

GROWTH AND FACTOR DEMAND ANALYSIS IN RICE SECTOR OF BANGLADESH

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ABSTRACT

The present study was undertaken with a view to finding the growth rates, technical change in agriculture and factor demand status of the rice sector of Bangladesh. The data were collected from secondary sources i.e. various issues of Statistical Yearbook of Bangladesh, Agricultural Yearbook of Bangladesh and from "A Data Base on Agriculture and Foodgrain in Bangladesh: 1947-48 to 1989-90". The period of study were 1947-48 to 1992-93 as the whole period, 1947-48 to 1970-71 as pre-independence period, 1971-72 1992-93 as post independence period. The growth rates of different varieties and types of rice: production, acreage and yield were calculated applying the linear, compound and exponential growth models. The parameters of the Translog cost function were estimated by applying the iterated Seemingly Unrelated Regression and Ordinary Least Squares technique through the computer package LIMDEP. The results show that the growth of production, acreage and yield of local, HYV and total rice were positive and significant during the pre-independence period. During the post-independence period the growth of local acreage and production were negative but the yield was positive. During the whole period of study local acreage, production and HYV yield grew negatively but the growths of HYV acreage, production and local yield were positive and significant. The growth parameters of the HYV rice were significantly different between the adoption (1969-70 to 1979-80) and post-adoption period (1980-81 to 1992-93). Allen Partial Elasticities of Substitutions for the years 1971-72 to 1992-93 indicate that there was a complementary relationship between the human labor and bullock labor, bullock labor and fertilizer, fertilizer, seeds and irrigation and fertilizer and irrigation. However, Substitutory relationship was observed between human labor and irrigation, human labor and seeds, human labor and fertilizer, bullock labor and seeds and bullock labor and irrigation. The own price elasticity of derived demand of every factor of rice production had the expected correct sign i.e. negative. They were all inelastic implying that an increase in the price of factors of production decreases the demand for factors at a very lower rate and vice versa. In the later period of study (1980-81 to 1992-93) the elasticity co-efficients started declining implying that the farmers of Bangladesh became more conscious about the use of fertilizer, seeds and irrigation in agriculture. Price increase does no longer result in drastic reduction in the demand for inputs. Rice production technology of Bangladesh appeared to be both labor intensive i.e. human labor using and capital intensive i.e. bullock labor saving and fertilizer and seed using. This situation may be treated as a transition of the modernization of agriculture.