

FACTORS ASSOCIATED WITH RICE FARMING EMPLOYMENT
IN TWO MUNICIPALITIES OF NUEVA ECIJA,
PHILIPPINES

by

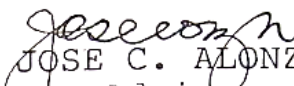
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Submitted to the Faculty of the Institute of Graduate
Studies, Central Luzon State University, Munoz,
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fulfillment of the requirements
for the degree of

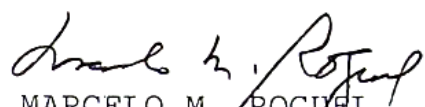
MASTER OF SCIENCE
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This thesis entitled, "FACTORS ASSOCIATED WITH RICE FARMING EMPLOYMENT IN TWO MUNICIPALITIES OF NUEVA ECIJA, PHILIPPINES", prepared and submitted by MUHAMMED MUSTAFIZUR RAHMAN in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE (Rural Development) is hereby accepted.


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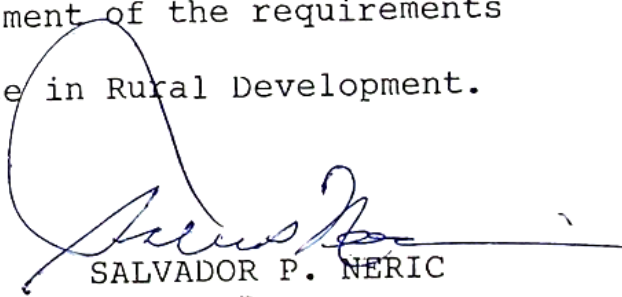

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BIOGRAPHICAL SKETCH

The eldest son of Mr. and Mrs. Malek Miah, the author was born on March 1, 1954 at Gournadi, Barisal, Bangladesh.

He completed his secondary and higher secondary education at Patuakhali Jubilee High School and Patuakhali Government College in 1969 and 1972, respectively. He also obtained his B.S. in Agricultural Economics and M.S. in Agricultural Marketing from the Bangladesh Agricultural University in 1978 and 1980, respectively.

On April 1, 1981, the author joined the Bangladesh Agricultural Research Institute as a Scientific Officer under the Division of Agricultural Economics.

Through the BARC/MADECOR/WORLD BANK scholarship, he pursued his Master of Science in Rural Development at the Institute of Graduate Studies, Central Luzon State University, Munoz, Nueva Ecija, Philippines.

The author is happily married to Ms. Dilruba Yasmin (Rasu) with whom he begot a son named Abir.

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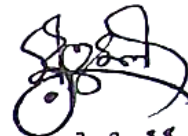
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MUHAMMAD MUSTAFIZUR RAHMAN

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ABSTRACT

RAHMAN, MUHAMMED MUSTAFIZUR, Institute of Graduate Studies, Central Luzon State University, Munoz, Nueva Ecija, Philippines, March, 1988. FACTORS ASSOCIATED WITH RICE FARMING EMPLOYMENT IN TWO SELECTED MUNICIPALITIES OF NUEVA ECIJA, PHILIPPINES.

Adviser : Dr. Anselmo D. Lupdag

The study was undertaken to investigate some personal and economic factors associated with family, hired, and total labor employment per farm in rice farming in the municipalities of Munoz and Guimba in the province of Nueva Ecija. The main purpose was to identify variables which are significantly associated with family labor, hired, and total labor employed per farm. It also aimed to find differences that may exist within municipality and between the two municipalities. The analysis was based on primary data collected through personal interviews with 200 farmer-respondents equally representing the two municipalities studied. The relationship between dependent and independent variables were determined by means of regression coefficients. Ordinary least-square regression was used to estimate the employment parameters in the total labor model. Family

and hired labor were estimated by two-stage least squares (2 SLS). The functional form of the equation was assumed to be arithmetically linear.

The study found that the differences of irrigation facility differentiated the input status of farmers in the production process and consequently the employment opportunity and pattern between these two municipalities. The municipality of Monuz had more employment in rice farming and had more irrigation facility than the municipality of Guimba. Regression analysis showed that the farms which increased their production inputs tended to increase the amount of labor (hired labor in particular) employed per farm. These production inputs were irrigation, seed, fertilizer, and insecticide. Other variables were either partially significant or not significant with family, hired, and total labor employment per farm.

LITERATURE CITED

- ALVIAR, H.G. 1969. A study of tractor and carabao cultivated farms in Laguna. Seminar on the Economic of Rice Production, Department of Agricultural Economics IRRI and U.P. College of Agriculture, Philippines.
- ACHARIA, S.S. 1973. Green revolution and farm employment IJAE. 28(3), July-Sept. 1973.
- ANTIPORTA, D. and DEOMAMPO. 1979. Employment impact of mechanization of rice production processes. Mimeographed Paper. CDEN. UPLB, Los Banos, Philippines.
- ANONIEM. 1976. Mechanization of irrigated crop production. Proceedings of an expert consultation held in Aden, Turkey. 5-9 April 1976.
- . 1977. Penduluk Jawa-Madura. Bamil Registrati Peuduluk, Biro Puaal Statistik, Jakarta, Indonesia.
- BARKER, R. 1970. Researches relating to the economics in rice production. Staff paper series No. 102. Department of Agricultural Economics. UPLB, College, Laguna.
- . and V.G. Cordova. 1978. Labor utilization in rice productin in economic consequences of the new technology. IRRI. Los Banos, Philippines.
- CRISOSTOMO, C.M., W.H. MEYERS, I.S. PARIS, JR., D. DUFF and R. BARKER. 1971. The new rice technology and labor absorption in Philippines agriculture. The Malayan Economic Review. 16 (2): 117-158.
- CORDOVA, V. and R. BARKER. 1976. The effect of modern technology in labor utilization in rice production. IRRI Seminar paper.
- DESAI, D.R., O.A. PATEL and R.J. PATEL. 1970. Impact of modern farming technology on rural employment in Savrashtra. IJAE. 25(3), July-Sept. 1970.
- DOVRING, F. 1959. The share of agriculture in growing population. Monthly Bul. Econ. and Statistics, 8 (8 and 9), Aug-Sept

- DORNER, P. 1972. Research issues in agriculture development policy (mimeographed).
- GUSTAV, R. et al. 1974. In sharing in development in a Program of employment, equity, and growth in the Philippines, ILO. Geneva.
- HAMERMESH, D.S. 1976. Economic studies of labor demand and their application to policy analysis. Journal of Human Resources. 11 4).
- HAMID, M.A. 1977. A study of the BADC deep tube-well program in north-western region of Bangladesh. RDS Series 7, Department of Economics, Rajshahi University, Bangladesh.
- JOHNSTON, B. and J.R. MELLOR. 1961. The role of agriculture in economic development. American Economic Review II. pp. 556-593. September 1961.
- JATILEKSONO, T. 1981. Impact of tube-well irrigation project on productivity and income distribution in Kedri Distric, East Java, Indonesia. Unpublished M.S. Thesis. UPLB, College, Laguna.
- JOSI, P.K., D.K. BAHL and D. JHA. 1981. Direct employment effect of technical change in Uttar Pradesh Agriculture. IJAE, 36(4), Oct-Dec. 1981.
- MERRIL, W.C. 1975. The impact of agricultural mechanization on employment and food production. Occasional paper series of agricultural Mechanization. Washington, D.C.
- PERDOUS, S.E. 1980. Rural landless workers and their employment pattern in selected barrios of Bay, Laguna, Philippines. Unpublished M.S. Thesis. UPLB, College, Laguna, Philippines.
- SHAH, S.L. and L.R. SINGH. 1970. IJAE. July-Sept. No. 7.
- SHIDU, S.B. 1974. Relative efficiency in wheat production in Punjab, India. American Economic Review. 64(4), Sept. 1974.
- STAUB, W.J. 1973. Agricultural development and farm employment in India. Foreign Agricultural Economic Report. No. 84.

SIBAL, V.V. 1980. The impact of small irrigation on production, employment, and income distribution: An empirical analysis. Unpublished M.S Thesis. UPLB, College, Laguna, Philippines.

THAPA, G. 1979. The economics of tractor ownership and use in the Nepal Tarai. Working paper for the consequences of small rice farm mechanization project. Agricultural Engineering Department, IRRI, Los Banos, Laguna, Philippines.

WALACE, T.D. and HOOVER. 1966. Income effects of innovation: The case case of labor in agriculture. American Economics Review. 48, Eay, 1966.

WU, T.E. 1972. Government policies promoting farm mechanization in Harman Southworth, ed. Farm Mechanization in East Asia. ADC. Singapore.