WELFARE EFFECTS OF REGULATION IN LESOTHO'S WHEAT MARKET

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Present marketing of wheat in Lesotho distort and imposes a heavy tax on the Lesotho economy. It puts upward pressure on producer and consumer prices, which results in welfare losses to consumers –including the majority of rural and agricultural households who are deficit producers of this commodity. The winners from these policies are the relatively small number of surplus producers and the three industrial mills enjoying some monopoly powers. It is recommended that the Government of Lesotho liberalize Lesotho's wheat market.

WELVAARTSEFFEKTE VAN REGULERING IN LESOTHO SE KORINGMARK
Die huidige bemarking van koring in Lesotho verwring en plaas 'n hoë belasting op die Lesotho ekonomie. Dit plaas opwaartse druk op produsente- en verbruikerspryse, wat in welvaartsverliese vir verbruikers resulteer –insluitende die meerderheid van landbouhuishoudings wat tekort produsente is van hierdie kommoditeit. Die wenners van hierdie beleid is die relatief klein aantal surplus produsente en die drie industriële meulens wat monopolie magte het. Dit word voorgestel dat die Owerheid van Lesotho die koringmark van Lesotho moet liberaliseer.

1.   INTRODUCTION

The government of Lesotho has recently announced its intention to move away from an agricultural strategy aimed at attaining national food self-sufficiency towards food security. It has been argued that a key area of policy reform necessary to implement this new strategy successfully includes the deregulation of the main agricultural output and input markets, which are currently characterized by considerable Government intervention in the form of price fixing and trade protection granted to agricultural parastatals. The specific policy reforms envisaged for the 1996/97 marketing season are the deregulation of both domestic and international grain and flour trade.

The objective of this study is to quantitatively estimate the impact of deregulation in the wheat market on producers and consumers. First, Lesotho's agricultural policies are briefly discussed. Second, production, domestic consumption and import requirements of wheat is discussed. Wheat marketing, with particular emphasis on the role of the milling sector, are subsequently addressed. This is followed by the main part of the paper, namely an analysis of the welfare impact of wheat pricing, trade and marketing policies. The study concludes with recommendations for the way forward.

2.   LESOTHO'S AGRICULTURAL POLICIES

Since the late 1970s, Lesotho's agricultural policies have been shaped largely by the perceived political need to reduce dependence on food imports from South Africa and to protect domestic producers from unfair competition from the subsidized, large-scale South African producers. With the aid of a number of donors, including the World Bank, Lesotho promoted self-sufficiency in agriculture. The underlying philosophy and assumptions were that self-sufficiency was vital in case South Africa suddenly closed the border with Lesotho.

According to the World Bank (1995), the Food Self-Sufficiency Program (FSSP) initiated in 1980/81 involved, among other things:

(1)   Setting fixed producer prices well above world prices and even substantially higher than South African producer prices;

(2)   heavily subsidizing government-provided tractor services for field preparation and planting;

(3)   supplying seed and subsidized fertilizer for participating farmers through a marketing parastatal, Co-op Lesotho; and

(4)   providing loans through local banks to pay for these services and inputs. The recovery rate on these loans was well below 10 percent, so most loans (totalling about M2.0 million at their peak) were effectively grants to producers.

The marketing of wheat and other agricultural products in Lesotho is primarily governed by the 1967 Agricultural Marketing Act, the 1979 Marketing Amendments Act and various Legal Notices. The 1967 Marketing Act empowers the Minister of Agriculture to gazette regulations and/or intervene in aspects such as product pricing, trade and marketing. Currently, the government of Lesotho intervenes in the domestic markets for wheat in two distinct ways. It controls imports and it controls prices (Ministry of Agriculture, 1995).

Import control

According to the Ministry of Agriculture (1995), there has for a number of years been no formal policy to restrict imports of wheat grain, other than in the immediate post-harvest period. However, some traders are not aware of this (Westlake, 1996). Permits to import wheat flour are only issued if, for some reason, the large-scale mills are temporarily unable to meet domestic demand fully. At all other times, imports are banned. Wheat can only be

acquired from the world market in full shipments. Consequently, it is only imported by the large mills. There is no attempt to restrict such imports.

Price control

Prices are controlled by the government at three levels of the marketing chain:

-           for whole grain: into-traders' depots; and
                                into-mill, at the mill-gate;

-           for milled products: ex-mill, at the mill gate.

The large mills are required to accept and pay the gazetted prices for all wheat delivered to them, provided it meets minimum quality standards.

There is no control of the prices at which the large-scale mills sell from their depots in the districts, no effective control of the selling prices of the small-scale roller mills, and no control of wholesale and retail prices. Hammer mills are only permitted to mill on commission (Ministry of Agriculture, 1995).

Controlled prices are normally gazetted at the start of the new marketing year and held constant for a full year. All gazetted prices are pan-territorial. The into-mill price has been set at the projected cost to the mills of acquiring grain from the South African Wheat Board. The cost of acquisition from the Wheat Board do not provide an accurate projection of the mill's actual acquisition costs, because they import from the world market, not from the Wheat Board. In most years, prices on world markets have been substantially below the South African Wheat Board's selling prices. The prices gazetted for deliveries of whole grain to traders' depots are set at a discount to the into-mill prices to allow for projected average transport costs from depots to the mills.

The gazetted ex-mill prices for wheat flour and other mill products are aimed at covering the border parity price, cost of production (for local producers and reflected in the producer price), processing, refining and packaging, plus what is claimed is a 10 - 15 percentage mark-up (Motsamai, 1994; Lesotho Flour Mills, 1994). Milling costs are based on submissions from the mills (Lesotho Milling Company, 1994). The government does not have the capacity to check the accuracy of these submissions. To do so would require a substantial cadre of accountants and milling specialists. This problem is common to price control throughout Sub-Saharan Africa. The normal practice is for those setting the prices to assume that the submissions contain inflated costs. Smaller margins are therefore built into the gazetted price structures than are justified by the cost submissions. This, in turn, encourages the firms to further exaggerate their cost projection in subsequent submissions (Motsamai, 1994).

3.   PRODUCTION, DOMESTIC CONSUMP- TION AND IMPORT REQUIREMENTS OF WHEAT

Nearly 10 percent of Lesotho's cultivated land is devoted to wheat. The average yields per hectare of wheat is very low and it fluctuates widely between years. The Ministry of Agriculture (1995) identified poor soil conservation, land tenure arrangements and high input costs as reasons for the low yields.

The current total national requirements for wheat are, approximately 75 000 tonnes. In 1993/94, which was a good growing year, Lesotho's farmers produced an estimated 18 000 tonnes of wheat. In 1994/95, which was severely affected by drought, production fell to 9 700 tonnes. Thus, at present levels of population and *per capita* demand, in a good growing year Lesotho is able to meet about one quarter of its wheat needs. In a drought year this proportion fall sharply.

Table 1 shows Lesotho's wheat requirements and the origins of supply from 1985 to 1994. Currently, even in a year with above-normal rainfall, wheat must be imported to meet the national requirements. Roughly 90 percent of all the households in Lesotho —virtually all rural agricultural households, as well as the rural landless and nearly all urban households— are net consumers of wheat (World Bank, 1995).

He emphasized that privatization of the industrial mills alone and in isolation would not achieve this aim. It would only serve to divert the very large profits to a different destination. Privatization must be accompanied by liberalization to have the desired impact.

5.   WELFARE IMPACTS OF WHEAT PRICING, TRADE AND MARKETING POLICIES

In this section, distortions in the wheat industry of Lesotho is 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 (1987) and Tsakok (1990). Prices should reflect the relative scarcity of a product and the incentives to produce (Tsakok, 1990). 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 mill gate (producer prices). Border prices represent the opportunity cost of a tradable commodity. If a commodity were imported, the c.i.f. price for the commodity must be adjusted for internal transportation and processing margins. The adjustments make the border price comparable to the estimated domestic price that the farmer receives, because both refer to the same stage of production. If an imported commodity were to be adjusted to the mill-gate level, the internal margins must be added to the c.i.f. price. This adjusted c.i.f. price is called the c.i.f. plus price: it is the price consumers could have paid if small village mills were allowed to compete freely with the imported substitute. Often it is useful to adjust the c.i.f. to the major consumption point within the country to assess incentives to consumption, and the intermediary stages of processing and marketing, rather than local production only.

The basic analytical structure is represented by the equations in Table 2, as taken from Tsakok (1990). In the analyses, the domestic price represents the actual, nominal price at which Lesotho mills sell wheat meal to its clients. The implied "tariff" on wheat is calculated by comparing the processing profits and operating expenses of the Lesotho mills with the observed processing profits and operating expenses of private village mills. Processing profits and operating expenses for the two type of mills (i.e. industrial,

Table 1: Lesotho's wheat requirements and origin of supply (thousand tonnes)

Year	Total requirement	Domestic supply	Imports	Donations
1985	73.7	11.0	32.0	30.7
		(14.9)	(43.4)	(41.7)
1986	81.5	18.5	32.0	31.0
		(22.7)	(39.3)	(38.0)
1987	103.5	19.2	41.4	42.9
		(18.6)	(40.0)	(41.4)
1988	100.1	29.7	54.2	16.2
		(29.6)	(54.2)	(16.2)
1989	78.6	33.2	37.1	8.6
		(42.1)	(47.0)	(10.9)
1990	56.3	6.8	41.6	7.9
		(12.1)	(73.8)	(14.0)
1991	61.6	11.9	40.0	18.6
		(19.3)	(65.0)	(30.2)
1992	86.2	8.1	68.1	10.0
		(9.4)	(79.0)	(11.6)
1993	80.9	12.0	57.1	11.8
		(14.8)	(70.6)	(14.6)
1994	62.6	18.5	44.1	0.00
		(29.6)	(70.4)	(0.0)

Note: Figures in parentheses represent the percentage contribution of the specific item to total supply
Source: Ministry of Agriculture (1994)

and private village mills) were calculated by the World Bank (1995).

Gazetted prices represent domestic prices for wheat meal International prices were used to calculate the border price of wheat meal, since Lesotho does not import wheat from South Africa. The existence of a difference suggests an efficiency loss, or an implicit "tariff" on consumers.

An effort was made to calculate price elasticities for the supply and demand of wheat in Lesotho econometrically. Data availability presented some problems, as the available time series are relatively short which restricts estimation possibilities. Both the price elasticities of supply and demand yielded results that are not significantly different from zero, which implies total price inelastic supply and demand for wheat. These results were consistent regardless of the methodology and functional specification used and are in accordance with *a priori* expectations for a country like Lesotho: (i) the price elasticity of supply is expected to be very low –approximating zero– when most of the households only produce for own consumption, within a relatively limited and poor production environment; and (ii) the price elasticity of demand is very low –also approximating zero– if the crop is the dominant staple, it dominates the consumer market, and has no immediate substitutes, within a relatively isolated consumer market. Of all the variables tested in the different regression equations, only rainfall yielded significant results. The better the rainfall during the planting season, the more wheat is planted and harvested –i.e. it affects both intended and actual supply.

Although the elasticities that were obtained are plausible, theory stipulates that both quantity demanded and supplied should show some reaction –albeit small– to price changes, particularly within a normal competitive environment. It has already been illustrated that the situation with respect to marketing of staple grains in Lesotho is not conducive to smallholder grain production and/or competition. For this reason, it was decided to rather use comparable price

elasticities of supply and demand derived for South Africa under similar conditions. Although these elasticities are also relatively small (inelastic), the advantage is that they are significantly different from zero, which allows for analysis of the welfare implications of alternative marketing arrangements on producers and consumers.

Data for the analysis of welfare gains/losses induced by the reigning policies impacting on production, consumption, trade etc. of wheat in Lesotho were obtained from the Ministry of Agriculture (1994), Buro of Statistics (1994) and the National Early Warning Unit (1995). The calculations were done for the 1991/92 to 1995/96 production seasons. The results are shown in Table 2.

It is clear from Tables 2 that the trend in the welfare analyses remain fairly constant over the years. The deadweight losses in wheat production for the 1994/95 and 1995/96 are estimated at M0.663 million and M0.443, respectively. For wheat consumption, deadweight losses are estimated at M3.60 million and M2.41 million, respectively. This yields a total deadweight efficiency loss of M4.263 million for 1994/95 and M2.853 million for 1995/96. The following welfare gains and losses were calculated:

-       producers of wheat gained M16.01 million during the 1994/95 season and M11.99 million during the 1995/96 season;

-       consumers of wheat lost M37.19 million during the 1994/95 season and M31.21 million during the 1995/96 season. This amounts to a loss of approximately M16 per capita per annum; and

-       mills benefitted (as monopoly rents –profits or absorbed as inefficiencies) M23.66 million during the 1994/95 season, and M20.29 million during the 1995/96 season.

It should be noted that the per capita consumer loss would have been larger if it were not for the subsidies which the

Table 2 Welfare Analysis of Wheat Trade and Processing, 1991/92 to 1995/96

Variable	Label	Formula	Prices/Values[1]				
			1991/92	1992/93	1993/94	1994/95	1995/96
Parameters							
Pd	domestic price of wheat meal (mill gate)		1277.08	1341.00	1499.50	1637.33	1800.42
Pb	"border" price of wheat meal (mill gate)		720.65	768.29	985.64	974.95	1232.33
nd	price elasticity of demand[2]		-0.53	-0.53	-0.53	-0.53	-0.53
es	price elasticity of supply[2]		0.33	0.33	0.33	0.33	0.33
NPC	Nominal Protection Coefficient	Pd/Pb	1.772	1.745	1.521	1.679	1.461
t	implicit tariff	NPC-1	0.772	0.745	0.521	0.679	0.461
t'		tPb/Pd	0.436	0.427	0.343	0.405	0.316
V'	value of domestic production at domestic price	Pd*Dom.Prod	12.26	8.83	14.52	24.54	26.98
W'	value of domestic consumption at domestic price	Pd*Total supply	63.67	93.66	98.21	83.02	91.29
Analysis							
NELp	deadweight loss in production	0.5*es*t'^2*V'	0.384	0.266	0.281	0.663	0.443
NELc	deadweight loss in consumption	0.5*nd*t'^2*W'	3.20	4.53	3.06	3.60	2.41
WGp	change in producer surplus	t'V'-NELp	9.08	6.31	7.29	16.01	11.99
WGc	change in consumer surplus	-(t'W'+NELc)	-30.95	-44.53	-36.71	-37.19	-31.21
^GR	change in mill revenue	t'(W'-V')	22.40	36.23	28.68	23.66	20.29
Loss/cap	Loss per capita	WGc/Total population	16.87	23.66	19.01	18.77	15.76

Notes: [1] Prices are in M/ton and values are in M million
        [2] Price elasticities are taken from Niebuhr and Van Zyl (1990)

three industrial mills receive from Government. This ultimately leads to lower gazetted consumer prices.

In Lesotho, distortions around the competitive equilibrium arise because of: (i) the import ban on milled wheat –this is sometimes lifted in times of a drought; (ii) the monopoly on wheat grain importation and pricing; and (iii) the oligopoly and subsidization of large retailers. In the above analyses, only the welfare implications of the monopoly situation in which the mills find themselves are analyzed. According to the World Bank (1995), the inefficiencies arise from the mill's monopolistic profits and inefficient operations, as compared to the profits and operating costs incurred by private smaller-scale millers in Lesotho's villages. According to the World Bank's (1995) calculations, prices of wheat meal milled by village mills were on average 16 percent lower than that of the three industrial mills. One would assume that wheat processing should exhibit economies of scale, these calculations suggest the reverse: the small-scale roller mills seem to operate more efficiently than the large-scale mills. This situation is not surprising when the monopolistic powers of the three mills are taken into account.

These results largely refutes the Food and Agricultural Organisation of the United Nations (FAO, 1989) statements, namely that Lesotho flour mills have turned into one of the success stories of the country by demonstrating both an application of well qualified and successful management and an ability to return a profit. These findings did not account for the protected policy environment, where Government set consumer prices according to their recommendations. It also does not account for welfare losses and transfers due to these policy distortions. The results of this analysis show that the financial results of the Lesotho mills would have been totally different if they were to operate in an unprotected and liberalised environment.

Domestic commercial wheat producers benefit from the distortions, which *de facto* function as instruments of protection. The Nominal Protection Coefficient (NPC) is the ratio of the domestic price that the three industrial millers face in the presence of the distortions and the price they would have faced in the absence of the distortions. The marketing and processing system certainly exerts substantial upward pressure on open market producer prices.

6.   CONCLUSION AND RECOMMENDATIONS FOR THE WAY FORWARD

The results of this study show that present marketing arrangements for wheat are highly distortive and imposes a heavy tax on the Lesotho economy in terms of deadweight losses in efficiency. It puts considerable upward pressure on producer and consumer prices, which results in considerable welfare losses to consumers –including the majority of rural and agricultural households who are deficit producers of this commodity. These distortions inhibit the development of private sector-led trade, marketing and processing (which ultimately keeps producer prices down), skew relative prices towards the production of traditional food crops for which Lesotho has little comparative advantage, and raise consumer prices of staples above their import parity price. The winners from these policies are the relatively small number of surplus producers and the three major industrial mills enjoying some monopoly powers. These policies also contributed to the thin rural markets, the lack of surplus production from the majority of smallholders, the absence of a well developed and vibrant small-scale processing and

trade sector, and underdeveloped rural farm non-farm income and employment linkages on particularly the output side.

When one considers the results of this study, it is recommended that the Government of Lesotho liberalize her wheat market. In order to be successful, four things will have to be done:

1)   All regulations that restrict or distort the flow of grains and meal/flour must be removed;

2)   Government parastatals, like Lesotho Flour mills, should be privatized;

3)   regulations that restrict the flow of inputs to be used in wheat production should be abolished; and

4)   Government should concentrate on providing information to facilitate proper working of the markets rather than interfering directly or by taking over typical private sector roles.

NOTE:

1.   With Department of Agricultural Economics, Extension and Rural Development, University of Pretoria at time of submission of paper.

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