

‘Quiet revolutions’ in agri-food? The effects of concentration in cross-border markets on the development of the soybean, feed and poultry value chain in East & Southern Africa

Abstract

We analyse changing poultry value chain governance in East and Southern Africa with the expansion of international grain traders, processors and poultry companies across the region. Multinational corporations have grown operations across the region and along the value chain under market liberalisation and growing demand. The concentration and effects on smaller producers are assessed using primary data on prices, margins and governance arrangements by multinational corporations to consider market-shaping arrangements to extract as well as create value. This enables a critical engagement with prevailing regional integration narratives which largely ignore corporate concentration. Developments within and across Kenya, Malawi, Zambia are analysed in-depth including a particular focus on exclusionary corporate conduct in Malawi. We find excessive margins among large international soybean processors and poultry producers, while small poultry producers have been squeezed and effectively excluded. Our findings highlight the need for competition authorities to monitor and act to deconcentrate agri-food value chains.

1. Introduction

Rapidly expanding urban populations combined with economic growth, dietary transitions and protein requirements have resulted in the industrial production of broiler chickens being one of the dominant forms to meet food demand (Tak et al., 2021; Weiss 2013; Mahanty et al. 2023). In addition, increased demand for poultry, as one of the cheapest sources of animal protein (Erdaw and Beyene, 2022), has stimulated transformation in the value chain from animal feed and poultry production through to processing as part of the ‘agri-food value chain revolution’ (Barrett et al. 2022). These changes have been underscored by the expansion of multinational grain traders and processors across Africa under market liberalisation (Reardon, 2015; AGRA, 2019). Trade in soybeans and maize which are the main inputs into poultry feed has increased substantially at the hands of large integrated traders and processors. We analyse the value chain governance over poultry feed in East and Southern Africa (ESA) (focusing on Kenya, Malawi and Zambia) and the impacts on smaller value chain participants at different levels. Using primary data on prices, margins and concentration we assess the extent of market power at the multiple levels of the value chain and its exertion in cross-border markets.

International grain traders, processors and poultry companies have expanded across the ESA region in response to the growth in demand for food (Sitko et al. 2018; Jayne et al, 2019). These expansions have taken place in the context of high and increasing levels of concentration in food value chains globally (Goga and Roberts, 2023; Nsomba et al. 2022; Roberts, 2023; Barrett et al. 2022; Hernandez et al. 2023; Sexton, 2013). However, it is unclear whether increasing levels of concentration raise concerns from market power, or whether the expansions are yielding investment and competitive outcomes through these changes in market structure (see Adam et al. 2018; Barrett, 2008; Bergquist and Dinerstein 2020; Bonilla Cedrez et al. 2020; Dillon and Dambro, 2017; Reardon et al 2021). Large-scale production along with vertical and horizontal integration in agriculture and food production enables coordination and synergies to be realized, such as in providing farmers with bundles of goods and services, even while competition may be limited (Barrett et al. 2022; Roberts, 2023). At the same time, high concentration implies market power which can be abused to earn high profit margins and restrict participation by smaller producers (Clapp, 2021; Roberts, 2023) although the power of concentrated interests at different market levels may countervail each other (Sexton and Xia, 2018).

This article assesses the ways in which companies have shaped markets and appropriated value across the ESA region. It draws on literature on concentration, power and governance in food value chains to critically engage with how the poultry value chain in the ESA region has been shaped. The expanding networks connecting multinational poultry breeding corporations with regional agro-processors are assessed according to investment and growth outcomes, and power exerted at different value chain levels. We find that corporate concentration is crucial in shaping value creation and extraction within and along the poultry value chain. We identify a critical role to be played by competition authorities to deconcentrate markets and address abuses of market power in order to ensure more competitive and sustainable food value chains.

Methodology and data

This paper draws on research conducted between 2021 and 2024 on the poultry value chain in Kenya, Malawi and Zambia under the African Market Observatory (AMO) initiative. The AMO monitors prices and assesses other market dynamics of staple foods and is housed at the University of Johannesburg. The AMO collates primary data on prices at multiple levels of the value chain, triangulating across different sources (see Bell et al., 2020; Nsomba et al., 2022; Gondwe et al. 2022; Nsomba and Roberts, 2023; Kaonga et al., 2023).

Prices of inputs into poultry production were collected from poultry market participants and confirmed through in-depth interviews with firms and stakeholders across the studied countries. In each country, contacts were made with government departments, farmer and producer associations, NGOs and poultry producers. The interviews with these firms and organisations provided a strong basis to understand the structure of markets within and across countries, together with country specific licencing arrangements, government regulations and trading dynamics that shape the landscape within which producers participate. Interviews have been referred to in endnotes, with respondents anonymized, where appropriate for specific points in this article, along with references to the relevant background working papers.

The interview data was triangulated with secondary data on poultry production and trade in poultry products through national statistics offices in each country and official trade data (sourced from TradeMap). We also refer to the Competition Authority of Kenya Market Inquiry into Animal Feed (CAK, 2024). The data enables our contribution to the literature which analyses how evolving governance arrangements in the context of growing market concentration has impacted value creation and capture by large firms along with exclusionary conduct against smaller market participants. The literature on regional integration and food value chains in the ESA region has, with some notable exceptions, not adequately addressed the extent of market power and its implications for inclusion and exclusion.

The paper is structured as follows: section 2 reviews relevant literature on power, concentration and governance together with the growing body of research on agri-food value chain revolutions. Section 3 maps the poultry value chain and levels of concentration in the selected countries in the ESA region. Section 4 analyses market outcomes, governance and power while section 5 zooms-in on corporate control in Malawi as a case study. Section 6 concludes with implications for the role of competition authorities in agri-food value chain development.

2. Locating market power, concentration and governance in agri-food value chain revolutions

Regional value chain revolutions

A growing body of literature addresses the rapid growth and structural change of agricultural value chains across local, regional and international markets which have been characterised as revolutions (see Barrett et al., 2022; Foster and Rosenzweig 2010; Dillon and Dambro, 2017;

Donaldson, 2018; Allen et al., 2020). Agriculture and agro-processing is identified as a critical avenue for developing countries to structurally transform their economies by not only expanding agricultural production, but also developing food processing value chains with linked storage, trading and wholesaling activities. Alongside this has been literature on regional integration in Africa including the role of the African Continental Free Trade Agreement (AfCFTA) (Christiaensen and Demery, 2018; Byiers et al., 2021; Das Nair, 2022).

The continent is composed of many countries with small domestic markets. Regional integration has been promoted to enable producers to realise greater economies of scale and to benefit from the establishment of shared infrastructures, however, regional competition is necessary to ensure lower prices and more efficient production (Roberts, Simbanegavi and Vilakazi, 2023). Given small domestic markets and high levels of concentration and barriers to entry, developing economies in general are likely to have greater concerns about abuse of market power than industrialised economies (Cheng, 2020). The governance of agri-food value chains (AVCs) has been extensively analysed in the literature (see contributions to Ponte et al. 2019). However, given the data challenges there is a paucity of detailed analyses of market power in regional AVCs across African countries particularly as markets have become more concentrated.

The drivers of these food systems changes include urbanization and growing urban incomes, and transformation of the role and significance of retail, processing, packaging and logistics (Reardon and Minten, 2021). Market outcomes and investment decisions in the value chains are largely due to a handful of transnational corporations who in effect drive or hinder the regional integration agenda in a ‘market-shaping’ role as part of the complex political economy of agri-food development policies (Swinnen, 2018). Assessment of the multi-dimensional governance role of these companies in the poultry value chain is central to our contribution.

It is estimated that four major traders that account for the bulk of agricultural commodity trading globally which have extended their operations in developing countries (Shand and Wetter, 2019; UNCTAD, 2023). This has brought efficiencies in the midstream of AVCs together with increases in market power (Clapp, 2021). The major companies are integrated upstream and downstream into feed and meat production, and in some cases also the supply of seed and other inputs (Blas and Farchy, 2021; Roberts, 2023). For example, Cargill is the largest agro-commodity trader, the largest exporter of soybeans from Brazil, and the third largest global meat producer (UNCTAD, 2023; ETC 2022). Similarly, Tyson is the second largest meat producer, the biggest poultry producer with operations around the world, and owner of one of the two main poultry breeds licensed globally (Roberts, 2023). The integrated nature of feed and livestock production means that major commodity traders and meat producing companies are at the centre of shaping associated value chains, including the terms under which rivals participate at national, regional and global levels.

Power, concentration and coordination

High and increasing corporate concentration in agri-food markets internationally has been well documented (Lamoreaux, 2019; Eeckhout, 2021; Clapp, 2021, 2023; Roberts, 2023). Commercial agri-food industries are concentrated oligopolies at many levels except for farmers and the end consumers (Badiane et al., 2021; Barrett et al. 2019). In developing countries this has involved the expansion of global input suppliers, the expansion of large-scale traders, logistics and the growth of large-scale food processors in what has been termed the ‘quiet revolution’ in AVCs (Reardon, 2015; Sitko et al. 2018). It can be characterized as a transition from traditional spot markets with competition in localized areas, to competition in regional and national markets between fewer, large traders and processors (Swinnen, 2020: 12; Barrett, et al. 2019).

Food is produced in value chains involving separate but interconnected processes that are often performed by different economic actors. Across most contexts, the way that exchanges take place in the production of food is far removed from the ideals of perfect competition with arms-length transactions and minimal switching costs (Barrett et al., 2022). Suppliers are often tied into relations with particular buyers, and vice versa. Food value chains are typically ‘additive’ in character and typically become elongated and more complex as food systems industrialise (Morris & Kaplinsky, 2016). As a result, the way that food systems work, including in terms of their structure, reflect how power relations shape different value chains, who bears risks and earns benefits, and the inclusion and exclusion of actors (Kaplinsky, 2019).

Large international firms have the resources and organizational capabilities to make investments to reap economies of scale and to efficiently coordinate activities and intellectual property across borders (Chandler et al. 1997). This includes organising groups of small and medium-sized firms to ensure the flows of materials and information necessary to maintain production and distribution (Roberts, 2020; Pisano, 2017). The multinational firms are therefore a response to coordination challenges and scale economies while the market power is an intrinsic feature in what Hymer termed an ‘efficiency contradiction’ (Hymer, 1970). Beyond the boundaries of the firm, cross-shareholdings in wider corporate alliances can mitigate risks of opportunism and can also enable collusion for rent extraction.

Value chain research provides useful tools to understand different ways that economic actors create the conditions for participation and inclusion or exclusion and the related power relations involved (Mondliwa et al. 2021; Ponte et al. 2023). This literature stems from the recognition that there is some form of fragmentation in global (and regional) chains of production which means deliberate coordination by lead firms as opposed to arms-length market relationships (Gereffi, 2018). Governance of the relationships includes the role of ‘lead firms’ that are able to shape who does what along the chain, at what price, using what standards, to which specifications, and delivered in what form and at what point in time (Gereffi, Humphrey and Sturgeon 2005; Humphrey and Schmitz 2001; Ponte and Sturgeon 2014). To understand the underlying means of organisation for such changes to happen it is necessary to assess 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 (Chisoro and Roberts, 2023; Bowman, 2025).

Dallas et al. (2019) emphasise that beyond the links between suppliers and buyers, it is necessary to analyse the structure of value chains as it relates to power relations and to go beyond a focus on linkages, to different dimensions of power. We focus on two main dimensions of power beyond market power as envisaged in competition literature: bargaining power and institutional power (Mondliwa et al., 2021). Bargaining power is found where there is coercive, dyadic power over those in weaker positions (Dallas et al. 2019). Institutional power is a form of direct power that is exercised by collectives that are more formally organized and dependent upon the strategic actions of groups of actors (Ponte et al., 2021; Bowman and Chisoro, 2024).

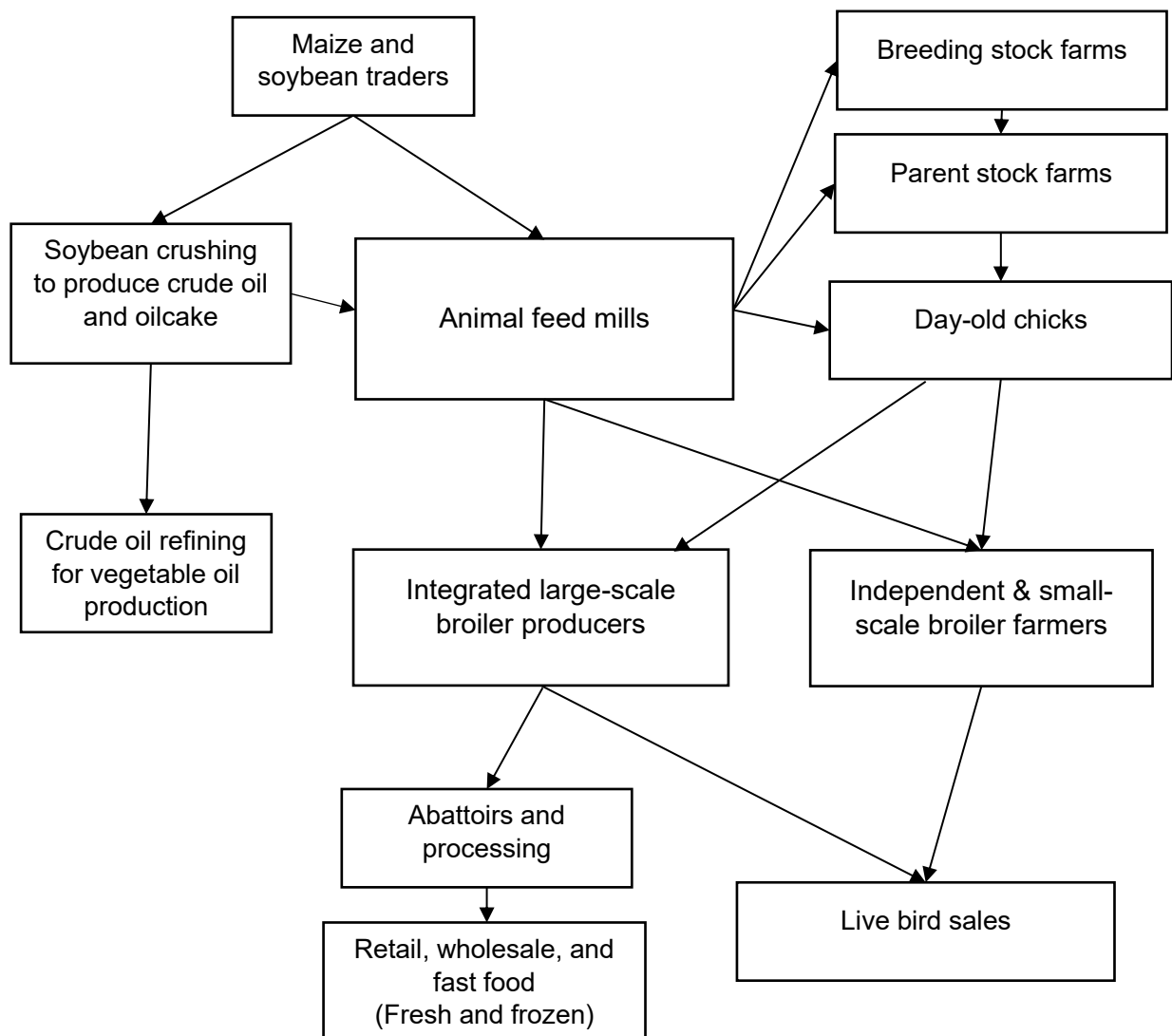
3. Overview of the value chain, regional markets and concentration in animal feed to poultry

Commercial poultry production and value chain mapping

The poultry value chain involves the processing of agricultural commodities for animal feed production (mainly maize and soybean) through to industrial production in the rearing, processing and distribution of poultry in live, fresh and frozen form (Figure 1). Poultry feed and breeding stock are by far the most substantial inputs in the poultry production process with feed accounting for between 60 and 70 per cent of the total input costs for broiler production while breeding stock is estimated to account for up to 20 per cent (Ncube et al., 2017; Bosiu and Goga, 2019). Other costs include vaccines, drugs, labour and energy. The main components of poultry feed are milled maize and processed soybean (in meal or oilcake form), with salt, vitamins and mineral premixes accounting for a relatively smaller proportion of the feed mixture. Oilseed processors crush soybean (and other oilseeds) to extract vegetable oil in large-scale industrial processes, with meal being the main product from soybeans which is sold to the livestock industry.

The competitive supply of maize and soybean is crucial for competitively produced animal feed, together with investments in breeding operations for access to day-old-chicks (Nsomba et al. 2022; Ncube, 2018; Bosiu and Goga, 2019). There are therefore important linkages to farmers of feed inputs and to producers of breeding stock which underpin effective participation in the value chain.

Figure 1: Commercial broiler poultry value chain



Source: Adapted from Bagopi et al. (2014) and interviews in Kenya, Malawi and Zambia

Soybean production for feed has expanded substantially in Malawi, South Africa and Zambia in the decade to 2023 – in the order of two to three times - with Malawi and Zambia becoming net exporters (Kaonga et al. 2023). South African production is largely from genetically modified seed, and it is typically not traded across the region given government restrictions on genetically modified seed across multiple countries in ESA. We do not focus on South Africa here and rather examine Malawi and Zambia as the main producers and Kenya as the main market.

Commercial poultry production involves fast-growing global breeds in which there have been large scale investments across the region (Nsomba et al., 2022). There are different levels of biosecurity (depending on the size and scale of production) and feeding regimes for the production of ready to sell or slaughter birds over approximately a six-week period. By comparison, backyard poultry farming comprises flocks of birds of up to 50 for both eggs and meat using slow-growing indigenous breeds in rural areas or a backyard of a home with low amounts of feed (Deshmuck and Palanichamy, 2015). We focus on commercial poultry

production. Commercially produced chickens can be sold live (as is the case in Malawi) or processed and distributed through the cold chain to end consumers (Ncube et al., 2017; Bagopi et al., 2016).

Each of the three studied countries have large-scale commercial producers which are vertically integrated from the key inputs of breeding stock and feed through to the sale of poultry products. The integrated large commercial businesses operate alongside smaller and medium sized producers who only operate in downstream broiler production as opposed to multiple levels of the value chain. For smaller commercial producers to expand they need to source their inputs from third parties or the vertically integrated poultry producers. The smaller producers routes to market for live birds is mainly through traders who will buy flocks of birds then on-sell in large open markets at a markup.

The large-scale broiler producers typically have in-house abattoirs where the birds are slaughtered and processed, then sold through to wholesale, retail and fast-food markets in either fresh or frozen form. In Kenya, Malawi and Zambia the large producers also supply live chickens and compete in these markets with small and medium sized producers.

The poultry regional value chain has, however, remained uncompetitive as evidenced in net imports and high-priced domestically produced poultry products (Nsomba et al., 2022). This raises important questions as to the factors undermining the competitiveness of regional poultry production given the availability of key inputs, the investments in breeding stock and larger-scale operations and the ability to build linkages through the value chain from the expansion of international poultry businesses.

Value chain structure in Kenya, Malawi and Zambia

While there are many poultry producers in the three countries there are extremely high levels of concentration in breeding stock and broiler feed (Table 1). In terms of breeding stock there is a global duopoly with two main breeds of chickens that are used worldwide in the broiler production industry. These are the Ross breed, supplied by EW Group/Aviagen, and the Cobb breed, supplied by Tyson subsidiary Cobb-Vantress (Gura, 2007; Tak et al., 2021; Goga and Roberts, 2023). The non-listed family-owned business EW/Aviagen grew through a series of mergers and also owns Arbor Acres, Indian River, Rowan, Peterson and Hubbard breeds. The Cobb-Vantress company with the Cobb breed is part of Tyson Foods. Tyson Foods grew as a vertically integrated family-owned poultry business from the 1950s including a hatchery and feed business working with farmers to raise broilers for processing and sale and industrializing the processing and supply of chicken while acquiring competitors through the 1960s and 1970s (Leonard, 2014).

Outside South Africa, Zambia and Zimbabwe are key locations for licence holders for the Ross and Cobb breeds respectively, from which poultry producers have to purchase breeding stock. Becoming a licence holder requires significant investment in facilities and special phytosanitary care (Goga and Roberts, 2023). It also takes time to produce commercial day-

old chicks, estimated at a year from delivery of the grandparent breeding stock to the first commercial level broiler day-old-chicks for rearing to produce poultry meat.

Table 1: Summary market structure information, 2023

	Malawi	Zambia	Kenya
Breeding	- One dominant supplier (Central Poultry, CP) with PS (Cobb500 from Irvines), 87% day-old-chick share. - Four other suppliers with Ross308, import fertilized eggs from Zambia at PS level	2 licensed producers at GP level: Hybrid Poultry (Cobb500), Ross Breeders Zambia (Ross308); 4 licenced at PS level: Tiger Chicks (Indian River from Aviagen); Zamhatch (Cobb500 & Ross 308 from Hybrid and RBZ), Quantum (Ross308 from RBZ), Zamharvest (Ross308 from RBZ)	- One dominant supplier (Kenchic) supplies Ross308, from RBZ in Zambia GP, 70% day-old-chick share - Isinya, supplies Cobb500.
Soybean processing	- Four large processors with capacities (tonnes): CP/Sunseed (180th); ETG (100th); Mount Meru (150th); CORI (linked to CP/Sunseed) (70th) - Majority of exports of soymeal by CP/Sunseed	Five large processors with capacities (tonnes): Wilmar/Global (360th); ETG (240th), Mount Meru (128th), Alliance Ginneries (100th), Sunglobe (linked to CP/Sunseed) (55th)	No large-scale processors; imports are of processed soymeal and cake
Feed	- Sufficient maize and soybean grown locally; net exports - Production concentrated, two producers with 80%; horizontal links to storage and trading	- Sufficient maize and soybean grown locally; net exports - Production concentrated, few large suppliers with horizontal links to storage, trading and veg oil production	- Bulk of inputs imported, regional soymeal processors crucial - One dominant producer, three other large producers and many smaller ones
Broiler production	- One integrated producer (Central Poultry) commands 80% of the market - Commercial and rural farmers compete in downstream retail of live chickens	- Mainly contract farming – production contracts between poultry breeding companies with abattoirs and contract growers. - Broiler production relatively concentrated, linked to upstream breeding stock	- Kenchic with majority of broiler supply including contract farmers - Fringe of independent producers

Source: Compiled by authors from Nsomba et al. (2022)

Typically, the holder of the intellectual property sells great-grandparent stock of the breed under license to a company in a given geography who then breeds grandparents to supply parent stock to hatcheries. The parent stock produce what are known in the industry as ‘day-old chicks’ to rear as broiler chickens in around 35 to 42 days (Goba and Roberts, 2023). The breeding companies with the licence are also typically vertically integrated into broiler production as well as supplying day-old chicks to independent non-integrated broiler producers.

Zambia has six suppliers of broiler day-old chicks, however, only two of these firms access grandparent breeding stock and hold distribution licences – Hybrid (for the Cobb 500 breed) and Ross Breeders Zambia (RBZ, for the Ross 308 breed) (Nsomba et al., 2022; Table 1). A third company Tiger Chicks has the rights for the Indian River breed from EW/Aviagen, at the parent stock level. All other suppliers in the poultry value chain source their parent stock or day-old chicks from these three firms. Zambia is also a major breeding export hub for the region by road and by air (Goga and Roberts, 2023). In the supply of poultry feed, there are around seven sizable feed producers, while soybean crushing required for key inputs is in the hands of four major companies who also export into regional markets (Nsomba et al., 2022; Nsomba and Roberts, 2023).

Malawi has had no breeding operations at the grandparent level and suppliers of day-old-chicks obtain parent stock from neighbouring countries, either from Cobb Africa (mainly through Irvines in Zimbabwe) or from RBZ. While there are at least five suppliers of day-old-chicks for broiler production in Malawi, the largest, Central Poultry, accounts for 87% of day-old-chick supply (Nsomba et al. 2022; Table 1). Central Poultry is also vertically integrated into feed production, producing approximately 40% of Malawi's feed supply and into soybean crushing activities through its sister company Sunseed Oil (Nsomba et al., 2022; Table 1). Kelfoods, another integrated poultry producer, accounts for another 40% of Malawi's feed production. Smaller feed producers account for the remaining 20% of the feed market. Central Poultry is also the largest producer of broiler chickens and competes in that market with many small and medium sized poultry producers, mainly in the form of live chickens.

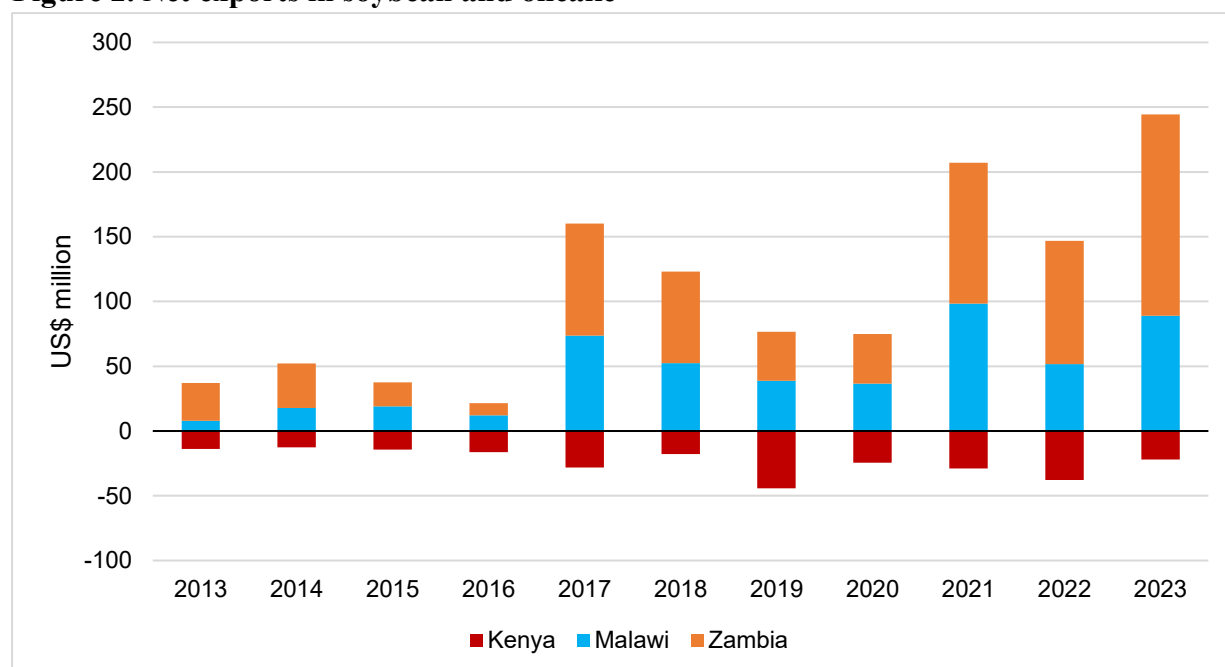
Kenya relies on imports of parent breeding stock for the local supply of day-old chicks, with Zambia being a major source. It is also highly concentrated, with only two major suppliers of day-old chicks that each have links to regional and international breeding companies and animal feed producers. Kenchic is the largest supplier of day-old chicks, holding 70% of the share of the market (Table 1). Kenchic associated company Unga is the largest supplier of animal feed, to Kenchic's contract farmers who also sell their chickens back to Kenchic for processing.¹ Kenya relies on imports of maize and soybean as inputs into feed production, with regional soybean processors playing a crucial role (CAK, 2024). Therefore, the terms of access to regionally traded inputs has important implications for the competitiveness of feed producers. There are four large feed suppliers, who are integrated along the value chain to varying degrees, including having ownership links and relationships in terms of breeding stock and sourcing of feed inputs across the ESA region. Another producer, Isinya Feeds, is vertically integrated into the supply of day-old Cobb chicks sourced from Irvine's in Zimbabwe, while Sigma Feeds has close relations with Central Poultry in Malawi for the supply of soybean meal (Nsomba et al., 2022).²

Regional trade and company networks

The regional extent of operations of the main firms in key inputs across countries is essential to understanding their market power, given the licencing arrangements and trade flows in key products along the value chain. Zambia is a major breeding hub for parent stock and day-old

chicks. Zambia and Malawi are the major producers and exporters of soybeans and soy oilcake and meal for animal feed across the region (Figure 2), while Kenya has been a consistent net importer of soybean oilcake/meal given less than optimal growing conditions to produce the crop, and has also relied on imports of maize for the production of feed.

Figure 2. Net exports in soybean and oilcake



Source: Trademap

While Zambia and Malawi have exported to meet demands in Kenya, they have also exported substantial volumes to South Africa, Tanzania, Zimbabwe, the UAE and India (see Figure 6 below). Taking into account common major companies across countries, there are five major groupings producing and trading oilcake and meal namely Central Poultry in Malawi and its associated companies, Mount Meru, ETG, Global Industries/Wilmar, and Alliance Ginneries (Table 1). They are integrated into soybean crushing for vegetable oil production and also into storage and logistics, which ensures they have stocks throughout the year. While these can help firms realize efficiencies, such as by reducing transactions costs, the concentration also raises concerns about market power.

In poultry breeding stock, the relationships between companies across the region reflect the ownership structures of the two global companies into the region. Aviagen (which has the Ross breed) has shareholding through complex structures with African Poultry Development Limited (APDL) renamed African Poultry Development Group, Country Bird Holdings (CBH), Aviagen Central Africa, Aviagen East Africa, and Ross Central Africa (Goga and Roberts, 2023). APDL has a shareholding in Hybrid in Zambia (a regional Cobb breeder), which means there are direct ownership relationships between suppliers of competing breeds. APDL, incorporated in Mauritius in 2007 with parent company Seaboard Corporation, is reported to represent the largest group of integrated poultry companies in East and Central Africa (Nsomba et al., 2022). In Kenya, APDL is the shareholder in Kenchic, while its shareholder Seaboard is

an owner in Unga. Tyson has shareholdings through Buchan in Cobb Africa together with the regional multinational, Irvines (Goga and Roberts, 2023). The relationships mean that the upstream companies can track day-old-chicken supplies across borders in the region.

In feed, there are also networks of shareholdings which increase concentration when viewed at a regional level. These include the major producers and traders of oilcake across the countries, such as Seaboard's ownership links with Unga in Kenya, links to APDL identified as a related company, and its trading operations across Kenya, Zambia (where it is an owner in National Milling and United Africa Grains). Seaboard also owns plants in Mozambique, Uganda, and in South Africa in the largest soybean crusher through a merger in 2021.

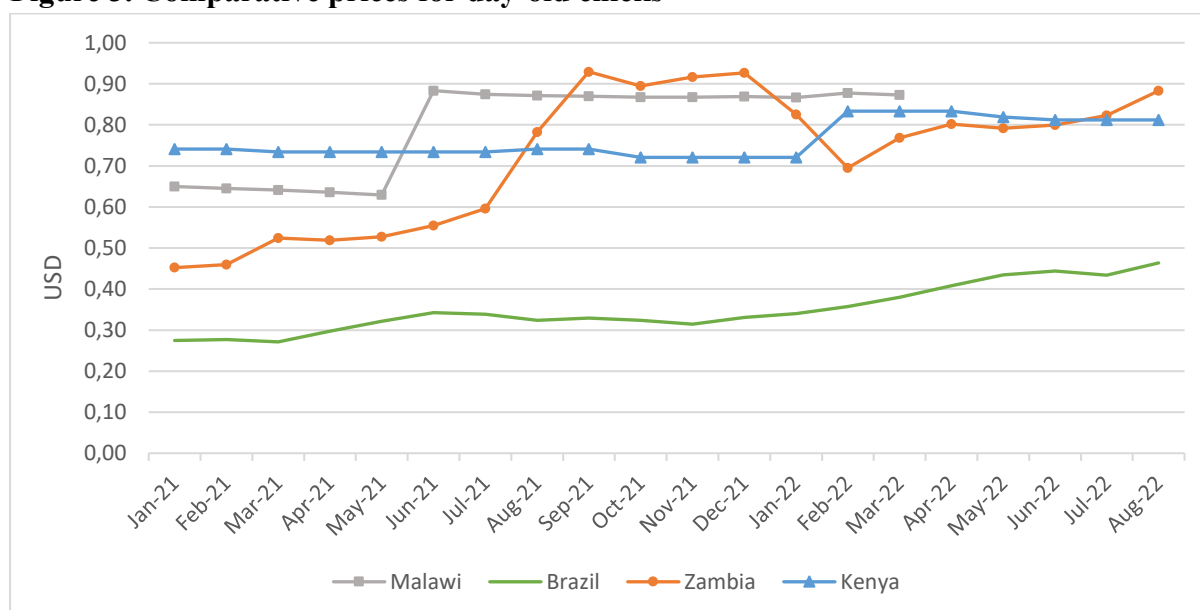
4. Market outcomes, value chain governance and power

The international relationships point to a network of intertwined companies across the poultry regional value chain able to coordinate investments and supply. There have been major investments in expanded output along with high levels of concentration across the region.

In poultry breeding, Zambia became a large-scale regional breeding hub, with exports of day-old chicks and fertilized eggs more than trebling from 2016 to 2021 and exceeding those supplied to the local market (Nsomba and Roberts, 2023). Soybean crushing capacity increased to close to one million tonnes per annum, staying substantially ahead of production which grew to more than 500 thousand tonnes, of which close to half is exported (including as processed soy oilcake and meal). Malawi is also a substantial net exporter of raw and processed soybeans. Yet the region as a whole has continued to record a widening trade deficit in poultry, as well as vegetable oil. Poultry and feed producers were going out of business in Kenya in 2022 rather than expanding, even while high poultry prices were being reported (Nsomba et al 2022, CAK, 2024).

First, the prices of broiler day-old-chicks have been high and increased alongside the mergers and investments in large-scale operations (Goga and Roberts, 2023). The prices in the three countries were substantially above Brazil as a low-cost middle-income benchmark in early 2021 before increasing further in Malawi and Zambia (Figure 3). Prices in Brazil in 2021 around \$0.30 were also close to levels in the EU, while the Zambian prices were similar to those in South Africa (Goga and Roberts, 2023). The prices of breeding stock in Zambia, a regional breeding hub, increased above those in Kenya to which breeding stock is exported. The higher day-old chick prices directly increased the costs of independent poultry producers, undermining their competitiveness both in relation to imports as well as with vertically integrated poultry companies.

Figure 3. Comparative prices for day-old chicks



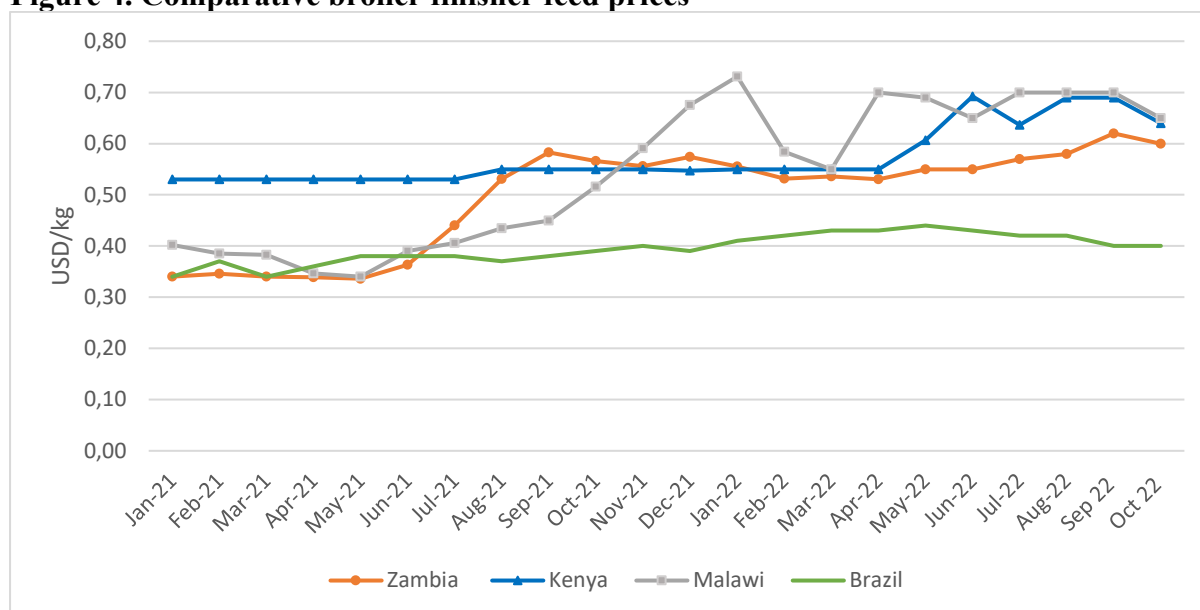
Source: Poultry Association of Zambia, interviews in Kenya and Malawi, and Embrapa Brazil

Small-scale producers in Zambia reported shortages, particularly in late 2020 through to mid-2022, at the same time as exports of day-old chicks had been growing.³ The international licencing arrangements mean that exports are to related companies (Goga and Roberts, 2023), while the prices in Figure 3 relate to sales to independent poultry producers. In Malawi where one company dominates DoC supplies it can unilaterally set prices.

The market outcomes imply that far from independent producers seeing gains from improved efficiencies, the vertical integration and investments coincided with much worse outcomes for poultry producers that are not part of the major groupings. The vertically integrated multinational poultry producers are both the suppliers to, and the competitors of, independent producers. Given the essential nature of high-performing breeding stock for commercial broiler production, the large producers are able to undermine independent producers.

Second, in poultry feed, a similar picture is observed (Figure 4). Using broiler finisher feed for comparison purposes, Kenyan prices remained relatively stable between January 2021 and April 2022, hovering between \$0.53/kg and \$0.55/kg in that period despite significant fluctuations in the prices of maize and soybean. Feed prices in the net exporters, Zambia and Malawi, were in fact in line with prices observed in Brazil for the first half of 2021, then dramatically increased and surpassed Kenyan prices in the second half of 2021. This occurred even though maize and soybean prices in Zambia remained consistently much lower than in Kenya over the period and both Malawi and Zambia continued to be substantial net exporters of soybeans and oilcake.

Figure 4. Comparative broiler finisher feed prices



Source: Prices of feed of the main feed suppliers in each country, from interviews with market participants and consistent in Kenya with the prices in CAK (2024).

Notes: Kenyan prices appear to have been set in US dollar terms as the local currency prices fluctuated. The Zambia price increase in US\$ terms from June to September 2021 was due to an appreciation in the local currency while local prices stayed stable. The Malawi price increases were in both local and foreign currency terms as the currency was stable until a 25% depreciation in May 2022 which was matched by a pass-through to local prices.

Production of animal feed is not subject to licences and in principle can be readily traded. If regional markets work on a competitive basis then prices in net importing countries of maize and soybeans should not rise higher than the international price plus transport costs to import. In net exporting countries, suppliers would accept prices equivalent to the international price less transport costs. Yet this is not consistent with the prices observed in our focus countries. While prices paid to farmers for soybeans at the harvest were below world prices in Zambia and Malawi, the feed prices in these countries were inflated. The high levels of concentration, especially in the trading and crushing of soybeans mean that a few traders and producers are able to control the volumes and set the prices in different markets. These traders are integrated into transport and storage facilities and so we can assume efficient transport rates are achieved. We estimate transport rates at \$0.04 per ton per kilometre,⁴ which have remained relatively stable over time.

Control over price can only be achieved if the substantial volumes in excess of the regional demand are ring-fenced. We observe in the cases of Malawi and Zambia that this was done in 2021 and 2022 by exporting large quantities of soybeans and cake, equivalent to approximately one third of all production, out of the region. The prices on these exports were significantly lower than being charged to arms-length buyers in Kenya, Malawi and Zambia (Nsomba et al., 2022; Gondwe et al., 2022; CAK, 2024). In interviews with market participants, the reasoning behind exports out of the region was the demand from higher priced international markets, which then pushed up prices to buyers in Kenya, Malawi and Zambia.⁵ However, from mid-

2021 through 2022, we observe soybean and oilcake prices in the region are far above world prices when it would be expected that prices in net exporting countries would clear in line with those in export markets *less* the transport and related costs (Nsomba et al., 2022).

Feed and breeding stock prices across all three countries are not in line with what would be expected from cost-reflective and fair competitive markets. In Zambia and Malawi, price-setting appears to reflect market power and price-setting by the major feed producers that are integrated into crushing, alongside the high and increased breeding stock prices. In Kenya, the feed producers are subjected to the prices from the main sources of soymeal, namely the small number of large crushing companies operating in Malawi and Zambia as well as in Uganda and Tanzania. The Kenyan feed producers that are integrated with these businesses are likely to be in a favourable position compared to independent buyers.

Over the year to October 2022, feed manufacturing in Kenya was reported to have contracted by around 20% in volume terms, with an estimated 30 smaller feed producers reported to have gone out of business.⁶ The larger producers have not experienced significant contractions in terms of production volumes, and interviews have suggested that their margins have been maintained, as prices were adjusted upwards when input prices rose.⁷

Malawi poultry producers faced especially high increases in feed prices from after the soybean harvest in May 2021, to which we turn now.

5. Exclusionary strategies in the context of regional concentration: Malawi

Malawi substantially expanded soybean production over the decade from 2010, to produce around double local demand and have substantial net exports of soybeans and processed oilcake (Nsomba et al, 2022). Poultry production had also grown strongly over the decade (Gondwe et al, 2022). However, in the second half of 2021 both feed and day-old chick prices to poultry producers increased very substantially and many small and medium-sized independent poultry producers went out of business (Gondwe et al., 2022). Our assessment of the causes reveals the links between regional concentration and the strategies which firms can employ to exclude small-scale producers in local and national markets.

Central Poultry is dominant in the supply of broiler day-old-chicks in Malawi, based on the regional licencing arrangements, and it is also a very large feed supplier, and dominant in downstream broiler supply. This means that independent producers are competing with their key input supplier. Alternative sources of day-old chicks could have involved imports of alternative breeds from neighbouring countries, however, day-old chick prices in Zambia to independent buyers also increased while the licences for breeds are generally for defined territories.

Feed prices also increased very substantially, more than doubling in the second half of 2021. Smaller feed producers could compete if they are able to access the main constituents on reasonable terms. As Malawi had abundant maize and soybean production, far in excess of

local demand, we assess how prices were controlled to set such higher feed prices along with the impact on independent poultry producers.

Value chain linkages, input costs and prices for a margin squeeze

We find that the Central Poultry prices for day-old-chicks and for poultry feed in late 2021 meant production costs which were higher than the price at which Central Poultry sold its chickens. This effectively squeezed the margins of independent poultry producers to force them into making losses and drive them under. We compare the costs and prices in April-May 2021, before the large cost increases were implemented, with the November/December period when there is high demand for the festive season (Table 2).⁸ In December 2021, vendors sold Central Poultry broilers (as live chickens) in central Malawi at approximately Mwk2600, a relatively small increase from Mwk2400 in April/May. This implies that Central Poultry sold the birds at a wholesale price of Mwk2340 in December 2021 after netting off the transport costs and margins to vendors, conservatively estimated at 10%. We estimate that production costs, however, had increased from Mwk1602 to Mwk2833 per bird.

Table 2. Calculation of CP margins per 1.9kg bird (Mwk)

	April–May 2021	Nov-Dec 2021
DoC per chick	495	800
CP Feed price/kg ^a	260	514
Feed cost @1.8 conversion for 1.9kg bird	889	1757
Average variable cost (AVC), for only DoC & Feed	1384	2557
Vaccines, drugs, litter ^b	46	46
Energy & labour estimate @5% of cost price	108	117
AVC, vaccines, energy & labour @1.8, mortality 4%	1602	2833
CP wholesale price ex-producer ^c	2160	2340
CP chicken price per bird to customer	2400	2600
Margins of price over costs	558	-483

Source: Authors' own calculations, from interviews

Notes:

^a This is based on a combination of 14% starter feed, 28% grower feed, and 58% finisher feed.

^b From interviews for November/December 2021 prices, assumed to be the same throughout 2021.

^c Assuming 10% difference between vendor price and ex-producer price, from interviews.

This approach to assessing a margin squeeze examines the costs, prices and margins of the dominant firm if it incurred the prices it charged to third parties, as per the competition law test (Niels et al. 2023). It only takes into account variable costs and not any fixed and sunk costs from setting-up and maintaining the production facility or management and overheads. We find margins in Malawi would still have been negative without any mortality and if the feed conversion was lower, at a world class level of 1.6kg of feed per kilogramme of live weight instead of 1.8. A reasonably efficient competitor would have to incur all the fixed costs and would likely have higher costs in other areas such as labour and energy, for which we used extremely low estimates. Taking these costs into account would therefore mean even larger negative margins.

By far the single biggest effect is from the feed prices which begs the question as to why the poultry farmers could not turn to other sources. This in turn highlights another dimension of the market power of the large integrated producers and their governance over the value chain relating to the market for soybeans and processed oilcake.

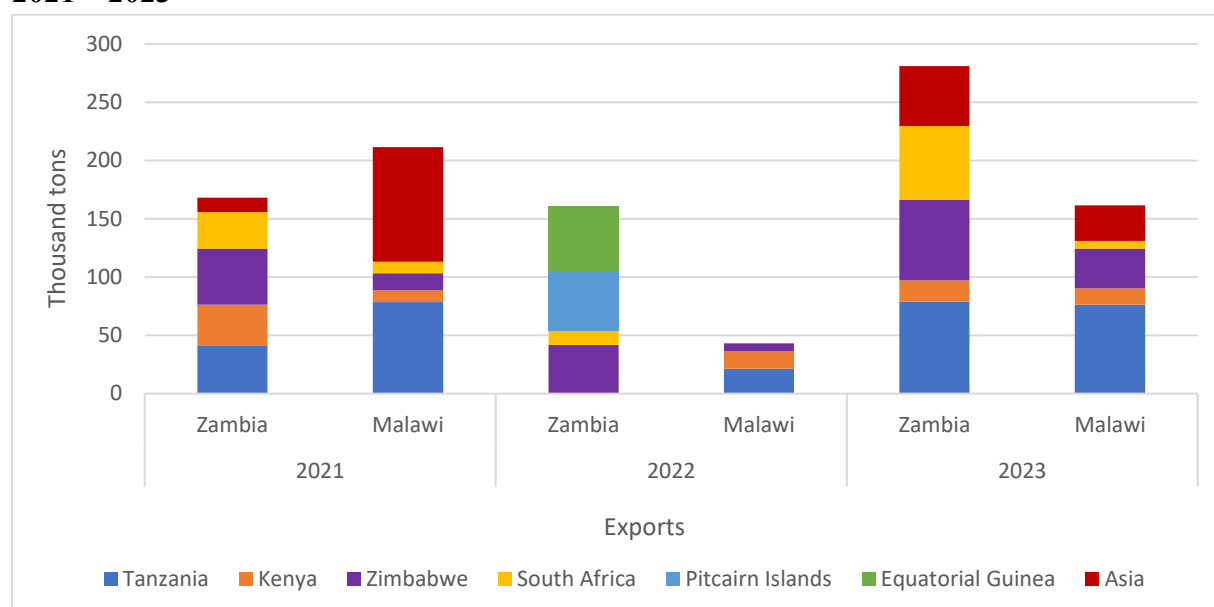
Soybean and oilcake trade and pricing

At the harvest in April/May 2021 soybean prices were around Mwk350/kg (\$450/t), substantially below international prices of around \$600/t, as reflected in USA export prices. However, soybean prices trebled over the year to peak at above over \$1300/t in January of 2022 (Nsomba et al. 2022). In the same vein, soybean oilcake prices rose dramatically, from around K450/kg (\$570/t) at the beginning of the season to K1050/kg (\$1330/t) in January of 2022.⁹ All feed producers increased prices, even with some reformulations to use less soy cake.¹⁰ As reflected in Table 2, CP Feeds doubled the feed prices from March/April 2021 to December 2021.

The high soybean and oilcake prices may suggest that there was a scarcity and prices therefore increased to the same level, or even above, the price of imports. Some market participants also attributed the price changes to demand from India and China. But, prices were far above those in international markets.

The trade data do reflect Malawi being a substantial net exporter of soybeans and oilcake in 2021, as was Zambia, as production outstripped local demand by a large proportion. Large volumes of exports were made to countries in the region as well as to Asian markets (Figure 5). Tanzania also recorded exports of around 220 thousand tonnes between 2021 and 2023 to Asian countries, which likely reflects trans-shipments from Malawi and Zambia given the very low levels of Tanzanian soybean production. The Malawi price was far in excess of prices in other countries in the region and yet Malawi exported to those countries. The average export prices recorded for Malawi exports were around \$500/t for the year of 2021. Export prices varied by destination and over time, however, the highest prices averaged by destination were \$700/t for oilcake and soybean exports to India while local prices increased to close to double this level. Interviews indicated oilcake being exported to countries such as Kenya, Tanzania, South Africa and Zimbabwe.¹¹ In addition, it is notable that Zambia exported to South Africa, Kenya, Tanzania and Zimbabwe and not to Malawi. Exports continued through 2022 and 2023.

Figure 5. Soybean and soy oilcake exports to selected destinations by Malawi and Zambia, 2021 – 2023



Source: Trademap and Ministry of Trade for Malawi data

The high local prices while exports were being made at lower prices is supported by buyers reporting price discrimination according to whether they were local or export buyers. For example, one large buyer looked to source for export and was offered an export price of \$600/t for oilcake in January 2022, yet when the buyer was revealed to be a local customer, it was instead charged a price of around \$1000/t.¹² In fact, the buyer was able to import from South Africa at prices around \$800-900 (although most of South African production is GM and cannot be imported into Malawi). The price setting of feed and soybean in Malawi is thus related to control over the very substantial surplus in Malawi (and neighbouring Zambia), to ensure it is sold outside these countries such that high domestic prices can be maintained.

The major crushers in Malawi other than CP do not supply animal feed themselves, however, the local pricing of soybean and oilcake reflects decisions by all the major traders and processors to export at much lower prices than they were charging to local customers. One crusher indicated that much of their oilcake is sold on to Central Poultry as opposed to exporting¹³, which reinforces Central Poultry's ability to control the local surplus. The ability to set different prices to export customers and to local customers is a very strong signal of substantial market power on the part of the sellers. To support the elevated local prices either a single firm must be able to control the additional volumes over the local demand to be able to unilaterally create artificial conditions of scarcity or there must be coordination between the main traders and processors of soybeans.

6. Conclusions

Our assessment of feed and poultry value chain governance in ESA finds that the gains from the expansion of commercial production to meet growing demand have been narrowly captured. There has indeed been a 'quiet revolution' in the spread of multinational corporations

through networks of relationships with regional agro-processors. This has facilitated investments in breeding and feed production. Investments in poultry and feed have been accompanied by improved production in maize and soybean, and by increased trade of the same products across the region.

Despite these developments, the regional poultry value chain remains uncompetitive with poultry imports and has excluded small and medium scale producers at multiple levels of the value chain. We have demonstrated how the exertion of regional market power has undermined non-integrated producers across countries, alongside specific margin squeeze strategies within countries in the case of Malawi. Exports of soybeans to outside the region have been used to force-up prices within the countries studied and to underpin marked-up prices of feed. Investments in integrated breeding operations has been accompanied by higher prices of poultry breeding stock.

While large firms are required to reap economies of scale inherent in some industrial activities, at the same time these firms shape markets through power over smaller producers and their influence over policy in an extension of bargaining power in cross-border dependent relationships. The mapping of the main companies in breeding, soybean processing, feed production and broiler production has shown the extensive relationships amongst a very few firms along the value chain and across countries. This has enabled firms' control of the value chain in various ways with highly unequal outcomes working against small-scale farmers and poultry producers. There is a global dimension to the value chain control as shareholdings in breeding stock are traced directly back to the global duopoly which can monitor volumes and prices across countries and regions.

Institutional relationships which derive from the importance of breeding stock for the performance of commercial producers are extended through licencing and ownership arrangements to organise industry bargaining power, including dividing along country borders for production while managing cross-border trade. The power in the breeding stock has worked alongside the value extraction in the feed. The market power in setting prices through high levels of concentration can be used to appropriate rents, where independent poultry producers are worse-off notwithstanding that vertical integration and increased investments by larger market participants realise efficiencies in their operations.

The findings have important implications for competition policy as a complementary tool to industrial policy in an agenda to deconcentrate agri-food value chains and address the conduct of large firms to tackle the combination of institutional and bargaining power relations. The market outcomes observed across the three countries demonstrate that competition enforcement must consider the multi-dimensional governance of value chains by powerful companies. This can take the form of state as referee or the 'gardener' model to ensure balanced development with an ecosystem of market participations (Wu, 2018). Our analysis implies that assessments by competition authorities need to go beyond simply static considerations of whether there is a substantial lessening of competition but rather incorporate the other dimensions of power, in an international context. This would widen the scope to understanding

how firms can leverage their vertical integration, economies of scale and networks of relationships to the detriment of competitive outcomes.

The exclusionary strategies implemented in Malawi are an acute example of why national competition enforcement cannot take place in isolation from tackling cross-border concentration in agri-food markets. However, competition regimes are relatively young or not established in some countries (Barrett et al. 2022). Our assessment therefore poses significant questions for the appropriate rules and institutional arrangements to discipline market power which is a research agenda in itself and beyond the scope of this paper.

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¹ Interview with Kenyan feed producer, 26 October 2022.

² Interview with poultry feed producers, 25 – 27 October 2022.

³ Interview with breeding stock supplier, 16 August 2022.

⁴ Based on extensive interviews with transporters in Kenya, Malawi and Zambia March – October 2022.

⁵ Based on extensive interviews with transporters in Malawi and Zambia March – August 2022

⁶ Interview with market participants 25 - 27 October 2022. There has also been a sizeable new entrant.

⁷ Interview with poultry feed producers, 25 – 27 October 2022.

⁸ See Gondwe et al. (2022) for detailed explanation of the calculations, sources and sensitivity to different assumptions.

⁹ Interview with feed producer, March 2022.

¹⁰ Interview with feed producer, March 2022.

¹¹ Interviews with oilseed crushers, July – August 2022.

¹² Interview with feed producer, March 2022.

¹³ Interview with oilseed crusher, March 2022.