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Food Self-sufficiency or Foreign Currency Earnings? A Multimarket Modelling Assessment for Sudan

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Abstract

The Gezira Scheme is Sudan's largest irrigation project. It lies on land between the Blue and White Nile, with a command area of 504,000 hectares. It was originated in 1911, when a private British enterprise found cotton suited to the area and embarked on what in the 1920s became the Gezira Scheme. Until recently, the scheme is specialised in the production of cotton for exports and for furnishing cotton to the local textile industry. In addition, the scheme produces sorghum and wheat as basic staple foods to maintain food security.

The Sudan's government started adopting food self-sufficiency policy during the 1940s by establishing the mechanised rainfed schemes. However, it further focused on it during the 1990s due to economic sanctions. Accordingly, the area cultivated by wheat and sorghum was enormously increased particularly, in the irrigated schemes. A peak of the subsidised wheat area was reached in 1991 when over 600,000 feddans were planted in Gezira Scheme.

However, by 1998, a removal of wheat subsidy and allowance of flours imports lowered prices, production, and led to continuous deterioration in area and output. In 2003, the food Self-sufficiency phenomenon was once again stressed due to the high annual import bill of wheat of over US\$ 250 million. Hence, Gezira scheme was anticipated to cultivate more of wheat to secure the strategic goal.

Based on this background, this paper simulates the situation in a multimarket model, which is built and calibrated for Sudan's irrigated agriculture. The simulation considers switching portions of cultivated land between cash and food crops in order to reach a suitable mix where both self-sufficiency in food and foreign currency earnings are considered.

Results of a food self-sufficiency scenario indicates that it lead to a net loss in foreign earnings of \$41.65 million and deterioration in producer surplus and welfare, besides falls in the government revenue from four crops that are considered in the study due to falls in tariff revenue. On the other hand, results of a cash crop cultivation scenario would increase net foreign exchange earnings, producers' surplus, government budget, and the overall welfare of the people.

Keywords: Agriculture, exports, food security, multimarket model, Sudan