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UNIVERSITY OF THE WITWATERSRAND

Faculty of Commerce Law and Management



THE COMPETITIVENESS AND PERFORMANCE OF THE ZIMBABWE POULTRY INDUSTRY

BY

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A research report submitted in partial fulfilment of the requirements for the Masters Degree in Development Theory and Policy

University of the Witwatersrand

31 August 2014

DECLARATION

I declare this research report is my unaided work. It is submitted in partial fulfilment of the requirement of the degree of Masters in Development Theory and Policy at the University of the Witwatersrand, Johannesburg. It has never been submitted before for any degree or examination in any other University.

……..

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ABSTRACT

This dissertation analyzes the competitiveness and performance of the Zimbabwean poultry industry in the context of trade liberalization, given that both poultry output and the main inputs (animal feed and breeding stock) are tradable. Poultry is an important product as the main source of protein for consumers. It also has strong links to agriculture through the production of animal feed. Despite the rise in chicken demand over the years as a cheap source of protein, the poultry industry in Zimbabwe still faces a number of challenges which the government claims include stiff competition from cheap imports, rising input costs of maize and soya meal and illegal imports being sold at sub-economic prices. This study evaluates these factors and the impact of changing trade protection. The methodology used in this study is both qualitative and quantitative. An analysis is done on trade tariffs particularly focusing on their effect to the poultry industry. Disaggregated trade and tariff data was used to analyze the evolution of tariff regime in the industry and to calculate the effective rate of protection of the poultry sector. A value chain approach was used to understand the linkages and interests that exist in this industry. The poultry industry has been affected by imports starting 2007 and has not been exporting since then as the industry struggled to compete on the domestic market. The study showed that the effective rate of protection calculation is complicated by the different trade regimes which currently exist. If the main international competition is from South Africa then the existence of the bi-lateral agreement between Zimbabwe and South Africa means that the poultry sector has not been protected. The study has shown that the breeding subsector is characterized by a duopoly since there are only two breeding firms in Zimbabwe and the comparison carried out revealed that Zimbabwean prices of day old chicks are above those of comparable countries in the region such as South Africa. The study shows that prices for GMO maize used in South Africa are substantially cheaper than Zimbabwean prices, thereby making Zimbabwean producers uncompetitive. The study recommends policies that attract investment in the breeding sub-sector of the value chain to increase competition, a review of GMO maize policy and reducing tariffs of imported raw materials used in the poultry industry.

Key words: Poultry, GMO Maize, Competitiveness, Effective Rate of Protection

ACRONYMS

COMESA	Common Market for Eastern and Southern Africa
ERP	Effective Rate of Protection
ESAP	Economic Structural Adjustment Programme
HHI	Herfindal Hirschman Index
HS	Harmonized System
MFN	Most Favoured Nation
SADC	Southern Africa Development Community
WTO	World Trade Organization

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CHAPTER 1: INTRODUCTION

1.0 Introduction

This dissertation seeks to analyze the competitiveness and performance of the Zimbabwean poultry industry in the context of trade liberalization, given that both poultry output and the main inputs (animal feed and breeding stock) are tradable. Poultry is an important product as the main source of protein for consumers. It also has strong links to agriculture through the production of animal feed. The Food and Agriculture Organization (2010) notes the rapid growth of the poultry sector globally over the last decade. Despite the rise in chicken demand over the years as a cheap source of protein, the poultry industry in Zimbabwe still faces a number of challenges which the government claims include stiff competition from cheap imports, rising input costs of maize and soya meal and illegal imports being sold at sub-economic prices (Government of Zimbabwe 2012). I evaluate these factors and the impact of changing trade protection.

Performance of the poultry industry has been affected by trade liberalization which started in 1991 following the adoption of Economic Structural Adjustment Programme (ESAP), which was adopted in common with most developing countries as part of 'Washington consensus' policies (Tekere 2001). Zimbabwe has, however, maintained a trade surplus in poultry, until a deficit recorded in 2008. This deficit was due to sharply increasing chicken imports over the previous decade which reached a peak of US$29 million in 2009. Understanding the reasons for this performance requires an evaluation of the factors affecting both inputs and outputs of which protection is one. The concept of effective rate of protection is used to assess the impact of changing tariffs. Non-tariff barriers and agricultural policies are also considered such as the ban on imports of GMO maize, and the ban on poultry imports from South Africa in March 2010 until December 2011 due to an outbreak of rift valley fever. In addition, the impact of growth in regional sources of maize (from Zambia) is taken into account given the lower transport costs from Zambia. In the 2013 budget statement, Government sought to intervene to protect the poultry industry once again and have reviewed up tariffs on chicken to 40% or $1.50/kg (Government of Zimbabwe 2012).

1.1 Research Questions

According to the available trade data from 2000-2012 the Zimbabwean Poultry industry did not face significant competition from imports prior to 2008. Despite formally adopting trade liberalization in 1991, Zimbabwe continued to protect their poultry industry. Tariffs were suspended in 2009 due to the macroeconomic crisis and to boost access to food given the collapse in local production. Local production in 2008 had fallen more than 50% from a year previously. Tariffs were then reinstated in 2012. There are also restrictions such as import licenses and sanitary and phytosanitary measures to protect the industry. Competitiveness of the poultry industry is closely related to the prices and availability of animal feeds, principally maize and soya.

Since 2008 the poultry industry has been suffering from stiff competition from chicken imports, which has become a threat to its survival under trade liberalization. The poor performance under the reduced effective rate of protection is obviously due to lack of competitiveness versus foreign suppliers, however, it is important to assess the possible underlying causes. Poor competitiveness is partly due to high feed costs as this is the single largest input, followed by day-old chicks. Reasons for high feed costs in turn have several possible causes. These include weak agriculture production meaning reliance on imports, the costs of sourcing imports, and the ban on genetically modified maize being grown locally. In that respect for instance, while a tonne of maize was costing US$344 in Zimbabwe in 2009 it was selling for US$185 in South Africa. Other possible reasons include low levels of competition at the level of suppliers of feed and of day-old chicks, and in poultry production itself.

In light of this background, the research will seek to answer the following main question:

- What is the effect of trade liberalization on the poultry industry, in the context of a concentrated market structure and factors affecting the price of animal feed including bans on GMO maize?

1.2 Hypothesis

The purpose of this research is to study the competitiveness and performance of the Zimbabwean poultry industry. The following inter-related hypotheses will therefore be tested;

I. Performance has been poor due to trade liberalization reducing the effective rate of protection of the poultry industry while retaining ban on GMO maize.

II. Poor competitiveness of the poultry industry has been due to low levels of competition in the value chain, specifically in the breeding subsector.

III. Poor competitiveness has been due to high feed costs. This is because of ban on GMO Maize.

1.3 Research Aims and Objectives

This research aims to analyze the competitiveness and performance of the Zimbabwean Poultry Industry. The study will show the current tariffs applicable on various trade agreements that Zimbabwe is party to, and the sources of imports. It therefore aims to establish the competitiveness and performance of the poultry industry, given its importance as the major source of protein in Zimbabwe. In analyzing the competitiveness emphasis will be placed on the level of effective rate of protection accorded to the sector in light of government's increased tariffs in the 2013 Budget. The research will also seek to review the cost structure of the industry, effective rate of protection accorded to the industry and evaluating levels of competition along the value chain. The specific objectives of this study will be to investigate; the performance of the industry, effective rate of protection of the industry and its impact on competitiveness and to analyze the impact of ban on GMO maize on the competitiveness of the industry.

1.4 Research Approach and Method

The methodology used for this research is both qualitative and quantitative. An analysis is done on trade tariffs particularly focusing on their effect to the poultry industry. Trade and tariff data will be used disaggregated at Harmonized System (HS) 8 digit level to analyze the evolution of tariff regime in the industry and its effective rate of protection. Imports data disaggregated at the HS 8 digit level will be used in analyzing the main source of imports. To calculate the effect of trade liberalization on the poultry industry the study uses the effective rate of protection; using the following formula;

$$ERP = \frac{t_i - \sum a_{ji} t_j}{1 - \sum a_{ji}}$$

Where, ERP is the effective rate of protection, a_{ji} is the number of units of j required per unit of i under free trade and t_i and t_j are the tariff levels for output i and j respectively.

A value chain approach is taken to understand the linkages that exist in this industry. A value chain simply describes the full range of activities required to bring a product or service through the different phases of production, which include physical transformation and input of various producer services (Kaplinsky and Morris 2002). Competition will be analyzed using concentration ratios and competitiveness will be analyzed through the value chain looking at interests and linkages within the value chain.

In addition to the above, secondary data which include cost structure, value added at each level, industry performance over time in terms of production, trade flows and prices has been collated from the Zimbabwe Poultry Association, Zimbabwe Statistics Agency and the Livestock Meat Advisory Council. This information is rigorously analyzed in relation to the competitiveness and performance of the Zimbabwean Poultry Industry.

1.5 Organization of the Study

In order to achieve the above objectives this research is organized in such a way that it enables one to fully understand the competitiveness and performance of the Poultry Industry in Zimbabwe. In light of the foregoing the rest of the research four chapters are presented as follows.

Chapter 2: Theoretical Framework and literature review, in this chapter the study will review theories of trade performance, in particular the Hecksher Ohlin and value chain theory.

Chapter 3: Background of the Zimbabwe Poultry Industry, in order to understand the industry and issues raised in the preceding chapter, this chapter gives a detailed background of the poultry industry in Zimbabwe and includes the following subsections: the poultry value chain, production over years, trade balances and prices.

Chapter 4: Assessing the Competitiveness of the Poultry Industry, this is the core chapter of the study and will focus on the following, estimating the effective rate of protection, analyses the degree of concentration in the sector, review the industry cost structure and analysis of the ban on GM maize.

Chapter 5: Conclusion, this chapter provides a brief summary of the research findings, review answers to the hypotheses and offer a recommendations in light of the study's findings and recommends further areas for study in relation to competitiveness of the poultry sector.

CHAPTER 2: THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.0 Introduction

The orthodox trade framework based on the Hecksher-Ohlin factor endowments is briefly considered. The implications for the study of the competitiveness of the poultry industry are then considered given its vertical integration, with linked investments required at different levels, and relatively concentrated nature of the industry. The value chain framework is reviewed as it provides a basis for assessing the inter-relationship of factors at different levels of processing along with questions of co-ordination and governance of the overall value chain and the competitiveness of the end product.

2.1 Hecksher-Ohlin Theory

The Hecksher-Ohlin theory of comparative advantage based on factor endowments is at the core of neoclassical trade theory. This theory came as a refinement of David Ricardo's comparative advantage theory (Todaro, 2007). The theory explains patterns of trade between countries in terms of their relative endowments of the two factors of production, labour and capital (Sodersten, 1984). Following this theory, countries that are rich in capital will produce and export capital-intensive goods while those richly endowed with labour will concentrate in the production of labour-intensive goods. There are substantial gains from trade in this world as trade allows specialization in products intensive in the country's abundant factor.

The theory is however based on a number of assumptions. The key assumptions are that there are two factors of production, no transport cost, perfect competition, and homogenous production function of the first degree. Production functions are such that the two commodities produced show different factor intensities and that production functions are different between commodities but the same for both countries (Sodersten, 1984). While these assumptions are made to enable the theory to work they are subject to much criticism due to the limitations they impose and lack of realism around assumptions like the existence of perfect competition and even same production functions existing in both countries.

Todaro (2007) stresses that this theory enables us to describe analytically the impact of economic growth and trade on trade patterns and structure of national economies respectively. There are two

main conclusions that come from this theory. First is that it promotes free trade with all countries as a result they also gain from trade and that world output increases as a result of trade among countries. The second conclusion is that under free trade price ratios will tend to equalize factor prices across trading countries. Put in another way, the theory suggest that prices of factors of production will be the same as countries engage in free trade. Under this theory any trade protection reduces welfare as it introduces a distortion meaning that consumers pay more for imports, which affects the exchange rate and reduces trade (and the benefits from exchange and specialization).

2.1.1 Review of literature on Effective Rate of Protection

The effective rate of protection measures the protection that is provided to domestic value added relative to value added in international (or 'border') prices (Greenaway and Milner, 1993). Its calculation does not only depend on tariff on the final product but also on the input tariff and input coefficient (Corden 1966). It is widely used as a measure of understanding how nominal tariff rates affect a country's pattern of production (Holden and Holden 1975). Various studies (Holden and Holden 1975, Holden 2001, Edwards 2006, Flatters 2005) analysing tariffs show that the effective rate of protection is a useful tool for assessing the magnitude of protection and also conclude that effective rates of protection are useful when the structure of tariffs is undergoing change. The measure also shows how the industry's output has been protected against its inputs into the production process.

The effective rate of protection is a function of three variables namely, the nominal rate of protection on the final good, the nominal tariff on imported inputs, and the share of imported inputs in the final value of the product (Greenaway and Milner 1983). It can be concluded that first, if the nominal tariff on final good is raised assuming that all other things remain constant then that raises the effective rate of protection. Secondly ceteris paribus, an increase in nominal tariff of imported input will reduce value added and therefore the effective rate of protection. Last, again holding all other things constant, a higher share or an increase in the share of imported inputs will raise the effective rate of protection. Greenaway and Milner (1983) also highlights the possibility of a negative effective rate of protection. This is a situation that arises when tariff distorted value added is less than value added under free trade, a case in which producers will be penalised by tariff intervention by governments. He argues that, this situation generally happens in developing

countries and arises mainly on exportable goods which are normally not protected but rely on imported inputs which are attract duty mainly for revenue purposes. The combined effect of zero duty on final goods and duties on inputs result in negative effective rate of protection.

The concept of effective rate of protection is better than nominal rate of protection as it allows one to analyse the net protection conferred to a production process rather than to an industry's output (Greenaway and Milner, 1993). It allows an analysis that directs attention to the full range of interventions that affects a given production process. These interventions also include the prices of non-tradable inputs like electricity cost, subsidies that can be offered to the industry by governments and exchange rates in the calculation of effective rate of protection to give a more realistic picture of the overall protection accorded to the industry. It is also important to note that high effective rates of protection tilt resource allocation in favour of that sector against other sectors. The effective rate of protection analysis can be a useful input into the process of policy appraisal in both evaluating past policies and assessing the possible impact of policy changes.

The treatment of non-tradable inputs in the calculation of the effective rate of protection have been analysed in the literature with two main authors coming up with different proposals. Balassa (1965) argue that the best way to treat non-tradable inputs is to assume that their price is insensitive to protection. In this case this implies that non-tradable inputs are treated as if they are traded inputs, but being applied zero tariffs (alternatively with the imputed effect of other distortions estimated). Corden (1966) proposed that the value added in non-tradable inputs can just be aggregated with all other value added. There has not been a generally agreed way of dealing with non-tradable inputs in the calculation of the effective rate of protection and as such different authors uses either of the two methods proposed above.

In a world where transport costs are not insignificant, there are vertically-related levels of production with investment decisions at each level and there is imperfect competition, the Heckscher-Ohlin theory is at best too simplified to explore the factors affecting industry performance and the impact of different shocks and distortions. I therefore now turn to value chain theory.

2.2 Value Chain Theory

The value chain is defined as the full range of activities that firms and workers perform to bring a product from its conception to final use (Gereffi, 2011). It therefore involves understanding all the different stages of manufacturing including intermediary phases under which a product goes through until it becomes a final product ready for consumption.

The concept of value chain rose to prominence in the 1960s and 1970s by analysts charting a path of development for mineral exporting economies (Girvan 1987). It has its roots in the commodity chain concept and the world system approach which was conceived as a network of labour and production process whose end result is a finished commodity (Gereffi 2011). The value chain approach is deployed as an intermediate unit of analysis, where the totality of all product chains makes up the industry system. In this sense, the value chain approach enables one to see all the different stages that a product goes through in its manufacturing.

The value chain approach to analysis allows one to understand how industries are organised by examining the structure and dynamics of different actors involved in that particular industry (Gereffi, 2011). Its methodology is mainly based on investigating in an industrial context the connections and linkages within the industry. Theoretically it raises questions of governance and power which are of much significance to the operation of an industry or a sector. There are three basic important components of value chains which are very important in recognizing value chain as an analytical tool, namely: value chains are repositories for rent; effectively functioning value chains involve some degree of governance; and, effective value chains arise from systematic as opposed to point efficiency (Kaplinsky, 1998).

In terms of governance, the value chain framework of analysis argues that there are key actors in the chain. Gereffi *et al* (2001) defines governance as a non-market coordination of economic activity within the chain through influence of lead firms along the production chain. For instance through governance structures, firms can take decisions that may directly or indirectly influence the whole production process. Gereffi *et al* (2001) have identified four main features of governance in the value chain analytical framework. First, is the idea that within value chains coordination can take different forms, which can be explained as inter-firm networks, in this case there are relationships that exist among different firms along the chain. There can also be quasi-hierarchical relationships between powerful lead firms and independent but subordinate firms in the chain; this

might be a situation where lead firms control an important raw material or intermediate product. Governance can also take the form of vertical integration within firms, some firms can decide to invest along the chain and have enterprises that support one another.

The second feature of governance largely shows how the lead firms assume control in the chain. Basically how lead firms derive their power within the value chain stems from two traits namely market power, which is measured in terms of market share and the degree of concentration. The other crucial aspect is the positioning of such firms in the value chain, which enables them to create and appropriate high returns. Kaplinsky (1998) argues that these two sources of power stems from the barriers to entry that will be in force in that particular chain.

The third characteristic of governance arises due to the need for coordination within the chain. The needs for coordination can be classified into two namely, coordination that arises as more companies are involved in specifying the products that their suppliers have to make, then the more they are likely to create governance structures in order to coordinate supplier activities (Gereffi *et al* 2001). The other component concerns how these companies are exposed to risks as a result of supplier failures, it then implies that the more that firms are exposed to supplier failure the more they will intervene to coordinate and monitor supply chain. Last governance as already highlighted earlier, involves the ability of one firm to influence the activities of other firms in the chain. This position is attained through, lead firms defining the products to be produced by suppliers and specification of processes and standards used in the production process. Gereffi et al. (2001) further argue that chains also vary with respect to how strongly governance is exercised, that is how governance is concentrated in the hands of a one firm and the number of lead firms that exercise governance over other chain members. This brings another aspect that is of the importance of in the governance of value chain which is power asymmetry. The form of governance in the chain changes as an industry evolves and matures and also governance patterns also varies from one stage to another within the same chain (Dolan and Humphrey, 2004).

The second element consist the issue relating to barriers to entry and rent in the value chain. Kaplinsky (2010) argues that economic rent emanates from a situation of differential productivity of factors and barriers to entry which basically reflects scarcity. Economic rent is mostly dynamic in nature and can be eroded by the forces of competition. In the case of producer rent, it is transferred into consumer surplus through the process of competition. Competition allows for

innovation and new ways of organizing production and as it increases within the chain, then it might lead to improved efficiency and reduction of barriers to entry and economic rent.

The final analytical element of the value chain framework is the systemic efficiency that becomes inherent in analysing a sector as one chooses such an approach. It therefore moves the focus of attention from point to the whole system. In this process it enables one to understand the different stages that a product has to pass through and weaknesses associated with each stage. This in turn will give a good reflection to analysts and policy makers on the possible policy intervention and identifying the particular stage to target. Such an approach will result in proper decisions being made and will ensure success of the whole sector in the long run.

2.3 Review of Literature on Poultry Industry

The poultry sector has been identified as a critical industry in various studies of competitiveness. The value chain approach utilised by Grynberg and Motswapong (2010) for Botswana enabled a detailed analysis of the poultry industry in Botswana showing all the production stages in great detail. Their study concluded that the industry was characterized by a small market size and a high degree of concentration. The study also shows that there was loss of consumer surplus and raises an issue regarding the existence of tension between competition and industrial policy in small developing countries. In addition to the above they concluded that the industry is price uncompetitive with imports and that the industry structure is characterized by either duopolistic or oligopolistic structure.

In Brazil, de Oliveira et al. (2012) found that competition was important for performance of the poultry industry, which has become the largest producer in the world. The study revealed that market concentration was moderate, there was a decrease in concentration until 2007 which was due to market enlargement and increase of exports. For the period between 2008 and 2009 there was increased concentration which was largely due to mergers and acquisitions. Market concentration was measured using the concentration ratio (CR) and Herfindahl-Hirschman Index (HHI).

The poultry industry has become one of the leading industries in Bangladesh and has contributed immensely towards reducing poverty and creating employment (Raihan and Mahmud, 2008). Their study shows that a high level of product price protection together with low nominal tariffs on imported inputs have provided for a high level of protection to the Bangladesh Poultry Industry.

The high level of protection accorded to the industry led to its growth in the 1990s contributing significantly to employment and fighting poverty around the country. Their study also concludes that among factors affecting the competitiveness of the industry are the lack of efficient marketing system, failure to control diseases affecting poultry and poor access and availability of working capital especially by small firms.

In Zimbabwe Mudzonga (2009) investigated the impact of imported genetically modified (GMO) chicken on the Zimbabwe poultry industry. The aim of the study was to analyse the impact of imported chicken on producers, consumers, retailers and government. The study concluded that consumers benefited from a price reduction as a result of the increase in cheap chicken imports. Producers suffered from a decrease in production due to their inability to compete while retailers benefited from price differential margin. Last, the study recommended supply side interventions to improve the industry's competitiveness.

CHAPTER 3: BACKGROUND OF ZIMBABWE POULTRY INDUSTRY

3.0 Introduction

The Zimbabwean Poultry industry production relies on both the indigenous and imported poultry strains for breeding stock (Faranisi 1995). Chicken production in Zimbabwe is just like in many developing countries in that it has a dual nature, comprising large and small scale producers (Mapiye, Mwale, Mupangwa, Chimonyo, Foti and Mutenje 2008). Commercial breeding of poultry is based on imported strains, while the indigenous strains are for small scale producers largely in rural areas. In light of the foregoing, large scale production is characterised by intensive management, mechanization and specialization and dominated by large companies, while small scale production includes semi intensive and extensive farming. This study will focus on the commercial breeding as this constitutes a large share of production of the industry. The chapter starts by mapping the poultry industry through a value chain analysis. Secondly it looks at the trade balance of the industry which comprises the analysis of exports and imports of the industry. Third will be analysis of the production levels of the industry and last is an analysis of the prices of chicken over the past five years.

3.1 Market structure

The structure of the Zimbabwean poultry industry has evolved substantially over the years especially after the country's economic recession. On the one hand the harsh macroeconomic environment that prevailed between 1999 and 2008 saw traditional chicken producing firms (Irvines[1] and Suncrest) nearly collapsing and led to increased vertical integration within the value chain as a means of survival. On the other hand, during the same time new companies entered the sector in 2004 (Drummonds) and in 2007(Lunar Chickens).

Broiler production in Zimbabwe is broadly undertaken under four sizes namely, large scale fully integrated operations, large-scale semi-integrated, medium and small scale (Sukume 2011). There are four main large-scale producers of chicken namely Irvines, Suncrest, Lunar Chickens and

[1] Irvine's Zimbabwe Private Limited is part of Innscor Zimbabwe Limited a diversified group which has business interest in Milling and Manufacturing, Distribution and Wholesale and Retail

Ostrindo. Irvines, Suncrest[2] and Lunar are all based in Harare, while Ostrindo is based in Bulawayo. These companies are relatively large and have scale economies associated with their size. The companies are also highly integrated in the poultry value chain, which gives them advantages over medium and small scale producers due to their integration along the chain which ensures the availability of feed and day-old chicks, including likely at lower prices. It is also important to note that of the largest companies it is only Irvines and Suncrest which import breeding stock from Britain and France respectively. Lunar and Ostrindo get their parent stock from these two importers since they are the only importers of breeding stock in Zimbabwe. In the large-scale semi-integrated class there is Drummonds Chicken, Soloza Chicken and Hukuru among others. These companies are semi-integrated in the value chain, they do not own breeding operations and sometimes they operate small feed mills and slaughter facilities (Sukume 2011).

In the medium-scale producer class these are producers who produce a cycle of 2000 broilers and above. They are operated by individuals some of which are contracted by the large scale producers. They source their inputs from the open market including the large scale producers for day old chicks. Under the small-scale producers, they produce between 50 and up to 1500 broilers. They also source their raw materials from the open market just like the medium class. It is also important to note the growing importance of the small-scale sector which was estimated to contribute two thirds of total production in 2012 (Zimbabwe Poultry Association 2012). This growth is dependent on sourcing feed and breeding stock (day-old chicks).

3.2 Poultry Value Chain

A value chain approach is taken to assess the linkages that exist in this industry. A value chain simply describes the full range of activities required to bring a product or service through the different phases of production, which include physical transformation and input of various producer services (Kaplinsky and Morris 2002). Therefore in this section the research maps all the activities required to produce broiler chicken.

First, at the heart of poultry production lies the stock feed manufacturers. Poultry feed is a key raw material in poultry production and in this instance, feed stock is produced in relation to the different

[2] Suncrest is the poultry division of CFI Holdings which is a diversified group with the following divisions, Poultry, Retail and Specialised, which deals with various businesses in Property management and Packaging

stages that chickens pass through from day old to six weeks. There are three main types of feed produced by the subsector namely; starter, finisher mash and broiler concentrate. It is also important to note that the raw material for stock feed manufacturing is mainly maize and soya; composition of these in the actual feed will be discussed later in chapter 4. The stock feed manufacturers are represented by the Stock Feed Manufacturers Association at the national level which is responsible for representing the interest of its members at national levels.

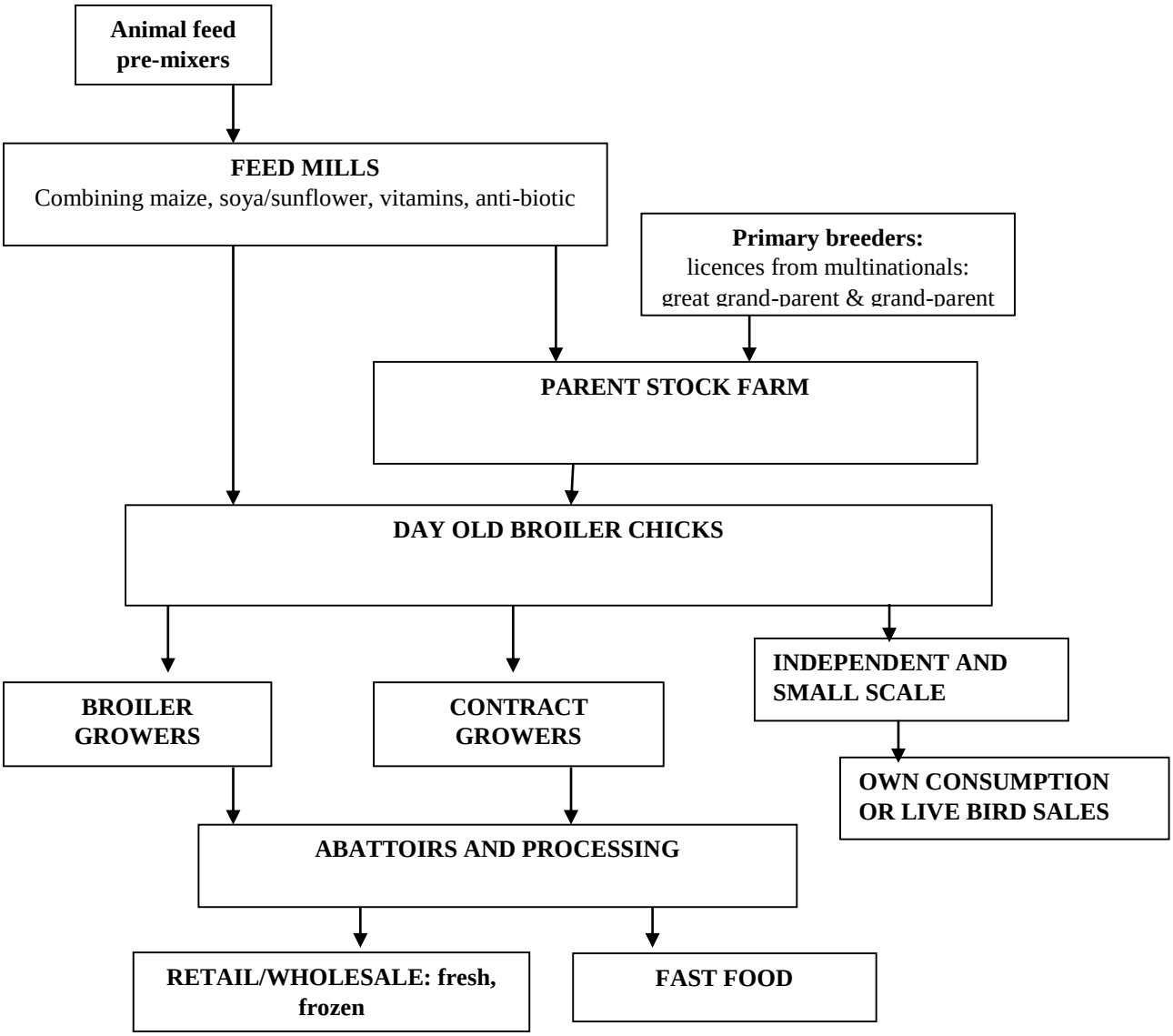
Second in the value chain are the Grandparents importers. Grandparents are the pure lines of day old chicks which are later used to produce parents (Faranisi 1995). In light of the foregoing, there are only two Grandparents importers in Zimbabwe which are Irvine's Zimbabwe Private Limited and Hubbard Zimbabwe Limited. Hubbard, which is part of the Suncrest group imports the Hubbard breed from France. On the other hand Irvine's imports the Cobb 500 breed from the United Kingdom (UK). Grandparents are used for the production of parent stock. Production of parents then marks the third stage and this is now used to hatch eggs that produce day old chicks. Irvine's and Hubbard are still the main producers at this stage but they also sell some of the eggs to other companies such as Lunar chicken who also produce their own parent stock. The parent stock is used to hatch eggs that produce days old chicks which are then sold to poultry breeders.

Currently Zimbabwe has nine[3] registered Hatcheries which produce day old chicks and these are distributed evenly around the country. Poultry breeding in Zimbabwe is done at both large and small scale.

There also exist contract farming arrangements in which small producers are provided with day old chicks, feed and chemicals by day-old chick producers and in turn they rear the chickens on behalf of the Producers and sell back to the producers as part of the agreement in return for a financial benefit. After rearing, the chicken are then brought to the abattoirs were they are slaughtered and dressed in preparation for selling to wholesalers, supermarkets and fast foods. All the day old producers mentioned earlier have abattoirs for slaughtering chickens. The diagram overleaf maps the poultry industry value chain.

[3]All Avian, Irvine's Day Old Chicks, Crest Poultry Group (Hubbard) and Lunar Chickens in Harare, Nature Best (Strindo) and Bulawayo Chicks in Bulawayo, Charles Stewart Day Old Chicks, Masvingo Chicks and Chinyika Chicks in Chegutu, Masvingo and Marondera respectively.

Figure 1: Poultry Value Chain



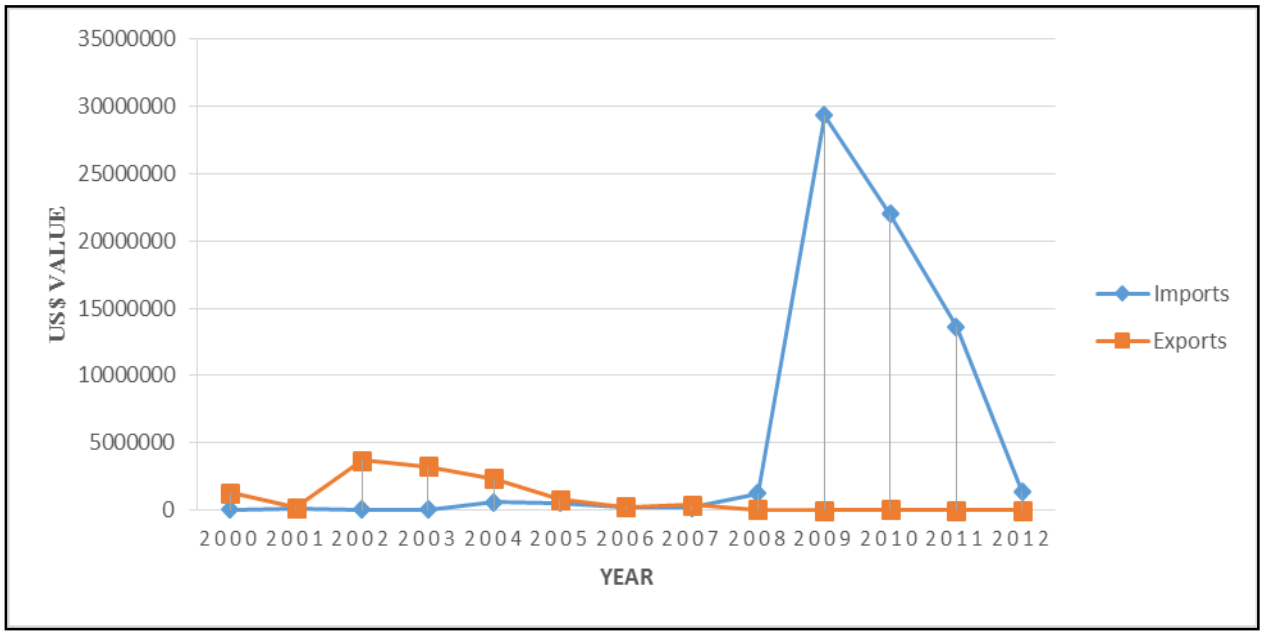
Source: Bagopi et al (2013)

Important to note from the value chain is the fact that grandparents are imported from Europe, and as a major raw material it is important to analyse the levels of tariffs being levelled for all imports. This will be the subject of the chapter 4 which analyses the current rates of tariffs applicable for all raw materials that are imported. The poultry industry is well represented by the Zimbabwe Poultry Association which is responsible for representing the interest of the industry at national level. The next section now looks at the trade balance of the poultry sector.

3.3 Trade balance

As already mentioned earlier, Zimbabwe has opened its economy to international trade, it is therefore important to turn the focus on the analysis of the trade performance of the sector. In light of the foregoing, Zimbabwe is engaged in both bilateral and multilateral trade agreements with her trading partners. Zimbabwe is a member of the Common Market for Eastern and Southern Africa (COMESA) and Southern Africa Development Community (SADC) free trade areas. In addition, it is also currently negotiating under the tripartite trade agreement SADC-COMESA-EAC which has since started negotiations to form a free trade area. The effect of these trade agreements has been to reduce trade barriers and especially tariffs and this have an impact on trade flows. Chicken[4] imports for the sector are shown in the diagram below which shows the relationship between imports and exports since 2000.

Figure 2: Imports and Export Relationship



Source: Zimstats

The graph above clearly shows that between 2000 and 2007 the sector hardly faced any competition from imports. However, there was a sharp increase in imports in 2009 - this is a time in which Zimbabwe was experiencing hyperinflation in which local production was low and over

[4] Chicken here covers the following tariff lines, 0207.1100, 0207.1200, 0207.1300 and 0207.1400, which represents all forms under which chicken is imported using HS 8.

and above it also coincided with the launch of the SADC free trade area at the same time. Government intervened in 2009 as a result of food shortages and waived duty on all basic goods as a measure to combat food shortages that were facing the country.

There was thus an economic shock in terms of the macro-economy and falling agricultural production, and then a reduction in protection as government removed all duties on a temporary basis.

In March 2010, government imposed a ban on chicken imports coming from South Africa[5] in March, after an outbreak of rift valley fever. This saw overall imports reduce somewhat. It also resulted in increased production from local players as they sought to meet demand which was covered by imports. In 2012 government reinstated the duties back on all South African chicken imports. Imports continued to decline and in 2012 they stood at US$1,4 million, and government further intervened by increasing customs tariffs for all chicken imported outside the SADC region from 40% to $1.50/kg or 40% whichever is high (Government of Zimbabwe 2012). A large component of these imports was imported as *frozen cuts and offal of chicken* under tariff line 0207.4000

Turning to exports, the industry has been exporting chickens both as whole birds and frozen cuts between 2000 and 2007 and in particular in 2002 the sector received the highest level of exports during this period which amounted to US$3,7 million. During this period much of the chicken was exported under tariff code 0207.1200 (*Frozen Whole Chickens*) which constituted about 92% of total chicken export for the period under review. It is also imperative to note that much of these exports were exported to Namibia which accounted for 67.6% of exports over the period under study.

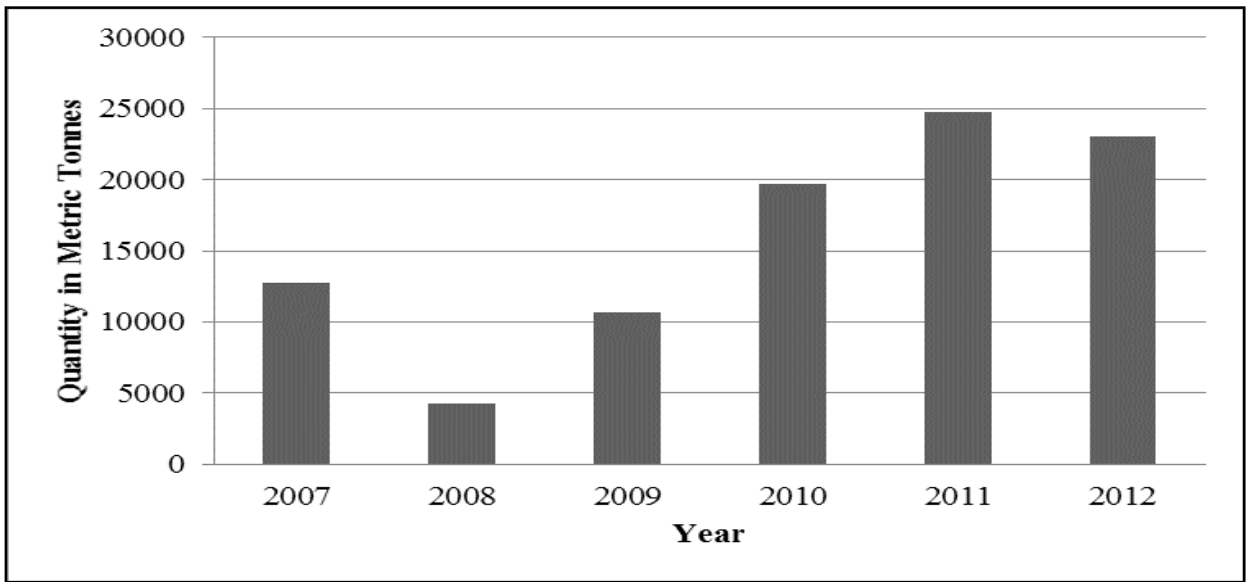
The graph above shows the trend in exports. However since 2009, the industry has not been exporting as can be seen from the above. Thus during the same period as was shown earlier, imports were increasing while exports were falling and thus concluding that the sector has been experiencing a trade deficit since 2008. Having analysed the trade balance of the sector, the next section analyses the production trend of the sector.

[5] South Africa is the main source of Chicken imports see also Appendix 1 for more details

3.4 Trend in Chicken Production

This section now looks at the performance of the industry in relation to production levels. The graph below shows dressed broilers production from 2007 to 2012. The production figures are presented in metric tonnes. It is clear from the graph that production plummeted to a record low of 4296 metric tonnes in 2008. This was the period of hyperinflation and the general macroeconomic environment was not conducive for business due to the political crisis. Imports were also increasing during this period as shown earlier in section 2.2 above.

Figure 3: Chicken Production



Source: Zimbabwe Poultry Association

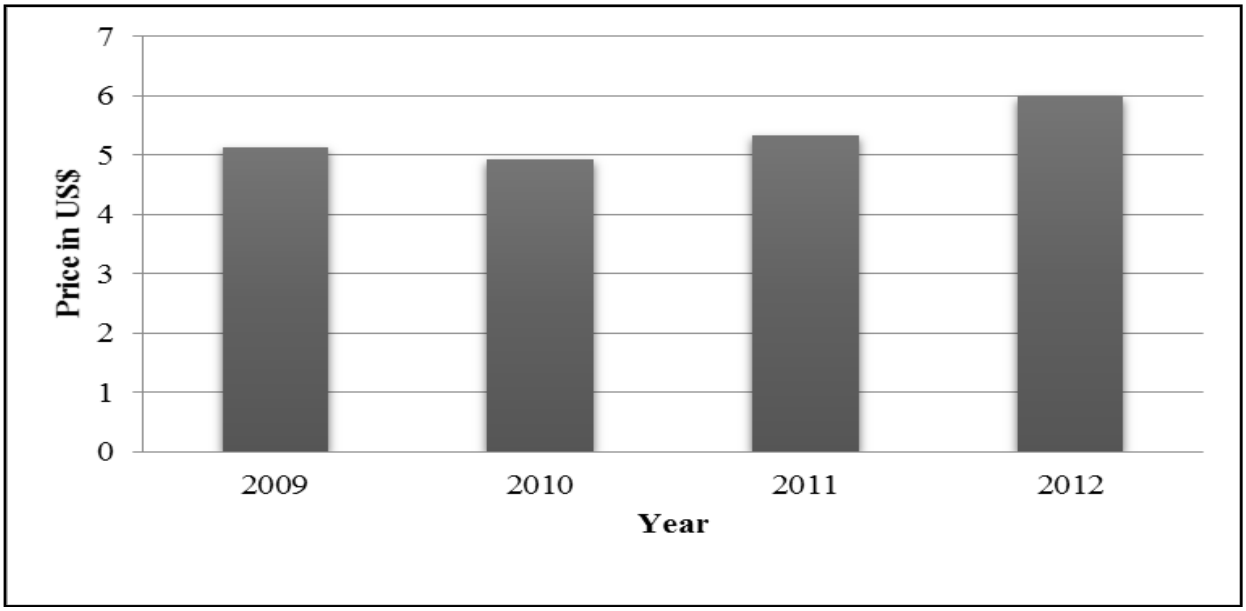
However from 2009 there have been a steady increase in production up until 2011. During this time and easpecially in 2010 there was strong lobying by the Zimbabwe Poultry Association to negotiate with government so that protection will be granted to save the industry. It is against this background that in March 2010 a ban was imposed on all chicken from South Africa after the outbreak of rift valley fever and as such local production increased during this period in order to fill the gap of imports and meet local demand. That partly explains why there was an increase in production between 2010 and 2011.

3.5 Chicken Prices

Chicken market as with all other products in Zimbabwe has been operating under an open market in year 2009-2011, due to the suspension of duties due to shortages. During this period, chicken

prices were determined through the market forces of supply and demand and not only by the supply of local producers, but to a large extent of imports. However, in 2012 as government reinstated duties and put further increases in 2013, prices have been largely determined by local supply. Chicken prices are also important in analysing the sector's performance. Changes in the prices will also give an insight on how the sector has been price competitive over the few years in which the sector has experienced high volumes. This was especially in 2009 as illustrated above, to meet local demand after local production collapsed. In 2012 prices increased consistent with higher levels of protection once again, and a sharp decline in imports.

Figure 4: Chicken Prices



Source: Zimstat: CPI Data

Prices have generally increased marginally after the introduction of the multicurrency. It was only in 2010 in which prices fell marginally from US$5.13 in 2009 to US$4.94 for a whole full bird, but monthly price data shows that prices in 2010 started increasing from March and this is likely to be explained by the imposition of the ban on imports from South Africa after the rift valley fever outbreak in January 2010. South Africa had accounted for a large share of the cheap imports before this ban, as discussed earlier. This is reflected in higher average prices in 2011.

In summary, the chapter has provided a background to understanding the poultry industry in Zimbabwe. As has been shown the industry has six main stages in the value chain, namely; stock

feed manufacturing, Grandparents importers, Day Old Chicks producers, Broiler producers, Abattoirs and Fast foods and Supermarkets at the lower end. The industry is highly organized with the Zimbabwe Poultry Association at the apex representing the entire subsectors at the national level.

The industry has been subject to a number of shocks. Some of these relate to the macroeconomic conditions while other relate to trade policy, including the removal of protection in 2009 to meet consumer needs, the ban on South African imports in March 2010, and the increase in tariff protection in 2012. Since the inception of the ban there was new sources of imports from Argentiana, Brazil and United States of America although South African imports were still coming. I evaluate the performance of the sector and the impact of trade policy along with other factors.

CHAPTER 4: ASSESSING THE COMPETITIVENESS OF THE POULTRY INDUSTRY

4.0 Introduction

The main objective of this research is to analyse the performance and competitiveness of the Zimbabwean Poultry industry. After a review of the performance and organization of the sector presented earlier in chapter 3 this chapter analyses the competitiveness of the sector. This involves measuring the effective rate of protection, levels of competition in the value chain, specifically in the breeding sector and the impact of low agricultural production and the need to import maize (which includes the lower production due to the ban on genetically modified maize). The rest of the chapter is organized as follows - the first section presents the cost structure of the sector, which shows a detailed analysis of the industry cost along the value chain. This is followed by an analysis of the effective rate of protection accorded the sector. This includes a consideration of the impact of different tariffs on imports from various countries, and an assessment of the impact of factors affecting the cost of animal feed in addition to tariff protection. The last section analyses the levels of competition in the sector specifically in the breeding subsector and provides a comparison of prices of day old chicks with comparable countries in the region.

4.1 Industry Cost Structure

The cost build-up of the poultry industry is an important factor to consider in assessing the competitiveness of the industry. In order to have an understanding of the poultry sector, in this section we build the cost structure of the whole industry along its value chain. The main aim is to evaluate the level that contribute the biggest share of the cost. This enables deeper enquiry into the factors affecting these costs.

4.1.1 Cost structure

The cost structure of producing a dressed two kilogrammes of chicken is shown in the table 1 below. The cost build up was obtained from the Zimbabwe Poultry Association and this was compiled as an average for the industry for 2012.

Table 1: Cost Structure in US$, per 2Kg dressed (processed) bird

Basis Of Escalation		**Cost per Bird**	
	Cost per Bird per variable	**Total cost per Live Bird**	**% of Cost**
Day Old Chicks Costs			
Chick Price	0.75	0.75	**20.4%**
Stockfeed			
800g Starter crumbs	0.57	0.57	
1 100g grower pellets	0.76	0.76	
1 500g Finisher pellets	1.04	1.04	**64.4%**
Veterinary Costs			
D78 2 doses/ bird @ 8.60/ 1000 doses	0.02		
Clone 30 1 dose per bird @ $4.40/1000 doses	0.00		
Stress pack 100g per 200ltrs for first 5 days			
in 5 days 1000 birds consume 250ml water	0.00		
Medication- allowances. 35% of vaccine cost	0.01	0.03	**0.8%**
Litter			
7 bales per 500 birds	0.01	0.01	**0.3%**
Gas- BOC/BP prices or Charcoal			
100g x Price per kg Gas BOC/ BP	0.00	0.00	**0.0%**
625g x Price per kg Charcoal	0.25	0.25	**6.8%**
Subtotal		**3.41**	
Other Costs- Statutory			
Wages and salaries/electricity/ other		0.10	**2.8%**
Fuel		0.07	**1.9%**
Processing costs per bird			
Packaging - Bag $0.32/ Polyprop bag $0.00/ 12 birds per bag		0.00	**0.0%**
Rentals per bird housed		0.10	**2.6%**
Total costs		**3.68**	**100%**
Producer price per bird		**4.80**	
Producer Margin (% above cost)		30%	**30%**

Source: Zimbabwe Poultry Association

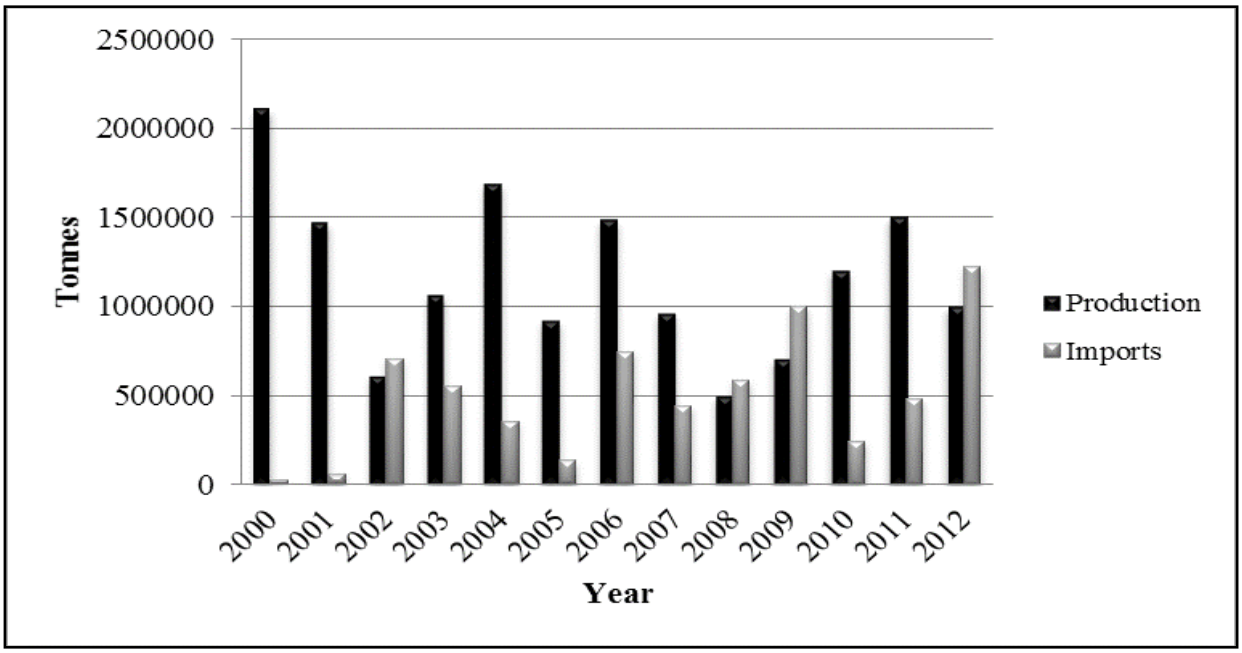
Table 1 above shows that the producer price for a dressed bird weighing two kilogrammes was US$4.80 in 2012, while the total cost was $3.68. The table also shows that stock feed is the main cost in producing chickens. Feed constitutes 64.4% of the total cost. The second major cost is of day old chicks which constitute 20.4% of the total cost. These two costs contribute 84.8% of the total cost of producing a chicken. These two major inputs also attract duties when they are imported by producers and the duties they attract which shall be discussed later also contribute to these costs. Wages contribute 2.8% of the total cost while charcoal adds 6.8% to the total cost of producing the whole bird. (Note that charcoal is used as substitute for electricity in fowl runs to warm the birds since the country is experiencing power shortages). Note that capital costs are included in the producer margin, while transport costs are not measured as these are prices at the factory gate, not delivered to retail outlets.

Given that stock feed constitute 64.4% of the total cost of producing a chicken, it is imperative to understand what determines the costs of the main components of feed. Maize is by far the largest single cost, and has been estimated to account on average for 70% of the cost of stock feed (Dhliwayo, 2004). The determinants of the maize price are thus very important. In this regard, we consider the effect of low agricultural production meaning that maize prices are at import levels. The reasons for the need to import maize go to the debates about the effect of land reform and the continued ban on genetically modified (GMO) maize and soya in the production of stock feed.

4.2 Assessment of maize prices

Since 2002, low maize production in many years has meant substantial imports of maize (see Figure 5). The trade deficit has meant that the price of imports has effectively set the local Zimbabwean maize price, however, the reliance on imports is itself due to the low local production. It is important to note that maize is also the staple food of Zimbabwe and as such it is one of the most important food crops. There are various reasons for poor maize production including agriculture policy and land reform. The issues around GMO maize can be seen as part of the explanation to the extent that it would have meant higher production although it seems doubtful that it would have eliminated the trade deficit. In any event we can treat the trade deficit in maize as resulting from distortions, whether the ban on GMO production or the impact of land reform on output levels, as Zimbabwe has historically been self-sufficient in maize (as in 2000) and should be again when production fully recovers.

Figure 5: Maize Production and Imports



Source:FAOSTAT, GAIN report

As can be clearly seen from the diagram, the year 2000 represents the highest maize production output of 2,1 million metric tonnes. The lowest output was recorded in 2008, which was about 500 000 metric tonnes and in this year imports even exceed domestic demand. In 2009 again imports were higher than total production and although production has been picking from 2008 after a much stable macroeconomic environment. In 2012 production decreased again and imports again surpassed domestic production. The general conclusion that can be drawn from the graph above shows that, there has been a marked reliance on grain imports since the year 2002 to cover for the deficit in supply.

This is potentially hugely significant for the poultry industry given the importance of maize as an input. The cost imposed on local poultry producers of the local maize deficit depends on the costs of imported maize compared to an international price (or the price being paid in the source of poultry imports). The cost of maize imports depends on where the maize is sourced from, and the relevant prices and transport costs. It is notable that trade data reveal a switchover in 2009 to 2012 in the main source of maize imports from South Africa to Zambia, with the big change happening in 2011 (Table 7). While 74% of maize imports in 2010 came from South Africa, in 2011 77% came from Zambia, and 99% in 2012.

Table 2: Maize Imports in Tonnes by Country

Year/Country	2009	2010	2011	2012
South Africa	430990	178478	24179	8732
Zambia	1621	42471	373620	1217532
Malawi	643	6410	82563	85
Other	1314	14520	3848	586

Source: Zimstats: Import Data

From 2008 to 2010 the Zimbabwe maize price was being set by the maize import prices from South Africa. As indicated in Figure 6 below, this meant prices at South African prices plus a substantial amount, presumably reflecting all the transport and related costs. From 2008 to 2010, Zimbabwe maize prices were between $90 and $157 higher than the prices in South Africa, more than 64% higher in relative terms. Table 3 below shows the price differences.

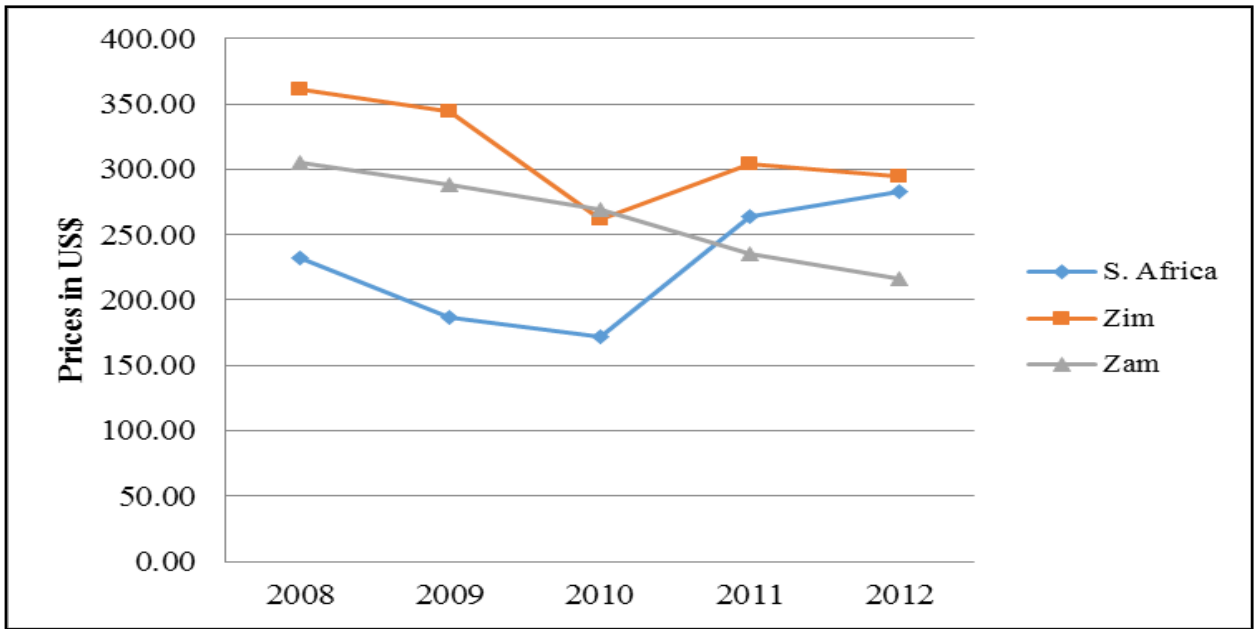
Table 3: Maize Prices in US$ per Tonne in Zimbabwe and South Africa

Country/Year	2008	2009	2010
South Africa	232	187	172
Zimbabwe	362	344	262
Price Difference	**130**	**157**	**90**

Source: SAGIS and FAOSTAT: www.faostat.org

In 2011 and 2012, however, much smaller price differences with South Africa were recorded, with a difference of just $12 in 2012, consistent with the switch in sourcing imports to Zambia. From 2011 to 2013 there is a relatively consistent mark-up over Zambian prices recorded. This is significant for our assessment, as the poultry import competition was not coming from Zambia but from South Africa or from deep sea sources (likely imported through South Africa).

Figure 6: Comparison of Maize Prices in USD per Tonne



Source: SAGIS, FAOSTAT

The impact of sourcing from Zambia in 2011 and 2012 was substantial compared to what would have been the prices if the same mark-up over South African prices had been sustained. Prices in Zambia were lower than in South Africa in these years and transport costs appear lower, as the Zimbabwe prices were only around $53 higher than those in Zambia. This meant that in 2012 Zimbabwe maize prices were almost the same as in South Africa, and hence there was no disadvantage from this input for poultry producers in Zimbabwe compared to South Africa by 2012. In 2013, however, Zambian prices rose once again compared to South African prices.

Despite Zambia sharing the same policy on banning the production of GMO maize with Zimbabwe, it is clear from figure 6 that its prices have been lower as compared to Zimbabwe, which reflected Zambia's increasing production and net exports to Zimbabwe (Haggblade *et al* 2008). South Africa which allows production of GMO maize and which is also the main source of chicken imports into Zimbabwe has lower maize prices for all the years as compared to Zimbabwe. Given that maize constitute between 70% of the cost into the production of stock feed, it would therefore give a competitive advantage to the South African chicken producers. However the prices of maize for Zambia which has the same policy as Zimbabwe on GMO maize raises another important insight as it is lower than South Africa for 2011 and 2012. This might be attributable to high production levels in Zambia leading to low producer prices. It then raises the

issue of reduction in maize production in Zimbabwe especially after the country's land reform programme which led to falling output leading the country to rely on maize imports as shown earlier on maize production and imports data.

The Zimbabwe policy of banning GM maize also contributed to lower production. Studies done on GMO maize yield per hectare show that net returns are higher in comparison with the conventional maize (Yorobe, & Quicoy, 2006, Mutuc & Yorobe, 2007), this is mainly due to lower use of labour and chemicals which increases the cost of producing maize. This has resulted in the prices of GMO maize being generally lower than for conventional maize. In the case of Zimbabwe, there has been a government policy which prohibits the importation of GMO maize and again as presented in the preceding section, the inability to produce enough maize has also led to reliance on importing maize from neighbouring countries mainly Zambia. On the other hand South Africa, which has been the major source of chicken imports into Zimbabwe, has adopted the growing of GMO maize since 1998 and it has been planted since the beginning of the 2001/2 agricultural season (Gouse, Pray, Schimmelpfennig & Kirsten 2006).

4.2.1 Effect of higher maize prices

As discussed above there are different reasons why the maize price in Zimbabwe is high compared to South Africa, and this has a very substantial effect on the competitiveness of Zimbabwean poultry producers. We consider the effect of this by considering in each year the percentage mark-up of Zimbabwe maize prices over South Africa maize prices as if it was a nominal tariff (the increase over international, or border, prices). The percentage mark-ups in each year is represented the table below.

Table 4: Maize Prices in South African and Zimbabwe

Country/Year	**2009**	**2010**	**2011**	**2012**
South Africa	187	172	264	283
Zimbabwe	344	262	304	295
Price Difference in US$	157	90	40	12
Mark-up%	**84%**	**52%**	**15%**	**4%**

Source: Author calculation based on SAGIS and FAOSTAT price data

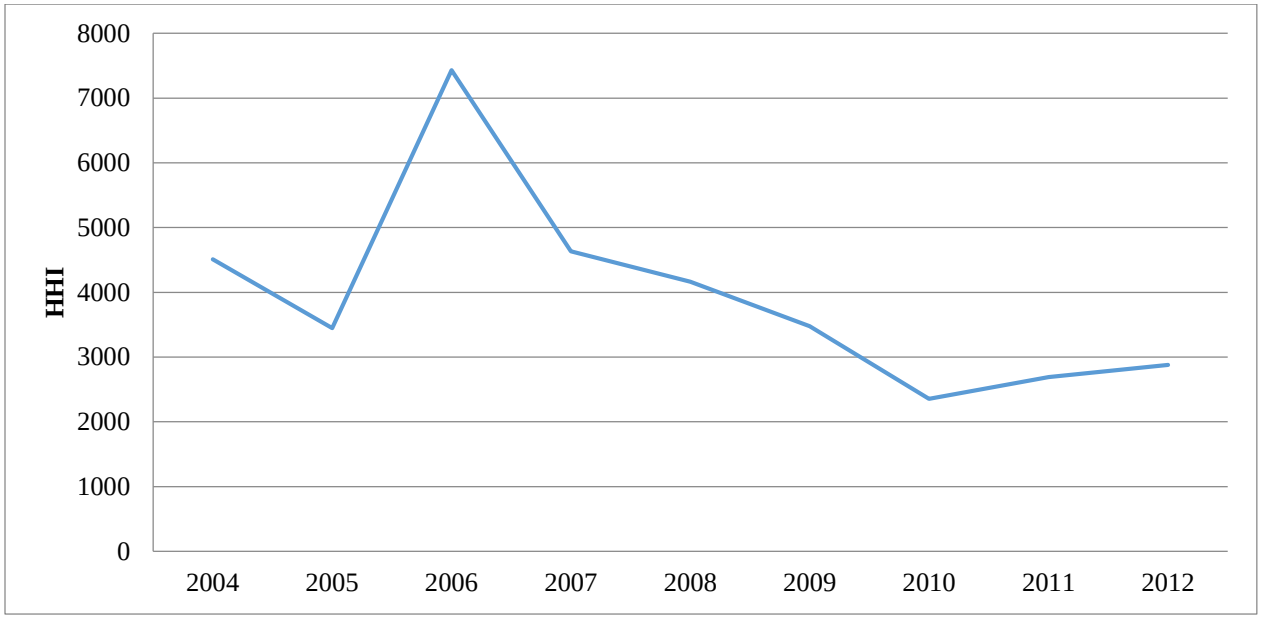
Table 4 above shows that from 2009 to 2012 the Zimbabwe maize prices have always been higher than the South African prices. The average mark up of Zimbabwean prices over South African maize prices has been 38%. However, the gap declined sharply in 2011 and 2012 due to the supplies of imports from Zambia.

4.3 Assessment of Day Old Chick prices

As it is the second largest cost in producing poultry we consider the prices of day old chicks. These are produced locally through the breeding operations of vertically integrated poultry producers, as discussed earlier. These breeders sell the day old chicks to independent broiler producers of different sizes, as well as using the day old chicks in their own broiler production.

The breeding subsector of the poultry industry, as already briefly outlined earlier in Chapter 2 is highly concentrated with just two main companies namely, Hubbard and Irvines. Hubbard and Irvines import grandparents from France and the United Kingdom respectively and as such this gives them a firm position in the value chain as they are the main producer of the primary raw material of the whole industry. The current set up basically shows that the breeding sector is a duopoly. However with the entry of Lunar Chickens in 2007 it has also started breeding operations for its own day old chicks, albeit being supplied the parent stock by Hubbard. The arrangement therefore shows that Hubbard and Irvines remain as the key players in the breeding subsector. The graph below plots the Herfindahl-Hirschman Index (HHI) for the breeding subsector. The HHI is calculated by squaring the market shares of the two producers and import data. Figure 7 below shows the HHI calculated using data sourced the from Zimstats trade data.

Figure 7: Concentration Levels in Breeding Subsector (as measured by the HHI)



Source: Author calculation based on Zimstat data

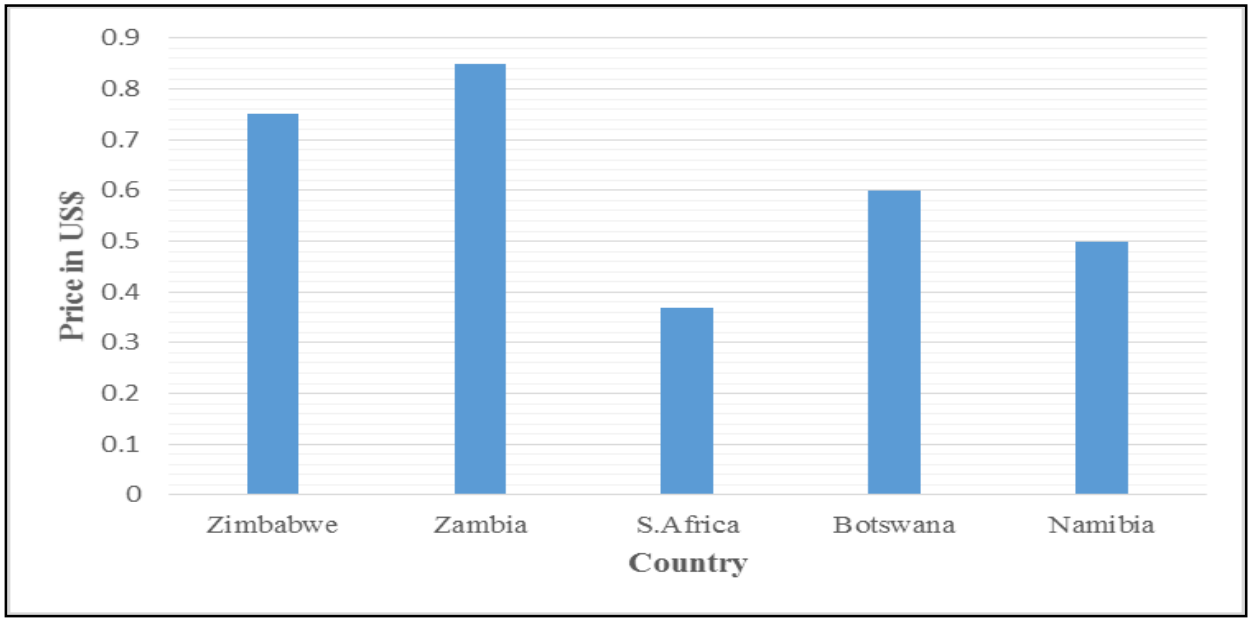
As already highlighted in the paragraphs above, the graph clearly confirms that the sub sector is highly concentrated, with an average HHI above 2000 for the period under review. Furthermore, it also shows that concentration levels have been reducing since year 2006 and this is explained by the fact that there have been increased imports of day old chicks from South Africa and Zambia by other individuals due to the economic challenges that the country was going through since the turn of the new millennium. Hubbard and Irvines remain the only two companies importing grandparent stock and these companies were also affected by the economic challenges that affected the economy during the period under review. A challenge arises from the fact that the two companies are also vertically integrated along the value chain and this might actually meant that they prioritize supplying their sister companies first before they look into doing business with other clients and such leading to increases in imports as other competitors seek to find other sources of day old chicks.

4.3.1 Regional Comparison of Day Old Chick Cost.

Having analysed the level of competition in the breeding subsector above and confirmed that the market is highly concentrated, we now turn the focus on analysing the impact of such a highly concentrated subsector on competitiveness of the whole industry. In order to achieve the above stated objective, we compare the prices of a day old chick in Zimbabwe against other countries in

the region to estimate the cost difference that arises. Using available 2012 industry data on the cost of producing a day old chick in Botswana, Namibia, Zambia and South Africa we compare the findings with the Zimbabwean data in Figure 8 below.

Figure 8: Comparison of Day Old Chicks Prices 2012



Source: Zimbabwe Poultry Association, and Bagopi et al (2013)

Zimbabwe has the second highest price of day old chicks and Zambia has the highest among the countries being analysed. However, important to our analysis is the cost of a day old chick in South Africa, since it is the main source of chicken import competition into Zimbabwe. The price of day old chicks in Zimbabwe, as a cost to broiler producers, is double that in South Africa. Since we now know from section 4.2 of this chapter that day old chicks cost constitute 20.4% of the total cost of producing a chicken in Zimbabwe, this finding shows part of the reason why South African chickens are competitive in Zimbabwe.

There are different possible reasons for this, of which competition is an important one. South Africa has more producers in this stage of the value chain and the low prices might be as a result of rivalry among competitors (Grimbeek and Lekezwa, 2012). There may also be cost differences although South Africa, as Zimbabwe, has to import the genetic breeding stock as grandparents or great grandparents from multinational companies in this area (Bagopi et al., 2013).

In our analysis below, we consider the higher day-old chick price as resulting from imperfect competition by including an imputed nominal tariff on day-old chicks equal to the difference between Zimbabwe and South African prices for 2012, of 103%. Zimbabwean prices of day-old chicks are also substantially more expensive than in Botswana and Namibia.

4.4 Background to Trade Tariffs and the Poultry Sector

Zimbabwe regulated foreign trade prior to adoption of economic structural adjustment programmes in 1991 which were spearheaded by Bretton Woods's institutions (Tekere 2001). Import substitution was pursued during the Unilateral Declaration of Independence period between 1965 and 1980 under which domestic industry was protected using high tariffs, quantitative restrictions and embargoes (Rattso and Torvik 1998). After the attainment of Independence in 1980, government continued with restricting foreign trade until its policy changed in 1991 with the adoption of Economic Structural Adjustment Programme which undertook to liberalise trade. This led to liberalisation in a multilateral context in World Trade Organization and in the regional framework under Southern Africa Development Community (SADC) and Common Market for Eastern and Southern Africa (COMESA) and also with signing of bilateral trade agreements with its trading partners (Tekere 2001). Moreover, under both SADC[6] and COMESA the two regional blocks have attained free trade status in which trade amongst members is on free duty. Furthermore, Zimbabwe has a bilateral trade agreement with South Africa signed in 1964, which offers preferential accesses to both countries' markets. These developments have had an influence on the poultry sector as both inputs and outputs are affected by import competition. We start by presenting tariff levels on all imported raw materials used by the poultry sector, then assess the nominal tariffs applying on feed components and then on outputs (poultry) and which ones are applicable.

4.4.1 Raw Materials

Raw materials used by the poultry industry are divided into two categories. There are raw materials directly and indirectly linked to the sector. Table 4 below shows list of raw materials directly used

[6] SADC has a separate differentiated offer for South Africa (SADC SA), which was agreed by Member States.

by poultry breeders, being breeding stock, feed and vaccines. The rates below have remained the same from 2009 and have not been affected by tariff changes done by government.

Table 5: Tariffs on Poultry Raw Materials

Tariff Code	Description	MFN	COMESA	RSA	SADC(SA)	SADC (Other)
1051100	Fowls of the species Galluss domesticus/ Grandparents	5%	0%	0%	0%	0%
23099010	Poultry feed	40%	0%	0%	15%	15%
30023000	Vaccines for veterinary medicines	0%	0%	0%	0%	0%

Source: Zimbabwe Tariff Book 2013

As presented in the table above, stock feeds attract the highest rate of duty of 40% under the MFN rate, the higher duty is due to the need to protect local producers, although impacting negatively on the poultry industry. Under the SADC trade agreements it still attract a 15% rate of duty for the same reason of protecting local producers. Grandparents however attract a 5% rate of duty despite not being available locally and this might be due to the need by government to raise revenue through customs collections. The bilateral trade agreement between Zimbabwe and South Africa and COMESA trade agreements allows all these raw materials to be imported duty free as can be seen above.

4.4.2 Stock feed raw materials

Since feed constitutes the biggest share of cost as shown earlier, it is also important to look at the tariff applicable to its constituent inputs. Table 5 below shows the lists of raw materials used in the production of stock feed, which is a key input into the poultry breeding. The table further shows the tariff code and applicable rates of duty under the five trade arrangements in which Zimbabwe is a participating member. The significance of the tariffs for any given product will depend on whether this is the most competitive import source in the absence of protection.

Table 6: Tariff Codes and Raw Materials Duties under different Trade agreements

Tariff Code	Description	MFN	COMESA	RSA	SADC(SA)	SADC (Other)
1005.9000	Maize	0%	0%	0%	0%	0%
2304.0000	Soya meal	10%	0%	0%	0%	0%
2301.1000	Poultry meal	0%	0%	0%	0%	0%
2835.2600	Mono-calcium phosphate	5%	0%	0%	0%	0%
29304000	Methionine	5%	0%	0%	0%	0%
29224900	Lysine	5%	0%	0%	0%	0%
23099020	All vitamins	5%	0%	0%	0%	0%
11090000	Wheat feed/bran	15%	0%	0%	0%	0%
11043000	Maize germ meal	20%	0%	0%	0%	0%
39239099	Packaging	10%	0%	0%	0%	0%
23021000	Maize bran	10%	0%	0%	0%	0%
23023000	Wheat bran	10%	0%	0%	0%	0%
23099020	Vitamins, additives, substances prepared for the manufacture of stock feeds	5%	0%	0%	0%	0%
29231000	Choline and its salts	0%	0%	0%	0%	0%

Source: Zimbabwe Tariff Handbook 2012

Maize which together with soya cake are the two key raw materials shown by tariff lines 10059000 and 23040000 in the table above respectively show that they can be imported duty free and 10% respectively under MFN. The reason for a duty on soya is to protect local farmers. Maize is imported duty free since it is also the staple food hence the need for it to be cheaply available when farmers fail to meet demand. Zimbabwe has been importing grain in the past years to supplement

domestic supply which has not been able to meet local demand as shown earlier the previous section.

4.4.3 Tariff Rates Applicable on Chicken Imports

Tariffs applicable to chicken imports falls like all other products under five difference regimes, given the agreements to which Zimbabwe is party. The duties for all the five categories in which chickens are imported under have not changed from year 2000 to 2008. In 2009 government suspended duties on chicken imports a measure which was taken to boost food security after the hyperinflation that experienced the country in 2008 (Mudzonga 2009). The suspension was lifted in 2011 and duties were reinstated at 40% (MoF 2010). Table 7 below shows the applicable rates of duty levied on imported chicken for each of the four tariff lines under which chicken can be imported into Zimbabwe and these are under SADC, COMESA, WTO and bilateral trade agreement with South Africa.

Table 7: Chicken Duties under Zimbabwe's trade agreements

Tariff Code	Description	MFN	COMESA	RSA	SADC(SA)	SADC (Other)
02071100	Fresh or chilled whole chicken	40% or $1.50/kg	0%	0%	15%	15%
02071200	Frozen whole chicken	40% or $1.50/kg	0%	0%	15%	15%
02071300	Fresh or chilled cuts of chicken	40% or $1.50/kg	0%	0%	15%	15%
02071400	Frozen cuts and offals of chicken	40% or $1.50/kg	0%	0%	15%	15%

Source: Zimbabwe Tariff handbook 2013

The general tariffs under the WTO Most Favoured Nation (MFN) rates are still very high at 40% or $1.50/kg whichever is higher, on all tariff lines. However, South Africa is the main source of import competition. The bilateral trade agreement between Zimbabwe and South Africa means that the sector is fully liberalised as chickens are imported duty free. But, it must also be

remembered that Zimbabwe banned South African imports of poultry in March 2010 until December 2011.

Complicating matters further is that duties were suspended on all poultry imports in 2009 and 2010 due the economic crisis and the need to make food available to the population. This means that while South African poultry imports were banned in 2010, imports from other sources came in duty free (that is, the MFN tariff did not apply due to the duty suspension). In 2011, the ban on South African imports was still in place but the suspension had been lifted meaning that the 40% MFN duty applied. In 2012, there were once again imports from South Africa, duty free.

Under SADC free trade agreement applicable Zimbabwe poultry tariff rates are still at 15% level and this shows that Zimbabwe classified its poultry industry as a sensitive sector[7]. However, this is not material as the imports within SADC of poultry products come from South Africa and this is subject to the bilateral agreement between the countries.

We now turn to measure the effective rate of protection in the next section, taking into account the developments we have discussed in the application of the measure of protection.

4.5 Effective rate of protection of the Poultry Sector

Having analysed the tariff levels in the poultry sector this section now turns to measuring the effective rate of protection of the whole poultry sector to see how the sector is protected. The effective rate of protection measures the protection that is provided to domestic value added relative to value added in international (or 'border') prices (Greenaway and Milner, 1993). As discussed in chapter 2, we can consider the different factors in addition to nominal tariffs which increase prices above border prices and hence impact on domestic value added. In particular, the calculations are done to take into account the imputed effect of low agricultural production on the maize input price (for animal feed) and an estimate of the effect of low competition in breeding stock on the price of day-old chicks.

[7] This is a sector that is given a longer phase down period of its tariffs before it is opened to free trade as it is considered to be in need of some protection to enable it to become competitive.

We use the formula below to calculate the effective rate of protection of the poultry sector and data from the Zimbabwe tariff handbook for the tariffs on raw materials and output at the HS8 digit level.

$$\text{ERP} = \frac{t_i - \sum a_{ji} t_j}{1 - \sum a_{ji}}$$

Where, ERP is the effective rate of protection, a_{ji} is the number of units of j required per unit of i under free trade and t_i and t_j are the tariff levels for output i and j respectively.

4.5.1 Data

The data used for tariffs was obtained from the Zimbabwe tariff handbook 2012 and data on the industry cost structure was obtained from the Zimbabwe poultry industry which has been shown in the first section of this chapter. Thus we use tariff data for the chickens and inputs required to produce the chickens. In estimating the effective rate of protection we also considered the treatment of non-tradable goods. In literature, there are three main ways to deal with that, the first method was proposed by Balassa (1965) in which the assumption is that price of non-tradable goods will not change if the system of protection is removed, thus meaning their nominal tariff is zero. Thus we treat non tradable inputs just as tradable inputs with zero tariffs. The second method was proposed by Scott (1980), who assumes that non-tradable goods tariff is equal to the average of traded goods tariff. The third approach is to assume that non-traded goods are just part of the value added of the manufacturing activity employing them, meaning, that their values become domestic value added and traded inputs (Corden 1966).

In this study we take the Corden approach. This approach is supported by the fact that tradable inputs are the most significant and what is being focused on, while the non-traded inputs include a range of small costs which include labour, litter and gas so it is most appropriate to calculate following this method. The study does not adjust for exchange rates as Zimbabwe is currently using a multicurrency system after dollarization of the economy in 2009.

4.5.2 Estimates of Effective Rate of Protection, without making adjustments for maize and day-old chicks

In the assessment in this section we take account of the source of import competition, given the duty suspension in 2009 and 2010, and the ban on imports from South Africa in 2010 and 2011.

This means that the MFN rate applies in 2011. The duties on inputs are, however, not affected in the same way and are zero through-out as import competition comes from the region and South Africa in particular. In the table below "weight" is the value of inputs in 2012 prices. In the following section we introduce measures of imputed nominal tariffs to take account of the effects on maize and day old chick prices we considered above.

Table 8: Effective Rate of Protection without making adjustment for inputs

	Weight	**2009**	**2010**	**2011**	**2012**
Poultry		0%	0%	40%	0%
Day old chicks	0.75	0%	0%	0%	0%
Poultry feed	2.37	0%	0%	0%	0%
ERP		**0%**	**0%**	**224%**	**0%**

Source: Author Calculation

Effective rate of protection for the sector was 0% for all the years except in 2011. The zero rate recorded for these years was due to the zero nominal tariffs on both inputs and output as shown in the table above. However in 2011 the 40% duty on poultry resulted in the effective rate of protection for the sector increasing to 224%. This is so because inputs were still zero rated and at the same time the assumption made of maintaining prices constant for chicks and feed and while accounting for non-tradable inputs as part of value added might be also explaining the high level of protection. Interestingly to note is that for the period under review the highest production was recorded in 2011 the same year with the highest rate of protection as shown in chapter 3 and production even fell by 7% as the effective rate of protection fell again to zero in 2012.

4.5.3 Estimates of Effective Rate of Protection, with adjustments for maize and day-old chicks, and links with performance

For poultry producers, the effect of higher day-old chick prices from low levels of competition can be considered as if there was a higher tariff on imports of day-old chicks equivalent to the percentage by which day-old chick prices are above international prices (in this case, we consider it to be South African prices).

The following calculations where made before calculating the effective rate of protection. We used the year 2012 cost data to calculate the prices of day old chicks and feed backwards up to 2009. The impact of uncompetitive supply of day old chick tariff is calculated as the percentage of the cost difference between the Zimbabwean and South African price. The imputed tariff on maize is calculated as 70% of the cost of feed, factoring in the price changes in the South African prices.

Table 9: Effective Rate of Protection applying, based on the applicable import

	Weight	**2009**	**2010**	**2011**	**2012**
Poultry		0%	0%	40%	0%
Day old chicks	0.75	0%	0%	0%	0%
Poultry feed	2.37	0%	0%	0%	0%
Effect of maize imports (as higher Zim price compared to SA price), as imputed feed tariff	2.37	46.9%	31.7%	10.1%	2.9%
Day old chick (SA) (impact of uncompetitive local supply)	0.37	103%	103%	103%	103%
ERP		**-40%**	**-36%**	**85%**	**-21%**

Source: Author Calculation

From above it can be seen that in 2009, there was a negative effective rate of protection of -40% and this was due to high level of nominal tariff equivalent of 46.9% and 103% on day old chicks and the effect of cheaper maize from South Africa respectively. Again in 2010 the industry also had a negative effective rate of protection of -36% , which is a result of a higher nominal tariffs on day old chicks (103%) and the impact of cheap maize (31.7%) the output was zero rated as a result of a ban in chicken imports from South Africa. During this period the industry experienced a surge in imports as shown earlier in Chapter 3, which further confirms the low levels of protection we see above.

The effective rate of protection increased to 85% in 2011. The increase was due to an increase in the nominal rate of protection on the output, from 0% to 40%, combined with the effect of lower maize prices relative to South Africa. Maize prices in 2011 in Zimbabwe were just 15% higher which translates into a lower imputed nominal tariff on feed of 10%.

This substantially higher effective protection is consistent with the increase in production in 2011, as shown chapter 3. In 2012, we see that the effective rate of protection once again reduced to -29%, which is explained by the removal of duties on the output as the ban on South African chickens expired. This is further supported by the fact that during the same period, chicken production also declined as shown in chapter 3 as local producers were subjected to stiff foreign competition once again.

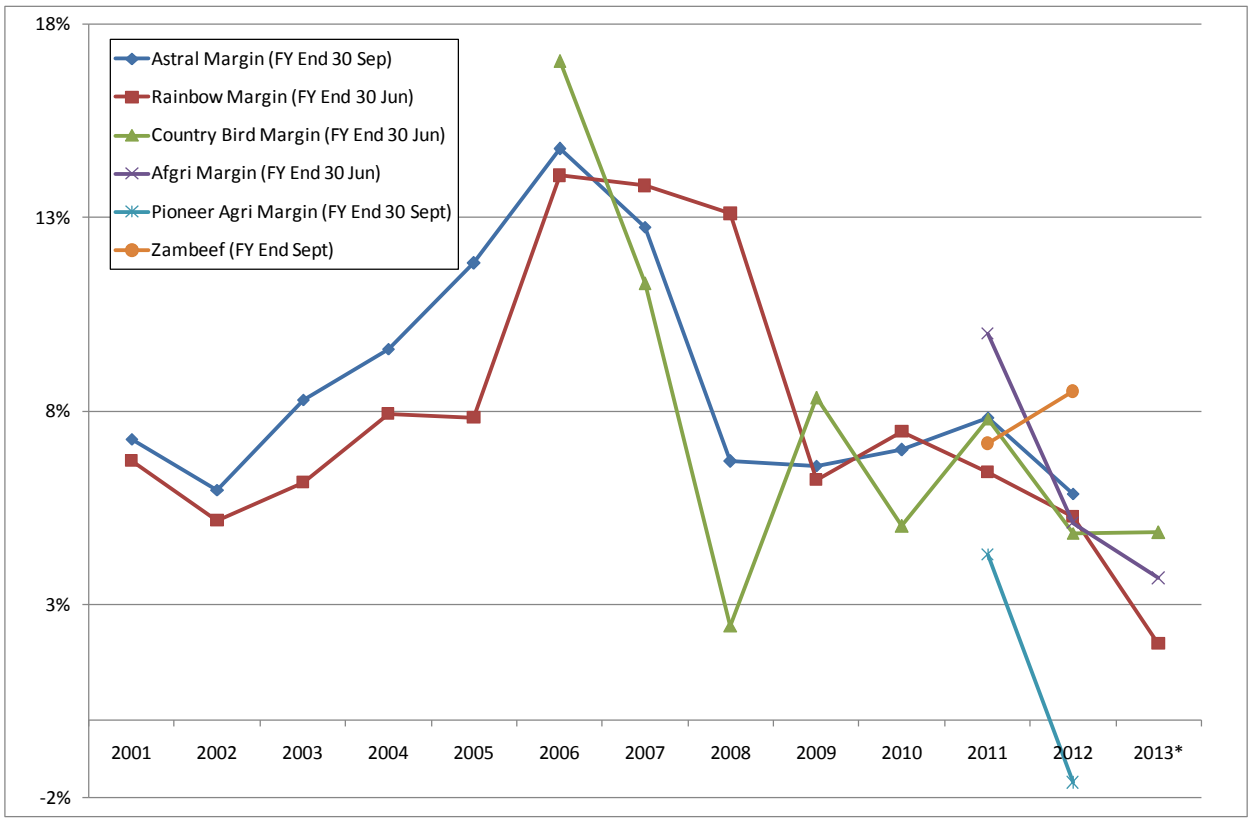
4.6 Governance and Control of the Value Chain

The issue of industry protection that has been discussed above can also be understood in the context of governance of the poultry value chain. Gereffi et al (2001) argues that through governance structures, firms can indirectly influence the whole production process. In some way the governance of the poultry value chain have an influence in the functioning of the value chain. On the one hand, the involvement of the former Governor of the Reserve Bank of Zimbabwe in one of the firms (who owns Lunar Chickens) can be seen to have contributed to the ban on South African chicken imports and thus the high level of protection in 2011 discussed earlier in the preceding section. The political connections that he has and again as a producer cannot be ignored in influencing government decisions in the poultry sector. This is so because the government of Zimbabwe introduced the indigenization and economic empowerment policy in 2007 (which also coincides with the formation of Lunar) that sought to empower black people by encouraging them to be key economic players in the economy through starting businesses and owning 51% share in foreign companies (Indigenization Act 2007). Since the inception of this policy government policy have been influenced by the need to encourage local people through favourable policies.

The low levels of competition in the breeding producers also suggest influence over the value chain as they are able to charge what appear to be relatively high prices for day old chicks. On the other side, is the importance of this product for consumers, as evidenced by the government's decision to suspend all duties in 2009 and 2010 in order to ensure that food imports could be accessed cheaply by consumers.

A further dimension which this study has not been able to assess in detail is the changing competition in South Africa and its possible effects on the Zimbabwe poultry industry. As assessed in Bagopi et al., (2013) and in Grimbeek and Lekwezwa (2012) the levels of competition in South Africa increased substantially from 2009. This has been reflected in the operating margins of the South African poultry producers, which fell in 2012 and 2013 (with the financial years 2013 overlapping from 2012) (see Figure 9).

Figure 9: Operating margins by Company



Source: As from Bagopi et al. 2013, Annual Reports of listed companies.
Notes: [1] *'Margins calculated as operating profit as a percentage of total revenue*
[2] *Zambeef is a diversified operation that includes beef and soya farming*
[3] *2013 are latest results available.*

CHAPTER 5: CONCLUSION

5.0 Introduction

The first section summarizes the findings with regard to the main research question and the three hypotheses identified for the dissertation. The second section considers the implications for research in this area and the applicability of different theoretical frameworks. The third section then provides some recommendations that flow from the findings which government and producers must consider in an effort to improve the competitiveness of the sector. The last section provides some possible areas for further research.

5.1 Summary of Results

The study was carried out in order to analyze the performance and competitiveness of the poultry industry under trade liberalization and in the context of a relatively concentrated market structure. The overview of the industry illustrated the importance of key inputs in the form of stock feed and breeding stock and the structure of the industry, including the importance of vertically integrated producers, in Zimbabwe.

The poultry industry has been affected by imports starting 2007 and has not been exporting since then as the industry struggled to compete on the domestic market. Before 2007 the industry used to export and hardly faced any imports. The fact that the industry managed to export to other countries showed that it was competitive both on domestic and even in exports markets.

We now turn to consider the three hypotheses which were identified.

The first hypothesis was that *performance has been poor due to trade liberalization reducing the effective rate of protection of the poultry industry while retaining ban on GMO maize*.

The study showed that the effective rate of protection calculation is complicated by the different trade regimes which exist. If the main international competition is from South Africa then the existence of the bi-lateral agreement between Zimbabwe and South Africa means that the poultry sector has not been protected. In the more recent period examined in some detail there were effects of banning South African imports for two years due to disease, during which time for one year the higher MFN tariff was relevant given that the other main source of imports was from deep sea imports from countries from Latin America. Taking these considerations into account the study

rejected the hypothesis that the poor performance and, in particular, large net imports in the years 2009 to 2011, was caused by a decline in the effective rate of protection. In fact, while in 2009 government suspended duties on all chicken imports due to the inability of local producers to meet domestic demand, there had already not been any protection against imports from South Africa. In 2010 and 2011 the government imposed a ban on South African imports and this increased the effective rate of protection of the sector from South African producers and the overall rates of protection in 2011 as the overall suspension of duty was lifted in this year.

The focus on understanding the nature and impact of protection on inputs and outputs that the effective rate of protection requires raised a number of questions about what has determined the prices of the key inputs relative to prices in South Africa (as the international price used here). The price differences in the main stock feed component, maize, are very substantial. This raised a number of issues as to why Zimbabwe imports maize such that the prices are set by imports which, given transport and related costs, are much higher than in the country of origin. We return to this below.

The second hypothesis states that *poor competitiveness of the poultry industry has been due to low levels of competition in the value chain, specifically in the breeding subsector.*

The study has shown that the breeding subsector is characterized by a duopoly since there are only two breeding firms in Zimbabwe and the comparison carried out revealed that Zimbabwean prices of day old chicks are above those of comparable countries in the region such as South Africa. Thus the study fails to reject this hypothesis. However, it was no possible to evaluate the conduct of the two firms due to data restrictions at the firm level. It is also the case that effects from uncompetitive behavior in breeding level are likely to be smaller than the impact of factors relating to stock feed.

The third hypothesis states that *poor competitiveness has been due to high feed costs. This is because of ban on GMO maize.*

From the study it has been shown that Zimbabwe has been relying on maize imports since 2002 as it is not able to meet its national requirement. It has been shown that maize constitutes 70% of stock feed and thus making it the major cost contributor. Prices for GMO maize used in South Africa are substantially cheaper than Zimbabwean prices. There are different reasons, however, for the higher Zimbabwe maize prices. An important reason for the need to import is the declining

local production with the implementation of agriculture policies in particular the land reform. While the ban on GMO maize likely meant lower production than otherwise, this ban did not represent a change during the period, unlike the agriculture policies. In addition, the study found that the effect of being reliant on imports depends on the source of those imports which influences the price. In particular, the examination of maize imports by source country found a shift in 2011 to imports from Zambia and a resultant lower mark-up of Zimbabwe maize prices over South Africa as Zambia prices were relatively cheaper in 2011 and 2012, and transport costs lower. Zambia, however, also has a ban on GMO maize but has been able to be a net exporter at competitive prices at least in some years.

The study therefore did not reject the hypothesis that poor competitiveness was due to high feed costs, but did in terms of whether this was due to the GMO ban.

The study explored the effects of treating the differences in the key input prices between Zimbabwe and South Africa as being caused by distortions that can be measured as an imputed nominal tariff. In the case of the day old chicks this reflected the possible impact of low levels of competition at the breeding level. In the case of maize, this was due to falling production for the causes identified above. The calculation of imputed tariffs on the inputs allowed a calculation of the ERP over the years 2009 to 2012. This was negative in all years except 2011. The large negative ERPs calculated in 2009 and 2010 were mostly due to the very high price of maize in Zimbabwe and the substantial proportion it accounts for in the inputs to poultry production. In 2011 the difference in the maize price was much smaller (due to imports from Zambia) and the 40% MFN tariff on outputs applied given the ban on South African imports of poultry. In 2012 there was a negative ERP once more as imports from South Africa (with zero duty) were once again allowed. The negative ERP is lower than in the earlier years as the maize price difference was very small. The difference in the day-old chick price is only available for 2012 and this disparity is used for the imputed tariff over each of the four years.

5.2 Implications of the findings for different theoretical frameworks

The study illustrated the need to take into account a range of factors in understanding the developments. These factors included the importance of different types and level of protection on imports from different countries, the significance of transport and related costs (as evident in the maize prices) and the range of possible factors which impact on input prices and availability.

The neo-classical trade theory does not explain the different causes even of cost competitiveness without expanding it to cover the types of impacts identified here. This study has done this through imputing nominal tariffs on the basis that the price differences represent distortions. However, it is necessary to understand what underlies the observed outcomes. The value chain approach assists by pointing to factors that relate to the governance of the value chain, and takes into account possible vertical integration. This is a consideration with regard to the price of day old chicks being a product of vertically integrated poultry businesses. It also suggests possible reasons for the influence of the poultry industry in lobbying for barriers to imports.

The poultry industry performance in Zimbabwe is ultimately closely linked to developments in agriculture which suggests a wider scope of study is required to understand the structure of the economy and the political economy factors which underlie the developments here.

5.3 Recommendations

The current effective rates of protection for the poultry sector are high according the industry the much needed protection. However, the ERP is much lower if we include a measure of the impact of the higher maize price as equivalent to tariff protection. As Zimbabwe continues to integrate into the global economy it is engaging in free trade agreements with its trading partners it is going to be difficult to implement a protectionist trade policy in the long run, and there is an urgent need to address the root cause in terms of increased grain production.

The study makes the following recommendations to government;

i. There is need for policies that attract investment in the breeding subsector of the value chain, to enable more players to come in and increase competition. The current set up of only two players increases the risk of these companies engaging in uncompetitive practices such as collusion which will in turn affect the whole poultry industry given their position in the value chain.

ii. The current policy on banning GMO maize needs to be reviewed as it is indirectly affecting the competitiveness of the poultry sector since from the onset of land reform maize has not been sufficient for the stock feed manufacturers. If government decided to maintain the ban on GMO maize policy then it also has to introduce a ban on imports of chickens fed with GMO maize.

iii. Policy makers must also review tariffs of imported raw materials used in the poultry industry. Raw materials not available locally such as grandparents, should be imported duty free, along with other raw materials used to produce stock feed that are not locally produced. Maintaining duties on these products is unnecessarily increasing cost that negatively affects the competitiveness of the industry.

iv. Government also needs to improve on the business environment, particularly electricity generation. Poultry producers are ending up relying on charcoal as substitute for electricity which is unnecessarily increasing the cost of production.

v. Producers should also try to study the impact of importing stock feed from other countries in which Zimbabwe has free trade agreements with and lobby government to reduce tariff on stock feed if this move improve their competitiveness to enable them to source feed from other cheaper sources.

5.4 Suggestions for further Study

In as much as the study have analyzed the performance and competitiveness of the poultry sector there are still some gaps that the study have not filled in order to fully understand the competitiveness of the sector. As such it is important to highlight that there is need to carry further research that analyses the cost structure of the Zimbabwe poultry industry with those of comparable countries in the SADC region mainly South Africa, which will enable a much more comprehensive review of each level of value chain's contribution to the competitiveness of the sector. That will enable a comparison that can be used to evaluate the Zimbabwean poultry industry against regional countries in areas where it's competitive or uncompetitive in the value chain. The other research area that can be considered is to analyze the management part of the bird in terms of how the conversion of feed to meat compares with the best minimum standards and other countries in the region. Since feed constitute 64% percent of the total cost, studying how Zimbabwe poultry converts feed to meat will provide a big insight to understanding competitiveness of the industry. Last, another area of study is to analyze the economic impact of land reform on the feed industry.

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Appendix 1: Imports of Chicken in US$ by Country

Year/Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Antigua and Barbuda	0	0	0	0	0	0	0	0	0	0	7500	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	137657	112467	0
Botswana	0	0	0	0	0	0	0	564	0	581	105834	0	0
Brazil	0	0	0		18348	31149	0	0	0	0	28275	3269705	218063
Canada	0	0	0	46585	0	0	0	0	0	0	0	0	0
France	0	0	0	0	0	0	0	0	0	0		15296	0
Ireland	0	0	0	0	0	0	0	0	0	0	214237	0	0
Mozambique	0	0	0	0	0	0	16	0	0	0	0	33564	0
Namibia	0	0	0	0	43654	37484	0	0	369608	334325	188829	95142	0
South Africa	29225	49	19637	0	520701	441041	170007	121450	869989	28989150	20621666	5654715	425301
Switzerland	0	0	0	0	0	0	0	0	0	0	0	79883	
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	0	1145202	425383
United Kingdom	0	0	0	0	0	0	0	0	0	23748	0	0	0
United States	0	0	0	0	0	0	0	0	0	0	709655	3033587	261946
Uruguay	0	0	0	0	0	0	0	0	0	0	0	182782	50148
Zambia	0	97982	30286	0	0	0	0	0	0	13837	0	0	0
Total	**29225**	**98032**	**49923**	**46585**	**582704**	**509675**	**170023**	**122014**	**1239598**	**29361641**	**22013654**	**13622344**	**1380842**

Source: Zimbabwe Trade Data Zimstat