

Full Length Research Paper

# Trends in Profitability and Measure of Government Protection in Sorghum Production (Zimbabwe)

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Despite failures of government policy to stimulate sustained growth in sorghum production in the face of increased climatic shocks on maize, there have been very little efforts to understand sorghum protection by the government. The major objective of this paper is to determine the level of government protection of the sorghum production. The main sources of the data were the Central Statistics Office, FAOSTAT and the Ministry of Agriculture. The Nominal Protection Coefficient (NPC) was used to determine the level of protection from 1980 to 2010. Over the past 30 years there have been swings from protectionism to liberal approaches in Zimbabwe. Policies and investment strategies should be designed to exploit the competitive advantages of these small grains which is the basis for improving the productivity of the extensive semi-arid regions of the country and of their rural labor force. Gains to the economy will also accrue from improving rural food security, reducing the need for drought relief, lowering the level of subsidies underlying grain markets, and, at least in the short run, stemming migration from rural to urban areas.

**Keywords:** Nominal Protection Coefficient, Government Policies, Protectionism

## INTRODUCTION

The increase in the demand of small grains, particularly sorghum, is attributable to their growing importance in economies of both developed and developing countries. The use of sorghum in bio fuel production (ethanol) has

sparked a global increase in the demand of the small grain. The growing importance of small grains is also a result of their adaptability to rainfall variability (Rukuni et al., 2006). With the advent of climate change, there has been increasing risks of crop failures due to frequent droughts and dry spells. As such there has been an enormous pressure among developing nations, particularly Sub-Saharan Africa whose majority of agriculture occurs under rain-fed conditions, to diversify into small grains that are less susceptible to moisture stress. Sorghum is therefore increasingly used as a substitute for maize in most parts of the region in order to reduce the problems of food insecurity. In-order to increase the production of sorghum in the country there is need to determine the role of the

## Abbreviations

NPC; Nominal Protection Coefficient, ERP; Effective Rate of Protection, PSE; Producer Subsidy Equivalent, ERA; Effective Rate of Assistance, NRA; Nominal rate of assistance

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government on the sorghum subsector.

### Protection Coefficients Concepts

Protection Coefficients describe the nature of government protection in both input and product markets. This could be done by comparing domestic and international prices which indicate the degree of distortions caused by government intervention (De Janvry and Sadoulet 1995). The nominal protection coefficient is used to measure the effects of government policies in input and product markets separately. The Nominal Protection Coefficient is the simplest indicator of price distortions and the easiest to measure. It is equal to the ratio of the domestic price of a commodity  $i$  to its border price using the official exchange rate [1]. NPC is usually used because it measures the effect directly and its product specific. Estimates follow a direct price comparison approach between border and farm prices adjusted for transport costs to or from producers and consumer locations, storage costs, quality differences and other elements in marketing margins.

### METHODOLOGY

The Nominal Protection Coefficient (NPC) is the simplest indicator of price distortion and the easiest to measure. It is equal to the ratio of the domestic price ( $P_i^d$ ) of a commodity  $i$  to its border price ( $P_i^b$ ) using the official exchange rate:

$$NPC = P_i^d / P_i^b \quad (1.2)$$

Thus, if  $NPC_i > 1$ , producers are protected and consumers taxed

If  $NPC_i < 1$ , producers are taxed and consumers subsidised, and

If  $NPC_i = 1$ , the structure of protection is neutral (De Janvry and Sadoulet 1995).

If the official exchange rate is not at equilibrium, the border price against which the domestic price is compared should be adjusted to remove this additional distortion. Calculating the border price at the equilibrium exchange rate the NPC become the real protection coefficient and the real rate of protection, which take into account both direct price distortions through product specific price policies and indirect distortions through the exchange rate (De Janvry and Sadoulet 1995).

### RESULTS AND DISCUSSION

#### Trends in Nominal Protection Coefficient

Agricultural pricing policies have been a major instrument of government intervention, with the goal either increasing the contribution of agriculture to economic development or of enhancing the welfare of farm households. Pricing policy

has been used to satisfy the rent seeking demands of special interests groups. Price distortions against agriculture have been blamed for the stagnation of agriculture in most Sub Saharan African countries.

The nominal protection coefficient (NPC) is a ratio that contrasts the observed (private) commodity price with a comparable world (social) price which gives the opportunity cost to the country of producing the good and thus helps determine whether the country is an efficient producer of the commodity. This ratio indicates the impact of policy (and of any market failures not corrected by efficient policy) that causes a divergence between the two prices (De Janvry and Sadoulet 1995).

#### Source: Own Calculation

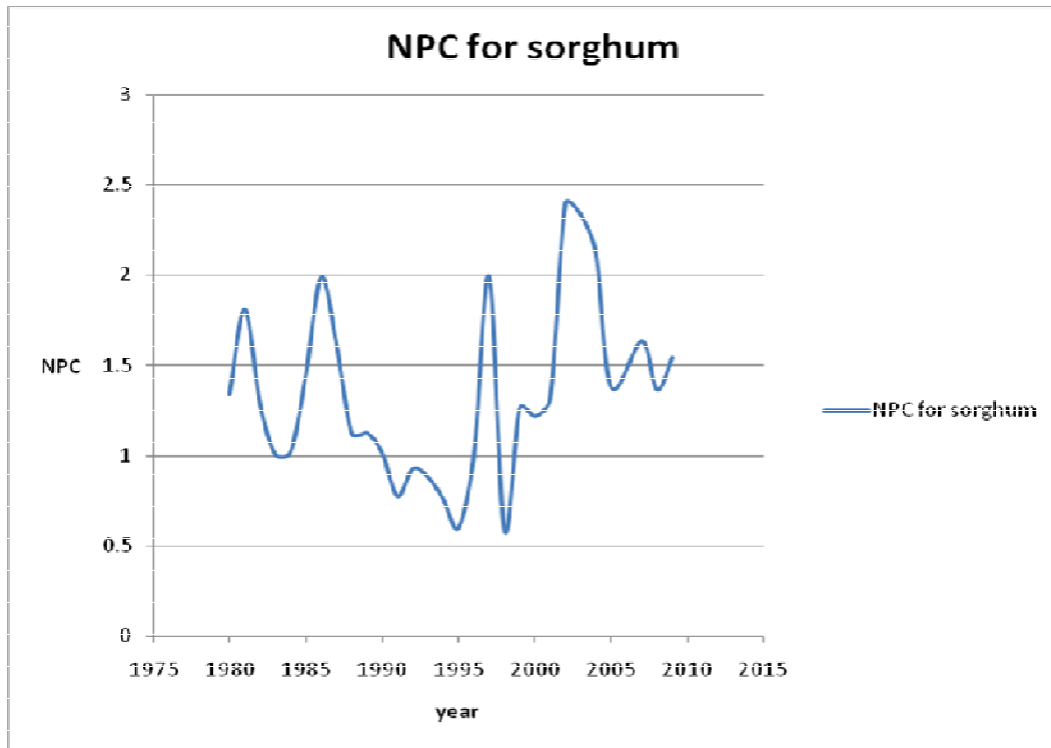
The NPC for the sorghum in the country was slightly higher after independence; the producers were being protected by the government. The government protected the sorghum farmers for the first 15 years. After the structural adjustment program of 1992 there was a shift in the government policies it started to subsidise the consumers of sorghum in the country. After the year 2000 there was a surge in the value of NPC. This can be attributed to the fact that the government was carrying out the fast track land reform program so there was need to give the new farmers an incentive to produce and this is why there was an increase in producer price of sorghum in the country. The government was trying to protect the newly resettled farmers in the country. In the sorghum enterprise since 1980 the government has only embarked on policies in which the structure of protection was neutral ( $NPC=1$ ) in 1996. This is the only year in which the government neither protected the sorghum producers nor subsidise the consumers.

#### Comparison of Maize and Sorghum Level of Protection

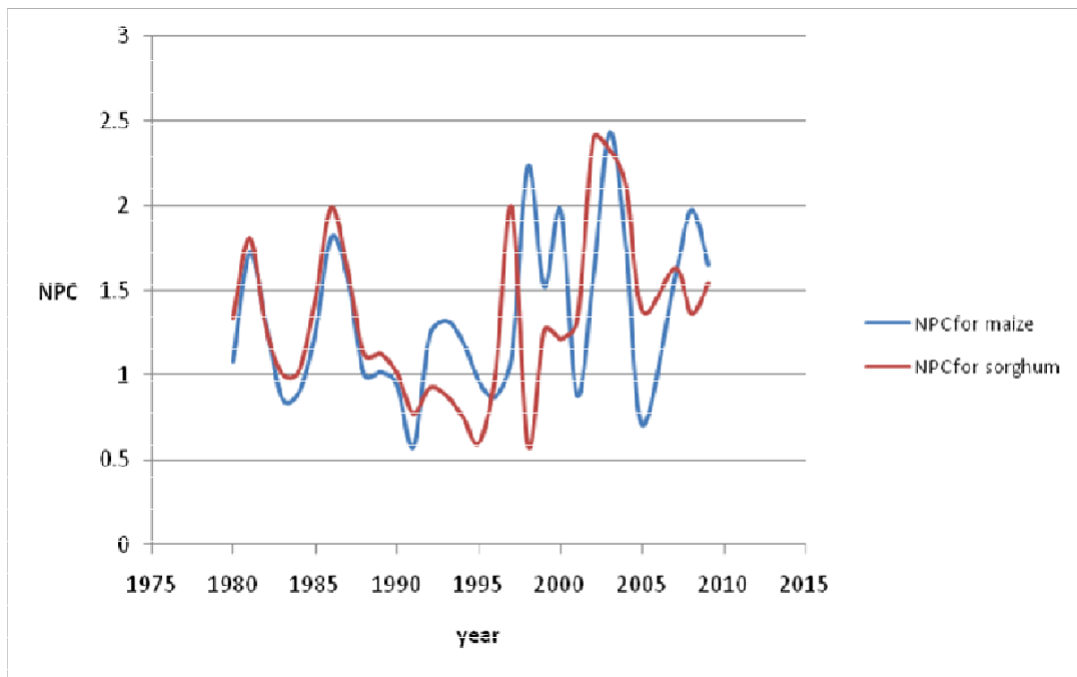
Most researchers in other countries argue that the maize subsector is protected more than other grains sorghum being included. When most governments design policies for grains their major target will be maize. Most farmers' attributes the low level of sorghum production to the limited support the sector gets relative to other sectors such as wheat and maize in the country. The following figure compares the production of sorghum and maize in the country.

#### Source: Own Calculation

From 1980 to 1990 the Nominal Protection Coefficient of maize and sorghum was almost the same. After the structural adjustment program of 1992 the rate of



**Figure 1.** Nominal Protection Coefficient of Zimbabwe



**Figure 2.** Comparison of Maize and Sorghum Level of Protection

protection for maize was slightly higher for maize relative to sorghum except for 1997. The government was now

protecting the maize farmers since maize reduces problems of insecurity in the country. After the year 2000 in

which the government implemented the land reform program the Nominal Protection Coefficient was also greater for maize as compared to sorghum.

## CONCLUSION AND RECOMMENDATIONS

Efforts to promote sorghum production should not be based simply on desire for equity or concern about the welfare of those producing insufficient food. The development of the small grains food system should be viewed as a contribution to national economic growth. Policies and investment strategies should be designed to exploit the competitive advantages of these small grains-a basis for improving the productivity of the extensive semi-arid regions of the country and of their rural labor force. Gains to the economy will also accrue from improving rural food security, reducing the need for drought relief, lowering the level of subsidies underlying grain markets, and, at least in the short run, stemming migration from rural to urban areas.

In order for the sorghum subsector to be competitive the government must play a major role in ensuring that the producer prices of sorghum are very high since the majority of the sorghum producers are small holder farmers and there is need to support them. The producer price of maize is usually used as the benchmark price for sorghum so there is need for the government to announce the pre-planting price for sorghum in Zimbabwe.

Agricultural price policy alone cannot guarantee sorghum production growth targets, but a policy mix that goes

beyond factor and product markets and acknowledges the structural and institutional constraints faced by sorghum farmers is likely to achieve a substantial growth in sorghum output in both the short run and long run.

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