



Microfinance for Achieving Sustainable Development Goals: The Impact of Smaller Loans for Livestock Production and Socio-Economic Uplift of Small Farmers in Rural Sindh

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ABSTRACT

This study examines the role of small loans provided by microfinance institutions in promoting livestock development in rural Sindh, Pakistan. Using a random sampling method, participants included small farmers receiving loans ranging from PKR 50,000 to 500,000 from various microfinance providers. These loans, offered individually or in groups without physical collateral, aimed to support livestock rearing and related businesses in the rural areas of Sindh. The study explores the relationship between microcredit access, livestock productivity, and income generation among rural households. Findings of this study reveal a significant positive impact of microfinance on livestock production, household income, and economic stability. By empowering rural farmers and enabling sustainable livelihoods, microfinance contributes directly to the achievement of SDG 1 (No Poverty) and SDG 2 (Zero Hunger) by emphasizing the potential of microfinance as a tool for poverty alleviation, food security, and sustainable rural development. The study highlights the importance of inclusive financial systems in advancing rural development and strengthening Pakistan's agricultural economy.

Introduction

Lack of credit facilities is the main reason behind the backwardness of the rural economy and the persistence of poverty. Households in rural areas face severe difficulties in improving livestock and crop production. The livestock sector in Pakistan is the backbone of the rural population. Due to unavailability or limited access to credit, livestock-rearing and milk-selling households face

several constraints and problems (IFAD, 2011; Irfan et al., 1999). The increased portfolio figures of the microfinance sector in the last two decades show the maximum outreach of institutions. Data on the expanding portfolio of the microfinance sector over the past two decades show that the reach of institutions has increased significantly, along with the government's post-1990 efforts to eradicate poverty and promote rural agriculture. Several projects were launched. However, there is no comprehensive research on the relationship between microcredit and agricultural or livestock development in rural households in Pakistan. Only annual reports are available, but they have not received enough attention from academic and research circles (Imaduddin, 2002; Naseem, 2012). The role of microcredit in developing the livestock sector in rural Sindh and improving the quality of life of poor livestock keepers has been examined in depth.

Microfinance has emerged as a significant tool for enhancing livestock development among rural households in Sindh, Pakistan. Access to small-scale financial services enables farmers to invest in livestock assets, purchase quality feed, adopt improved breeding practices, and access veterinary care, all of which contribute to higher productivity and income stability. Microfinance plays a pivotal role in promoting livestock improvement and rural development in Sindh, Pakistan, directly contributing to the achievement of several United Nations Sustainable Development Goals (Lakhani et al., 2023). By providing accessible financial services to smallholder farmers, microfinance enables investment in improved livestock breeds, quality feed, veterinary services, and better housing facilities, leading to enhanced productivity, income generation, and food security. These outcomes are closely linked to SDG 1 (No Poverty) and SDG 2 (Zero Hunger), as they help rural households increase their earnings and nutritional intake. Furthermore, by empowering women, who are often primary caregivers of livestock, microfinance supports SDG 5 (Gender Equality), promoting their participation in economic activities and decision-making. The expansion of sustainable livestock practices also aligns with SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Consumption and Production), fostering inclusive rural economies and sustainable agricultural systems. Therefore, microfinance acts as a transformative instrument that not only enhances livestock productivity but also accelerates progress toward multiple SDGs (Kolley, 2020; Rota & Urbani, 2021). In this context, this study has been designed in the rural settings of the Sindh province in Pakistan to explore the role of microfinance in livestock improvement and poverty reduction.

Research Objectives

This study aims to explore the role of microfinance in livestock production and poverty reduction in the rural areas of Sindh province in Pakistan. The other specific objectives are to analyze the production of livestock and its relationship with annual income of the small livestock farmers in the study area including the extent to which micro loans and the usage for livestock development and poverty reduction.

Literature Review

Microcredit was unknown before the 1970s, but today it has become a well-known term among development experts and researchers. In the past, it was considered limited to providing small loans to the poor with low income. In modern times, the scope of microfinance has broadened, and it is now used for a variety of financial services, such as payments, savings, and insurance, which are tailored specifically to the needs of low-income individuals. People living below the poverty line need a variety of financial services to run their businesses, build assets, meet daily needs, and deal with unexpected challenges (CGAP, 2013). In rural society, microfinance plays an important

role in achieving sustainable employment by enhancing the capabilities of the rural poor. It provides financial resources for investment in core economic sectors such as agriculture, livestock rearing, and small businesses. Microfinance provides essential inputs to agriculture and helps increase productivity. It also provides funds for livestock production and working capital for small and micro businesses of the rural poor. Microfinance services help the rural poor to increase their incomes and build assets (PMN, 2014).

The development of the microfinance sector in Pakistan accelerated after 2000 because of government interest and the establishment of the Pakistan Poverty Alleviation Fund (PPAF). PPAF has taken important steps for the development of this sector and poverty alleviation by providing financial support to microfinance programs. The Government of Pakistan introduced the Microfinance Sector Development Program (MSDP) to strengthen the microfinance industry and promote it as a strategy for poverty alleviation. Khushhalibank (KB) was established in August 2000 as part of Pakistan's Poverty Reduction Strategy, and the Microfinance Sector Development Fund (MSDF) in collaboration with the Asian Development Bank (2008) to support the microfinance sector. In 2001, the government issued the Microfinance Ordinance, which established new microfinance banks to provide financial services to low-income people (Montgomery, 2005; Setboonsarng & Ziyodullo, 2008).

Microfinance institutions in Sindh have been active in rural and urban areas since the 1990s. Orangi Pilot Project (OPP) and National Rural Support Program (NRSP) established by Akhtar Hameed Khan were working as initial initiatives in selected districts of the province. NRSP started its activities in the Mirpur Khas district in 1993 and distributed millions of rupees to the community there. Khushhalibank has been active in rural areas since 2000 and has a wide portfolio, especially for agriculture and livestock business. Microfinance is considered to provide immediate relief to the farming community and is an effective tool to improve the quality of life of the poor population (Khan, 2009).

Microfinance proves to be very important and valuable for the rural poor. It helps reduce hunger by increasing the production of food crops and dairy cattle. Thanks to microfinance, poor people can continue to raise livestock and sell them in the market, besides getting milk and other products for their consumption. Microfinance provided seeds and fertilizers to poor farmers and tenants, allowing them to store grain for their families' needs and sell surplus produce in the market for a profit (UN, 2011, Guriro & Pathan 2015). About 30 to 35 million rural people in Pakistan are engaged in livestock farming, where each household has an average of 2 to 3 cattle or buffaloes and 5 to 6 sheep or goats. 30 to 40 percent of the total income of a rural household comes from cattle farming and extensive milk production in the country (GOP, 2013).

Furthermore, there is need for farmers' awareness regarding the access and availability of these services and media can play an important role for the agriculture development. Very few efforts have been made in Pakistan for agricultural development in Pakistan by using media for disseminating new ideas amongst the farmers despite agriculture being the backbone of the country's economy. Agriculture is nearly 30 per cent of country's economy. 70 percent of the rural labour force is employed in this sector. From the very beginning agriculture has been playing a pivotal role in supporting the country economically. Sadly, this sector has been largely neglected by successive governments. Due to negligence, Pakistan's agriculture sector has not been able to develop like other developed countries which have revolutionized their agriculture sector through technological development and updated modes of irrigation (Faruqee, 1995). To bring agricultural development, it is very important to educate the peasants to new ways of farming particularly

helping them sow those seeds that are productive, new machinery, fertilizers and insecticides and etc. There are multiple examples around where the media has been used for improvement of the livelihoods of the rural people. A number of examples have been quoted above. The lack of information has been one of the main reasons being the hurdle in livestock and agricultural development in Pakistan, due to which production and income have not increased. With the provision of relevant information in rural areas while focusing the livestock and agriculture sector can increase productivity significantly (Abid et al., 2015).

A study conducted in KPK in order to see the efficacy of electronic media among the farmers. The researchers took 183 respondents by using random sampling technique. The results of the study showed that most of the farmers favored information being shared through mobile phones and internet (Aldosari et al., 2019).

Another study was conducted by Shazia Shahab, Ali Hassan, and Yasmeen Sultana in Hyderabad district which looked into the role of the media in disseminating information with regard to agriculture. The researchers took three areas in Hyderabad where most of the people were engaged in labour. The sample of the study was 180. The researchers found that media was playing a very crucial role in disseminating information among farmers. In this paper researchers found that print media was the most favorable means of information (Shaikh et al., 2020). Ghazanfar Ali Khan, Sher Muhammad, Khalid Mahmood Chaudhry and Muhammad Aslam Khan carried out a study in Faisalabad, Punjab in which they tried to find out how the farmers use the electronic media for different purposes. A total of 330 farmers were randomly selected. The results of the study depicted that farmers preferred TV and mobiles. The radio and newspapers were least prepared by the farmers (Khan et al., 2012). It was observed that through the services of a major microfinance bank like Khushhalibank, the income of poor households increased significantly, and their poverty was reduced. People involved in Khushhalibank microfinance program were supplementing their income by rearing and producing livestock (Morvant-Roux, 2008; Setboon et al., 2008).

Microfinance plays an important role in stabilizing rural household businesses, as it provides essential capital for agriculture, livestock, and small businesses. Agriculture is the primary livelihood for most rural areas in Pakistan, with 40 percent of rural households deriving their income from agriculture. The livestock sector also contributes significantly to the economy, with commercial rearing of animals, sales of milk, and supply of poultry products being major sources of income. In addition, small businesses such as confectionery, fruit and vegetable shops are also an important source of income for rural households (PMN, 2014). Livestock is an important sector of agriculture and the backbone of our economy. Their by-products, such as hides and leather, have immense potential as semi-finished goods. Production of livestock products, such as milk, meat, beef, mutton, poultry, and eggs, has increased significantly. Most farmers traditionally keep a few livestock, including bulls for plowing, buffalo or cows for milk, and chickens for eggs and meat. Increasing the number of livestock and selling their products has become indispensable to increase income. In many areas of Sindh, there is a growing tendency to prioritize production for the market over domestic consumption. Organized livestock farming in urban areas, such as cattle farms (colonies) and poultry farms, is prominently established, exemplifying growth in this sector.

In 2013, more than 500 branches and centers of various microfinance institutions were active in Sindh province. As of the end of March 2013, the microfinance credit portfolio in Sindh included 5,83,491 active clients, with a total portfolio of Rs 10,091 million. In the savings sector, there were 15,94,861 active savers, who saved Rs 11,684 million in their accounts. In addition, 5,71,379 people received micro-insurance from various microfinance providers, with a total sum insured of

Rs 5,280 million (PMN 2014). Around 28 centers of various microfinance institutions are active in Mirpur Khas district, including Khushhalibank (KBL), First Microfinance Bank (FMFB), Tamir Microfinance Bank (TMFB), ASA Pakistan, National Rural Support Program (NRSP) and Thardeep Rural Development Program. (TRDP) included. The total microfinance loan portfolio in the region is Rs 433 million, while the total savings volume is Rs 90 million. The total microfinance loan portfolio in the region is Rs 433 million, while the total savings volume is Rs 90 million. In addition, 23,571 people benefited from the insurance facility (PMN 2014). Microfinance has provided an important opportunity for poor livestock keepers in rural Sindh to increase their income by increasing their livestock production and improving their economic status through microfinance. Microfinance has emerged as a critical tool for poverty alleviation and economic empowerment in rural Pakistan, particularly in supporting agriculture and livestock sectors, which are vital to the livelihoods of millions. Recent studies highlight how microfinance institutions (MFIs) have expanded their services beyond credit to include savings, insurance, and financial literacy programs addressing the diverse needs of low-income households. Additionally, the role of media in disseminating agricultural knowledge has gained attention as a complementary strategy to enhance the impact of microfinance. This review synthesizes findings from recent literature (2015–2025) to explore the evolving role of microfinance and media in fostering sustainable rural development in Pakistan.

Microfinance continues to play a pivotal role in enabling rural households to access financial resources for agricultural and livestock activities. A study by Ahmed and colleagues (2017) explored the impact of microfinance on rural entrepreneurship in Punjab, finding that access to microloans significantly increased investment in small-scale agricultural ventures, such as seed purchases and irrigation improvements. The authors noted that households with access to microfinance reported a 25% increase in crop yields due to timely access to inputs, which directly improved their income and food security. This aligns with the broader narrative that microfinance acts as a catalyst for rural productivity by providing capital where traditional banking services are scarce. Similarly, a study by Rehman et al. (2019) examined the role of microfinance in livestock development in Sindh. The researchers found that microloans enabled small-scale farmers to purchase high-quality breeds and fodder, leading to a 15–20% increase in milk production and sales. The study emphasized that MFIs like Khushhalibank and the National Rural Support Program (NRSP) tailored their loan products to the seasonal needs of livestock farmers, ensuring repayment flexibility. This adaptability made microfinance particularly effective for rural households reliant on livestock as a primary income source. However, the authors highlighted a challenge: limited awareness of microfinance services in remote areas, which underscores the need for better outreach. The integration of media in disseminating agricultural knowledge has been recognized as a vital strategy to complement microfinance efforts. A study by Iqbal and Nawaz (2018) investigated the impact of mobile-based agricultural extension services in Khyber Pakhtunkhwa. The researchers found that farmers who received SMS-based advisories on crop management and market prices increased their productivity by 18% compared to those without access. The study emphasized that mobile phones, being widely accessible even in rural areas, serve as an effective tool for delivering timely information. This is particularly relevant for microfinance clients who need guidance optimizing their investments in agriculture and livestock.

Another study by Siddiqui et al. (2021) explored the role of television and radio in promoting sustainable farming practices in Punjab. The researchers surveyed 250 farmers and found that those exposed to agricultural programs on TV were more likely to adopt modern techniques, such as drip irrigation and organic fertilizers, which enhanced their crop yields by up to 22%. The study highlighted that media campaigns, when aligned with microfinance initiatives, amplify their

impact by equipping farmers with the knowledge to make informed decisions. However, the authors noted that rural women, who often play a significant role in livestock and small-scale farming, were less likely to access these media resources due to cultural and logistical barriers, suggesting a need for gender-inclusive strategies. Despite the successes, recent literature points to challenges in scaling microfinance and media interventions. A study by Khan and Ali (2020) highlighted that high interest rates and stringent repayment schedules of some MFIs deterred rural households from accessing loans. The authors recommended that MFIs adopt more flexible loan products tailored to the irregular income patterns of farmers and livestock keepers. Additionally, they stressed the importance of financial literacy programs to help clients manage loans effectively, which could further enhance the impact of microfinance on rural livelihoods. On the media front, a study by Fatima and Rehman (2023) examined the barriers to effective information dissemination in rural Sindh. The researchers found that limited internet connectivity and low literacy levels hindered the adoption of digital media platforms among farmers. They suggested that community-based radio programs and local language content could bridge this gap, particularly for microfinance clients who need practical advice on agricultural innovations. The study also underscored the potential of combining microfinance with media-driven extension services to create a holistic approach to rural development. In this scenario the access to microfinance can be enhanced through the development of communication tools and techniques for further development in livestock business in rural areas of Sindh.

The literature from the past decade highlights the transformative potential of microfinance in supporting agriculture and livestock sectors in rural Pakistan. By providing access to credit, savings, and insurance, MFIs empower low-income households to invest in productive activities and build resilience against economic shocks. Concurrently, media platforms, particularly mobile phones and television, play a crucial role in disseminating agricultural knowledge, enabling farmers to maximize the benefits of microfinance. However, challenges such as limited awareness, high interest rates, and barriers to media access must be addressed to ensure inclusive and sustainable development. Future interventions should focus on integrating microfinance with targeted media campaigns and financial literacy programs to enhance their impact on rural livelihoods.

Methodology

This study employed a quantitative research design to examine the role of microfinance lending in livestock development among rural households. The research aimed to analyze the relationship between microfinance loans and the performance of livestock businesses in the study area, and to test the hypothesis that microfinance has a significant impact on livestock development.

The target population consisted of small livestock farmers residing in rural areas of Sindh, Pakistan. A total of 350 respondents were selected as the study sample. Participants were chosen through random sampling to ensure representation of various villages and farming backgrounds within the region (Burns, 2000).

Primary data were collected through a structured survey questionnaire designed to gather information on farmers' socio-economic characteristics, access to microfinance services, loan utilization patterns, and livestock production indicators. The questionnaire included both closed-ended and Likert-scale questions to quantify responses. Data collection was conducted through face-to-face interviews to ensure clarity and accuracy of responses, considering varying literacy levels among respondents.

The collected data was first subjected to descriptive analysis to summarize key demographic characteristics of the respondents and to describe patterns of microfinance usage and livestock development indicators. Descriptive statistics such as frequencies, means, and percentages were computed.

To test the study hypothesis regarding the relationship between microfinance and livestock development, regression analysis was performed. Statistical analysis was carried out using SPSS version 20.

Participation in the study was voluntary, and all respondents were informed about the purpose of the research. Confidentiality of participants' information was strictly maintained, and data was used solely for academic purposes.

Results and Discussion

Data were analyzed into two phases, first it was analyzed descriptively and then the hypotheses were tested.

Source of Income

Previous studies established the agriculture, livestock and small village enterprises as the major sources of income in the rural areas of Sindh province of Pakistan (Guriro et al., 2014). Table 1 presents the results of the analysis of major sources of income in the study sample of 350 participants. It revealed that 149 participants (42.6 percent) have income from agricultural farming, 117 participants (33.4 percent) have income from livestock business, and 66 participants (18.9 percent) have income from both sources i.e. agriculture and cattle business. In addition, 18 participants (5 percent) have income from other sources such as small and medium rural businesses and services.

Table 1: Income Sources of the Study Participants

Source of Income	Number of Respondents (N=350)	Percentage
Pure Agriculture Farming	149	42.6
Pure Livestock	117	33.4
Agriculture and Livestock	66	18.9
Other Sources	18	5

Most of the borrowers used the loans for agricultural and livestock purposes, however, in some cases, it was also observed that the borrowers used the loans for both agricultural and livestock purposes at the same time.

Income and Expenditure of Livestock Farmers

The majority of the population in the rural villages of the study area were engaged in agricultural farming and livestock-rearing businesses. Study participants were getting a minimum of 10,000 to 450,000 annual income from the business of livestock in the study area. Their total income from all sources was from a minimum of 38,000 to 1200,000. The mean income of the cattle business was recorded as PKR 151,071, with a standard deviation of 215,668. Expenditures in the livestock

business of the participants ranged from PKR 5,000 to PKR 250,000, and the average expenditure was PKR 61,142.86 as compared to a maximum total expense of 650,0000.

Table 2: Annual Income and Annual Expenditure of Study Participants (N=350)

Income/Expenditure in PKR	Minimum	Maximum	Mean	Standard deviation
Livestock Income	10,000	450,000	151071.43	215668.264
Livestock expenses	5,000	250,000	61142.86	49527.882
Total Income from all sources	38,000	1,200,000	139850.00	90106.692
Total expenses of all businesses	10,000	650,000	127454.29	81490.182

Impact of Microcredit on Livestock Production

To assess the impact of microcredit on livestock production in rural households in the study area, the multinomial linear regression model was applied based on the outcome variable of interest and independent variables such as debt, individual characteristics, and other household characteristics.

The equation for the model is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Y is the dependent variable of livestock production, β_0 is the intercept, X_1 is livestock loan (Yes/No), X_2 is the loan amount, X_3 is age, X_4 is family size, and e is the Residual error (unexplained variation).

Table 3: Model Summary of Multiple Linear Regression Model

R	R - Square	Adjusted R-Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. Change	F
.829	.687	.683	2.090	.687	189.290	4	345	.000	

Predictors: (Constant), Family Size, Age, Loan Amount, livestock loan (Yes or No)

Table 3 summarizes the multivariate regression model. The value of R is 0.829 and the R square is 0.687, which indicates that the other independent variables of the model explain 68% of the variation in the dependent variable of livestock production explained by other independent variables of the model. The ANOVA results in Table 4 have an F value of 189.290, which shows the significance of the model.

Table 4: ANOVA Multiple Linear Regression Model

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3307.759	4	826.940	189.290	.000
Residual	1507.181	345	4.369		
Total	4814.940	349			

Predictors: (Constant), Family Size, Age, Loan Amount, livestock loan (Yes or No) Dependent Variable: Nos. of livestock

Table 5 shows multiple linear regression analysis results of the relationship of microloans with the number of livestock in participant households. The results revealed that the availability of livestock loan and loan amount are highly significant (p-value: <0.001) with the dependent variable of showing livestock production. The other factors of age and family size had no association with the dependent variable as both were insignificant in the model.

Table 5: Coefficients in Multiple Linear Regression Model

Model-I	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.743	.601		1.237	.217
livestock loan	1.210	.247	.152	4.902	.000
Loan Amount	.001	.001	.791	25.650	.000
Age	.007	.013	.016	.531	.596
Family Size	.059	.052	.034	1.127	.261

Dependent Variable: Number of Livestock

Conclusion and Recommendations

The analysis of this research revealed that access to financial resources is a fundamental problem for the advancement of agriculture in rural areas. Microfinance has been found to have a strong relationship with increased agricultural production and income. Microfinance services are available to low-income farmers and tenants to increase agricultural production by purchasing inputs for their crops. This research shows that microcredit has a positive relationship with livestock breeding and development by identifying the significant impacts of microfinance lending on the number of livestock in the area. In the light of findings, this study suggests enhancing the current loan size and introducing the more livestock loan products favorable with existing market conditions in the rural areas for the betterment of small poor farmers.

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