

CHAPTER SEVEN: Conclusions And Implications

It is of high interest to policy makers to be able to evaluate the implications of continuing market liberalization and deregulation in most SADC countries on the supply and availability of maize, the main food staple in the region. However, no comprehensive formal commodity models have been developed yet that provide adequate understanding of the functioning of maize markets and allow for study of the structural nature of their regional supply and demand components. This represents a serious knowledge gap limiting the ability of policy makers to properly plan for controlling the supply and availability of such a basic food commodity in the face of ever changing and uncertain economic and physical environments. The present research project made an attempt to develop and use a structural maize commodity model to address and analyse some of the said aspects for improved food security within the SADC region through regional integration of maize production and trade.

The developed SADC maize commodity model consists of 64 equations, of which 28 are behavioral equations and the remaining identities. The model is made up of three main blocks, a supply block, a demand block, and a price linkage block. As stated previously data limitation has been a major factor in formulating the model. Relying on data from the FAO Statistics, the specified model equations were estimated using the 2SLS technique. The market clearing identity for each country was net trade, which was then combined to give a regional net trade position with the rest of the world. The model was validated through a series of statistical tests, which showed that the model has a very good predictive power for forecasting changes in the conditions of regional supply and use of maize in the SADC countries.

Empirical estimation results showed that the SADC countries do respond to changes in the world price of maize. Estimated elasticities however, were low with all short

and long run elasticities of maize supply and demand of less than one. Estimated short run supply elasticities for the individual countries ranged between 0.043 and 0.360, whereas the long run maize supply elasticities were between 0.066 and 0.448.

The estimated model was then used to evaluate the impacts of a few plausible future scenarios of changing economic and physical environments, which included:

- 1). The impact of the current Zimbabwe crisis.
- 2). A decrease in yield shock in South Africa in consequence to climate change impacts.
- 3). An increase in inflation across all SADC countries

The scenario simulations results indicated that political instability and climate fluctuations are important forces influencing the status of food availability and security in the SADC region. This is clear from the Zimbabwe crisis simulation results where a reduction in area of maize harvested in Zimbabwe had significant impacts on the status of maize supply and prices in the entire SADC region. Similarly, a yield shock caused by variations in climatic conditions had serious implications for maize supply and the net trade in maize position of the region. For instance, a decrease in maize yield in South Africa, the regions bread basket, caused the entire region to become food insecure relying heavily on imports. This also had important implications for the poor as increased reliance on imports, due to the fall in regional supply increased local maize prices, which given the fact that maize is the main food staple, would negatively affect the poor. This calls for creative measures of reserve stocks management to mitigate the negative effects of such factors of political instability and climate fluctuations.

7.1 Limitations of the Study and Future Research

As stated previously, for almost all countries in the Southern Africa region agricultural data are very imprecise in general and particularly very poor for the subsistence farming sector. This was the main reason behind the inability of this

study to account for subsistence maize production and assess the sensitivity of maize availability to perturbations in this sector, which is a major maize supply sector in the SADC region. Given the fact that this study employed a partial equilibrium framework, it could not provide an assessment of the economy-wide effects of changes in maize availability and use. Modeling linkages with other agricultural commodities and non-agricultural economic activities would give a better picture of the impacts of movements in the SADC regional maize trade balances. Accordingly, future studies should strive to take into consideration some of the above described limitations of this work. The preliminary results of this study also suggest the importance of proper incorporation and measurement of weather factors and price risks elements in the structure of the SADC regional maize model. Finally this study assumes no trade restrictions on maize are in place in any SADC, hence future studies should account for plausible trade restrictions on maize movements within the region.

Taking into account the economic conditions of most of the SADC countries and the impact of imports of maize on the trade balance, most of these countries should focus on increasing maize productivity through improved trade regimes to enhance exploitation of comparative advantage in maize production in order to improve food security. Finally this model can be easily updated and hence has a great potential to be used to address a variety of policy questions other than those analyzed here.