

focused on determining the production function for rice in Trinidad.

#### ABSTRACT

Within this context two separate production functions were estimated:-

(i) a derived production function for rice with technological change, and  
Trinidad and Tobago's food import bill rose to over \$1 billion in 1983. Meat and meat preparations, milk, wheat, feed grains and rice accounted for over 75% of all imports, with wheat providing about a quarter of the nation's protein requirements. Although no substitute with the bread-making qualities of wheat can grow locally, rice can substitute for wheat nutritionally. This situation becomes more alarming when one considers that large areas of under-utilized lands in Trinidad can be used to grow successfully rice for local consumption. Data were obtained from the survey questionnaire designed specifically for this study and were implemented by follow-up personal interviews by the author. As such, this study was concerned with an assessment of the impact of technology on the rice industry in Trinidad, the study area being the Caroni River Basin and the St. Patrick region, the two main rice-growing regions of the country. The multiple regression technique was used to fit a Cobb-Douglas

River It was observed that yields obtained by local rice farmers were much lower than those in other countries (notably Guyana and the countries of South-East Asia). It is widely known that the technology used by local rice farmers is somewhat out-dated. A good example of this is the fact that most farmers have opted for the sturdy low-yielding Indica varieties rather than the high-yielding varieties grown elsewhere. However, a small percentage of farmers in both the Caroni River Basin and the St. Patrick region have adopted new technology. The result of the analysis showed that the individual elasticities of production and the marginal productivities for the technological inputs were less than unity. That is, there were diminishing marginal returns to the respective technological inputs.

It is important, then, to determine the impact that this new technology has had on the Trinidad rice industry. The study, therefore,



focused on determining the production function for rice in Trinidad.

Within this context two separate production functions were estimated:-

where obtained (i) a derived production function for rice with techno-

logical change, and

(ii) a derived production function for rice without tractor services on their rice farms, there was no significant increase in their yields. This situation is explained by the fact that individual components (inputs) of this new technology "are of very little significance when adopted by themselves. In order to increase yields significantly, farmers need to adopt "the whole technological package". This package must include improved seed cultivars (HYV's), fertilizers, irrigation, tractor services and skilled management specifically for this study and were implemented by follow-up personal interviews by the author.

Data were obtained from the survey questionnaire designed specifically for this study and were implemented by follow-up personal interviews by the author.

The multiple regression technique was used to fit a Cobb-Douglas production function for rice production in the study areas. (Caroni River Basin and St. Patrick). With respect to those farmers who had adopted new technology, three regression equations were estimated, the second and third being slight modifications of the first. For those farmers who had not adopted new technology, one equation was estimated.

The result of the analysis showed that the individual elasticities of production and the marginal productivities for the technological inputs were less than unity. That is, there were diminishing marginal returns to the respective technological inputs. However, the sum of the individual elasticities of production was observed to be greater than unity, and therefore indicated that farmers

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were obtaining increasing returns to scale from technological change.

It was observed that although traditional rice farmers used tractor services on their rice farms, there was no significant increase in their yields. This situation is explained by the fact that individual components (inputs) of this new technology "are of very little significance when adopted by themselves. In order to increase yields significantly, farmers need to adopt "the whole technological package". This package must include improved seed cultivars (HYV's), fertilizers, irrigation, tractor services and skilled management to derive the maximum benefit from this new technology.

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