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Role of Agricultural Credits in Rice Productivity in Bangladesh - A Stochastic Frontier Approach

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Role of Agricultural Credits in Rice Productivity

in Bangladesh - A Stochastic Frontier Approach



By

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B.S.S. (Honours) in Economics, M.S.S. in Economics

A Thesis Submitted to the University of Rajshahi for the
Degree of
Master of Philosophy
in
Economics

Department of Economics
University of Rajshahi
Rajshahi - 6205
Bangladesh

June, 2008

**Role of Agricultural Credits in Rice Productivity
in Bangladesh - A Stochastic Frontier Approach**



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Certificate

I have the pleasure to certify that the thesis entitled, "Role of Agricultural Credits in Rice productivity in Bangladesh – A Stochastic Frontier Approach," is the original work of Md. Nurunnabi Miah. It is the candidate's own achievement and is not a conjoint work. The thesis is prepared under my direct supervision and guidance.

I also certify that I have gone through the draft and final version of this thesis and found it satisfactory for submission to the University of Rajshahi, Bangladesh for the degree of MASTER OF PHILOSOPHY in Economics.

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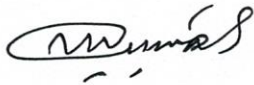
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Declaration

I do hereby declare that the thesis entitled, "Role of Agricultural Credits in Rice Productivity in Bangladesh - A Stochastic Frontier Approach" submitted to the Department of Economics, Rajshahi University, Rajshahi, Bangladesh for the degree of Master of Philosophy in Economics, is an exclusively original work of mine. No part of it, in any form, has been submitted to any other university or institute for any degree, diploma or other similar purposes.



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Dedicated
to
My
departed Parents

Acknowledgements

At the outset, I remember the Almighty Allah for his limitless mercy to give me ability to complete this tiresome task. My deepest reverence at this moment goes to my departed parents who are always in deep concern about me. I owe to many individuals for their sincere cooperation for the complete of my thesis. I would like to mention the name of those personnel with deep gratitude and great pleasure.

My greatest boundless debts are to Dr. Abdul Wadud, Professor, Department of Economics, Rajshahi University for his sincere supervision and guidance. I can hardly express my deepest sense of gratitude and indebtedness to him. His encouragement and continuous support have been instrumental to complete this study. I have no hesitation to say that without his inspired cooperation, invaluable guidance and constant help, my work would not have seen the light of the day. So, my indebtedness to him is beyond my expression.

I would thank Professor Abdur Rahman, Professor Dr. Tariq Saiful Islam, Professor Abdul Quayum, Professor Dr. Mohsin Ali, Professor Dr. Mohammad Ali and Associate Professor Dr. Elias Hossain for their advice. I am thankful to this department for overall support.

I express my thanks to Muhammad Abu Hena former Member of Parliament Chairman of Dwipnagar college Governing Body, village physician Md. Sakendar Ali and other members of Governing Body for permitting me to do M. Phil. degree.

I express my thanks to Md. Abdul Latif Sarker, Principal of Dwipnagar college. Thanks to my other colleagues, who encouraged me to complete this study. I am also grateful to rice cultivators, Upazila agriculture officer, Statistics officer and Manager of Rajshahi Krishi Unnayan Banks of Bagmara Upazila for their help and response during the field survey.

This thesis is a product of huge labour, brainstorming and intellectual capacity accompanied with extensive library work. I am grateful to the librarians and documentation officers of BIDS, BCPL, Rajshahi University library, Dhaka University library and IBS library for their help and assistance.

It is impossible to express by gratitude and indebtedness to my lovely wife Lutfa Begum, B.S.S. (Hons), M.S.S. (Economics), B.Ed, Lecturer in Economics for her patience and encouragement during the course of this study. Her continuous support for carrying on my study, and affectionate attitude inspired me to complete the research. I realize my daughters Nishat Tabassum Antara and Nusrat Tamanna Bushra were deprived from my affection and love. They have never disturbed my work. I am grateful to them. The inspirations of my mother in law always made me enthusiastic to do the work in due time. But I could not able to complete this work in many causes of my family affair in time. My brother and sisters, nephews, and relatives always inquired about the progress of my research work, and they gave me suggestions and inspirations for completion of my thesis. I express my gratitude to all fellows of Department of Economics for their co-operation.

I must especially thanks to my nephew Md. Abdul Motin, student of honours 2nd year, Department of Management for his continued effort for formatting this thesis in my owned computer at house.

Finally, I pay my gratitude to them whose names have not been mentioned here due to lack of space, but I have received generous help from them in my day - to - day work.

Abstract

Agriculture sector in Bangladesh is the largest contributor to income and employment. About 77 percent of the total population and 78 percent of rural labour force are located in rural areas. Agriculture sector provides 63.2 percent of employment opportunities and 72 percent of rural employment. Moreover, 23.31 percent of country's GDP comes from agriculture. The production and employment opportunities either in agriculture or outside of it are circled around rice productivity.

This thesis is a study of role of agricultural credits in rice productivity in Bangladesh by using stochastic frontier approach. The data used in the study are based on a survey of 200 rice cultivators from two villages, Kaur and Barigaon, which respectively represent agriculturally advanced in Bagmara Upazila of Rajshahi district. The villages were selected purposively, while the rice cultivators were selected by adopting stratified random sampling design. The selected cultivators in each villages were classified into seven size categories. The role of credit, the supply of credit, the share of different agencies, the utilization patterns, the interest rates and the existing credit gaps were studied and compared between the villages and among the size categories.

It has been observed that farms adopting superior techniques of cultivation reported substantially higher credit requirements per household and per bigha. The analysis shows that 31 percent cultivators completely and 69 percent cultivators partly depend on credit.

In both Kaur and Barigaon, cultivators belonging to the larger size categories received larger proportion of their loans at 15 percent interest rates from the institutional sources while smaller cultivators paid about 30 percent interest rate for larger parts of their total loans from the NGOs.

A big credit gap exists in Kaur village, and there are small or partial credit gaps in the Barigaon village. Cultivators in Kaur village bridged a portion of the needs by undertaking disinvestment of assets. An overwhelmingly large proportion of disinvestment of assets was caused by the demands of agricultural expenditure.

We examine the role of agricultural credits in rice productivity using the stochastic frontier approach. We investigate factors associated with technical inefficiency. Technical efficiency is computed by estimating the Cobb-Douglas stochastic frontier in which technical inefficiency effects are modeled as a function of age and experience of the rice cultivators, education of the cultivators, agricultural credits and land fragmentation factors we estimate the model in a single stage estimation technique using maximum likelihood method.

The Cobb-Douglas stochastic frontier results show that the rice cultivators of the study area are 97 percent technically efficient on an average. An evaluation of factors associated with technical efficiency reveals that education, credit facilities and land size are inversely related to inefficiency of rice farm. This implies that the education, credit and land size are positively affecting efficiency performance of rice farmers, hence increasing output and revenue. Policies should be taken to increase rural credit facilities and to reduce land fragmentation.

Role of Agricultural Credits in Rice Productivity in Bangladesh - A Stochastic Frontier Approach

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