PRICE DISTORTIONS IN THE SOUTH AFRICAN MAIZE ECONOMY: A COMPARATIVE POLITICAL ANALYSIS[1]

PD Wright
Department of Agricultural Economics, University of Natal, Pietermaritzburg

WL Nieuwoudt
Department of Agricultural Economics, University of Natal, Pietermaritzburg

Abstract

The effects of government intervention in the South African Maize Industry are evaluated using a partial equilibrium framework. Large monetary transfers have resulted from government policy with a bias towards more powerful producer interest groups. Transfers significantly exceed the welfare gains to producers. However, the per capita gain for producers is greater than the per capita loss for consumers creating an incentive for producers to continue lobbying for the current South African maize policy. Intervention results from market failure followed by political failure where interest groups manipulate government for their own benefit. As long as vested interests remain, policy reform seems remote. A new political dispensation may shift vested interests towards consumers away from producers. Policy reform is discussed along with conditions to facilitate this process of reform.

Uittreksel

Die gevolge van staatsinmenging in die Suid-Afrikaanse mieliebedryf word met behulp van parsiële ewewigsanalise geevalueer. Groot monetêre oordragte is die gevolg van regeringsbeleid wat ten gunste van produsente belangegroepe gelaai is. Oordragte is beduidend hoër as welfaartsverliese. Welfaartsverliese vir verbruikers is aansienlik hoër as welfaartswinste vir produsente; maar die per kapita wins vir produsente is groter as die per kapita verlies vir verbruikers, wat produsente dus aanspoor om voort te gaan met steunwerwing vir die huidige mieliebeleid. Ander belange groepe (soos verskaffers van insette) trek ook voordeel uit die huidige beleid. Inmenging is die gevolg van markmislukking gevolg deur mislukking binne die politieke proses aangesien belangegroepe die regering tot hulle eie voordeel manipuleer. So lank as wat gevestigde belange voortduur, is politieke/beleid hervorming buite bereik. 'n Nuwe politieke bedeling mag gevestigde belange in die rigting van verbruikers laat beweeg en weg van produsente. Hervorming binne die politieke/beleid proses word bespreek, asook toestande wat hierdie proses sal bevorder.

1. Introduction

Intervention in agriculture distorts the optimal or efficient allocation of resources as it drives a wedge between domestic prices and domestic opportunity costs. This distortion is important as the maize industry in South Africa represents about 25 percent of gross domestic product in agriculture (Abstract of Agricultural Statistics, 1991).

This paper attempts to measure distortions present in the South African maize industry. The maize industry is a highly regulated industry and an important source of food for the majority of the South African population. Standard partial equilibrium analysis is used to show monetary transfers present in this industry. Public choice theory is used to facilitate the explanation of these transfers. Policy reform, in this highly regulated industry, is discussed. Previous economic policy research has been done on the South African maize industry (Frank, 1986; Groenewald, 1989; Nieuwoudt, 1973; Van Zyl, 1986; Van Zyl and Nieuwoudt, 1990), however this paper concentrates more on the political economic side, explaining why regulation results in large monetary transfers within the industry.

2. Institutional setting of the maize industry

When analysing the performance of an industry it is important to take into account the institutional structure. This will give researchers a basis for explaining why there are distortions and how these distortions may be eliminated or adapted with emphasis on equity and efficiency.

South African maize marketing is undertaken by the Maize Board which in turn is subjected to political influence. The Maize Board has achieved greater autonomy from government over past years in fixing of prices. The Board operates a single channel fixed price scheme being the only buyer, seller and exporter of South African maize (Maize Board, 1989:1) It operates a stabilisation fund based on the notion that export profits could be accumulated in order to compensate for losses when these occurred. This fund has at times been augmented with state grants (Van Zyl and Nieuwoudt, 1990).

The Board has incurred export losses during 1987, 1988, 1989 and 1990 (Maize Board, 1991) and has increased local selling prices to compensate for these losses. This pricing behaviour is only possible under a monopoly situation such as that which prevails in the maize industry with its single channel marketing system. The effect is higher local selling prices in times of surplus to pay for export losses and lower prices in times of production shortfalls. This amounts to cross-subsidisation. Such marketing behaviour decreases local sales and increases local exportable surpluses due to the relatively high price elasticity of demand for maize as stock feed, which necessitates higher selling prices by the Maize Board (Van Zyl and Nieuwoudt, 1990).

One of the disadvantages of monopolies as listed by the Monopolies Commission (1977) was the danger involved

with political pressure groups. The Maize Board consists of fifteen members of which eight represent producer interests; one the millers; two the consumers (including livestock); one the traders; one the agents of the Board; an advisor, and one appointed by the Minister of Agriculture (Maize Board, 1990). Surpluses are exported by the Board and in the event of a shortage the Board imports maize. Decisions of the Board are conveyed to the National Marketing Council who draw up a report which includes its recommendations and sends it to the Minister who makes the final decision.

The South African maize policy environment is shown in Figure 1 which shows the various interest groups within the maize industry. This type of institution necessitates a political economic analysis because it leads to the pursuance of economic objectives within the political process.

3. Measurement of Distortions

Distortions in the maize industry are quantified using a standard partial equilibrium comparative analysis in the Marshallian surplus framework, similar to that adopted by Bale and Lutz (1981), Bale and Greenshields (1978), and Currie, Martin and Schmitz (1971).

Prices should reflect the relative scarcity of a product and the incentives to produce (Tsakok, 1990, p.23). Within this context price distortions are analyzed with the help of nominal protection coefficients (NPC's) to measure the disparity between domestic output prices and border prices. Domestic prices are defined as prices at the farm level (producer prices). Border prices represent the opportunity cost of a tradable commodity. If this commodity is an export one, then the border price is the domestic price at the point of export net of export costs (Tsakok, 1990, p.52). In this analysis, the border price is the net export realisation price. Although the Board imports some maize from neighbouring countries such as Bophuthatswana (1988 and 1990), the quantity is negligible compared to the amount exported. Identifying a border price is difficult since there are many different prices depending on the date, level and location of transactions considered. Also differences in prices applying in international transactions reflect dumping or other domestic distortionary practices of major trading countries (Lutz and Scandizzo, 1980). The border price will also be affected by over or undervaluation of the exchange rate. Undervaluation discourages imports and encourages exports. Overvaluation is an implicit subsidy on imports and a tax on exports (Tsakok, 1990:58).

NPC's are defined as: $\mathbf{NPC = Pd/Pe}$

where Pd is the domestic price, and Pe the export realisation price. The basic analytical structure is represented by the following equations taken from Bale and Lutz (1981); Lutz and Scandizzo (1980); Bale and Greenshields (1978) and Currie *et al* (1971):

(1) net social loss in production
$\mathbf{NSLp = 0.5(Qw - Q)\ (Pe - Pp)}$

(2) net social loss in consumption
$\mathbf{NSLc = 0.5\ (Cc - C)\ (Pc - Pe)}$

(3) welfare gain of producers
$\mathbf{Gp = Q(Pp - Pe) - NSLp}$

(4) welfare gain of consumers
$\mathbf{Gc = C(Pe - Pc) - NSLc}$

(5) change in Board revenue
$\mathbf{GOV = (NSLp+NSLc) - Gp - Gc}$
$\mathbf{= -(1) - (2) - (3) - (4)}$

(6) change in foreign exchange earnings
$\mathbf{FOR = Pw(Qw-Q+C-Cc)}$

where; Qw = production at export prices
Q = production at domestic prices
Pe = net export realisation prices
Pp = prices faced by domestic producers
Pc = prices faced by domestic consumers
Cc = consumption at export prices
C = consumption at domestic prices.

The maize industry consists of a human and animal market which represents white and yellow maize respectively. The animal market is significant in the industry, consuming about 76 percent of yellow maize produced in South Africa (Agrocon, 1991). Different elasticity estimates have been used to represent the long and short run demand and supply price elasticities for each market. The two estimates (high and low) can also represent a range because elasticity estimates differ widely among researchers. The 'high' elasticity estimate represents the long run price elasticity estimate and the 'low' estimate represents the short run price elasticity estimate. The range of elasticities can demonstrate the sensitivity of the results to changes in elasticities. The range of price elasticities estimates for maize, representing short and long run, are; for human consumption demand, 0.100 and 0.513; animal feed demand, 0.885 and 2.766; and for supply, 0.051 and 0.151, obtained from various researchers (Cadiz, 1984; Frank, 1986; Nieuwoudt, 1973; Van Zyl, 1991, 1986, 1985).

4. Results

The analytical structure applies to a small country case and allows for different domestic prices to producers and consumers (Lutz and Scandizzo, 1980). The small country case implies that South Africa's pricing policy or pattern of international trade in the maize industry will not affect the international maize market.

Agricultural pricing policies differ in developed and developing countries (Bale and Lutz, 1981) as generally prices for agricultural commodities in developing countries have NPCs less than one while those in developed countries are greater than one because commodities are often taxed through price intervention measures in developing countries. This results in higher prices and production in developed countries than would be without intervention and lower prices and production in developing countries.

Tables 1, 2, and 3 are derived from data obtained from the Abstract of Agricultural Statistics (1991) and Agrocon (1991) (see Appendix 1). Table 1 shows that South Africa has NPCs greater than one which is similar to developed countries. Using short run and long run elasticity estimates, the South African price policy has resulted in an increase in white maize production of 4390 tons in the long run and 2240 tons in the short run compared to an economic situation with no domestic interference using 1990 data. These tonnages are relatively small as the supply for maize is relatively inelastic.

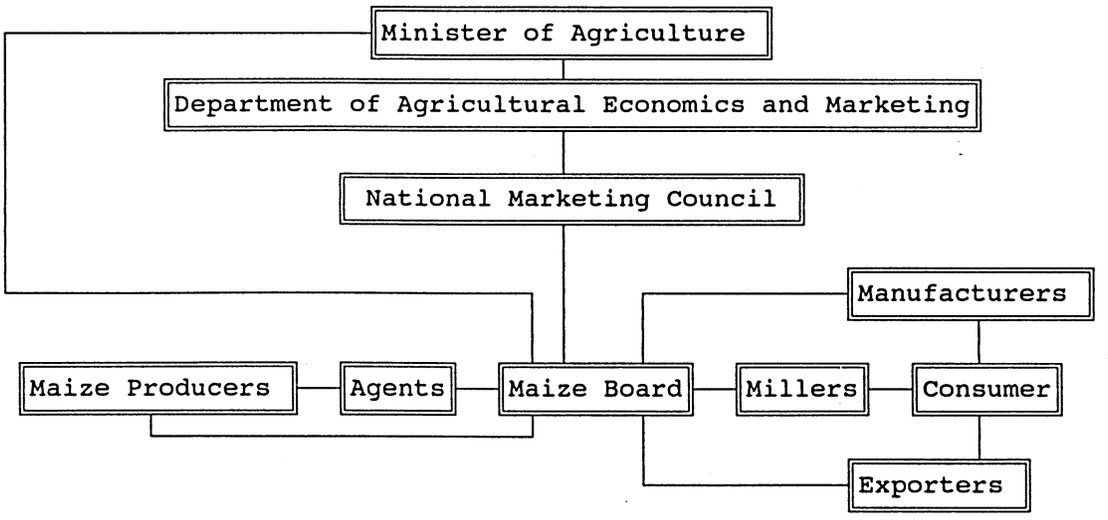

Figure 1: South African Maize Industry policy environment.
Source: National Marketing Council, 1991.

The increase in production has been as high as 16810 tons and 8570 tons in the long and short run respectively using 1988 data. Yellow maize production has increased by the same amount in 1990, and has reached a high of 16310 tons and 8320 tons using long and short run elasticity estimates respectively (see Table 1). Hence the pricing policy adopted by the South African Maize Board encourages production which is typical of a developed country. This however is at the expense of the consumers as local prices are increased when local production is high. Maize is the staple diet of the low income group. This population group will continue to buy maize at higher prices, as shown by a low price elasticity of demand. Ninety four percent of maize meal produced in South Africa is consumed by the black population group (Elliott, 1991). Forty seven percent of this group live under the poverty line (Van Zyl and Vink, 1991). Justification of such a policy seems difficult. The Maize Board, however, argues that maize for the low income population group is purchased by their employers. From a trade perspective, imports are reduced by having NPCs greater than one and export subsidies are necessary to bridge the gap between the internal price and the net export realisation price.

Short and long run estimates for specific years refer to production responses based on short and long run price elasticity estimates. Welfare results show that the South African maize economy incurs large losses due to the misallocation of resources resulting from the existing policy (see Table 2,3 and 4). Producer welfare gains are, in all years studied, significantly smaller than the respective consumer welfare losses. The total net social losses are the sum of the net social losses in production and consumption. South Africa's total net social loss for white maize in 1986 is 0.06 percent in the short run and 0.28 percent in the long run of gross value maize production. In 1990, the percentage of gross value maize production was 0.083 percent in the short run and 0.42 percent in the long run. In 1988, a high of 0.81 percent of gross value maize production was recorded in the long run.

The total net social loss for yellow maize for 1990 is 0.43 percent (short run elasticity estimate) and 1.34 percent (long run elasticity estimate) of gross value maize production. In 1988, the total net social loss was 1.02 percent and 3.15 percent of gross value maize production in the short and long run respectively. This has been the highest loss in the last five years.

Results in Table 5 and 6 indicate that the most sizeable effects of the different agricultural policies are the welfare transfers between consumers and producers. Commercial maize farmers received welfare gains of R384 million and R384 million in the short and long run respectively for 1990. The consumers of white maize incurred losses of R555 million and R563 million in the short and long run respectively for 1990. In the feed market, consumers of yellow maize (meat producers) incur losses of R595 million and R618 million in the short and long run for 1990. These transfers are of similar magnitude to those found in developed countries (Bale and Lutz, 1981). Relating the magnitude of the welfare transfers to the size of social losses, it is apparent that transfers are far more sizeable than deadweight losses.

According to estimates in Table 7 the Board experiences an increase in revenue from its interventionist maize policy. Past research (Bale and Lutz, 1981; Lutz and Scandizzo, 1980) shows that industrialised nations gained foreign exchange through protectionist policies while developing countries lost foreign exchange earnings. Table 7 shows that the protectionist policy in South Africa is similar to that of an industrialised nation (earns foreign exchange). This is an expensive way of earning foreign exchange if the export realization price is less than the cost of production.

In comparing the gross domestic product with the estimated welfare losses, Bale and Lutz (1981) found that distortions are more costly to developing countries than to developed countries. Agriculture accounted for 5.6 percent of South African gross domestic product in 1989 which is reminiscent of a developed country. Table 7 shows the total net social loss as a percentage of gross domestic product. These percentages are fairly significant considering that they only represent social losses associated with the maize industry (see Bale and Lutz 1981 for comparison). It is important to note that these distortions will have repercussions in other sectors of agriculture (e.g. beef) and the economy.

Table 1: Real effects of price distortions in the South African Maize Industry using the long and short run elasticity estimates for 1986 to 1990.**

Year	Estimated change in production with respect to change in price				Estimated change in consumption with respect to change in price				Nominal protection coefficient for yellow maize
	White		Yellow		White		Yellow		
	High * Low		High * Low		High * Low		High * Low		
	thousand tons				thousand tons				
1986	- 7.39	-3.77	- 5.89	-3.00	73.09	14.25	328.77	105.19	1.35
1987	-15.79	-8.05	-14.59	-7.44	107.66	20.99	519.62	166.26	2.46
1988	-16.81	-8.57	-16.31	-8.32	118.03	23.01	561.69	179.72	2.77
1989	- 8.62	-4.39	- 8.12	-4.14	99.09	19.32	429.17	137.32	1.46
1990	- 4.39	-2.24	- 4.39	-2.24	102.04	19.89	425.71	136.21	1.20

Source: Own calculations based on data obtained from Agrocon 1991, Abstract of Agricultural Statistics 1991, and the Maize Board 1991.

* High represents long run price elasticity estimate while Low represents short run elasticity estimate.

** The change in production and consumption represents estimates of change from current production and consumption levels to levels that would prevail under conditions (prices) with no domestic intervention.

Table 2: Net social losses of price distortions for South African maize production using long and short run elasticity estimates (1986-1990)('000 Rand)

Year	Net social loss in white maize production		Net social loss in yellow maize production	
	(high)*	(low)*	(high)*	(low)*
1986	273	139	173	88
1987	1246	635	1064	543
1988	1413	720	1371	678
1989	371	189	350	168
1990	96	49	96	49

Source: Own calculations based on data obtained from Abstract of Agricultural Statistics (1991), Maize Board and Agrocon (1991).

* High represents the long run price elasticity estimate while low represents the short run price elasticity estimate.

Table 3: Net social losses of price distortions for South African maize consumption using long and short run elasticity estimates (1986-1990) ('000 Rand).

Year	Net social loss in white maize consumption		Net social loss in yellow maize consumption	
	(high)*	(low)*	(high)*	(low)*
1986	5207	1015	19539	6251
1987	11297	2202	48808	15617
1988	13578	2647	57031	18248
1989	9570	1866	33295	10653
1990	10148	1978	32761	10482

Source: Own calculations based on data obtained from Abstract of Agricultural Statistics (1991), Maize Board and Agrocon (1991).

* High represents the long run price elasticity estimate while low represents the short run price elasticity estimate.

** Figures have been adjusted to the nearest thousand and represent estimates resulting from the current South African maize policy.

Table 4: Monetary effects of price distortions in the South African maize industry using long and short run elasticity estimates (1986-1990).

Year	Total net social loss for white maize		Total net social loss for yellow maize		Change in board revenue for white and yellow maize		Change in foreign exchange earnings
	(high)*	(low)*	(high)*	(low)*	(high)*	(low)*	
1986	5480	1155	19712	6340	521857	55691	18004
1987	12543	2838	49872	16159	3801	53496	17394
1988	14990	3367	58402	18926	73873	53136	17287
1989	9941	2055	33645	10821	250305	77768	25157
1990	10245	2027	32857	10531	753440	95091	30610

Source: Own calculations based on data obtained from Abstract of Agricultural Statistics, 1991, Maize Board and Agrocon (1991).

* High represents the long run price elasticity estimate while low represents the short run price elasticity estimate.

** Figures have been adjusted to the nearest thousand and represent gains and losses from the current South African maize policy.

A major limitation of this analysis is neglect of administration costs in deadweight losses and dynamic effects. It is also important to note that this analysis does not take into account distortions in input markets resulting in over and under estimation of the true welfare effects depending on the nature of input distortion (subsidies or taxes) and whether the nominal protection coefficients are greater or less than one (Bale and Lutz, 1981). Farmers argue that input prices are distorted resulting in higher costs necessitating higher producer prices. Under a dynamic free market situation, the net realisation price used in this analysis is not a satisfactory border price. Local prices are expected to stabilise above the border price under a free market situation (Frank, 1986). If the maize price realised was R91.93 per ton (net export realisation price for 1988), exports would dry up (see Frank, 1986). The highly aggregated model does not allow us to estimate the effects of income and industrial growth, adoption of technology, investment in agricultural and social consequences. The assumptions on the ranges of elasticities result in corresponding ranges for estimates of efficiency losses and not in specific estimates which might be desirable.

5. The Political Economy and "Political Failure"

Government intervention in the South African maize industry is justified as an attempt to correct market failure (inherent instability and uncertainty in both supply and prices, asset fixity and inelasticity of demand). Achievement of social goals such as income distribution is another reason. Honma and Hayami (1986) find that declining comparative advantage in agriculture and declining terms of trade for agricultural goods explain some propensity to protect farmers. Government policies are sometimes imperfect or incomplete either in design or implementation resulting in political failure (Rausser and Irwin, 1989). Political failure is caused by the manipulation of government by powerful interest groups seeking to capture rents that have been generated by government restrictions on economic activity. The political process becomes a market where interest groups compete for rents. Competition in political markets generates social waste rather than surplus (Krueger, 1974). Interest groups compete for political influence by spending real resources (time, energy and money) on the production of political pressure to affect government policies (Rausser and Irwin, 1989). Pasour (1990) stated that the effectiveness of interest groups capturing rents depends on the rent a given producer expects from lobbying (rent per farmer).

Political preferences have many goals, some conflicting, with different weights on each goal (Becker, 1983). Such weights evolve as a direct result of political-economic demand and supply. The demand side emanates from the affected interest groups (Olsen, 1965). The more an interest group expects to benefit from a particular distortionary policy, the greater will be its demand on the government to provide that policy. Supply is provided by the policy-makers (Downs 1957). This depends on transaction costs and deadweight losses. The more effective opposition from groups who would lose by a policy, the higher the political cost of supplying that policy. Consumers are under-represented in the Maize Board compared to commercial maize producers indicating that producers can manipulate supply to some extent along with demand in the policy process. This means that they are in a strong position to implement and maintain policies that generate rents (or transfers) for them.

The existing distribution of access to resources, inputs and markets in South African agriculture between races is highly inequitable due to a number of barriers of physical and institutional nature (Fenyes, Van Zyl and Vink, 1988). The institutional infrastructure of agriculture differs in terms of quality, availability and accessibility between commercial and subsistence farms (or race groups) (Van Zyl and Nieuwoudt, 1990). This institutional infrastructure has resulted in benefits from the South African maize policy being concentrated in the commercial maize producers group. Organised lobbies and representation of groups in government is prevalent in the maize sector of the South African agricultural economy (Van Zyl, 1989a, cited by Van Zyl and Nieuwoudt, 1990). Due to the strength of interest groups involved, policy measures are aimed at alleviating problems of the commercial maize farmers, or to effect welfare transfers to them at the expense of other groups, mainly consumers. This can be seen in tables 5 and 6.

Although producer gain for 1990 is less than consumer loss (R384 million and R181 million in the long run and R384 million and R1150 million in the short run respectively), the producer gain per capita is greater than the per capita consumer loss.

Table 5: Monetary effects of price distortions for South African maize production using long and short run elasticity estimates (1986-1990).

Year	Welfare gain in white maize production (Rm)		Welfare gain in yellow maize production (Rm)	
	(high)*	(low)*	(high)*	(low)*
1986	255	255	263	263
1987	564	564	508	508
1988	634	616	480	481
1989	564	532	239	406
1990	206	206	178	178

Source: Own calculations based on data obtained from Abstract of Agricultural Statistics (1991), Maize Board and Agrocon (1991).

* high represents the long run price elasticity estimate while low represents the short run price elasticity estimate.

** Figures have been adjusted to the nearest thousand and represent gains from the current South African maize policy.

Taking the number of commercial maize producers to be 16267 (Maize Board, 1992), the average per capita commercial farmer gain from the present maize policy is estimated at R23000 using welfare transfers derived previously and short run elasticity estimates and the average per capita consumer loss for white maize is approximately R26. Breaking up the welfare transfer estimates according to production figures for each province (Abstract of Agricultural Statistics, 1991), Transvaal receives approximately R230 million, Orange Free State R120 million, Cape R19 million and Natal R12 million. Hence, South African maize producers have an incentive to continue lobbying for protection in the maize industry.

The political clout of producers can also be seen in the application of drought assistance by the government. There is general sympathy for producers affected by adverse weather conditions. The question arises why farmers do not insure their crops or diversify, which will reduce their need for government assistance in the face of adverse weather conditions. Drought assistance is readily given to producers which encourages risk taking (growing maize in marginal areas). Maize producers in the heartland of South African maize belt (Transvaal and Orange Free State) have lobbied in the past successfully for massive state aid during droughts (1983). South Africa is presently experiencing a drought (1992) and will have to import a substantial amount of maize. The import landed price for maize at Durban is R468 per ton (Maize Board, 1992). The current selling price for maize is R420 per ton. The Maize Board (1992) states that the selling price of maize will increase due to the imports. The extent to which the consumer price rises will depend upon how much the government is willing to subsidise the difference between the import price and the local selling price.

6. Policy Reform

The power of agricultural interest groups in the South African maize industry is well entrenched. These interests have been successful in securing and maintaining income transfers. Transaction costs involved in opposing these policies are high making prospects for policy reform distant. Rausser and Irwin (1989) state three conditions that should be satisfied to enhance potential policy reform. These are: (i) greater transparency and increased information on the economic effects of current policy, (ii) compensation for those who lose from the new policy, (iii) restructuring of institutions to ensure the maintenance of reforms.

From the above partial equilibrium analysis one can see the direct economic effects of the current policy. Increased flow of information to producers, processors, traders and feeders should be an important function of the Maize Board. Agriculture is highly capitalised with equipment and land. Removing protection will cause the value of these fixed investments to drop. Aside from equity considerations, compensation may be required to achieve acquiescence of the losers to policy change (Rausser and Irwin, 1989). This condition has little economic and legal backing. There is no legal basis for an individual to expect that legislation affecting him/her will not change appreciably. Government policies lead to benefits and costs when the policies were introduced and society was not compensated. Consumers are not compensated for economic losses incurred in connection with the maize policy since such a loss is considered a mere incident of lawful regulation, so there is little basis for compensating producers for economic losses incurred in connection with deregulation. If compensation was agreed on, determining how much would be very difficult. Separating losses associated with economic progress from other losses or decreases in prices would result in formidable administrative problems (Pasour, 1973).

Pasour (1972) contends that the determination of whether special compensation is provided to producers will depend upon a set of political and economic forces similar to those which provided for the initial gain when the program was instituted. Compensation would introduce another distortion into the market. One cannot rule out the ability of maize producers as an interest group using the power of the state to enhance their own interests relative to those of other groups. Compensation seeking as opposed to rent seeking may arise (Rausser and Irwin, 1989). If compensation was granted to producers then consumers would seek compensation for past extractions of consumer surplus arising from previous policies. Other economic factors result in income losses such as change in tastes, new technologies and changes in international trade. No compensation is made here, so why should changes in public policy be singled out?

Groups who favour reform have little incentive to enter the political market because organisational transaction costs are high and free rider problems exist.

Table 6: Monetary effects of price distortions for South African maize consumers using long and short run elasticity estimates (1986-1990)

Year	Welfare gain in white maize consumption (Rm)		Welfare gain in yellow maize consumption (Rm)	
	(high)*	(low)*	(high)*	(low)*
1986	-742	-358	-323	-310
1987	-582	-573	-555	-522
1988	-624	-613	-637	-598
1989	-525	-517	-572	-550
1990	-563	-555	-618	-595

Source: Own calculations based on data obtained from Abstract of Agricultural Statistics (1991), Maize Board and Agrocon (1991).

* High represents the long run price elasticity estimate while low represents the short run price elasticity estimate.

** Figures have been adjusted to the nearest thousand and represent gains from the current South African maize policy.

Use of new institutions to create coalitions in favour of reform may defeat vested interests in current policies (Rausser and Irwin, 1989). These institutions could lead to efficiency improvements if they reduce the differences among interest groups in terms of their ability to obtain and utilise information (McCormick and Tollison, 1981). Since it is only the relative strength of interest groups which is relevant in obtaining transfers, reductions in differences between the strength of different groups might be expected to reduce the extent of distributive transfers (Becker, 1983). Examples where this has succeeded include the Council of Economic Advisers in the United States, and Industries Assistance Commission in Australia (Martin, 1991).

A phasing out of the policy would alleviate allocative inefficiencies. Policies could be replaced with direct income transfers given the political objectives (Becker, 1980; Gardner, 1981). This could be costly and a gradual phasing out of current interventions would be preferable. A decrease in the level of policy interventions would also reduce allocative inefficiencies induced by the presence of government policies in the form of dynamic inefficiencies and waste due to the competition for non appropriated rents created by the policy. South Africa is entering a period of political transition. Maize producers have strong political clout in several marginal seats under the present dispensation. In a new dispensation, farmers will have far less clout.

7. Conclusion

Farm product prices clearly play a vital role in achieving optimum output and growth in productivity. Distorted price signals are being given to producers and hence full potential in terms of resource allocation, production and consumption is not being realised. Results indicate that producer gains are less than consumer losses (R384 million and R1180 million in the long run and R384 million and R1150 million in the short run respectively for 1990). The rent per farmer is significantly larger than the loss per consumer and this affects the intensity of farmers lobbying for a particular policy (average rent per farmer is approximately R23000 whereas the per capita human consumer cost is R26). Income transfers and efficiency losses (net social losses as a proxy) are significant both as absolute numbers and as a proportion of national and agricultural income. Welfare losses for yellow maize consumers (meat producers) have been larger than those for human consumers for white maize (see Table 6), suggesting that price distortions in the yellow maize market are greater, as the demand for yellow maize is larger. Animal consumption of maize is price elastic and yellow maize consumption is expected to fall as meat producers substitute other feeds and start growing their own maize for livestock production.

It is important to note that this analysis does not consider the distortions in input markets. The model does not allow us to estimate accurately the effects on income and industrial growth, adoption of technology, investment in agriculture, social consequences, and others. Under a dynamic free market situation local prices will stabilise above the border price (net export realisation price).

Interactions of the interests of farm organisations, bureaucratic structure and politicians have major effects on policy making and implementation for South African maize policy. Analysis suggests that both economic and political incentives and constraints have shaped the South African maize industry. Commercial maize farmers, through lobbying and representation in government, have been able to enforce a policy that benefits them at the expense of consumers. Adding to this injustice is the knowledge that the consumer interest group is the lower income population group and that it is inadequately represented in the Board.

Even though there are external and internal pressures for agricultural reform, current political economic conditions within South African agriculture strangle the implementation of significant reform. Serious attempts must be made to change current political economic conditions that exist. South Africa is in the process of initiating radical political change which will affect the strength of present interest groups. The producer group will not have as much political clout in the new political dispensation.

Note

1. Suggestions of an anonymous reviewer are acknowledged.

References

ABSTRACT OF AGRICULTURAL STATISTICS. (1991). Republic of South Africa.

AGROCON. (1991). CSIR Conference Centre, Pretoria.

Table 7: Estimated total net social losses as a percentage of gross domestic product (GDP) using long and short run elasticity estimates (1986-1989)

Year	Social losses (high)*		Social losses (low)*	
	% of Agricultural GDP	Percentage of GDP	% of Agricultural GDP	Percentage of GDP
1986	0.346	0.019	0.103	0.006
1987	0.677	0.042	0.206	0.013
1988	0.735	0.042	0.223	0.013
1989	0.375	0.021	0.111	0.006

Source: Calculations based on data obtained from Abstract of Agricultural Statistics (1991).
* High represents the long run price elasticity estimate while low represents the short run price elasticity estimate.

BALE, MD and LUTZ, E. (1981). Price distortions in agriculture and their effects: An international comparison. American Journal of Agricultural Economics, Vol 63:8-22.

BECKER, GS. (1983). A theory of competition among pressure groups for political influence. Quarterly Journal of Economics, Vol 98:371-400.

CADIZ, R. (1984). An economic analysis of the supply of and demand for maize in South Africa. Unpublished BSc Agric. Thesis, Department of Agricultural Economics, University of Natal, Pietermaritzburg.

CURRIE, JM; MARTIN, JA and SCHMITZ, A. (1971). The concept of economic surplus and its use in economic analysis. Economic Journal, Vol 81:741-799.

DOWNS, A. (1957). An economic theory of democracy. New York: Harper and Row.

ELLIOTT, MB. (1991). Pricing policy in the maize industry: Effects of price sensitivity, interdependence and relative shifts in income. Agrekon, Vol 30, No 3:146-147.

FENYES, TI; VAN ZYL, J and VINK, N. (1988). Structural imbalances in South African agriculture. South African Journal of Economics, Vol 56:181-194.

FRANK, DB. (1986). An economic analysis of various policy options for the South African maize industry. Unpublished M.Sc.Agric Thesis, University of Natal, Pietermaritzburg.

GROENEWALD, JA. (1989). Review of the report of the committee of enquiry into alternative marketing arrangements for maize. Unpublished Report, University of Pretoria, South Africa.

HONMA, M and HAYAMI, Y. (1986). The determinants of agricultural protection, edited by K. Anderson and Y. Hayami. Sydney: Allen and Urwin.

KRUEGER, AO. (1974). The political economy of the rent seeking society. The American Economic Review, Vol 64:291-303.

LUTZ, E and SCANDIZZO, PL. (1980). Price distortions in developing countries: A bias against agriculture. European Review of Agricultural Economics, Vol 7:1-27.

McCORMICK, R and TOLLISON, R. (1981). Politicians, legislation and the economy. Martinus Nijhoff Publishing, Boston.

MAIZE BOARD. (1991). Personal communication.

MAIZE BOARD. (1989). Annual report. Pretoria.

MARTIN, W. (1990). Public choice theory and Australian agricultural policy reform. Australian Journal of Agricultural Economics, Vol 34:189-211.

MONOPOLIES COMMISSION. (1977). Report of the commission of enquiry into the regulation of Monopolistic Condition Act of 1955. Government Printer, Pretoria.

NATIONAL MARKETING COUNCIL. (1991). Personal communication.

NIEUWOUDT, WL. (1973). The maize/meat price gap. Agrekon, Vol 12, No 4:37.

OLSEN, M. (1965). The logic of collective action. Cambridge: Harvard University Press.

PASOUR, EC Jr. (1990). Agriculture and the state. Market processes and bureaucracy. Holmes and Meier Publishers, Inc. United States of America.

PASOUR, EC Jr. (1973). Economic growth and agriculture: An evaluation of the compensation principle. American Journal of Agricultural Economics, Vol 55: 611-616.

PASOUR, EC Jr. (1972). Legal and economic rights of holders of government allotments. American Journal of Agricultural Economics, Vol 54:622-626.

RAUSSER, GC and IRWIN, DA. (1989). The political economy of agricultural policy reform. European Journal of Agricultural Economics, Vol 15:349-366.

TSAKOK, I. (1990). Agricultural price policy - a practitioner's guide to partial-equilibrium analysis. Cornel University Press. New York.

VAN ZYL, J. (1986). 'n Statistiese ontleding van die vraag na mielies in Suid-Afrika. Agrekon, Vol 25, No 3:49-55.

VAN ZYL, J and NIEUWOUDT, WL. (1990). Maize marketing in the future. Unpublished article, Universities of Pretoria and Natal (Pietermaritzburg) respectively.

VAN ZYL, J and VINK, N. (1991). Agriculture in the 1990's: An economic-political perspective. Agrekon, Vol 30, No 1:46-47.

APPENDIX 1

Statistics for the South African Maize Industry (1986-1990).

Year	Producer price		Net export realisation price	Production		Consumption		Gross value maize production	Consumer price
	White	Yellow		White	Yellow	White	Yellow		Yellow
	Rand per ton		Rand per ton	'thousand ton		'thousand ton		'million Rand	Rand/ton
1986	240.35	225.27	166.41	3455	4471	2508	2556	1944	285.27
1987	258.00	246.00	100.14	3579	3489	2721	2697	1848	288.00
1988	260.00	255.00	91.93	3780	2951	2655	2854	1856	295.00
1989	264.00	259.00	177.84	6553	4999	2669	3473	2946	333.00
1990	265.00	265.00	221.09	4700	4054	2780	3800	2451	360.00

Sources: Abstract of Agricultural Statistics, 1991; Maize Board, 1991; Agrocon, 1991.