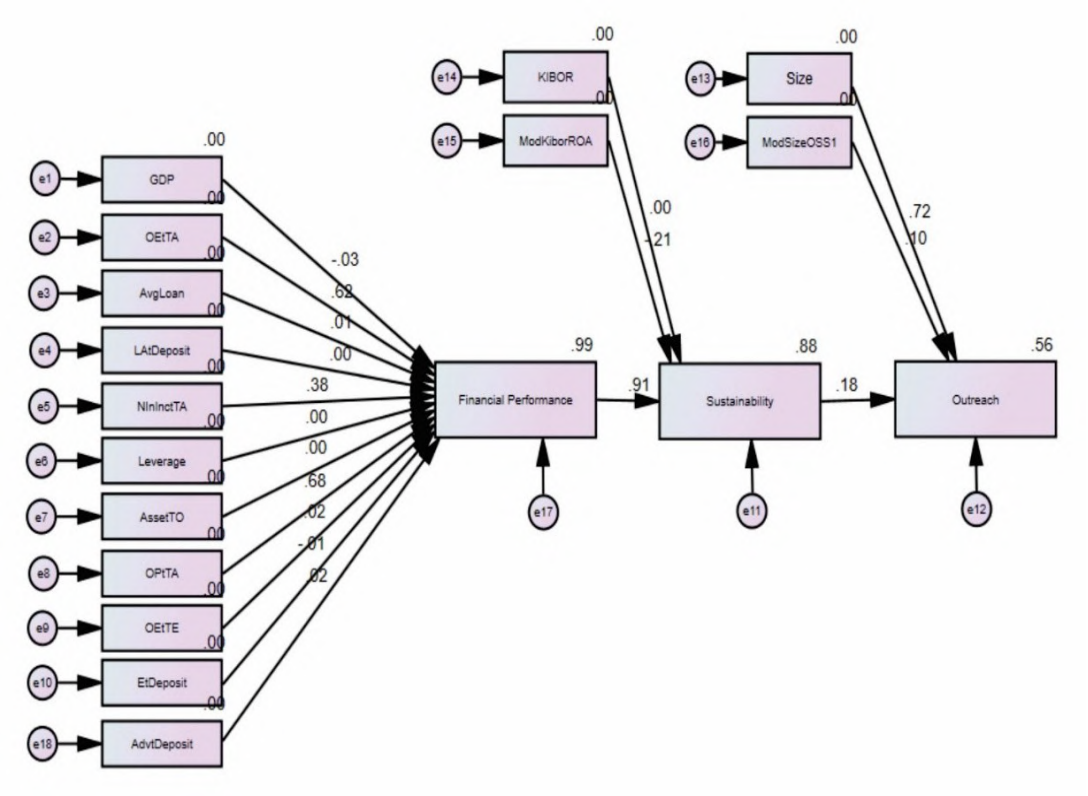

FIGURE 4.1: Model-I Result of SEM

Size is significantly associated with the outreach, inferring that the higher the size of the MFBs better will the outreach (as discussed by (Gaganis et al., 2016). The moderation of size in the relationship between sustainability and outreach is significantly positive. It is concluded that the size is positively moderating the relationship between sustainability and outreach. Sustainable MFBs with larger sizes will have better outreach. Our findings are contrary to Ofeh et al. (2017), which identified a negative effect of size on the outreach of MFBs. Furthermore, ROA is positively contributing to the outreach, which is contrary to the findings of (Sun & Im, 2015), he highlighted that performance hindered the outreach, advocating the mission drift school of thought. Whereas our finding highlights that performance positively contributed towards the outreach of MFBs. Furthermore, KIBOR moderates this relationship significantly, with a negative effect on sustainability. Cost efficiency is pivotal for sustainability and better outreach is an important social objective but both can't be attained simultaneously Abate et al. (2014) and a trade-off exists between cost efficiency and outreach. But efficient management creates a balance in this relationship.

As highlighted by Sun and Im (2015) every stakeholder must contribute to making

this social mission successful. If the Government played a good role by lending to MFBs at subsidized rates (less than KIBOR) this could make MFBs more efficient. Due to this social ventures could become self-sustainable and successful business ventures. Better financial performance complements the outreach and better outreach help in increasing the financial performance. Furthermore, it will contribute to the socio-economic development of an impoverished segment of society without hindering their existence or dependence on donors.

TABLE 4.4: Determinants of Financial Performance – Results of SEM

	Beta	**S.E**	**C.R.**
GDP ⇒ FinPerf	-0.032***	0.000	-4.268
OEtTA ⇒ FinPerf	0.616***	0.01	82.97
AvgLoan ⇒ FinPerf	0.014*	0.000	1.886
LAtDeposit ⇒ FinPerf	-0.005	0.000	-0.723
NInInctTA ⇒ FinPerf	0.382***	0.019	51.392
Lev ⇒ FinPerf	0.011	0.000	1.484
AssetTO ⇒ FinPerf	0.004	0.015	0.556
OPtTA ⇒ FinPerf	0.683***	0.01	91.94
OEtTE ⇒ FinPerf	0.018***	0.006	3.057
EtDeposit ⇒ FinPerf	-0.007	0.000	-0.957
AdvtDeposit ⇒ FinPerf	0.019***	0.000	2.62
ROA ⇒ Sustainability	0.932***	0.16	30.115
KIBOR* FinPerf ⇒ Sustainability	-0.147***	0.107	-4.744
KIBOR ⇒ Sustainability	-0.002	0.008	-0.056
Size ⇒ Outreach	0.859***	7.688	13.275
Size*Sustainability ⇒ Outreach	-0.109***	17.815	1.147
Sustainability ⇒ Outreach	0.270***	50.715	2.758

TABLE 4.5: Results of Structural Model (Direct, Indirect and Total Effect)

	ROA			OSS			Outreach		
	Total Effect	**Direct Effect**	**Indirect Effect**	**Total Effects**	**Direct Effect**	**Indirect Effect**	**Total Effects**	**Direct Effect**	**Indirect Effect**
GDP	-0.032	-0.032	-	-0.03	-	-0.03	-0.008	-	-0.008
OEtTA	0.616	0.616	-	0.574	-	0.574	0.155	-	0.155
AvgLoan	0.014	0.014	-	0.013	-	0.013	0.004	-	0.004
LAtDeposit	-0.005	-0.005	-	-0.005	-	-0.005	-0.001	-	-0.001
NInInctTA	0.382	0.382	-	0.356	-	0.356	0.096	-	0.096
Lev	0.011	0.011	-	0.01	-	0.01	0.003	-	0.003
AssetTO	0.004	0.004	-	0.004	-	0.004	0.001	-	0.001
OPtTA	0.683	0.683	-	0.637	-	0.637	0.172	-	0.172
OEtTE	0.023	0.023	-	0.021	-	0.021	0.006	-	0.006
EtDeposit	-0.007	-0.007	-	-0.007	-	-0.007	-0.002	-	-0.002
AdvtDeposit	0.019	0.019	-	0.018	-	0.018	0.005	-	0.005
FinPerf (ROA)	-	-	-	0.932	0.932	-	0.252	-	0.252
KIBOR* FinPerf	-	-	-	-0.147	-0.147	-	-0.04	-	-0.04
KIBOR	-	-	-	-0.002	-0.002	-	-	-	-
Size	-	-	-	-	-	-	0.859	0.859	-
Size*Sustainability	-	-	-	-	-	-	-0.109	-0.109	-
Sustainability	-	-	-	-	-	-	0.27	0.27	-

4.3 Model – II, Social Performance (Effect of Microfinance on Socio-Economic Development)

The social performance of MFBs is measured through the socio-economic development of impoverished people (attaining sustainable livelihood, multidimensional poverty reduction, and improvement in living standards), women empowerment, and enterprise development.

4.3.1 Impact of Financial Inclusion on 'Sustainable Livelihood'

Lack of income is poverty and poverty directly harms the pattern of expenditures on necessities of life. Change in the different income and expenditures related measures (like income level, cooking fuel used, access to drinking water, food expenditure, medical expenditure, improvement in the condition of the house, improvement in roof material used, improvement in household assets, improvement in educational expenditure & number of children going to school, and improvement in social status) were used as a proxy of sustainable livelihood.

4.3.2 Descriptive Analysis of the Respondents

As discussed in chapter – 3, the dataset used in this study was gathered through semi-structured interviews (administrated through a questionnaire). The dataset contains the demographic variables, socio-economic indicators, and economic progress-related measures of 1003 respondents. These dimensions were estimated through categorical and continuous variables. Each categorical variable was quantified through dummy variables.

As described in **Table 4.6**, data comprises 503 respondents (50.1% of the total) who have not taken a loan from MFBs and 500 respondents (49.9% of the total) who have taken a loan from MFBs. The data from males and females both have

been collected, out of a total 333 were male respondents (33.2% of the total) and 670 were female respondents (66.8% of the total). Out of 333 males, 172 (51.7% of the total males) have taken loans from MFBs and 161 (48.3% of the total males) have not taken the loans. Whereas out of 670 female respondents, 328 (49.0% of the total females) were taken the loan from MFBs. As far as the region is concerned 516 respondents (51.4% of the total) belong to the urban areas and the rest of the respondents (48.6% of the total) belonged to rural areas. The sample is almost evenly distributed in the urban (51.4%) and rural (48.6%) populations. Out of 516 respondents (from urban areas), only 255 (49.4% of the total) were taken the loan and out of 487 respondents (from rural areas), only 245 (50.3% of the total) were taken the loan. It seems that MFBs prefer younger people as the majority of the respondents (68.7%) are below the age of 40 years. This is because they can work harder and not only reap the benefits of the loans but also repay them promptly. Out of the total respondents, 277 (27.6%) were unmarried, 633(63.1%) were married, 53(5.3%) were divorced, and 40 (4.0%) were widows.

The majority of the respondents are under matric (62.9% of the total). Out of 500 respondents (who have taken the loans) 124 (24.8%) are completely illiterate, 81 (16.2%) were having primary education, 98(19.6%) were middle, 72(14.4%) respondents have the qualification of matric, 57(11.4%) were intermediate, 38(7.6%) were graduates, and 30(6.0%) were having other qualification (it includes diploma, technical education, or higher academic qualification).

Out of the total, 596 (59.4% of the total) respondents explained that their income has not improved in the last 2 years. Out of these 596, 417 (70.0%) were those who have not taken the loans and 179 (30.0%) were those who have taken the loans from MFBs. The rest of the 407 (40.6%) respondents explained that their income has improved in the last 2 years. Out of these 407, 321 (78.9%) are those who have taken the loan from MFBs, and the rest of 86 (21.1%) respondents have not taken the loans. So those who have taken the loans (500 respondents), comparatively a higher number (64.2% of them) responded that their income has been increased over time. More importantly, the statistics of 'MPINow' reflect that 707 (70.5%) respondents were no longer multidimensional poor whereas only 296 (29.5%) respondents are still below the poverty line.

TABLE 4.6: Two-way Stratified Random Data of Treatment and Control Group

		Financial Inclusion (Exposure to Microfinance)							
		Non-Borrowers			**Borrowers**			**Total**	
		Count	**%age**	**% Within LoanMFB**	**Count**	**%age**	**% Within LoanMFB**	**Count**	**% Within LoanMFB**
Age	Lessthan 25	178	51.90%	35.40%	165	48.10%	33.00%	343	34.20%
	25 – 40	168	48.60%	33.40%	178	51.40%	35.60%	346	34.50%
	Morethan 40	157	50.00%	31.20%	157	50.00%	31.40%	314	31.30%
Gender	Male	161	48.30%	32.00%	172	51.70%	34.40%	333	33.20%
	Female	342	51.00%	68.00%	328	49.00%	65.60%	670	66.80%
Region	Urban	261	50.60%	51.90%	255	49.40%	51.00%	516	51.40%
	Rural	242	49.70%	48.10%	245	50.30%	49.00%	487	48.60%
Education	No Edu	130	51.20%	25.80%	124	48.80%	24.80%	254	25.30%
	Primary	98	54.70%	19.50%	81	45.30%	16.20%	179	17.80%
	Middle	101	50.80%	20.10%	98	49.20%	19.60%	199	19.80%
	Matric	59	45.00%	11.30%	72	55.00%	14.40%	131	13.10%
	Inter	57	50.00%	11.30%	57	50.00%	11.40%	114	11.40%
	Graduation	23	37.70%	4.60%	38	62.30%	7.60%	61	6.10%
	Others	35	53.80%	7.00%	30	46.20%	6.00%	65	6.50%
Marital Status	Unmarried	144	52.00%	28.60%	133	48.00%	26.60%	277	27.60%
	Married	318	50.20%	63.20%	315	49.80%	63.00%	633	63.10%
	Divorced	22	41.50%	4.40%	31	58.50%	6.20%	53	5.30%
	Widow	19	47.50%	3.80%	21	52.50%	4.20%	40	4.00%

Continued Table: 4.6 Two-way Stratified Random Data of Treatment and Control Group

		Financial Inclusion (Exposure to Microfinance)							
		Non-Borrowers			**Borrowers**			**Total**	
		Count	**%age**	**% Within LoanMFB**	**Count**	**%age**	**% Within LoanMFB**	**Count**	**% Within LoanMFB**
ChngIncom	No	417	70.00%	82.90%	179	30.00%	35.80%	596	59.40%
	Yes	86	21.10%	17.10%	321	78.90%	64.20%	407	40.60%
SocDev	No	231	45.80%	45.90%	273	54.20%	54.60%	504	50.20%
	Yes	272	54.50%	54.10%	227	45.50%	45.40%	499	49.80%
MPINow	≤ 0.33	339	47.90%	67.40%	368	52.10%	73.60%	707	70.50%
	$\leq$0.34	164	55.40%	32.60%	132	44.60%	26.40%	296	29.50%
MPIDiff	< 0.0	295	45.70%	58.60%	350	54.30%	70.00%	645	64.30%
	0	135	55.30%	26.80%	109	44.70%	21.80%	244	24.30%
	> 0.0	73	64.00%	14.50%	41	36.00%	8.20%	114	11.40%

TABLE 4.7: Results of t-Statistics for Exposure to Microfinance as a Grouping Variable

Variable Name	**Means**		**Mean Difference**	***t-Values***	**Sig.**
	Control Group	**Treatment Group**			
Change in Income Level (ChngIncom)	0.171	0.642	-0.471	-17.2931	0.00
Growth in ownership status of the house (GOwnH)	0.012	0.028	-0.016	-1.8217	0.07
Growth in Roof material of the house (GRoofM)	0.141	0.202	-0.061	-2.562	0.011
Growth in overall condition of the house (GCondH)	0.266	0.384	-0.12	-4	0.00
Growth in School going children (GSchCh)	0.121	0.162	-0.041	-1.85	0.064
Growth in Household assets (GHousH)	0.531	0.49	0.041	1.293	0.196
Cooking fuel Growth (GCFuel)	0.189	0.214	-0.025	-0.992	0.322
Improvement in drinking water (GDWat)	0.058	0.1	-0.042	-2.495	0.013
Betterment in Medical Expenditure (Gmedexp)	0.883	0.928	-0.045	-2.454	0.014
Increase in Clothing Expenditure (Gclothexp)	0.026	0.066	-0.04	-3.051	0.002
Social Development (SocDev)	0.541	0.454	0.087	2.755	0.006
Growth in Living Standard (LSI)	-0.133	0.135	0.268	-4.293	0.00
Multidimensional Poverty (MPINow)	0.291	0.264	0.027	2.684	0.007
Multidimensional Poverty Reduction (MPIDiff)	-0.089	-0.111	0.023	2.84	0.005

From the results of 'MPIDiff', it has been observed that the multidimensional poverty of 64.3% of the respondents has been reduced over time, out of which 350 belonged to the treatment group. Whereas the multidimensional poverty of 244 respondents was unchanged. Results posit a marginal reduction in multidimensional poverty due to financial inclusion. Furthermore, out of the total, 499 (49.8% of total) respondents explained that their social status has improved over time. Out of these 499 respondents, 227 (45.4%) respondents were those who have taken the loan from MFBs. Whereas, 54.1% of loan receivers explained that their social status does not improve in the last two years. It indicates that at large the social status of the treatment group had not improved, reflecting that social development is not influenced by financial inclusion.

4.3.3 t-Statistics

According to t-statistics (**Table 4.7**), a significant difference in the growth of per capita household income of borrowers and non-borrowers has been observed. It posits that the growth in the income level of the borrowers is marginally higher. Furthermore, borrowers (treatment group) witnessed growth in ownership status of the house, roof material of the house, overall condition of the house, number of school-going children, accessibility to safe drinking water, ability to bear medical expenditure, and clothing expenditures than their control group counterparts.

Multivariate Analysis

4.3.4 Impact of Financial Inclusion on Sustainable Livelihood

4.3.4.1 Logistic Regression Analysis

A number of logistic regression models were carried out to assess the impact of microfinance and nine other socio-economic indicators (gender, age, region, marital status, number of children, number of school-going children, total number of family members, education, and number of earning hands), on the sustainable livelihood

and social status of impoverished people of Pakistan. These socio-economic indicators were also discussed in chapter 3. The results and interpretations of the logistic regression are as follows

4.3.4.2 Change in Income Level (ChngIncom)

Purchasing power parity is the basic yardstick to estimate poverty and the growth in per capita household income positively influences it. It is the fundamental indicator of poverty reduction and a reflection of sustainable livelihoods, therefore, considered to be the first indication and pivotal step toward socio-economic development. The absolute poverty level varies across the countries (Mazumder & Lu, 2015), therefore the focus on absolute poverty measures restricts the scope of the study. The logistic model with 'ChngIncom' as a dependent variable has the following functional form:

$$log(\frac{p}{1-p}) = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.1)$$

As discussed earlier the prime motive of microfinance is to improve the economic status of the people living in the poverty. Improvement in income level is the most important measure of poverty alleviation and betterment in economic status. To assess the likelihood of the improvement in income, a logistic regression model has been used. The model with χ^2 (10) = 246.56, n = 1003, p = 0.000 is statistically significant. Our model correctly classified 73.58% of the total observations and accounted for 18.20% of the variation in 'change in income' (dependent variable).

The odd ratios showed that the increase in income is likely for those who have availed the microfinance, females, having a higher number of children, a higher number of school-going children, a higher number of total family members, and having a higher number of earning hands in the family. The increase in income is less likely for the covariates of age, region, marital status, and education. Out of ten independent variables, only one (access to microfinance) is statistically significant (p = 0.000). whereas the results of other covariates are not statistically significant.

The odd ratio (OR = 8.91) of the variable 'microfinance' indicates that the chances (or likelihood) to increase the income of those who have availed the microfinance is 8.91 times than those who did not avail the microfinance. This income growth shall improve the ability to bear day-to-day expenditures and capital expenditures respectively.

Furthermore, with the increase in age, the chances to increase the income level reduces. The lesser the age higher they will be the likelihood to increase the income. the likelihood to increase the income is 1.03 with one unit decrease in age. For the rural region, the chance to increase the income is 1.24 times. For the people living in the urban areas the chances to increase their income are very low. For the single and married the chances to increase the income are higher and for the widow etc the chances to increase the income are almost negligible. Surprisingly the chances to increase the income decreases with the increase in the education level.

4.3.4.3 Growth in Household Assets (GHousH)

Overall betterment in the household assets owned by an individual reflects improvement in the economic status. To assess the betterment of economic status, the growth in overall household assets is an important dimension to be incorporated. The logistic model with 'GhousH' as a dependent variable has the following functional form:

$$GHousH_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.2)$$

The model with χ^2 (10) = 5.67 , n = 1003, p = 0.8423 , correctly classified 52.44% of the observations. The model explains 0.4% (Pseudo R2 = 0.004) of the variation in 'growth in household assets' (dependent variable). As shown in Table 4.8, the odd ratios showed that the growth of household assets is likely for a higher score of variables, age (OR = 1.06), marital status (OR = 1.01), number of children (OR = 1.04), the total number of family members (OR = 1.036), and education (OR = 1.04). The growth in household assets is less likely for the factors like 'access

to microfinance' (OR = 0.85), gender (OR = 0.99), region (OR = 0.93), number of school-going children (OR = 0.90), and higher number of earning hands (OR = 0.94). However, the results are statistically insignificant.

4.3.4.4 Growth in Cooking Fuel Use (GCFuel)

The growth in cooking fuel used is one of the important dimensions reflecting sustainable livelihood and socio-economic development. The logistic model with 'Gcfuel' as a dependent variable has the following functional form:

$$GCFuel_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.3)$$

The model with χ^2 (10) = 6.07, n = 1003, p = 0.8094 , correctly classified 79.86% of the observations. The model explains 0.6% (Pseudo R2 = 0.006) of the variation in 'growth in cooking fuel' (dependent variable). As shown in Table 4.8, the odd ratios showed that the growth in cooking fuel is likely for the covariates like access to microfinance (OR = 1.17), gender (OR = 1.023), age (OR = 1.08), region (1.19), the number of children (OR = 1.06) and the number of earning hands (OR = 1.12). The growth in cooking fuel is less likely for the covariates like marital status (OR = 0.98), the number of school-going children (OR = 0.95), the total number of family members (OR = 0.74), and education (OR = 0.96). However, the results are statistically insignificant.

4.3.4.5 Improvement in Drinking Water (GDWat)

Assess to clean drinking water is of prime importance, and betterment in this access is considered to be pivotal for the socio-economic wellbeing of an individual and family as a whole. The logistic model with 'GDWat' as a dependent variable has the following functional form:

$$GDWat_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.4)$$

The model with χ^2 (10) = 22.04, n = 1003, p = 0.015, correctly classified 92.12% of the observations. The model explains 3.98% (Pseudo R2 = 0.0398) of the variation in 'growth in drinking water' (dependent variable). The model has significantly correctly classified a high number of observations. As shown in table 4.8, The odd ratios showed that the growth in access to clean drinking water is likely for the covariates, the access to microfinance (OR = 1.93), gender (OR = 1.84), age (OR = 1.31), number of children (OR = 1.02), total number of family members (OR = 1.30), education (OR = 1.02), and number of earning hands (OR = 1.32). The growth in access to drinking water is less likely for the covariates like region (OR = 0.75), marital status (OR = 0.75), and the number of school-going children (OR = 0.99). Out of ten independent variables, 'access to microfinance' (p = 0.008) and 'gender' (p = 0.030) are statistically significant variables, the rest of the variables are not statistically significant.

4.3.4.6 Growth in School Going Children (GSchCh)

With the improvement in economic condition, the tendency of sending children to school increases. Therefore, the increase in the number of children going to school reflects economic development. The logistic model with 'GSchCh' as a dependent variable has the following functional form:

$$GSchCh_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.5)$$

The model with $\chi^2(10)$ = 213.71, n = 1003, p = 0.000, correctly classified 86.54% of the observations. The model explains 26.12% (Pseudo R2 = 0.2612) of the variation in 'growth in school-going children' (dependent variable). The model has significantly correctly classified a high number of observations. As shown in table 4.8, The odd ratios showed that the growth in the number of school-going children is likely for those who have availed the microfinance service (OR = 1.53), for females (OR = 3.74), for married and divorced (OR = 1.84), having a higher number of children (OR = 1.03) and higher number of school-going children (OR = 2.94). The growth in school-going children is less likely for individuals having

a higher age bracket (OR = 0.62), having a higher level of education (OR = 0.9), and having a higher number of earning hands (OR = 0.56).

4.3.4.7 Growth in Ownership Status of House (GOwnH)

To assess the impact of financial inclusion on the ownership status of the house, ten independent variables including 'access to microfinance' were included in the logistic model. The logistic model with 'GOwnH' as a dependent variable has the following functional form:

$$GOwnH_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.6)$$

The model with χ^2 (10) = 9.47 , n = 1003, p = 0.488 , correctly classified 98.01% of the total sample. The model explains 4.83% (Pseudo R^2 = 0.0483) of the variation in 'growth in ownership status' (dependent variable). Although the model is correctly classified with a higher number of observations the results are statistically insignificant. As shown in table 4.8, The odd ratios showed that the growth in ownership status is likely for those who have availed of the microfinance service. Only one variable (access to microfinance) is statistically significant at a 90% confidence interval (p = 0.065). The odd ratio (OR = 2.507) indicates that the chances (or likelihood) to increase the ownership structure of those who have availed the microfinance is 2.51 times that of those who did not avail the microfinance. The rest of the variables are not statistically significant.

4.3.4.8 Growth in Roof Material of the House (GRoofM)

The level of finishing of the house is the reflection of the economic status of an individual and the improvement in it reflects the economic development. The logistic model with Groofm as a dependent variable has the following functional form:

$$GRoofM_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.7)$$

The model with χ^2 (10) = 15.85, n = 1003, p = 0.1039 , correctly classified 82.85% of the total observations. The model explains 1.72% (Pseudo R2 = 0.0172) of the variation in 'growth in roof material' (dependent variable). However, the results are statistically insignificant. As shown in Table – 4.8, the odd ratios showed that the growth in the material used in the roof is likely for those who have availed of the microfinance service (OR = 1.57). However, the growth in roof material used is less likely for individuals who belong to the higher age group (OR = 0.763). Whereas the results of all other variables are not statistically significant.

4.3.4.9 Growth in the Condition of the House (GCondH)

The overall condition of the house is another important dimension to assess the economic status of the individual. The growth in the overall condition of the house reflects economic development, therefore, used in this study. The logistic model with 'GCondH' as a dependent variable has the following functional form:

$$GCondH_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.8)$$

The model with $\chi^2(10)$ = 220.68, n = 1003, p = 0.000, correctly classified 76.57% of the observations. The model explains 17.45% (Pseudo R^2 = 0.1745) of the variation in 'growth in overall condition' (dependent variable). The model has correctly classified a reasonably high number of observations and the results are statistically significant as well. As shown in table – 4.8.

The odd ratios showed that the growth in the overall condition of the house is likely for those who have availed the microfinance service (OR = 2.017), marital status (OR = 1.932), have a higher number of children (OR = 1.83), and having a higher number of earning hands (OR = 1.163). The growth in the overall condition of the house is less likely for females (OR = 0.860), belong to a higher age group (OR = 0.74), belong to rural areas (OR = 0.75), the higher number of school-going children (OR = 0.292), having a higher number of family members (OR = 0.85), and having a higher level of education (OR = 0.93).

TABLE 4.8: Impact of Microfinance on Sustainable Livelihoods and Social Development

	Sustainable Livelihoods (Economic Development)																		Social Development	
	ChngIncom		GOwnH		GRoofM		GCondH		GSchCh		GHousH		GCFuel		GSWat		Gclothexp		Gmedexp		SocDev	
	B	Odds ratio	B	Odds ratio	B	Odds ratio	B	Odds ratio	B	Odds ratio	B	Odds ratio	B	Odds ratio	B	Odds ratio			B	Odds ratio	B	Odds ratio
LoanMFB	2.187*** (0.152)	8.910	0.919* (0.497)	2.507	0.451*** (0.008)	1.570	0.702*** (0.154)	2.016	0.426** (0.213)	1.531	-0.168 (0.127)	0.845	0.158 (0.158)	1.172	0.658*** (0.246)	1.931	1.046*** (0.339)	2.847	0.778*** (0.251)	2.178	-0.33*** (0.128)	0.719
Gen	0.0827 (0.161)	1.086	0.332 (0.508)	1.394	-0.044 (0.810)	0.956	-0.151 (0.166)	0.860	1.32*** (0.268)	3.742	-0.0137 (0.139)	0.986	0.022 (0.174)	1.022	0.610** (0.282)	1.84	0.307 (0.349)	1.359	-0.308 (0.268)	0.734	0.203 (0.139)	1.225
Age	-0.0296 (0.107)	0.970	0.347 (0.353)	1.415	-0.27** (0.028)	0.763	-0.302*** (0.110)	0.739	-0.479*** (0.153)	0.6190	0.0588 (0.918)	1.060	0.076 (0.114)	1.079	0.270 (0.179)	1.31	0.037 (0.228)	1.038	-0.273 (0.180)	0.761	0.054 (0.092)	1.055
Region	-0.217 (0.147)	0.804	0.293 (0.458)	1.340	-0.232 (0.170)	0.793	-0.291** (0.153)	0.747	-0.337 (0.212)	0.714	-0.069 (0.127)	0.933	0.170 (0.158)	1.185	-0.289 (0.241)	0.749	-0.675** (0.323)	0.51	0.093 (0.243)	1.098	0.281** (0.128)	1.32
MS	-0.072 (0.129)	0.93	-0.369 (0.435)	0.691	0.082 (0.149)	1.085	0.658*** (0.13)	1.931	0.609*** (0.174)	1.84	0.007 (0.111)	1.007	-0.021 (0.137)	0.978	-0.284 (0.217)	0.752	-0.063 (0.272)	0.939	-0.129 (0.219)	0.878	-0.257** (0.113)	0.773
NChild	0.030 (0.078)	1.031	-0.206 (0.251)	0.814	0.053 (0.091)	1.054	0.604*** (0.080)	1.83	0.027 (0.124)	1.027	0.036 (0.067)	1.037	0.058 (0.083)	1.059	0.021 (0.123)	1.021	0.351** (0.149)	1.42	-0.138 (0.139)	0.871	0.002 (0.068)	1.002
NSchChil	0.010 (0.086)	1.011	0.135 (0.266)	1.145	0.012 (0.989)	1.012	-1.229*** (0.111)	0.292	-	-	-0.105 (0.075)	0.900	-0.049 (0.093)	0.951	-0.006 (0.130)	0.993	-0.353** (0.167)	0.703	-0.923*** (0.132)	0.397	-0.012 (0.075)	0.987
TFMem	0.060 (0.189)	1.063	0.701 (0.616)	2.016	-0.030 (0.220)	0.970	-0.164 (0.193)	0.848	-0.019 (0.298)	0.981	0.035 (0.164)	1.036	-0.294 (0.211)	0.745	0.263 (0.310)	1.302	-0.213 (0.396)	0.808	0.336 (0.351)	1.399	0.23 (0.166)	1.257
Edu	-0.034 (0.040)	0.965	0.096 (0.119)	1.101	-0.064 (0.0475)	0.938	-0.072* (0.042)	0.930	-0.107* (0.058)	0.898	0.038 (0.034)	1.039	-0.045 (0.044)	0.955	0.023 (0.064)	1.023	0.065 (0.083)	1.067	-0.051 (0.063)	0.949	-0.030 (0.035)	0.970
EarnH	0.016 (0.180)	1.016	0.184 (0.510)	1.202	0.124 (0.204)	1.132	0.151 (0.193)	1.163	-0.584** (0.256)	0.557	-0.060 (0.335)	0.941	0.111 (0.192)	1.12	0.279 (0.267)	1.322	0.360 (0.347)	1.433	0.234 (0.38)	1.263	-0.034 (0.156)	0.966
Constant	-1.556		-6.949		-1.298		-0.603		-2.848		0.005		-1.202		-4.442		-4.157		3.642		-0.350	
Chi-Square (χ^2)	246.56		9.47		15.85		220.68		213.71		5.67		6.07		22.04		24.13		152.43		21.54	
Sig.	0.000		0.488		0.10		0.000		0.000		0.842		0.809		0.015		0.007		0.000		0.018	
Correctly Classified	73.58%		98.01%		82.85%		76.57%		86.54%		52.44%		79.86%		92.12%		95.41%		90.23%		55.83%	
Pseudo R^2	0.182		0.048		0.0172		0.1745		0.261		0.004		0.006		0.039		0.065		0.2425		0.016	

Standard Errors in parentheses (). ***p<0.01, ** p<0.05, * p<0.10

4.3.5 Social Development (SocDev)

Improvement in social status is used as a proxy for social development. Deterioration in economic conditions negatively affects the self-respect, dignity, and overall social status of individuals. Economic development also causes social development. To have statistical inferences about the impact of financial inclusion on the improvement in the social status of individuals, a logistic model with ten explanatory variables and one dependent variable (growth in social status) was carried out. The logistic model with 'SocDev' as a dependent variable has the following functional form:

$$SocDev_i = \alpha_0 + \beta_1 LoanMFB_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Region_i + \beta_5 MS_i + \beta_6 NChil_i + \beta_7 NSchChild_i + \beta_8 Tfmem_i + \beta_9 Edu_i + \beta_{10} EarnH_i + \varepsilon_i \quad (4.9)$$

The model with χ^2 (10) = 21.54 , n = 1003, p = 0.017 , correctly classified 55.83% of the observations. The model explains 1.55% (Pseudo R^2 = 0.0155) of the variation in 'growth in social status' (dependent variable). The results indicate that model is statistically significant. As shown in table – 4.8, The odd ratios showed that the improvement in social status is likely for those who belong to rural areas (OR = 1.32). Whereas the growth in social status is less likely for those who have availed the microfinancing (OR = 0.72), and divorced or widowers (OR = 0.77). The negative association of social status with financial inclusion is unexpected.

4.3.6 Robustness Check with Propensity Score Matching (PSM)

4.3.6.1 PSM to Evaluate Social Performance

Table 4.12 summarizes the impact of microfinance on the different dimensions of socio-economic development of impoverished people, particularly the dimensions related to sustainable livelihood (poverty reduction). The table reflects the Average Treatment effect on Treated (ATT) using six methods based on the propensity

scores calculated by using the probit model. The nearest neighbor method is not preferred as it possesses the risk of matching with the nearest neighbor who possesses very different characteristics, which might result in over/under-estimation of the results (Becker & Ichino, 2002). Therefore, the results of the kernel method are preferred and discussed in this study. The bootstrap procedure has been used for kernel matching methods to obtain more robust coefficients.

4.3.6.2 Propensity Score

Table 4.9 presents the result of the probit model, determining the probability of receiving microfinance and its determinants. The overall model is significant, reflecting that gender, age, region, marital status, and the number of school-going children are explaining the probability of receiving microfinance. Females are more likely to receive microfinance. Respondents of higher age groups and those who belong to rural areas are less likely to receive microfinance.

Applicants having marital status as single are less likely to receive microfinance. Higher the number of school-going children in a family higher will be the probability to receive a loan. These socio-economic indicators (having significant results) show relevance to the selection criteria. From this probit model, PS for each respondent is estimated and used to estimate the effect (ATT) of financial inclusion on the different dimensions of socio-economic development.

4.3.6.3 'Psmatch' Analysis - Assessing the Impact of Microfinance on Sustainable Livelihood

In the analysis, thirteen different dimensions have been used to analyze socio-economic development. As discussed in the methodology section that there is a number of methods to estimate PSM. Table 4.10 gives the results of PSM estimates for all Xi. Results of all methods are quite similar, except in a few cases. There is a significant difference in the poverty level of treatment and the control group has been observed. In comparison to the control group (non-users of microfinance) treated group (users of microfinance) has reported that:

TABLE 4.9: Probit Model – Estimation of Propensity Score (Determinants of the Probability of Receiving Microfinance)

Covariates	**Coefficients**
Gender	0.0786**
	(0.087)
Age	-0.0113*
	(0.057)
Region	-0.080***
	(0.080)
Marital Status	0.062*
	(0.070)
Number of Children	0.005
	(0.042)
Number of School-going Children	0.030**
	(0.047)
Total number of Family members	-0.062
	(0.103)
Education	0.025
	(0.022)
Earning Hands	0.124
	(0.097)
Constant	0.162*
	(0.205)
Chi-Square (χ^2)	167.32**
Correctly Classified	73.58%
Log Likelihood ratio	-691.56

*Standard Errors in parentheses ( ). ***p<0.01, ** p<0.05, * p<0.10*

- Their annual income has increased. On average the income of respondents belonging to the treatment group has been increased (ATT = 0.474, p = 0.01), which is a clear and most robust indication of poverty reduction.
- On average their ownership status has also been marginally improved (ATT = 0.017, p = 0.10).
- Roof material used in their houses has also witnessed a marginal improvement (ATT = 0.062, p = 0.01).
- Overall condition of the house has also improved (ATT = 0.120, p = 0.01)

- The number of school-going children has also shown marginal improvement (ATT = 0.43, p = 0.10).
- Those who have access to microfinance are using better fuel for cooking.
- There is betterment in their access to safe drinking water (ATT = 0.045, p = 0.01).
- Clothing expenditures show improvement over time in comparison to the control group (ATT = 59.359, p = 0.01).

Whereas, household assets were shown a marginal decrease in comparison to the control group. The medical expenditure has shown a declining trend (ATT = -0.133, p = 0.01), which means that the medical expenditure of the treatment group has decreased in comparison to the control group over time. Furthermore, there is no significant difference exists between the control group and treatment group in the case of food (ATT = -1.173, p = 0.01) and educational expenditures. Whereas, there is no impact on household assets, cooking fuel used, and educational expenditures born by the respondents.

4.3.6.4 'Psmatch2' Analysis - Assessing the Impact of Microfinance on Sustainable Livelihood

For more rigorous analysis, Psmatch2 analysis has also been incorporated and presented in table 4.10. At a 95% confidence interval, results of "psmatch2" are similar to the "psmatch" result. ATT of treatment on many socio-economic indicators is significant. Results indicate that:

- The income of the treatment group has grown significantly in comparison to the control group.
- The ownership status of the house has also shown marginal growth in the treatment group.
- Roof material used in the house also showed marginal growth for the treatment group.

- The overall condition of the house has also shown a significant improvement.
- The number of school-going children has also shown marginal growth among the members of the treatment group. Whereas, there is no significant difference found in the current number of school-going children in the treatment and control groups.
- For the treatment group, cooking fuel used by the treatment group has shown a slight improvement in comparison to the control group.
- Access to safe drinking water has shown a marginal improvement among the members of the treatment group.
- Clothing expenditures have also shown a marginal improvement among the treatment group members.

Whereas, household assets, medical expenditures, food expenditures, and educational expenditures decreased marginally due to treatment. Overall the results are is in line with the results of S. Amin, Rai, and Topa (2003); Attanasio et al. (2015), and Augsburg et al. (2015), which indicate that with exposure to microfinance household expenditure reduces, particularly food expenditures. This partial reduction in the economic and social status of the individuals reflects the partial effect of microfinance success (Rashid & Samat, 2018). The results are aligned with Bangoura and Hounwanou (2015); Imai and Azam (2012); M. F. Z. Khan et al. (2014); Valead et al. (2018). Indicating that with the exposure to microfinance economic condition has been improved, consequently, overall poverty has been reduced.

4.3.6.5 'psmatch' & 'psmatch2' Analysis to Assess the Impact of Microfinance on Social Development

As witnessed in the logistic regression as well, PSM (both psmatch and psmatch2) reports that the social status of the respondents deteriorates (ATT = -0.083, p = 0.01). The deterioration in the perceived social status is not in line with our underline hypothesis. Results inferred that the social status of the treatment group has deteriorated marginally over time.

TABLE 4.10: PSM Estimates for the Impact of Microfinance on Sustainable Livelihoods and Social Status

	ATT According to 'Psmatch'						ATT According to 'Psmatch2'				
	NN (1 – 1)	NN (1 – 5)	Kernel Matching Method	Kernel Matching Method (width 0.01)	Radius Matching Method (Radius 0.01)	Stratification Matching	NN (1 – 1)	NN (1 – 5)	Kernel Matching Method	Kernel Matching Method (width 0.01)	Radius Matching Method (Radius 0.01)
ChngIncom	0.487***	0.487***	0.474***	0.471***	0.473***	0.471***	0.470***	0.498***	0.473***	0.469***	0.472***
	(0.030)	(0.030)	(0.033)	(0.024)	(0.027)	(0.027)	(0.028)	(0.035)	(0.027)	(0.027)	(0.027)
GOwnH	0.021**	0.021**	0.017*	0.016*	0.017*	0.016*	0.015*	0.024***	0.017**	0.016*	0.018*
	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.008)	(0.009)	(0.008)
GRoofM	0.069**	0.069**	0.062***	0.061**	0.062***	0.062***	0.062**	0.079**	0.062***	0.062***	0.061**
	(0.027)	(0.027)	(0.023)	(0.025)	(0.024)	(0.024)	(0.024)	(0.032)	(0.024)	(0.024)	(0.023)
GCandH	0.135***	0.135***	0.120***	0.126***	0.120***	0.124***	0.130***	0.181***	0.116***	0.127***	0.115***
	(0.033)	(0.033)	(0.029)	(0.026)	(0.029)	(0.029)	(0.030)	(0.039)	(0.029)	(0.029)	(0.029)
GSchCh	0.038	0.038	0.43*	0.028	0.042*	0.040*	0.017	0.053*	0.042*	0.031	0.039
	(0.025)	(0.025)	(0.022)	(0.021)	(0.022)	(0.022)	(0.022)	(0.031)	(0.022)	(0.022)	(0.022)
GHousH	-0.032	-0.032	-0.42	-0.038	-0.040	-0.039	-0.039	-0.020	-0.043	-0.040	-0.042
	(0.037)	(0.037)	(0.032)	(0.035)	(0.032)	(0.032)	(0.032)	(0.043)	(0.031)	(0.032)	(0.031)
GCFuel	0.046*	0.046*	0.024	0.025	0.025	0.024	0.0195	0.020	0.021	0.0257	0.021
	(0.029)	(0.029)	(0.027)	(0.022)	(0.025)	(0.025)	(0.026)	(0.034)	(0.025)	(0.025)	(0.025)
GDWat	0.036**	0.036**	0.045***	0.045***	0.044**	0.042**	0.0368**	0.024	0.046***	0.045***	0.046***
	(0.019)	(0.019)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.023)	(0.017)	(0.017)	(0.017)
Gclothexp	0.042**	0.042**	0.043***	-0.125**	0.045***	0.040***	0.037***	0.042**	0.042***	-0.126**	0.042***
	(0.021)	(0.021)	(0.019)	(0.061)	(0.019)	(0.013)	(0.014)	(0.017)	(0.013)	(0.052)	(0.013)
Gmedexp	0.042**	0.042**	0.043***	-1.173***	0.045***	0.048***	0.061***	0.051*	0.043**	-1.17***	0.055***
	(0.021)	(0.021)	(0.019)	(0.050)	(0.019)	(0.018)	(0.018)	(0.029)	(0.019)	(0.05)	(0.019)
SocDev	-0.078**	-0.078**	-0.083**	-0.081***	-0.083***	-0.083***	-0.076**	-0.091*	-0.083***	-0.085***	-0.083***
	(0.037)	(0.037)	(0.034)	(0.030)	(0.032)	(0.032)	(0.032)	(0.043)	(0.031)	(0.032)	(0.031)

*Standard Errors in parentheses (). ***p<0.01, ** p<0.05, * p<0.10*

4.3.7 Discussion and Conclusion

To have more rigorous inferences about sustainable livelihood and social development. Logistic regression analysis and PSM analysis have been carried out. From the results, it is inferred that financial inclusion increases the chance of improvement in income level. The users of microfinance have witnessed a significant improvement in their income level as described by scholars M. F. Z. Khan et al. (2014); Rashid and Samat (2018), and Valead et al. (2018) as well, ownership status of the house, roof material used in a house, overall condition of the house (Noreen, 2011), number of school-going children as described by Noreen (2011); Holvoet (2004), and access to clean drinking water as described by Mazumder and Lu (2015). Whereas, there is no significant difference exists between borrowers and non-borrowers in household assets (as described by Noreen (2011) and cooking fuel used. This lack of evidence regarding the positive impact on consumption and lifestyle is aligned with the results reported by scholars S. Amin et al. (2003); Attanasio et al. (2015), and Augsburg et al. (2015). The study (unlike Tariq et al. (2015) induces that exposure to microfinance improves the economic condition of impoverished people.

The results posit that the accessibility to safe drinking water, the ability to meet medical expenditures, expenditures on clothing, and the number of children going to school are likely to improve due to financial inclusion. According to the findings, children are immediately available labor for the earning adults of the family, and serving in the family business hinders their academic progression (Shimamura & Lastarria-Cornhiel, 2010). On the contrary, we infer that financial inclusion is likely to influence children's education positively. Whereas, cooking fuel used in the kitchen is not likely to improve due to financial inclusion. The cooking fuel is associated with the lifestyle and the living standard therefore, it is hard to improve it in the short run.

Conclusively, for those who have exposure to microfinance their income level is most likely to improve and on average their poverty is likely to reduce due to microfinance, reflecting an improvement in sustainable livelihoods. Therefore, as described by Mazumder and Lu (2015) and M. Uddin, Alam, Al-Salti, and

Rahman (2016) as well, their ability to spend on clothing, medical facility, and clean drinking water are likely to improve. Clean drinking water shall prevent them from diseases it will positively affect their overall quality of life. However, the overall sustainable livelihoods deteriorate in rural areas. Furthermore, the expenditure related to the infrastructural development of the house is also likely to improve and the results are aligned with Kiiru (2007). This signals a positive contribution of microfinance toward the living standard of impoverished people. To have more concrete inferences about the impact on living standards, the LSI has been developed by incorporating important dimensions related to the living standards.

Accessibility to safe drinking water is of paramount importance, which reduces the vulnerability to many diseases. People use water from a pond, extracted from tube-well/boring, tap water, and boiled tap water. Mixed evidence has been found during the survey about the availability of safe drinking water among borrowers and non-borrowers. However, the results of the t-test and logistic regression posit that the treatment group witnessed a marginal improvement in this accessibility.

In rural areas, one's accessibility to medical facilities is a dilemma. It is because of the unavailability of medical facilities, affordability (if the medical facility is available), and the willingness to have the medical facility. During the survey, it has been observed that they are more focused on peer/fakir/taweez (witch doctors/quacks), etc. and the mindset is hard to change. In general, the survey and analysis infer that if someone is willing to have a medical facility their accessibility is likely to improve due to financial inclusion. Borrowers are better able to get benefited from the proper medical practitioner or specialist. Furthermore, the better quality of the environment and drinking water reduces the need for medical facilities. Overall, it is inferred that due to financial inclusion the accessibility to the necessities of life is likely to improve, reflecting economic development.

As far as expenditures of capital nature are concerned, those come after the day-to-day expenditures. The chances of betterment in the ownership status of the house, roof material used in the house, and the overall condition of the house improve with the exposure to microfinance. Whereas, the household assets are not likely to grow with exposure to microfinance. Overall, financial inclusion is likely to

positively influence infrastructural development, which marginally improves their living standard. The results corroborate the findings of Mazumder and Lu (2015) and M. Uddin et al. (2016). Furthermore, respondents who belonged to urban areas are likely to have better infrastructure and condition of the house than rural areas.

In general, the results of logistic regression models inferred that out of ten, eight are likely to improve because of financial inclusion. Furthermore, the chances of improvement in ownership status of the house, the number of school-going children, cooking fuel used, access to safe drinking water, and expenditure on clothing are higher in women. The personal education of respondents is not impacting sustainable livelihoods. Unlike Imai and Azam (2012), no difference has been found in rural and urban areas. Whereas the clothing expenditures and condition of the house are likely to deteriorate in the rural area, this corroborates the findings of (Valead et al., 2018). Our findings support the argument of lack of outreach and mission drift theory (Hermes et al., 2011).

Poverty deteriorates social status and recognition. It is hypothesized that the accessibility to economic resources improves the social status called social development. Descriptive analysis indicates that comparatively, a high number of borrowers (54.6%) reported that their social status did not improve over time. Whereas, 54.1% of non-borrowers responded that their social status has improved over time. Similarly, the results of t-statistics (see Table-4.7) posit that social development is marginally higher in non-borrowers.

The results of logistic regression analysis posit that the improvement in the social status is less likely for the borrowers. To check the robustness, PSM analysis has also been carried out and the results are conforming to the results of logistic regression. From the results, it is inferred that in general the respondents having exposure to microfinance did not witness an improvement in their social status. It means that exposure to microfinance is not likely to influence social development, these results are contradictory to the results reported by scholars such as Durrani et al. (2011); Niaz and Iqbal (2019), and Tariq et al. (2015).

The negative sign of the perceived social status is bewildering, it reflects that borrowers have not witnessed an improvement in social status, whereas their economic

status has been improved. It is contradictory to both the underline theory and the literature as it depicts that social development is inversely associated with financial inclusion. It is because borrowers face financial tightness in the short run due to increased financial liability, which will be adjusted in the medium run or the long run. Therefore, keeping in view the other empirical findings of this study, it is inferred that this perceived deterioration in the social status is for the short-run only and will improve after some time.

Whereas, the deterioration in social status with the change in marital status is quite logical in socio-cultural settings of Pakistan, where divorced or widowers have lesser social acceptability and have to go through tough circumstances. Therefore, the social development of a widower is less likely compared to a single or married person. However, the perceived social status of the impoverished people belonging to rural areas has been improved. This reflects a positive contribution of microfinance toward the rural poor which signals positively towards outreach and counters the mission drift theory.

Overall, the empirical analysis posits that exposure to microfinance contributed significantly to the economic development of impoverished people. As discussed by Montgomery and Weiss (2011), this study confirms the positive impact of microfinance provided by commercially operated MFBs on the economic development of impoverished people.

As the dimensions of socio-economic development under inquiry are associated with SDGs, therefore clear evidence has been found that exposure to microfinance will help in attaining SDGs by improving the economic condition of the impoverished segment of society.

Multidimensional Measures of Socio-Economic Development

To assess economic development, multidimensional measures have also been incorporated into the study. For more rigorous analysis and concrete inferences, the data has further been analyzed by developing some indices related to economic

conditions like MPI, and LSI. As discussed in chapter 3, LSI has been developed, by using PCA, from the data gathered from interviews and MPI has been developed by following the guidelines of OPHI. Regression and PSM analysis has been used to estimate the impact of financial inclusion through microfinance.

4.3.8 Impact of Microfinance on Multidimensional Poverty

As discussed in chapter 3, 'MPINow' (indicating the current level of multidimensional poverty) and 'MPIBef'(indicating the figure of MPI two years ago) have been estimated. Then by taking the difference between these two indices 'MPIdiff' was extracted, which reflects the change in multidimensional poverty (maybe increase or decrease) over time. To assess the impact of microfinance on multidimensional poverty, it is pivotal to analyze multidimensional poverty over time.

The old MPI (MPIBef), current MPI (MPINow), and the change in poverty index (MPIDiff) have been used as proxies of poverty and change in poverty respectively. A regression model was applied using SPSS, where ten predictors (EarnH, Edu, Gen, Region, LoanMFB, MS, Age, NSchChild, TFMem, and NChild) have been regressed with MPIBef, MPINow, and MPIDiff. Table 4.11 presents the results of these models.

Regression Analysis

4.3.8.1 Multidimensional Poverty (old) 'MPIBef'

The results of ANOVA revealed that the model is overall goodfit, showing a value of 'F = 18.675' with a significance value of '0.000'. Before access to microfinance, there is no association between the multidimensional poverty level and the tendency toward microfinance. Whereas, Marital status, Number of children, Number of school-going children, Total number of family members, and education have a significant impact on the multidimensional poverty of the respondents. Results indicate that with the deterioration of marital status (becoming a widow etc) there

is a tendency that multidimensional poverty shall increase. Similarly, with the increase in the number of children multidimensional poverty shall also increase.

Whereas the total number of family members, number of school-going children, and education have an inverse effect on multidimensional poverty. With the increase in the total number of family members and level of education, multidimensional poverty shall be decreased by 2.5% and 3.0% respectively. Whereas, gender, age, region, and the number of earning hands are insignificant in the model. Contrary to the logistic regression results age is not impacting the economic condition of impoverished people.

4.3.8.2 Multidimensional Poverty (Current) 'MPINow'

To assess the impact of microfinance on multidimensional poverty after taking the microfinance, 'MPINow' has been regressed with access to microfinance 'LoanMFB', gender, age, region, marital status, number of children, number of school-going children, total family members, education, and the total number of earning hands. The results revealed that the model is overall goodfit, showing a value of 'F = 11.687' with a significance value of '0.000'. It has revealed that access to microfinance has a significant impact on multidimensional poverty. The negative sign of the coefficient 'LoanMFB' (-0.023) indicates that multidimensional poverty is lesser in the users of microfinance (treatment group) in comparison to the non-users of microfinance (control group).

In other words, multidimensional poverty is 2.3% lower in those who have taken microfinance. Furthermore, the number of children, number of school-going children, and education are significantly impacting the multidimensional poverty of respondents. With the increase in education and the number of school-going children, multidimensional poverty shall be decreased. Whereas with the unit increase in the number of children the multidimensional poverty shall be increased by 2.0% (or 0.02 unit of MPI).

Whereas, gender, age, region, marital status, the total number of family members, and the number of earning hands are insignificant in the model. **Table 4.12** shows the results of the regression.

TABLE 4.11: Impact Assessment on Multidimensional Poverty and Living Standard

	Multidimensional Poverty			**Living Standard (LSI)**
	MPIBef	**MPINow**	**MPIDiff**	
(Constant)	0.430***	0.353***	-0.077***	-0.066
	(0.027)	(0.026)	(0.020)	(0.162)
LoanMFB	-0.001	-0.023**	-0.023***	0.280***
	(0.010)	(0.010)	(0.007)	(0.061)
Gen	0.014	-0.011	-0.025***	0.013
	(0.011)	(0.011)	(0.008)	(0.067)
Age	-0.003	-0.009	-0.005	-0.088**
	(0.007)	(0.007)	(0.005)	(0.044)
Region	-0.006	-0.004	0.002	-0.117*
	(0.010)	(0.010)	(0.007)	(0.061)
MS	0.021**	0.005	-0.016**	0.130**
	(0.009)	(0.009)	(0.006)	(0.054)
NChild	0.034***	0.020***	-0.014***	0.143***
	(0.005)	(0.005)	(0.004)	(0.033)
NSchChild	-0.036***	-0.048***	-0.011***	-0.233***
	(0.006)	(0.006)	(0.004)	(0.036)
TFMem	-0.025*	-0.01	0.015	-0.027
	(0.013)	(0.013)	(0.010)	(0.079)
Edu	-0.030***	-0.015***	0.015***	-0.025
	(0.003)	(0.003)	(0.002)	(0.017)
EarnH	0.015	0.016	0.001	0.09
	(0.013)	(0.012)	(0.009)	(0.075)
R-Square	0.158	0.105	0.156	0.074
Adj. R-Square	0.15	0.096	0.148	0.064
F – Value	18.675***	11.687***	18.340***	7.930***

*Standard Errors in parentheses (). ***p<0.01, ** p<0.05, * p<0.10*

4.3.8.3 Reduction in Multidimensional Poverty 'MPIDiff'

To assess the multidimensional poverty reduction, the change in MPI over time (MPIdiff – the difference between current and previous MPI) is used as the dependent variable. Results indicate that access to microfinance has significantly reduced multidimensional poverty. The results of ANOVA revealed that the model is overall goodfit, showing a value of 'F = 18.340' with a significance value of

'0.000'. It has been revealed that access to microfinance has significantly reduced multidimensional poverty. The value of the constant indicates that 7.7% of multidimensional poverty has been reduced in the observed sample. Whereas the negative sign of the coefficient 'LoanMFB' (-0.023) indicates that multidimensional poverty was reduced by 2.3% additionally with access to microfinance, it means the total of 10% (0.10 points) of multidimensional poverty has been reduced in those who have access to microfinance. Furthermore, gender, marital status, number of children, number of school-going children, and education are significantly impacting the alleviation of multidimensional poverty. Whereas age, region, total family members, and the total number of earning hands are insignificant in the model, it means these are not impacting the multidimensional poverty of the respondents.

Robustness Check with PSM

Table 4.12 gives the results of PSM estimates for outcome variables 'MPIBef', 'MPINow', and 'MPIDiff'. Results of all methods are quite similar, except in a few cases. The results of the kernel method indicate a significant difference in the poverty level of the treatment group and control group.

4.3.8.4 MPIBef-Multidimensional Poverty (old)

4.3.8.4.1. Results of 'psmatch'

Before availing the microfinance there is a very minor difference in multidimensional poverty of treatment and control group. The result of 'MPIBef' indicates that there is only a 0.2% (0.002 MPI points) difference in the multidimensional poverty level of treatment and control group before exposure to microfinance. Furthermore, these results are insignificant statistically.

4.3.8.4.2. Results of 'psmatch2'

For more rigorous analysis, Psmatch2 estimates have also been incorporated and presented in Table 4.13. Like PSM results, in PSM2 estimates ATT is negative which indicates that members of the treatment group are less poor than the control group. According to the kernel method, ATT for 'MPIBef' indicates that

before having access to microfinance there is a very minor difference in the multidimensional poverty of the treatment group and control group. In the case of the treatment group, there are only 0.004 units of MPI is lesser than the control group. This difference is statistically insignificant.

4.3.8.5 MPINow – Multidimensional Poverty (current)

4.3.8.5.1. Results of 'psmatch'

The change in poverty level after the exposure to microfinance is estimated by comparing the current status of multidimensional poverty of the treatment and control groups. It has been revealed that the treated group has a 2.7% lower score of MPI in comparison to the control group, which indicates that the treatment group is less poor than the control group. The results are statistically significant at a 99% confidence interval.

4.3.8.5.2. Results of 'psmatch2'

The results conform to the results of 'psmatch'. ATT of 'MPINow' indicates the difference of current MPI (or current state of multidimensional poverty) in the treatment and control groups. Results of the kernel method indicate that currently, those who have access to microfinance are 2.7% less poor than those who did not have access to microfinance. the results are statistically significant at a 99% confidence interval.

4.3.8.6 Reduction in Multidimensional Poverty

4.3.8.6.1. Results of 'psmatch'

For reduction in multidimensional poverty level, 'MPIdiff' (Difference between the current MPI and the old MPI) is tested with 'psmatch'. ATT indicates that the MPI of the treatment group is 2.4% lower in comparison to the control group. It indicates that after having the access to microfinance multidimensional poverty is reduced over time. The results are statistically significant at a 99% confidence interval. Table 4.13 presents the results of psmatch and psmatch2 for 'MPIDiff'.

4.3.8.6.2. Results of 'psmatch2'

According to psmatch2, ATT of 'MPIDiff' indicates that there is a 2.3% reduction in multidimensional poverty because of the access to microfinance, conforming to 'psmatch'. The results are significant at a 99% confidence interval. So it may be inferred that access to microfinance causes a reduction in multidimensional poverty.

As endorsed by scholars Das and Guha (2019) and Feeny and McDonald (2016), MPI is estimated to assess the multidimensional poverty of the respondents. The impact of microfinance on the current multidimensional poverty and the change in multidimensional poverty has been assessed with the help of univariate and multivariate analysis. The 'MPINow' and 'MPIDiff' are used as proxies of the current multidimensional poverty level and change in multidimensional poverty respectively.

Descriptive statistics indicate that borrowers are comparatively less poor. Furthermore, the reduction in multidimensional poverty is higher in the borrowers than non-borrowers. The results of t-statistics (see Table-4.7) posit that the multidimensional poverty level of the treatment group (borrowers) is significantly different from the control group (non-borrowers), reflecting that borrowers are less poor than the non-borrowers. Furthermore, out of the total, the poverty level of 645 respondents has been reduced, out of which 350 (54.3%) belong to the treatment group (they are 70% of the total borrowers). Whereas, only 21.8% (109) and 8.2% (41) borrowers were having the same level of poverty or their poverty has been increased respectively. This indicates that the borrowers have a marginally better tendency for poverty reduction.

The result of regression analysis (see **Table-4.11**) indicates that on average all the respondents are below the poverty line ($\alpha = 0.353$), as the threshold level (poverty line) is '0.33'. Whereas, poverty is 0.023 units lower in the borrowers than the non-borrowers. These findings are consistent with Das and Guha (2019); Feeny and McDonald (2016), and Niaz and Iqbal (2019). It indicates that those who have exposure to microfinance are less multidimensional poor. Furthermore, respondents having a higher level of education are less multidimensional poor, this

endorses the results of Awan et al. (2011). The number of school-going children is negatively associated with the multidimensional poor, which is a good sign. Whereas, the higher number of children enhances multidimensional poverty. It is because of the higher level of day-to-day expenditures that augment their poverty level.

For the change in multidimensional poverty 'MPIDiff', regression analysis posits that in general multidimensional poverty has been reduced in all the respondents (α = -0.077). The exposure to microfinance 'LoanMFB' further reduces multidimensional poverty by 0.023 units. It indicates that the multidimensional poverty of borrowers has been reduced by 0.10 units ('-0.077' + '-0.023'). Furthermore, this poverty reduction is higher in women than men, endorsing the results reported by Miled and Rejeb (2015); Niaz and Iqbal (2019), and Valead et al. (2018). It is because the females are more focused and dedicated, they invest the maximum possible time in their entrepreneurial activities.

Moreover, marital status, number of children, and the number of school-going children are the source of poverty reduction. However, personal education does not support multidimensional poverty reduction, rather multidimensional poverty increases with the increase in education level, confirming the results of logistic regression analysis. It indicates that persons with lesser or even no education are comparatively better able to fight against poverty. This is because the nature and environment of the businesses (at the level of the cottage industry) are not much respected. An uneducated person or a person with a lower level of education starts working even in adverse working conditions.

Whereas, an educated person is conscious of the level and environment of the work, which hinders their economic growth (poverty reduction as well) in the short run. The result of regression analysis (for 'MPINow' and 'MPIDiff') reflects that educated persons are comparatively less poor but their poverty has not reduced during the period under study. Another possible reason is the short period, as the survey assesses the change over two years only. Keeping other findings in view as well, it is concluded that their focus on the quality of operations delays the development process, but it will not harm economic development over the long run.

Table 4.12: PSM Estimates - Impact Assessment on Multidimensional Poverty and Living Standard

		ATT According to 'psmatch'				
		NN (1 – 1)	**NN (1 – 5)**	**Kernel Matching Method**	**Radius Matching Method (Radius 0.01)**	**Stratification Matching**
	MPIBef	-0.005	-0.005	-0.002	-0.003	-0.003
		(0.013)	(0.013)	(0.013)	(0.011)	(0.011)
Multidimensional	**MPINow**	-0.028**	-0.028**	-0.027***	-0.027***	-0.026**
Poverty		(0.012)	(0.012)	(0.010)	(0.010)	(0.010)
	MPIDiff	-0.023**	-0.023**	-0.024***	-0.023***	-0.023***
		(0.009)	(0.009)	(0.008)	(0.008)	(0.008)
Living Standard		0.296***	0.296***	0.277***	0.276***	0.276***
(LSI)		(0.07)	(0.07)	(0.072)	(0.063)	(0.063)
		ATT According to 'psmatch2'				
		NN (1 – 1)	**NN (1 – 5)**	**Kernel Matching Method**	**Radius Matching Method (Radius 0.01)**	
	MPIBef	-0.006	0.0131	-0.004	-0.0049	
		(0.011)	(0.0155)	(0.011)	(0.011)	
Multidimensional	**MPINow**	-0.0248**	-0.021	-0.027***	-0.027**	
		(0.010)	(0.014)	(0.010)	(0.010)	
Poverty	**MPIDiff**	-0.0182**	-0.034***	-0.023***	-0.022***	
		(0.008)	(0.011)	(0.008)	(0.008)	
Living Standard		0.277***	0.339***	0.274***	0.272***	
(LSI)		(0.064)	(0.084)	(0.063)	(0.063)	

*Standard Errors in parentheses (), ***p<0.01, ** p<0.05, * p<0.10.*

4.3.9 Impact of Microfinance on Living Standard

As discussed earlier, an index of living standards has been developed. This index reflects the average living standard of the respondents. This index includes different dimensions related to living standards like Growth in ownership status of the house, growth in roof material used, growth in the overall condition of the house, betterment in roof material used, growth in floor material, increase in total household assets, any betterment in cooking fuel used, improvement is the sanitary system, betterment of electricity facility, and growth in access to drinking water. With the help of PCA, an index (LSI) has been developed from all these dimensions. To assess the impact of microfinance on living standard and growth in living standard, regression and PSM analysis has been used. The results related to the empirical analysis are as follows

The results of t-statistics (see Table – 4.7) inferred that the living standard of the treatment group is significantly improved. This indicates that on average the living standards of borrowers have been marginally improved. Furthermore, the multivariate analysis (regression and PSM) has also been carried out to have more concrete inferences.

4.3.9.1 Regression Analysis – the Impact of Microfinance on Living Standard

Multiple regression models were applied to assess the impact of microfinance on the living standard of the respondents. A regression model was applied using SPSS, LSI has been regressed with access to microfinance 'LoanMFB', gender, age, region, marital status, number of children, number of school-going children, total family members, education, and number of earning hands. Table 5.11 presents the results of regression analysis, indicating ($F = 7.930$, $p = 0.000$) that the model is overall goodfit and statistically significant.

The results of OLS indicated that the average living standard has deteriorated over the last two years by 0.066 units of the index, whereas access to microfinance contributed 0.280 units positively to the overall living standard of an individual. Results indicate that access to microfinance has a significant positive impact on

the betterment of the living standards of impoverished people. Furthermore, age, region, marital status, number of children, and number of school-going children are significantly impacting the living standard of respondents. Whereas gender, total family members, education, and the total number of earning hands are insignificant in the model, it means these are not impacting the growth in the living standard of the respondents.

As Mazumder and Lu (2015) have described, those who have exposure to microfinancing can better invest in infrastructural development. The living standard deteriorates with the increase in age, in rural areas, and with a higher number of school-going children, in the social setup. For instance, in a country like Pakistan, with the increase in age, the responsibilities towards the family tend to increase. This causes a shift in priorities and, therefore, less investment towards the improvement in living standards. In addition to this, a higher number of school-going children indicates higher expenditures on schooling, therefore observing lesser investment towards the living standards.

Respondents who belonged to urban areas have a better living standard than those in the rural areas, primarily because the exposure and availability of facilities in the urban areas are better. Whereas the people of rural areas are not entirely interested in improving their living standards, as they are somewhat content in their mud houses, and a basic level of utensils. No association between education and living standards has been observed, unlike Mazumder and Lu (2015), who witnessed an inverse association between education and living standards.

4.3.9.2 Robustness Check with Propensity Score Matching (PSM)

To check the robustness of the results, the PSM technique has also been incorporated. Table – 4.12 gives the results of PSM estimates for outcome variables 'LSI'. To study the impact of microfinance on the improvement in living standards the model has been specified over observable characteristics of households (age, gender, region, marital status, number of children, number of school-going children, total family members, level of education, and No. of earning hands in the family),

for both treated and control groups. Based on propensity scores Average Treatment effects on Treated (ATT) were estimated. Nearest Neighbor (NN) method, Kernel Method, Radius Caliper method, and Stratification methods are used to obtain scores of ATT. Only the results of the kernel method were bootstrapped to improve their standard error.

4.3.9.2.1. Results of psmatch

Table 4.12 presents the results of PSM estimates for 'LSI'. Results of all methods are quite similar, except in a few cases. The results of the kernel methods show ATT = 0.277, which indicates a positive contribution of the loan to the living standard of the treated group. Results showed 0.277 incremental units of LSI of the treatment group in comparison to the control group. At a 99% confidence interval results showed that the use of microfinance has significantly contributed to the improvement in the living standard of respondents.

4.3.9.2.2. Results of psmatch2

For more rigorous analysis Psmatch2 estimates have also been incorporated in the study and presented in **Table 4.12**. The results of the kernel methods show ATT = 0.274, which indicates a positive contribution of microfinance to the living standard of the treated group. Results showed 0.274 incremental units of LSI of the treatment group in comparison to the control group. Similar to 'psmatch' the results indicate that at a 99% confidence interval the use of microfinance has positively contributed to the living standard of impoverished people.

It is concluded that impoverished people who are exposed to microfinance have managed to improve their living standards over time. One important social factor was revealed during the survey: that impoverished borrowers invest in the infrastructure of the inherited houses (or land). In most of the cases, those who were living in the joint family system, built their room (mostly built of a wooden roof or T-Iron) on a portion of the common land, to start their life apart from the joint family. Those who had exposure to microfinance were easily able to afford this infrastructural development without disturbing their entrepreneurial activities. It has been revealed that in some cases the loan taken for entrepreneurial activities was invested in such infrastructural developments.

4.3.10 Impact of Microfinance on Socio-Economic Development of Women

As discussed earlier to assess the impact of microfinance on women's empowerment is another pivotal objective of this study. As described in chapter – 3, an additional questionnaire has been developed to gather the responses about the empowerment of women. From these responses score of women, empowerment was calculated and incorporated into the empirical investigation. Data related to the income level of women, social status of women, a score of women empowerment, and MPI of women has been used in regression, logistic regression, and PSM for empirical inferences regarding the impact of microfinance on women. A total of 670 female respondents were contacted, out of which 328 belong to the treatment group and 342 belong to the control group. From the responses:

- The income-related measures for women have been extracted,
- MPI of women has also been developed separately,
- Change in MPI 'MPIDiff' has also been calculated for women, and
- Improvement in the social status of women has also been taken from their responses.

This data of women has been used to investigate the impact of microfinance on women's empowerment, income level of women, social status of women, and multidimensional poverty of women. The results related to the empirical analysis are as follows.

4.3.10.1 Univariate Analysis

Table 4.13 presents the cross-tabulation that helps in describing the data. Out of 670 females, 328 (49.0% of the total females) have taken the loan from MFBs and 342 have not taken the loans. As far as the region is concerned 345 respondents (51.5% of the total) belong to the urban areas and the rest of the respondents (48.5% of the total) belonged to rural areas. Out of 345 respondents

(from urban areas), only 171 (49.6% of the total) were taken the loan and out of 325 respondents (from rural areas), only 157 (48.3% of the total) were taken the loan. As far as marital status is concerned out of the total respondents 191 (28.5%) were unmarried, 388(57.9%) were married, 52(7.8%) were divorced, and 39(5.8%) were widows. As far as the education of the respondents is concerned 423 of the respondents are under matric. Out of 328 respondents (who have taken the loans), 80 (24.4%) were completely illiterate, 56 (17.1%) were having primary education, 62(18.9%) were middle, 47 (14.3%) respondents have the matric qualification, 41(12.5%) were intermediate, 21(6.4%) were graduates, and 21 (6.4%) were having other qualification (it includes diploma, technical education, or higher academic qualification).

As far as the change in income is concerned out of the total, 399 (59.6% of the total) respondents explained that their income has not improved in the last 2 years. Out of these 399, 283 (70.9%) were those who have not taken the loans and 116 (29.1.0%) were those who have taken the loans from MFBs. The rest of the 271 (40.4%) respondents explained that their income has been improved in the last 2 years, out of these 271, 212 (78.2%) are those who have taken the loan from MFBs, and the rest of the 59 (21.8%) respondents have not taken the loans. So those women who have taken the loans (328 respondents), a comparatively higher number of them (64.6%) responded that their income has been increased over time. For those who have exposure to microfinance, the majority of them (64.6%) responded that their income has been increased over time reflecting an economic development in the treatment group members. Out of the total 470 (70.1%), women are currently multidimensional poor and 200 (29.9%) women are not multidimensional poor. Furthermore, the multidimensional poverty of 431 women has been reduced over time, out of which 227 (52.7%) women belong to the treatment group. 159 (23.7%) women were having the same poverty level and 80 (12.0%) women explained that their multidimensional poverty has increased. From the descriptive analysis, it is concluded that younger people with a comparatively higher level of education receive microfinance and for those who have received microfinance their income has been increased and multidimensional poverty has been reduced marginally.

TABLE 4.13: Two-way Stratified Random Data of Treatment and Control Group [Women Borrowers]

		LoanMFB							
		Have not Taken Microfinance			**Have taken Microfinance**			**Total**	
Demographics and Categories		**Count**	**%age**	**Within LoanMFB**	**Count**	**%age**	**%age Within LoanMFB**	**Count**	**%age Within LoanMFB**
Age	≤ 25	119	52.40%	34.80%	108	47.60%	32.90%	227	33.90%
	$25 \leq 40$	114	48.90%	33.30%	119	51.10%	36.30%	233	34.80%
	> 40	109	51.90%	31.90%	101	48.10%	30.80%	210	31.30%
Region	Urban	174	50.40%	50.90%	171	49.60%	52.10%	345	51.50%
	Rural	168	51.70%	49.10%	157	48.30%	47.90%	325	48.50%
Education	No Edu	91	53.20%	26.60%	80	46.80%	24.40%	171	25.50%
	Primary	66	54.10%	19.30%	56	45.90%	17.10%	122	18.20%
	Middle	68	52.30%	19.90%	62	47.70%	18.90%	130	19.40%
	Matric	44	48.40%	12.90%	47	51.60%	14.30%	91	13.60%
	Inter	40	49.40%	11.70%	41	50.60%	12.50%	81	12.10%
	Graduation	12	36.40%	3.50%	21	63.60%	6.40%	33	4.90%
	Others	21	50.00%	6.10%	21	50.00%	6.40%	42	6.30%
Marital Status	Unmarried	104	54.50%	30.40%	87	45.50%	26.50%	191	28.50%
	Married	198	51.00%	57.90%	190	49.00%	57.90%	388	57.90%
	Divorced	21	40.40%	6.10%	31	59.60%	9.50%	52	7.80%
	Widow	19	48.70%	5.60%	20	51.30%	6.10%	39	5.80%

Continued Table: 4.13 Two-way Stratified Random Data of Treatment and Control Group [Women Borrowers]

		LoanMFB							
		Have not Taken Microfinance			**Have taken Microfinance**			**Total**	
Demographics and Categories		**Count**	**%age**	**Within LoanMFB**	**Count**	**%age**	**%age Within LoanMFB**	**Count**	**%age Within LoanMFB**
ChngIncomW	No	283	70.90%	82.70%	116	29.10%	35.40%	399	59.60%
	Yes	59	21.80%	17.30%	212	78.20%	64.60%	271	40.40%
SocDevW	No	149	45.30%	43.60%	180	54.70%	54.90%	329	49.10%
	Yes	193	56.60%	56.40%	148	43.40%	45.10%	341	50.90%
MPINowW	≤ 0.33	236	50.20%	69.00%	234	49.80%	71.30%	470	70.10%
	≤ 0.34	106	53.00%	31.00%	94	47.00%	28.70%	200	29.90%
MPIDiffW	< 0.0	204	47.30%	59.60%	227	52.70%	69.20%	431	64.30%
	0	87	54.70%	25.40%	72	45.30%	22.00%	159	23.70%
	> 0.0	51	63.70%	15.00%	29	36.30%	8.80%	80	12.00%

The descriptive analysis posits that the income has marginally increased and the multidimensional poverty level has marginally reduced in the treatment group. As economic development is a broader phenomenon having multidimensional implications on one's life. Therefore, to assess the impact of microfinance, along with other covariates, on different dimensions of economic development the regression analysis has been carried out.

4.3.10.2 Economic Development (ChngIncomW)

To assess the impact of microfinance on the income level and social status of women, logistic regression models were used. As discussed in table-3.4 of chapter – 3, Access to microfinance (LoanMFB) along with nine other socio-economic and demographic indicators (age, region, marital status, number of children, number of school-going children, total number of family members, education, and number of earning hands) were incorporated as independent variables. For inference statistical software (SPSS and STATA) has been used.

Improvement in income is the pivotal factor that could contribute toward poverty alleviation and overall improvement in the socio-economic status of an individual and overall family. Particularly for females, this increase in monthly cash flows is very important as well as critical. The results of logistic regression depict that the model with $\chi^2(9) = 167.35$, n = 670, p = 0.000 , correctly classified 73.88% of the total observations and accounted for 18.51 % (Pseudo R2 = 0.1851) of the variation in change income.

As shown in table 4.14, The odd ratios showed that, among women, the increase in income is likely for those who have availed of the microfinance service (OR = 9.11), have a higher age group (OR = 1.11), have a higher number of children (OR = 1.026), and having a higher number of earning hands in the family (OR = 1.20). Among women, the increase in income is less likely for covariates like region (OR = 0.90), marital status (OR = 0.86), number of children (OR = 0.997), total family members (OR = 0.90), and education (OR = 0.95). Out of nine independent variables, 'access to microfinance' (p = 0.000) is a statistically significant variable, the results of the rest of the covariates are not statistically significant.

TABLE 4.14: Impact of Microfinance on Socio-Economic Development (Poverty Reduction and Social Status)

	Economic Development ChngIncomW		**Social Development SocDevW**	
	B	**Odd Ratio**	**B**	**Odd Ratio**
LoanMFB	2.21***	9.11	-0.433***	0.65
	(0.187)		(0.157)	
Age	0.104	1.11	0.038	1.039
	(0.134)		(0.115)	
Region	-0.109	0.896	-0.002	0.998
	(0.183)		-0.158)	
MS	-0.152	0.859	-0.022*	0.8
	(0.141)		(0.123)	
NChild	-0.003	0.997	0.056	1.057
	(0.098)		(0.085)	
NSchChild	0.026	1.026	0.005	1.005
	(0.108)		(0.093)	
TFMem	-0.109	0.896	0.137	1.147
	(0.221)		(0.192)	
Edu	-0.054	0.947	-0.011	0.989
	(0.05)		(0.044)	
EarnH	0.185	1.204	-0.016	0.852
	(0.23)		(0.199)	
Constant	-1.53	0.22	0.236	1.266
	(0.44)		(0.373)	
LR Chi-Square (χ^2)	167.35***		13.12	
Pseudo R^2	0.185		0.014	

*Standard Errors in parentheses ( ), ***p<0.01, ** p<0.05, * p<0.10*

4.3.10.3 Social Development of Women (SocDevW)

To have statistical inferences over the improvement in the social status of women due to financial inclusion, nine independent variables were included in the logistic model. The change in the perceived social status of women has been taken as the dependent variable. As shown in table – 4.14, the model with χ^2 (10) = 13.12, n = 1003, p = 0.157 , correctly classified 56.57% of the observations. The model explains 1.41% (Pseudo R^2 = 0.0141) of the variation in 'growth in social status' (dependent variable). The results indicate that the overall model is statistically insignificant but the results of 'LoanMFB' and 'MS' are statistically significant.

The growth in social status is less likely for the factors like the access to microfinance (OR = 0.65), region (OR = 0.998), marital status (OR = 0.80), education (OR = 0.99), and number of earning hands (OR = 0.85). The odd ratios showed that the improvement in social status is likely for the covariates, age (OR = 1.04), number of children (OR = 1.06), number of school-going children (OR = 1.005), and the total number of family members (OR = 1.15). Out of nine independent variables, 'access to microfinance' (p = 0.006) and 'marital status' (p = 0.071) are statistically significant variables. The results of the rest of the covariates are not statistically significant.

The results depict that the social status deteriorates with exposure to microfinance and change in marital status. Astonishingly, it is inferred that the growth in social status is less likely for those who have access to microfinance (OR = 0.65). Descriptive and logistic regression analysis confirmed the inverse association between microfinance and social development. The negative impact on the perceived social status is bewildering, as it indicates that borrowers feel deterioration in their social status. Probably it is because they face financial tightness in the short run. Therefore, keeping in view the other empirical findings, it is inferred that this perceived deterioration in social status is for the short run only. If we exclude all covariates and run an analysis with one explanatory variable (LoanMFB) the mode shall become statistically significant with a very low level of explanatory power but still, microfinance and social development have an inverse association. However, the improvement in the social status of widows is less likely compared to single or married women. This deterioration in social status with the change

in marital status is quite logical in socio-cultural settings like Pakistan, where divorced women and widows have lesser social integrity.

4.3.10.4 Impact of Microfinance on Multidimensional Poverty of Women

After unidimensional measures of poverty (ChngIncomW), a multidimensional measure of poverty (MPI) has also been incorporated into the analysis for precise inferences about the economic development of impoverished women. To assess the impact of microfinance on the socio-economic status of women regression analysis had been conducted. Current multidimensional poverty (MPINowW) and the difference in multidimensional poverty over time (MPIDiffW), are used as dependent variables. The MPIDiff is the proxy for multidimensional poverty reduction. The score of MPI (reflecting the current level of multidimensional poverty) and the change in MPI over time (reflecting multidimensional poverty reduction) are more concrete measures of economic status and economic development, respectively. Assess to microfinance (LoanMFB) along with nine other socio-economic and demographic indicators (age, region, marital status, number of children, number of school-going children, total number of family members, education, and number of earning hands) are used as independent variables (also discussed in table-3.4 of chapter – 3). Following inferences have been made from the results:

4.3.10.4.1. Current Multidimensional Poverty (MPINowW)

To assess the impact of microfinance on multidimensional poverty of respondents, 'MPINowW' has been regressed with access to microfinance 'LoanMFB', age, region, marital status, number of children, number of school-going children, total family members, education, and number of earning hands. The overall model with F = 8.24, n = 670, p = 0.000, explains 8.87% (Adj. R2 = 0.0887) of the variation in 'current multidimensional poverty' (dependent variable). Furthermore, as shown in table 4.15, the results of OLS indicated that the average score of the current MPI is 0.34 with an S.E of 0.027, whereas access to microfinance contributed negatively to it with 0.008 units. The reduction in the score of multidimensional poverty is a good sign, as it indicates lesser deprivation, in other words, poverty reduction. Age, region, number of school-going children, Number of total family

members, and education are reducing the multidimensional poverty in women. Whereas, only the results of the number of school-going children (p = 0.000) and education (p = 0.000) are statistically significant.

For the current level of multidimensional poverty (MPINow), the regression model with F=8.24, n=670, p=0.000, significantly explains 8.87% (Adj.R2=0.0887) of the variation in 'MPINow'. The average score of MPINow is 0.34 and the women in the treatment group have an aggregate score of 0.332 (0.34 – 0.008). It indicates that for those who had availed the microfinancing their multidimensional poverty has been reduced. However, the results are statistically insignificant at a 95% confidence interval. This is because exposure to microfinance ignites the process of economic development, its impact may be visible over time rather than at any point in time. Furthermore, a higher number of children caused an improvement in multidimensional poverty. Whereas, the number of school-going children and the education of women have an inverse association with the current level of multidimensional poverty. Education has a favorable association with multidimensional poverty, which reflects that women with a better level of education face lesser poverty.

4.3.10.4.2. The Difference in Multidimensional Poverty (MPIDiffW)

To assess the impact of access to microfinance on the change in multidimensional poverty of respondents, 'MPIDiffW' has been regressed with access to microfinance 'LoanMFB', age, region, marital status, number of children, number of school-going children, total family members, education and number of earning hands. The overall model with F = 15.36, n = 670, p = 0.000, explains 16.19% (Adj. R2 = 0.1619) of the variation in 'MPIDiffW' (dependent variable). From the results, it is inferred that access to microfinance has significantly reduced the multidimensional poverty of women. As shown in **Table 4.16**, the results of OLS indicated that the average score of 'MPIDiffW' is -0.115 with an S.E of 0.022, which indicates that on average the multidimensional poverty had been reduced by 0.115 units over time. The negative coefficient (of the variable 'LoanMFB') indicates the reduction in the dependent variable (MPIDiffW) with the presence of microfinance. Whereas those who have access to microfinance, their poverty level has been further reduced by 0.021 units, so for those who have access to

microfinance (out of 1.0) their score of MPI has been reduced by 0.136 (0.115 + 0.021) units.

Furthermore, Age, marital status, number of children, and number of school-going children were negatively associated with the 'MPIDiffW' in women, which means they cause a reduction in multidimensional poverty over time. Whereas, only the results of LoanMFB (p = 0.032), age (p = 0.075), number of children (p = 0.000), and number of school-going children (p = 0.014) are statistically significant.

To encompass economic development, the reduction in multidimensional poverty (MPIDiffW) is an important measure. The overall model with F=15.36, n=670, p=0.000, explains 16.19% (Adj. R2=0.1619) of the variation in 'MPIDiffW'. The average score of 'MPIDiffW' is -0.115, which indicates that on average multidimensional poverty had been reduced in the selected sample. Whereas, for those who have access to microfinance their multidimensional poverty has further been reduced by 0.021 units. Overall, for those who have exposure to microfinance their multidimensional poverty has been reduced by 0.136 (-0.115 - 0.021) units. Furthermore, multidimensional poverty is reduced with the increase in age, the number of children, and the number of school-going children. Whereas, no evidence has been found regarding the impact of the region, marital status, and the total number of family members on multidimensional poverty reduction. Astonishingly, the education and number of earning hands in the family are the reasons to increase the in multidimensional poverty over time.

Education is considered to be a poverty reduction tool (Awan et al., 2011; Janda & Turbat, 2013; Tilak, 2007) but the results in this study do not support this. The empirical results showed that education augmented multidimensional poverty, which is not desirable. The psychological factor could be a reason because of which uneducated or less educated women witnessed relatively higher growth. Such women start working even in adverse working conditions, whereas, an educated one is conscious of the level and the environment of the work, which hinders their growth potential in the short run.

Another reason could be the short period, as this study instruments the change for two years only, which is a relatively short period for such development. The

poverty of women with better education has increased in the short run. This is because of increased financial liability and it will be adjusted in the medium or long-term, as education has a positive association with the current level of multidimensional poverty.

4.3.10.5 Impact of Microfinance on Women Empowerment (WoEmp)

To assess the impact of access to microfinance on the empowerment of women a score of empowerments 'WoEmp' (as described in chapter 3) was estimated for every woman. Then 'Woemp' has been regressed with access to microfinance 'LoanMFB', age, region, marital status, number of children, number of school-going children, total family members, education, and number of earning hands. The overall model with F = 104.37, n = 670, p = 0.000, explains 58.17% (Adj. R2 = 0.5817) of the variation in 'WoEmp' (dependent variable).

As shown in table 4.15, by regressing the score of women empowerment with access to microfinance (LoanMFB), it is revealed that access to microfinance has a significant impact on women empowerment. The results of OLS indicated that the average score of 'WoEmp' is 78.967 with an S.E of 2.525 and for those who have access to microfinance, their empowerment score has further been improved by 26.539 units, so those who have access to microfinance their score of 'empowerment' is 105.506 (78.967 + 26.539) units, these results are statistically significant (p = 0.000). From this, it is inferred that access to microfinance significantly improves women empowerment.

Furthermore, Age, region, marital status, number of children, education, and number of earning hands are positively associated with women empowerment (WoEmp). It indicates that

- As the age of women increases, it increases the empowerment of women.
- The empowerment of women belonging to a rural areas slightly increased in comparison to the women of urban areas.
- The result of marital status indicates that with the change in the category of marital status the empowerment increases. As unmarried women turn into

married women their empowerment increases by 3.54 units, further if those married women become widows their empowerment further increases by 3.54 units. This is probably because a widow has to make her own decisions to sustain herself in society, which contributes positively to her empowerment.

- The number of children also contributes positively toward the empowerment of women. In our social setup children are considered to be protective covenants for women. As the number of children grew, the votes of women increased which reduces the women's vulnerability to social violence.

- Education is also an important factor that contributes positively toward the empowerment of women. Higher the education level of the woman more empowered she will be.

- The number of earning hands in the family also contributes positively to the empowerment of women. The higher the number of earning hands in the family, the more empowered the women will be. This is because as the children become earning hands in the family they also add to the financial and social empowerment of the women.

Among above stated factors which contribute positively towards empowerment of the women, only the results of LoanMFB ($p = 0.000$), age ($p = 0.000$), marital status ($p = 0.000$), and number of children ($p = 0.014$) are statistically significant.

Furthermore, the number of school-going children and the Total number of family members are negatively contributing to women empowerment. This is because, the number of school-going children increases the social liability of a woman, which causes her integration into the social, political, and financial decision making. On the other hand, joint family systems cause a reduction in individual empowerment, in the case of the higher number of family members the women as an individual have far lesser empowerment and more peer pressure. However, the results are not statistically significant.

Gender equality by empowering women is one of the main goals of SDGs and identifying the role of financial inclusion in this empowerment is one of the fundamental

objectives of this study. The regression model with F=104.37, n=670, p=0.000, explains 58.17% (Adj. R2 = 0.5817) of the variation. The average score of 'women empowerment' is 78.967, and access to microfinance contributed 26.539 units to this empowerment. For those women who have access to microfinance, their score of 'empowerments' is 105.506 (78.967 + 26.539) units, which indicates that microfinance considerably improves the socio-economic empowerment of impoverished women.

Furthermore, age, marital status, and the number of children are positively impacting this empowerment. It indicates that as the age of women increases, it enhances their empowerment. The marital status further augments the empowerment, empowerment of married women is higher than the unmarried and similarly, the independence and empowerment of widows or divorced is higher in comparison to the married women. This is because a widow has to make her own decisions to sustain herself in society, which contributes positively to her empowerment.

The number of children also contributed positively to the empowerment of women, because children are considered to be protective covenants for women. As the number of children grows, the votes for women increase in the family, which reduces their vulnerability to social violence. Whereas, no evidence has been found regarding the impact of the region, the number of school-going children, the total number of family members, education, and the number of earning hands in a family on their empowerment.

Overall, the regression analysis depicts that at large the exposure to microfinance significantly contributed toward overall economic development by reducing poverty. Out of eight dimensions of economic status the growth in income level, roof material used in the house, overall condition of the house, and access to safe drinking water are likely to improve with exposure to microfinance. Furthermore, microfinance positively contributed to the well-being of impoverished women by reducing multidimensional poverty and augmenting their socio-economic empowerment. The results are aligned with most of the studies cited above, such as Pitt et al. (2006) and Valead et al. (2018), but contrary to the findings of Nghiem et al. (2012) and Weber and Ahmad (2014). However, the social status deteriorates with exposure to microfinance.

4.3.10.6 Robustness Check with PSM – Impact of Microfinance on Women Borrowers

Table 4.16 gives the results of PSM estimates, the figure in the table shows ATT, and the figures beneath it with parenthesis are the standard error. At a 95% confidence interval, there is a significant difference found in the users and non-users of microfinance. Results indicate that the income level of women has significantly improved after having microfinance from MFBs. Furthermore, for those women who have access to microfinance, their income has been increased and their multidimensional poverty has been decreased significantly. Furthermore, women having access to micro-credit, feel more empowered socially and economically in comparison to those who didn't receive microfinance.

As inferred in the regression analysis, the results of PSM also endorsed that the social status of women has deteriorated because of microfinance. To check the robustness of the results, PSM analysis has also been incorporated into the study. Furthermore, as the treatment (exposure to microfinance) is not randomly distributed therefore PSM shall present a more rigorous and concrete impact assessment. Table 4.16 presents the PSM results regarding the impact of microfinance on all outcome variables. ATT reflects the impact of microfinance on economic development (reduction in poverty), social development, and empowerment of women by keeping the other factors almost constant. All methods posit similar results, the nearest neighbor method possesses the risk of matching with the nearest neighbor, which might result in over/under-estimation of the results (Becker & Ichino, 2002). The kernel matching method takes the weighted average of all the members of the control group to compare with the outcome of the treatment group member, which is comparatively better. Therefore, only the results of the kernel method were discussed here.

For economic development, a significant difference has been found in the outcome variables for users and non-users of microfinance. Results posit that the increase in the income of the treatment group is higher than the control group (ATT=0.472, p=0.01), reflecting the positive contribution of microfinance toward the reduction of income poverty. Furthermore, the roof material used in the house, the overall

TABLE 4.15: Impact on Multidimensional Poverty and Empowerment of Women Borrowers

	Multidimensional Poverty		**Women Empowerment**
Variables	**MPINowW**	**MPIDiffW**	**(WoEmp)**
LoanMFB	-0.0081	-0.021**	26.539***
	(0.011)	(0.009)	(1.063)
Age	-0.0136	-0.0125*	7.463***
	(0.008)	(0.007)	(0.777)
Region	-0.007	0.01	0.395
	(0.012)	(0.01)	(1.067)
MS	0.0016	-0.012	3.54***
	(0.009)	(0.007)	(0.827)
NChild	0.0217***	-0.019***	1.403**
	(0.006)	(0.005)	(0.571)
NSchChild	-0.041***	-0.014**	-0.0407
	(0.006)	(0.005)	(0.628)
TFMem	-0.011	0.012	-0.686
	(0.014)	(0.012)	(1.305)
Edu	-0.017***	0.017***	0.415
	(0.003)	(0.003)	(0.295)
EarnH	0.02	0.025**	0.85
	(0.015)	(0.012)	(1.35)
Constant	0.341	-0.115	78.967
	(0.027)	(0.023)	(2.52)
R-Square	0.101	0.173	0.587
Adj. R-Square	0.0887	0.1619	0.5817
F – Statistics	8.24***	15.36***	104.37***

*Standard Errors in parentheses ( ), ***p<0.01, ** p<0.05, * p<0.10*

condition of the house, the number of children going to school, and access to safe drinking water witnessed an improvement for those who have access to microfinance. However, no impact of microfinance has been observed on the ownership status of the house, household assets, and cooking fuel used. These results are aligned with the findings of the logistic regression analysis. On the contrary, PSM analysis confirms the positive impact of microfinance on the number of school-going children. It means those who have exposure to microfinance are better able to send their children to school. Furthermore, the results of PSM also indicate that exposure to microfinance has no impact on the current level of multidimensional poverty. Whereas, multidimensional poverty has been reduced over time due to microfinance. Our findings are aligned with Bakhtiari et al. (2006); Imai and Azam (2012), and Miled and Rejeb (2015) indicating that overall poverty has been reduced because of exposure to microfinance, however, the results are contrary to (Asante, 2018). Overall results of PSM analysis also confirm the positive impact of microfinance on the economic development of impoverished women.

The results of PSM are similar to the result of the logistic regression, confirming the negative impact of microfinance on the social status of impoverished women. The negative sign of ATT indicates that the social status of the treatment group deteriorated. The deterioration in the social status of women is an unexpected outcome. This is probably because of the increased financial liability which arises during the payback period of the loan. As they pay off their loans, they will not feel this financial distress and deterioration in social status.

Most importantly, the results of PSM also posit the positive effect of microfinance on empowerment. ATT (27.711) with p¡0.01, reflects that the women having access to microfinance feel more empowered in comparison to those who didn't receive microfinance. The results are aligned with Addai (2017); Al-Shami et al. (2018); Aninze et al. (2018); Binaté Fofana et al. (2015); Kulb et al. (2016), and Palmkvist and Lin (2015).

Conclusively, for those women who have access to microfinance their income has been increased, their multidimensional poverty has been reduced, and they feel more empowered. It reflects a significant contribution of microfinance toward the economic development and socio-economic empowerment of impoverished women.

Table 4.16: PSM Estimates for an Impact Assessment on Sustainable Livelihoods and Empowerment of Women Borrowers

	ATT according to 'Psmatch'					
	NN (1–1)	**NN (1–5)**	**Kernel Matching Method**	**Kernel Matching Method (width 0.01)**	**Radius Matching Method (Radius 0.01)**	**Stratification Matching**
ChngIncomW	0.483***	0.483***	0.472***	0.469***	0.472***	0.472***
	(0.040)	(0.040)	(0.031)	(0.044)	(0.034)	(0.034)
SocDevW	-0.077*	-0.077*	-0.112***	-0.099***	-0.113***	-0.104***
	(0.048)	(0.048)	(0.033)	(0.040)	(0.039)	(0.039)
MPINowW	-0.026*	-0.026*	-0.011	-0.011	-0.011	-0.013
	(0.015)	(0.015)	(0.013)	(0.014)	(0.012)	(0.012)
MPIDiffW	-0.029**	-0.029**	-0.020**	-0.024**	-0.019*	-0.021**
	(0.013)	(0.013)	(0.01)	(0.011)	(0.011)	(0.01)
WoEmp	25.481***	25.481***	27.711***	27.090***	27.554***	27.177***
	(1.549)	(1.549)	(1.328)	(1.37)	(1.273)	(1.262)

*Standard Errors in parentheses ( ), ***p<0.01, ** p<0.05, * p<0.10*

4.3.10.7 Conclusion and Discussion

Overall we may infer that access to microcredit has a significant impact on the poverty reduction and empowerment of women. It is quite logical that if a woman receives a loan and can reduce her poverty, she will certainly become economically empowered with a better social position. That's why significant marginal improvement in the income level, multidimensional poverty reduction, and women empowerment has been witnessed. OLS and PSM estimates confirm that poverty is reduced with access to microcredit and that reduction of poverty leads to the empowerment of women. Furthermore, age, number of dependents, marital status, and number of children have a significant impact on women empowerment. Whereas, no evidence has been found regarding the impact of the region, the amount of the loan, and the number of earning hands-on empowerment.

As far as income level is concerned there is no impact of gender on it. whereas socio-economic factors like age and number of earning hands have a significant impact on the income level of women. Whereas, marital status, education, number of dependents, region, amount of loan, and number of children have no significant impact on the income level.

For multidimensional poverty socio-economic factors like marital status, education, and the number of earning hands have a significant impact. Whereas, region, age, number of dependence, number of children, and amount of loans have no significant impact on multidimensional poverty.

From the empirical analysis and the information gathered from the interviews, we may infer that MFIs are the most effective solution for attaining SDGs. Eight goals No poverty, Zero hunger, Good health & Well-being, Quality education, Gender Equality, Clean Water & Sanitation, Decent work & economic growth, and reducing inequality are directly related to the lower segment of society. If we elevate the poor well above the poverty line all these goals could easily be met in the shortest possible time. The poor have to compromise over food, water, quality of living, education, medication, and above all self-esteem, etc. Poor have to face discrimination but once their poverty, which is the root cause of all the above-said problems, is eliminated, all these problems could eventually vanish away.

4.3.11 Impact on Enterprise Development

As discussed in chapter 3, an index to gauge the enterprise development 'Enterprise Development Index' (EDI) has been developed with the help of PCA. This index reflects the average performance of the micro-enterprises of the respondents in key areas of business activity. This index includes key dimensions related to business, like the change in the total worth/size of the business, launching of new products, enhancing the labor force, improvement in the quality of the product, increase in profitability, induction of new machinery, change in production capacity (productivity) and improvement in inventory management. EDI has been used in regression and PSM for empirical inferences regarding the impact of microfinance on enterprise development.

4.3.11.1 Descriptive Analysis of Entrepreneurs

Responses of 599 entrepreneurs have been incorporated in the empirical analysis out of which 343 entrepreneurs have availed the microfinance from MFBs and 256 do not have exposure to microfinance. Out of 343 entrepreneurs, 110 were male and 233 were females. Out of the total 35.7% are younger than 25, 34.4% are from 25 to 40, and 29.9% of entrepreneurs are older than 40 years. 333 (55.6%) of the entrepreneurs belong to urban regions out of which 187 have exposure to microfinance (belongs to the treatment group). 77% of the entrepreneurs either had matric or lesser qualification but the exposure to microfinance is higher in educated persons. 326 (54.4%) entrepreneurs claim that there is no improvement in their income level (no economic development) out of which 117 belong to the treatment group and 209 belong to the control group. Whereas 273 (45.6% of the total) claim that their income has been increased over time out of which 47 belong to the control group and 226 belong to the treatment group. For social development, 289 (48.2%) entrepreneurs have responded that their social status has been improved out of which 138 belong to the control group and 151 belong to the treatment group. On contrary 310 (51.8%) responded that their social status has not been improved or deteriorated out of which 118 belong to the control group and 192 belong to the treatment group.

TABLE 4.17: Descriptive Statistics – Demographics of Entrepreneurs

		Exposure to Microfinance						Total	
		No = 0			**Yes = 1**				
Gender	Male	80	42.10%	31.30%	110	57.90%	32.10%	190	31.70%
	Female	176	43.00%	68.80%	233	57.00%	67.90%	409	68.30%
		256	**85.10%**	**100.00%**	**343**	**114.90%**	**100.00%**	**599**	
Age	Lessthan 25	91	42.50%	35.50%	123	57.50%	35.90%	214	35.70%
	25 to 40	85	41.30%	33.20%	121	58.70%	35.30%	206	34.40%
	Morethan 40	80	44.70%	31.30%	99	55.30%	28.90%	179	29.90%
		256	**128.50%**	**100.00%**	**343**	**171.50%**	**100.00%**	**599**	
Region	Urban	146	43.80%	57.00%	187	56.20%	54.50%	333	55.60%
	Rural	110	41.40%	43.00%	156	58.60%	45.50%	266	44.40%
		256	**85.20%**	**100.00%**	**343**	**114.80%**	**100.00%**	**599**	
Marital Status	Unmarried	74	43.80%	28.90%	95	56.20%	27.70%	169	28.20%
	Married	159	43.30%	62.10%	208	56.70%	60.60%	367	61.30%
	Divorced	13	34.20%	5.10%	25	65.80%	7.30%	38	6.30%
	Widow	10	40.00%	3.90%	15	60.00%	4.40%	25	4.20%
		256	**161.30%**	**100.00%**	**343**	**238.70%**	**100.00%**	**599**	
Education	No Education	63	42.30%	24.60%	86	57.70%	25.10%	149	24.90%
	Primary	42	42.00%	16.40%	58	58.00%	16.90%	100	16.70%

Continued Table: 4.17 Descriptive Statistics – Demographics of Entrepreneurs

		Exposure to Microfinance No = 0			Yes = 1			Total	
	Middle	57	46.70%	22.30%	65	53.30%	19.00%	122	20.40%
	Matric	37	41.10%	14.50%	53	58.90%	15.50%	90	15.00%
	Intermediate	25	38.50%	9.80%	40	61.50%	11.70%	65	10.90%
	Graduation	15	36.60%	5.90%	26	63.40%	7.60%	41	6.80%
	Others	17	53.10%	6.60%	15	46.90%	4.40%	32	5.30%
		256	**300.30%**	**100.00%**	**343**	**399.70%**	**100.00%**	**599**	
Earning Hands	1	196	42.50%	76.60%	265	57.50%	77.30%	461	77.00%
	2	52	43.00%	20.30%	69	57.00%	20.10%	121	20.20%
	more than 2	8	47.10%	3.10%	9	52.90%	2.60%	17	2.80%
		256	**132.60%**	**100.00%**	**343**	**167.40%**	**100.00%**	**599**	
Economic Development (EcoDevEn)	No	209	64.10%	81.60%	117	35.90%	34.10%	326	54.40%
	Yes	47	17.20%	18.40%	226	82.80%	65.90%	273	45.60%
		256	**81.30%**	**100.00%**	**343**	**118.70%**	**100.00%**	**599**	
Social Development (SoDevEn)	No	118	38.10%	46.10%	192	61.90%	56.00%	310	51.80%
	Yes	138	47.80%	53.90%	151	52.20%	44.00%	289	48.20%
		256	**85.80%**	**100.00%**	**343**	**114.20%**	**100.00%**	**599**	

4.3.11.2 Impact of Microfinance on Entrepreneurs and Enterprise Development

Assessing the impact of microfinance on micro-entrepreneurs and enterprise development is one of the main objectives of this study. As discussed earlier enterprise development is estimated through Enterprise Development Index (EDI). However, the impact of entrepreneurs is estimated through economic development (change in their income) and social development (change in their perceived social status).

Therefore, causal relationship has been identified by regressing the EcoDevEn, SocDevEn, and EDI with the access to microfinance (LoanMFB), gender, age, region, marital status, number of children, number of school-going children, total family members, education, and number of earning hands. Results of regression analysis (table 4.17) indicate that access to microfinance has a significant positive impact on EcoDevEn and EDI, however, a negative association between financial inclusion and SocDevEn has been witnessed. The results indicated that on average the micro-enterprises are in crisis. The negative sign of the constant of the OLS model inferred that at large the score of EDI deteriorated, with 0.182 units of EDI. Whereas access to microfinance contributed 0.465 units positively to the overall score of EDI. The impact of microfinance on enterprises is significant at a 99% confidence interval, whereas the impact of all other variables is statistically significant at different confidence intervals.

ANOVA shows F = 7.147 and p = 0.000 reflects the model fitted on access to microfinance and the socio-economic factors is a goodfit model. The result of the Durbin-Watson test the assumption of Heteroscedasticity of OLS. As the values of Durbin-Watson (= 2.110,) are close to 2.0, it is inferred that variances of error terms of fitted and actual models are not the same. The tolerance and VIF test the problem of multicollinearity in the variables, as the values of VIF $\leq$ 3.00 so it is inferred that no problem of multicollinearity exists in the variables. Tables 4.18 shows the results of the regression. Furthermore, age and region are impacting the 'enterprise development', results are statistically significant at a 95% confidence interval. Age has a negative impact on the EDI, which indicates that young entrepreneurs are better performers.

TABLE 4.18: Impact of Microfinance on Enterprise Development and Socio-Economic Development of Entrepreneurs

	Linear Regression (OLS)	**Logistic Regression**			
	Enterprise Development Index (EDI)	**Economic Development (EcoDevEn)**		**Social Development (SoDevEn)**	
Covariates	**Coef.**	**Coef.**	**Odds Ratio**	**Coef.**	**Odds Ratio**
(Constant)	0.51***	-1.384***	0.25***	-0.095	0.91
	(0.176)	(0.40)	(0.099)	(0.35)	(0.316)
LoanMFB	0.422***	2.163***	8.70***	-0.40***	0.673***
	(0.085)	(0.199)	(1.728)	(0.168)	(0.113)
Gender	-0.136	-0.02	0.98	0.174	1.018
	(0.091)	(0.203)	(0.199)	(0.18)	(0.183)
Age	-0.089**	0.721	1.075	0.064	1.066
	(0.058)	(0.129)	(0.139)	(0.114)	(0.122)
Region	-0.028**	-0.058	0.944	0.368**	1.444**
	(0.085)	(0.188)	(0.178)	(0.168)	(0.243)
Marital Status	-0.036	-0.087	0.917	-0.30**	0.742**
	(0.066)	(0.148)	(0.136)	(0.133)	(0.099)
Education	-0.006	-0.048	0.953	-0.053	0.949
	(0.024)	(0.525)	(0.05)	(0.047)	(0.044)
Earning Hand	0.041	-0.031	0.969	0.254	1.29
	(0.086)	(0.192)	(0.186)	(0.171)	(0.221)
LR Chi-Square		142.81		17.65	
Sig.	0.000	0.000		0.013	
Pseudo R-Squared		0.173		0.021	
Adj. R-Squared	0.039				
n	599	599		599	

*Standard Errors in parentheses ( ), ***p<0.01, ** p<0.05, * p<0.10*

The region also has a negative impact on enterprise development, it indicates that the enterprises in the rural areas are not performing well in comparison to the enterprises in urban areas. The number of children and total family members are also impacting the enterprise development but these are significant at a 90% confidence interval. The number of family members has a positive impact on enterprise development, it is because the higher the number of family members more labor force is available to the cottage and SME industry. That is why the number of family members has a positive impact on enterprise development. Similarly, if the family members are youngsters (children) then they will not be able to contribute to business activities, that is why the number of children is negatively impacting enterprise development. Whereas, gender, marital status, number of school-going children, education, and the total number of earning hands are insignificant in the model. **Table 4.17** shows the results of the regression.

Results indicate that during the said period average impact on the business enterprises is negative and this negative impact on the non-users of microcredit is high. Whereas, access to microfinance has a significant positive impact on business enterprises. Overall access to microfinance has contributed positively to the growth of micro-enterprises. The coefficient of constant (-0.182) indicates that overall micro-businesses have shown negative growth over time, whereas the coefficient of 'LoanMFB' (0.465) indicates the growth in businesses of the treatment group, which is a significantly large impact in comparison to the control group. The positive and significant coefficient indicates that access to microfinance has a significantly large impact on the growth of micro-enterprises.

4.3.11.3 Robustness Check with PSM – Impact of Financial Inclusion on Enterprises and Entrepreneurs

PSM estimates the outcome of the treatment by comparing the treatment and control groups. The members of the treatment and control groups, to be compared, are selected based on the propensity score. In this study, the socio-economic indicators described earlier have been used to get the respective propensity scores. For the PSM analysis of enterprise development, exposure to microfinance is the treatment variable and 'EDI' is the outcome variable. For economic development and

social development, dichotomous variables 'EcoDevEn' and 'SoDevEn' are used as outcome variables respectively. Table 4.18 has shown the average treatment effect on the treated (ATT) by using the Nearest Neighbor (NN) method, Kernel Method, Radius Caliper method, and Stratification methods. The results of all the methods are similar but the results of the kernel matching method are more rigorous and therefore incorporated into the discussion.

The results of the kernel matching method (ATT=0.422, p = 0.000) indicate that the enterprise that has the exposure to microfinance its score of EDI is 0.422 units higher than those who have not received the microfinance. It means the enterprises belonging to the treatment group are performing better than the enterprises belonging to the control group. As EDI is composed of different dimensions of entrepreneurial activity therefore it is concluded that microfinance positively influences business enterprises in totality.

For economic development, the results of the kernel method (ATT=0.476, p=0.000) indicate that the economic development in the treatment group is better than the members of the control group. It reflects that the growth in the income level of the treatment group is marginally higher than the entrepreneurs belonging to the control group. Conclusively, the annual income of micro-entrepreneurs is positively influenced by microfinance.

For social development, the results are not positive. The ATT = -0.088, $p<0.05$ indicated that the entrepreneurs who have exposure to microfinance their social status have deteriorated in comparison to the control group. In other words, the entrepreneurs belonging to the treatment group faced social distress.

4.3.11.4 Dimensions of Enterprise Development

EDI is the index of enterprise development constructed from eight different dimensions related to entrepreneurial activity. The results of OLS and PSM confirm the overall positive impact of microfinance on the EDI. But which dimension of development is more influenced by microfinance is also an important area of inquiry. For more concrete analysis and inferences about this impact assessment, the PSM analysis has also been conducted on all eight dimensions individually as well. The results are summarized in Table 4.19.

Table 4.19: PSM Estimates for 'Enterprise Development' and Socio-economic Development of Entrepreneurs

	NN	**NN**	**Kernel Matching Method**	**Kernel Matching**	**Radius Matching**	
	(1 – 1)	**(1 – 5)**		**Method (width 0.01)**	**Method (Radius 0.01)**	**Stratification Matching**
	ATT	**ATT**	**ATT**	**ATT**	**ATT**	**ATT**
Enterprise Development	0.444***	0.442***	0.422***	0.422***	0.422***	0.423***
(EDI)	(0.114)	(0.114)	(0.077)	(0.095)	(0.087)	(0.088)
Economic Development	0.499***	0.496***	0.476***	0.478***	0.475***	0.481***
(EcoDevEn)	(0.042)	(0.042)	(0.032)	(0.041)	(0.035)	(0.035)
Social Development	-0.073	-0.073	-0.096**	-0.088**	-0.098**	-0.092**
(SocDevEn)	(0.053)	(0.053)	(0.045)	(0.045)	(0.041)	(0.041)

*Standard Errors in parentheses ( ), ***p<0.01, ** p<0.05, * p<0.10*

Table 4.20: PSM Estimates for Different Dimensions of 'Enterprise Development'

	ATT					
	NN (1 − 1)	**NN (1 − 5)**	**Kernel Matching Method**	**Kernel Matching Method (width 0.01)**	**Radius Matching Method (Radius 0.01)**	**Stratification Matching**
Size of business	0.169***	0.172***	0.165***	0.165***	0.167***	0.166***
	(0.047)	(0.047)	(0.043)	(0.041)	(0.038)	(0.038)
Growth of Sales	0.063***	0.063***	0.068***	0.069***	0.069***	0.067***
	(0.026)	(0.026)	(0.022)	(0.018)	(0.022)	(0.023)
Improve Labor force	-0.036	-0.036	-0.032	-0.034	-0.032	-0.036
	(0.047)	(0.047)	(0.033)	(0.035)	(0.036)	(0.036)
Quality of Product	0.165***	0.162***	0.154***	0.158***	0.153***	0.156***
	(0.053)	(0.053)	(0.041)	(0.04)	(0.041)	(0.041)
Increase in Profitability	0.382***	0.382***	0.383***	0.382***	0.384***	0.385***
	(0.045)	(0.045)	(0.030)	(0.043)	(0.037)	(0.037)
New Machinery	0.016	0.019	0.005	0.005	0.003	0.004
	(0.044)	(0.043)	(0.031)	(0.035)	(0.034)	(0.034)
Production Capacity	0.053	0.05	0.039	0.034	0.039	0.039
	(0.043)	(0.043)	(0.040)	(0.040)	(0.035)	(0.035)
Inventory Management	0.167***	0.164***	0.158***	0.163***	0.157***	0.161***
	(0.049)	(0.049)	(0.036)	(0.036)	(0.038)	(0.038)

*Standard Errors in parentheses ( ), ***p<0.01, ** p<0.05, * p<0.10*

From results we may infer that access to microfinance has a significant positive impact on total worth/size of the business (ATT = 0.165, p = 0.000), improvement in sales (ATT = 0.068, p = 0.000), the quality of the product (ATT = 0.154, p = 0.000), profitability (ATT = 0.383, p = 0.000), and inventory management (ATT = 0.158, p = 0.000) of micro-enterprises. However, there is no significant difference has been found between control and treatment group for improvement in labor force, incorporating new machinery and production capacity of micro-enterprises.

Conclusively, to assess the impact of microfinance on enterprise development two methods of empirical investigation have been incorporated (regression and PSM). At a 99% confidence interval regression analysis inferred a positive impact on the enterprises. PSM analysis also confirms the positive impact of microfinance on enterprise development. While assessing these dimensions individually we have seen that access to microfinance has a significant positive impact on five dimensions that are related to the routine operations of an enterprise. The impact on improvement in the labor force, new machinery, and production capacity has not been observed due to microfinance. These dimensions of entrepreneurial activity could be improved in the long run and as we capture the effect of almost two years only so these dimensions seem to be irrelevant here.

4.3.11.5 Conclusion and Discussion

The purpose of this part of the study is to substantiate the impact of financial inclusion through microfinance on entrepreneurial development. This study has yielded significant insight into the matter of entrepreneurial development, along with the socio-economic development of micro-entrepreneurs. Microfinance services are considered to be an effective tool to facilitate the micro-entrepreneurs. This study indicates that microfinance has a positive impact on enterprise development in Pakistan. For the comprehensive evaluation of enterprise development, multiple dimensions of entrepreneurial activity have been incorporated into the analysis. As shown by Bagudu et al. (2016); Bhuiyan and Ivlevs (2019); Ekpe (2011); Gyimah and Boachie (2018); Makorere (2014); Nendakulola (2015), and Raza (2014), this study also inferred that microfinance is positively affecting the enterprise development.

As per our findings, gender is insignificant, it indicates that both male and female borrowers are having a similar level of entrepreneurial development. Similarly, education, region, marital status, and the number of earning hands have no significant impact on entrepreneurial development. Furthermore, exposure to microfinance is significantly impacting the economic development of micro-entrepreneurs. Whereas, gender, age, region, marital status, education, and earning hands have no impact on economic development. Exposure to microfinance, region, and marital status are significantly impacting the social development of micro-entrepreneurs. Exposure to microfinance and marital status has an inverse impact on social development.

Right from the beginning microfinance is about entrepreneurial development, when Dr. Muhammad Yunus found a group of skillful women with no capital which hindered their earning capacity and socio-economic development. He lent a small amount for their business activity which empowers them economically and socially. Therefore, the prime and pivotal objective of microfinance since its inception was to give a launching pad to those who have entrepreneurial skills for their sustainable financial development which will lead to their social development. Microfinance was actually a start-up capital given with an orientation of MSME's development, which enables micro-entrepreneurs to flourish and become self-sustainable. Along with capital, they also need entrepreneurial skills, human resources, exposure to markets, and other interpersonal skills for sustainable enterprise development. Some studies such as Banerjee et al. (2015); G. Bruton et al. (2015), and Kar and Swain (2014) indicated that in some cases the impact of microfinance on entrepreneurial development is not as enchanting as it is expected.

As identified by Raza (2014), the descriptive analysis of this study indicates that the higher the education levels higher will be the tendency and demand for microfinance. As identified by Mohd Ruslan (2018), age has an association with the tendency to have microfinance. In this study, we have identified the inverse relationship between age and the tendency to have microfinance, higher the age lesser will be the tendency to have microfinance. Furthermore, the tendency to borrow from formal sources is high in females, the results are aligned with the findings of (Skoufias et al., 2013).

Eight different dimensions of enterprise development have been incorporated into the empirical investigation to assess the impact of microfinance precisely. The results of PSM indicate that the size of the business has been improved because of microfinance, as specified by Al Mamun, Abdul Wahab, and Malarvizhi (2010); Chirkos (2014), and Ojong and Simba (2019), as well. It is inferred that because of the exposure to microfinance quality of the product has been improved, as identified by Bagudu et al. (2016) and Majukwa (2019), it further improves the sales revenue as mentioned by Akpan and Nneji (2015); Bagudu et al. (2016); Gyimah and Boachie (2018) and Mohd Ruslan (2018). The profitability has also been improved as identified by Ferdousi (2015) and Makorere (2014). Unlike Bagudu et al. (2016); Nendakulola (2015) and Olu (2009), this study is unable to identify the improvement in productivity due to microfinance. This study has not found any impact of microfinance on the growth in production capacity, growth in the labor force, and growth in machinery (inducing the new machinery).

Literature witnessed that MFIs are the catalyst to nurture entrepreneurship in women and the performance of women as entrepreneurs is better than that of males (Bhuiyan & Ivlevs, 2019; Peter et al., 2013). But in this paper, the results of OLS and logistic regression analysis have not identified any significant difference in enterprise development and socio-economic development based on gender. These results are contradictory to the literature, as Hassan and Sanchez (2009) identified the improvement in the income level of women because of the exposure to microfinance. The probable reason for this may be the socio-cultural factors, as identified by Niaz and Iqbal (2019) which hindered the economic empowerment of women, and many times women are not the true users of funds received from MFBs. Furthermore, female borrowers may also have financing from informal sources of microfinance as identified by Skoufias et al. (2013), which increases their financial liability and hindered economic development.

The results of the logistic and PSM analysis showed that social development has an inverse association with exposure to microfinance, which is aligned with Bhuiyan and Ivlevs (2019); Niaz and Iqbal (2019). The income of entrepreneurs has increased but they feel distressed because of the additional financial liability of microfinance. This additional liability has caused stress, worry, and depression which

resulted in the overall deterioration of perceived social status. Furthermore, marital status has an inverse relation with social development, social development deteriorates as the marital status changes from single to married and then divorced. It is because the single person has fewer liabilities and more independence than a married or divorced person.

Financial inclusion through microfinance increased entrepreneurial activity but sometimes the productivity of entrepreneurial activity is lower than expectations (G. Bruton et al., 2015; Newman et al., 2017). One possible reason is that in current practices, microfinance services are not for those who innovate or wish to start new businesses, rather MFIs prefer to serve the existing businesses only. As lending to new ventures is risky therefore lending to existing micro-enterprises is the prime orientation of commercial MFIs (Shahriar et al., 2016). Lending a higher amount to the existing ventures in a single transaction help MFIs in reducing their risk and attain economies of scale. But this practice hindered the entry of new micro-entrepreneurs, which undermine the prospective impact of financial inclusion on overall development. Even though microfinance has a positive impact on entrepreneurial development but the magnitude of this impact could be high if appropriate outreach policies and practices will be incorporated.

Along with exposure to microfinance, there is a vital role of innovation in entrepreneurial development and micro-entrepreneurs lack it significantly (Ferdousi, 2015). Innovation is linked with business skills, information, and awareness of technological factors. Therefore, it is recommended that MFIs must link the loan size with these factors. As suggested by, Musau (2015) borrowers-oriented lending policies must be incorporated by the MFBs and in this regard, the role of the Government is very pivotal as identified by KHAN (2010); Z. A. Khan, Butt, and Khan (2017); Niaz and Iqbal (2019), and Raza (2014). Such policies shall induce real socio-economic development in the lives of these impoverished people (Mohd Ruslan, 2018; Noreen, 2011) and the country as a whole.

Chapter 5

Conclusion and Discussion

This chapter will conclude the study by summarizing the role of internal financial health in strengthening MFBs and contributing towards greater outreach for the financial inclusivity of impoverished people. Furthermore, it will infer about the role of this financial inclusion through microfinance in augmenting the economic development of impoverished people.

The role of microfinance in the socio-economic development of impoverished people is quite a concern for the last three decades. Due to its effectiveness and contribution, microfinance is not only recognized as a formal industry but also commercially operated MFBs become an integral part of the financial industry and a key player in the overall economy. In this regard, this study signifies two fundamental concerns, one is about the true contribution of MFBs towards the socio-economic development of impoverished people (social performance) and the second is about their own survival (financial performance for self-sustainability).

This study finds empirical shreds of evidence about the interdependence of these two sides with a novel empirical lens and inferred that financial performance contributes positively to the sustainability and outreach of MFBs, it could complement the social objectives (economic uplifting of the underprivileged class of the society). Better financial performance leads to better outreach and this better outreach could lead to the socio-economic development of impoverished people. Reaching out poor help them in attaining sustainable livelihood, raise their income, improve their living standard, empower women, nurture enterprises, and

improve entrepreneurial activity. It will highlight the role of MFBs as successful 'Social Entrepreneurs'.

In Pakistan, the performance of MFBs is quite variable. It is due to the diversity of size, age, and practices of MFBs. Economic volatility (variation in GDP) also plays a significant role in it. As a financial sector, the most important determinants of their performance are operating expenses, net interest income, advances, and deposits. MFBs must focus on the strategy of attracting deposits and converting those into earning assets (advances). It shall also support sustainability which will lead to better outreach. As, the average loan, net interest income, operating profit, and advances to deposits ratio are better in larger MFBs and positively influence the financial performance. It has been observed that larger organizations with better financial performance shall have better outreach, it endorses the philosophy of Endogenous Growth Theory. However, cost-intensive operation (higher level of operating cost) and KIBOR hinders this outreach. But due to the economies of scale, the operating expenses ratio shall be decreased due to the increase in size. Moreover, this financial performance positively explains sustainability and outreach. Therefore, Government and top administration of MFBs must focus on the internal strength of MFBs to bring operational and financial efficiency. Because operationally efficient and financially sustainable MFBs shall have greater outreach which will augment financial inclusion. In this regard, the use of advanced IT infrastructure and the higher loan size are factors for the operational and financial efficiency of MFBs. Overall findings emphasized the Institutionalist Approach and negated the mission drift theory. This is helpful for decision-makers as well as opened new vistas for researchers in this field.

Poverty is a multidimensional phenomenon in its implications and effects therefore, the reduction in multidimensional poverty shall be visible in improved livelihoods and better living standards. Income level increased due to financial inclusion and consequently the spending on clothing, education of children, and medication has also increased. Along with routine expenses, the expenditures on the living standard and infrastructure development of their houses have also been improved. The availability of the washroom, electricity, type of roof & floor of the house, overall infrastructure of the house, household assets, clean drinking water, cooking fuel

used, and proper sanitation are the key parameters of living standard. Financial inclusion contributed positively to the improvement in living standards. Moreover, the living standard of urban areas has improved significantly. In rural areas the margin of improvement in the living standard is huge and this could not be done in a shorter period. However, there is no difference in urban and rural areas for the poverty reduction measures.

This extended outreach of MFBs supported the financial inclusion of the impoverished segments. In the second part, this study produced profound evidence about the positive contribution of microfinance toward the economic development of the underprivileged class of society, particularly for women. The provision of microfinance improves the dignity and the role of women in the socio-economic development of their families by enhancing their empowerment. Entrepreneurs in urban areas are having better social capital, exposure, and opportunities therefore, microfinancing in the urban area brings more entrepreneurial development. Financial inclusion is an effective tool for multidimensional poverty reduction in women. Poverty alleviation and enterprise development are associated phenomena. Entrepreneurial activity enhances the income level and to attain real entrepreneurial development this system of financial inclusion must be efficient with greater outreach (Sherwani & Sabiha, 2015).

Financial inclusion reduces multidimensional poverty and improved the livelihoods of impoverished women in Pakistan. Access to microfinance enhances the participation of women in routine social and financial decision-making, overall enhancing their empowerment. Along with financial inclusion age is a significant factor, the higher the age of the borrower better will be the utilization of borrowed amount. True empowerment shall unleash their inner potential and motivate them to invest in more rewarding and productive ventures, which will capitalize on their entrepreneurial capabilities. Overall microfinancing supports women and helps them in improving their socio-economic status but the males, due to their social capital and natural ability of risk-taking, are performing better.

Whereas, females are more focused, workaholic, and committed to performing well. Women could outperform if they were encouraged and supported to improve their

social capital along with their socio-economic empowerment. Due to lesser chances of default, it is in great favor of MFBs to promote the social capital of female borrowers and make them successful entrepreneurs. Entrepreneurs in urban areas are having better social capital, exposure, and opportunities therefore, microfinancing in the urban area brings more entrepreneurial development. But this will certainly need training and capacity-building programs, which will equip borrowers with the necessary entrepreneurial, financial, and psychological capabilities.

A comprehensive level of training programs needs to be incorporated for the social capital and capacity building of entrepreneurs. As suggested by (Omar & Wel, 2014), the training of micro-entrepreneurs shall nurture their interpersonal skills, effectively respond to market challenges, teach efficient utilization of resources, and restrains the wastage of funds (Kaburi et al., 2013). This will result in a low default rate, a low portfolio at risk, and high sustainability of MFIs (Addae-Korankye, 2014).

It implies that microfinance is a catalyst for economic development and enterprise development but this is the limitation of this study that few aspects were not captured within the time frame under study. The same is true for social development, as all segments of respondents feel deteriorated social status. This is because of the financial stress caused by the loan repayment, once the loan tenure is over this stress will be vanished but the economic development caused by microfinancing shall remain intact. Furthermore, due to the tough and autocratic approach in MFBs people are reluctant to get microfinancing (Rashid & Samat, 2018), which could be another reason for social distress. To counter this, as suggested by Wilson (2012), structural reforms at the institutional levels are required, such as MFBs must relax their lending procedures, loan tenure, lending rate, and collection process so that economically distressed segments of society may not feel social distress. For this, governments must launch a special package for MFBs and lend them at zero interest rate or at least on subsidized rates with a condition to increase the outreach. Such a strategy shall be far better than the government's cash-dole-out, income support, and rural development programs. Financial inclusion shall be a gateway for achieving the SDGs in the long run, as seven goals (no poverty, zero hunger, good health & well-being, quality education, gender equality,

clean water & sanitation, and decent work & economic growth) are directly linked with economic conditions of individuals and could be attained through financial inclusion. This study corroborates that poverty in women borrowers has reduced significantly, which will certainly contribute to gender equality. As described by scholars Lopatta et al. (2017); Montgomery and Weiss (2011); Rashid and Samat (2018), and P. R. Sharma (2015) microfinance helps in attaining development goals.

The provision of microfinance does not solve all problems of impoverished people. It ignites the process of development through financing their business ideas. To strengthen the overall phenomenon, the war must be fought on many fronts. Another aspect is internal efficiency, particularly the efficiency of human resources (Mula & Sarker, 2013). They must be vibrantly skillful (Sila, 2014) to outreach the poor and influence the decision-making of potential clients. As the lack of exposure and religious mindset are the restraining factors in the process of financial inclusion and greater outreach of MFBs.

Extremely poor and Chronic poor were neglected by MFBs (Hina, Lightfoot, & Harvie, 2012). The extreme and chronic poor also lack education, skills, and aptitude which impedes their efforts for their socio-economic development. Serving to transitory poor shall provide job opportunities to the extreme and chronic poor as well. Careful policy intervention shall strengthen true and effective microfinance outreach. This process seems to be a little slow and socio-economic development could be delayed but this is a sustainable model. However, this is another important research area to be explored in the future.

In the current revolutionary wave of Information Technology, it has been observed that most telecommunication companies have (wholly or partly owned) MFBs as their subsidiaries. They are purely focused on improving their funds transfer business rather than working for poverty alleviation, limiting their social objective. This misplacement of objectives needs to be rectified by the regulators through more effective oversight of such MFBs. MFBs must use this technological advancement in loaning and collection processes, so that their cost of operations may also be reduced. This study addresses the contribution of microfinance toward sustainable livelihood and multidimensional poverty, but this contribution

is not independent of the macroeconomic environment. Macroeconomic indicators such as discount points (cost of capital), monetary-fiscal mix, ease of doing business, cost of energy, overall economic condition, GDP growth, exchange rates, and government policies, etc. are directly affecting entrepreneurial activity at all levels. Therefore, such macroeconomic indicators must also be incorporated in future empirical investigations of the socio-economic development of impoverished people. Furthermore, the efficiency of human resources (particularly the loan officer) must also be incorporated into the study for the operational and financial efficiency of MFBs.

5.1 Policy Implications

1. IT revolution in MFBs distracted them from their social objective (enhanced outreach). SBP and Government must do legislations to enhance microfinancing practices rather than money transfer services (EasyPaisa, JazzCash, Upaisa, etc).

2. Technological advancements must be incorporated into the MFB's operations to boost loaning and collection processes in order to make operations more cost-effective. So that the lending rate could be reduced.

3. Government and top administration of MFBs must focus on the internal strength of MFBs to bring operational and financial efficiency. In this regard, training programs must be an inevitable part of the MFB's system. Training and capacity-building programs for borrowers and for loan officers must be arranged regularly.

4. Regulators (SBP and SECP) must promote positive competition among MFBs to promote a healthy business environment. The healthy competition shall lead to better outreach and this better outreach shall lead to the economic uplifting of the impoverished segment.

5. MFBs must relax their lending procedures, loan tenure, lending rate, and collection process so that economically distressed segments of society may not feel social distress.

6. For this, governments must launch a special package for MFBs and lend them at zero interest rate or at least on subsidized rates with a condition to increase the outreach. Such a strategy shall be far better than the government's cash-dole-out, income support, and rural development programs.

7. MFBs are unable to serve Extremely and Chronic Poor. MFBs must focus on this segment of society.

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Appendix-A

عمومی معلومات:

1۔ جنس/(آپ کا جنس؟) ☐ مرد ☐ عورت	2۔ علاقہ/(آپ کے علاقے کا نام؟) _____	☐ شہری ☐ دیہاتی
3۔ عمر/آپ کی عمر؟ ☐ 25 برس سے کم ☐ 25 سے 40 برس ☐ 40 برس سے زیادہ		
4۔ ازدواجی حیثیت؟ ☐ غیر شادی شدہ ☐ شادی شدہ ☐ طلاق یافتہ ☐ بیوہ		
5۔ آپ کے بچوں کی تعداد؟ _____	6۔ سکول جانے والے بچوں کی تعداد؟ _____ ☐	
7۔ آپ کے گھرانہ/ کنبے کے افراد کی تعداد؟ ☐ 3 افراد سے کم ☐ 3-6 افراد ☐ 6 سے زیادہ افراد	8۔ آپ کی تعلیمی تحصیلات/ قابلیت/ تعلیم؟ ☐ ابتدائی/بنیادی تعلیم ☐ مڈل/وسطی تعلیم ☐ میٹرک/ہم پلہ ☐ انٹرمیڈیٹ/ثانوی ☐ گریجویشن ☐ دیگر _____	
9۔ MFI سے قرضہ کے حصول سے پہلے کاروباری تجربہ؟ ☐ ہاں ☐ نہیں		
10۔ گھر میں کل کمانے والوں کی تعداد _____	11۔ قرضہ سے پہلے آپ کی ماہانہ آمدن؟ _____	
12۔ آپ کے ابتدائی سرمایہ کا ذریعہ؟ ☐ ذاتی بچت ☐ دوست/اقارب سے قرض ☐ MFIs سے قرضہ ☐ دیگر _____		
13۔ MFIs سے لیئے گئے قرض کی مقدار (پاکستانی روپے میں) ☐ 20,000 سے کم ☐ 20,000 اور 40,000 کے درمیان ☐ 40,000 سے زیادہ ☐ دیگر _____		
14۔ گھرانے کی بنیادی آمدنی کا ذریعہ؟ ☐ مزدوری ☐ پنشن/سماجی امداد ☐ کاروبار/زراعت ☐ دیگر _____		

قرضے کا مصرف/استعمال

مائیکروفائنانس ادارے کا نام _____

1۔ مائیکروفنانس کی سکیم کے تحت کتنی دفعہ قرضہ منظور کیا گیا ہے؟ ☐ ایک دفعہ ☐ دو دفعہ ☐ تین دفعہ ☐ تین دفعہ سے زیادہ		
2۔ پہلی دفعہ آپ کی موصول شدہ رقم؟ _____	3۔ آج تک قرضہ کی کل رقم؟ _____	4۔ قرضے پر شرح سود؟ _____
5۔ قرضے کی رقم کی کس مد میں سرمایہ کاری کی گئی ☐ پیداواری سامان ☐ ذرائع آمدورفت کی سہولت ☐ صحت کی سہولت پر خرچہ ☐ تعلیمی اخراجات ☐ زمین کی خریداری (or Business Asset) ☐ دیگر اخراجات		
6۔ قرضے نے آپ کے کاروبار پر کیسا اثر ڈالا (اثرات مرتب کیے)؟ ☐ اچھا ☐ بہت اچھا ☐ کوئی اثرات نہیں ☐ برا ☐ بہت برا		
7۔ قرضہ کے حصول کے بعد ماہانہ آمدن میں تبدیلی؟ ☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی	8۔ آپ کی موجودہ آمدن؟ _____	
9۔ کیا آپ نے کوئی کمیٹی پروگرام میں حصہ لے رکھا ہے؟ ☐ ہاں ☐ نہیں	ماہانہ شراکتی رقم کتنی؟ _____	
10۔ گزشتہ سال کے مقابلے میں آپکی خوراک میں کیا تبدیلی آئی؟ ☐ بہت بہتر ہوئی ☐ کچھ بہتر ہوئی ☐ کوئی تبدیلی نہیں آئی ☐ کچھ خراب ہوگی ☐ بہت خراب ہوگی		
11۔ آپکی سماجی شناخت (حیثیت/عزت) میں اضافہ ہوا ہے؟ ☐ ہاں ☐ نہیں		

	2017	قرضہ کی وصولی سے قبل
1۔ گھر کی ملکیت کا جائزہ: مالیت (گزشتہ 2017)	1۔ متنازع زمین پر گھر کی تعمیر 2۔ ذاتی گھر 3۔ کرائے کا گھر 4۔ حکومت کی طرف سے دیا گیا گھر 5۔ دیگر _____	1۔ متنازع زمین پر گھر کی تعمیر 2۔ ذاتی گھر 3۔ کرائے کا گھر 4۔ حکومت کی طرف سے دیا گیا گھر 5۔ دیگر _____
2۔ گھر کی چھت میں استعمال شدہ اشیاء	1۔ عارضی چھت (ترپال، گھاس پھوس اور لکڑی) 2۔ پلاسٹک شیٹس 3۔ کنکریٹ (پکی چھت) 4۔ T-Iron کی (بیل والی) چھت 5۔ دیگر _____	1۔ عارضی چھت (ترپال، گھاس پھوس اور لکڑی) 2۔ پلاسٹک شیٹس 3۔ کنکریٹ (پکی چھت) 4۔ T-Iron کی (بیل والی) چھت 5۔ دیگر _____
2(ا)۔ آپکے گھر کا فرش کیسا ہے؟ (کس چیز کا بنا ہوا ہے؟)	1۔ مٹی/گارے کا 3۔ سیمنٹ کا پکا فرش 2۔ اینٹ کا 4۔ دیگر _____	1۔ مٹی/گارے کا 3۔ سیمنٹ کا پکا فرش 2۔ اینٹ کا 4۔ دیگر _____
3۔ گھر کی مجموعی حالت	1۔ شدید خستہ حال 2۔ شدید مرمت کی ضرورت 3۔ مرمت کی ضرورت 4۔ درمیانی/اچھا/پختہ 5۔ عمدہ/اچھا/پختہ (عمدہ/مضبوط)	1۔ شدید خستہ حال 2۔ شدید مرمت کی ضرورت 3۔ مرمت کی ضرورت 4۔ درمیانی/اچھا/پختہ 5۔ عمدہ/اچھا/پختہ (عمدہ/مضبوط)
4۔ بجلی کی ترسیل — سالانہ بل کی کُل رقم کتنی ہے _____	☐ کنکشن نہیں ہے ☐ اپنا کنکشن ☐ حصہ دار کنکشن	☐ کنکشن نہیں ہے ☐ اپنا کنکشن ☐ حصہ دار کنکشن
5۔ بچوں کی تعداد (سترہ برس سے کم عمر)		
6۔ سکول جانے والے بچوں کی تعداد		
7۔ سکول میں فیس کی مد میں اخراجات/رقم (سالانہ)		
8۔ گھر میں موجود سامان کی کُل مالیت (تمام اثاثہ جات)		

9- گھریلو استعمال کی اشیاء و دیگر اثاثہ جات	کُل مالیت (Estimated)	2017	قرضہ کی وصولی سے قبل
مویشی	poultry _____ cattle _____		
فریج ★			
موٹر سائیکل ★			
ٹریکٹر، ٹرالی، گدھا گاڑی ★★			
واشنگ مشین			
سلائی مشین			
ٹی وی ★			
بیڈ گدے کے ساتھ			
موبائل فون ★			
سی ڈی/ڈی وی ڈی/ڈش ★			
دیگر _____			
10- کھانا پکانے کے لیے ایندھن		2017	قرضہ کی وصولی سے قبل
گوبر			
لکڑیاں (اکھٹی کی گئی لکڑیاں)			
لکڑیاں (خریدی ہوئی لکڑیاں)			
مٹی کا تیل/گیس			
11- آپ کے پینے کا صاف پانی کا کیا ذریعہ ہے؟		2017	قرضہ کی وصولی سے قبل
دریا/نہر/تالاب/بارشی پانی			
پبلک سپاٹ/ کنویں کا پانی			
ذاتی بور/ کنویں کا پانی			
پائپوں سے ترسیل کیا گیا سرکاری پانی			
12- آپ عام طور پر سال میں کپڑوں پر (فی کس) کتنا خرچ کرتے ہیں؟			

13- کیا آپ صحت اور ادویات پر مناسب سطح کے اخراجات برداشت کرنے کی صلاحیت رکھتے ہیں؟ ☐ ہاں ☐ نہیں

13-(a) گزشتہ 2 سال میں اس صلاحیت میں کیا تبدیلی آئی؟ ☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی

14- گھر میں ذاتی غسل خانہ ہے؟ ☐ ہاں ☐ نہیں | 15- گھریلو سینیٹری فضلہ کی نکاسی کا کیا انتظام ہے؟ ☐ کوئی سیوریج سسٹم نہیں ☐ ذاتی غرقی ☐ گورنمنٹ سیوریج سسٹم

16- کیا گذشتہ 5 سال میں آپکا کوئی بچہ فوت ہوا ہے؟ ☐ ہاں ☐ نہیں وجہ کیا تھی؟ _____

گزشتہ 2 سال میں کیا آپ نے مندرجہ ذیل میں سے اپنے کاروبار میں کوئی تبدیلی کی؟

کاروباری سرگرمی میں پھیلاؤ/اضافہ	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
نئی اشیاء/مصنوعات کا اجراء/آغاز (نئی اشیاء/مصنوعات بنائی گئی)	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
افرادی قوت میں اضافہ کیا گیا	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
اشیاء کے معیار میں بہتری لائی گئی	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
آپکے کاروبار کے منافع کی بڑھوتری (Growth) ہوئی؟	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
نئی مشینری کرائے پر لی گئی (اخراجات/لاگت میں کمی کے لیے پروسسنگ پلانٹ)	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
کیا آپ کے کاروبار کی پیداواری شرح میں اضافہ ہوا؟ (پیداواری صلاحیت میں اضافہ)	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟
انونٹری مینجمنٹ/سٹاک مینجمنٹ بہتر بنائی گئی	ہاں	نہیں	معلوم نہیں	اگر جواب ہاں ہے تو کتنی؟

عورتوں کے اختیارات (گھریلو معاملات پر فیصلہ کرنے کا اختیار/حق)

نیچے دیئے گئے ٹیبل کے نمبرز کسی بھی فرد یا عورت کے مائیکرو فائنینس ادارے سے حاصل کیے گئے قرضہ پر تسلی کا معیار یا رضامندی کا معیار (1-7 کے پیمانے پر) ظاہر کرتے ہیں۔

	1	2	3	4	5	6	7	
	مکمل اختلافِ رائے	معمولی اختلافِ رائے	کسی حد تک اختلافِ رائے	نا اختلافِ رائے نا اتفاق	معمولی حد تک اتفاق	کسی حد تک اتفاق	مکمل اتفاقِ رائے	
گھریلو فیصلے	1	2	3	4	5	6	7	1۔ آپ کے گھر کی مرمت، تراش خراش، تعمیر یا خرید نے کے مختلف پہلوؤں کے فیصلے میں شامل ہوتے ہیں۔
	1	2	3	4	5	6	7	2۔ آپ گھریلو جانوروں (مال مویشی) کی خرید وفروخت کے بارے میں فیصلہ کرتے ہیں۔
	1	2	3	4	5	6	7	3۔ آپ پیسے ادھار لینے کے معاملات میں حصہ لیتے ہیں۔
	1	2	3	4	5	6	7	4۔ آپ کو گھر میں کھانا تیار کرنے اور پیش کرنے کا حق انتخاب ہے۔
	1	2	3	4	5	6	7	5۔ آپ اپنے بچوں، خاندان اور اپنی غذائی ضروریات پوری کرنے کی صلاحیت رکھتے ہیں۔
آمدن اور اخراجات	1	2	3	4	5	6	7	6۔ آپ خاندان کے لیے ملبوسات خریدتے ہیں۔
	1	2	3	4	5	6	7	7۔ آپ اپنے خاندان کے لیے افادیت کی چیزیں خریدتے ہیں۔
	1	2	3	4	5	6	7	8۔ آپ نے جو رقم ادھار لی ہے اسے خرچ کرتے ہیں۔
	1	2	3	4	5	6	7	9۔ آپ ادھار لی ہوئی رقم کو واپس کرتے ہیں۔
	1	2	3	4	5	6	7	10۔ آپ اپنے گھریلو سامان کے لین دین کے فیصلے میں حصہ لیتے ہیں۔
	1	2	3	4	5	6	7	11۔ آپ کی اپنی آمدنی ہے (آپ خود کفیل ہیں) (گھر کے سربراہ کے علاوہ)
	1	2	3	4	5	6	7	12۔ آپ اپنے خاندان پر اپنی آمدنی سے خرچ کرتے ہیں۔
	1	2	3	4	5	6	7	13۔ آپ اپنے خاوند یا خاندان کی آمدنی میں سے باقاعدگی سے حصہ شامل کرتے ہیں۔
	1	2	3	4	5	6	7	14۔ آپ کا خاوند خاندان پر خرچ کرتے ہوئے آپ سے رائے لیتا ہے۔
اثاثہ جات کی ملکیت و عمل	1	2	3	4	5	6	7	15۔ آپ گھریلو اثاثہ جات پر ملکیت اور کنٹرول رکھتی ہیں۔
	1	2	3	4	5	6	7	16۔ آپ اپنا ذاتی بینک اکاؤنٹ رکھتی ہیں۔
	1	2	3	4	5	6	7	17۔ آپ اپنے گھر کے اثاثہ جات کو تبدیل، بیچ یا گروی رکھ سکتی ہیں۔
	1	2	3	4	5	6	7	18۔ آپ اپنی ذاتی زمین بھی رکھتے ہیں۔ (زرعی فارم یا کچھ اور)
	1	2	3	4	5	6	7	19۔ جس گھر میں آپ قیام پذیر ہیں وہ آپ کے نام پر رجسٹرڈ ہے۔
تعلیم	1	2	3	4	5	6	7	20۔ آپ بچوں کی تعلیمی معاملات میں فیصلہ کرتے ہیں۔
	1	2	3	4	5	6	7	21۔ آپ بچوں کے تعلیمی اخراجات پر خرچ کی جانے والی رقم پر فیصلے کی آزادی رکھتی ہیں۔
صحت	1	2	3	4	5	6	7	22۔ آپ بچوں کی تعداد اور ان کے درمیان وقفہ کا فیصلہ کرسکتی ہیں۔
	1	2	3	4	5	6	7	23۔ آپ اپنے خاندان کے افراد کی بیماری یا اپنی بیماری کے علاج کا فیصلہ کرسکتی ہیں۔
	1	2	3	4	5	6	7	24۔ آپ کے شوہر بچوں کے صحت کے مسائل سے متعلق بات چیت کرتے ہیں۔
سماجی پہلو	1	2	3	4	5	6	7	25۔ آپ بغیر اجازت کے اپنے رشتے داروں سے مل سکتی ہیں۔
	1	2	3	4	5	6	7	26۔ آپکو گھر میں آزادی انتخاب حاصل ہے۔
	1	2	3	4	5	6	7	27۔ آپ بچوں کی شادی کے فیصلے کرسکتی ہیں۔
	1	2	3	4	5	6	7	28۔ آپکی سیاسی جماعتوں سے وابستگی ہے۔
	1	2	3	4	5	6	7	29۔ آپکو ووٹ دینے اور دوسرے جمہوری کاموں میں حصہ لینے کی آزادی ہے۔
	1	2	3	4	5	6	7	30۔ آپ کو این جی اوز کی میٹنگ میں حصہ لینے آزادی ہے۔ (آپکے علاقے میں دوسرے سماجی واقعات میں)

20- آپکے خوراک میں مندرجہ ذیل اشیاء کس تناسب سے استعمال ہوتی ہیں

	روزانہ	ہفتہ وار	ماہوار	سہہ ماہی	سالانہ	گزشتہ 2 سال میں کیا تبدیلی آئی؟
دال						☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی
سبزی						☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی
مرغی کا گوشت						☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی
گائے کا گوشت						☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی
بکرے کا گوشت						☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی
مچھلی کا گوشت						☐ اضافہ ☐ کوئی تبدیلی نہیں ☐ کمی ہوگی

20- پچھلے دو سال میں کیا آپکی روزمرہ خوراک کی مقدار میں بہتری آئی ہے؟	☐ ہاں	☐ نہیں
21- پچھلے دو سال میں کیا آپکی خوراک کے معیار میں بہتری آئی ہے؟	☐ ہاں	☐ نہیں