



Economic Impact of BMC Price Increases

**Tania Revault d'Allonnes
March 22 – April 28, 2006**

**Submitted by:
The Services Group**

**Submitted to:
Regional Center for Southern Africa,
U.S. Agency for International Development**

Gaborone, Botswana

May 2006

USAID Contract No. 690-M-00-04-00309-00 (GS 10F-0277P)



TABLE OF CONTENTS

LIST OF ABBREVIATIONS.....	2
EXECUTIVE SUMMARY.....	3
I. INTRODUCTION.....	7
II. BOTSWANA'S LIVESTOCK PRODUCERS.....	8
III. CATTLE SUPPLY.....	11
IV. THE BMC.....	14
V. BEEF DEMAND.....	19
VI. THE OPTIONS.....	21
VII. IMPACT ASSESSMENT.....	24
VIII. CAVEATS.....	28
IX. THE BIGGER PICTURE.....	29
X. CONCLUSION.....	31

ANNEX 1: STATISTICAL TABLES

ANNEX 2: LIST OF CONTACTS

ANNEX 3: LIST OF REFERENCES

LIST OF ABBREVIATIONS

BCPA	Botswana Cattle Producers Association
BMC	Botswana Meat Commission
CDC	Colonial Development Corporation
CDM	cold dressed mass
CEDA	Citizen Entrepreneurial Development Agency
CSO	Central Statistics Office
DAHP	Department of Animal Health and Production
EPP	export parity pricing
EU	European Union
GDP	gross domestic product
HIES	Household Income and Expenditure Survey
LSU	livestock unit (1 bull = 2 LSU, 1 cow = 1 LSU = 450kg, 1 weaner = ½ LSU)
P	Botswana Pula
RSA	Republic of South Africa
SACU	Southern African Customs Union
SADC	Southern African Development Community
SPS	sanitary and phytosanitary
TFCB	Trade Facilitation and Capacity Building project
TGLP	Tribal Grazing Land Policy
ZAR	South Africa Rand

EXECUTIVE SUMMARY:

In May 2005 the Southern African Global Competitiveness Hub produced a policy briefing paper entitled “How trade liberalization can contribute to resolving the crisis in the beef and cattle sector”. The paper was prepared in response to concerns expressed by many involved with Botswana’s beef and cattle sector that the industry was facing a major crisis. This was manifested in many ways: the diminishing viability of cattle farming, due to low prices, resulting in a declining national herd and the running down of national cattle assets; diminishing throughput at the Botswana Meat Commission (BMC), resulting in rising losses and dependence on government bailouts; low productivity both in cattle rearing and at the BMC; an inability to fill Botswana’s export quota to the lucrative EU market; and the failure of the sector to provide a vigorous base for the rural economy and fulfil its potential role in employment creation and poverty alleviation.

The study made several recommendations focused on reviving the sector and enabling it to fulfil its potential. These included raising domestic prices to regional export parity levels; promoting a shift in the cattle sector from a system based on oxen production to one based on weaner production, with consequent improvements in productivity and efficiency; removing trade restrictions on beef and cattle; and reforming and restructuring the BMC. The study noted that although the cattle and beef industry is of limited macroeconomic relevance, livestock production is probably the most important predominantly citizen-owned industry in Botswana, making it a powerful tool for development, and it is therefore important to get the industry operating productively.

In January 2006 the BMC announced an increase averaging 40% in the price it pays for cattle. This went some way towards meeting the needs for reform, although it was not accompanied by any of the other recommended changes. In order to evaluate the impact of the price increase on the sector, and whether it had made a meaningful contribution towards reversing the spiral of decline, the Hub commissioned a follow-up paper to analyse the impact of the price increase, and to make recommendations as to further reforms if these are needed. The key conclusions of the paper are highlighted below.

The 40% price increase introduced by BMC had some immediate effects. It was largely matched by competing purchasers (mainly independent butcheries), resulting in increased producer prices across the board and a consequent increase in retail prices of a similar magnitude. However, the impact of the increase varies across different types of producers. For smaller producers who sell mainly to achieve cash targets, the impact is positive, but may lead to reduced cattle supplies to BMC and butcheries. The proportion of income made up by cattle sales is much greater for the low income groups (estimated as 25% for households with income below P200 per month, and 10% for those with incomes of P200-400 per month) than for upper income brackets; hence for low-income cattle-owning households, the price increase has led to both an increase in incomes and an appreciation in wealth, as the value of their cattle herds has increased.

For larger producers, who both sell and buy cattle, the change in price and pricing structure could be less advantageous. Certainly there is no evidence that it has triggered positive long-term investment decisions, and has not changed the underlying dynamics of commercial cattle rearing. Most importantly, the price increase was not sufficient to stimulate the emergence of feedlots, which remain unviable. Feedlots are central to any shift to weaner production, and without them, the cattle production system will remain based on oxen production. The implications of this will be discussed below.

With regard to the distributional impact of the price change, it should be noted that the majority of households in Botswana (62%) do not own cattle, and hence are net purchasers of beef. Thus while cattle-owning households will have gained from the price increase, others will be worse off. Overall, because around 50% of beef produced in Botswana is exported, the net incomes of cattle owning households should have increased by more than the expenditures of net beef consuming households. However, without reforms at BMC, this net benefit will be matched by the increased taxes required to pay for the additional losses at BMC resulting from the price increase.

Although the price increase implemented by BMC was publicised as a movement to regional Export Parity Pricing (EPP), in line with government policy as laid out in NDP 9, this was not in fact the case. This was partly because of the delay in implementing the change: while a 40% increase would have achieved EPP back in 2005, by the time the increase was implemented in January 2006 regional prices had risen significantly due to strong demand in South Africa. Furthermore, EPP is not just a price level, it is a price setting mechanism, in that true EPP would involve prices changing continuously – most likely on a weekly basis – as RSA prices change. This crucial component of EPP, with fluctuating prices, was not introduced, and indeed would not be feasible under the present system whereby changes in BMC prices need Cabinet approval. However, the retention of the old pricing mechanism continues the insulation of farmers from market forces in the beef and cattle sector, inevitably leading to inefficient production and sales decisions.

Thus the objective of providing cattle farmers with competitive regional prices has not yet been achieved. Given that feedlot operators would have to pay regional prices for their imported inputs (grain, fuel etc.), but do not achieve regional prices for their products (fully grown cattle), the essential requirements of commercial viability are not present. Hence the 40% price increase, while providing cattle farmers with a boost to their incomes that may be sufficient to halt the downward spiral in the sector in the short run, is insufficient to trigger a shift to weaner production and other changes that would stimulate the increased productivity and offtake that is essential to the long-term health and viability of the sector.

There is no evidence that the price increase has stimulated an increase in cattle supplies to the BMC, which was one of the objectives. This is partly because the price change came at a low-sales time, after good rains, when cattle are fattening on the range and hence are not offered for sale. Sales should pick up in the winter, from July onwards, at which time the full impact of the price increase on cattle supplies to the BMC could be greater. Nevertheless, it is unlikely that the price increase will cause significantly more cattle to be sold to BMC, given that it was largely matched by local butcheries.

The current artificial (i.e. non-market determined) pricing alters the distribution of welfare between producers, consumers, taxpayers, and the public sector. The BMC has forced a low domestic price for consumers, and benefits for its workforce through overstaffing, at the expense of low incomes for livestock producers and higher taxes, with undue waste of social welfare.

The fundamental problem facing BMC therefore remains: without further price increases and changes in productivity and production methods in the cattle sector, offtake will remain low, and over time an increasing proportion of national cattle production will be absorbed by domestic consumption and a smaller proportion made available for BMC and for export. There is no evidence of any significant reduction in domestic demand following the price increase. Hence the downward spiral of rising unit costs, declining throughput, increased losses and an inability to pay competitive regional prices to farmers will continue.

The continuation of the *status quo*, whereby the BMC remains as is, the price does not move further towards export parity (EPP) and trade restrictions are retained will almost inevitably result in the eventual collapse of the BMC, and a reduction in beef exports. Almost all observers concur that the sector's problems can only be addressed through restructuring and competition. In other words, the remaining reforms recommended by the earlier Hub study – trade liberalisation and the restructuring of BMC to bring costs down to competitive levels – remain essential.

One component of trade liberalisation is to allow live cattle exports. This would bring about EPP without any administrative intervention: producers would seek out the best deal and continue to sell in RSA until domestic prices had risen to near-parity, and hence BMC would have no option but to match regional prices. This is not to say that all cattle would disappear from Botswana overnight through live exports, but that a significant reshape of the market would occur. A second component of trade liberalisation is to allow competing beef and beef product exporters, thus removing BMC's export monopoly. This would stimulate the growth of private sector abattoirs and processors, provide much-needed competition to BMC, and promote the seeking out of new export markets. While there is an indication that Government could lift some export restrictions in early 2007, little information has been released and no stakeholder consultation undertaken in this respect, which is regrettable given the importance of the sector and the likely price increases which would result.

A further component of trade liberalisation that would support the sector would be lifting the ban on beef imports, which could help alleviate supply shortages to the BMC. This is largely because of the different tastes of the domestic and export markets. BMC exports hindquarters to the EU, whereas the domestic and regional markets prefer forequarters. If forequarter imports could be sourced competitively for the domestic market, this would release cattle that could be sold to the BMC. Finally, full trade liberalisation would encompass lifting the *de facto* ban on live cattle imports, which could also help to alleviate domestic supply constraints – but only if pricing was regionally competitive.

For imports, SACU and regional sources of beef or cattle could be limited by numbers and SPS concerns. Much cheaper beef imports could come from South America. At present these would be subject to a 40% SACU import tariff. However, Botswana could request a rebate of the SACU tariff on beef imports, which would ensure the supply of beef to the domestic market at competitive, world market prices. This would require certain safeguards. However, as Botswana has enforced trade restrictions for a number of years, leakages of rebated beef in SACU partner markets could be prevented. Because RSA itself rebates beef imports for its agriprocessors, it is unlikely to fight Botswana's application for the same.

All observers agree that a major restructuring of the BMC is essential. However, this should not detract attention from other problems in the sector, in particular with extension services, both in production and marketing. These will be crucial for the successful development of the sector, and a balance should be struck between public support and private enterprise. However, it is doubtful that a proper reform of BMC will be possible under continued public ownership, as crucial decisions (such as the reduction of excess capacity) become too politicised and either delayed or avoided altogether. While in some quarters, public ownership is viewed as the guarantee of continued existence for the BMC, this view is mistaken. Without fundamental reform, at some point BMC's losses will become unsustainable, even for government, and the company will collapse.

While this outcome may seem disastrous, it may not be. Although in principle engaged in value-adding activities (processing raw materials – cattle – to produce finished products – beef), BMC is at present value-subtracting, as the value of what it produces is less than the value of the inputs it consumes. It can be argued that the Botswana economy as a whole, and farmers in particular, would be better off without BMC, as farmers could then sell their live cattle outside of the country for regional prices that are higher than what they receive from the BMC.

In conclusion, the 40% price increase has not fundamentally changed the position of the beef and cattle sector. Farmers' incomes have been increased, and consumer welfare has been reduced; the fundamental problems facing BMC have not been resolved, and its losses are likely to keep rising, requiring ever larger subsidies. Fundamental change that can rescue the industry requires both a complete restructuring of the BMC, preferably including privatisation, as well as restructuring of the livestock production sector.

Given the diversity of livestock producers in Botswana, the development of the sector most likely requires a mixed solution. Farmers with small herds (less than 20 head) need extension services to improve production techniques, although on unfenced communal land, significant increases in productivity are unlikely. Medium-sized "pre-business" farmers could be moved into full-time cattle rearing, while larger producers could convert their herds to weaner production. In considering any transformation of Botswana's livestock production, it will be crucial to look at the related issues of land tenure and range management, and the environmental impact of alternative systems. This multiple-track approach could insulate Botswana from severe adjustment and external shocks. Small niche markets could be developed. Intra-industry linkages would be strengthened, fuelling empowerment and employment.

While weaner production may not be suitable for all cattle farmers, for environmental and other reasons, there is reason to believe that it could be implemented by medium and large scale, more commercially oriented farmers, if the economic incentives are appropriate. The shift to weaner production is potentially important as it can achieve the increase in productivity and offtake that is so crucial to the sector. The alternative is an industry that focuses on providing beef to the ever-growing domestic market, in which case BMC becomes an expensive and unnecessary luxury.

While development of the sector could increase agricultural contribution to GDP, and fight unemployment and rural-urban migration, commercialisation could lead to a concentration of production and a professionalisation of the sector that would change labour opportunities.

Whatever other solutions are explored, the future of the Botswana beef sector rests with a thorough restructuring of the BMC (possibly including its complete removal) and trade liberalization (almost any level over the current situation is desirable).

Tania Revault d'Allonnes & Keith Jefferis

INTRODUCTION

At nearly 600,000 km², Botswana is a vast and diverse land with 4,000 km of largely porous borders. Its mean altitude is 1,000 m above sea level and the countryside is mostly flat with some rock formations. Nevertheless, Botswana enjoys great diversity of soil, temperatures and rainfall. Extreme variations are observed both by area and by season. Broadly speaking, the north of the country is water-rich, with wells that support fat grass-fed livestock reared on the range at little cash cost. With less than one percent of arable land and frequent droughts however, there is very limited crop production or diversification of rural production and employment. Livestock in general and cattle in particular play a central role in rural life in Botswana, providing dairy products and meat, but also draft power and a store of wealth.

Despite its limited macroeconomic contribution, the livestock sector is the broadest-based citizen-owned economic activity in Botswana and the mainstay of the rural economy, and as such has important implications for empowerment and growth. It revolves around the Botswana Meat Commission, a parastatal monopoly, which runs EU-accredited abattoirs and enjoys sole exporting rights for beef and related products. An import ban on similar products completes a very closed and therefore distorted system. Livestock producers large and small are faced with barriers to entry, investment and development. This is a consequence of trade restrictions and the overwhelming influence the BMC has over prices: as its own efficiency and capacity utilization have fallen, the BMC has sought to recoup its costs by widening its margin, by reducing the prices it pays producers – which has the expected but perverse effect of lowering their supply, thus further worsening the BMC's performance.

Given this unsustainable downward spiral, a decision was made in 2005 to increase cattle prices, in principle to export parity price (EPP) levels in the hope of increasing supply and propping up the BMC. Technically, Government had set export price parity back in 2003 with its 9th National Development Plan: "Prices of agricultural commodities strongly influence the performance of the sector and the well-being of both producers and consumers... Beef producer prices will continue to be based on the world market (export parity) prices since beef is an export commodity". But in practice, EPP was never witnessed in Botswana. Domestic prices are based on those received by the BMC on exports primarily to the EU, discounted to recover its costs of production. While EU prices are at a premium and above regional levels, they are eroded by the BMC's growing withholdings and domestic producer prices are now well below those prevailing in the region.

Thus the January 2006 attempt to introduce EPP on cattle. Unfortunately, regional prices are not static and in fact are experiencing strong continuous upward pressure buoyed by RSA demand. EPP calculations undertaken in 2005 and the delays in introducing the price hike (due to the requirement for Cabinet approval) meant that by the time of the 40% average price increase in January, EPP was missed again. Moreover, the boost in supply anticipated from the price change did not occur as it came just after good rains followed drought and encouraged farmers to hold onto their cattle for fattening. The funds released for the price jump therefore exhibited less return than expected and discouraged continuing efforts towards EPP.

The Trade Facilitation and Capacity Building project of USAID, based in Gaborone, was asked to evaluate the impact of the January 2006 price increase. This paper attempts to do so, given data limitations and the lack of response so far, as just explained. The next

three sections present the livestock and beef sectors of Botswana, there follows a section on the demand for its beef, and a review of the options for its future. The assessment of the impact of the price is then presented, along with qualifiers, and conclusions.

BOTSWANA'S LIVESTOCK PRODUCERS

Botswana has a long history of beef rearing. In an oftentimes unforgiving climate, cattle keeping has acted as a safety net for a traditionally agro-pastoralist people. Significant external investment in the sector began in 1949, when the Colonial Development Corporation established a network of breeding and fattening ranches in several regions of then Bechuanaland and refurbished the abattoir built in Lobatse in the 1920s. In 1965, the significance of the sector was given new recognition with the creation of the Botswana Meat Commission, heralding the direct and profound involvement of Government in this economic activity. The original intent was to develop European markets, which would require massive investment in abattoir facilities and disease control. This mission would quickly confer on the BMC the status of sole exporter (and potential importer) of cattle and beef, and lead price-setter in the domestic market.

Botswana's livestock producers are not homogeneous. They can be distinguished by several characteristics, including herd size, land tenure, their social and economic imperatives, and full- or part-time involvement in the sector. Botswana's livestock producers have different characteristics and thus different dynamics. The BMC, though not a livestock producer itself, is of paramount importance as a beef producer with almost inescapable influence over cattle production choices (see The BMC, below).

Holdings and Cattle per Holding, 2002/03

	Number of Holdings	Distribution of Holdings	Average Number of Head per Holding
<i>On communal land</i>			
1-20 head of cattle	44,070	63%	9
21-100 head	23,224	33%	42
101+ head	3,134	4%	161
Total herd	70,428		1,872,318
Share of total population	99%		92%
<i>On commercial land</i>			
1-50 head of cattle	85	22%	32
51-400	216	56%	175
401+	88	23%	1,315
Total herd	389		156,099
Share of total population	1%		8%
Grand total	70,817		2,028,417

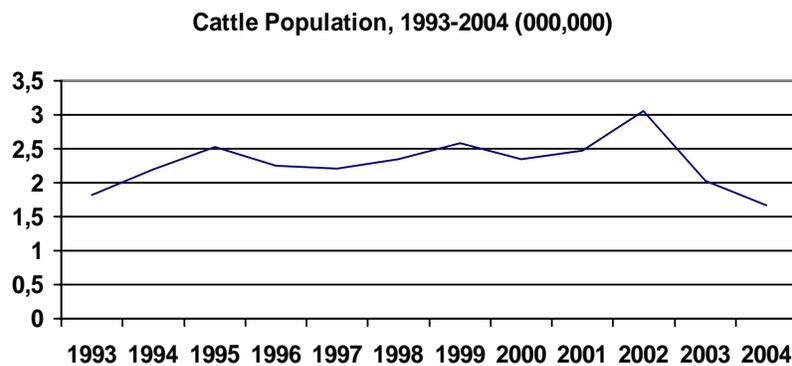
Source: CSO

A small herd would comprise up to 20 head: 63% of traditional cattle holdings¹ fall in this group and they make up to a quarter of the national herd. Medium producers would hold from 20 to 100 head of cattle. With 20 head, producers can achieve positive cashflow. Depending on the region, 20-40 animals will carry a producer through drought. Only a third of individual herds kept on communal land comprise more than 20 animals (though in practice, several may be grouped together for joint herding). True commercial rearing – that is, where livestock-rearing is a viable, sustainable sole and full-time earning activity –

¹ Following the CSO's definition, "traditional" here means "agricultural operations on communal land mainly for subsistence purposes" (2003 Annual Agricultural Survey Report, CSO).

can be observed from 100 head. Such holdings constitute a small minority of cattle held on communal land, though such herds average over 160 head. Herds of 51-400 make up over half of livestock holdings on commercial land, with equal numbers of both larger and smaller holdings, yet three-quarters of commercial land cattle are held by large farms.

It is essential to understand that no matter their different characteristics, all livestock producers have economic motivations. The conventional distinction between traditional and commercial land has erroneously been transferred to producers, yet many producers on traditional/communal land are commercial and indeed almost all livestock holders can be said to be somewhere on the commercial scale. The question is which determinants prevail and how these can be manipulated to effect the desired behavior changes.



Source: CSO

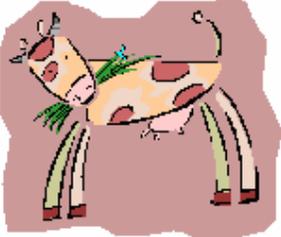
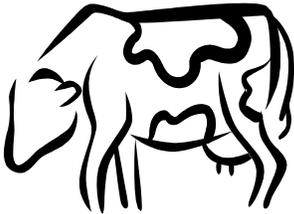
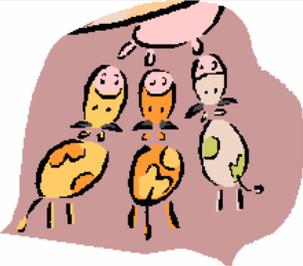
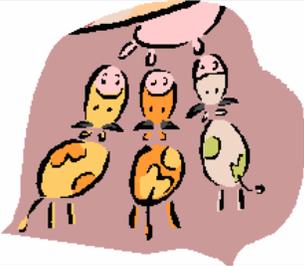
The small farmer holds cattle primarily as a stock of wealth and for social reasons, such as the provision of animals or beef for *lobola* and other community obligations. In this context, the smallholder minimizes costs and cash outlay by raising livestock on communal land and watering points, with minimal veterinary inputs and cheap unskilled labor. Sales are discrete events, and seek to achieve a given cash target (school fees, one-off purchases...). There is no planned, regular offtake from the herd, so no need for investment or intensive breeding. Natural deaths provide meat, while live cattle have value as draft power and dairy source. Because the costs are low, it pays to let cattle mature on the range until it has achieved optimum weight. In effect, the small farmer's objectives (in particular the greater weight assigned to production per hectare than per head) justify a policy of herd maximization over turnover. As a source of supply therefore, this largest category of livestock producers could be limited by a capped offtake rate, as smallholders do not push profit-making. In addition, smallholders are faced with high market access costs, as they can be remote and have little if any transport.

Medium-sized herds (21-40 head) could offer the best potential for the sector's development. These herds require more management, thus more skills, time and money. Many of these herds are owned – though not managed day-to-day – by “weekend farmers”. These livestock holders still see cattle as a store of wealth (in the absence of credible financial alternatives) and a social instrument, but give it a more market-oriented economic value. As herd size grows, monthly visits by absent owners become more costly. Observed offtake can increase from the smallholder's 10% to up to 20%, with herd management and profit-making becoming key motivators. These medium herd producers (whether absent or full-time) could be qualified as “pre-business”: cattle keeping is not a hobby but neither is it a full profit-making activity. A price increase could influence both the timing and number of sales, while sustained price trends act as significant signals for these

“marginal” producers, and possibly for long-term production decisions. Nevertheless, these producers – like their smaller colleagues – have low modern husbandry and management skills, poor market access due to limited information or undeveloped delivery systems, and favor simple, local sales over onerous and uncertain sales to the BMC.

Approximately 15% of farmers own and manage large herds of more than 100 and up to more than 1,500 head. It would be a mistake to assume all these herds are on freehold, leasehold or TGLP land: 3,134 traditional holdings with over 100 head were counted in 2003, including 110 with 400+ cattle, altogether making up to 30% of the national herd. With larger herds, more management is required and more investment justified. Fencing, watering and feeding, vaccination and herd control (breeding, offtake, renewal) all come into play. With many more sales and purchases than for their smaller counterparts, price assumes a key significance in decision-making, both short- and long-term. Given adequate price signals, these producers could even invest in comprehensive restructuring of their operations, such as a switch from customary production of oxen to that of weaners. Such a transformation of the livestock production system entails a significant change in herd composition, as illustrated by the diagram below.

Herd Composition by Production System

Oxen Production		Weaner Production	
	30% cows		50% cows
	30% young		
	30% calves		40% calves
	10% bulls		10% bulls & young

Comparisons of production performance are often drawn between smaller and larger farming operations, and tend to suggest larger systems are more productive. However, some observers argue that larger farmers do not operate breeding farms but rather

fattening ranches. Because fattening and breeding are very different types of farming, comparing their technical performance can lead to erroneous choices about production systems. In particular, larger operations are privileged by better market access and land resources (and this land can be used as collateral), over smaller livestock producers, who often lack information and resources and typically do not own land. These same observers allege that as more land is given over to large, fenced operations, their relative advantage will be eroded – so that a better approach would blend communal and commercial land based production, rather than impose intensive techniques across all livestock production operations.

CATTLE SUPPLY

As suggested in the previous section, livestock producers in Botswana are a heterogeneous group with diverse characteristics. Their breeding, holding and rearing techniques very much tie into these differences, principal among which is land.

Botswana has three types of land tenure: 23% is state land, 6% is freehold, but the vast 71% majority is tribal land. Approximately half of the country is zoned as communal land, much of which is used for grazing. Customary law provides for enough land and housing for subsistence, and for access to communal grazing and surface water, for every tribesman. The different land tenures, population densities, interpretations of rights, and “flexibility” in the system have resulted in very uneven access to resources, and thus to dissimilar livestock production systems.

95% of the national herd is kept on communal land. Typically, this land is unfenced and “free-for-all”. The lack of fencing increases costs due to disease (in particular measles which occurs when cattle are exposed to human feces, or foot-and-mouth from game) and to predators, especially for young animals. The communal ownership of the land carries classic problems of poor stewardship, as no-one assumes responsibility for management of the resource. Without fencing, up to 60,000 strays are believed to be on the range, while porous borders facilitate cattle rustling and grey exports: there is very limited control over the movements of the herd, as it is generally supervised by young, uneducated herdboys, who can be shorthanded and face hard working conditions.

Were it politically possible, the cost of fencing is likely prohibitive for many if not most livestock producers: fencing removes the ability of cattle to roam the range for both feed and more importantly water, requiring the farmer to provide watering points, with heavy costs associated with drilling for and distributing water to cover the fenced area. Indeed, long-term observation shows a decline in the number of rural household owning cattle, from half of them in the 1970s to as low as 20% today. This is seen at least in some part as the result of the fencing of land and the ensuing restriction on access to water: those farmers who were able to fence land around watering holes could keep others out and grow their own herd, leading to a concentration of cattle in fewer stockholders’ hands.

Because the majority of the national herd is kept on unfenced land, it is usually being reared at minimum cost: cattle roam to find food and water, there is no control over nutrition and unsanitary contact, minimal veterinary care, no management of breeding, very low investment in fresh stock, nor strategic culling/offtake. In support of commercialization of agriculture, the Citizen Entrepreneurial Development Agency used to support small farmers in improving their stock through animal purchases. Although

Government pushes sales and fencing of 8x8km farms, CEDA felt the land policy did not promote fencing of livestock operations. In consequence, it has discontinued its breeding purchase assistance, having established that there is no sustainability to herd improvement in range-based cattle rearing.

Without such backing, it is unlikely that small farmers will be able to improve the quality of their herd, which is low and worsening: the average CDM in Botswana is only 80% of RSA's (though use of hormones in the latter could explain some of this disparity) and a mere 60% of Namibia's. The BMC exercises a 10% measles condemnation rate against only 3% in Namibia, in large part due to most livestock production being fenced in Namibia², protecting animals from harmful contact. When 90% of the BMC's supply comes from the range, these are important issues to address: fencing provides for better management across the board, justifies investment in active husbandry and modern techniques, and makes for easier herding for collection, smoothing supply during the rains.

Traditional livestock rearing in Botswana is of oxen. Oxen production is a least-cost strategy: animals are born without breeding management, and are then left to roam the range until they achieve suitable weight. Obviously, this system is subject to the quirks of nature, where animals breed as and when they choose, with more or less success, droughts can kill, predators and diseases take animals on the range, and other natural and human causes influence the rate of return over the five-year lifetime required on average to reach target slaughter mass. Yet this production system has proven itself over the years in Botswana, through many droughts, despite limited productivity and returns.

The Ministry of Agriculture points out that there is much savanna land left, which is unsuitable for crop production because of infertile sandy soils, but if sown with appropriate pasture would support the extensive production of large quantities of low-cost, range beef. Various experiments with cattle and fodder species over the years would suggest that certain combinations would be viable depending on region, and could even enhance livestock productivity (though with careful attention to boring for water and fencing). If this is pursued, the experience of Namibia could be invaluable: first, producers should be encouraged to grow their own fodder wherever possible by limiting import subsidies on fodder and feed, then the limitations from rainfall, soil and exotic species would have to be carefully investigated and addressed, along with land use rights and responsibilities.

A different type of production is that of weaners. This approach focuses on breeding, then taking calves away from their mothers fairly quickly, to fatten them up on enclosed, secured feedlots. The advantages are that herd health thus meat quality can be improved through better breeding, controlled nutrition, increased supervision and tailored veterinary care. Animals are fed for maximum weight gain in a very short period, increasing turnover, lowering the risks associated with a longer life, and smoothing supply cycles.

The issues for transformation from oxen to weaner production are cost and efficiency. Weaner production is infrastructure intensive, as it requires fencing and separate penning of different elements of the herd; closer and better educated supervision; and abundant localized watering for calf and cow. Usually, buyers of weaners will endorse transport and collection costs, as well as further fencing and specific feed, but these are also high. Feed efficiency – that is the ability to convert feed into valuable cattle – is debated by some observers. Proponents argue that there is plenty of adequate grain available from RSA and Zambia, and that meat exports have so far funded cereal imports. Skeptics contend

² Namibia benefits from a capital-intensive, export-oriented commercial farming sector whose livestock production makes up 69% of national agricultural output under 52% extensive but fenced farming/grazing land.

that intensive weaner production and feedlots would require much higher reliance on imported inputs which may not remain readily accessible or affordable, that intensive fenced farming puts extra stress on the environment, and that weaner herds are less resistant to drought, as they constitute younger, more fragile, high-cost long-return units. Conversely, some observers point out that communal herds are geared to the availability of water rather than grazing, and that the effect of drought on these herds is more severe because they concentrate on water-rich areas and do not exploit the full range, whereas commercial operations distribute livestock more evenly over available land and fodder.

As a solution to Botswana's low supply, weaner production is attractive. Weaner offtake makes for smoother production, somewhat ironing out the breeding cycle: rains come in December to April and grazing becomes scarce in August; with weaner offtake in August to December, there is more grazing left for cows, and with better nutrition there are higher conception rates – a virtuous circle. With more control over breeding, births can be spread out over the year, addressing seasonal gluts and dearth. The following table shows how even a partial move to weaner production based on the current cattle population and conservative ratios would increase supply, even without the total herd growing. A mixture of oxen and weaner production, rationalized in particular according to region and resources, could address concerns over sustainability and the environment.

Compared offtake scenarios

	Existing oxen production system	Weaner production system	Expanded weaner production system
<i>Productivity rates</i>			
Calving	53%	63%	63%
Mortality	12%	9%	9%
Offtake	11%	22%	22%
Herd size	2,500,000	2,500,000	3,000,000
LSU equivalent	1,909,250	1,650,000	1,980,000
Offtake	270,000	556,250	667,500
<i>o/w cull cows</i>		125,000	150,000
<i>weaners</i>		431,250	517,500

Source: TFCB

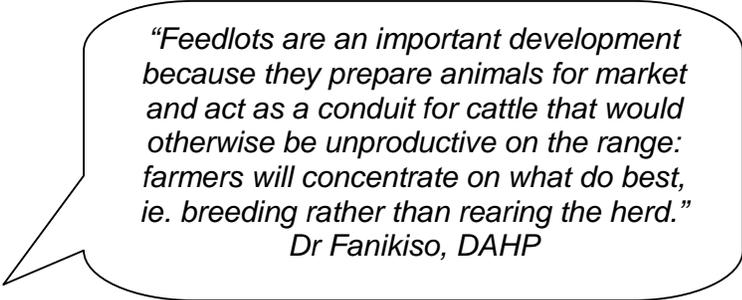
The low domestic price and strong domestic demand have acted as powerful signals to smaller producers who are not chasing profit: it pays to hold on to cattle as long as possible, because the price could get higher and demand is stable. It does not pay to grow and release younger animals if one is in no need of immediate liquidity. Similarly, because historically prices do not go down, the long-term signal is to hold on to cattle and sell when ready. A fluctuating price would introduce uncertainty about sale returns, and could counter seasonal gluts or scarce supply. In the longer run, prices that can go down as well as up could influence the decision to hoard cattle for a long time. Therefore a fluctuating price has implications for stocking, supply decisions and thus the range.

In something of a vicious circle, Government states it wants to see a fluctuating price for cattle, but argues this can only happen if there is increased supply to lower the BMC's unit costs, since Government will not extend more funds to the BMC to support price changes (if the price were to drop, supply would likely follow, leaving the BMC with even higher unit costs and in need of financial support). A practical complication to a fluctuating price would be the current requirement that Cabinet approves price changes: this would delay every price change and counter at least some of the fluctuation effect.

Yet getting the price or the pricing mechanism right could transform the sector. The current pricing system is consistent with oxen production, as already suggested, but

discourages top-grade production (see The BMC, below). This situation perpetuates low-investment production and limits the commercialization of the sector. With a different pricing structure, some pre-business producers would go into full-time for-profit activity, some would consider producing higher grade animals, and some could convert from oxen to weaner production. All these choices would require investment and support the development of extension services: breeders, veterinary functions, feed, transport... Certain changes could even motivate a diversification to other livestock, as the price of beef relative to other meats could fall, making the latter more attractive for business.

The companion piece to weaner production is feedlots. These operations take in the weaners, control-feed them for three months, making them ready for slaughter in this short period. Again, the advantages of feedlots which are secure, controlled environments are in the health and quality of the output animals. Feedlots can also ease problems of market access as the animals are smaller and thus less cumbersome and costly to transport, feedlots are open all the time and do not require booking or complicated entry procedures, and they will often collect cattle from farmers. Feedlots would also promote herd improvement through better genetics and husbandry, as healthier, sturdier animals fetch higher prices. And as they require less unskilled labor such as herdboys but more qualified management, feedlots could change the shape of employment in the industry.



“Feedlots are an important development because they prepare animals for market and act as a conduit for cattle that would otherwise be unproductive on the range: farmers will concentrate on what do best, ie. breeding rather than rearing the herd.”
Dr Fanikiso, DAHP

There is historic precedent for feedlots – the CDC established fattening ranches on crown land in northern Botswana back in the 1950s, though these failed through bad planning and management – but producers in the south who do not have ready access to water have traditionally used a type of feedlots. Indeed, it is to be expected that if feedlots develop, many farmers who currently have to pump water (which means spending on diesel) for their cattle will turn to selling their weaners to feedlots instead.

THE BMC

The Botswana Meat Commission was established in late 1965 as an extension to earlier government involvement in the livestock sector. The BMC operated three abattoirs, in Francistown, Lobatse and Maun. The first two are EU-accredited and have a combined annual slaughtering capacity of 312,000 cattle³. The small abattoir at Maun was closed down in 1996 when an outbreak of contagious bovine pleuropneumonia led to the culling of all cattle in its supply area. Besides the abattoirs, through which it exercises great influence on buying prices, the BMC holds a statutory monopoly on the export of beef and

³ The Lobatse abattoir has a daily capacity of 800 head, Francistown of 400. Reported capacity is based on 52 five-day weeks. With operations running approximately 10 months a year for maintenance/supply hiatus however, current annual capacity is 240,000. Francistown results in overcapacity and unsustainable 70:30 fixed-to-variable overhead costs.

related products⁴. This right is the product of history: British colonial powers decided in 1955 to develop markets for Botswana's beef in the United Kingdom and Europe. This decision required massive investment in the sector and a focused export policy, which those powers felt was best achieved through a central authority. Created at independence, the BMC inherited both the mission and the privileges of colonial institutions, centralizing much slaughtering capacity and all exports of beef. As part of these activities, the BMC ran collection and cold transport businesses also, though it has recently divested itself from these.

The BMC makes booked purchases of cattle both direct from farmers and through intermediaries (its agents or independents). Three-quarters of its supply is from small to medium producers, who will sell from one to 10 animals at a time (a further 13% comes from sales of 11-30 head). The animals are slaughtered, screened for disease (specifically, measles), and rapidly chilled to 1°C, all according to EU regulations. The price received by the producer will depend for each animal on its cold dressed mass (CDM), quality and health. Animals unfit for the EU market receive a lower price, while those condemned are removed from consumption by burning at municipal tips (the BMC pays 150 Pula to the supplier of a condemned animal, even though the BMC itself pays the tips' disposal fee). Although some smaller suppliers complain about the process, whether because they feel they cannot be sure their own animals are the ones they are paid for or because the price seems arbitrary, better informed producers confirm that it is possible to walk the animals through the BMC facilities and monitor their handling, including testing and condemnation. All agree that the BMC is a prompt payer (purchase orders list each animal, with CDM, health status, grade and resulting price).

The BMC is a residual buyer, in that farmers who tend to be small, remote, less informed, ill-equipped and less profit-oriented, will first choose the "easy" solution: selling to a local butcher who is nearby (low transport cost), flexible (no advance booking) and not so probing as to the health and condition of the animals (less discounts). This would suggest that the BMC gets those surplus cattle whose meat local butchers cannot readily sell and thus turn away. Yet there is evidence that smallholders go to the BMC despite its cumbersome procedures for EU compliance, which suggests that the BMC's premium still enables it to command a significant share of sales (nuanced by proximity, see Table A10 at Annex 1). Butchers have kept pace with BMC prices, making these the standard overall, so that even if the BMC is considered a residual sales option, its influence over the domestic price of cattle is undeniable.

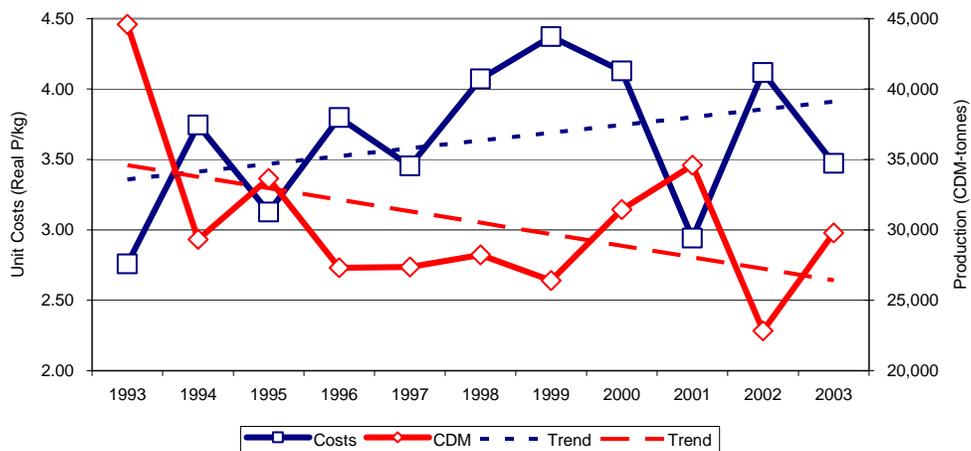
⁴ There is also an import ban, which legally only the BMC could circumvent at present.

"... a serious problem with selling of forequarters below cost by BMC in the local market. BMC has recently increased the producers' price by at least 40% but increased the prices of meat cuts only by 30%. BMC is paying P10.94 a kg for the beef carcass and are dumping the forequarters in the local market at P10.40/kg. This is obviously due to the premium they get on the export market on the hindquarter cuts. BMC is the only producer, which is allowed to export fresh meat... [and] is using their unique privilege to the detriment of other producers in the country..."

100% citizen-owned meat processing company, 2006

The BMC bases its prices on its EU receipts, after recouping its costs. Producer prices in Botswana are therefore tied to the progress of EU beef prices and to the BMC's economic performance. The trend for EU prices is at best static, and movements of both Pula and European currencies have affected the returns from EU sales. As to the BMC's economic performance, it has been the object of much criticism. Some of its shortfalls can clearly be attributed to its parastatal monopoly status, which carries systemic inefficiencies. Other shortcomings are the result of poor planning and management, and limited initiative⁵.

BMC Output and Unit Cost, 1993-2003



Source: TFCB

The above graph shows the evolution of BMC output and unit cost over the most recent decade for which data is complete. Long-term falling CDM is worrying: it suggests a loss of productivity in the sector when herd expansion and improved production techniques would anticipate better CDM over time. Also, lighter carcasses have negative cost implications for slaughtering facilities as they have less meat to bone than heavier ones. Annual dispersion of costs is apparent, although CDM is more stable – and falling. Unit costs will go up when throughput is down: there are less units across which to spread costs. CDM will fall with drought, as animals put on weight slower or lose mass in lean times. A correlation is therefore observed between CDM and unit costs, both in trends and at punctual observations: falling CDM causes rising unit cost. It is worth noting that unit

⁵ In addition to looking for new markets, the BMC could play a key role in developing new products: in 2003/04 alone, 500 new beef products were introduced on the US market to keep up with evolving demand.

costs jump up and down on an almost annual basis, suggesting poor anticipation from the BMC but likely also reflecting the lack of flexibility of the system and fluctuating throughput.

Of greater concern to farmers than the BMC's unsustainably rising unit cost, is the low and falling share of EU revenues being passed on to them in consequence. In the late 1970s, 70% of the EU sales price obtained on Botswana's beef exports went to its producers. By 2000, this was estimated to be down to 30%. Over the two decades, received producer price has dropped consistently. Indicative numbers suggest the BMC price only covers 90% of rearing costs, causing farmers to run down their breeding herds. A partial explanation could be found in the BMC's capacity utilization falling over the period. A five-year drought in the 1980s reduced the cattle population from a peak of approximately 3 million to 2.3 million in 1987. The commercial herd also shrank sharply in the 1990s, from 0.5 million to 0.2 million (possibly as a consequence of conversion to game farming): while sales from commercial holdings constitute a small share of BMC's supply, almost all of these sales are to the BMC so less cattle translates directly into less BMC supply. Serious disease outbreaks have also damaged supply, as the Ministry of Agriculture reports the BMC's share of sales has decreased relative to local sales since 1992, in large part because of lower returns on diseased animals discouraging sales to the BMC.

With declining supply comes declining throughput and capacity utilization, thus higher unit costs and lower profits – and falling prices. Yet some have observed that the BMC was able to achieve positive profits in the late 1980s with the same levels of throughput as in 2004. Further, there are arguments over both the BMC's containment of exporting costs and the high value of EU imports from Botswana, relative to its competitors from other regions (ie. whether this indicates Botswana produces higher quality beef than competitors or whether it is becoming uncompetitive vis-à-vis South American and other sources). Whatever the reasons, the evidence suggests that although both have fallen, the BMC's real costs have fallen slower than its revenues, eroding profit and prices paid to producers.

The price (per kg) of an animal is determined by its health and the quality of its meat, according to a set scale – the better the product, the higher the grade. The BMC recently simplified its grading system, bringing it closer in line to like systems in the region, though grade definitions remain slightly different from those of the RSA or Namibia. The BMC's January 2006 price scale is presented overleaf. This price schedule is geared to the production of grade S2 animals – that is, only the third best quality – which corresponds to mature oxen that have been range-reared for four to five years. The marginal price excess on higher grades does not make their production viable: costs involved in producing the higher quality cattle – which require more care throughout the production process – are not covered by the additional prices being offered. This in turn means that oxen production of good but basic livestock remains the only profitable system. Yet higher quality animals fetch a higher price, and indeed provide the premium meat prized by EU consumers. If Botswana produced these, it could diversify its exports to top-grade and likely niche markets. Producing super or even S1 animals however requires careful management and modern husbandry techniques. This implies closely monitored (penned) animals and feed – the easy solution for Botswana's many smaller, less liquid producers is for the development of a weaner and feedlot system: animals are bred, then sold to specialized fattening farms. These ensure that cattle are fed and have veterinary care adequate for maximum CDM and grade. This is particularly relevant when the competitiveness of BMC exports on world market is considered: this is slipping vis-à-vis South American producers, who are able to produce top-grade, grass-fed cattle at low costs, given their plentiful water and range resources. To stay competitive and remain ahead of the game, Botswana needs to increase value; as this cannot be done based on limited land resources,

alternatives such as feedlots, which imply a restructuring of the production system away from the historical oxen, should be explored.

BMC PRODUCER PRICES UP BY 40%

**BETTER
RETURNS**
FOR YOUR CATTLE



The Botswana Meat Commission has increased producer prices by an average of 40% effecting January 1, 2006. The producer price increase is for all cattle bought by the commission.

The Commission trusts that this price increase will serve to encourage farmers livestock agents, speculators, co-operatives and other stakeholders to supply cattle in large numbers to the abattoirs.

Farmers are urged to take advantage of these price increases and to invest in their operations to improve productivity.

**PRICE STRUCTURE BY GRADE
LOBATSE/FRANCISTOWN ABATTOIR**

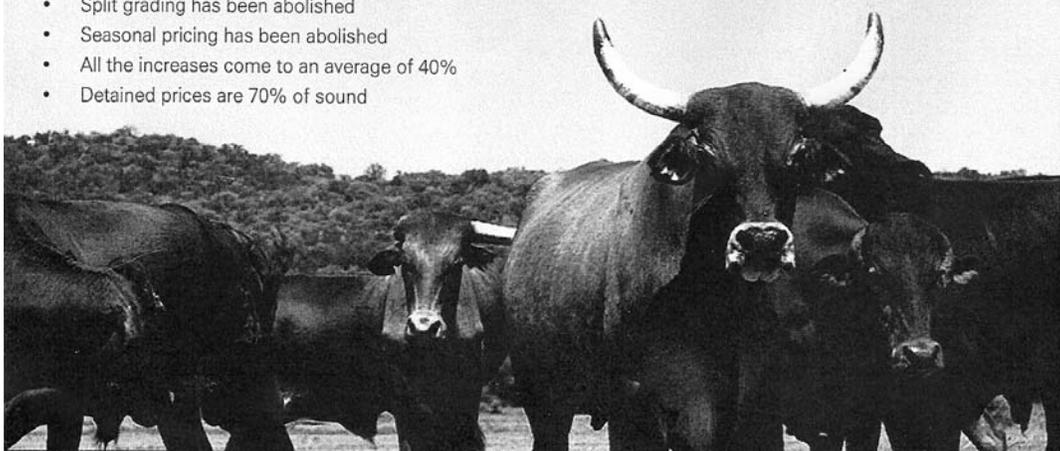
SOUND		
SUPER	SS	P1074
GRADE 1	S1	P 999
GRADE 2	S2	P924
GRADE 3	S3	P822
GRADE 4	S4	P 681
CANNING	SM	P 411
CONDEMNED		P 150

DETAINED		
SUPER	DS	P752
GRADE 1	D1	P 699
GRADE 2	D2	P 647
GRADE 3	D3	P 575
GRADE 4	D4	P 477
CANNING	DM	P 288
CONDEMNED		P 150

Prices are linked to those realisable in South Africa and will fluctuate as and when prices in South Africa change.

NB:

- These prices are in PULA per 100kg
- Split grading has been abolished
- Seasonal pricing has been abolished
- All the increases come to an average of 40%
- Detained prices are 70% of sound



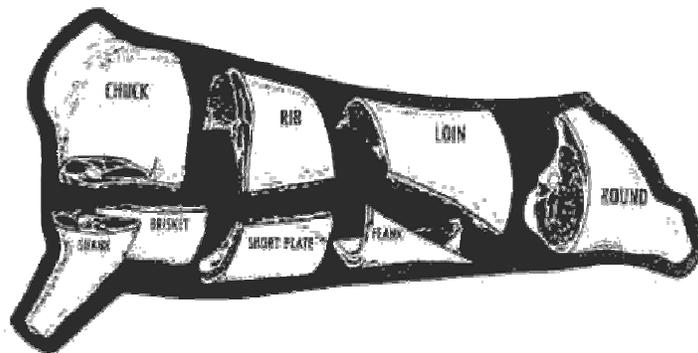
BOTSWANA MEAT COMMISSION
PRIVATE BAG 4, LOBATSE, BOTSWANA
TEL: (+267) 533 0321/533 1277 FAX: (+267) 533 2223

PRIVATE BAG 119, FRANCISTOWN, BOTSWANA
TEL: (+267) 241 4499 FAX: (+267) 241 4427
E-MAIL: MARKETING@BMC.BW

BEEF DEMAND

Demand for Botswana's beef has four poles: the domestic market, RSA, the EU and the rest of the world. These four markets have very different features and very different reasons for attracting sales.

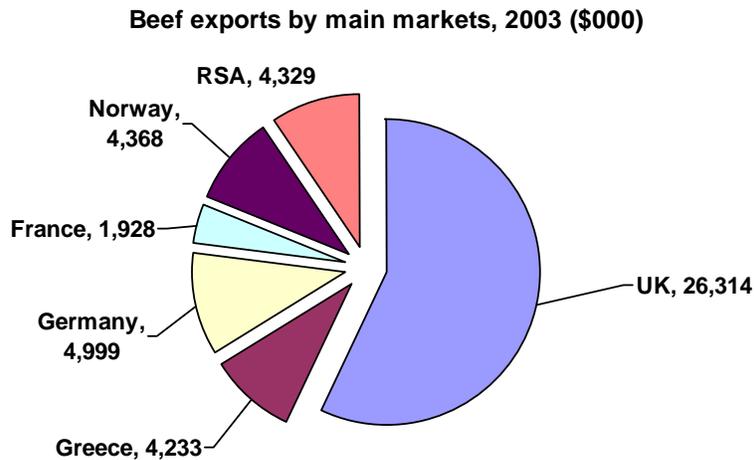
Given the long tradition of livestock rearing in Botswana, beef is an integral part of the domestic diet, domestic demand has grown appreciably from 50,000 head in 1985 to 160,000 in 2005, a consequence of both population and economic growth. Beef consumed domestically is mostly supplied by local butchers, who base their prices on those of the BMC, with some discounts for location or apparent animal quality. The BMC has set the low domestic price through a combination of legally backed protection from trade competition (due to its monopoly status) and its own inefficiency. The sub-regional domestic prices set by the BMC have bolstered buoyant demand from a growing and increasingly wealthy population, at the expense of cattle farmers who receive sub-export parity prices. Before the January 2006 price increase, beef prices in Botswana were lower than those of chicken. And although the price increase shrank demand earlier in the year, the set-back turned out to be only temporary, with beef demand back to its earlier levels by the second quarter of 2006. Premium EU prices used to insulate the BMC from growing domestic demand, but this is no longer the case (see The BMC, above).



Domestic demand is for fresh, bone-in forequarters, as is South Africa's. This latter market, so near and large, with a net deficit consistently driving up the price of beef and creating a demand for imports of both beef and cattle, and less onerous standards than the EU's, would seem a tempting target for Botswana's exports. Yet it remains almost unexplored, despite prices above world levels (although generally below EU levels), thanks to SACU's 40% tariff. The near future of the RSA market is positive for Botswana: RSA continues as a net importer of beef and with a national herd made up of 50% male cattle, it will take some time for domestic supply to build up. Even as herd-building takes place and puts some downward pressure on prices, observers agree that it will be five years or more before a significant drop in import demand is witnessed. Nevertheless, in its role of sole exporter, the BMC has failed to capitalize on the RSA market and stopped others from doing so by imposing EU standards regardless of target market requirements and maintaining the ban on non-BMC exports. This is not only a direct loss of revenue opportunity to Botswana, it also constitutes a major barrier to competition and thus imposes social costs on the country (see Impact, below).

The pursuit of EU sales to the exclusion of almost any other has been the BMC's primary objective since its creation. The motivation has been a highly protected market which thereby offers inflated prices. Botswana enjoys a 18,916-ton quota for nearly duty-free

beef exports to the EU. It has never met this quota, by far the largest offered under the Beef Protocol. The Protocol is scheduled to end in 2008 and with increasing pressure for trade liberalization is likely to be significantly reshaped if not scrapped. Since 2002, the EU has worked on European Partnership Agreements to replace earlier trading preferences, as such facilities are seen as better conduits for development assistance. Since trading preferences do not have a bill attached to them until after they have been enjoyed by the beneficiary (thus no hard-to-sell *ex ante* cost) and because they purport to support long-term development over unsustainable aid, they are unlikely to be abandoned by the EU.



Source: ITC Trade Map

Botswana’s advantage could be threatened by two potential developments: the enlargement of the quota to the region or the erosion of its preferences vis-à-vis cheaper producers such as Argentina or Brazil. A regional quota would primarily involve Namibia (which has a 13,000-ton EU quota) and RSA, though Swaziland has a small industry and EU quota (3,363 tons). As stated above, RSA is a net importer of beef and is likely to remain so for some years. Moreover, much RSA beef is hormone-treated which renders it non-compliant for the EU, and RSA’s veterinary and SPS systems are not geared to the EU market, which pushes back the date from which RSA beef exports could compete with Botswana’s in the EU market. As Swaziland has limited capacity to expand, Botswana is fairly well insulated from any risk in moving to a SACU-wide quota (or indeed to a SADC-wide quota for similar SPS reasons). In this context, the BMC feels confident in its advantage as the incumbent.

A more dangerous risk is competition from producers which do not at present enjoy preferences, but whose disadvantage could be reduced either by the erosion of Botswana’s preferences or by the EU price tending to the world price. According to the Botswana Cattle Producers Association (BCPA), “Botswana’s niche market in the EU is for high-quality beef from young, super grade, well finished cattle”. Argentina and Brazil produce grass-fed, organic animals at very low cost, the very prime cuts for which the EU market is expected to maintain strong demand for at least 12 years – and for which it is willing to pay a premium. Yet the BMC does not appear to have a plan to counter these competitors. Indeed, it is not even exploring the higher-margin, organic, “predator

friendly”⁶ niches the EU market offers but prefers to stick to more generic frozen boneless meat, primarily for on-processors like McDonald’s⁷.

THE OPTIONS

The BMC is caught in a strong downward spiral of shrinking supply, increasing unit costs, falling prices and poor performance. Livestock producers argue that prevailing prices make production barely viable, let alone profitable. Certainly, they do not support investment into the sector, either by newcomers or by established farmers. This is a problem if the sector is not only to recover a healthy state, but become the engine of agriculture, rural employment and economic growth that Government hopes it will. The policy options are however limited: the first is to do nothing and continue the present course, the alternatives are to consider trade liberalization, and BMC restructuring.

The *status quo*, whereby all aspects of the sector are left as they are, is most unlikely to be a sustainable system, and will almost undoubtedly lead to a collapse of the BMC and a sharp decline in the sector’s fortunes. The near-total collapse of the sector is seen by some as a question of when, not if. This is argued on the strength of continued increasing costs and the producers having to bear these: there is less and less incentive to supply cattle, perpetuating the vicious cycle of low throughput-high costs-low prices. The BMC’s market share of cattle sales has already more than halved over the past 20 years, bringing it to the brink of bankruptcy with extremely low capacity utilization and revenues.

Most observers argue there are problems throughout the sector, many of which could be addressed if private entrepreneurship were feasible: both legal and profitable. Despite massive investment in the BMC’s abattoirs and in traceability and disease control systems for instance, Government did not exploit EU requirements as a basis to provide coherent support services and delivery infrastructure for the sector – that is, several sections of the supply chain have been neglected. It is said that the BMC itself does not have enough cooling capacity for EU compliance, even at reduced capacity. EU requirements are cumbersome and costly and reach into the full production chain. Traceability is another black spot, it appears, with the bolusing⁸ of animals not being flexible enough to meet producers’ needs. Similarly, the quarantine camps are seen to act as bottlenecks in the supply chain, forcing animals to stay overlong thereby losing weight during quarantine. Artificial insemination centers present comparable flaws, with animals waiting too long and losing weight and missing breeding windows, while not even basic genetic or sexual testing is done at the centers.

The Ministry of Agriculture argues in turn that bolusing, quarantine and insemination⁹ are all run exceptionally well, are decentralized and flexible, and were agreed with farmers: for example, there is no booking system to allow all animals brought in to be seen on a first-come-first-served basis. “Farmers Days” and Livestock Advisory Services Centers throughout the country complete the picture of a fully developed production chain.

⁶ “Predator friendly” cattle are reared on land shared with predators, in particular cheetahs, which producers do not hunt.

⁷ Controversy arose in the US in 2002 when McDonald’s told producers there that their grain-fed, antibiotics-needing cattle was too fatty for its burgers – and (untrue) rumors flew about mixing their meat with lean, grass-fed beef from South American sources.

⁸ A bolus is a small ceramic cylinder containing a radio frequency transponder, which sits in the animal’s reticulum and allows effective identification even at a distance.

⁹ “AI camps successfully inseminated over 90% of cows availed... with an average conception rate of 84%” (DAHP Annual Report, 2005).

Whatever the merits of these contradictory claims, it is clear that many if not all these functions would be better provided by for-profit, private ventures, taking the pressure of doing away from Government and restoring it to regulating. Proponents of feedlots argue that animals are centralized early in such systems, facilitating and reducing the costs of bolusing or quarantine. General health and improved breeding are natural consequences of these systems, which reward healthier, sturdier input animals. There would therefore develop a series of extension services that would bolster the sector, were prices to be right and government policy to allow private activity in currently restricted areas.

One strong if confused message from Government has been for export price parity for cattle. The idea of EPP is that cattle would sell in Botswana for a price equivalent to what it would receive elsewhere in the region (typically, RSA) minus transport and related costs. There has been much discussion as to both the merits of EPP and its calculation (which depends on strict definitions, base, timing etc.). A joint public-private task force agreed all the parameters, including final numbers, in late 2005. By the time its findings had been reviewed by Cabinet however, both the numbers and the timing of the move to EPP were off. This is likely to continue until some automation is brought to pricing.

Domestic prices are low in large part because of the overriding role of the BMC and in turn this is possible because of the restrictions imposed on trade. An almost immediate way to move to EPP without administration cost, is to authorize exports of either or both cattle or beef. Because the price is depressed in Botswana compared to the large neighboring RSA market, because many farmers are remote from central points of Botswana but near RSA outlets, and because the BMC imposes cumbersome procedures on all exports regardless of destination markets, it is likely that a large proportion of cattle (either on the hoof or as meat) would find its way across the border were it legal to export, and continue to do so until domestic prices rose enough to halt or reverse these exports.

The future of the BMC in this scenario is not bright, unless it can find itself a place at competitive prices and undertake profound restructuring, but the sector itself would probably flourish as farmers' profitability and opportunities increase and they seek to develop their businesses. The large RSA feedlot market favors the lightweight cattle produced on Botswana's communal land. Indeed, EPP (whether through trade liberalization or by another means) could effect more fundamental changes in the sector, as the price structure would favor producing upper grades and thus motivate investment in improved breeding, husbandry and possibly moves to weaner and feedlot system. If Botswana's livestock producer move to weaner production, the initial impact on supply to the BMC could be limited, as the older animals which it buys will readily be released by farmers converting their herd; but as these herds gear up to producing weaners rather than oxen, the BMC will have to offer a competitive price for all animals if it is to retain supply levels.

In considering achieving EPP by allowing exports, it is interesting to note that local butchers were able to match the BMC's recent 40% price hike. As a result, the BMC held a relative edge over competitors' prices for a very short time only and could not mobilize sales as effectively as had been hoped. Observers suggest however that these same butchers would not be able to match EPP or near-EPP. This would mean that anyone offering such would garner the sales. Again, this is likely to be buyers in RSA at least in the early stages of the move. However, if the BMC and other domestic buyers were able to come close to EPP, they would capture those sales that are easier to make locally rather than assume transport and border-crossing. It is improbable at any rate that all

cattle and beef would flood out of Botswana overnight, as some fear: information and market channels must be acquired, and livestock cannot cross borders on a whim.

Allowing live exports, but solely through the BMC, could sustain it initially, but is unlikely to bring as many benefits as legal open live exports: some of the problems currently experiences on beef exports would remain for live ones, and too much discretion over live exports could open the way for abuse.

The DAHP reports that work is underway to modify the BMC Act, lifting some of the export restrictions. It is unclear which restrictions are being considered, or indeed whether these bear on cattle or meat. Indeed, it is of some concern that public consultations were not undertaken to discuss the matter with sector stakeholders, especially as the proposed changes are scheduled to be introduced in early 2007. It is important that Government introduces any move to trade liberalization carefully and that this move be understood not just by actors in the sector, but by the population at large: the price of this popular commodity would rise and this could meet with resistance.

Trade liberalization can also look at lifting the ban on imports. Domestic demand is charged with having diverted much of the BMC's supply. Yet the cuts prized in Botswana (and indeed the region) are different from those preferred in the EU and other export markets (see Beef Demand, above). One possible solution to the BMC's shrinking market share could be to import beef (or cattle) to meet domestic demand, thus releasing domestic production for premium exports. There are several variations of this option. Allowing live imports from the region could alleviate some of the pressures brought on by droughts: different areas are rarely all struck by drought at the same time. Some concerns could be raised over health and SPS issues, but by virtue of its EU ties and experiences with food-and-mouth and pleuropneumonia, Botswana should be well equipped to address these. Cattle could therefore be sourced from Namibia, developing regional synergies at no loss of import revenues.

Selected Beef Prices (kg/Pula)

Market, cut, date	Price (P)
EU, Charolais, assorted cuts, May 2006	41.34 – 137.79
RSA, B2 producer price, 3 rd quarter 2005	10.94
RSA, weaner producer price, 3 rd quarter 2005	7.91
US, hindquarter, fresh, May 2006	19.98
US, forequarter, fresh, May 2006	20.63
US, Kobe beef average, May 2006	59.20
Brazil, ribeye, wholesale, 2005	48.23
Argentina, ribeye, wholesale, 2005	62.00
Argentina average producer price, liveweight, 1999	4.24
Uruguay average producer price, liveweight, 1999	4.03
Australia average producer price, liveweight, 1999	4.19

Source: EU, RSA, US meat producers' websites, FAO publications

Importing non-SACU livestock or meat also has advantages and raises questions. As already stated, a significant competitor is South America, which produces high-quality, low-cost beef. Importing meat from South America could cheaply meet domestic demand. South American cattle is grass-fed, range-reared, producing lean meat similar to that enjoyed by domestic consumers, and its forequarters are generally not destined for the EU. However, SACU has an average tariff of 40% on beef imports, considerably raising their price. RSA imports beef from Mercosur to meet some of its beef deficit, and its prices are high enough to cover the full tariff on these imports. Because Botswana's prices are

below RSA's, it is conceivable that these lower prices would not permit the profitable import of beef at full tariff.

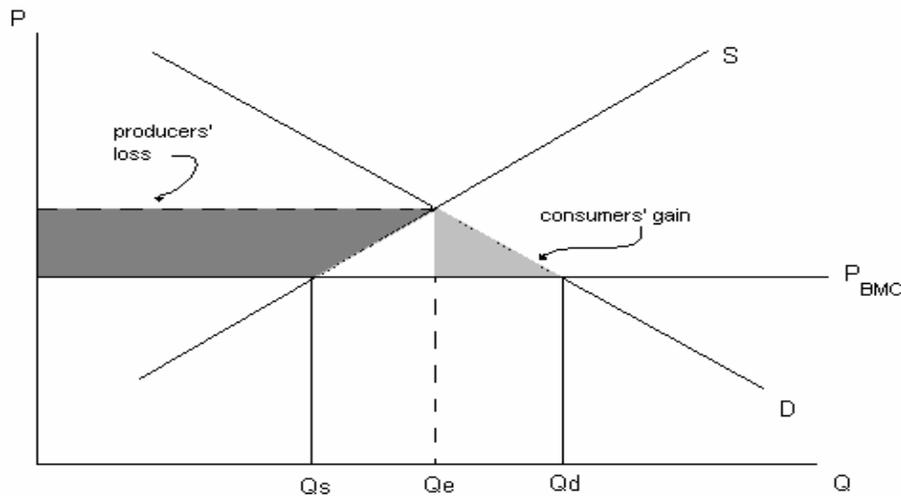
If this is the case, Botswana would have to seek a rebate of the SACU tariff on its imports of beef from South America. In doing so, there are two potential concerns: potential leakages into neighboring markets (namely, RSA) and lost revenues. Some observers have raised concerns over the practicalities of importing (and distributing) rebated beef and controlling for leakages into the region. Given the current trade bans effectively enforced by Botswana however, it could confidently be expected to administer these rebated imports without damage to its neighbors or domestic consumers through existing institutions and marketing channels. Since Botswana imports no beef at present, there would be no lost revenues (which are shared in SACU) from its imports, though there would be foregone revenues on these new imports. These will depend on the quantity imported, which in turn will depend on the domestic price of beef: as it rises, demand would be expected to fall and require less imports to meet the shortfall from domestic production. If this was to be substantial, Botswana's SACU partners could seek compensation for lost import tariff revenues. Using the argument that it is trying to protect and develop a strategically important industry, Botswana could avoid financial compensation, but could have to display similar flexibility in its trade negotiations on other commodities of interest to its SACU partners (textiles for Lesotho, sugar for Swaziland). RSA does import non-SACU beef at rebate for importers that process it further: it would presumably therefore have a difficult time resisting Botswana's application.

IMPACT ASSESSMENT

In order to appreciate the impact of price in any given sector, it is important to understand that this sector is a system, which brings together producers and consumers for transactions at an agreed price. Typically, economics postulates that as the price of a good increases, consumers will want to purchase less of it, while producers would be happy to supply more (this is illustrated in the diagram below by a downward-sloping curve for demand and an upward-sloping curve for supply); and that the two groups will reach a common price at which they agree on the quantity to be transacted (Q_e below). At this price, producers receive more per unit (except the one at Q_e) than what they would have been wanting to produce it for, while consumers pay less for each (again, up to Q_e).

In setting a price different from that which would prevail if producers and consumers transacted freely, this balance is altered: not only the price, but the quantities exchanged will change, and welfare will be redistributed. In the case of Botswana's beef, the price is below regional parity. Were the borders open, the domestic price would be close to its neighbors' (since producers would seek out the best price and domestic consumers would have to match export levels), which is higher. In the diagram, this is represented by the P_{BMC} line, which shows that transactions will now take place at this price below the earlier equilibrium level. At this depressed price, consumers are willing to buy more beef (an extra $Q_d - Q_e$) but producers find it less appealing and choose to sell less (Q_s). A deficit of $Q_d - Q_s$ is observed, which would be filled by imports. In terms of welfare however, what is observed is a consumer gain (the light shaded area) since a greater quantity can now be obtained at a lower unit price, and a producer loss of the difference in price on the entire Q_e equilibrium quantity (the darker area). The white triangle is termed dead-weight loss: these are revenues/cost savings which are lost to everyone, it is the social cost of restricting domestic trade when its marginal benefits exceed the BMC price.

The Impact of Non-Parity Pricing



This is a much simplified description of the mechanics of the sector and it overlooks the absence of imports into Botswana (the gap between supply and demand is addressed by the BMC playing on the difference between producer and (domestic and export) consumer prices rather than quantities, and by reduced exports), along with the implications this has for transfers from producers to the BMC and to consumers, and contributions from taxpayers to the BMC. But it illustrates the risks in manipulating prices and quantities: the net effect of the gains, losses and redistribution on social welfare is at best difficult to quantify. Within the resources of this study, the overall social welfare impact of BMC pricing cannot be evaluated. An assessment of the effect on income is attempted instead.

Because of the cyclical nature of Botswana's climate and the repeated droughts it experiences, it is difficult to identify a "typical" year that would present an exact picture on which to base estimates and forecasts. Nevertheless, the 2002/03 season was used here as 1) it was the most recent year for which the DAHP had complete data and 2) that season was neither drought nor full rains, thus providing a more nuanced portrait of the livestock sector than at its peaks. The values and ratios presented below are meant to be illustrative rather than absolute, showing tendencies and outcome type, not set figures.

As can be seen from Tables A10a-c and A11 in Annex 1, the number of sales and choice of buyer differs greatly according to status as a traditional¹⁰ or commercial holding, size of the herd and region. Generally, traditional (open range) producers have much lower sales and purchases than commercial (fenced) operations: an unweighted average of 16% sales for the former against 31% for the latter (for purchases, the ratios are 1% and 10%, respectively). Smaller traditional holdings also have lower sales (under 15% for less than 60 head, over 18% for more). This is further confirmation that cattle rearing on communal land is low input, low investment, exploiting both the range and the herd "as is", rather than turning over the herd with sales and purchases. Traditional holding sales are also lower in the southern and Francistown regions, at 12%, than in the central or western region, at 17% and 18%. Similarly, although commercial holding sales average 30%, a much lower sales ratio is observed for Gantsi TGLP (19%) and much higher ratios for Molopo (37%)

¹⁰ See footnote 1.

and Lobatse (39%). Much of these patterns could be explained by outlet proximity, but regional variations in climate, thus production techniques, should not be dismissed.

In terms of buyer, commercial farms overwhelmingly favor BMC and its agents, with 49% of sales to them, though in 2002/03 Barolong chose auction at 54%, and four other blocks did the majority of their sales to butchers. None of the commercial holdings sold to cooperatives, abattoirs or traders, though there was some exchange of animals with other farmers (9%) and sales to feedlots (15%), suggesting intra-industry trade. It is interesting to note that BMC and its agents are also the prime buyers for cattle reared on communal land, garnering 42% of sales, though Gaborone cattle are mostly sold at auction while cattle from Maun, Francistown and the southern region go to sales other than to BMC and its agents, cooperatives and other farmers, auctions, abattoirs or traders.

The 2003 cattle population was estimated at 2,028,417 head, consisting of 8% bulls and oxen, 44% cows, 27% tollies and heifers (young animals that have not reached reproductive age) and 21% calves, or 1,969,005 LSU. At BMC prices (using the January 2006 price for the most common grade S2), this puts a value of P 8.2 billion. Using the RSA price for the equivalent grade (listed above), that same cattle is worth P 9.7 billion, a difference of 18%. This is the extent of the undervaluation of the national herd, due to sub-EPP.

Given the disparities in profit-seeking, propensity to sell and choice of buyer, it should be apparent that any given price signal will have very different interpretations and thus prompt diverse reactions, and yield uneven income and distribution results. While BMC is very much the price-setter in the sector, it remains a residual buyer. Local butchers and other buyers will align their prices to those of the BMC, but the remoteness and limited market access of smaller producers can lower the price they are able to receive. Because direct sales to the BMC constitute a smaller proportion of smallholders' sales, an increase in BMC's prices, unless it is fully matched by their alternate buyers, has less marginal impact on smallholders. Interestingly, in the case of the January 2006 price increase of 40%, observers have noted that butchers were able to match the hike. On the positive side, this means smallholders did benefit from (almost) the full 40%. On the downside, this means supply to the BMC did not receive the boost hoped for. These same observers state however that butchers will not be able to match much further increase. While this could squeeze local sales to the benefit of the BMC, it is unclear whether smallholders will enjoy the full benefit of another price jump without a change in their production methods.

Based on Table A4 in Annex 1 of cattle ownership by income range and herd size, HIES data on median income by range, and DAHP data on cattle sales and revenue¹¹ by herd size, the following table presents the proportion of total income (cash and in-kind) made up by cattle sales, by income group.

Proportion of total income obtained from cattle sales, by income range (Pula), 2002/03 (%)

<200	201-400	401-600	601-1000	1001-1500	1501-2000	2001-3000	3001-4000	4001-6000	6001-8000	8001-10000	10001+
25.3	10.1	6.1	3.8	2.6	2.2	2.1	1.3	1.5	0.9	1.3	0.8

Source: own calculations

The share of income received from cattle sales varies according to income group: overall, the wealthier households derive less of their revenues from livestock. At a quarter of total

¹¹ There were 208,105 sales from the traditional sector and 34,018 from the commercial sector in 2003, for a weighted average price of P974.

income, the lowest income group has by far the highest share of cattle revenues in income. This is more than halved for the next income group, and almost halved again for each of the following two. In contrast, from P1,001-3,000 and from P3,001+, the ratios are roughly even. In understanding this, it is worth noting that:

- most households, regardless of income, own 9 or less head,
- over a third of households in each income range own herds of less than 40 head,
- almost no herds of 60 head or more are owned by households with income below P4,000, and
- only 5% of households earning P4,001-8,000 and 10% of those earning P8,001 or more own more than 60 head of cattle.

What this suggests is that cattle holdings are principally not profit-making operations regardless of income bracket. Cattle holders in the lower income range have limited disposable income and live principally of subsistence: their animals are sources of dairy and of meat when natural deaths occur, but are mostly a store of wealth to survive drought and an occasional though important source of cash. For those with higher income, the herd is almost a hobby and no more than a sideline from the main money-earning activity. Sales take place on special occasions, and revenues from sales therefore make up a small proportion of total income. Nevertheless, these numbers should not cloud the fact that some of the larger cattle producers – in the P4,001+ range – are either fully involved in cattle rearing or are on the cusp of making livestock their prime economic activity. These producers will naturally have a much more significant proportion of their income made up by sales (larger herd, more turnover investment) and thus affected by any price change. But the numbers of these producers remain small and thus do not impact the statistics.

In a country where 80% of cattle is held by 20% of the population, the widespread impact of a price increase could be limited. Nevertheless, for smallholders who are able to enjoy the price increase, the marginal impact will be greater: since their costs are low, they reap almost the full price difference in profits (and this has a sizeable impact on total income, as seen above – with those in the lower income brackets receiving a 5-10% increase in average income, but much more for some households as this average includes non-cattle-owning households), as opposed to producers who transact a lot and will have a lower marginal gain. While this considers the direct impact on cattle producers of different sizes, the multiplier effect of a price increase on cattle and therefore beef cannot be underestimated. In RSA, the GDP multiplier effect of the livestock sector has been estimated at 1.53: a one-Rand increase in livestock production has a direct effect on the agricultural sector of ZAR 0.60, on intermediate input supply industries of ZAR 0.26 and further induced effects on the rest of the economy of ZAR 0.67 of consumption. In Botswana, the beef multiplier could be very similar, having significant implications for the development of agriculture and other sectors of the economy, and thus employment.

In trying to observe the impact of the January 2006 price increase, two comments were often heard: that the price increase had come at the wrong time, and that this study did. The recommendation to move truly to EPP was made in early to mid-2005, and EPP was calculated at that time, based on prevailing market conditions and resulting prices in RSA. By the time the recommendation (and funding for EPP) was approved by Cabinet however, the price increase no longer brought Botswana's prices to parity with RSA's.

Although they currently represent a smaller share of the BMC's supply, larger producers have argued that its pricing structure, which does not differentiate between large and small

sales, is a further discouragement to their selling. The assurances they can provide as to supply quantities, delivery dates and quality, they say, would normally warrant a higher price than smaller, more erratic sales. One livestock producer – incidentally, a competitor of the BMC – states it would provide 5,000 head a month to the BMC if it was offered a commercial price. Such sales could go some way to securing a steady basic supply.

Perhaps more importantly given the BMC's increasingly alarming low supply¹², the price increase came just after a prolonged drought ended in substantial rains, offering underweight cattle the bounty of plentiful grazing (and food) – and livestock producers no good reason to rush to sell. This is no doubt the key reason why the BMC has not seen its throughput jump as it had hoped. The study's failure to record any significant quantitative nor indeed qualitative change as yet could also be the result of cattle still out grazing – and the likelihood that sales will only pick up mid-2006. If further price changes are to have the impact anticipated of them, it will be imperative to address the delays in price setting experienced by the BMC with this last hike. If further price increases are not to take place, the impact of such a decision could be to increase the release of animals for sale (no reason to hold out for higher price), if Government/the BMC can make it clear to producers that there is to be no better price in the foreseeable future.

Although the January price boost was not as large as could have been wished for by producers, those farmers who chose to sell their cattle after the increase will have achieved higher incomes. For the smaller, low-cost producers with low income, the gains could have been close to the full 40%. For larger producers who spend more on their operations, the marginal returns will be less because of extra costs, but a higher income will still return from sales at higher prices. For those buying cattle of course, this will have become more expensive. Indeed, some producers who purchase young animals for fattening have complained that the price structure may have worsened viability: because the prices did not move evenly across the board, it is now more expensive to buy input animals and not as much more profitable to sell the finished ones. In feedlots for instance, 250kg weaners are bought on average at P1,265, then fed for 115 days at P11.4 per day (including feed, overheads and other expenses), for an average total production cost of P2,575. In the three months of fattening, the animal has put on an average of 195kg, but the price it will fetch at the BMC, for a realistic CDM of 52% of liveweight, is P2,375: a shortfall of P200 per animal sold, making it uneconomic to feedlot weaners at the current prices, and certainly discouraging further investment in feedlots and in weaner production.

The January 2006 price change was not enough to prompt higher offtake from oxen herds nor can it support a change in the production system to higher-turnover weaner herds and feedlots. Yet greater throughput, which can only come from higher offtake or increased production, are essential if the BMC is to survive. Either the BMC's prices, or the current BMC-centered system, must therefore change.

CAVEATS

Botswana's climate and topography combine to create a potentially fragile environment. Much of its territory has thin top soil, with erosion a serious concern. Livestock can damage vulnerable ground by trampling and by removing plant material that could replenish the resource. Range farming, which is extensive, tends to spread out the risks

¹² The BMC's capacity utilization was down to 24% in February 2006 and only went up to 31% in March. Its CEO states EPP could be self-financed if the BMC achieved 80% capacity utilization.

from overcrowding, although some argue that the traditional oxen production practiced in Botswana leads to overstocking. Others contend that this is checked by ancestral and natural means, including drought. Weaner production can also be an environmental threat, as it focuses on calf/cow units which cannot trek and are anyway kept fenced around watering holes, increasing pressure in their immediate vicinity. Furthermore, land available for fencing is becoming scarcer, and as more is rezoned, competing uses come to the fore – Botswana’s range is home and provider to many besides cattle. Where most of the territory is held in community, there is little responsibility for safeguarding the land against overuse. Government has sought to address this through Management Committees similar to cooperative farms, but the decade-old policy does not appear to be overly successful in controlling either grazing or water use. The Range Management section of the Ministry of Agriculture itself acknowledges that the topic is too big to be handled within its resources and that a clear mandate and adequate means must be found to effectively endorse this responsibility. In seeking to commercialize any agricultural sector, moreover the livestock industry, it will be crucial to set clear land priorities and adopt the right monitoring systems to preserve the environment.

Whatever policy choices are made or not, it is paramount that the attention given the BMC continue its restructuring. The BMC was created with a mission and tools which are no longer relevant. Its inefficiencies – many of which are systemic as a parastatal monopoly – must be addressed. Alleged abuses of power must equally be investigated and corrected if found. These include the use of health protection as a barrier to entry, the non-exploitation of the fifth quarter¹³ and neglect of dairy, and minimal market exploration efforts, all of which seriously constrain the development of the sector. The BMC should be a facilitator, not an institution which stops producers from seeking out the best deal for their identified product. Allegations also are made about collusion on cattle sales, whereby one or two large stakeholders block auction sales to local butchers, releasing only certain animals, or from certain sellers, or price-fixing. While these are not unnatural distortions of a “free” market, they do result in lower overall welfare.

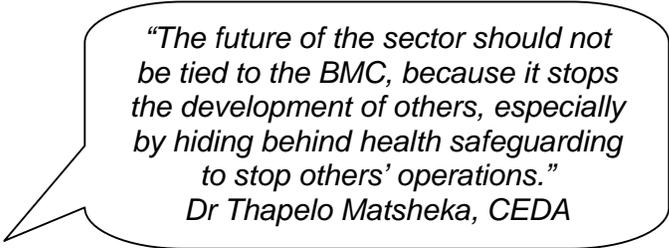
Finally, it is worth mentioning that the EU developed its own livestock sector not by manipulating prices (though this has also happened) but with the provision of farmer support services. These extension services which assist farmers in producing healthier, sturdier, heavier animals are particularly relevant in a country where long distances may rob smaller farmers of the knowledge and services they need to succeed. The centralization afforded by feedlots, if these were to develop in Botswana, could provide a perfect breeding ground for these extension services, which in turn could mean extra added value, more and better employment, and additional revenues.

THE BIGGER PICTURE

Much is made of developing the livestock sector. It is important with this intention to understand the motivations behind the push, as these impact policy choices. The Ministry of Agriculture states “commercialization” is desired to have agriculture contribute to the economy and to counter migration and unemployment. Moreover, cattle has wide citizen ownership, making it an instrument for empowerment. The development of sector could indeed boost agriculture’s share of GDP (directly and through linkages), provides more jobs and thus slow rural to urban migration. *Commercialization* however could mean a concentration of production as economies of scale are sought, and to a professionalization

¹³ The fifth quarter includes all non-meat products from the animal: offals, skin, bones.

which would reduce the need for low-skill labor and could not offer the work opportunities hoped for. As framework to these concerns, there does not appear to be a real agricultural policy, stating priorities, best practices and schemes. Piecemeal efforts at infrastructure or producer assistance have been uneven in their success. The road network was developed primarily with human transport in mind, and could be too-high quality and not extensive enough to empower remote producers. Technical support has tended to focus on production, while marketing systems have been overlooked, resulting in producers finding no outlet for their products – except the BMC for cattle.



“The future of the sector should not be tied to the BMC, because it stops the development of others, especially by hiding behind health safeguarding to stop others’ operations.”
Dr Thapelo Matsheka, CEDA

The BMC was relatively successful in its early mission. It enabled Botswana to develop a European market for its beef. But the concentration of trading power within the one institution has distorted the system. Onerous highest standard health precautions hamper the development of domestic and regional opportunities. Agriprocessing is curtailed by the stranglehold the BMC has over imports of inputs and export markets. Indeed, the very *raison d’être* of today’s BMC is unclear. In assessing the relative value of an enterprise, including of public over private alternatives, economics will ask two questions: is the firm on the lowest possible cost curve (no inefficiencies) and is resource allocation optimal, in that reassigning its resources would not increase total social welfare. The BMC is losing ground and money, not helping producers but slowing progress, and in fact costs producers, consumers and taxpayers money as it artificially maintains low prices and limits competition. Indeed, if as some observers state, the BMC actually strips value from the beef sector rather than contributes to its value added, closing it down would likely increase overall sector value added and social welfare.

The policy decision to keep the BMC is therefore difficult to rationalize. It is argued that principally, it is the knowledge and infrastructure of the BMC’s EU-accredited facilities that is being protected, along with some employment (at the Francistown abattoir in particular). Yet there is no reason why a private enterprise would let go of its assets, namely knowledgeable staff and EU-approved infrastructure, if these were profit-making. Quite the reverse: with profit maximization as the goal, the restructuring and privatization of the BMC’s functions (as opposed to the cosmetic reshaping of the BMC itself) would put greater value on knowledge and ensure fresh investment to capitalize on competitive opportunities left unexplored by the parastatal monopoly.

In developing the beef sector, it will be crucial to consider its operation without the BMC, or with a much redefined institution. Given the strength of domestic demand, the artificial pursuit of exports seems unwarranted. It is possible to envisage a beef sector where exports are limited to surplus production, especially when the requirements of the target markets differ. If exports became a surplus activity, the BMC’s role could be much reduced. The best measure of the value of exports, however, is likely to be trade liberalization: if it makes economic sense to export – be it to the region or to the expensive standards EU – entrepreneurs will develop the capacity to do so. The arguments for keeping a large, costly parastatal institution based on standards is erroneous: the heavy

investment has been made, and business is better at business than Government. If domestic health is a concern, Government can redeploy its know how on protecting it directly. It should not be spending (taxpayers') money protecting foreign consumers.

The social value of the BMC as a source of foreign earnings and empowerment for small rural farmers is possibly overstated. The overall impact of BMC beef exports on this section of the population is difficult to quantify. On the upside, the BMC's main source of supply is small farmers, suggesting that much of their sales revenues – even if very few of these take place for each individual – are tied to the BMC. On the downside, the price received for these sales has eroded continuously and the procedures required for sales to the BMC's export market are burdensome. The amount of export revenues which reach the rural population is thus tempered. If export restrictions on cattle or meat were lifted on the other hand, small remote producers could enjoy attractive new opportunities in the easier-to-enter RSA market, which offers a premium on world and Botswana prices (though not as generous as the EU's, but without the complicated requirements)¹⁴.

One possible danger of allowing live exports (as opposed to exports of meat and related products) could be the loss of value added in Botswana, as raw materials rather than processed, higher-value products are exported. This in turn could curb the development of agriprocessing in Botswana, if better cattle prices are offered abroad than by domestic processors. The meat processing sector is rather integrated in Botswana however, with large agriprocessors running not only meat processing plants, but indeed state-of-the-art abattoirs and even feedlot facilities. Given the deficit of beef products in RSA and the established status of these enterprises, they feel confident that if meat exports were allowed along with live ones, they would remain competitive and possibly even be able to grow their agriprocessing capacity to service a bigger domestic and regional market. Moreover, if live exports were allowed, regional demand for a steady supply of quality beef could provide the foundations for a shift to weaner production. Such a shift would increase the value added in cattle rearing over that currently produced in oxen, and could compensate part or all of that lost in animals not processed domestically. And with the BMC currently value-subtracting, the removal of its monopoly stranglehold on the sector's exports would increase domestic value.

CONCLUSION

Livestock producers in Botswana are not a uniform group. They differ in economic motivations and this influences their production techniques. Given this setting, it is unlikely that a single solution can be found to develop the sector, if there is consensus that low supply is the key variable. The vast majority of cattle is owned by "pre-business" farmers who see their herd more as a store of (financial and social) value than an active economic tool. This does not mean price will not affect their decision-making. But pre-business farmers rear their cattle at the least cost possible, on open range and with low (human, technical, veterinary) management input. Remoteness and absent ownership create a need for extension services, to improve breeding, rearing and market access. These could have a great impact on smaller producers.

A change in prices and the price structure could influence some of the marginal pre-business farmers to move into full profit-making operation. At present, a herd of about 100

¹⁴ One suggestion is to keep the BMC's monopoly on EU exports where single-channel marketing is argued to be justified, but removed it on regional markets. Such halfway measures are usually less than optimal.

head is self-sustainable, but profits are too low to make it a viable alternative to urban employment. It is conceivable that a not-unachievable price exists where part-time farmers would refocus their energies on livestock production (early active retirement of cattle-owning government employees is cited). This could lead to some restructuring of their herd, to produce more weaners and build up regular cashflows, provided the new price structure supports the transformation from oxen to weaner production. Wholesale conversion away from oxen, except for the larger producers, is not expected as it could carry risks in drought, the calf/cow units being more fragile and a heavier resource drain.

Most larger producers, on the other hand, are likely to convert to weaner production which is suited to high-management, fenced ranches, if the right price signals are given. Simply put, this would allow a weaner to be purchased at a price equivalent to that of a fully-grown S2 oxen (at comparable CDM¹⁵). Breeders would then receive the same income from their weaners as they would from waiting for their oxen to mature, while buyers of weaners would still be able to feed-grow the animals over a short period and sell at a profit. Weaner production provides an economic basis for the establishment of feedlots and husbandry and veterinary services, which in turn support the growth of weaner production. These linkages ensure a stable source of managed-quality animals, and can smooth out seasonality of supply.

One development path for the beef sector is a “dual-track” system which would strengthen intra-industry linkages. Smaller farmers would concentrate on breeding cattle, while larger producers would fatten and finish them. This in part addresses the issue of land fencing and responsible exploitation of the environment. It also increases the outlet opportunities for smaller players and reduces the costs of upgrading production (or rather, shifts this cost from smaller entrepreneurs to larger operations). This dual approach could also address environmental concerns, by ensuring that not all production moves from tried-and-tested range-based extensive oxen production to intensive weaner production. These environmental concerns should not be ignored, but neither should they be overstated.

If weaner production is to come about in Botswana, a certain professionalization of the sector can be expected. Weaner production requires careful, informed management of the herd in reduced space. It is likely that this would alter the employment structure of the sector, with less need for unskilled labor and more demand for (fewer) trained managers. Potentially, as farms are transformed and rationalized, there could be a smaller amount of operations and less range attached to each, thus requirements of herdboys-type support could shrink. While this lowers unskilled job opportunities, it could mean an education drive and empowerment of workers¹⁶.

Keeping flexibility in the sector, by ensuring not only the right price but the right price structure, could give everyone a chance. Alongside weaner production and feedlots, smaller “artisan” cattle rearing could exploit the higher end niches of the EU (even US or Japan) market for grass-fed, organic, predator-friendly beef. With current restrictions on exports, the BMC has undue control over who exports what and especially to where. Reports have come of entrepreneurs having identified and contacted buyers abroad, but being turned away by the BMC: these business decisions are not the BMC’s to make. Similarly, consolidating smaller individual operations into cooperatives for the supply of livestock inputs or delivery of output should be investigated, as this increases bargaining

¹⁵ Comparison are best based on CDM over liveweight, as this removes problems of calculating weight loss due to transport, stress, age-meat ratio etc.

¹⁶ It is worth noting that a shortage of local herdboys, despite 20%+ unemployment, has led Government to make work permits available for Zimbabwean farm workers. Those low-skill jobs are not Batswana.

power, lowers costs and broadens opportunities: smaller players could adequately face off larger, better informed ones.

While the “right price” is an important aspect of developing the beef sector, it is unlikely to be enough. Trade liberalization is key, and in fact market forces remove from Government the administrative burden of finding the right price. Trade liberalization opens up new opportunities, while increased competition dismisses value subtractors. Taxpayers no longer fund costly administrative restrictions, consumers have access to more and cheaper products, while producers have better prospects for profit-making. The domestic and regional markets, in this context, would no longer be overlooked: they may offer less premium, but they are easier to enter than far-away, more sophisticated markets. They could also be sources of inputs as well export markets, increasing supply or evening out seasonal/weather cycles, and creating new opportunities for Botswana’s agriprocessing.

Export parity pricing, an almost automatic consequence of trade liberalization, would fuel an increase in the supply of quality animals, which would reduce per unit costs at the BMC and allow it to up its producer prices, possibly prompting a change in production methods; the EU quota could be used more fully, reducing the revenues foregone from low exports; with increased returns in the sector, there would be more investment and more consumption (sectoral and individual), and increased intra-industry linkages, while economies of scale would lower production costs. At the macroeconomic level, this would mean more and better jobs, thus more potential tax revenues.

To develop the sector under trade liberalization, it will be important to look at its inputs and their costs. Feedlot production requires large quantities of feed, medicines and other essential inputs, all of which are imported. These should not be at prohibitive prices, or they will hinder growth. Similarly, if live exports and live imports are allowed, it is important that trade not be taxed uneconomically. Live exports will divert cattle away from domestic agriprocessing unless this can be done cost-efficiently and imported inputs do not push prices above those of competing finished product imports. Live imports could undermine domestic production unless again, such production can be done cost-efficiently.

The transformation of the beef sector in Botswana requires a fundamental shake-up of its central feature: the BMC. The combination of this institution’s powers and the country’s land tenure has resulted in today’s unsustainable situation: low supply of livestock cannot fund a costly monopoly which is inefficient, has high costs thus pays low prices, discouraging supply. With limited range resources (availability of suitable land, competing uses) and erratic weather patterns, it is important to explore a different production system. Yet innovative production techniques are not justified under the current pricing structure. It does not pay to produce higher quality animals, and input costs often deter investment. Many if not all these problems can be solved by trade liberalization. The BMC’s stranglehold on cattle and beef trade have contributed to its inefficiency, closed profit-making avenues to producers, and comes at great social cost to Botswana. The short-term political unpleasantness that could come from shutting down or severely restructuring the BMC is almost insignificant in respect of the long-term gains to be reaped. With trade liberalization – which essentially means abolishing the BMC – comes EPP, increased opportunities for individual cross-border trade, for improved production techniques and necessary extension services, for the development of upstream and downstream linkages, for the professionalization of the workforce, for better consumer and producer welfare, and for greater revenues.

ANNEX 1: STATISTICAL TABLES

Table A1 – Population by Economic Status, Age Group and Location, 2002/03

	Economically active		Self-employed		Own land/cattle post	Other	Total	Economically inactive
	Employee	Paid in kind	No employees	With employees				
Cities/towns								
12-14	0	0	0	0	0	71	71	10482
15-19	1603	31	0	0	0	2625	4259	15085
20-24	10474	31	479	31	0	6325	17340	5317
25-29	12871	0	524	312	0	2938	16645	1315
30-34	12050	42	810	655	0	1168	14725	680
35-39	10064	0	400	541	30	551	11586	415
40-44	8385	33	486	478	0	491	9873	262
45-49	6742	0	252	559	0	307	7860	558
50-54	4732	0	315	231	29	83	5390	494
55-59	2603	0	206	200	0	163	3172	417
60-64	700	0	88	224	93	75	1180	809
65-69	392	0	96	148	0	0	636	327
70+	302	0	115	38	93	0	548	619
Total	70918	137	3771	3417	245	14797	93285	36780
% of active population*	76%	0%	4%	4%	0%	16%		
% of econ. population*	55%	0%	3%	3%	0%	11%	72%	28%
Urban villages								
12-14	60	0	0	0	0	0	60	21765
15-19	1410	0	0	54	0	2927	4391	27306
20-24	6936	0	134	188	393	11332	18983	6748
25-29	11609	0	363	985	116	5306	18379	2484
30-34	8632	0	683	201	287	3161	12964	1182
35-39	6223	0	872	199	193	1765	9252	1162
40-44	6535	0	577	403	154	1195	8864	1469
45-49	4587	0	352	423	147	840	6349	1712
50-54	2705	0	117	0	503	510	3835	918
55-59	2748	0	152	292	480	198	3870	1052
60-64	886	0	439	57	444	73	1899	1345
65-69	521	0	191	61	326	0	1099	2125
70+	512	0	815	0	1505	71	2903	5435
Total	53364	0	4695	2863	4548	27378	92848	74703
% of active population*	57%	0%	5%	3%	5%	29%		
% of econ. population*	32%	0%	3%	2%	3%	16%	55%	45%
Rural areas								
12-14	674	66	0	0	999	357	2096	29710
15-19	3867	0	194	0	1872	5824	11757	22354
20-24	8009	0	586	0	1385	10235	20215	6869
25-29	8645	0	271	287	1713	3944	14860	3617
30-34	8028	98	426	231	2487	4064	15334	2345
35-39	7533	0	101	0	2290	2776	12700	2390
40-44	5958	118	780	190	2213	1825	11084	2044
45-49	4639	0	235	0	2892	465	8231	2335
50-54	3594	0	205	81	3639	583	8102	3228

55-59	2539	0	395	168	2208	111	5421	1289
60-64	2009	68	279	166	3526	74	6122	2828
65-69	886	0	112	81	2155	0	3234	1838
70+	1009	252	243	83	5422	0	7009	8597
Total	57390	602	3827	1287	32801	30258	126165	89444
% of active population*	45%	0%	3%	1%	26%	24%		
% of econ. population*	27%	0%	2%	1%	15%	14%	59%	41%
National								
12-14	734	66	0	0	999	428	2227	61957
15-19	6880	31	194	54	1872	11376	20407	64746
20-24	25419	31	1199	219	1778	27892	56538	18934
25-29	33125	0	1158	1584	1829	12188	49884	7416
30-34	28710	140	1919	1087	2774	8393	43023	4206
35-39	23820	0	1373	740	2513	5092	33538	3967
40-44	20878	151	1843	1071	2367	3511	29821	3775
45-49	15968	0	839	982	3039	1612	22440	4605
50-54	11031	0	637	312	4171	1176	17327	4640
55-59	7890	0	753	660	2688	472	12463	2758
60-64	3595	68	806	447	4063	222	9201	4981
65-69	1799	0	399	290	2481	0	4969	4290
70+	1823	252	1173	121	7020	71	10460	14651
Total	181672	739	12293	7567	37594	72433	312298	200926
% of active population*	58%	0%	4%	2%	12%	23%		
% of econ. population*	35%	0%	2%	1%	7%	14%	61%	39%

* own calculations

Source: CSO

Table A2 – Households by Enterprise, 2002/03

	Cities/Towns	Urban villages	Rural areas	National
Selling cattle/goats/sheep	217	312	548	1077
Selling/processing animal products	0	0	7166	7166
Total number of enterprises	27948	33595	28453	89996
% number of enterprises	0.78%	0.93%	1.93%	1.20%

Source: CSO

Table A3 – Household Distribution by Disposable Income and Location, 2002/03

Pula/ month	Cash income				Income in kind				Total income			
	Cities/ Towns	Urban villages	Rural areas	National	Cities/ Towns	Urban villages	Rural areas	National	Cities/ Towns	Urban villages	Rural areas	National
<100	2.0	4.1	16.7	8.7	69.0	50.1	24.6	44.8	1.3	1.7	2.7	2.0
100-200	1.3	5.5	14.9	8.2	15.3	16.6	16.5	16.2	1.0	2.0	4.7	2.8
200-300	1.7	5.0	11.8	6.9	5.4	10.3	14.3	10.6	1.2	3.9	6.6	4.3
300-400	2.4	6.6	10.4	7.0	2.1	6.8	11.5	7.4	2.1	5.1	8.3	5.6
400-500	4.9	5.3	6.7	5.8	1.3	3.5	9.0	5.2	4.1	5.6	8.7	6.5
500-750	10.0	11.1	11.3	10.9	2.3	5.4	12.3	7.4	9.8	10.2	19.2	13.8
750-1000	9.2	9.3	5.0	7.5	0.9	2.7	4.4	2.9	8.7	10.6	12.5	10.9
1000-1500	13.4	11.4	5.9	9.7	1.2	1.9	4.1	2.6	13.8	13.5	13.3	13.5
1500-2000	8.6	7.5	4.4	6.5	0.8	1.0	1.4	1.1	9.1	9.6	7.3	8.5
2000-3000	11.4	11.4	4.7	8.6	0.9	0.7	1.0	0.9	12.1	12.1	6.0	9.6
3000-4000	8.2	7.0	2.8	5.6	0.4	0.4	0.1	0.3	8.5	8.4	4.3	6.7
4000-6000	9.4	7.6	3.0	6.2	0.2	0.2	0.2	0.2	9.6	8.0	3.2	6.5
6000-8000	5.5	3.1	1.2	3.0	0.0	0.1	0.4	0.2	6.1	4.0	1.7	3.6
8000-10000	3.6	2.3	0.5	1.9	0.1	0.1	0.1	0.1	3.8	2.5	0.6	2.1
10000-15000	4.6	2.0	0.6	2.1	0.0	0.1	0.0	0.0	6.7	2.5	1.0	3.0
15000-20000	1.8	0.6	0.2	0.8	0.0	0.0	0.1	0.0	-0.1	-0.1	-0.1	-0.1
20000+	2.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0	2.2	0.4	0.0	0.7
Total number	109,556	121,321	163,395	394,272	109,556	121,321	163,395	394,272	109,556	121,321	163,395	394,272
Mean	3,782	2,181	976	2,127	179	264	403	298	3,961	2,445	1,379	2,425
Lower 10	450	200	29	113	0	0	12	0	504	347	240	358
Median	1,790	1,136	342	806	40	95	259	84	1,949	1,334	743	1,344
Lower 90	9,000	5,289	2,591	5,412	316	572	818	589	9,635	5,520	3,105	7,030

Source: CSO

Table A4 - Household Cattle Ownership by Disposable Cash Income (National), 2002/03

	Disposable cash income group												Distrib. by # of cattle	
	<200	201-400	401-600	601-1000	1001-1500	1501-2000	2001-3000	3001-4000	4001-6000	6001-8000	8001-10000	10001+		TOTAL
none	38,398	35,504	26,719	37,100	23,566	16,147	20,898	13,404	14,253	6,544	4,694	9,107	246,334	62%
1-9	15,186	11,280	7,798	10,631	7,945	5,017	6,978	4,112	4,215	2,874	833	1,015	77,884	20%
10-19	7,713	5,101	3,154	3,387	3,286	2,405	2,773	1,755	2,187	509	408	634	33,312	8%
20-39	3,189	1,493	1,725	2,202	2,399	1,109	2,026	1,886	1,699	1,122	721	1,310	20,881	5%
40-59	1,321	1,123	629	561	420	641	667	376	946	242	371	593	7,890	2%
60-79	210	104	181	287	238	165	499	227	468	235	102	207	2,923	1%
80-99	126	-	81	-	131	-	48	98	162	50	71	376	1,143	0%
100-149	232	249	49	66	-	94	101	-	218	-	209	162	1,380	0%
150-199	-	-	38	144	-	-	-	60	82	32	-	140	496	0%
200+	398	81	152	115	126	81	93	101	187	126	198	377	2,035	1%
TOTAL	66,773	54,935	40,526	54,493	38,111	25,659	34,083	22,019	24,417	11,734	7,607	13,921	394,278	
Distrib. by inc. group	17%	14%	10%	14%	10%	7%	9%	6%	6%	3%	2%	4%		

Source: CSO

Table A5 – Traditional Holdings by District, 2003

Region	Total holdings		Holdings with land		Cattle holdings		Cattle population		Full time farmer holder	Ave cattle /holding
Southern	25061	22%	12088	48%	17590	70%	380593	20%	71%	22
Gaborone	24755	22%	11686	47%	15992	65%	352021	19%	77%	22
Central	35377	31%	17955	51%	21193	60%	578110	31%	78%	27
Francistown	10706	9%	5946	56%	5957	56%	152387	8%	78%	26
Maun	12105	11%	8714	72%	6442	53%	168579	9%	77%	26
Western	5293	5%	1035	20%	3631	69%	240628	13%	63%	66
	113297		57424		70805		1872318		75%	

Source: CSO

Table A6 – Traditional Herd Composition by District, 2003

Region	Cattle #	Bulls	Oxen	Cows	Tollies	Heifers	Calves	Births	Deaths	Sales	Home slaughter	Purchases	Offtake
Southern	380,593	2%	7%	47%	13%	11%	20%	49%	20%	12%	3.5%	2.2%	14%
Gaborone	352,021	2%	6%	44%	15%	11%	22%	50%	17%	14%	2.7%	0.5%	16%
Central	578,110	2%	5%	42%	15%	11%	26%	36%	27%	17%	1.6%	0.3%	18%
Francistown	152,387	1%	5%	43%	21%	15%	15%	35%	36%	12%	3.4%	0.3%	15%
Maun	168,579	2%	8%	42%	15%	12%	20%	42%	14%	20%	1.9%	0.7%	21%
Western	240,628	1%	5%	45%	19%	10%	20%	46%	14%	18%	1.5%	0.8%	19%
Total	1,872,318	2%	6%	44%	16%	11%	22%	41%	23%	16%	2.2%	0.7%	17%

Source: CSO

Table A7 – Commercial Cattle Farms, Population, and Herd Composition by Block, 2003

	Cattle farms	Cattle #	Bulls	Oxen	Cows	Tollies	Heifers	Calves	Births	Deaths	Sales	Home slaughter	Purchases	Offtake
Tuli	36	10,302	2%	4%	45%	10%	17%	22%	25%	7%	34%	0%	12%	21%
Tati	32	5,615	2%	6%	45%	17%	16%	15%	14%	6%	39%	0%	32%	8%
Gantsi	69	63,736	2%	8%	45%	13%	15%	16%	39%	8%	27%	0%	5%	22%
Molopo	12	28,203	3%	11%	43%	10%	15%	19%	24%	2%	37%	0%	4%	33%
Pandamatenga	2	116	2%	9%	32%	16%	18%	23%	65%	2%	8%	8%	0%	17%
Lobatse	6	520	4%	24%	33%	28%	5%	6%	1%	0%	39%	0%	49%	10%
Sand velt TGLP	10	4,899	1%	2%	45%	13%	18%	21%	42%	10%	23%	1%	0%	24%
Ngwaketse TGLP	46	11,351	4%	4%	50%	11%	14%	17%	30%	9%	30%	1%	11%	19%
Kgalagadi TGLP	12	2,918	1%	1%	46%	10%	16%	26%	42%	10%	23%	1%	0%	24%
Kweneng TGLP	62	11,363	2%	5%	42%	13%	17%	21%	41%	10%	23%	1%	2%	22%
Gantsi TGLP	49	4,313	2%	2%	48%	9%	13%	26%	42%	16%	19%	3%	3%	18%
Haina velt TGLP	36	9,359	2%	4%	43%	11%	19%	21%	39%	8%	25%	1%	2%	25%
Nata TGLP	8	839	2%	7%	38%	20%	18%	15%	37%	22%	20%	0%	0%	20%
Lepasha TGLP	4	664	2%	6%	37%	18%	18%	18%	30%	7%	30%	1%	0%	31%
Barolong	5	1,901	9%	0%	49%	5%	13%	24%	32%	4%	32%	0%	2%	30%
Total	389	156,099	2%	7%	45%	12%	15%	18%	31%	6%	30%	0%	10%	22%

Source: CSO

Table A8 – Traditional Cattle Herd Size and Composition, 2003

	Number of Holdings	Average cattle/ holding	Total cattle	Bulls	Oxen	Cows	Tollies	Heifers	Calves	Births	Deaths	Sales	Home slaughter	Purchases	Offtake
1-10	27,284	6	150,094	1%	6%	45%	17%	12%	19%	31%	47%	9%	2%	1.2%	10%
11-20	16,786	15	249,856	3%	8%	40%	15%	10%	24%	40%	25%	15%	3%	0.4%	17%
21-30	8,809	25	223,209	2%	5%	43%	16%	12%	22%	41%	28%	13%	2%	0.7%	15%
31-50	8,819	38	339,408	2%	5%	45%	16%	12%	20%	45%	20%	15%	2%	0.5%	17%
51-60	1,280	56	72,154	2%	5%	43%	22%	10%	19%	44%	25%	12%	3%	0.2%	15%
61-100	4,316	77	331,760	2%	5%	42%	14%	11%	25%	43%	13%	21%	1%	0.6%	21%
101-150	2,078	116	240,320	2%	6%	46%	14%	9%	23%	42%	17%	19%	2%	1.1%	20%
151-200	510	181	92,459	1%	7%	47%	16%	15%	15%	39%	20%	18%	2%	0.6%	20%
201-300	347	246	85,325	1%	4%	49%	17%	9%	19%	47%	12%	20%	1%	0.0%	21%
301-400	89	328	29,161	1%	4%	42%	16%	14%	23%	51%	7%	20%	1%	0.0%	21%
401+	110	532	58,572	1%	5%	44%	19%	11%	19%	59%	9%	16%	0%	0.1%	16%
Total	70,428	27	1,872,318	2%	6%	44%	16%	11%	22%	44%	20%	16%	2%	0.5%	18%

Source: CSO

Table A9 – Commercial Cattle Herd Size and Composition, 2003

	Number of Holdings	Average cattle/ holding	Total cattle	Bulls	Oxen	Cows	Tollies	Heifers	Calves	Births	Deaths	Sales	Home slaughter	Purchases	Offtake
1-50	85	32	2,709	2%	7%	44%	9%	18%	20%	23%	12%	30%	2%	20%	13%
51-100	56	72	4,024	2%	6%	47%	10%	15%	21%	37%	14%	22%	3%	3%	22%
101-200	85	153	12,964	2%	4%	50%	12%	15%	18%	21%	9%	34%	1%	18%	17%
201-300	56	251	14,040	5%	11%	40%	12%	15%	17%	32%	7%	30%	1%	9%	22%
301-400	19	352	6,679	2%	5%	53%	11%	14%	15%	15%	6%	39%	0%	36%	4%
401-500	20	448	8,953	4%	16%	42%	12%	11%	15%	23%	8%	34%	0%	15%	19%
501-1000	44	716	31,487	2%	3%	49%	11%	15%	20%	37%	9%	27%	0%	4%	23%
1001-1500	11	1,243	13,674	2%	2%	44%	12%	15%	25%	41%	3%	28%	0%	3%	25%
1501+	13	4,736	61,569	2%	9%	42%	13%	16%	17%	34%	4%	31%	0%	3%	28%
Total	389	401	156,099	2%	7%	45%	12%	15%	18%	31%	7%	31%	0%	10%	22%

Source: CSO

Table A10a – Traditional Cattle Sales, Revenue and Average Price, by Buyer and Region (1-3 Yrs)

Region	Cattle #	BMC	BMC Agent	Coop	Other farmer	Auction	Municipal abattoir	Local abattoir	Trader	Other
Sales										
Southern	9,682	19%	7%	0%	23%	0%	0%	4%	7%	41%
Gaborone	11,916	14%	5%	0%	13%	31%	0%	0%	6%	30%
Central	77,619	31%	21%	5%	9%	3%	0%	2%	6%	24%
Francistown	7,253	28%	3%	4%	23%	0%	1%	0%	1%	39%
Maun	2,377	0%	0%	0%	82%	0%	0%	0%	2%	16%
Western	15,836	30%	35%	0%	2%	4%	0%	0%	18%	10%
Total	124,683	27%	19%	3%	12%	5%	0%	1%	7%	25%
Revenue										
Southern	10,368,094	24%	6%	0%	22%	0%	0%	3%	7%	38%
Gaborone	12,465,507	15%	6%	0%	14%	26%	0%	0%	8%	29%
Central	65,934,386	29%	21%	5%	8%	4%	0%	2%	6%	24%
Francistown	6,337,901	21%	3%	4%	23%	0%	2%	0%	1%	46%
Maun	2,192,807	1%	0%	0%	81%	0%	0%	0%	3%	15%
Western	17,748,651	38%	34%	0%	2%	2%	0%	0%	15%	9%
Total	115,047,346	28%	19%	3%	11%	5%	0%	1%	7%	25%
Average price										
Southern	1,071	1,398	958		1,047			833	1,065	978
Gaborone	1,046	1,103	1,232	1,097	1,120	885	1,106	1,209	1,433	1,043
Central	849	817	866	865	788	1,034		962	818	874
Francistown	874	671	879	830	859		1,203		1,022	1,016
Maun	923	1,956			917				1,192	887
Western	1,121	1,396	1,095	761	957	662		796	913	980
Total	929	935	933	865	890	918	1,172	931	919	926

Source: CSO and own calculations

Table A10b – Traditional Cattle Sales, Revenue and Average Price, by Buyer and Region (over 3 Yrs)

Region	Cattle #	BMC	BMC Agent	Coop	Other farmer	Auction	Municipal abattoir	Local abattoir	Trader	Other
Sales										
Southern	13,989	14%	30%	4%	9%	1%	0%	3%	5%	34%
Gaborone	12,303	12%	3%	1%	17%	45%	1%	0%	1%	20%
Central	28,312	18%	28%	19%	6%	1%	0%	1%	22%	5%
Francistown	4,408	27%	3%	4%	6%	0%	0%	0%	2%	59%
Maun	17,076	28%	2%	0%	17%	0%	0%	0%	0%	52%
Western	7,334	32%	11%	0%	10%	4%	0%	4%	33%	7%
Total	83,422	20%	16%	8%	11%	7%	0%	1%	11%	25%
Revenue										
Southern	14,683,203	15%	28%	3%	9%	2%	0%	2%	6%	35%
Gaborone	12,935,219	12%	3%	1%	17%	43%	1%	0%	1%	22%
Central	24,661,107	18%	26%	19%	6%	1%	0%	1%	24%	5%
Francistown	3,914,817	24%	3%	4%	6%	0%	0%	0%	2%	62%
Maun	16,117,658	33%	2%	0%	11%	0%	0%	0%	0%	54%
Western	7,814,378	36%	12%	0%	9%	3%	0%	3%	30%	6%
Total	17,441,294	22%	15%	7%	9%	8%	0%	1%	12%	26%
Average price										
Southern	1,050	1,126	995	844	986	1,250		915	1,281	1,076
Gaborone	1,051	1,099	1,053	985	1,054	999	1,060	1,140	1,131	1,142
Central	871	888	823	849	771	1,439		783	959	854
Francistown	888	768	894	957	913			810	923	937
Maun	944	1,132	786		581			1,963	962	969
Western	1,066	1,226	1,172	558	942	939		885	982	926
Total	960	1,042	902	854	822	1,015	1,060	881	988	1,002

Source: CSO and own calculations

Table A10c – Traditional Cattle Sales, Revenue and Average Price, by Buyer and Region (all)

Region	Cattle #	BMC	BMC Agent	Coop	Other farmer	Auction	Municipal abattoir	Local abattoir	Trader	Other
Sales										
Southern	23,671	16%	21%	2%	15%	1%	0%	3%	5%	37%
Gaborone	24,219	13%	4%	1%	15%	38%	1%	0%	3%	25%
Central	105,931	27%	23%	9%	8%	2%	0%	2%	10%	19%
Francistown	11,661	28%	3%	4%	17%	0%	1%	0%	1%	47%
Maun	19,453	24%	2%	0%	25%	0%	0%	0%	0%	48%
Western	23,170	31%	27%	0%	5%	4%	0%	2%	23%	9%
Total	208,105	24%	18%	5%	11%	6%	0%	1%	9%	25%
Revenue										
Southern	25,051,297	19%	19%	2%	14%	1%	0%	2%	6%	36%
Gaborone	25,400,726	14%	5%	1%	16%	35%	1%	0%	4%	26%
Central	90,595,493	26%	22%	9%	8%	3%	0%	2%	11%	19%
Francistown	10,252,718	22%	3%	4%	16%	0%	1%	0%	1%	52%
Maun	18,310,465	29%	2%	0%	19%	0%	0%	0%	0%	49%
Western	25,563,029	37%	27%	0%	4%	3%	0%	1%	20%	8%
Total	195,173,728	25%	17%	5%	11%	6%	0%	1%	9%	25%
Average price										
Southern	1,058	1,255	990	844	1,025	1,250		874	1,172	1,032
Gaborone	1,049	1,101	1,160	1,005	1,082	953	1,075	1,166	1,410	1,084
Central	855	829	852	856	785	1,059		920	899	872
Francistown	879	707	884	873	866		1,203	810	965	979
Maun	941	1,133	786		714			1,963	1,112	966
Western	1,103	1,341	1,104	620	947	751		870	944	967
Total	938	970	921	859	864	965	1,126	912	954	956

Source: CSO and own calculations

Table A11 – Commercial Cattle Sales, Revenue and Average Price, by Buyer and Block

Region	BMC	BMC Agent	Coop	Other farmer	Auction	Municipal abattoir	Local abattoir	Trader	Butcher	Feedlot
Sales										
Tuli	20%	1%	0%	7%	0%	0%	0%	0%	51%	21%
Tati	4%	0%	0%	5%	3%	1%	0%	1%	85%	1%
Gantsi	65%	3%	0%	7%	0%	0%	0%	0%	4%	20%
Molopo	62%	1%	0%	6%	4%	0%	0%	0%	3%	25%
Pandamatenga	0%	0%	0%	25%	0%	0%	0%	0%	75%	0%
Lobatse	0%	0%	0%	3%	0%	0%	0%	0%	97%	0%
Sand velt TGLP	52%	11%	0%	23%	0%	0%	0%	4%	11%	0%
Ngwaketse TGLP	35%	24%	0%	26%	0%	0%	0%	0%	5%	8%
Kgalagadi TGLP	72%	28%	0%	0%	0%	0%	0%	0%	0%	1%
Kweneng TGLP	41%	10%	0%	29%	1%	10%	0%	0%	2%	6%
Gantsi TGLP	24%	16%	0%	18%	18%	0%	0%	0%	21%	3%
Haina velt TGLP	66%	3%	0%	4%	0%	0%	0%	0%	24%	2%
Nata TGLP	52%	0%	0%	48%	0%	0%	0%	0%	0%	0%
Lepasha TGLP	11%	0%	0%	0%	0%	0%	0%	0%	89%	0%
Barolong	17%	0%	0%	25%	54%	0%	0%	0%		
Revenue										
Tuli	15%	0%	0%	7%	0%	0%	0%	0%	59%	19%
Tati	4%	0%	0%	5%	2%	1%	0%	1%	86%	1%
Gantsi	68%	2%	0%	6%	0%	0%	0%	0%	2%	21%
Molopo	65%	1%	0%	6%	6%	0%	0%	0%	2%	20%
Pandamatenga	0%	0%	0%	36%	0%	0%	0%	0%	64%	0%
Lobatse	0%	0%	0%	3%	0%	0%	0%	0%	97%	0%
Sand velt TGLP	51%	8%	0%	25%	0%	0%	0%	3%	12%	0%
Ngwaketse TGLP	33%	25%	0%	28%	0%	0%	0%	0%	5%	9%
Kgalagadi TGLP	78%	21%	0%	0%	0%	0%	0%	0%	0%	1%
Kweneng TGLP	48%	11%	0%	26%	0%	8%	0%	0%	2%	5%
Gantsi TGLP	27%	14%	0%	18%	15%	0%	0%	0%	24%	3%
Haina velt TGLP	63%	5%	0%	4%	0%	0%	0%	0%	26%	2%
Nata TGLP	47%	0%	0%	53%	0%	0%	0%	0%	0%	0%
Lepasha TGLP	9%	0%	0%	0%	0%	0%	0%	0%	91%	0%
Barolong	14%	0%	0%	31%	51%	0%	0%	0%	0%	3%
Average price										
Tuli	1036	860		1457					1578	1230
Tati	998			1150	731	1200		1000	1100	1092
Gantsi	1171	837		949			1000	1391	570	1166
Molopo	1333	1553		1214	2000				1137	1003
Pandamatenga				1500					900	
Lobatse				1750					1750	
Sand velt TGLP	1074	854		1219				910	1261	
Ngwaketse TGLP	1228	1394	1250	1434				1000	1121	1367
Kgalagadi TGLP	826	583								899
Kweneng TGLP	1141	997		884	794	773			792	829
Gantsi TGLP	1453	1174		1232	1030				1403	1200
Haina velt TGLP	979	1523		1027				1500	1082	938
Nata TGLP	636			800						
Lepasha TGLP	1067								1369	
Barolong	1200			1861	1430					1400
	1197	1113	1250	1191	1525	854	1000	1112	1381	1108

Source: CSO and own calculations

Table A12 – Selected Livestock Supply Elasticities

Country	Product	Price Elasticity	
		Short-run	Long-run
Botswana	Cattle	0.3	2.6
Swaziland	Cattle	-1.1	n/a
Zimbabwe	Beef	-0.3 to -0.6	2.6
Latin America	Beef	-0.1 to -1.2	0.4 to 1.6
Argentina	Beef	-0.7 to -1.0	n/a
Brazil	Beef	-0.1 to -0.6	n/a
Colombia	Beef	-.006 to -1.2	n/a

Source: ILRI, 1985

The above table lists some short- and long-run price elasticities for the supply of beef or cattle. It illustrates the relatively low but negative response that can be expected initially: producers do not release cattle in reaction to a price increase but hold on to it, either to await further price appreciation or to build up the herd and enjoy more receipts over more animals in the longer run, thus the positive long-run elasticities (more supply).