

Impact of Microfinance on Fertilizer Use in the Ayeyarwady Region, Myanmar

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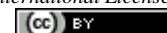
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Abstract

This research aims to analyze the impact of microfinance on fertilizer use and the amount of loan in the Ayeyarwady area, Myanmar. This study uses a quantitative technique as an analytical approach, utilizing data from a farmers' household survey conducted in 2015 as secondary data. Secondary data from a village tract in Myanmar's Ayeyarwady area. The overall frequency of gender of the household, education level of the household, age of the household, percentages of loan amount from each family, and average cost of usage per acre are all survey data used in this study. The outcome revealed the microfinance institution, as well as the overall proportion of demographic respondents from the Ayeyarwady area. An assessment into how the money was utilized in agricultural output, on the other hand, revealed that the respondents from credit beneficial used at all of the loan for agricultural purpose. The findings of this study must reveal the impact of microfinance on fertilizer use, as well as the strengths and shortcomings of microfinance. The results indicated the microfinance institution as well as the general proportion of demographic respondents from Ayeyarwady. An examination of how the money was used in agricultural production, on the other hand, found that credit advantageous respondents used at all of the loan for agricultural purposes. This study's findings must indicate the impact of microfinance on farmers.

Keywords: Microfinance, Farmers' Household Survey, Demographic, Credit Beneficial, Agricultural Sector.

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1. Introduction

A microfinance loan is a modest loan made to the underprivileged. Financial services such as microinsurance and microfinance are available. Myanmar's economy is a former basic economy, with agriculture exports accounting for 10% of foreign exchange earnings [1]. Agricultural development is a significant aspect in reducing poverty since the country's growth is mostly reliant on rural development [2]. In acknowledgement of this, the government supports the creation of microsavings and loan firms to offer microfinance for smallholder farmers in order to enhance rural people's socioeconomic position [3].

The loans are then paid back in installments. The average payback period is three to six months; however, it might be extended in exceptional cases. However, because of the short payback time, many borrowers paid 4,444 payments by selling their homes. As a result, the government permits the provision of modest loan and savings services to rural residents and offers input subsidies, including a pool of cash as a contribution to the industry [4].

The empirical investigation revealed that expanding microfinance operations helps to alleviate poverty at the macro level [5]. And the empirical data suggests

that financial penetration does help to reduce poverty across the world [6]. According to the empirical findings, participation in the microfinance program had a favorable impact on poverty reduction in Myanmar by increasing household income and consumption levels in the study regions [7]. The substantial increase in per-capita income and per-capita expenditure for participating households may be largely due to the support services received by the respondents from microfinance institutions, which essentially include the provision of microcredit to help improve household welfare [8].

In conclusion, numerous studies done in many countries have demonstrated that microfinance is a strong weapon that must be supplemented with other growth, poverty reduction, financial sector development, human capital, infrastructure construction, and traditional job creation programs. Hundreds of millions of people rely on microenterprises today [9]. As a result, the provision of lending, saving, and insurance services can provide broad benefits to people living in poverty [10].

Agriculture denotes land and forest. It is critical in the management of natural resources such as water and genetics [11]. Land degradation caused by bad agricultural practices diminishes agricultural production and restricts poverty alleviation [12]. It is

also known that Ghana has seen a significant transition in economic development in recent years, which might usher in a new period of fast growth [13].

According to the literature, microfinance has a considerable influence on agricultural productivity [14]. Allet used consumers to examine the productivity increase of farmers with access to microfinance. His research on the Grameen Bank was centered on agricultural production [15]. Agricultural production is merely restricted in comparison. An important conclusion was that by participating in Grameen Bank's initiatives, small and marginal farmers could devote a higher proportion of their land to growing high-yielding varieties (HYV), hence increasing production [16].

Some academics believe that microfinance has an impact on agriculture [17]. Production is not always favorable. Microcredit providers typically claim that there is none. Prioritizing small and marginal farmers' credit requirements has prioritized their funding. Because of several challenges, such as poverty and others [18]. Agriculture investment risk; seasonal agricultural production; loan repayment ability. The technological nature of agricultural production systems; These reasons make lending to small farmers extremely hazardous for lenders. For a living, some farmers have been compelled to abandon their farms. Opportunities exist in other industries. All other factors being equal, complete agricultural output will occur in the long term [19].

Based on secondary data from, this study used homes as a sample unit. Aung, Households were classified as Credit Beneficiaries (CB). Myanmar's most populous state, Ayeyarwady, with a population of 6.32 million people [20]. Cyclone Nargis devastated this region in 2008. The Ayeyarwady Region is densely wooded, and wood products are a key part of the local economy. Rice is the main crop of the Ayeyarwady Region, which is known as the granary of Burma.

However, the statistics concentrated on 100 farmers' households from one of Ayeyarwady's village tracts with a total population of 286, Kyauk Pon (middle). Farmers in Myanmar typically grow paddy twice a year, during the monsoon and summer seasons. The major microfinance institution in the research region is Myanmar Agricultural Development Bank (MADB), and loans to farmers are supposed to be utilized for farming.

Myanmar Small Loan Enterprise is a new company that was formerly known as Myanmar Small Loan Enterprise. Myanmar Central Bank Foreign Trade Bank, Agricultural Development Bank of Myanmar, Economic Bank and Myanmar Investment and Commercial Bank are both state-owned banks, and twenty semi-public and private banks operate in the country. The Myanmar Agricultural Development Bank (MADB) is the second biggest of the branches and concentrates on agricultural loans, whereas the

other banks provide commercial banking services rather than agricultural microfinance.

2. Research Method

This study relied on secondary data from a farmers' household survey conducted in 2015 in a village tract in Myanmar's Ayeyarwady region. This survey data includes information on the characteristics of the microfinance institution, demographic information about the respondents, and the quantity of credit available in that area.

This study's population is from the Ayeyarwady Region. Based on research finding, 2289 farmers have received government loans according to the 2015 household survey. From this survey results, 100 respondents are excluded and tabulated their demographic characteristics in this research. Credit Beneficiaries (CB) are households that have received credit. The regression model is evaluated to know the relationship between variables. Microfinance, pesticides, gender, education level, and age are a few examples. The presence of qualitative variables (categorical variables) in a regression model is due to the variable's non-continuity. Assume we categorize the variable gender as having a value of 1 for men and 0 for women.

Those allocated to this form of regression model are just an extension of the conventional regression that has so far been explored. The distinction lies in the interpretation and specifications, not in the coefficients or test statistics. Following that, this section's discussion is restricted to regression models with qualitative variables as regressors. The inclusion of qualitative variables as regressed variables has resulted in estimation methods with wildly divergent implications. Such models will be categorized as probabilistic regression models, which will be discussed in more detail later.

Fertilizer and seed variables will both be present, Y. Pesticides, gender, education level, and age (have and don't have) factors are examples of such variables. The problem is reduced further by assuming that the effect of different categories is only constant at each level of the other independent variables. In this approach, the intercept represents the effect of qualitative elements. Equation $Y = \beta_0 + \beta_1 \text{Mf} + \beta_2 \text{Pes} + \beta_3 \text{Gen} + \beta_4 \text{Edu} + \beta_5 \text{Age} + e$. where, Y is Fertilizer/seed. β_0 is constant. Mf is Microfinance. Pes is Pesticides. Gen is Gender. Edu is Education. Age is Age. e is Error.

It describes the impact of each variable on the agricultural. These are the fundamentals for all farmers who want to know exactly how to enhance their productivity and make the most of the season with the least number of losses. Fertilizer, pesticides, and seed are the most crucial. Other factors include microfinance, gender, education, and age, as shown in further detail below.

Fertilizer (Y) variables represent the total quantity of fertilizer used by each family seasonally. In this survey, data is presented in pounds. Seed (Y) variables indicate the total amount of seed utilized on a farm by farmers. The data in this survey is given in pounds.

Microfinance (X_1) variables represent Credit Beneficiaries (CB), referring to farmers who have received government loans for the operation of their farms. It has become known as microfinance. The statistics displayed the average loan amount taken out by farmers. In the Ayeyarwady area, the amount is between 100,000 to 500,000 Myanmar money (MMK).

Pesticides (X_2) variables describe farmers' utilization of pesticides in their farms, which were given in pounds. Gender (X_3) variables provided the proportions of men and women in this survey. (1) Men and (0) Women. In this survey, the Education (X_4) variables describe the farmer's level of education. (1) Do not go to school, (2) Primary education, (3) Secondary education, (4) Tertiary education, and (5) Bachelor degree. Age (X_5) variables considered in this survey indicate the age range of farmers. (1)20-30 (2)30-45 and (3) Over 45

3. Result and Discussion

Fertilizer-Farmers mentioned that they believed a heavy fertilization of the nursery would result in healthier seedlings, and this was often cited as being more effective than spreading small amounts of available manure over a larger area. Farmers use fertilizer to grow as a common input. Nitrogen (N), phosphorus (P) and potassium (K) are used as fertilizer and cattle manure, or cow dung is also used as organic fertilizer for soil fertility. Some farmers used composted cow manure or chicken dung for soil fertility and that can provide numerous benefits to the fields.

Seed-In Myanmar, most farmers use their own seed from year to year. And they don't have the systematical seed selection. The quality of seed is decreasing year by year and this can reduce the productivity of rice. Moreover, if the quality of seed is used, grain quality is poor and resulting into low market prices. In the study area, farmers who access microfinance can purchase improved seed and they access good market price. Seed selection, therefore, is an important fact to improve the quality and production of rice.

Microfinance - Based on an investigation into how the money was used in agricultural output, CB respondents used 100% of the loan for agricultural purposes. The loan type is group lending, and farmers must be grouped and contain responsibility for both individual loans and loans made by other group members. Farmers can borrow 100,000 Kyats (almost \$80 USD) per acre, but they are limited to 5 acres. However, the application of fertilizer has little effect on microfinance.

Pesticide - Pesticide coefficients haven't an impact on the use of fertilizers. This is a result of the fact that most farmers in Myanmar rarely not apply pesticides prior to the process of production. Pesticides are only used when agricultural is harmed by insects. As a result, pesticides account for the smallest proportion of input in the study region.

Gender-Gender of household head can be seen as the variables that do not impact on the use of fertilizer in the study area. Education - Education level of household head can be seen as the variables that do not impact on the use of fertilizer in the study area. Age-Age of household head can be seen as the variables that do not impact on the use of fertilizer in the study area. Every variable test is linked. Y equals fertilizer divided by seed. (X_1) equals Microfinance, and Pesticides represent (X_2), Gender represent (X_3), Education represents (X_4), and Age represents (X_5). Model regression presented in the Table 1.

Table 1. Model Regression

Ket		B	Std. Error	t	Sig.
1	(Y)	3.781	1.907	1.982	0.050
	Microfinance (Mf)	0.024	0.450	0.054	0.957
	Pesticides (Pes)	-0.021	0.084	-0.246	0.806
	Gender (Gen)	0.584	0.861	0.678	0.499
	Education (Edu)	-0.013	0.219	-0.061	0.951
	Age	-0.144	0.316	-0.455	0.650

Hence, $Y = 3,781 + 0,024 \text{ Mf} + 0,021 \text{ Pes} + 0,584 \text{ Gen} - 0,013 \text{ Edu} - 0,144 \text{ Age}$. that equation is the result of model linear regression. According to the secondary data analysis, all variable had no significant impact on fertilizer use. Because some data are erroneous and missing data that did not offer a satisfying answer. Age As a result, using the provided data, the outcome of fertilizer planting and consumption was evaluated at Y, and the T-value of 100 farmer households was calculated using Stata. Regression tests were performed based on how many small loans were used in 100 farming households, as well as agricultural inputs such as pesticides, the gender of the 100 farmers, their education level, and their age range.

Myanmar agriculture development bank is the primary microfinance institution for farmers in this research. The loan has an annual interest rate of 8% and a term of (8) months from the start date. When the influence of microfinance on the household survey in the Ayeyarwady area is examined, it is discovered that (2289) farmers obtained loans. As a result, the government chose to invest in these (17) village groupings to help them fund their farming expenditures. Loans of (853,800,000 Kyats) have been disbursed for an area of (11,421) acres.

Some farmers efficiently utilized these loans to invest in equipment and get loans for farming activities. After giving high-quality seeds, they may be resold at

a higher price on the market, and the loan can be returned gradually. Good grade grains, vegetables, and fruits may be gathered and widely exported/imported on the market on credit. Some farmers discovered that they could buy more land using loans.

On the other hand, many farmers in Myanmar are enslaved by recurrent debts and lack access to land. The country's population of landless households reliant on agriculture is growing. Access to financing is a major issue since it is prohibitively expensive for most farmers to obtain sufficient money due to high interest rates. The Myanmar Agricultural Development Bank (MADB) makes a tiny exemption to the loan amount, which implies that farmers with low crop yields must sell their assets, including land, to repay the debts. According to 2015 farmer survey statistics, farming costs include nursing fees, land preparation, cultivation, fertilizer use, weeding, and harvesting. Labor is the most expensive component of the manufacturing process, and insecticides are reported to be utilized seldom. And the general expenses include transportation, monitoring, and other charges.

This research described the demographics of the farmers household survey respondents from 2015. The majority of responses were men. This contradicts the observation that women are more active in seeking loans from microfinance institutions. This is because the majority of rural household leaders are males, and land is recorded in the names of the household heads. The Myanmar Agricultural Development Bank (MADB) only lends to farmers whose land has been registered. As a result, (93%) men work in agriculture, while the remaining (7%) women must care for their families. And the majority of farmers' education levels may be seen as having completed high school. In terms of academic level, 10% did not attend school, 85% did not complete high school, and just 5% completed a bachelor's degree. The majority of responders (67%) were over 45 years old, implying that the largest proportion of age groups had higher family obligations. According to the 2015 survey data used in this study, 50 CB respondent farm families had access to loans. They were all taken out at the following rate: Farmers (19%) took out the highest loan of 500,000 kyats, 8% took out 400,000 kyats, 10% took out 300,000 kyats, 9% took out 200,000 kyats, and just 1% took out the lowest loan of 100,000 kyats.

The remaining 50 farmer households did not use government loans and instead invested their own money in their land. Non-credit beneficiaries (NCB) are farmers from the high or lower classes who stand on their own money. Because some of the poorest farmers are content to live in such situation if it means they can pay their family's daily costs. They do not want to pay the maximum daily interest and labor slowly in order to give the best for their family. The data is based on secondary data collected in 2015 from 100 farmer households from village groups in the

Ayeyarwady region, which did not offer a satisfactory answer, and there is no significant in analysis as a result of a poor data analysis.

4. Conclusion

The data analysis findings revealed no evident the results of the data analysis demonstrated that microfinance had no discernible impact on productivity. Farmers that obtain loans, on the other hand, can invest in higher-quality resources such as seeds and fertilizer. More work and fertilizer are needed. Using data from the study's secondary household survey, this study investigates whether microfinance has no significantly impact on the use of fertilizer in the region. Future, I would recommend that you conduct the field survey yourself to obtain accurate data. You will learn about the farm family's grain production when you conduct your own survey. The government's silver lake fertilizer, as well as a reduction in agricultural subsidies like improved seeds, may boost the cost of crucial agricultural inputs. In part, the findings provided in this study paper will be interesting. Agricultural production and its ability to produce high-quality production. It is also vital to reduce poverty in the country through increasing access to finance. Though the loan system has a positive impact on poverty reduction, some farmers are locked in a cycle of recurring financial issues according to the impact of microfinance on farmers' household surveys. Therefore, it could be suggested that there is affirmative fact regarding with microfinances because it provides farmers to solve financial issues partially. On the other hand, this profit also depends on how the farmers spend on this loan effectively.

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