



## ESTIMATING THE DEMAND FUNCTIONS FOR CHEMICAL FERTILIZERS IN BANI SEWAF GOVERNORATE

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### ABSTRACT

This research is concerned with the estimation of farmer's demand for chemical fertilizers. The data were collected from a sample of farmers in two villages in Bani Sewaf Governorate in the summer of 2015. Most farmers use two kinds of fertilizers; namely urea and superphosphates. Urea is provided to farmers in certain quotas at subsidized prices through the government controlled agricultural cooperatives. Farmers however find it necessary to rely on the free market to supplement the subsidized quotas of urea.

The research begins by estimating the Cobb-Douglas production functions for two field crops which are wheat and maize. Then the production functions coefficients are used to calculate the underlying cost functions. From the cost functions we were able to drive the conditional demand functions for chemical fertilizers with the help of Shephard's lemma.

The estimates of all functions seem reasonable and consistent with economic theory. The elasticities of wheat production with respect to urea and superphosphates are 0.27 and 0.03 respectively. The wheat cost function is an increasing function in input prices and in output level. The conditional demand function for urea in wheat production is homogenous of degree zero in input prices; that is doubling the input prices will leave the demand for urea unchanged.

Similar results for the maize crop were attained. The maize production elasticities with respect to urea and superphosphates are 0.16 and 0.06 respectively. The results are statistically significant. The isoquant equation indicates that decreasing urea application by 0.42 sack can be compensated by increasing superphosphates application by one sack in order to keep the level of maize production at 18 ardab per feddan. The conditional demand function for urea reveals that an increase in the price of urea by EGP 5 would reduce the demand for urea by 0.78 sacks.

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