

Concentration and competition from global to local: The Southern African poultry industry

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Sumayya Goga

Centre for Competition, Regulation and Economic Development, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa

Simon Roberts 

Centre for Competition, Regulation and Economic Development, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa

School of Oriental and African Studies, University of London, London

Abstract

The geographic reach of multinational corporations means that mergers and restrictive agreements in one jurisdiction, such as in north America or Europe, may impact on countries around the world. We analyze the role of multinationals in shaping poultry value chains in three countries in Southern Africa—South Africa, Zambia, and Malawi. The article addresses two main questions. First, how have poultry value chains been shaped in the three selected countries by mergers, concentration, and vertical integration? Second, what are the implications of the combination of vertical arrangements and information flows between competitors for market outcomes and competition enforcement in developing countries? We find that merger reviews have been inadequate, failing to consider the increased global concentration which is replicated at regional level in Southern Africa. The combination of vertical integration and horizontal concentration has resulted in constraints on breeding stock supplies observed across the countries studied while prices have increased to very high levels. Competition authorities need to deepen international cooperation along with addressing the complex nature of power along the value chain in order to prevent exclusionary conduct by the dominant multinationals and their local subsidiaries.

Keywords

Corporate concentration, vertical integration, poultry, multinationals, competition policy

Corresponding author:

Simon Roberts, Centre for Competition, Regulation and Economic Development, College of Business and Economics, University of Johannesburg, 69 Kingsway Avenue, Auckland Park, Johannesburg, 2092, South Africa.
Email: sroberts@uj.ac.za

Introduction

There is a growing consensus that high and increasing market concentration is associated with high levels of profitability from market power, as well as rising inequality.¹ This article addresses international concentration in agri-food markets with specific reference to poultry. We identify gaps in international competition enforcement through assessing global concentration and its effects in Southern Africa.

Concentration levels are very high in many agri-food markets around the world (Clapp, 2021, 2023; Klerkx and Rose, 2020; Lianos et al., 2022; Shand and Wetter, 2019; Swinnen, 2020), as a result of hundreds of mergers (Clapp, 2021; Howard, 2016, 2020; Swinnen, 2020; Torshizi and Clapp, 2021). The poultry industry exemplifies these trends, with very high concentration levels particularly at the level of breeding stock where two multinational firms account for more than 90% of global supply following a succession of mergers (Tak et al., 2022).²

The global picture in food markets is essential to understanding concentration in Southern Africa in order to see the footprint of multinational companies along global value chains (Meagher and Roberts, 2021). Through examining market structure and market outcomes, we analyze the effects of international concentration on poultry value chains in Southern Africa, with a focus on three selected countries, South Africa, Zambia, and Malawi. South Africa has a long-established commercial poultry sector with international licenses for the main breeds. Zambia has emerged as a poultry hub in Southern Africa over the past decade, while Malawi is a much smaller market and sources breeding stock largely from within the region.

To assess the implications of international concentration and integration for Southern Africa, we map the reach of the two main multinational poultry breeding companies across the three African countries (South Africa, Zambia, and Malawi). We analyze the ways in which networks of arrangements and vertical integration between the multinational companies and lead poultry producers in these countries shape the poultry value chains, including the ability of smaller producers to compete. We collate and assess data on market outcomes, within and across these countries, drawing on literature and in-country interviews with firms, poultry associations, and researchers. The implications are assessed in light of the recent cases of collusion in the USA which involve some of the same multinationals present in Southern Africa in order to provide insights on the outcomes that can result from vertical integration and information exchange. In a highly concentrated market, there does not need to be explicit collusion to realize coordinated outcomes (Azar et al. 2018; Stucke and Ezrachi, 2020; Torshizi and Clapp 2021). Evidence of collusion typically requires an antitrust investigation. We consider the potential for collusion, given the conditions within markets in the three countries and the implications for competition enforcement and appropriate regulations to ensure participation by smaller local producers.

Concentration, vertical integration, and coordination in agri-food global value chains

There is extensive literature on concentration in agri-food industries and value chains (see Barrett et al., 2022; Clapp, 2021, 2023; Howard and Hendrickson, 2020; Lianos et al., 2022; Swinnen, 2020). We review and consider implications for competition enforcement including specifically the challenges of assessing the effects of combined vertical and horizontal arrangements.

Concentration in global value chains (GVCs) and competition enforcement

The literature points to very high levels of concentration in agri-food at many levels except for farmers and end consumers (Badiane et al., 2021; Barrett et al., 2019). Less well understood is the

extent of vertical integration of some of the largest companies in agro-commodity trading, such as into feed and meat production (Blas and Farchy, 2021; Lianos et al., 2022). For example, Cargill is the third largest meat producer globally and the largest agriculture commodity trader (ETC, 2022; UNCTAD, 2023). Farmers around the world have become increasingly reliant on a small group of suppliers and buyers. Concerns have been identified about links across competing companies including common ownership (by the same private shareholders) which may dampen competition (Torshizi and Clapp, 2021).

The international concentration in agri-food is being replicated across Africa; however, the implications are unclear and contested (Barrett et al., 2022; Hernandez et al., 2023; Lianos et al., 2022; Sexton, 2013; Sexton and Xia, 2018). There has been an expansion of large-scale commodity traders and input suppliers, growth of multinational food processors, and the spread of supermarkets (Sitko et al., 2018). Large-scale investments and coordination can achieve production efficiencies and overcome market failures in contracting (Barrett et al., 2022). At the same time, high concentration implies market power which can be abused (Clapp, 2021, 2023; Lianos et al., 2022).

International concentration in agri-food has increased through a substantial number of large mergers (Fox, 2025; Lianos et al., 2022). In agrochemicals, the largest four firms combined account for two-thirds of global sales (Howard and Hendrickson, 2020). In addition, Bayer-Monsanto, ChemChina-Syngenta, and Corteva (from the Dow/DuPont merger) are in the top four in both seed and agro-chemical categories. There have been mega-mergers and many smaller acquisitions, with nearly 400 ownership changes involving the four largest firms between 1996 and 2018 (Clapp, 2023; Howard and Hendrickson, 2020). The largest agro-commodity traders account for 70%–80% of global trade flows (Blas and Farchy, 2021; UNCTAD, 2023) and have vertically integrated into areas such as vegetable oil, animal feed, and meat production (Lianos et al., 2022). We consider how mergers have affected the poultry industry in Southern Africa.

Global value chain literature points to the multi-dimensional nature of power, including bargaining power over value creation and capture, and the power to govern value chains, set standards, and act as a gatekeeper through institutional power (see Dallas et al., 2019; Mondliwa et al., 2021; Roberts, 2020). Value chain research provides useful tools to understand different ways that economic actors create the conditions for participation and inclusion. This includes the exercise of power by lead firms that are able to shape who does what along the chain, at what price, using what standards, and specifications (Gereffi et al., 2005; Ponte and Sturgeon, 2014). The literature has extended our understanding of how these firms exercise power, the institutional context, and the conditions under which power relations are shaped (Bowman and Chisoro, 2024; Dallas et al., 2019; Ponte et al., 2023). Some argue that bargaining power asymmetries should be elevated (Bair and Mahutga, 2023), along with questions about how the power may be regulated such as through codes of conduct; however, they recognize that a lack of systematic firm-specific data hampers the analysis. We make a contribution through primary data on market structure, market outcomes, and bargaining power in the poultry value chain.

Competition literature has moved beyond neoclassical definitions of market power simply as the ability to set prices above costs and the power to exclude rivals (Krattenmaker et al., 1987), to consider the ways in which this power is acquired and entrenched by individual firms or small groups of firms, and the implications for inequality (Ennis et al., 2019; Tirole, 2022). However, competition enforcement has struggled to come to terms with the implications of international and multi-dimensional power and its abuse (Lianos and Carballa-Smichowski, 2022). Part of this is due to the simple fact that most competition authorities only have national jurisdiction, albeit with changes underway such as under the African Continental Free Trade Area (Kigwiru, 2024).

Major gaps have been identified in how mergers and joint ventures have been reviewed. These include the effects of mergers on how industries evolve, such as potential competition

effects (Motta and Peitz, 2020, 2021), the influence of possible collusion (termed coordinated effects), and the assessment of the international reach of mergers (Fox, 2025). The challenges of “analog regulation” in a digital world is a metaphor for a static and narrow competition regime in the face of ubiquitous complex concentration and market power (Andreoni and Roberts, 2022; Jacobides and Lianos, 2021). We explore the implications in agri-food industries.

The interaction of horizontal and vertical arrangements

The global value chain and competition literature have each grappled with the combination of vertical integration and horizontal relationships including information sharing, partnerships, and licensing arrangements (Mondliwa et al., 2021). There are clearly both efficiencies from arrangements which improve coordination of investments and R&D effort, and concentration with potential for abuse of market power, which Hymer observed as an “efficiency contradiction” (Hymer, 1970). GVC literature has similarly emphasized how coordination along value chains by lead firms is important for upgrading to improve competitiveness (Ponte et al., 2019), while greater attention has now turned to dimensions of power.

The competition literature on collusion, as well as recent competition cases, highlights the gaps from the perspective of evaluation and enforcement. The main industry characteristics which increase the likelihood of collusion are well established, as follows (Harrington, 2007; Kovacic et al., 2011; Marshall and Marx, 2012; Motta, 2004):

- high levels of concentration;
- relatively homogenous products;
- standard production methods and similar cost structures;
- facilitating means of communication, cooperation, and sharing of information;
- ability to monitor sales and effectiveness of output restrictions in increasing prices;
- high barriers to entry;
- the ability to detect and expeditiously punish cartel defectors, including through vertical integration.

Enforcement against explicit collusive agreements has led to firms finding ways to coordinate through information exchange arrangements which are more effective with digitalization of markets and supply chains. Information exchange, including through industry associations or third parties, can facilitate coordination and may in itself constitute prohibited coordination in the EU (EC, 2023), although not necessarily in other jurisdictions. By using the same algorithms for their pricing decisions, firms can effectively coordinate without any agreement (Ezrachi and Stucke, 2017; OECD, 2017, 2018). In addition, in hub-and-spoke cartels vertical relationships to the hub enable horizontal coordination across competitors (Garrod et al., 2021).

The combination of vertical integration, information exchange, and horizontal coordination across competitors is exemplified in the USA poultry antitrust cases brought from 2016 to 2023 (Li and Weisman, 2023). The litigation and settlements reached in the USA involve charges that the producers conspired and combined to fix, raise, maintain, and stabilize the price of broiler chickens, including through manipulating a key price index and through sharing information over a period from 2008 to 2019.³ The poultry companies agreed output reductions in 2008 and 2009 by reducing breeder flocks (i.e., the vertical input to poultry), and production was constrained thereafter, to support higher prices than would otherwise have been the case.⁴ Information sharing between producers through a third-party company (Agri Stats) was a central part of ongoing monitoring of

the understanding reached not to compete (Sappington and Turner, 2023).⁵ Agri Stats was founded in 1985 and is a corporation that operates data-sharing and consulting services for industries including meat processing. It compiles data on firm- and plant-level performance across various business functions and shares this with the industry participants ostensibly to improve productivity.

The USA collusion worked through a number of mechanisms, with information exchange and links to breeding stock being central in the arrangements (Li and Weisman, 2023; Sappington and Turner, 2023). Information was shared through Agri Stats on breeding stock, hatcheries, feed, broiler flocks, slaughtering and processing, wages for plant workers, inventories, and sales. While individual companies were not named, the detail provided allowed the identification of companies. Tyson received corporate leniency implying that it admitted the conduct and co-operated with the prosecution in exchange for not being charged; however, the US Department of Justice failed to make their case in jury trials of criminal conduct against the standard of “beyond reasonable doubt.” Juries in December 2021 and a subsequent case failed to reach decisions and mistrials were declared. The Department of Justice then filed a case against Agri Stats on 28 September 2023 relating to information exchange to restrict supply and increase prices in chicken, turkey, and pork.⁶ This case has not been heard at the time of writing.

International mergers and anti-competitive conduct pose challenges for international enforcement (Fox, 2025; Lianos et al., 2022). Middle-income and developing countries have competition regimes which are relatively young or not established (Barrett et al., 2022) and face formidable obstacles in obtaining information and establishing jurisdiction regarding multinationals engaging in international arrangements. This includes regional competition regimes such as established by the Common Market of East and Southern Africa (COMESA). It is essential to understand the nature of the challenges they face with regard to cross-border anti-competitive arrangements.

Competition in poultry value chains in Southern Africa

Overview of poultry value chains

The main inputs into poultry production are animal feed and day-old-chicks (DOCs), with feed typically accounting for around 60 to 70% of costs (Bagopi et al., 2016). Access to high-performing breeds, with the best conversion ratios of feed-into-meat and low mortality rates, is essential for competitive broiler chicken operations. At the breeding level, through a series of mergers and acquisitions the two leading global breeding companies (EW/Aviagen and Tyson) own all the main commercial broiler breeds, with the Ross and Cobb breeds being by far the largest. Poultry breeding operations in Southern Africa typically import the breeding stock at the great-grandparent or grandparent level from EW/Aviagen and Tyson companies in Europe or North America. EW/Aviagen and Tyson license the firms to produce parent stock for their own use as integrated producers or to supply breeders of broiler DOCs for independent broiler producers (Ncube et al., 2016) (Figure 1). Breaching the terms of the license arrangements would mean no longer receiving supplies of the breeding stock as well as being subject to legal recourse.

Feed is made mainly from maize, soymeal, and sunflower cake along with vitamins and minerals (Figure 1). There are thus important backward linkages (not shown) to agriculture production and to processing of oilseeds. Oilseed crushing is a large-scale industrial process.

Along with access to the high-performing breeds, there are significant barriers to entry into breeding operations in the costs and time required to establish a grandparent breeder facility.⁷ It takes 15 to 24 months from receipt of grandparent stock to produce the first commercial DOCs to rear as broiler chickens (Bagopi et al., 2016). Grandparent stock cannot be sold by licensees; these

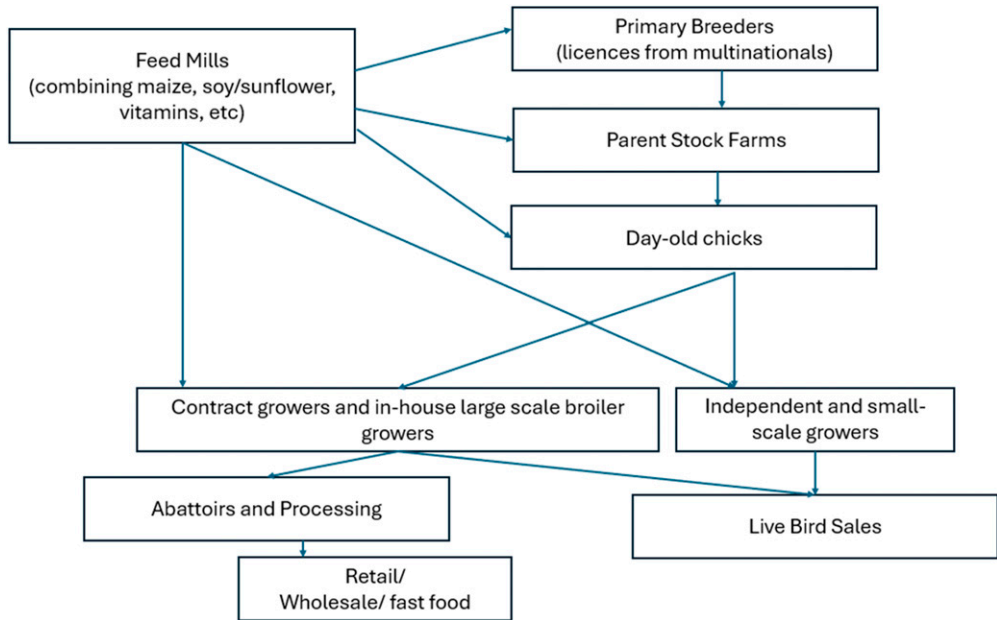


Figure 1. Commercial broiler poultry value chain. Source: Adapted from [Bagopi et al. \(2016\)](#).

companies produce and can on-sell parent stock, subject to the license terms. Firms with licenses to the main breeds are therefore able to control the supply of parent stock and through this the DOCs available to other producers in the market ([Ncube, 2024](#)). Without access to these breeds, commercial poultry production cannot be competitive.

There are five main African multinational companies that own the rights for the leading breeds across the region, based in South Africa (RCL and Astral), Zambia (Country Bird Holdings and Hybrid), and Zimbabwe (Irvines). These companies also have their own feed mills and abattoirs. Other commercial producers throughout the region access either parent stock or broiler DOCs from these five companies. In recent years, the main global breeding companies, Tyson and EW/Aviagen, have each integrated into the region (aside from South Africa) more directly with the African multinational poultry producers, as we explore in more detail below.

Global concentration in breeding and integration into Southern Africa

Global concentration in breeding stock companies resulted from a succession of mergers over time which have gone unchallenged by competition authorities. From 26 substantial commercial broiler genetics companies worldwide in 1981,⁸ by 2020 there were just two major multinationals in breeding stock, Tyson Foods of the USA and EW Gmbh, a family-owned company emanating from Germany ([Figure 2](#)). Poultry breeding stock is the most concentrated major sector in all of industrial foods ([ETC, 2022](#)).⁹

The major mergers include the following ([Figure 2](#)). The EW Aviagen group was formed by Aviagen's acquisition of Ross Poultry group in 1999 with the Ross 308 bird, one of the main global breeds ([Tak et al., 2022](#));¹⁰ the EW acquisition of Aviagen in 2005, hereafter referred to as EW/Aviagen; and, the EW/Aviagen acquisition of Groupe Grimaud with the slow-growing Hubbard

breed, in 2018. The growth of Tyson Foods of the USA from a family-owned poultry business in the 1950s to global multinational involved acquiring competitors through the 1960s and 1970s in the USA (Leonard, 2014). Tyson Foods bought Cobb-Vantress in 1994 with the Cobb breed¹¹ and then acquired a number of smaller breeding companies, including forming a joint venture with Hendrix with its slow-growing Sasso bird in 2008.¹²

The rights to produce breeding stock are typically licensed to companies at the grandparent stock level. In South Africa, Tyson has had a long-established relationship with RCL Foods which had the sole breeding rights for the Cobb breed from the 1970s.¹³ Breeding of Ross birds was introduced in South Africa in the 1970s, and after gaining sole control of the Elite joint venture Astral subsequently held the rights to the Ross 308 breed in South Africa in 2008.¹⁴ RCL and Astral are both fully integrated poultry businesses (breeding, feed, and processing). They have accounted for almost all the breeding stock in South Africa between them, with roughly similar shares.¹⁵ Collectively, they account for close to half of poultry production in South Africa (Table 1). Other producers source breeding stock from RCL and Astral, as well as Country Bird Holdings (CBH) which has another license from EW/Aviagen, for the Arbor Acres bird.

Outside of South Africa, two African multinationals hold the Cobb and Ross breeding rights across most countries (Ncube, 2024). Irvines, a Zimbabwe-based company, holds the breeding rights to the Cobb breed through Cobb Africa in most countries in the region, except in South Africa, Zambia, and Namibia. In Zambia, Hybrid (owned by African Poultry Development Limited, APDL) has owned the rights to the Cobb breed. CBH has held the rights to the Ross bird across most countries since 1999, including through its subsidiary Ross Breeders Zambia (RBZ), with Zambia becoming a regional hub for the Ross breed with parent DOCs being exported to Malawi, Botswana, Senegal, Zimbabwe, Mozambique, the DRC, Angola, Ghana, and Uganda.¹⁶

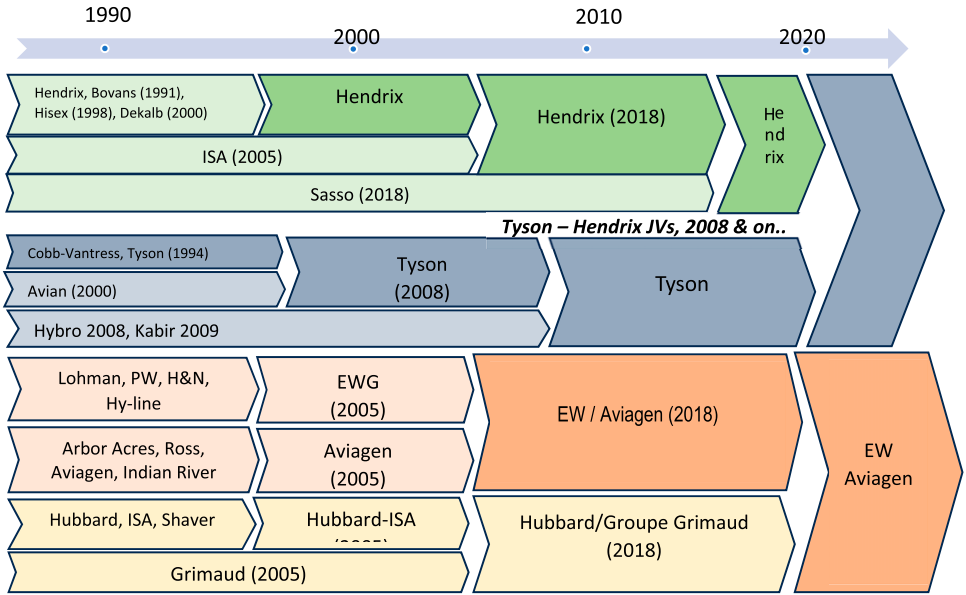


Figure 2. Consolidation of poultry breeding companies through mergers. Source: Adapted from Tak et al., 2022, with additional information from company websites. Notes: (i). This is not an exhaustive list of breeding companies; Tyson and EW Group account for more than 95% of broiler breeding stock globally; (ii). the years indicate when the companies were merged into the bigger groups.

Table 1. Poultry market shares in South Africa, Zambia, and Malawi, 2022.

	South Africa		Zambia		Malawi	
	Share of broiler poultry		Share of broiler poultry		Share of broiler poultry	
Ross breeding rights	Astral	28%	RBZ/CBH (including Quantum, Zamharvest, and Zambeef)	~45%		
Cobb breeding rights	RCL	18%	Hybrid	~45%		
Other breeding stock	CBH (Arbor Acres, EW breed)	9%	Tiger Chicks/Astral (Indian River, EW breed)	~10%		
Companies accessing parent stock or broiler DOCs	Sovereign	8%	Quantum, Zamharvest, and Zambeef	Included in RBZ/CBH, shares unknown	CP	~80%
	Others	37%			Kelfoods	~4%
					Thanzi	~1%
					Others	~15%
		100%		100%		100%

The table draw on Astral Annual Results Presentation 2022, accessed at <https://www.astralfoods.com/assets/Documents/presentations/2022/Annual%20Results%20Presentation%20-%2030%20September%202022.pdf>, Nsomba et al. (2022), and Goga and Roberts (2023). Source: Authors' compilation.

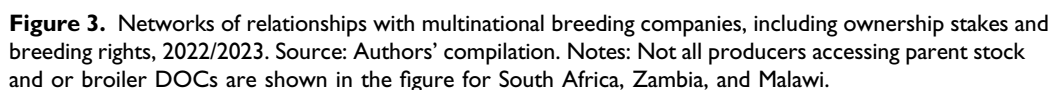
There are very few other producers with licenses to other breeds for their own use. In Zambia, Tiger Chicks (owned by Astral SA) has a license from EW/Aviagen for the Indian River breed for own-use, while in South Africa, CBH holds a license from EW/Aviagen for the Arbor Acres breed. The alternative breeds are thus also from one of the global duopolists. Poultry producers who do not hold breeding rights in Zambia and South Africa have to access parent stock and/or broiler DOCs from the companies with licenses, while also competing with them (Table 1).

In Malawi, poultry producer Central Poultry (CP) dominates, although reliant on sourcing Cobb parent stock from Irvines/Cobb Africa in Zimbabwe and from South Africa. CP produces over 80% of the broiler stock and broiler chickens in Malawi. Other producers in Malawi access small volumes of Ross parent stock from RBZ/CBH in Zambia.

Aside from the licensing arrangements, Tyson and EW/Aviagen have vertically integrated into poultry production in the region by forming joint ventures with African multinationals. Tyson Foods acquired an ownership stake in Irvines/Cobb Africa through Buchan Ltd in 2017¹⁷ and in 2023 entered into a new joint venture with Irvines opening a grandparent operation in Tanzania (Cobb East Africa) to help supply East Africa with broiler breeding stock.¹⁸ EW/Aviagen entered into a joint venture with CBH and APDL to form Aviagen East Africa in 2021 and with CBH to form Ross Central Africa in 2022¹⁹ (Figure 3).

While Tyson and EW/Aviagen are competitors in the breeding stock market, in the region there are links between the two (Figure 3). A third company, Seaboard, owns a stake in APDL and through this in Hybrid in Zambia (which has the Cobb rights for Zambia), while also holding stakes in the EW/Aviagen breeding businesses with CBH (Aviagen East Africa). As well as having ownerships stakes in Hybrid, APDL has ownership stakes through to poultry production in Kenya (in Kenchic,²⁰ the largest poultry producer) and Tanbreed in Tanzania.²¹

The vertical integration of Tyson and EW/Aviagen into the region through the network of holding companies and joint ventures with large African poultry producers means that they together with



Merger review and concentration

The acquisition by Aviagen Group Holding Inc of Hubbard Holding SAS in 2018 was subject to a preliminary assessment by the UK's Competition and Markets Authority (CMA, 2018) and does not appear to have been assessed in terms of its substantive effects in any other country.²² The CMA judged the firms not to be competing on the basis that conventional and slow-growing (free range) breeding stock were found to be in different markets.²³ This differed from earlier cases of the European Commission and the Spanish Competition Authority (see CMA, 2018, footnotes ¹⁰ and ¹¹).

The merger was not assessed in terms of the evolution of the markets (even while a section in merger review purported to consider dynamic competition issues) nor in terms of cross-border effects. Slower growing, free range, and organic broilers are more significant in, for example, France and the Netherlands, with estimated shares of 24%–40%, compared with 11% of UK production in 2019.²⁴ In addition, Aviagen had a slow-growing breed, the Rowan Ranger, which had previously attained a 20%–30% share of this segment in the UK. The merging parties claimed its performance had subsequently deteriorated; however, the Rowan Ranger bird was still being marketed by

Aviagen as an attractive breed in 2022.²⁵ Hubbard sold conventional chicken stock in other European countries but was not considered as a competitor in the UK in this segment.

The joint venture of Tyson and Hendrix, and the acquisition of Sasso by Hendrix, similarly meant that the Sasso slow-growing bird was removed as an independent competing breed.²⁶ Cobb had started cross-breeding with Sasso by 2008, with the launch of the Cobb-Sasso 150 bird, around the same time as the Hendrix-Tyson joint venture.²⁷ By 2015 Tyson's Cobb-Vantress had further developed its "mid-market" bird with Sasso, as the Cobb-Sasso 200 bird, situated between slow and fast-growing breeds. The breed's development was stimulated by animal welfare concerns and pushes to reduce antibiotics, as slow-growing birds are more robust and less prone to stress and diseases.²⁸ Hendrix continued to develop the Sasso bird as a traditional slower-growing broiler after acquiring it in 2017 and continued the collaboration to produce the Cobb-Sasso range of birds.²⁹

The slow-growing breeds are important in African countries as they are more robust and suitable for free range operations. The Hubbard and Sasso birds are suitable for small-holder poultry production in differing conditions and are also marketed across the continent as a dual-purpose chicken which can be raised for both egg production and for meat.³⁰ The mergers between Tyson and EW/Aviagen and breeding companies with slow-growing breeds were not evaluated in African countries as they do not appear to have been notifiable due to the relatively small size of the target companies in African countries at the time.

In addition, there have been the mergers through which Tyson, EW/Aviagen and their regional partners have cemented their integration and cross-shareholdings across Southern Africa, as discussed above. In themselves, these mergers do not appear to have raised concerns. The exception is the conditions imposed by the Zambian Competition and Consumer Protection Commission in the Ross Central Africa joint venture to address exclusivity issues.³¹

There are possible coordinated effects of the mergers especially when cross-border competition is taken into account. In addition, some of the regional and multinational firms have been parties in cartel cases around the world. For instance, the multinationals Tyson and Seaboard have been parties in a number of cartel cases (Alderman and Blair, 2023). As far as regional companies are concerned, in 2018 the CCPC found cartel conduct involving Hybrid Poultry, CBH/RBZ, Quantum Foods, and Tiger Chicks involving collusive practices in breeding stock to restrict supply and raise prices (Sampa, 2025). We turn next to what can be inferred from the data on market outcomes and the likelihood of regional coordination.

Market outcomes under concentration and integration from global to Southern Africa

The global consolidation combined with ownership and licensing arrangements in the poultry industry across Southern Africa does enable coordination of investments along the value chain. It has seen expansions in Zambia of breeding stock for this country to be a regional hub to match South Africa. At the same time, there is the potential to exert market power at different levels of the value chain and vertical integration across borders of the main groups means a close horizontal understanding at different market levels.

South Africa has a long-established large-scale poultry industry with substantial imports and exports of breeding stock (Figure 4). Imports are mainly from Europe reflecting flows of great grand-parent stock from EW/Aviagen and Tyson operations, while exports are to other countries in Southern Africa. Investments in breeding operations in Zambia have seen exports grow strongly, close to the levels of South Africa at over US\$17 million in 2022, as it has become a hub for the region for Ross. The choice of Zambia reflects the good conditions in terms of feed production from

maize and soybeans and low costs. Zambian exports were to Zimbabwe, Botswana, Mozambique, Kenya, Namibia, Tanzania, and Malawi. The main producers in Zambia are also integrated into animal feed production, with low maize and soybean prices in Zambia (the main feed components) (Nsomba et al., 2022). Malawi has been a net importer of breeding stock and a small producer.

In terms of likely effects on competition, we assess the arrangements against the factors in the literature (Harrington, 2007; Kovacic et al., 2011; Marshall and Marx, 2012; Motta, 2004).

The extremely high levels of concentration and extensive multi-market contacts across the continent (as, indeed, around the world) mean companies can readily recognize their mutual interdependence. The series of mergers and acquisitions through which Tyson and EW/Aviagen have shareholding in producers across the continent alongside licensing arrangements means that the companies have direct information flows and control within and across countries.³² This includes the EW/Aviagen shareholding in a regional breeding stock producer (Hybrid Zambia) which has held the Cobb license (Figure 3). Products at different levels are relatively homogenous and there are standard production methods, with joint workshops having been run on this.³³ Detailed industry data on performance can facilitate coordination.

We review available data on DOC prices over the time in which the recent international concentration was replicated in Southern Africa. We further compare with DOC prices in Brazil, noting that Brazil is a major producer and exporter of the main feed inputs of soybean and maize. While Brazil is subject to the same high levels of global concentration at the breeding stock level, it has strong regulatory oversight of poultry competitiveness and input prices as part of government's agri-food development strategies.³⁴ The Brazilian government has also sought to support smaller producer cooperatives alongside the giant poultry integrators (Goga and Bosiu, 2019). A comparison in 2017 found similar prices in Brazil, South Africa, and the EU for DOCs (Van Horne, 2018).

Prices in the Southern African countries have increased significantly over 2017 to 2022 (Figure 5). Prices in South Africa, the established regional hub, increased in 2018 by more than 50% to over US\$0.50 per chick. In Zambia, the increase in grandparent capacity and the joint venture between CBH/RBZ and Aviagen in Zambia in 2021 to form Ross Central Africa Ltd coincided with a sharp increase in 2021 (in local currency and US dollar terms). The decline in February 2020 was

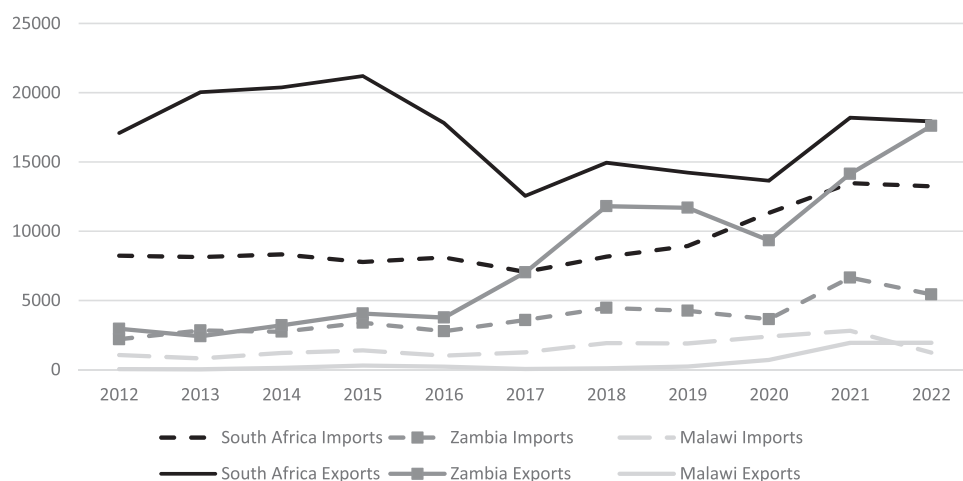


Figure 4. Imports and exports of DOCs and fertilized eggs, US\$ thousands. Source: TradeMap.

due to a major exchange rate depreciation—in local currency the prices remained stable before doubling from mid-2020 over the following 12 months, even while Zambia was a large and growing exporter of breeding stock. Malawian prices for the shorter period in 2021 and 2022 for which we have data have been similar to those in Zambia, increasing in 2021 to 50% higher than South Africa and more than double those in Brazil.

While there may be cost differences between the countries, both South Africa and Zambia have substantial production of maize and soybeans, the key inputs to animal feed. Zambia has been a net exporter of both products over 2017 to 2022 (Nsomba and Roberts, 2023), while South Africa has required some soybean imports and is a net exporter of maize. The substantial price increases in DOCs in South Africa and Zambia are not consistent with costs and not with the countries positions' as regional poultry breeding hubs with grandparent breeding licenses and substantial and growing exports to the region (Figure 4). The increase in grandparent capacity and the joint venture between CBH/RBZ and Aviagen in Zambia in 2021 to form Ross Central Africa Ltd underscore the importance of Zambia for production of DOCs for the region. Malawi is also a net exporter of soybeans; however, it imports parent stock from Zimbabwe, Zambia, and South Africa for production of DOCs.

In Zambia, the increases in DOC prices were suggested by interviewees to be due to shortages in breeding stock associated with conditions under the COVID-19 pandemic.³² However, this is not consistent with increased DOC exports and low feed input costs in Zambia. The merger in RBZ increased capacity and yet, as reflected in Figure 5, Zambian prices increased again following it.

Cartels uncovered in the USA and Zambia point to how collusion has been organized in practice in the poultry industry, as well as indicating its likely international dimensions. The Competition and Consumer Protection Commission (CCPC) of Zambia uncovered cartel conduct involving control over supply of breeding stock in 2018 (Sampa, 2025), several years before the USA identified the same type of conduct.³⁵ Jointly restricting and monitoring supply means higher prices can be

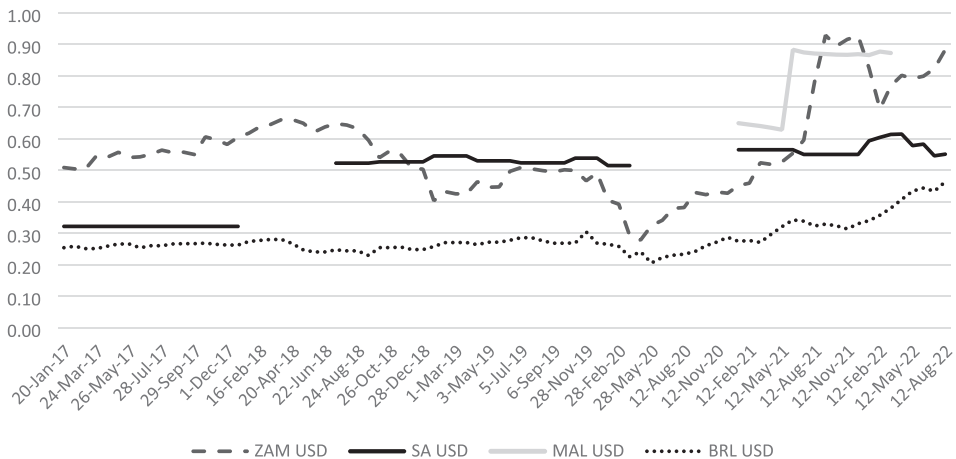


Figure 5. DOC prices in Brazil, Malawi, South Africa, and Zambia, US dollar per chick. Source: (i) Zambian DOC price data was obtained from Poultry Association of Zambia website; (ii) Brazil DOC price data was obtained from CONAB via Brazilian researchers; (iii) data for South Africa from 2018 onwards was obtained from South African Poultry Association reports that collect data from smallholder farmers; (iv) data for South Africa for 2017 was obtained from Van Horne (2018). Notes: We have averaged prices for Parana, Santa Catarina, and Rio Grande do Sul for Brazil.

charged and independent downstream producers are not effective competitors, being rationed in the volumes that they can produce. In addition, at least two of the companies in the USA cartels are present in Southern Africa. Tyson has shares in Irvine's and Cobb Africa (Figure 3), which operate across many countries. Seaboard is identified as a party in the USA pork cartel (though not poultry) and, in Africa, owns stakes in APDL and through it in Hybrid in Zambia, Aviagen East Africa in Tanzania, and Kenchic in Kenya and Uganda.

The network of holding companies and joint ventures across Southern Africa, described above, means that Tyson, Seaboard, and Aviagen have direct influence over poultry production in the region. The relationships make it easy to share information and monitor sales, along with all of the other factors being clearly met relating to a high likelihood of coordination. Moreover, Seaboard is an important connection between companies—through APDL it has stakes in Hybrid with Cobb Africa (along with Tysons and Irvine's) and in Aviagen breeding businesses with CBH, as well as in businesses in Kenya and Tanzania using Cobb and Ross breeds. As parent breeding stock is supplied from regional hubs including Zambia, this means that there is cross-ownership between firms which are actual and potential competitors. In Zambia, Zamhatch sources both Cobb and Ross breeding stock (Nsomba et al., 2022), enabling communication on volumes. Indeed, the levels of concentration, vertical integration, and information exchange are so great that the companies likely do not require explicit agreements for understandings which lessened competition between poultry producers at different levels of the value chain.

Moreover, there is evidence of close communication about breeding operations in the region between the two main competitors. Cobb Europe has held workshops in 2019 with the Cobb breeding companies RCL Foods in South Africa and Hybrid in Zambia, on behalf of APDL Group (the holding company of Hybrid and the JV partner in Aviagen East Africa).³³ The director of Hybrid, Richard Keeley, is quoted as saying "We always enjoy bringing the teams together *across* the ADPL Group" (emphasis added). In the same article, it is noted that "senior poultry leadership from customers across Africa will be invited to the Europe, Middle East and Africa technical school in Harderwijk, Netherlands, in July."³³ While the APDL group became shareholders in the rival Aviagen's businesses only 2 years later in 2021, Seaboard already owned stakes in Kenchic and in Tanbreed in Tanzania since 2007.

The arrangements through which market power is exerted include over the availability of breeding stock, acting as gatekeepers. In South Africa, independent poultry producers were in the past restricted from sourcing other breeds and were tied-in to feed purchases through the terms under which they could source the leading Ross breed.³⁶ The Cobb breeder was vertically integrated and did not supply volumes to independents. The case brought by the competition authority led to an admission and settlement of the conduct in 2012, with alternative breeds being sourced at the time (Bagopi et al., 2016; Grimbeek and Lekezwa, 2013). However, these alternatives are now all from the same two multinational suppliers following the mergers.

In Malawi, just one firm, Central Poultry, has more than 80% of the DOC and broiler markets, and acts as a price-setter for inputs and outputs (Nsomba et al., 2022). The DOC price increase in 2021, in combination with increased feed prices and stable prices in the downstream market for broilers, acted to squeeze the margins of independent poultry producers (Gondwe et al., 2022). Other sources of breeding stock would mean importing from neighboring countries. In other words, the unilateral position of Central Poultry in Malawi is part of the regional duopolistic control over breeding stock.

Conclusions: The implications of international concentration for competition and development

The poultry industry demonstrates how horizontal concentration and vertical integration across borders mean that multinational companies shape markets in and across African countries in

partnership with regionally powerful firms. The control of markets has important effects for production of what is among the cheapest sources of protein. However, it is evident that while the industry is concentrated at an international level, competition enforcement has struggled to get to grips with this concentration and its implications.

First, mergers and joint ventures approved without proper scrutiny in Europe have undermined competition in African countries (as well as around the world), removing actual and potential competitors and increasing the likelihood of coordination. Our analysis demonstrates how important it is to consider the combination of cross-border reach and vertical integration of major companies for an effective evaluation of mergers.

Second, there has been a range of mergers in Africa through which Tyson and EW/Aviagen, as global duopolists, have cemented their control. National merger review has proved woefully inadequate given the internationalized nature of poultry breeding.

Whether in Europe or Africa, national competition reviews typically do not consider possible international effects on the basis that only effects within the jurisdiction undertaking the review can be considered by the competition authority conducting the review. This is severely blinkered as the impacts are transnational, including on national markets, and result from the combination of control along value chains and across borders. The merger reviews have also failed to properly consider coordinated effects and potential competition concerns. In addition, the lack of an effective international merger regime is a major gap in global governance. The issues identified with regard to poultry from the network of ownership and licensing arrangements through to supplies of breeding stock and pricing provide evidence as to why these factors need to be taken into account to address the inadequacy of merger review.

Third, the duopolistic global market structure poses concerns about international coordination at the breeding level and, given the vertical integration, at the level of poultry production. The multi-dimensional market power, information sharing arrangements, cross-shareholding, and licensing point to companies with the power to act as gatekeepers, coordinating and jointly governing the value chain (Dallas et al., 2019; Mondliwa et al., 2021). Horizontal coordination, as identified by competition authorities in the USA and Zambia, is also likely to be international and operate along different value chain levels.

Competition enforcement is not fit for purpose. Competition evaluation needs to address the complex nature of power along the value chain; however, the enforcement framework used continues to evaluate each arrangement as discrete rather than considering it as part of a wider network of control. Constraints on breeding stock supplies have been observed across the countries studied, while prices have increased to very high levels. The competition framework assumes that there will be competition in the absence of explicit restrictions rather than recognizing that extreme concentration means that explicit agreements may no longer be required to exert control. Our assessment points to the fact that a much wider rethink is required along the lines that have taken place for digital platforms where firms are now being subject to ex ante regulation due to multi-sided network effects through identifying “gatekeepers” in the EU’s regime (Digital Markets Act) and platforms with “strategic market status” in the UK legislation.³⁷

We have demonstrated that international concentration concerns and exploitation of market power are reflected in market outcomes in African countries while competition regimes are evidently not up to the task of policing the conduct. The high levels of concentration are combined with a complex of shareholdings and arrangements to shape markets across borders that can only be understood through analysis across the national to the global levels. In the short term, effective cooperation by competition authorities is required to assess and tackle the multi-dimensional market power and its exploitation. In the medium term, an international competition regime is required. For

African countries, the experience of the COMESA Competition Commission can be built on in advancing the competition protocol under the African Continental Free Trade Area.

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ORCID iD

Simon Roberts  <https://orcid.org/0000-0002-6964-2103>

Notes

1. See [Akcigit et al. \(2021\)](#); [Eeckhout \(2021\)](#); [Ennis et al. \(2019\)](#); [Syverson \(2019\)](#); [Wu \(2018\)](#); [Baker and Salop \(2015\)](#); [Lamoreaux \(2019\)](#).
2. See also [McKenna \(2017\)](#) which identified three multinationals before the 2018 merger of EW/Aviagen and Hubbard.
3. Settlements of these cases have been reached by the main producers, including Tyson having reached a settlement of \$221.5 mn (Tyson Annual Report 2021 on Form 10-K SEC filing, pages 78–80) and Pilgrim's Pride has admitted conduct and paid a fine of \$110 mn (<https://news.bloomberglaw.com/antitrust/pilgrims-to-pay-110-5-million-fine-over-chicken-price-fixing>).
4. As observed in [Sappington and Turner \(2023\)](#) from *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶123: "Because breeder flocks are created from a limited pool of so-called 'grandparent' chickens from one of only three genetics companies (Aviagen, Hubbard, and Tyson's Cobb-Vantress), it takes substantial time – anywhere from six to eighteen months or more – to re-populate a breeder flock."
5. See UNITED STATES OF AMERICA U.S. Department of Justice 950 Pennsylvania Avenue NW Washington, DC 20530, Plaintiff, v. AGRI STATS, INC. 6510 Mutual Drive Fort Wayne, IN 46825, Defendant. Case 0:23-cv-03009.
6. See United States of America and others v Agri Stats Inc Second Amended Complaint filed 15 November 2023 in United States District Court, District of Minnesota, CASE 0:23-cv-03009-JRT-JFD.
7. In South Africa it is estimated to cost around R50-R70 million (\$3 million–\$4 million) to set up a grandparent breeding operation (interviews with market participants in South Africa, August and September 2022).
8. According to para 360 of End-User Consumer Plaintiff's Fifth Consolidated Amended Class Action Complaint (Redacted Version), filed, 7 August 2020, United States District Court, Northern District of Illinois Eastern Division.
9. We focus on the breeds for meat production; there are different breeds for layers (eggs).

10. It also held the Arbor Acres and Indian River birds (<https://www.redcombgenetics.co.nz/ross-breeders-ltd/>).
11. Cobb Pedigreed Chick was founded in 1916 in the US and claims to be the oldest poultry breeding company in the world.
12. <https://www.canadianpoultrymag.com/cobb-and-hendrix-extend-rd-partnership-12415/>; email communication with Hendrix, 4 November 2022.
13. https://cobb.madebyprisma.com/en_US/who-we-are/our-history/. Rainbow (RCL Foods) has recently moved to the EW/Aviagen Indian River Breed as part of a turnaround strategy (<https://rclfoods.com/wp-content/uploads/2024/06/Rainbow-Chicken-Limited-Independent-Analyst-Research-Report.pdf>).
14. <https://www.news24.com/fin24/new-poultry-breed-coming-to-sa-20080626>.
15. Interviews with market participants in South Africa (August and September 2022) and <https://rclfoods.com/brand/cobb/> (accessed 30 June 2023).
16. https://www.cbh.africa/zambia/#:~:text=Ross_Breeders_Zambia_was_incorporated,chick_and_hatching_egg_production. And <https://rossafrica.com/index.php/zambia/>.
17. <https://www.just-food.com/news/tyson-and-ex-ceo-donnie-smith-invests-in-african-poultry-business/> (accessed 25 February 2024).
18. https://www.cobbgenetics.com/en_US/news/cobb-expands-its-footprint-in-africa-with-new-jv (accessed 25 February 2024).
19. <https://www.competitionauthority.co.bw/cca-approves-acquisition-25-issued-shares-ross-central-africa-limited-aviagen-european-holdings> (accessed 25 February 2024).
20. <https://comesacompetition.org/wp-content/uploads/2024/04/Website-Notice-MHM-Africa-Poultry-Final.pdf> (accessed 25 February 2024).
21. Interchick/Tanbreed is part of the APDL group <https://apd.africa/> (accessed 25 February 2024).
22. While the acquisition was of the entire Hubbard business, it is not clear that reviews of the merger were made in countries such as France, Brazil, or the USA. A search of all merger control decisions of the French Autorite de la Concurrence does not indicate a decision. The USA cartel case identified Tyson, Aviagen, and Hubbard accounted for 98% of broilers in the USA yet did not appear to assess the merger which meant the three became two (see End-User Consumer Plaintiff's Fifth Consolidated Amended Class Action Complaint (Redacted Version), filed, 7 August 2020, United States District Court, Northern District of Illinois Eastern Division).
23. In value terms in the UK, Aviagen estimated its share of all types of chicken parent stock as being 80%–90% in the UK with an increment from the merger of 5% to 10% (para 14 of [CMA, 2018](#)). Hubbard's share in slow-growing parent stock was estimated at 80%–90% in the UK.
24. Proportions of slow-growing birds in France and the Netherlands are high, estimated to be at 24% and almost 40% (<https://www.poultryworld.net/Meat/Articles/2019/7/Slow-growing-birds-are-fast-becoming-mainstream-454287E/> accessed, 28 March 2023). Slower-growing breeding parent stock has been around 35% of the French market (<https://www.poultryworld.net/Genetics/Articles/2015/11/Breeding-for-alternative-markets-2709620W/>), see also [EU \(2019\)](#).
25. <https://en.aviagen.com/brands/rowan-range/>, accessed 6 June 2022.
26. In 2008 Hendrix and Tyson agreed a joint venture, subsequently extended, to share and promote expertise in the field of genomics, which included Tyson's Cobb-Vantress acquiring the Hybro breed in exchange for preferred stock. <https://www.canadianpoultrymag.com/cobb-vantress-and-hendrix-genetics-alliance-1252/> accessed 7 February 2023; <https://www.canadianpoultrymag.com/cobb-and-hendrix-extend-rd-partnership-12415/> <https://www.wattagnet.com/articles/24863-cobb-vantress-and-hendrix-genetics-sign-joint-development-agreement> accessed 7 February 2023.
27. <https://www.poultryworld.net/poultry/uk-two-new-chicken-breeds-launched/>.

28. <https://www.poultryworld.net/poultry/breeding-for-alternative-markets/>. Aviagen was developing its Rowan Ranger for this market, as was Hubbard's bird, and there was a wider initiative to develop the "chicken of tomorrow."
29. <https://www.hendrix-genetics.com/en/animalbreeding/traditional-poultry-breeding/> accessed 7 February 2023; https://www.cobb-vantress.com/assets/Cobb-Files/product-guides/6c1436d72b/CobbSasso_Breeder_Management_Supplement_v1_EN.pdf; Email communication with Hendrix, 4 November 2022.
30. <https://africa.sasso-poultry.com/en/> accessed 7 February 2023.
31. The Zambian CCPC granted conditional authorization due to competition concerns and imposed conditions including that Aviagen undertook not to restrict companies from Zambia from importing other breeds under the Aviagen group.
32. Interviews with market participants in Zambia, August 2022.
33. See <https://www.poultryproducer.com/cobb-europe-drives-innovation-in-southern-africa/> accessed 13 December 2022.
34. <https://www.cepea.esalq.usp.br/en/opinion/for-20-years-cepea-research-on-poultry-sector-helps-brazilian-players-to-make-decisions.aspx>.
35. The CCPC had also previously found cartel conduct by the poultry breeders in 1998-99 (Roberts, 2023).
36. See Competition Commission South Africa press release "Competition Commission settles poultry case with Astral Operations," 22 November 2012.
37. See Competition and Markets Authority https://assets.publishing.service.gov.uk/media/659ee36de8f5ec000d1f8b60/20240110_overview_of_digital_markets_regime_-_FINAL_for_publication.pdf (accessed on 15 November 2024).

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