

Competition and Trade Policy: The Case of the Botswana Poultry Industry

by

*Professor Roman Grynberg and Mr Masedi Motswapong**

* The authors are respectively, Senior Research Fellow and Associate Researcher at the Botswana Institute for Development Policy Analysis.

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Abstract

The poultry sector is the most successful example of import substitution in Botswana with the country having achieved national self sufficiency. The paper describes the value chain in the industry and shows how, given the small size of the market, a high degree of market concentration exists. There is an estimate of the loss of consumer surplus from the current trade regime. The paper raises issues regarding the fundamental tension between competition and industrial policy in a small developing country. As the larger firms in the poultry industry move towards export readiness after 32 years of protection the question of a new trade and industry regime is considered.

Key Words: Poultry Industry, Competition Policy, Trade Policy

1. Introduction

The purpose of this paper is to examine the development of the country's poultry sector, which has become the dominant livestock industry in Botswana. Traditionally, Botswana has been a beef producing and consuming country but with rapid urbanization poultry has supplanted cattle as the dominant livestock sector¹. The development of the industry reflects long-standing government policy dating from the 1970's to develop an industry which is able to meet national needs through import substitution. This objective of national self-sufficiency has now been largely achieved, but as we shall see this has been done at considerable cost to the government and consumers of Botswana². The early policy of import substitution, which resulted in the development of the industry, emphasized the creation of sufficient producer surplus to encourage on-going development and investment in the industry. However, with parts of the industry now being export ready the question arises as to whether the longstanding policy of import substitution and market closure is appropriate and whether a move to a more open trading regime may not be in the benefit of the industry and the country as a whole.

The second issue of relevance that will be discussed is the relationship between competition policy and development and industrial policy in a small developing country. With the completion of the Uruguay Round of negotiations, the development of the 'new issues' such as competition policy was introduced into global trade discussions. These new issues are the product of a paradigm shift that occurred post-1995. The issue of competition policy puts into focus the related question of the development role of the state and its role in balancing consumer/producer surplus has become central to industry policy. The paper is also meant to facilitate discussion on the Botswana's new competition policy and act. This is especially so in light of the Economic Mapping Report commissioned by the government of Botswana, which revealed that there is market dominance in the meat industry (Ministry of Trade and Industry, 2005).

The immediate stimulus for this paper was an earlier study undertaken in 2010, where it was observed that Botswana had the Southern African Customs Union (SACU) region's lowest retail prices for beef using the only available common price comparator, i.e., brisket and the highest price in the region for frozen chicken (BIDPA, 2010). These are the two types of meat products commonly consumed by lower income groups in SACU countries. The paper considers the structure, operations and, to the degree to which such data are available, the costs of production in the poultry industry. The paper focuses primarily on the poultry sector and only peripherally on the domestic market for beef.

¹ In 2008/09 poultry production was 67,000 tonnes with per capita consumption of 39kg/per person per year. This is approximately four times the per capita consumption in 1998. By way of comparison in the same period, the Botswana Meat Commission (BMC) sold approximately 10,300 tonnes of edible meat products in Botswana in 2008 at Pula 140 million. BMC production constitutes approximately half the volume of the total Botswana herd off-take. The other half of the beef supply is sold domestically through local butcher shops and assuming the same conversion ratio of cattle to beef as the BMC means domestic sales from the butcher shops of 28,000 tonnes of beef. This would make total domestic beef consumption of less than 40,000 tonnes. The data available for the volume of poultry production from the Ministry of Agriculture appears not to be consistent with the data available on consumption in the Household Income and Expenditure Survey. This is not uncommon in many countries and the data should be treated the normal caution.

² This is, to the best of the author's knowledge the first economic analysis of the Botswana poultry sector apart from Moreki (2010).

2. Competition Policy in a Micro State inside a Customs Union

2.1 Competition Policy in Small and Micro States

The issue of competition policy has reached the global agenda largely as a result of the issue being pushed by developed countries as part of what were then called ‘the new issues’ that appeared at the Singapore Ministerial meeting of the World Trade Organisation (WTO) in 1996 (WTO,1996). In large measure, the issue has been introduced to developing countries out of the realization that market opening commitments made by them in the Uruguay Round of trade negotiations would be of no commercial value to developed countries unless there was an appropriate competition regime in WTO member states that protected the interests of exporting firms and assured contestability of markets (Sauve, 2004). Thus, developed countries and, in particular, the European Union (EU) have been pursuing an active policy of supporting rules on competition policy (Brittain, 1997). This WTO approach has also been expanded bilaterally in the EU’s regional negotiations with the developing countries of Africa, the Caribbean and the Pacific.

In all of these discussions over the issue of competition policy, there has been scant consideration given to whether greater competition which is frequently associated with diminished producer surplus is beneficial for developing countries. Many developing country Non Governmental Organisations (NGOs) have pushed and supported competition policy issues in large measure out of the view that these rules can assist developing countries in strengthening their competition rules against local monopolies. In Botswana, the government has negotiated an interim Economic Partnership Agreement (EPA) with the EU, and is generally supportive of the approach which enshrines competition policy. Whether the Government of Botswana is willing, in the end, to provide legally binding commitments on competition policy in trade negotiations with developed countries, such as the Caribbean has done, is to be determined in the final EPA with the EU which at the time of writing had not been concluded.

There exists a fundamental tension over the issue of competition policy and law in developing micro states such as Botswana. First, it is entirely plausible for a small state to maintain a rational competition policy that, at least for medium term, is anti-competitive, as it may be in the national interest to assist firms to accumulate sufficient capital, i.e. generate producer surplus in a particular sector, so as to assist firms to eventually become internationally competitive. Second, and it is a more pervasive issue of small and micro states, that irrespective of their development status, the existence of extended economies of scale in production and management in any given industry means that the small size of the market results in there only being sufficient ‘market space’ for an efficient monopolist or possibly duopolists (Gal, 2001)³. This brings into question the very logic of importing policies and laws from larger developed countries that make little economic sense in developing micro-states like Botswana. The matter of whether small states are capable of conducting a competition policy based essentially on developed country competition laws, while attempting to develop import substituting sectors, is at the heart of the case of the poultry industry in Botswana.

³ While Gal does not deal with the case of developing countries in particular, it does consider the issues involved in emulating the competition regime of larger economies such as the EU and the USA.

2.2 Botswana's Competition Law

The new Competition Act passed by the Botswana parliament late in 2009 created a new Competition Commission and a new Competition Authority, which, while not operative at the time of writing, will no doubt commence activities in 2011. The legislation provides the Commission and the Authority with the ability to undertake the usual range of activities found in most countries that have enacted similar legislation. The Authority may undertake investigations of vertical and horizontal agreements (Articles 25, 26 and 27), as well as of the abuse of dominant position (Article 30). If following an investigation, it is determined that a horizontal or vertical agreement that breaches any of the prohibited behavior specified in the Act is said to exist in a particular industry, the Commission is authorized to give direction for the termination of the agreement (Article 43.1). Botswana's Competition Commission serves as the Board for the Competition Authority, which does the investigating and recommends remedies, and makes decisions which can be appealed to the Commission. The Commission acts as the Tribunal to adjudicate cases brought to it by the Competition Authority or by appellants.

The Act also provides for the possibility of a fine of 10% of turnover during the breach of the prohibition on such agreements up to a maximum of 3 years (Article 43.4). The remedies available to the Commission include the requirement for an enterprise to divest itself of any enterprise or assets (Article 44.3.e). These remedies are common to many Competition Laws and are similar to those that are found in South African legislation.

What is unique about the circumstance of Botswana as it pertains to Competition Act is that it is a small developing landlocked country in a customs union with a dominant partner, i.e., South Africa. The issue of relevance is how significant can competition policy be under such circumstances. This is particularly important when it comes to the definition of the relevant market for the purposes of determining whether abuse of a dominant position has occurred. In the Competition Act, the relevant market is defined as 'the geographical or product market to be used for assessing the effects of the practice, conduct or agreement on competition' (Article 2). In any competition law case the most common issue of contention is the definition of the appropriate market. This can be local, national or regional and this is the subject of legal and economic disputes globally.

In the case of SACU which is a customs union where production is polarized into the largest and most developed member i.e. South Africa virtually every consumer good, the relevant market is the SACU market and not Botswana, as this has been legally the case since 1910. This does not mean that the relevant market may not be national or even local, but most commonly in the case of those goods where the Government has purposely closed the Botswana market for the purposes of economic development, e.g., poultry, to all or most international trade, can the market be said to be the same as the legal jurisdiction covered by the Competition Act. The conundrum of competition policy in a country like Botswana, which is both small and part of a customs union, is that where the country may be the 'relevant market' for the purpose of the Competition Act it is almost always so only by virtue of government policy to close the market to foreign competition, including that from other SACU members. In most cases, the relevant market is the SACU market and, therefore, the Botswana Competition Commission will only be able to operate where it works closely with its SACU counterparts (i.e., other members of the

customs union). Moreover in many cases, for example, where a conspiracy occurs to raise prices or reduce or apportion output it will normally have occurred in the main market, namely South Africa, and be extended to Botswana in a pro forma manner as would be the case with the other SACU members. Botswana has no jurisdiction to investigate outside its borders and unless co-operation is close with the relevant South Africa authorities, the ability of the Botswana Competition Commission to implement its mandate will be circumscribed. Thus, the market, i.e., generally SACU, is not the same as legal jurisdiction of the legislation, i.e., Botswana, and, therefore, the legislation can only have limited application as a result.

The drafters of the legislation were also well aware of the problem of statutory agencies. The legislation declares *ultra vires*, ‘enterprises acting on the basis of a statutory monopoly in Botswana’ (Article 3.2(b)). While the poultry industry or other similar import substituting sectors cannot be seen as a statutory monopoly as is the case of infrastructure providers, such as Botswana Power Corporation, its existence is a result of government legislation providing for the prohibition of imports, i.e., Control of Goods (Importation of Eggs and Poultry Meat) Regulations [SI 120, 1979, 7th December], 1979. Given the small size of the Botswana poultry market, the closure of the market from imports, combined with the existence of significant economies of scale in the sector, meant that the Government was, in effect, creating the conditions for what is at very least a ‘statutory oligopoly’, and may be a legal monopoly if one employs the 40% market share threshold as a criteria. More importantly to the case of the poultry and other import substituting industries, the legislative drafters provided a policy based caveat for the application of remedies by the Competition Authority and Commission, which will render its work both taxing and potentially quite arbitrary in its application. In determining whether there has been an abuse of dominant position, the Competition Authority (Article 30.2) ‘may have regard to whether the agreement or conduct in question⁴:

- a) Maintains or promotes exports from Botswana or employment in Botswana
- b) Advances the strategic national interest of Botswana in relation to a particular economic activity
- c) Provides social benefits for which outweigh the effects on competition
- d) Occurs within the context of a citizen empowerment initiative of Government, or otherwise enhances the competitiveness of small and medium sized enterprises; or
- e) In any other way enhances the effectiveness of the Government’s programmes for the development of the economy of Botswana, including the programmes of industrial development and privatization.

⁴In his presentation of the Competition Act to parliament the Honorable Minister of Trade and Industry, Mr B. Gaolathe, 9 December 2009, was quite clear that the intent of the provisions was to provide a caveat that would permit the Competition Commission and the Authority to allow uncompetitive practices:

‘The second approach being proposed is the “rule of reason” form of prohibition. Under this approach, the prohibition would not come into play until the Authority has conducted an exhaustive investigation and concluded that a breach has occurred. In this case, no financial penalty will be imposed. The Authority in this case shall assess whether the benefit to the public of a particular conduct outweighs the detrimental effect of lessening competition. This makes it possible for the Commission to permit an anti-competitive practice, even if it has a detrimental effect on competition.’

Virtually all of these caveats, which are common to many such laws around the world, could be argued as a justification of abuse of dominant position in any of the import substituting industries in Botswana. The question of relevance is, of course, whether the cost to the consumer from the existence of a state created oligopoly is, in fact, justifiable. Nevertheless, these caveats are at the heart of the tension between development policy, which often results in the encouragement of market concentration in order to develop a new industry, and competition law, which is specifically aimed at it creating a competitive market.

3. The Development of the Poultry Industry-From Good Intentions to Legal Oligopoly

3.1 Early developments⁵

The development and commercialization of the Botswana poultry industry started in 1975 with the development of a rural project known as “Thuvo ya Dikoko”. This was aimed in large measure at egg production rather than broilers. It started in several regional centres, namely Gaborone, Lobatse, Mahalapye and Maun, and poultry extension officers were sent to these centres to provide technical expertise. A religious group, the Mennonites, financed the project, which only lasted for 5 years. Under this project the Ministry of Agriculture (MoA) was to buy day old pullets and sell them at eight weeks of age to the farmers. By selling pullets at eight weeks, the project was an attempt by the MoA to introduce poultry at relatively low risk to the small-scale farmer. It was believed that the development of small-scale poultry enterprises could greatly reduce imports and also increase the incomes of poorer families who did not own cattle.

The Government of Botswana, in an effort to encourage small producers and to create employment, established the Small Projects Programme in 1978, which provided financial support to community groups who intend to start or increase agricultural production. The upper ceiling was P25, 000, with five people constituting a group. By the end of the 1970s and in the beginning of the 1980s, the Government embarked on more far reaching policies in the poultry sector.

3.2 Policy in the 1980s and 1990s

By the late 1970s and early 1980s, a new more commercial approach to the development of poultry production came from government. Three instruments of government policy have been largely responsible for the successful development of an import substituting poultry industry in Botswana since 1980. The first is the development of a government controlled marketing channel allowing Botswana access to the primary poultry market. The second policy was the Financial Assistance Policy; and the third, and arguably the most powerful and enduring instrument, has been the use of trade policy through quantitative import restrictions on the import of eggs and poultry meat into the country. In many ways, the history of the development of the poultry sector in Botswana is a microcosm of African agriculture in the post-independence era. A policy of import substitution funded with generous assistance to local producers and entrepreneurs, along with state sponsored marketing channels, was a common hallmark of early post-colonial African agriculture. As was often the case, these policies of government marketing

⁵ This section on the early developments of the industry draws heavily and with permission on a paper prepared by Mr Peter Kirby, the former Chairperson of the Botswana Poultry Association and a pioneer in the poultry industry.

channels and support for small scale local producers collapsed and marketing became dominated by large private sector firms with little small scale indigenous production.

3.3 Poultry Agricultural Management Association (PAMA)

In the 1980s, the Government assisted the poultry sector through the establishment of the Poultry Agricultural Management Association (PAMA), the function of which was to collect, buy, grade process and market poultry products for the members. Significantly, PAMA also provided feed and day old chicks (DoC) for producers, which decreased the risks faced by small scale producers. This co-operative marketing arrangement was assisted by the Government and, with funding from the EU, continued until the 1960s, when it collapsed because of poor management and lack of financial expertise. With the collapse of PAMA, the direct access that had been previously available to the small scale producers to the primary poultry market decreased and eventually disappeared. Now access to the large scale supermarkets and retail chains is only available through the out-grower programs of some of the larger producers, along with sporadic sales to individual supermarkets where purchases are not centralized. The infrastructure created by PAMA, including the abattoir was ultimately sold to one of the larger firms in the industry Goodwill Chicken, a firm in the group associated with Derek Brink Holdings in 2009/2010.

a) Financial Assistance Policy (FAP)

The move to import substitution in the poultry industry was facilitated not only by the state sponsored marketing agency, but also by the now terminated Financial Assistance Policy (FAP), which began in 1982 and was ended in 2000. The FAP was created to provide assistance to firms, both local and foreign to establish or expand operations in Botswana and during the life of the program provided considerable subsidies. The FAP was replaced by the Citizen Entrepreneurial Development Agency (CEDA) which provides assistance to local entrepreneurs. A very substantial proportion of the larger agricultural projects in the FAP were for the development of the poultry sector; and it is one of the few lasting legacies of the policy. Few firms that were originally supported still remain in operation⁶. Throughout the entire life of the FAP, the poultry sector, both layers and broilers, were very much at the heart of assistance packages provided by the Government in the agricultural sector. This was especially so for small scale projects. In the third FAP evaluation undertaken in 1995, 23% by value of the 2,800 small agricultural grants given (515) were granted to the poultry sector (MFDP, 1995)⁷. Large scale projects were also offered assistance by the FAP. According to the reviews of the sector, the Government invested 24% of the FAP agricultural grants at the end of the program in 1995-1999 in the poultry sector (MFDP, 2000). The total cost of the programs in the period 1995-99 alone was Pula 20 million. The FAP was discontinued in 2000 because of the lack of effectiveness and what was considered to be widespread abuse of the provisions.

⁶ Approximately 55% of the 134 projects in the poultry sector in the S.E. Division in 2010, i.e., in the vicinity of Gaborone, were described as 'collapsed' by the Poultry Division. This does not include all poultry firms in the industry that were supported under the FAP, although many of the collapsed firms date from the FAP period.

⁷ P13 million in grants were provided to the small scale projects in agriculture and some P4 million went to the poultry sector; pg 47.

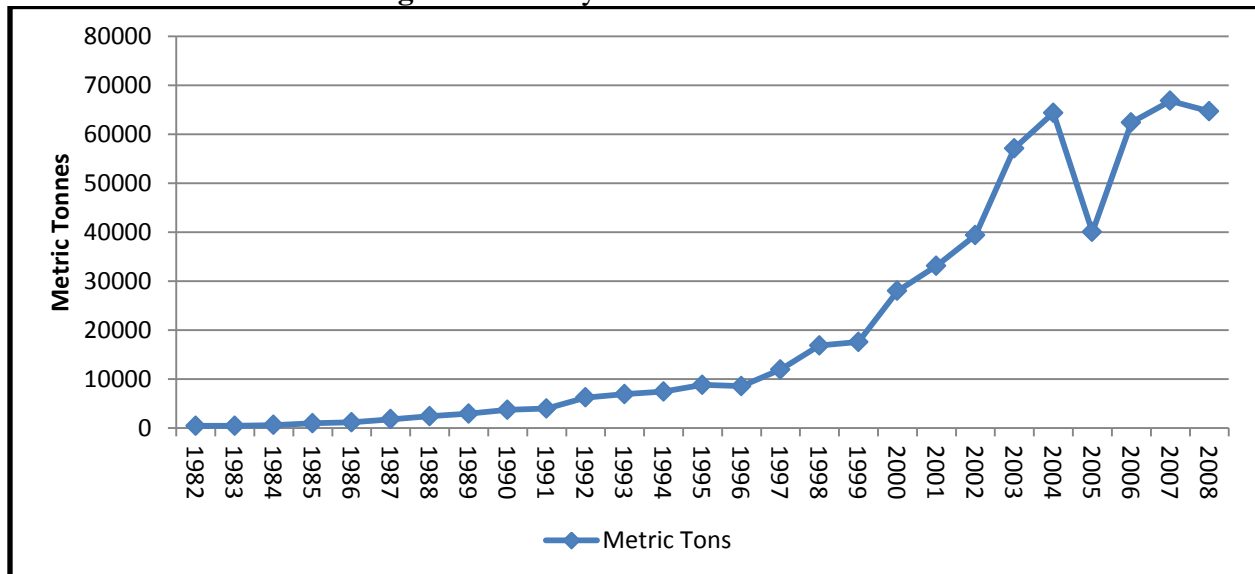
b) Trade Policy Instruments

While the development of co-operative marketing arrangements, such as PAMA, and the provision of subsidies and concessional loans through the FAP were important for early the development of the poultry industry, these were not the most important levers of economic power used by government to facilitate the development of the poultry sector. The most powerful and enduring instrument of government policy in the poultry sector has been the protection from foreign competition through restrictions of imports which have been available since at least 1979 with the introduction of the Control of Goods (Importation of Eggs and Poultry Meat) Regulations [SI 120, 1979, 7th December, 1979]⁸. Imports are presently a small residual of total demand and non-specialized poultry importers only have access to foreign sources of supply when domestic production is insufficient to meet local demand. Given the enduring significance of these instruments this will be discussed at length below.

3.4 The Current Size of the Industry

As a result of the above policies, the poultry industry is now considered one of the most important success stories of Botswana's policy of agricultural development and import substitution. Botswana is now largely self-sufficient in poultry meat and eggs. From its very humble beginnings, poultry meat and egg production have grown to the point where they are able to supply most of the nation's needs. The development of the supply of broiler meat is presented below. What is evident is that the sector only began very substantial growth from the mid-1960s. This growth and expansion of the sector can be explained in large measure from the continued restrictions imposed by the Government on the trade in poultry products. This is the last remaining lever of policy that Government continues to employ in the sector.

Figure 1: Poultry Meat Production in Botswana



Source: TRANSTEC and BIDPA, 2010.

⁸ Act to Control of Goods, Prices and Other Charges, [CAP.43:07] Act 23, 1973.

There is a particularly important policy consequence that stems from the history of the industry. The Government’s original objectives with regard to the development of the poultry industry were always predicated and continue even to this day to be based, at least in part, on the development of small scale local producers. The original intent of all the interventions in the sector was the establishment of an import substituting sector based on small scale producers that would assist with rural poverty alleviation. However, with the demise of PAMA and FAP, the commercial reality of the sector meant that such small scale producers would not be able to compete nor would they have access to the primary poultry market. The poultry policy became more reliant on restricting market access to Botswana of imports. While this policy protects both the small scale producers and large alike, it is the small scale producers who do not benefit from economies of scale; and thus, they will have the greatest difficulty finding an appropriate market niche that provides them with sufficient returns to justify their continuation in the industry⁹.

4. SACU and the Botswana Poultry Import Regime

This section considers the import regime in some detail because it is the most enduring and effective instrument of government policy that has been used to support the industry. In order to fully appreciate the importance of international trade on the poultry sector one needs to appreciate that there are two levels of trade restrictions on poultry meat trade in Botswana. The first level of restriction is that imposed on SACU trade; and the second level, which is permitted for what are in effect infant industries, are national non-tariff measures.

4.1 SACU Trade Restrictions

SACU imposes a uniform common external tariff and a sample of the applied tariffs on the main poultry products is found below.

Table 1: SACU Tariff for Poultry Products

01.07	Live Poultry	Free
02.07.12	Poultry frozen- not cut in pieces	27%
0207.14.05	Boneless(excluding cuts)	free
02.07.14.10	Boneless Cuts	5%
02.07.14.90	Other	220c/kg
02.07.20.20	Offal	27%
02.07.20.90	Other	220c/kg
1602.32.90	Of Fowls of the species Gallus Domesticus –pastes	20%
11602.32.90	Of Fowls of the species Gallus Domesticus –other	220c/kg

Source SACU Tariff Schedule, 2009

⁹ While this study does not attempt to calculate the extent of economies of scale in the Botswana poultry industry because production and cost data was not available to the researchers there is abundant evidence from global research in the poultry sector of the existence of extensive economies of scale in all developed and developing countries. See for example, Mcleod (2009) and Ollinger (2011).

Import duties remain high for broiler meat in most categories where competitive imports are possible (Table 1). Moreover, there has been no liberalization of tariffs which have remained at 27% for frozen chicken. Bound rates of duty at the WTO for HS 0207 are 37%. The two main sources of supply of poultry meat to the global market are Brazil and the United States of America (USA). Together exports from these two countries accounted for 80% of global trade in 2008. USA production is generally expected to decline in the coming years, while Brazil has become the world's largest exporter and is continuing to expand exports. Some 75% of extra-SACU trade occurs with Brazil, with 10% coming from Argentina and a further 5% from Australia.

4.2 Botswana's trade restrictions- Non-tariff measures

As the country is now self-sufficient, imports of poultry meat to Botswana are normally not permitted, but do occur on an ad hoc basis in either of two ways. The first is what government officials call 'small volume' imports through individual specialty end users for Further Processed Chicken (FPC). Import permits are granted for these virtually automatically. Highly specialized poultry, such as free range or organic products, are imported by top-end-of-the-market supermarkets, such as Woolworths directly, but most shortages for supermarkets are met through the dominant wholesaler, Cold Line. Secondly, on an ad hoc and seasonal basis, bulk imports of frozen chicken occur in relatively large volumes as required. This normally occurs in the Easter period and in the months leading up to the end of the year, where shortages of day old chicks or other supplies mean that the market is not being adequately served by domestic production. In this situation, imports are permitted, but these imports occur by firms linked to domestic production. This then raises the question of the import price, which, according to government officials, is not discussed at the Poultry Liaison Committee (PLC)¹⁰.

As we see from the differences in price between South Africa and Botswana at the retail level in Figure 2, there is a substantial difference in price, and 'economic rents' will, therefore arise in the trade. Either of two options is possible for the distribution of these rents. Either the difference in price between the SA and Botswana price is absorbed along the value chain, normally by the importer, which allows the price difference between the domestic and imported chicken prices to equate. Alternatively, the importer can lower prices domestically and capture a larger share of the market. This latter option would not be in the interests of the Botswana Poultry Association (BPA)¹¹, nor of other importers; and hence, producers and importers have a common interest to stop this form of trade induced price competition. Needless to say, this price competition is seen by economists as one of the greatest benefits of international trade as it

¹⁰ Policy and practical day-to-day issues pertaining to the management and governance of the poultry industry are discussed within the context of the Ministry of Agriculture's, Poultry Liaison Committee. The committee is 'open' to participants/stakeholders and, according to government officials, includes all those may who feel a need to discuss any particular issue and, hence, may attend on an ad hoc basis. The administrative structure of industry governance still reflects a predominant role of firms with no place for any representatives of consumer interests. The regular members of the committee include the following groups' producers represented by the Botswana Poultry Association. Meetings will also include individual producers who may choose to be present. The PLC also includes retailers, wholesalers, distributors and processors as well as specialty franchises e.g. KFC. This only producer and government interests are present with no consumer interest.

¹¹ The Botswana Poultry Association was formed in 1995 to create a liaison organization between producers as a whole and the Government.

allows the lowering of price and an increase in consumer surplus. According to the BPA, Cold Line has traditionally imported most poultry products into Botswana on behalf of the BPA and the rents have largely accrued to the importing company¹². It is explained by the BPA that the choice of Cold Line stems from the fact that it is the only company that has sufficient freezer capacity to manage the needed volume of frozen imports.

The BPA agreed that the price difference between the South African price and the domestic price will be taken up either by importers or retailers and that the retail price of imported South African chicken should not undercut the domestic producer. One of the larger supermarket chains in Botswana indicated that, when they do import chicken from South Africa through Cold Line, they have agreed with Cold Line on a small 5% margin; and that the difference in price is absorbed by the supermarket. Thus, the high margin available from imports is not necessarily absorbed at the producer/wholesaler end of the market. By allowing the producers to import, the economic rents created can also be absorbed by the importer-retailer. But in either case, the consumer is not the beneficiary¹³. This procedure employed by the PLC for allocating import permits stops imports from undermining domestic production and therefore limits any benefits that competition from international trade may have for consumers.¹⁴

There has been a proliferation of imports with FPC poultry imports growing at unprecedented rate. The import data is presented in annex III. Total consumption of poultry meat was approximately 70,000 tonnes in 2008/09 with some 2960 tonnes of FPC chicken (MoA, 2009). Trade figures for the calendar year 2009 from the Central Statistics Office indicate that imports have fallen slightly. It is understood that a facility is under construction by one of the larger poultry producers to fill this growing segment of the market. Given the market access policy arrangements, i.e., that no imports are permitted where domestic production exists, it is also understood that imports of FPC will be brought to an end with the establishment of this new processing facility.

It is also important to note that there has been evidence in the past of poultry meat smuggling across the border from South Africa. This indicates that the price differential between the Botswana and South African price is of a sufficient order of magnitude to justify the risks associated with these types of nefarious activities.

Imports of fresh and frozen chicken are presented in annex III. There has been a very rapid rate of growth of imports in the period under study. In part, this was caused in 2009 by the fire at the Tswana Pride abattoir; but it seems to be part of an industry trend. Assuming that the Ministry of Agriculture statistics are correct, i.e. 67,000 tonnes are produced annually, then the

¹² The former Director of Animal Production, Mr Lesitamang Paya, was quoted in the *Poultry Site News Desk* in November 2008 saying that "In an ideal situation, retailers should be the ones to import. It is only that there is a crisis this year (FMD). When the situation normalizes, we will call the producers and tell them that their role is to meet the local demand. There has been no shift away from the process of producer related companies being permitted to import.

¹³ In interviews some supermarkets indicated that they do lower the price of poultry below domestic prices when they are permitted to import. No evidence was provided of this.

¹⁴ The BPA received Pula 0.25 for every kilo of poultry meat imported by Cold Line and these funds are used for the maintenance of the industry association.

volume of imports made up 4% of total supply in 2009. But by value, this would have been much larger as a substantial proportion of the imports into Botswana were higher value added products.

Not only have there been restrictions on the import of poultry meat, but there have been recent policy changes which have resulted in restrictions on the import of day old chicks, which was implemented in 2009. There are also pre- Southern African Development Community (SADC) Free Trade Area (FTA) restrictions presently in place on the import of animal feed, which must be consumed in the proportions of 70% local production to 30% imports¹⁵.

4.3 SACU, SADC, EPA and WTO obligations

What also needs to be considered in any discussion of trade in poultry products in Botswana is the nation's on-going commitment to the four principle trade agreements to which it is a signatory. Both the SACU Agreement (2002) and the SADC Trade Protocol, which established a free trade area between all SADC countries in 2008, as well as the WTO and the Interim EPA with the EU, are relevant to the trade in poultry products. The provisions of the SACU Agreement, to which both Botswana and South Africa are signatories, allows the BLNS members to depart from their obligations of the customs union in the case of infant industries for a period of eight years¹⁶. A further justification that has been offered is that the poultry restrictions can be explained under the provisions of Article 29 of SACU (2002), which provides a general exception clause for agricultural marketing¹⁷:

Member States may impose marketing regulations for agricultural products within its borders, provided such marketing regulations shall not restrict the free trade of a agricultural products between the Member States, except as defined below:

- (a) emergent agriculture and elated agro-industries as agreed upon by Member States; or
- (b) any other purposes as agreed upon between Member States.

The Government of Botswana has notified the restriction on poultry to the SACU Council and it has been accepted¹⁸. However, Botswana also has market opening commitments under SADC to remove non-tariff measures. Article 6 of the Protocol on Trade states that non-tariff barriers (NTBs) as follows-

‘Except as provided for in this Protocol, Member States shall, in relation to intra-SADC trade:

- a) Adopt policies and implement measures to eliminate all existing forms of NTBs.

¹⁵Statutory Instrument No.66 of 2005 states that "any person applying for (an) import permit for maize meal, samp, maize rice, or animal feed for poultry and livestock shall be required to purchase at least 70 percent of the requirements locally and the remainder can be imported".

¹⁶ Infant industry protection is afforded under Article 26 (2) and (3) of the SACU 2002 Agreement, which allows countries to extend the infant industry protection for longer periods subject to the agreement of the SACU Council. Article 26(4).

¹⁷Pers. com, Department of Trade and Industry, 8 September 2010.

¹⁸Pers. com, Department of Trade and Industry, 9September 2010.It is by no means evident how Botswana could put a legally valid case before the SACU Council that its measures in the poultry industry do not violate the prohibition on using the provisions of Article 25(1) of SACU 2002 for the purpose of protection of industry.

b) Refrain from imposing any new NTBs.’

At the 6th Special Meeting of the SADC Committee of Ministers of Trade and Industry, held in Dar es Salaam, Tanzania, on 8 November 1999 agreement was reached on two broad areas of NTBs, namely, the core NTBs that should be eliminated immediately on commencement of the FTA implementation process, and other NTBs set aside for gradual elimination. The core NTBs identified include:

- Cumbersome customs documentation and procedures;
- Cumbersome import and export licensing/permits
- Import and export quotas (except those concerning special sensitive products as may be specified);
- Unnecessary import ban/prohibitions.

These NTBs were supposed to be eliminated for all non-sensitive products by 2008. However, despite calls by SADC members for the removal of all NTBs, there appears to be only limited appetite amongst SADC members for change in the current practices. A recent SADC review of the development of the FTA has argued (SADC, 2010):

‘SADC’s programme on the elimination of NTBs has not moved at the same pace as tariff liberalisation. In many instances, NTBs are continuously increasing and their elimination is, therefore, a critical factor in consolidating the FTA. Pursuant to this, in July 2007 SADC Ministers of Trade agreed to a mechanism for reporting, monitoring and eliminating NTBs.’

Government of Botswana officials have also argued that¹⁹:

Article 20 of the SADC Protocol on Trade also allows Member States to apply safeguard measures to a product only if it has been determined that such product is being imported into its territory in such increased quantities which may cause serious injury to the domestic industry. Member States shall apply safeguard measures only to the extent and for such period of time necessary to prevent or remedy serious injury and to facilitate adjustment.

There also exist WTO obligations to which Botswana is a signatory which are unlikely to be enforced because of the high cost to any potential complainant relative to the size of the market. In particular, the Uruguay Round *Agreement on Agriculture* strictly prohibits the type of quantitative restrictions found under the Control of Goods (Importation of Eggs and Poultry Meat) Regulations [S.I. 120, 1979], which imposes import licensing provisions based on volumes. These measures have been in force since 1979 and Botswana’s commitments under the WTO, which are provided for unambiguously under the terms of Article 4(2) of the *Agreement on Agriculture*, which states that ‘Members shall not maintain, resort to or revert to any measures of the kind which have been required to be converted into ordinary customs duties’. In other words, tariffication of all Non-Tariff Measures which was so widespread, in particular, footnote number 1 specifies that ‘the measures include quantitative import restrictions (GATT, 1995). This then raises the issue of how Botswana and the other small states have been able to justify

¹⁹ No safeguard investigation has occurred in the poultry industry.

and continue such quantitative restrictions. The Trade Policy Review of the WTO for Botswana (2009) states that the reasons that these import restrictions are maintained are for ‘food security reasons’ (WTO, 2009).

The Botswana poultry industry has indicated its intention to move to exports to the EU, especially for breast meat which is strongly preferred in the EU, but not in Botswana (Farmers Magazine, 2010). With the establishment of an EU standard compliant abattoir by Tswana Pride, such a development is indeed possible. Under the provisions of the Interim EPA which govern trade and commercial relations between the EU and Botswana, the sort of quantitative restrictions through import licensing used by Botswana to prohibit imports from South Africa and by extension by the EU are simply not permitted²⁰. While other SACU, SADC and WTO members may turn a blind eye to the sort of quantitative restrictions imposed by Botswana in the poultry industry, it is questionable that the EU will permit exports duty free access to its market for a product which are restricted by Botswana. Moreover, the export to the EU is predicated on those import restrictions which allow Botswana producers to obtain a higher price for dark meat on the local market.

While it would appear that SADC does nominally impose legal restrictions on the type of quantitative trade measures used by Botswana in the poultry industry, given the widespread use and increasing prevalence of NTBs by SADC members, it can only be concluded that these limitations on the use of these instruments are more apparent than real. The WTO also disciplines its members on precisely these forms of quantitative restrictions which are not permitted. It is only because the Botswana market is very small that there is no complainant. But, the non-tariff barriers are in clear violation of the spirit, and, in the case of the WTO, the letter of Botswana’s legal obligations.

5. Prices in Botswana and Abroad

Figure 2 present, inter alia, the difference between wholesale price and the retail price of poultry. The margin between the South Africa and Botswana frozen whole chicken prices has widened over the 3 years under consideration²¹. This is a differential that is based on frozen whole chicken prices which is the only comparable public time series that is available to researchers. According to retailers a very large portion of the market demands for chicken, whether in South Africa or in Botswana, is for frozen parts or ‘braai pack’. According to industry sources in both countries this makes up 80-90% of sales by volume depending upon the state of the market²². The indicative ex-abattoir price of frozen chicken parts has also risen over the

²⁰ Article 35 of the Interim EPA states:

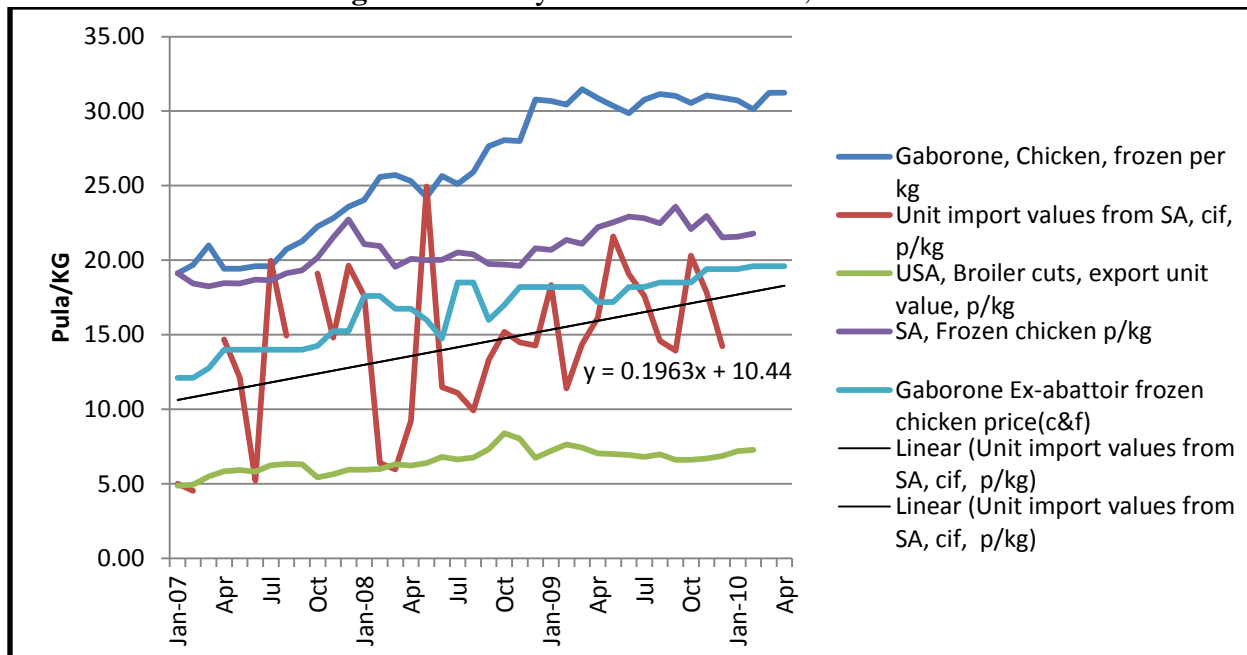
‘All Import or Export prohibitions or restrictions in trade between the Parties, other than customs duties and taxes and other charges provided for under Article 22, whether made effective through quotas, import or export licenses or other measures, shall be eliminated upon entry into force of this Agreement unless justified under the provisions of Article XI, GATT 1994’.

²¹ See Annex I for a discussion of the comparisons of SA and Botswana prices and the issue of poultry brining.

²² The proportion of sales by value of the frozen chicken depends on the supermarket. For those outlets dealing with higher income customers this proportion falls dramatically. In depressed markets, as is currently the case frozen chicken, being a relatively low cost product makes up a higher proportion of sales. In South Africa it was 90% in 2010.

period but the retail/ wholesale margin has grown more rapidly. It should be recalled that these are indicative and not definitive measures as the prices above is of frozen whole chicken and the ex-abattoir price is for frozen chicken parts. The data below suggests that part of the explanation for the high consumer price of poultry meat in Botswana may be found at the level of growers and processors but also at the retail level where the indicative margins appears to have expanded over time. There is therefore reason for concern that there is an absence of competition in the poultry sector at the retail level though there certainly needs to be more research undertaken by authorities on these matters.

Figure 2: Poultry Prices in Botswana, RSA and USA



Source: FAO, Central Statistics Office, Statistics South Africa, various years, industry estimates and authors' calculations,

Figure 2 indicates that the trend line of import prices is well below the price of frozen cut poultry produced in Botswana. This price difference would create a strong incentive to import poultry as opposed to enhancing domestic sourcing. This is consistent with the observed increased rates of import over the last three years²³. It should be noted that the industry contends that that entire difference in price can be explained by brining levels in South Africa and Botswana. The Botswana poultry industry contends in industry publications and in consultations that brining does not occur in Botswana (Farmers Magazine, 2010)²⁴. There is no way to verify

²³ The former Director of Animal Production, Mr Lesitamang Paya was quoted in the *Poultry Site News Desk* in November 2008 saying that 'chicken is only imported if producers do not meet local demand. Paya said the demand for chicken has gone up following the recent outbreak of Foot and Mouth Disease (FMD). He added that the importation of chicken has been centralised to avoid the under production. He asserted that farmers might deliberately under produce in order to import cheap chicken from South Africa and maximise on profits.'

²⁴ See 'Brine Injection Defrauds Consumers', page 13. In a related article 'Tswana Pride eyes EU market' page 14 it is suggested that. 'because local chicken meat is not brine injected, South Africa will not allow imports from Botswana as this will lead to consumers preferring Botswana chicken thereby causing a boycott of South African poultry' According to the South African government's, Import Export Policy Unit, Directorate of Animal Health,

the industry contention that no brining occurs except by an analysis of the production processes in all facilities in Botswana. However it is important to note that in the fresh poultry segment of the market, which is residual there is no brining, the price differentials of 25-30% existed in 2010. (A fuller discussion of the issue and results from experiments undertaken by the Botswana Bureau of Standards (BOBS) are found in the annex below).

The figures in table 2 for 2010, provided by a regional supermarket chain with branches in South Africa, suggest that the extent of the difference has increased substantially since 2009, and that if production data were available for 2009/10 period, then the extent of the transfer from consumers to producers would be larger by a substantial order of magnitude.

Table 2: Price in Pula of 2kg Braai Pack in Botswana and South African Choppies Supermarkets

	<i>Botswana</i>			<i>South Africa</i>	
	Tswana Pride	Richmark	Moleps	Goldies	Superior
April 2010	49.95	49.95	49.95	27.55	33.07
May 2010	49.95	44.95	49.95	28.93	33.07
June 2010	42.95	44.95	44.95	27.55	33.07

Source: Choppies Supermarkets, 2010

By way of SACU comparison, table 3 below provides the price difference between local consumer prices and US fob Gulf prices for frozen poultry in February 2009, the last date for which such comparable data were available for the four SACU countries. Botswana has, by far, the highest relative prices for poultry for any of the SACU countries for which data are available.

Table 3: Consumer/ free on board (fob) price of Frozen Poultry (February 2009)

Country	Consumer price/US fob price (%)
RSA	290
Botswana	428
Swaziland	346
Namibia	359

Source: FAO and Statistics Offices of SACU members, various years and authors' calculations

6. The Poultry Value Chain

There are 9-10 relatively large producers of poultry in Botswana who are members of the BPA²⁵. However, the main supermarkets in Botswana are supplied by 5-6 companies which are closely inter-related. According to industry sources, supermarkets, such as Choppies, which purchases 45% of poultry consumed by supermarkets, will buy from 'any source as long as it meets standards and price'.

The estimates of concentration in the broiler industry are presented in Table 4 below. The industry also suggests that in Botswana the minimum efficient scale in the broiler industry is

DAFF, there has never been an application to import poultry meat from Botswana. According to the government there would need to be approval of an abattoir in Botswana, and there has not been a request for such an approval.

²⁵ These include the Goodwill Chicken, Tswana Pride, Dikoko Tsa Botswana, Molep Poultry, Bobbsie's Chicken, Oistins, Richmark Poultry, Medina Chickens, Chicken Zone, and Motherwell Chickens

achieved when a facility is producing between 30,000-50,000 units per week, although much larger producers exist in South Africa. There are a large number of small and contract growers who are well below this scale level (TRANSTEC AND BIDPA, 2010).²⁶

Table 4: Concentration in the Poultry Industry

Company	Weekly Broiler Production -Jan 2009(market share)
Tswana Pride	120,000 (27%)
Dikoko Tsa Botswana/Oistins	60,000 (13%)
Bobbsie/Goodwill	75,000(17%)
Richmark	50,000(12.5%)
Moleps	50,000 (12.5%)
Total	450,000

Source: Industry estimates. The date of estimates was chosen as they predate the fire in May 2009 at Tswana Pride. In 2010, prior to the completion of its new Tswana Pride abattoir, total weekly production was down to 80,000 units. With completion of the abattoir, production is estimated to climb to 140,000 per week for the Tswana pride/Dikoko Tsa Botswana/Oistins group. In early 2009, Richmark was not owned by the Derek Brink Holdings group. Government and private sector officials suggest that the figures above are an underestimate of the volume of sales of the group of companies associated with AIDC and that the market share was 60% for the group prior to the abattoir fire.

Until late 2010 there were two groups in the industry which dominate broiler production (see industry organogram in annex V). One of the groups is linked to AIDC and includes three of the biggest producers, Tswana Pride/Dikoko Tsa Botswana and Oistins (formerly Shashe farms). This grouping is responsible for between 40% -60%²⁷ of the market share²⁸. The other group is related to Derek Brink Holdings and included Goodwill/ Richmark/Bobbsie's. Until late 2010 these owned or control all the major firms in the industry except Moleps. Both groups were integrated along the value chain to a greater or lesser degree with AIDC having more backward integration into inputs and Brinks being forward integrated into processing and supermarkets.

However, in October 2010 the Brink Holdings group sold its share in Bobbsie's to Mr Gerald Sanders, the other partner in the venture. At the same time Moleps, the last remaining large independent producer was purchased by a consortium headed by Mr Gerald Sanders which now includes the volume of production of Bobbsies/Goodwill and Moleps. Those involved are either former partners of firms related to Derek Brink Holdings or were directors and senior executives in the AIDC group. The new grouping which includes Moleps/Goodwill/Bobbsie's controls a substantial portion of the market- approximately 30%. Richmark remains in the hands of Derek Brink Holdings. However, while the new grouping has economies of scale it does not appear to have either forward nor backward integration linkages unlike AIDC or Brinks. This

²⁶In the broiler industry, there are about 9 large scale broiler production firms, which according to discussions with MoA, may account for 90 percent of national output. This situation suggests an oligopoly market, where concentration of production is on large firms with access to the retail market, particularly supermarkets; page 196.

²⁷The estimate of 60% of market share was confirmed by the MoA as well as the Farmers Magazine Botswana,2010 which stated that ' Tswana Pride's abattoir was razed down in May 2009 and at the time it was the largest in the country supplying 60% of chicken consumed in the country'

²⁸ The Botswana National Competition Policy (2005, page 4) defined Monopolisation as:

' The conduct and practice of a firm with a dominant position of at least 40% or market share and significantly larger than that of its biggest rival to maintain , enhance or exploit their dominant power in the market place'

may put into question the longer term stability of the current market structure. The vast bulk of the retail sector is supplied by these large producers which are linked to the two or three consortia with a few smaller producers.

There are also, a large number of small scale producers who supply the large firms on a contract basis, as well providing supply on government tender. In the region of Gaborone many of these small scale producers are linked to Tswana Pride, which, in 2010, included some 18 farmers, which, according to the company, employed some 200 workers and are responsible for 40% of Tswana Pride's annual production. These small scale producers have no direct access to supermarkets and many of their sales are to small village retail outlets and individuals. An important market outlet for some of these relatively small producers is on tender to government institutions, such as schools and the Botswana Defence Force. The larger producers, such as Tswana Pride, supply the out-growers with inputs. Since 2000, however, there has been a steady rise in commercial sector holdings, and by 2004, there were nominally over 300 small holdings. The majority of the holdings that were established and funded a decade or so ago under the FAP are no longer operational.

Table 5: Sale/Use of Day old Chicks (2009)

Firm	Sales/ Use
Ross Breeders	270,000
Irvines	125,000
Richmark (own imports)	50,000
Total	445,000

Source: Poultry Sector Annual Report (2008/9) and Industry Estimates

Inputs into the poultry industry, such as DoCs, are distributed between two firms, Irvines and Ross Breeders. Richmark, which brought legal action against the Government's prohibition on imports of DoCs in 2009, is, at the time of writing, permitted to import its own DoCs directly, although this policy of permitting imports is unlikely to be continued after November 2010. According to the government reports, Irvines controls approximately one quarter of the local DoCs market, with the remainder controlled by Ross Breeders, which also has commercial ownership links to the AIDC group or has links to the remainder of the industry²⁹. The shares of 2009 production of DoCs are presented above in Table 5.

According to government, the company which supplies some 95% of poultry feed for the industry, Nutrifeed, is also owned by the AIDC group³⁰. Agrivet acts, in effect, as a retail distributor of the production of Nutrifeed. It is important to note that Agrivet insists that, largely because of the high cost of transport, it is cheaper to procure poultry feed in Botswana rather than from South Africa. Nutrifeed suggests that the obligation to purchase from local sources on a 70/30 basis will add pula 250-300 per tonne to the price of feed. Current levels of commercial maize production are such that this proportion of local supply of maize cannot come from domestic production of maize and, therefore, the ratio, while nominally mandatory, is

²⁹ In late 2009, a legal dispute occurred between Mr Peter Kirby, then owner of Richmark Poultry, and the Government, which had moved to ban the import of day old chicks.
http://www.meattradewsdaily.co.uk/news/231109/botswana_problems_in_the_poultry_industry.aspx.

³⁰ There are two other small suppliers, including Techno Feeds and Tholo Holdings. In 2010 a new firm, Opti-Feed, has also reportedly entered the industry

aspirational in nature, rather than binding when it comes to maize farmers. The total procurement of maize of the Botswana Agricultural Marketing Board (BAMB), which is the only significant buyer, in 2009, was approximately 4,500 tonnes, almost all of which went largely to the two largest milling firms in Botswana. The domestically produced maize available through BAMB was used by these firms in the maize milling sector to produce maize meal and not in the production of animal feed. As there is very little local maize for animal feed, the 70/30 rule provides a legally assured market for Nutrifeed products and that of the other very small producers, which are, in turn, largely produced from imported grains. Given current levels of maize output in Botswana, such a policy does not appear to be in the interests of the economic efficiency of the poultry industry, maize farmers or of consumers, and should, therefore, be abandoned.

Therefore, the dominant firm in the industry, i.e., companies owned or associated with AIDC, are vertically integrated along the value chain all the way from poultry, day old chicks, production and finally to freezer and distribution facilities. Cold Line, also part of the same group of companies, has been the dominant importing firm, which, because of its ownership of cold storage facilities, has been the importer on behalf of the industry. (See poultry industry value chain in annex V)

7. The Cost of Domestic Poultry Protection

The question addressed in this section is what price does the consumer pay for the lack of access to the international market in general and the South African market in particular. In order to determine this cost, it is necessary to estimate the demand function for poultry and the loss of consumer surplus which results from the high prices. This, in turn, permits an estimate of the cost per worker in terms of consumer surplus foregone.

7.1 The Demand Function for Chicken Meat in Botswana

Ordinary Least Squares (OLS) estimation was used to estimate chicken demand elasticities in Botswana. However, various economists use the Almost Ideal Demand System (AIDS) estimation to estimate demand functions; but due to unavailability of beef consumption data the OLS estimation was used³¹. This study uses the annual times series data covering a period of 1982 to 2008. The period was chosen based on the availability of data. The variables includes consumer prices of beef and chicken per kilogram which was obtained from various Central Statistics Office (CSO) publications; quantity of chicken which is the total locally produced and imported chicken obtained from MoA; the household final consumption expenditure³² obtained from the Botswana Financial Statistics, Annual Economic Report and CSO and the urban population ratio to total population sourced from CSO population projections. The urbanization variable captures the total projected population of five urban centers in Botswana; namely, Gaborone, Francistown, Lobatse, Jwaneng and Selebi Phikwe.

³¹ The AIDS estimation was developed by Deaton and Muellbauer (1980) and has been the most commonly used demand system specification. In several studies of meat demands in South Africa, the AIDS estimation has been widely used (Dunne and Edkins, 2005; Taljaard et al, 2003; Agbola, 2003). Wadud (2006) argues that the AIDS estimation has been found suitable for the study of food demand of different types.

³² The final household consumption expenditure was used as a proxy for income and Gross Domestic Product (GDP), we used it instead of GDP because GDP has got mining variations in it.

Prices of chicken and beef and household final consumption expenditure were deflated by the consumer price index using 2008 as a base year.

7.2 The Model

The following demand function for poultry meat was estimated using OLS with expected signs below, (note that the prices of chicken and beef and household final consumption expenditure were deflated by CPI using 2008 as a base year):

$$\ln Q_c = \alpha + \beta_1 \ln P_c + \beta_2 \ln P_b + \beta_3 \ln \text{Hohcons} + \beta_4 \ln \text{Ubr} + \varepsilon$$

(-)
(+)
(+)
(+)

where:

Q_c = Quantity of chicken (Total locally produced plus imported chicken)

α = Constant

P_c = price of chicken

P_b = price of beef

Hohcons = Household final consumption expenditure

Ubr = Urban population ratio to total population

ε = error term

7.3 Results

Table 6 presents the estimates of the chicken demand equation and all coefficients are consistent with *a priori* expectations³³. Standard Durbin-Watson statistic shows no evidence of autocorrelation and there was also evidence of multicollinearity³⁴.

³³ The data however shows unusual relative price of chicken and beef and on average the price of chicken is higher than the price of beef, this may explain why we end up getting peculiar results.

³⁴ The STATA command, vif (variance inflation factor), was used to detect multicollinearity and showed that the mean vif was 9.98 implying that there is no signs of multicollinearity because the vif was less than 10.

Table 6: OLS estimates of the Chicken Demand Equation, 1982 to 2008

Explanatory Variable	Model I	Model II ³⁵
Constant	-5.949 (0.109)	-10.910 (0.007)
lnPc	-3.190*** (0.001)	-2.999*** (0.001)
lnPb	1.887** (0.019)	1.891*** (0.010)
lnHoHcons	0.885** (0.050)	0.419 (0.356)
lnUbr	3.411*** (0.000)	3.928*** (0.000)
Number of observations	27	27
R ²	0.985	0.982
Adjusted R ²	0.982	0.979
F statistic	355.81	301.95
Prob >F	0.0000	0.0000
Durbin-Watson statistic	1.852	1.908

NB: *** significant at 1%, ** significant at 5%, Values in parentheses are p-values

7.4 Loss of Consumer Surplus Stemming from Trade Restrictions

The analysis of the loss of consumer surplus stemming from the SACU and Botswana trade regimes below is based on the estimation of the demand function in the model above. The differences in price are based on South Africa average consumer prices for frozen chicken and take into account the differences in moisture discussed above, along with a 5% margin for error in the moisture content.

However, this is the cost of the industry to Botswana consumers if one uses South African prices as a basis for comparison. As was discussed above there are two levels of protection of poultry in Botswana: one imposed by Botswana and the further 27% tariff imposed by SACU, i.e., in effect by South Africa. Therefore, the protectionism against South Africa imports is compounded by SACU restrictions. If Botswana were in a position to import directly from the USA duty free, then poultry prices would be much lower and the cost of protection to the Botswana consumer would be considerably larger. The difference between the Botswana retail prices for frozen chicken and hypothetical retail price of US poultry meat selling in Botswana is estimated to be Pula 15 per kg³⁶. These figures should not be seen as theoretical in any way, as imports of poultry to Botswana in late 2010 were reportedly arriving from Brazil,

³⁵ In Model II, the quantity of chicken and the household final consumption expenditure variables were divided by the total number of population and other variables left as they were.

³⁶ This assumes a Pula 2/kg shipping and handling charge for frozen chicken shipped from the US Gulf in 2008/9 to Gaborone. The difference is based on a 25% retail mark-up.

which is a producer of poultry products with a cost of production as low as or even close to that of the USA.

The estimated loss of consumer surplus³⁷ resulting from the trade restrictions is presented in figure A and B in the annex. It is evident that the economic cost of maintaining import restrictions on imported products is very high. However, the cost of maintaining restrictions on the import of poultry from the US through the combination of SACU and Botswana trade restrictions raises the costs substantially. There was no cost data provided by the industry but the differences between selling prices strongly suggest that if trade restrictions were lifted on imports of poultry meat from the US or Brazil, it is most unlikely that either the Botswana or South African industry would survive the impact. The cost of protecting each employee in the industry can be estimate based on employment estimates in the MoA publications that the industry employed of 4,500 workers in 2008 and is presented in parentheses in table 7.

Table 7: Loss of Consumer Surplus (Pula '000) and Cost per Employee (pula in parentheses) Stemming from Trade Restrictions from Model I and II

Elasticity	South African prices	Duty free prices
-3.190 (Model I)	693,000(145,855)	3,911,000 (869,288)
-2.999 (Model II)	675,000 (137,341)	3,563,300 (791,846)

Source: Authors' estimates

8. Towards a Smallholder Policy

As was noted at the beginning of this paper, the original intention of Government, NGO and donor policy in the early days of the industry in the 1970s and 1980s was to use the poultry industry as a way of increasing rural incomes of smallholders and thereby alleviating poverty. However, the commercial reality of economies of scale as well as the management of PAMA and the FAP means that now smallholders only operate in a very peripheral place in the industry, either supplying large producers as out-growers or supplying direct to small rural buyers. By and large, the smallholder, as noted above, has no direct access to the primary poultry market, i.e., supermarkets. Instead, the poultry meat value chain is now dominated by one group of firms that is vertically integrated; and the original intent of the poultry policy, which was to stimulate smallholder production, has not occurred because this is counter to the commercial imperative of having large firms that benefit from economies of scale and direct marketing links to supermarkets.

³⁷ A consumer's willingness to pay for a good is the maximum price at which he/she would buy that good. Consumer Surplus is the net gain to an individual buyer from the purchase of a good and it is equal to the difference between the buyer's willingness to pay and the price paid. It is measured by the area under the demand curve and above the price level. A fall in the price of a good increases consumer surplus because consumers will be willing to buy more of a good at lower prices.

Government policy towards poultry smallholders has not been sufficiently robust to fundamentally change the reality described above. Smallholder policy, given the uncompetitive current structure of the industry, can, if cast in commercial realities, be a powerful vehicle for achieving increased competition in the industry. There now appears to be every intention to return to government managed co-operatives in the poultry sector through the Livestock Management and Infrastructure Development (LIMID) II program, which will provide government assistance to the poultry sector through a Pula 4 million grant for the construction of a co-operative abattoir, which will be managed by government temporarily, ‘until such time as they are profitable’³⁸. The LIMID program requires injections of capital by the members of the co-operative and, as a result, this will assure greater stakeholder intervention in management than was the case with PAMA in the 1980s. However, the LIMID II proposal, at least initially, involves a very similar dominant role for government, as was the case during PAMA. This approach failed in the past and its proponents need to demonstrate how the current LIMID proposal, whereby government will manage the proposed smallholder poultry abattoir, will lead to different outcomes from that of PAMA. Moreover, it is questionable whether such small scale abattoirs of 100,000 units per month will prove to be profitable and the government will be able to readily exit the envisaged management role in the LIMID proposal.

If the Government wishes to see the smallholder part of the industry thrive and develop, a more imaginative and well-funded proposal needs to be considered, rather than that of government management of an abattoir. Variants of the current proposal have failed in the past and there appears to be little in the LIMID proposal that draws on the PAMA experience of state control in the sector. Providing financial support to smallholders to find professional management from outside government and providing incentives to supermarkets and other consumers to invest in the development of the smallholder sector is more likely to achieve commercial success in strengthening the smallholder sector than using government controlled agencies.

There is a need for the development of a comprehensive smallholder plan, which must be part of a return to a more competitive sector. What is unavoidable is the reality of economies of scale and the need to establish strong marketing links with existing supermarkets. The key to a successful smallholder plan is funding a partial liberalization of trade with an accompanying earmarked levy on import permits that could produce sufficient revenues which could then be earmarked for a smallholder industry plan³⁹.

³⁸Guidelines for Livestock Management and Infrastructure Development Programme, Department of Agriculture 2010. The guidelines state that the selection criteria for poultry abattoirs are:

- The support scheme targets small-scale poultry (broiler) producers;
- A minimum of 15 producers are required to form a cooperative;
- The group (cooperative) should develop a constitution and register with the Commissioner of Cooperatives or Registrar of Societies;
- The applicants shall undergo training in cooperative management conducted by the Division of Agricultural Cooperatives of the Ministry of Agriculture; and
- The cooperative shall slaughter a minimum of 100,000 birds per month.

³⁹ A levy on imported products coming from other SACU countries is not uncommon as these are imposed by other BLNS countries. As it is the result of a liberalisation of intra SACU trade, as compared to the status quo, it is more likely to find support amongst SACU members.

9. Conclusions and Policy Recommendations

9.1 Conclusion

The poultry meat industry, as it is presently functioning has succeeded in producing national self-sufficiency in poultry meat. However, based on international prices, the industry is uncompetitive and arguably it is characterized by an industry structure that is duopolistic or oligopolistic. The normal policy response of economists when such a situation arises as a result of trade restrictions is to propose substantial and immediate trade liberalization that would permit imports from SA and elsewhere which would in turn, lower prices and increase competition. Assuming that the Government of Botswana would like to continue to see a viable and profitable domestic poultry industry, a full and complete liberalization should be avoided at this point in the industry's development, as it is highly doubtful that the industry could survive such an economic shock. However, partial and progressive market opening as proposed in the policy recommendations below would increase the competitive pressures on the industry, result in lowering of prices and would also force the industry to lower its operating costs. After 32 years of trade restrictions, a modest liberalization, as proposed below, should be considered.

9.2 Policy Conclusions and Recommendations

- 1) The poultry industry is Botswana's most successful import substituting sector and the government is quite rightly proud of the achievement of reaching national self-sufficiency in poultry products. However, that national self sufficiency has been achieved at a considerable cost to the consumer as well as to the taxpayer through various investment support programs over the years. Restrictions on imports have been in place since 1979. After 32 years and with part of the industry now preparing to export to the EU, the government needs to undertake a fundamental review of its policy for a large part of the industry does not require infant industry protection to the extent that has been the case in the past. In order to assure the long term efficiency and viability of the industry and maintain consumer support the government needs to ease, in part, the long standing trade restrictions. However, this will need to be balanced against objective of protecting small producers who will find adjustment to a more competitive industry even more difficult.
- 2) International consumer price data as well as surveys of the SACU market conducted by BIDPA confirm that the price of broiler meat, especially frozen pieces which are the modal product consumed by lower income consumers, is significantly higher in Botswana in comparison to neighboring countries and this cannot be explained readily by either tax or measurable moisture differences. Tests, while imperfect, were undertaken of moisture content before and after thawing of frozen poultry products by the Botswana Bureau of Standards on behalf of BIDPA. The differences in average moisture content differential between RSA and Botswana frozen poultry was 4.5% though this varied considerably with brands. Value Added Tax (VAT) differences between RSA and Botswana for the period in question in large measure canceled each of these effects out.
- 3) Based on SA prices the economic loss to consumers is Pula 615 million per annum. This is not only a transfer from the Botswana consumer to the producer/retailers but

- also the loss of not having access to the international market. Based on duty free US prices the economic loss is Pula 3.6 billion. While these estimates are high they can in part be explained by the impact that importing poultry at US prices would have on other livestock sectors such as beef, pork and goat meat. The cost per job created in the industry is approximately 136,000 Pula based on the RSA figure and pula 791,000 per worker based on US prices.
- 4) There appears to be evidence that part of the explanation for the observed high prices lies not only with the existing levels concentration along the poultry value chain but also because of increased retail margins by the supermarkets.
 - 5) Economies of scale will certainly explain high costs of smaller producers in the secondary market but not the seven or eight largest firms which, while small to medium sized, have a throughput that is comparable to functioning and profitable producers in RSA.
 - 6) The industry is vertically integrated along the value chain with two groups controlling the industry. The value chain for poultry is highly uncompetitive. As an instrument of competition policy the government should give consideration to providing extra financial incentives to encourage new firms seeking to enter the industry to provide alternative supply of inputs, freezer facilities and poultry meat.
 - 7) The poultry industry cannot approach international competitiveness if the government of Botswana insists on the current policy of forced domestic procurement of poultry feed i.e. 70/30 rule. Botswana's commercial production of grain marketed through BAMB is 4,500 tonnes and almost all is used for human consumption. Therefore the 70/30 rule, when applied to poultry feed becomes a market support measure for local poultry feed producers and does not support local maize farmers. The poultry feed market is dominated by Nutrifeed which supplies over 90% of domestic supply. There should also be no further trade restrictions on other inputs such as DoC as this further compounds the industry's lack of competitiveness.
 - 8) However, if the government wishes the poultry sector to survive and prosper support for producers should not be abandoned. What is recommended is a rebalancing of policy in favor of consumers. This rebalancing should be achieved progressively with increases in the share of imports offered competitively by tender to firms, especially firms in the retail trade, small firms and new entrants that do not produce poultry in Botswana. The increase in imports should be by increments of 5% per annum of the market until such time as imports constitute 20% of market share.
 - 9) The government needs to develop appropriate labeling standards for poultry meat in Botswana to assure that consumers are aware of the differences in moisture content of various brands and sources of poultry.
 - 10) The government should give consideration to the development of a Smallholder Poultry Plan based in part on providing tax concessions and other benefits to larger firms and supermarkets to procure poultry from domestic smallholders. A smallholder marketing program should also be properly funded to assist smallholders to develop direct co-operative links to supermarkets though further consideration should be given to the modalities in light of the failed earlier attempts to establish PAMA. Government may wish to give consideration to imposing a levy on these poultry imports to be used to develop the small-holder poultry plan considered below.

- 11) The Poultry Liaison Committee is focused almost exclusively on production and import related issues and its function needs reconsideration to that it also protects the interest of Botswana consumers as well as that of producers. The PLC should consider consumer prices as a normal and regular part of its functions and activities. The new Competition Commissioner, once appointed, should be invited to appoint a member of the PLC to represent the interests of the Botswana consumer.
- 12) The Poultry Division of the Ministry of Agriculture should be adequately staffed to reflect the growing importance of the sector to the economy of Botswana. Furthermore, the Division should not just report to government and the public on production of poultry in its Annual Report but also on consumer prices with a view to assuring a narrowing of the gap between domestic and neighboring SACU prices. Along with building up a viable poultry industry in the country another important objective should be to rebalance government policy towards appropriate consideration of the distribution of benefits in the industry between producers and consumers.

REFERENCES

Act to Control of Goods, Prices and Other Charges, [CAP.43:07] Act 23, 1973

Agbola, F.W., (2003). Estimation of Food Demand Patterns in South Africa Based on a Survey of Households. *Journal of Agricultural and Applied Economics*, 35, 3, 663-670. Southern Agricultural Economics Association.

BIDPA. (2010) 'A study of the Impact of SACU Tariff and Trade Policy on Food Prices in the Sub-Region', unpublished report, BIDPA.

Brittain, L. (1997) 'Competition Policy and the Trading System: Towards International Rules in the WTO', Remarks given for the Institute for International Economics, Washington D.C., 20 November 1997(Manuscript).

Central Statistics Office, various years. Gaborone, Botswana

Choppies Supermarket, (2010). 'Retail prices', Choppies Group of Companies, Gaborone, Botswana.

Deaton, A.S., and Muellbauer, J., (1980). An Almost Ideal Demand System. *American Economic Review*, 70, 312-326.

Dunne, P., and Edkins, B., (2005). The Demand for Food in South Africa. Paper presented to Economics Society South Africa Conference, Durban.

FAO, (2010), FAOSTAT. Internet website: www.fao.org/es/esc/prices

Farmers Magazine, (2010) 'Tswana Pride Eyes EU Market', Volume 7, No.55,

Gal, M.S., (2001) 'Size Does Matter: The Effect of Market Size on Optimal Competition Policy', *Southern California Law Review*, Vol. 74, pp 1437- 1478

GATT Secretariat, (1995) 'The Results of the Uruguay Round of Multilateral Trade Negotiations', 1995

Government of Botswana ,(2010) Livestock Management and Infrastructure Development Programme, Ministry of Agriculture

Gujarati, D. N., 2003. *Basic Econometrics*. Fourth Edition. McGraw-Hill. New York.

McLeod A. (2009), 'Structural changes in the poultry sector: will there be smallholder poultry development in 2030?' *World's Poultry Science Journal* , Volume . 65: 191-200

Ministry of Agriculture. (2009) 'Department of Animal Protection', unpublished report.

Ministry of Finance and Development Planning. (1995) 'Third Evaluation of the Financial Assistance Policy', report prepared by Phaleng Consultancies (Pty) Ltd

Ministry of Finance and Development Planning. (2000) 'Fourth Evaluation of the Financial Assistance Policy', report prepared by BIDPA.

Ministry of Trade and Industry (2005) 'National Competition Policy for Botswana', July 2005, Gabororone.

Moreki J.C. (2010) 'Opportunities and challenges for the Botswana poultry industry in the 21st century: A Review', *Livestock Research for Rural Development* 22 (05).

Ollinger M (2011) 'Structural change in the meat and poultry industry and food safety regulations'; *Agribusiness*, Volume 27, Issue 2, pp 244–257

SACU (2009) 'SACU Tariff Schedule 2009'

SADC Secretariat (2010) 'Advancing Regional Economic integration in SADC through Consolidating the SADC Free Trade Area'. SADC/TNF/39/2010/3.1

Sauve P. (2004) 'Trade Rules Behind Borders', Cameron, May 2004, London.

StataCorp. (2009) Stata 11, statistical software.

Statistics South Africa (2011). Internet website; www.statssa.gov.za

Taljaard, P.R., Alemu, A.G., and van Schalkwyk, H.D., (2003). A Linearised Almost Ideal Demand System (LA/AIDS) Estimation of the Demand for Meat in South Africa. Paper presented at the 41st Annual Conference of the Agricultural Economics Association of South Africa, Pretoria.

The Poultry Site News Desk (2008).

<http://www.thepoultrysite.com/poultrynews/16510/producers-accused-of-price-fixing> 24 Nov 2008

TRANSTRC AND BIDPA. (2010) 'Botswana Agricultural Sector review', unpublished report, BIDPA.

Wadud, A., (2006). An Analysis of Meat Demand in Bangladesh Using the Almost Ideal Demand System. *The Empirical Economics Letters*, 5(1).

World Trade Organization. (1996), Singapore WTO Ministerial Declaration 1996: Ministerial Declaration, WT/MIN (96)/DEC, 18 December 1996, para 20
http://www.wto.org/english/thewto_e/minist_e/min96_e/wtodec_e.htm

World Trade Organization (2009). 'SACU Trade Policy Review- Botswana', Geneva

ANNEX I: What is in your Chicken- the question of brining?

One of the most contentious issues in the comparison of prices between poultry from different countries is the extent of brining of poultry meat that occurs in South Africa as compared to Botswana⁴⁰. This is of particular relevance to the question of pricing because if the differences in price per kg of poultry meat can simply be explained by the extent of brining, as some in the industry suggest, then there is no evidence of uncompetitive pricing. The brining of poultry and other meats is now a normal part of industry practice world-wide and, with certain cuts of poultry, which are particularly dry, such as breast meat, brining is considered to be a vital part of the preparation and cooking process if the final product is to be tender. However, what was once a method of assuring the flavor of poultry has become, in some countries, a method of improving the appearance and increasing the weight of chicken meat. It is for this reason that governments around the world have moved to protect consumers by assuring that packaging is properly labeled so that consumers are aware of what constitutes the valuable content of a product. In neighboring South Africa, the government has moved to introduce the Food Labeling Regulations (R146/210), which will oblige poultry producers to declare content by March 2011. It is widely expected that most South African poultry producers will declare a brining level of 30%, although some will declare well below this level. No such similar regulations yet exist in Botswana; and firms are not legally obliged to declare on their packaging the content of the poultry and the level of brine⁴¹. Zimbabwe has recently set brine limits of 15%.

The Botswana poultry industry contends in industry publications and in consultations that brining does not occur in Botswana⁴². There is no way to verify the industry contention that no brining occurs except by an understanding of the production processes in all facilities in Botswana. There is no laboratory test that allows scientifically accurate comparisons of weight of packaged chicken unless there is full and complete disclosure of the production process⁴³. However, the industry has indicated that some producers do, in fact, brine poultry, depending on

⁴⁰ Brine includes, inter alia, water, salt, phosphates, starches, seaweed extracts, spice extracts, food gums, proteins, anti-oxidants and preservatives.

⁴¹ Botswana maintains an 8% limit on absorption and retention of water, but this does not include brine levels. Livestock and Meat Industries Act, 2008 36:03 (SI) Article 8(1) Seventh Schedule.

⁴² See 'Brine Injection Defrauds Consumers', Farmers Magazine Botswana, August/September 2010, Volume 7, No. 55, page 13. In a related article 'Tswana Pride eyes EU market', page 14, it is suggested that 'because local chicken meat is not brine injected, South Africa will not allow imports from Botswana, as this will lead to consumers preferring Botswana chicken thereby causing a boycott of South African poultry'. According to the South African government's Import Export Policy Unit, Directorate of Animal Health, DAFF, there has never been an application to import poultry meat from Botswana. According to the government, there would need to be approval of an abattoir in Botswana, and there has not been a request for such an approval.

⁴³ Pers. Com. Professor Dr. Francois Mellett, Meat Scientist, Stellenbosch University, 'Chicken is muscle, blood vessels, nerve tissue, skin, fat and bone, which again is water, protein, fat, carbohydrates and ash in a laboratory analysis. This "chicken" may have lost 5% in weight as water if air chilled, or gained 8% in weight as water if chilled in cold water. On top of this, either -5% or +8% change in mass, 20% or 30% (of which 90% or 95% may be water) may have been injected as a brine in frozen chicken portions. Since water is the biggest component of meat (70%), the laboratory analysis of water, protein, fat, carbohydrates and ash become meaningless without prior knowledge of the chilling procedure (-5% or +8%) and/or the nature of the brine used (90% water or 95% water) and/or the percentage brine added..... it is impossible to determine in a laboratory how much chicken there is in packed chicken without prior knowledge of chilling procedures and injection rates, particularly in frozen portions where the position of cut greatly influences the amount of bone (determined by ash) left on a particular cut. The amount of fat and/or skin trim is also unknown and affects laboratory analysis'.

the producers and the specific market they are targeting. There are, according to highly reputed food scientists, no reliable way to measure the meat content of chicken in a laboratory. The only way that the SA industry is able to indicate with some accuracy that it has a particular content of valuable product is that it pursues an auditing and verification procedures under HACCP (Hazard Analysis Critical Control Points)⁴⁴.

An analysis of the moisture content of chicken from South Africa and Botswana was undertaken by the Botswana Bureau of Standards (BOBS) on behalf of BIDPA. The poultry ('braai-pack') was thawed for 24 hours with loss of moisture measured (see the summary of the results in the next page). While the test used is imperfect, and no scientifically agreed standard test exists, the post-thawing weights are an approximation of what the consumer is actually using for cooking purposes. The results of the tests indicate that the percentage moisture loss in the sample is indeed greater for South African poultry than for Botswana poultry, but the average difference is 4.5%. This average disguises product specific differences. Some Botswana poultry products had moisture loss levels no lower than their South African equivalents.

As Botswana producers are not yet subject to the same HACCP verification and auditing standards as are generally used in South Africa and in developed countries it is not possible to determine accurately the moisture and brine content of packaged poultry. This situation, as it pertains to standards in Botswana, will certainly improve once an abattoir that is fully compliant with EU standards is completed in Botswana by 2011. The situation will only be finally resolved with the passage of government regulations pertaining to labeling standards.

With the developments in South Africa and Zimbabwe with regard to poultry labeling and the establishment of a 15% limit on brining in Zimbabwe, the Government of Botswana needs to protect consumers from levels of brining that are excessive and unclear, whether from local or imported sources. Moreover, there is a need for consumer labeling and unit pricing of poultry meat in supermarkets to be based on the actual 'valuable content' of the chicken and not from weight based on brining or chilling techniques. Such a labeling standard would protect the interests of both consumers and producers in Botswana.

⁴⁴ HACCP is widely used for food security by both the USFDA (US Food and Drug Administration) and the EU. For further information, see International HACCP Alliance and http://en.wikipedia.org/wiki/Hazard_Analysis_and_Critical_Control_Points.

Summary

The chicken samples of different labeling and identification were submitted by the client in frozen condition for weight determination. The determination of the weight was carried out immediately upon receiving the samples. All samples were weighed using the Sartorius balance (serial number BP12000S90303669). Results of weight determination for each sample are given in the table below.

Table 1: Results for weight monitoring of frozen and unfrozen Packed Chicken Pieces

Sample Identity	Laboratory No:	Marked Weight	Weight Results (g)		Percent weight loss after defrosting
			Frozen packed chicken pieces	Unfrozen after 24hrs at 22 °C / 31% Humidity	
Rainbow	BOBS 2010/COO1A	1.8kg	1794.4	1565.2	13%
Rainbow	BOBS 2010/COO1B	1.8kg	1793.1	1641.2	8%
Goldi	BOBS 2010/COO2A	2kg	2019.8	1786.7	12%
Goldi	BOBS 2010/COO2B	2kg	2044.1	1781.1	13%
Bobbsie's Chickens	BOBS 2010/COO3A	2kg	2019.2	1909.0	5%
Bobbsie's Chickens	BOBS 2010/COO3B	2kg	1995.9	1908.5	4%
TswanaPride	BOBS 2010/COO4A	2kg	1985.7	1805.5	9%
TswanaPride	BOBS 2010/COO4B	2kg	2017.6	1865.9	8%
Moleps Poultry	BOBS 2010/COO5A	2kg	1988.2	1748.9	12%
Moleps Poultry	BOBS 2010/COO5B	2kg	2033.4	1825.1	10%

Conclusion: The weight loss ranged from 4% to 13% indicating the amount of water that was in the chicken samples.

Compiled by: G. Keboetswe

(Analyst - Chemistry)

Date: 2010/07/27

Authorized by: P. Masunga

(Manager Laboratory Services-Testing)

Date: 2010-07-27

Test Report: BS/CHM/TR10/037

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Note: This report contains information that is confidential to Botswana Bureau of Standards (BOBS). The report shall not be reproduced, except in full without written consent by Botswana Bureau of Standard. This report relates only to the specific samples tested as identified herein and test results do not apply to any similar item not tested. The report is issued on the understanding that BOBS SHALL NOT be liable for the way the results are interpreted, applied or used.

ANNEX II: How Consumer Surplus was estimated

To estimate the loss of consumer surplus, we use the elasticity (β_1) we got from our model

$$\ln Q_c = \alpha + \beta_1 \ln P_c + \beta_2 \ln P_b + \beta_3 \ln H_{ohcons} + \beta_4 \ln U_{br} + \varepsilon$$

$$Q_c = \emptyset P_c^{\beta_1} \dots \dots \dots \text{demand equation (1)}$$

$$\text{where: } \emptyset = \alpha P_b^{\beta_2} H^{\beta_3} U^{\beta_4} \dots \dots \dots (2)$$

$$\emptyset = \frac{Q_c}{P_c^{\beta_1}} \dots \dots \dots (3)$$

$$\text{Consumer surplus, CS} = \int_{PB}^{PD} \emptyset P_c^{\beta_1} dP = \int_{PB}^{PD} \left[\frac{\emptyset}{\beta_1 + 1} P_c^{\beta_1 + 1} \right] dP \dots \dots \dots (4)$$

$$= \frac{\emptyset}{\beta_1 + 1} [PD^{\beta_1 + 1} - PB^{\beta_1 + 1}] \dots \dots \dots (5)$$

Model I

To estimate the loss of consumer surplus resulting from the trade restrictions, suppose consumers were not restricted to buy from South Africa, how much will their loss of consumer surplus be, where $Q_c = 69,000$, $PD = 27.80$, that is the Botswana price of chicken, $PB = 21.30$, the Border price, the South African price of chicken, $\beta_1 = -3.190$

Substituting Q_c , PD , PB and β_1 into equation 5 we get the consumer surplus of **P693 million**. (Figure A)

If Botswana were in a position to import directly from the United States, duty free, what will be their loss of consumer surplus, where, where $Q_c = 69,000$, $PD = 27.80$, that is the Botswana price of chicken, $PB = 12.80$, that is the duty free, USA price, and $\beta_1 = -3.190$,

Substituting Q_c , PD , PB and β_1 into equation 7 we get the consumer surplus of **P3. 911 billion** (Figure B)

Model II

Using the same approach from the one above but basing the estimates on the elasticity of -2.999, the loss of consumer surplus if consumers were not restricted to buy from SA is **P675 million**. Alternatively, if the consumers were not restricted to import directly from USA, the loss of consumer surplus would be **P3.563 billion**.

Figure A: Consumer surplus, SA

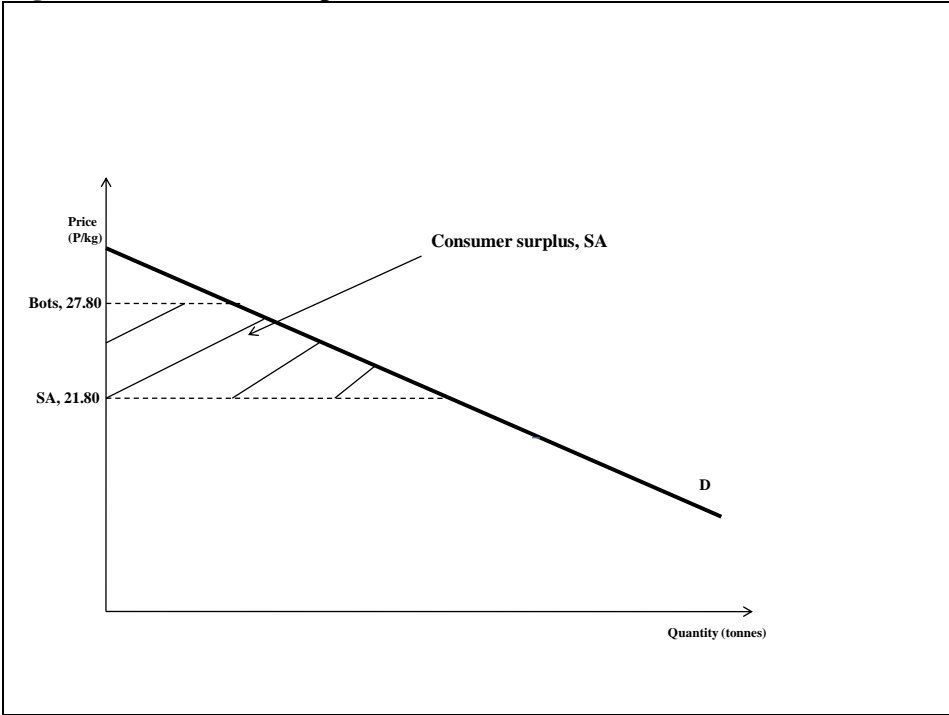
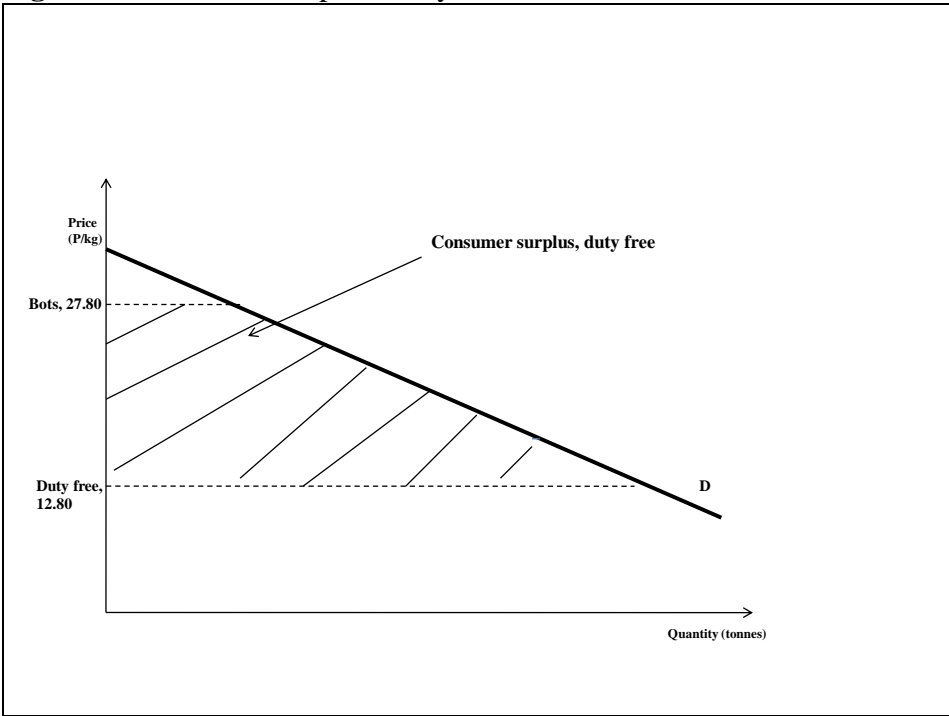
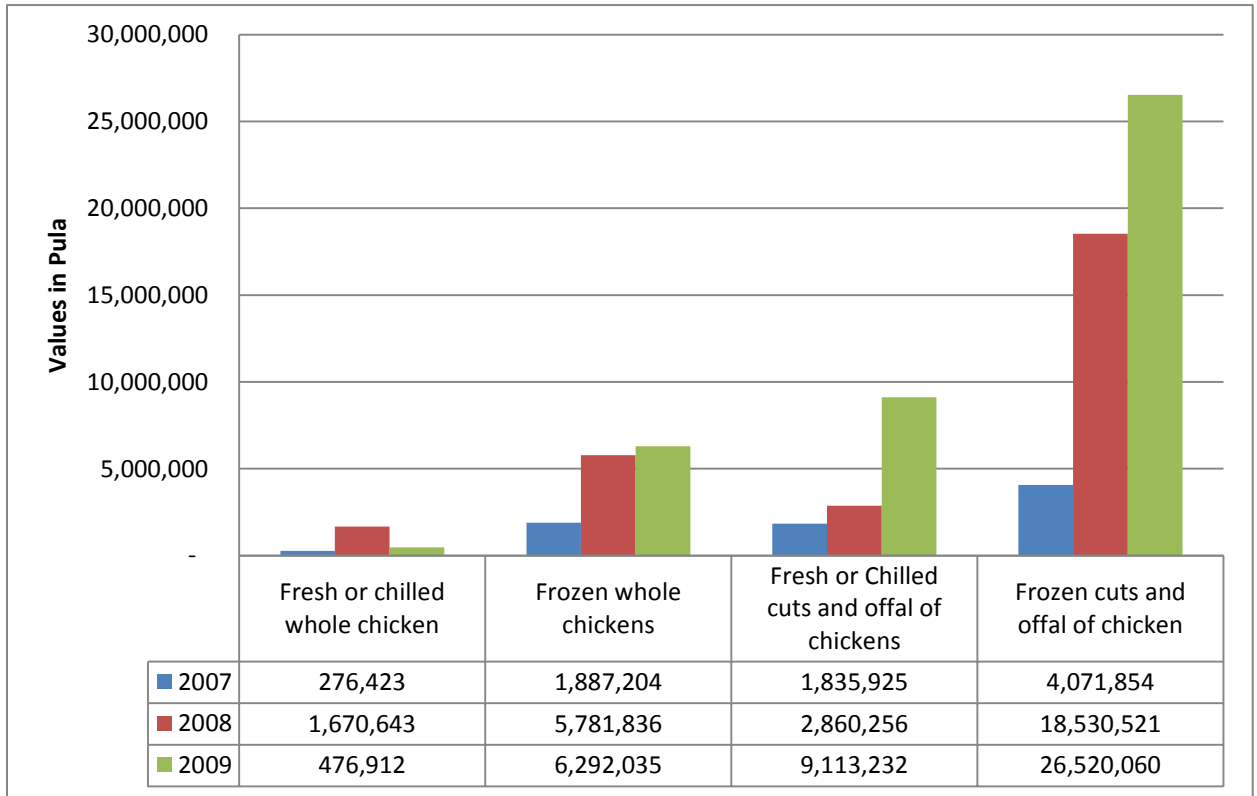


Figure B: Consumer surplus, Duty free

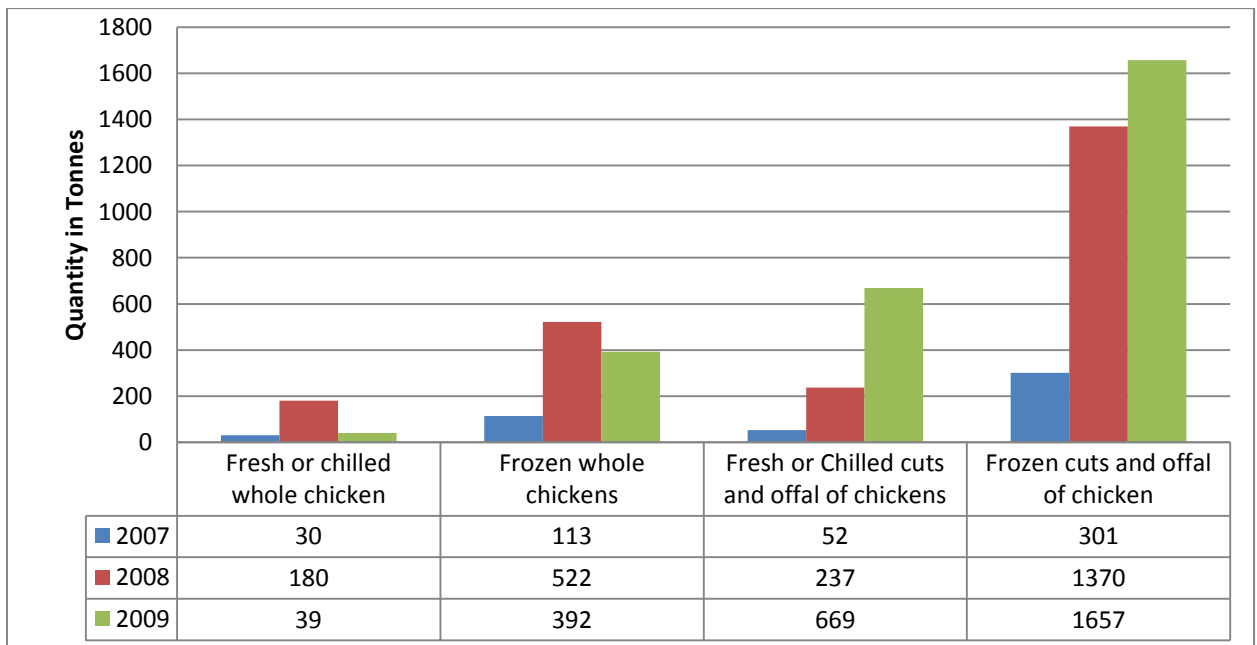


ANNEX III: Value and volume of Poultry Imports into Botswana

Value of Poultry imports into Botswana



Volume of Poultry Meat Imports into Botswana



ANNEX IV: Survey of Meat Prices in Supermarkets in the SACU region

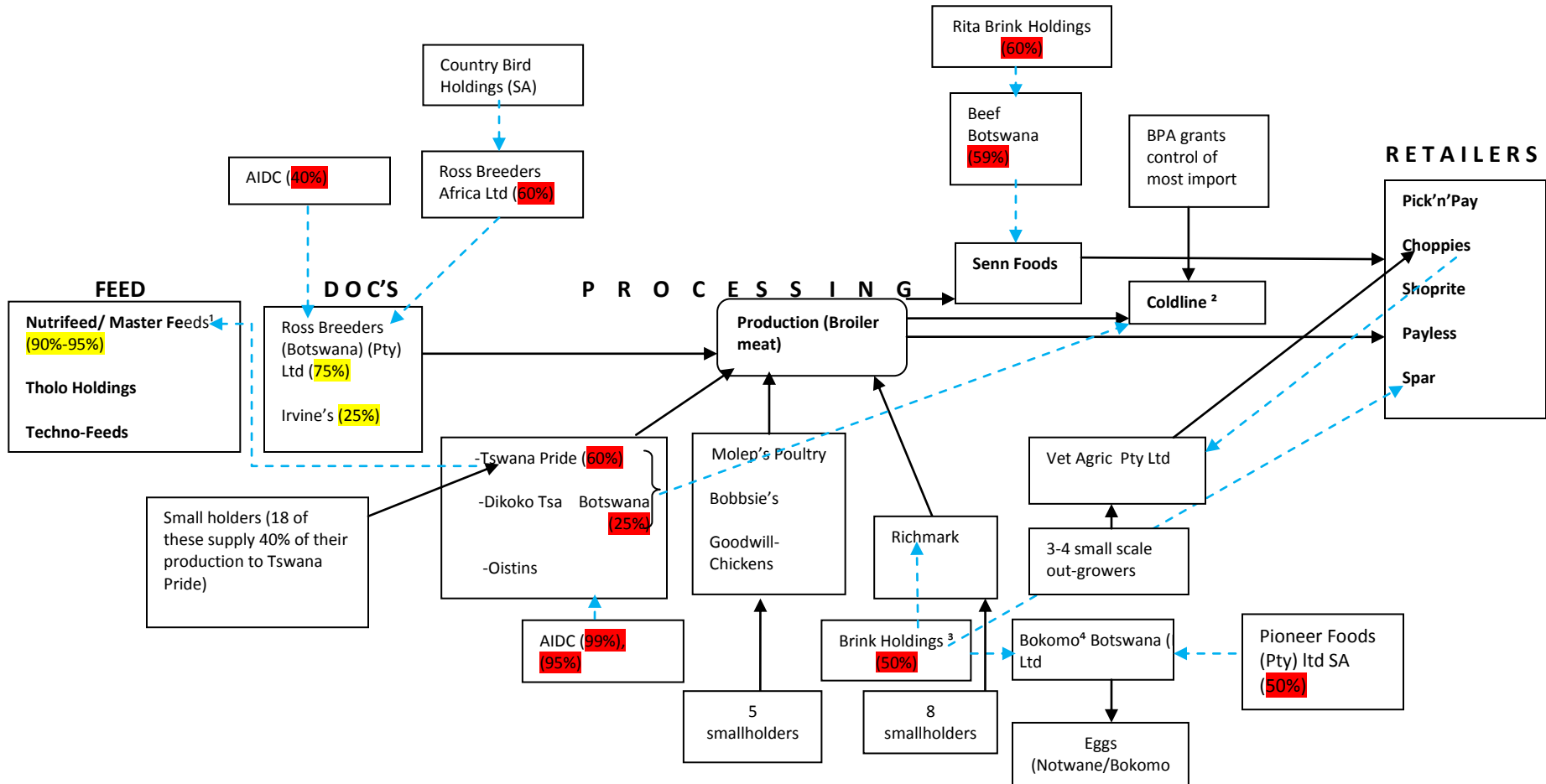
(Average price from survey undertaken in Spar and Pick n Pay supermarkets

- 3rd Week June, 2010)

	Gaborone	Pretoria	Windhoek
Product	BWP Average Prices		
<i>For Frying</i>			
Chicken-breast fillet	49.95	49.44	70.94
Beef-minute steak (or topside)	55.95	64.87	83.10
Pork-rump steak	61.95		
<i>Mince</i>			
chicken-breast mince	57.45	53.65	40.14
Beef-lean topside mince	47.45	51.33	39.66
Pork-topside mince	60.95	41.51	34.54
<i>For Stew</i>			
chicken whole (fresh & frozen)	34.95	28.92	39.66
Beef-goulash	55.46	60.65	59.27
Pork-shanks	33.95	27.99	51.34
<i>For Brai</i>			
Chicken brai pack	34.46	29.41	49.46
T-Bone steak	57.95	47.85	50.77
Pork Loin chops	55.95	46.68	58.80
Frozen on the bone beef brisket	35.95	41.08	52.26
Frozen chicken pieces	34.46	17.74	

NB: These are average prices of the two supermarkets.

ANNEX V: Poultry Meat Industry Value-Chain



Source: Registrar of Companies Botswana, (2010). AIDC CO.NO. 588, Tswana Pride CO.NO.1985/513, Dikoko Tsa Botswana CO.NO.2000/1964, Ross Breeders CO.NO.2004/6052, Coldline CO.NO.2002/555, Bokomo (Botswana) (Pty) Ltd CO.NO.2002/2454, Goodwill Chickens CO.NO.1994/1218, Master Feeds CO.NO.98/3257. ¹ Abdul Sattar Dada was appointed director for Master Farmer Feeds (Pty) Ltd on the 1st of January 2008 and sits on the board to date. ² Tswana Pride and Dikoko Tsa Botswana own 60% and 25% of Coldline shares respectively. ³ Brink Holdings held 50% share ownership of Goodwill Chickens and part ownership of Richmark Chickens (since 2009) as well as Bobbsie's and all three of these companies are major suppliers of broiler meat in the poultry market. In 2010/11 Moleps was sold and Bobbsie's and Goodwill formed a new group under the ownership of Mr Gerald Sanders et. al. Vet Agric is connected to Choppies through part ownership of the former by the CEO of the latter. **NB:** Red numbers denotes ownership shares Yellow numbers denotes market share. Black lines denote production; blue dashed lines denote ownership/control/financial interest