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# The southern African poultry value chain: Corporate strategies, investments and agro-industrial policies

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## ABSTRACT

Following various regional investments in the last decade, production and participation in the poultry value chain in southern Africa has increased. One of the factors that determines entry into, and success in, a global value chain is the governance structure. This paper adopts a modular approach to analyse the governance structures in the poultry value chains in Botswana, South Africa, Zambia and Zimbabwe. A key finding is that various stakeholders have an influence on the regional poultry value chain in southern Africa, with the sources of influence depending on the formality of structures within the value chain.

## KEYWORDS

Agro-processing; global value chains; governance; poultry; regional value chains

## JEL Codes

Q13; F23; L66; O14

## 1. Introduction

Regional integration and regional industrialisation form part of the Southern African Development Community (SADC) agenda. Various African countries ‘are trying to revive national and regional level industrialisation through value chains’ (AfDB et al., 2014:85). Governance of value chains has been identified as being the means by which ‘particular players in the chain exert control over other participants and how these lead firms appropriate or distribute the value that is created along the chain’ (Bair 2009:9).

This paper uses the global value chain (GVC) approach to assess the poultry value chains within four southern African countries in close geographic proximity to each other. It undertakes a cross-sectional analysis to compare the similarities and differences between these value chains. It also seeks to understand whether the value chains exhibit some sort of regional interaction in the form of cross-border linkages in order to see what opportunities lie for potential regional integration. Understanding the aforementioned elements has important implications for policymakers in the formulation and implementation of trade policy as it affects the poultry value chain within the region.

The paper seeks to assess governance in the southern African poultry value chain by identifying the key drivers and their level of influence in the chain. To this end, the paper seeks to understand the so-called rules of engagement in the value chains, thereby shedding light on outcomes in these value chains. In this respect, this paper analyses the governance structures

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in the poultry value chains in Botswana, South Africa, Zambia and Zimbabwe using the modular approach formulated by Ponte & Sturgeon (2014), which consists of micro-, meso- and macro-analyses of governance in the poultry value chains.

But why choose the poultry industry for this analysis? The poultry industry is a very important part of agro-processing, a major driver of development and job creation within the region. First, production of poultry has increased following the demand for processed foods spurred on by increases in urban populations. The countries being studied saw poultry production growth rates of between 20 and 60% between 2003 and 2013 (SAPA, 2015). Second, poultry is the main source of animal protein in many southern African countries (Steinfeld, 2006; SAPA, 2015). Third, consumption in the region has increased, particularly in South Africa, the largest market in southern Africa, increasing from 23 kg per capita in 2003 to almost 40 kg per capita in 2015 (DAFF, 2014; SAPA, 2014). This shows the greater reliance on poultry as a source of protein. Finally, poultry has strong backward linkages from poultry production to the production of maize and soya for animal feed which are key inputs in the poultry production process (Ncube et al., 2016).

Notwithstanding the growth in poultry production and the strong backward linkages, the southern African region is a large net importer of poultry meat and raw materials of animal feed. Southern Africa has a trade deficit that is largely due to deep-sea imports into South Africa, which is not only the largest poultry consumer, but is also the largest poultry producer in the region. By 2016, South Africa's trade deficit in poultry meat had grown from US\$110 million in 2010 to US\$244 million.<sup>1</sup>

The key inputs required for the production of animal feed which are imported into the region include oilcakes and soybeans. Animal feed is a key component in poultry production as it constitutes 60 to 65% of the costs of producing a chicken (Bagopi et al., 2014; Zengeni, 2014). South Africa's trade deficit of soybean oilcake in 2016 was approximately US\$142 million, and that of soybeans was approximately US\$98 million. Soybeans are imported for crushing into oilcake locally. In fact, following recent increases in crushing capacity in South Africa there has been a spike in imports of soybeans predominantly from South America which increased from less than US\$2 million in 2013 to over US\$100 million in 2016. It should, however, be noted that the figures in 2015 and 2016 also include imports in response to the drought which hit much of southern Africa. As such, the total trade deficit related to the poultry industry (poultry meat and its inputs) in South Africa alone was around US\$476 million in 2015.

It is noted that the observed deficits are identified as an opportunity for greater regional integration and growth through the creation of sustainable regional value chains, thus internalising the benefits of trade within the region, as opposed to supporting the entrenchment of a cross-Atlantic value chain. Indeed, recent investments in Zambia's soybean production capacity raise the question of why there has not been a greater reliance on trade within the region. In this respect, issues related to high road transport and logistics costs have been cited as having historically inhibited the degree of integration within the region (see, for example, Gregory & Bumb, 2006).

An important aspect of the GVC framework is its focus on governance structures. Governance determines, among other things, the entry into, and success in, a value chain. This

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<sup>1</sup>The data in this section is from the Comtrade and Trademap databases. See [www.comtrade.un.org](http://www.comtrade.un.org) and [www.trademap.org/Index](http://www.trademap.org/Index) respectively, Accessed 18 December 2017.

paper seeks to analyse governance in the poultry value chains in the countries under study using the modular governance theory put forward by Ponte & Sturgeon (2014). The paper draws from research conducted with funding from the United Nations University World Institute for Development Economics Research (UNU-WIDER) as part of four studies on regional development in southern Africa. This research comprised both desktop research as well as face-to-face interviews with several stakeholders in the respective countries.

The structure of this paper is as follows. Section 2 presents a GVC literature review, with a particular focus on understanding the governance of production and linkages between different levels of production in value chains. Section 3 sets out the methodology, followed by section 4, which sets out the general structure of the poultry value chain in the southern African region. Section 5 comprises a modular analysis of governance in the poultry value chain in each country, outlining the micro-, the meso- and macro-analyses. Finally, conclusions are drawn in section 6, including a consideration of the implications of the governance for the regional value chain.

## 2. Commodity chains, value chains and governance

GVC analysis came about through a refinement of what was historically referred to as the global commodity chain (GCC) framework. The differences between the two frameworks are due to factors such as the terminology of the goods being studied (Bair, 2009) and their conceptualisation of governance (Lee, 2010).

While governance is a central concept in both commodity chains and value chains (Gereffi et al., 2001), it is understood and treated differently within these two frameworks. As mentioned above, the governance structure in the GCC framework is described as the 'process by which particular players in the chain exert control over other participants and how these lead firms appropriate or distribute the value that is created along the chain' (Bair, 2009:9).

Broadly, the governance concept in the GCC framework recognises that these so-called lead firms essentially control the value chain (Humphrey & Schmitz, 2001). These firms control the parameters of what, how and by whom goods are to be produced (Gereffi et al., 2001). In this context, governance describes power and its transmission along the entire value chain, with commodity chains being defined according to the centre of power – producer-driven commodity chains or buyer-driven commodity chains (Gereffi, 1994).

Producer-driven commodity chains have high barriers to entry into production, as the lead firms tend to be large manufacturers (Gereffi, 1994; Gibbon & Ponte, 2005). Examples of producer-driven commodity chains include capital intensive industries such as automobile and aircraft manufacturing (Gereffi, 1994; Gibbon & Ponte, 2005). In contrast, buyer-driven commodity chains have high barriers to entry into the design, marketing and retail of products, as this is where the lead firms have their key competencies (Gereffi, 1994; Gibbon & Ponte, 2005). Buyer-driven commodity chains are predominantly found in developing countries, with the lowest technology, low value-added stages of production being located in the countries with the lowest wages (Gibbon & Ponte, 2005). Examples of buyer-driven commodity chains include clothing, footwear and fruit and vegetables.

Governance in the GVC framework, on the other hand, focuses on inter-firm linkages and 'institutional mechanisms through which non-market coordination of activities of the

chain is achieved' (Humphrey & Schmitz, 2002:6–7). This came from a challenge to the dichotomous typology of producer-driven versus buyer-driven commodity chains. Although not the only one, a key criticism that emerged was that, while the producer-driven versus buyer-driven commodity chain framework covered the 'composite power structure of a chain' (Bain, 2009:25), it was not able to predict the manner of coordination between nodes in the chain.

Given the foregoing, the understanding of governance and the role of lead firms changed. Within the new GVC framework, governance moved from defining the 'drivenness' of the commodity chain by a certain type of lead firm to the coordination of production within that chain, with the lead firm or firms being the coordinator(s) of this production (Gibbon & Ponte, 2005).

Through this new approach, Gereffi et al. (2005) developed a new governance framework that expanded the number of possible governance structures that could be assigned to a value chain. Their framework is a matrix with three independent variables: the complexity of information and knowledge required to sustain a transaction; the codifiability of information between the parties in the commodity chains; and the capabilities of the supply base in relation to the requirements of the transaction (Gereffi et al., 2005). The resultant fivefold governance framework of Gereffi et al. (2005) is a mixture of network types and governance forms (Lee, 2010). These governance structures are described in a spectrum from the simplest governance structure (i.e. market) to the most complicated (i.e. the hierarchical structure) (Keane, 2015). When the capabilities of the supply base or the codifiability of information is low, the coordination in the value chain becomes tighter (see Table 1). That is, the lead firms are more likely to have more control of the value chain.

One of the criticisms of this governance framework is that it is too narrow and moves the analysis from the entire chain to that of firm-level coordination in distinct chain links (Lee, 2010). As such, it is important to 'differentiate between coordination mechanisms and power relations in the analysis of chain governance' (Gibbon & Ponte, 2005:83). Specifically, coordination mechanisms are seen to be the interfirm links used to define the GVC governance structure, while power relations are seen to relate to the key drivers of the chain or the source of drivenness as considered in the GCC framework (Gibbon & Ponte, 2005). Furthermore, this framework captures important elements of forms of coordination, but does not predict the form of governance that will take place in a given chain (Gibbon & Ponte, 2005). By trying to devise a model with predictive power, Gereffi et al. (2005) are said to treat the lead firms as if they operate in 'an institutional and regulatory vacuum' (Gibbon & Ponte, 2005:85).

**Table 1.** Governance structures in the GVC framework.

Governance structure	Definition	Complexity	Codifiability	Capabilities
Market	Spot, repeated market-type inter-firm links	Low	High	High
Modular	Inter-firm links involving more specialised suppliers	High	High	High
Relational	Involves multiple interdependencies with close social ties	High	Low	High
Captive	One-way dependency of suppliers	High	High	Low
Hierarchy	Classic vertical integration	High	Low	Low

Source: Gereffi et al., 2005; Gibbon & Ponte, 2005

The work of Gibbon & Ponte (2005) culminated in a re-thinking of governance theory and analysis to combine the various governance frameworks, and a consideration of institutional and regulatory frameworks to produce what they call a ‘modular approach’ to the analysis of governance. The modular approach to governance analysis, as formulated by Ponte & Sturgeon (2014), proposes that value chains can be analysed through three distinct, but cumulative, mechanisms.

First, the nature of the relationship between different market actors at various levels (i.e. nodes) of the value chain is considered (*micro-analysis*). The microanalysis is similar to the GVC framework’s formulation of governance as linkages between value chain nodes. The micro-level analysis also involves the analysis of the conventions that enable the linkages found in the value chain, although this aspect is beyond the scope of this particular paper.

Second, the main market players who drive conditions of entry, engagement and quality standards across different nodes within a value chain are considered and identified (*meso-analysis*). This analysis seeks to identify the key drivers between nodes of the value chain and their level of influence in the value chain, thus assessing the power that they hold in the chain. This is similar to the GCC governance framework of distinguishing between buyer- and producer-driven commodity chains.

Third, the overall number of drivers of a value chain are considered (*macro-analysis*), while noting that there may be more than one driver within a given value chain and that the driver may exist outside the chain (e.g. institutions such as regulators). Thus, it involves determining whether a value chain is unipolar, bipolar or multipolar, that is, whether it is driven by one, two or multiple players respectively.

The modular analysis of governance has been applied by Jespersen et al. (2014) in their analysis of governance in the selected aquaculture industries in Bangladesh, China, Thailand and Vietnam. They highlighted the relationships between farmers and processors at one end and processors and importers at the other end. Their findings for the micro-, meso- and macro-analyses of governance in these value chains seem to vary across the countries. For example, while the coordination relationships between farmers and processors varied across the countries, those between processors and importers are largely *captive* and *market*. In the node between farmers and processors in China and Thailand, these captive relationships reflect contract farming relationships between processors and farmers (Jespersen et al., 2014). In Vietnam, there were various coordination types (hierarchy, relational, captive, market) reflecting the varying arrangements between farmers and processors – from vertical integration to spot market purchases. In Bangladesh, the coordination type between farmers and processors is market as there are many small fish farmers who generally sell their produce locally via auction or through exporters.

Jespersen et al. (2014) made a few key findings. First, one form of coordination in a key node does not determine the governance in the entire chain. Moreover, more than one type of coordination could be identified between the same value chain nodes. Second, as these types of food chains tend to be driven by retailers and blended processors alike, their influence regarding issues such as sustainability is ‘more likely to travel upstream’ (Jespersen et al., 2014:239). In fact, they find that aquaculture value chains led by retailers and processors, where ‘the quality of domestic institutional frameworks has facilitated compliance with increasing demands from buyers overseas’ tend to be the most sophisticated (Jespersen et al., 2014:228). Finally, domestic institutions and regulations are particularly important, especially in ‘opening up space for better bargaining for

local actors in global value chains' (Jespersen et al., 2014:239). While the method has a number of elements that may be deemed to be very descriptive, it provides a more holistic view of governance than previous frameworks by combining coordination, power relations and institutional frameworks into one framework of analysis.

The findings of Jespersen et al. (2014) provide a great deal of guidance for this paper. First, the finding on the lack of importance of one form of coordination in one key node underscores the importance of understanding power in the entire chain, rather than coordination between individual nodes. Second, the findings highlight that supermarkets and retailers are a key route-to-market for food, thus they wield a great deal of power in the value chain. Finally, these findings highlight the importance of policy from state institutions.

The next section outlines the methodology followed in carrying out the research.

### 3. Methodology

This research followed the descriptive framework formulated by Ponte & Sturgeon (2014) and applied by Jespersen et al. (2014) and Ponte et al. (2014) in their studies of the aquaculture industry across four Asian countries. The four countries in this study, Botswana, South Africa, Zimbabwe and Zambia, were chosen because of the importance of the poultry industry in each country, their geographic proximity to each other (and thus the potential for regional integration through trade) and the growth rates of the poultry industry in the southern African region as a whole. As previously mentioned, South Africa has the largest poultry industry in the region. Further, investments in Zambia's poultry industry have led to growth not only in Zambia's domestic poultry industry, but also in its exports of key components in the production of animal feed, maize, soybeans and soybean meal.

The research comprised a combination of primary and secondary data collection methods. The primary data collection consisted of fieldwork through interviews guided by questionnaires for various stakeholders at different levels of the poultry value chains in each country. The interviewees included both vertically integrated and independent poultry and animal feed firms, industry associations and government departments. Overall, 40 interviews were held with various stakeholders at the various levels of the value chain across the four countries. The main issues covered in the interviews included issues of mapping the value chain, relationships among players at different levels of the value chain, upgrading and coordination. The key issues drawn out for this particular research are the governance and coordination issues.

The next section provides a brief outline of the poultry value chain, including the key players in the region.

### 4. Structure of the poultry value chain<sup>2</sup>

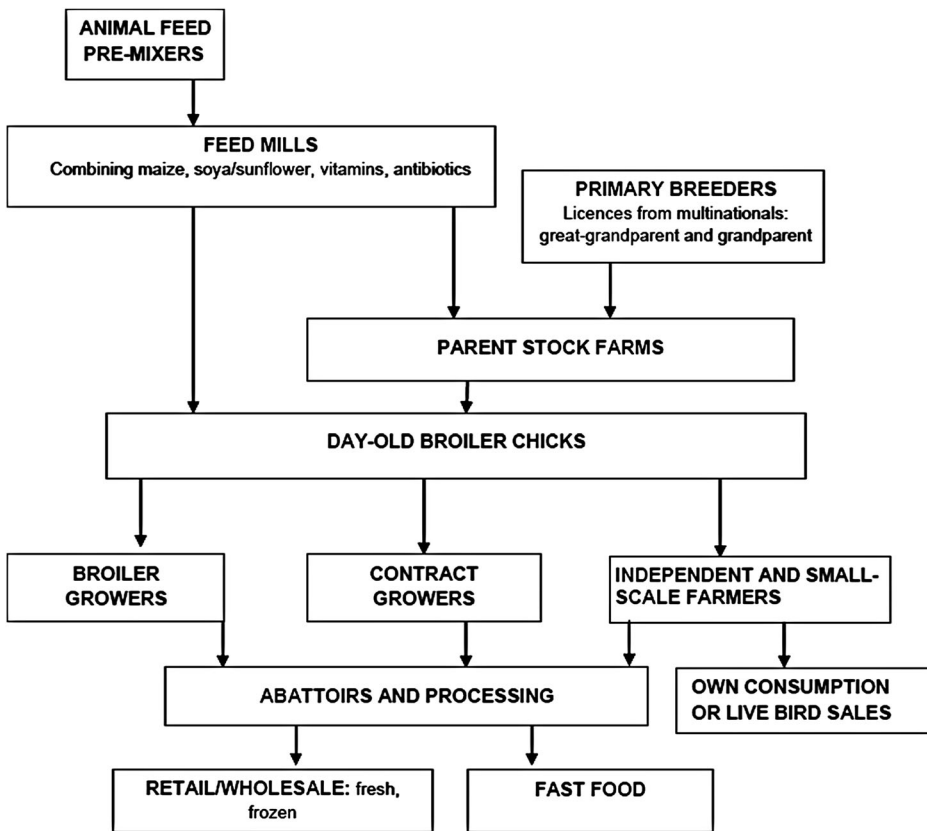
The poultry value chain is made up of a number of players and processes, starting from animal feed production and primary breeding, all the way to various routes-to-market. A typical poultry value chain found in southern Africa is depicted below (Figure 1).<sup>3</sup>

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<sup>2</sup>This section draws from Ncube et al., (2017), a forthcoming working paper stemming from the research undertaken as part of UNU Wider's 'Regional growth and development in Southern Africa' research project.

<sup>3</sup>A more elaborate discussion of the value chain is found in Ncube et al. (2016).





**Figure 1.** Poultry value chain (Source: Bagopi et al., 2014).

Of the countries under consideration, South Africa has by far the largest poultry industry. The industry in South Africa produced 1.9 million tons<sup>4</sup> of chicken in 2015, with total employment in the industry at the time being about 126 000.<sup>5</sup> In comparison, although they have shown considerable growth, the poultry industries of the other countries in the region are relatively small. Although it has grown considerably from around 52 000 tons in 2010 to 126 000 tons in 2014, Zambian poultry production is still overshadowed by that of South Africa (Samboko et al., *forthcoming*), with employment in 2014 estimated at approximately 50 000 permanent jobs (Agriprofocus, 2015).<sup>6</sup> Imputed estimates for Zimbabwe placed total production at 132 000 tons in 2014, up from 88 000 tons in 2012.<sup>7</sup> Botswana has the smallest poultry industry, which reflects the size of the population. Botswana's poultry industry produced an

<sup>4</sup>The figure was calculated by averaging the total number of live birds slaughtered from 2011 to 2015, assuming that each bird weighs approximately 1.85 kg according to SAPA (2016).

<sup>5</sup>Interview with an industry association, July 2015.

<sup>6</sup>Note that this is likely to be an underestimate as it is based on relatively large commercial producers and day-old chick production, while informal producers are still significant. Another source estimates production in 2014 at 142 000 tons (Agriprofocus, 2015).

<sup>7</sup>These figures are based on estimates calculated using information from Bagopi et al. (2014), Chawafambira (2015) and ZPA (2013)



imputed estimate of approximately 42 600 metric tons<sup>8</sup> of chicken in 2014, employing about 2350 people.<sup>9</sup>

While large-scale producers account for the bulk of production in South Africa and Botswana, in Zimbabwe and Zambia they account for approximately 60 to 70% of broiler production. These smallholders typically sell into the so-called informal market, directly or via traders to end consumers and live markets (Technoserve 2011; LMAC, 2014; Samboko et al., forthcoming). In 2014, the large-scale producers in Zimbabwe supplied between 2600 and 3000 metric tons of chicken per month to the formal market (that is, supermarkets), while the small-scale producers sold between 6000 and 6500 metric tons of chicken per month.<sup>10</sup>

Small-scale producers are not separate from the larger commercial producers in that they source their breeding stock from larger companies. Small producers are also increasingly being brought into the large commercial value chains through acting as out-growers for the main companies, including sourcing animal feed and supplying birds for slaughter in commercial abattoirs.

From a regional perspective, there are a small number of major regional companies operating across southern Africa. These firms include Rainbow Chicken (a subsidiary of Remgro-controlled RCL Foods) and Astral Foods, the two largest firms in South Africa, and also CBH Holdings and Quantum Foods. Rainbow, Astral and CBH are all vertically integrated in South Africa, from breeding and feed production through to operating large-scale abattoirs. The animal feed companies associated with the main poultry producers in South Africa account for the bulk of the poultry feed production in the country. The five largest poultry producers in South Africa account for over 75% of the animal feed produced by members of the Animal Feed Manufacturers' Association (AFMA) (Louw et al., 2013). Although on a much smaller scale, the Botswana poultry industry is also dominated by large, vertically integrated players, mainly from South Africa. The activities of the main poultry producers across the four countries are set out below (Table 2).

## 5. Modular governance in a regional value chain: Coordination, power and institutional dynamics

This section analyses governance in the poultry value chains in and across each of the four countries. As mentioned in section 4, two main types of poultry value chains emerge among the four countries in this study. The first is a formal value chain structure, as seen in South Africa and Botswana. The second is a more hybrid or formalising structure (i.e. predominantly informal structure with formal traits), as seen in Zambia and Zimbabwe. These value chain types and their characteristics affect the structure of governance in the value chains. Understanding how these structures operate has important implications for policymakers in the formulation and implementation of trade policy as it affects the poultry value chain within the region.

Because there are distinct differences among the four countries – with South Africa and Botswana on one side of the formality spectrum, and Zambia and Zimbabwe on the other side – the analysis of governance is carried out in a similar manner. The analysis of the

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<sup>8</sup>This figure was calculated from the 24 million birds produced in 2014, assuming that each bird weighs 1.65 kg (according to Bagopi et al. (2014)).

<sup>9</sup>Interview with a government body, November 2015.

<sup>10</sup>Interview with an industry association, August 2015.

**Table 2.** Activities of main producers in South Africa, Botswana, Zambia and Zimbabwe.

Company name	Revenue, 2015 (ZAR billions)	Activities and entities
RCL Foods / ZamBeef	9.1	Cobb 500 licence, SA Epol Feeds, SA Cobb Breed Zamchick JV, Zambia Novatek in Zambia (under Zambeef)
Astral Foods	11.3	Ross licence, SA Meadow Feeds, SA Tiger Chicks; Lohmann breed licence, Zambia Tiger Animal Feeds, Zambia
CBH Holdings	3.6 <sup>11</sup>	Arbor Acres licence, SA Nutrifeeds, SA Ross Africa licence (outside SA) Supreme Poultry
Quantum Foods	3.5	Formerly of Pioneer Foods Nova Feeds
Irvine's Africa (subsidiary of Inncor Africa, Zimbabwe)	1.2 <sup>12</sup>	Profeeds and National Foods, Pro feeds (Zimbabwe)
Hybrid Poultry, Zambia		Cobb breed, co-owns a processing plant with Verino Agro-Industry limited
Tswana Pride, Botswana		Ross breed, Botswana Owned by Master Farmer, which has a stake in Nutri Feeds and Ross breeders

Sources: Company annual reports and interviews; Ncube et al. (2017)

formal value chains in South Africa and Botswana are therefore dealt with together, with the diagrams used to depict South Africa and Botswana drawing from the South African experience. Similarly, the analysis of the hybrid value chains is done together, that is, the value chains of Zambia and Zimbabwe. The diagram used in this instance will be that of Zambia, with any difference found between Zambia and Zimbabwe highlighted separately.

As outlined in section 2, governance is analysed using a three-step modular approach developed by Ponte & Sturgeon (2014). This approach combines micro-, meso- and macro-analyses of the poultry value chains in each country. For the micro-analysis, a diagram is presented which depicts the linkages between each node in the value chain (Figures 2 and 3).

### 5.1. Governance in a formal poultry value chain

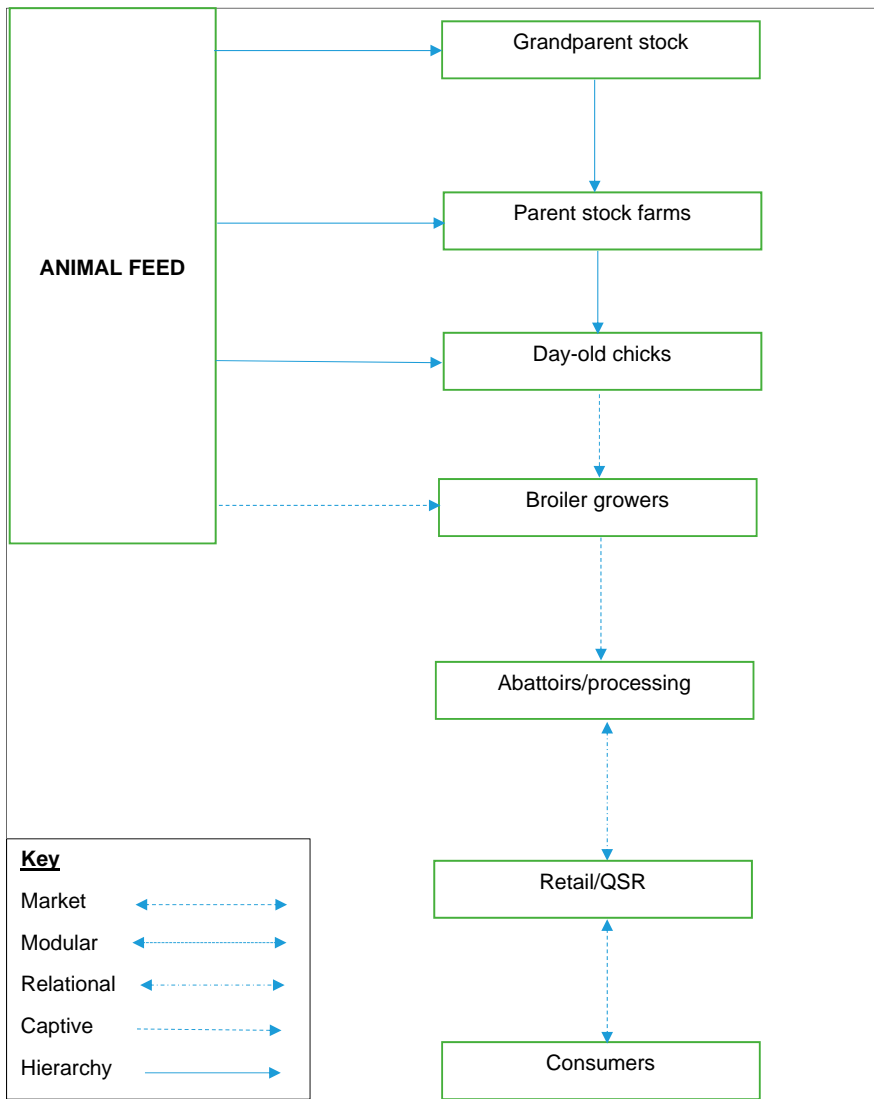
The insights explored in the next two sections are gleaned from interviews conducted with various players across the value chains in each of the different countries under consideration.

#### 5.1.1. Micro-analysis: Analysis of linkages

The main types of linkages found in South Africa and Botswana are *hierarchy* and *captive* (Figure 2). In both countries, the *hierarchy* linkages reflect the vertically integrated sections of the value chain. The Botswana poultry value chain largely mimics that of South Africa because the largest producers in Botswana are either South African firms or are

<sup>11</sup>The figure is for 2014. CBH was delisted from the Johannesburg Stock Exchange in 2015.

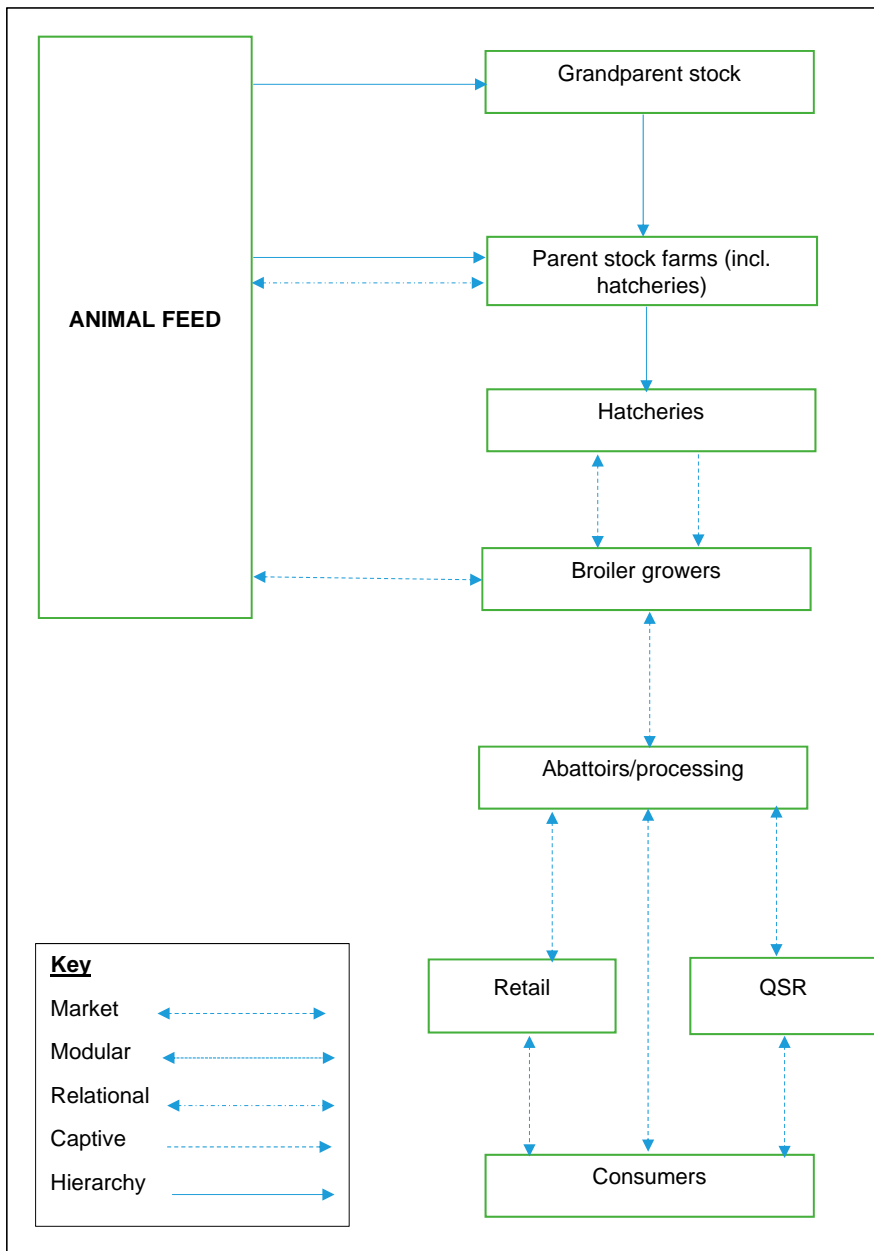
<sup>12</sup>The figure was converted from the reported revenue of US\$97 046 274 on 30 June 2015, using an exchange rate of US\$1 = R12.2975.



**Figure 2.** Micro-level linkages in formal poultry value chain (South Africa and Botswana).

affiliated with South African firms. The main elements of vertical integration are reflected in the animal feed arms and the main breeding arms of the businesses, from grandparent stock farms (in South Africa alone) up to the production of day-old chicks. This is because most of the firms either have exclusive breeding and commercial rights or in-house breeding rights within South Africa for the main breeds – Ross and Cobb. The vertical integration of the breeding with the animal feed arms of the businesses is a necessary requirement in order to ensure security of supply within the businesses, and also in order to maintain the brand quality of the final poultry products, which are sold to end consumers through formal retail channels or in quick-service restaurants (QSRs).

*Captive* linkages appear where the relationships are largely between firms and the contract growers concerned, in this case in the ‘broiler growers’ node. Between 60 and 70% of



**Figure 3.** Micro-level linkages in a hybrid poultry value chain (Zambia and Zimbabwe).

poultry production for the larger poultry companies in South Africa is undertaken by contract growers. This is in respect of the activities of rearing day-old chicks into fully grown birds destined for slaughter in abattoirs before being sold through the retail format or supplied to QSRs. According to the firms interviewed, there are significant risks and costs associated with the activity of rearing birds. Owning land and running farms has become more expensive. As such, the larger companies are able to pass off the risks of

land ownership and the equipment required specifically for the growing of chickens to third-party contract growers who are captive in having to grow that company's breed of birds and use its animal feed only. The success of the contract growers is tied to their adherence to the poultry firm's maximum mortality rate and the minimum live weight of birds.

### 5.1.2. Meso-analysis: Analysis of influence

As mentioned above, the meso-analysis involves identifying a player's influence across nodes. In both South Africa and Botswana, the main drivers between the nodes in the breeding and growing stages are the poultry producers. The poultry producers dictate the manner in which the chickens are grown, what feed they eat and at what stage, largely reflective of the *hierarchy* and *captive* linkages. Through their vertical integration at almost every stage up to processing, the standards of poultry producers are carried throughout the various nodes in the value chain, all the way to the processing stage.

However, it must also be noted that the main route-to-market for poultry products in Botswana and South Africa is the retail channel (i.e. supermarkets), followed by QSRs. Both downstream customers impose their requirements on their suppliers, the poultry producers. These requirements include the rearing conditions of the chickens, the various packaging denominations and whether the chickens are individually quick frozen (IQF) or fresh. More specifically for QSRs, there are requirements related to the weight and/or size of the chicken, and the types of cuts. As such, these firms are the main sources of influence in the value chains as they determine entry to and participation in the value chain.

### 5.1.3. Macro-analysis: Analysis of polarity

The meso-analysis indicates that, in both South Africa and Botswana, there are two main centres of power – the poultry producers and their main customers, the retailers and QSRs. The poultry producers set the terms of engagement between participants at several nodes in the value chain (i.e. between contract growers and animal feed suppliers), while buyers set processing, packaging and quality standards for the poultry that is ultimately supplied to them. In addition, there are institutional elements that affect the South African and Botswana poultry value chains. In South Africa, these include regulations of the Department of Agriculture, Forestry and Fisheries (DAFF) regarding the registration of each new formulation of animal feed, health regulations along the entire value chain and private regulations imposed by retailers such as listing and marketing fees. These standards raise the entry requirements for participation in the value chain by actors not present within the chain.

Other regulatory elements include trade restrictions. In South Africa, various trade restrictions exist on chicken imports from various parts of the world, for example anti-dumping duties on imports from Brazil, some European countries (ITAC, 2013, 2015) and also the United States of America.<sup>13</sup> Import restrictions in Botswana include the banning of the importation of chickens, although a special permit exists for exceptional circumstances or in instances where there is a shortage of supply of poultry products in

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<sup>13</sup>For the USA, anti-dumping duties exist but there is a quota which states that the first 65 000 tons of bone-in chicken meat imported per year are exempt from duties (Government of South Africa, 2016).

Botswana. There are also trade restrictions upstream in relation to the importation of grain for animal feed purposes. In Botswana, import bans exist for maize.

The aforementioned trade restrictions are aimed at enforcing greater reliance on domestic production capacity as opposed to imports with the view to developing the poultry value chain in the country, particularly the protection of the poultry meat production industry. However, in some instances these protections do not necessarily filter through to the entire value chain. The Southern African Customs Union (SACU) recently signed a preferential trade agreement with Mercosur countries for several products, including soybean oilcake.<sup>14</sup> However, as Botswana is a member state of SACU, it is not clear whether the former's country-specific trade policies would be subordinate to arrangements reached by SACU.

Given the various sources of influence, poultry value chains in Botswana and South Africa are multipolar. The main mechanisms of transmission of this influence are poultry producers, supermarkets/QSRs and institutional players.

## 5.2. Governance in a hybrid poultry value chain

### 5.2.1. Micro-analysis: Analysis of linkages

Zambian and Zimbabwean poultry value chains have formal and informal routes-to-market. At the outset, it is important to highlight that the formal sections of the Zambian and Zimbabwean poultry value chains are very similar in structure to those in South Africa and Botswana. First, large and, in the case of Zambia, South African firms lead the formal sections of the value chains. Second, the commercial poultry producers also have regional interests.

In the formal sections of the value chains, the main types of linkages are *hierarchy* and *captive*, given the vertically integrated and contractual nature of this part of the value chain.<sup>15</sup> Where they do occur, the *captive* arrangements are mainly where there are contract growers. The arrangements between contract growers and hatcheries predetermine the number of day-old chicks that will be supplied to the contract grower, as well as the conditions under which the animal feed will be supplied to the contract grower. This ensures that the ultimate owner of the breed exercises quality control over broiler production. In Zimbabwe, the independent and small-scale farmers largely purchase their feed and their day-old chicks from trade centres. Many of the trade centres belong to the various animal feed firms that proliferated in Zimbabwe between 2010 and 2015.

Small-scale producers account for between 65 and 70% of total broiler production in Zambia and Zimbabwe. As such, most of the linkages in the 'informal' sections of the value chains are through market formations. In Zambia, a significant proportion of these sales are made directly to end consumers, thus bypassing the retailers and QSRs.

### 5.2.2. Meso-analysis: Analysis of influence

The main drivers between the nodes in the formal section of the value chains are the poultry producers on the one hand, and retailers and QSRs on the other. In this section

<sup>14</sup>See <http://www.businesslive.co.za/opinion/2016-10-23-importers-and-exporters-take-note-trade-deal-with-south-america-is-in-effect/> Accessed 20 December 2017.

<sup>15</sup>In some cases there may be more than one type of linkage between two nodes.

of the value chains they dictate the way the chickens are reared, what feed they eat and at what stage. Furthermore, because of the vertical integration of poultry producers at almost every stage up to processing, their standards are carried throughout the various nodes in the value chain all the way to the processing stage.

Given the various elements and players in the informal sections of the Zambian and Zimbabwean poultry value chain, it is difficult to determine clear platform leaders or influencers, particularly because production is dominated by small-scale farmers (an estimated 70% of Zimbabwe's poultry production is attributable to independent small-scale farmers) (Ncube et al., 2016). Accordingly, the degree of transmission of standards and norms along the informal value chain is limited in comparison to that in the formal part of the value chains.

However, there is always scope for centres of power to emerge. For example, there were reports of quasi-hierarchical linkages emerging, where animal feed firms would contract with independent growers on the condition that these growers use their feed and day-old chicks and then sell their chickens to abattoirs that are also part of the partnership. This quasi-vertical integration shows the desire and potential for more coordination in poultry production in order not only to ensure security of supply, but also security of demand, especially given the survivalist nature of a number of businesses in Zimbabwe owing to the economic climate. However, it is difficult to ascertain the significance of such quasi-vertically integrated poultry production as a proportion of total informal production. Consequently, it is difficult to conclusively identify these quasi-vertical animal feed producer-led arrangements as being centres of power. Therefore, while there is high influence in the formal part of the value chain, the levels of influence in the informal parts of the value chains are not as high as those found in the formal sections.

### *5.2.3. Macro-analysis: Analysis of polarity*

Just as in the case of the South African and Botswanan poultry value chains, the key drivers of the formal sections of the Zimbabwean and Zambian poultry value chains are the poultry producers and retailers. Conversely, there is no clear chain driver in the informal sectors of the value chain.

It is also important to consider the possible institutional drivers in the value chain. In this case, we note that policies of the Zambian government, such as investment incentives and input subsidies in the grain sector, have had positive effects on the Zambian animal feed to poultry value chain. This support, as well as investments by private firms, have increased production. This has led to increases in regional exports of animal feed inputs to Zimbabwe and breeding stock to Botswana. Institutional arrangements, particularly at the government level though trade restrictions on genetically modified (GMO) grains and conditions such as import licenses, have a strong bearing on the Zimbabwean poultry value chain. For example, because of the GMO restrictions, imports of maize and soybean products have swung heavily from South Africa to Zambia. In this respect, it is interesting to note that Zimbabwe accounted for approximately 65% of Zambia's exports of soybean meal in 2014/15. Accordingly, we conclude that the Zimbabwean and Zambian value chains are multi-polar, as there are several players exerting some meaningful influence at various levels of the value chain.



### 5.3. Formal versus hybrid governance

The GVC analytical framework follows from the historical GCC framework. Both governance types had major critiques. A major critique of governance analysis in the GCC framework was that it was too broad in its identification of the overall power structure of the value chain, and thus was not able to predict the manner of coordination in a value chain. A major critique of GVC governance framework was that its approach towards governance was too narrow and moved the analysis away from the entire chain to value chain nodes. As noted by Gibbon & Ponte (2005:85), such an approach was said to ‘treat the lead firms as if they operate in an institutional and regulatory vacuum’.

The new, modular approach followed in this paper shows that value chain drivers can be found at different levels of the value chain, often with opposing interests. Or, they can be external in the form of public or private institutions which set the rules that govern the environment in which agents across the value chain operate.

Where whole chain governance is concerned (macro-analysis and meso-analysis), in both the formal and the hybrid types of value chains (the latter of which exhibit both formal and informal structures) multiple role players have varying degrees of influence across the value chain. This differs starkly from traditional GCC theory which sought to identify one set of lead firms, thus identifying a value chain as being either buyer- or producer-driven.

Interestingly, where micro-analysis is concerned, the analysis has revealed that irrespective of whether a chain is formal or hybrid, there can be varying types of coordination across an entire value chain, with the predominant coordination types being an indicator of power relations as observed in the macro- and meso-analysis. The micro-level analysis of each country reveals that *hierarchy* linkages are most prevalent between various nodes. This indicates that vertical integration is an important element of the poultry value chain, particularly where there is a formal structure in the value chain. This is unlike the types of linkages found in the work of Jespersen et al. (2014) where they largely varied both within the value chains and across countries. However, it can be concluded that upstream relationships between farmers and processors were mostly captive, while downstream relationships between importers and processors are generally market and captive. Unlike the southern African poultry value chain, the Asian aquaculture value chain is not on the whole made up of large, vertically integrated players. As a result, the latter value chain is multipolar, as power and influence can be exerted from various levels of the value chain.

At a regional value chain level, this vertical integration crosses national borders in various ways. For instance, we observe largely the same firms transplanting vertically integrated structures in order to control their production both within and across national borders. In the first instance, both RCL and CBH have vertically integrated structures in Zambia, while CBH also has vertically integrated structures in Botswana. With regard to controlling production across borders, we observed that CBH’s Ross Breeders in Zambia exports breeding stock to its operations in Botswana. It should be noted, however, that CBH can only produce Ross breeding stock from its operations outside South Africa due to the territorial exclusivity of breeding rights.

The results in Jespersen et al. (2014) show that European and USA customer preferences and a response to increased lobbying due to lack of quality standards were key drivers in how the Asian value chains developed over time. This is similar in some respects to how institutional intervention in Zimbabwe on the quality and type of animal feed

components imported into the country has impacted on the source of inputs, swinging from South African imports to Zambian imports of maize and soybeans. Such intervention has clearly impacted on the nature of the value chains at the regional level.

Regarding the meso-analysis, the influence of the key players is highest where there are high levels of vertical integration and strong formal retail channels, as in South Africa and Botswana and the formal sections of the Zambian and Zimbabwean poultry value chains. While Zimbabwe and Zambia's poultry industries are similar in structure, the meso-analysis indicates that the influence in Zambia of large commercial key players is higher than that in Zimbabwe, as there is a larger contingent of these players and their level of investment in the value chain is greater.

Finally, across the region, the macro-analysis revealed that the value chains are generally multipolar, but not necessarily as a result of the same mechanisms. For example, in chains (or portions thereof) characterised by formal trade, private players such as poultry producers and retailers play a significant role, while in more informal value chains the role of government is seen as having a greater impact on outcomes.

## 6. Conclusion

The development of regional value chains is seen as a means to achieving increased industrialisation, employment and growth within the SADC region. Understanding how the value chain operates, and in particular how firms behave, allows countries to identify opportunities for growth and development so as to form policy that will lead to desirable development outcomes.

In applying the modular analysis of governance as contemplated by Ponte & Sturgeon (2014) for the southern African poultry value chain, this paper has shown that the lead firms in these chains are large poultry producers and large retailers, especially from South Africa. The prevalence of *hierarchy* linkages for the vertically integrated poultry producers indicates that efficiency is driven by lead firms who are able to coordinate at each level of the value chain. They do this by managing quality outcomes in relation to key inputs such as animal feed, the production of broiler chickens, hygiene requirements at abattoirs, ultimately meeting the quality standards set by large retailers and QSRs, the other lead firms. Efficiency in this value chain is about being able to produce consistent quality at a large scale for large customers.

It is important to know who the lead firms are because these are the drivers of investments across the value chain in the region. As such, understanding governance is important as it determines at what level of the value chain policymakers should target their interventions, what types of interventions are required and what the likely implications are for various players in the value chain.

Policies within and across countries are not always aligned. On the one hand, South Africa has anti-dumping regulations that protect poultry products such as frozen bone-in portions, thus benefiting poultry producers at one end of the value chain. At the same time, it has a more liberal approach to trade policy on animal feed and its components undermining the development of that level of the value chain. On the other hand, while South Africa is a large producer of GMO maize, GMO products are banned from Zimbabwe. Such policy incongruence hampers the development of a regional value chain.

When looking at the structures of value chains within countries, there are two extremes – formal value chains and hybrid value chains. Understanding the similarities and differences between the value chains across the four countries is important for the formation of regional policy. Policy measures made at a regional level are likely to have different impacts for firms within each country because of these observed differences. As such, there will be trade-offs that have to be made. For example, opening up borders within the region may see the emergence of more formal value chain structures at the expense of small players within informal structures.

In conclusion, while there are regional investments being made in the southern African poultry value chain, more needs to be done at a regional policy level to encourage the formation of a full regional value chain.

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