

2 Corporate Concentration in Global Meat Processing: The Role of Feed and Finance Subsidies

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Like many other industries, the meat processing industry has become much more global, and ownership has concentrated dramatically in recent decades. The three largest firms globally are JBS of Brazil, Tyson Foods Inc. of the United States, and WH Group Limited of China. When their shares are aggregated in the U.S. market they control 63 percent of pork packing, and just two (Tyson and JBS) control 46 percent of beef packing and 38 percent of poultry (Tyson Foods 2016). These levels are of concern because institutional economists describe a market where four firms control 40 percent or more of sales as an oligopoly, or a shared monopoly, due to conducive conditions for increasing prices (Howard 2016). In addition, the largest meat processors have concentrated markets not just (1) horizontally, through acquiring direct competitors in their initial processing sectors (e.g. poultry); they have also grown (2) concentrically, by branching into the processing of additional livestock species; and (3) vertically, by taking over upstream suppliers (e.g. animal genetics, feed mills, feedlots) and downstream packaged/branded food manufacturers. By 2018, among all global packaged food firms, the largest included JBS ranked at number 2, Tyson at number 3 and WH Group at number 13 (Kalkowski 2018). These meat processors each control dozens of brand names, giving retail consumers the illusion that ownership remains quite diverse. Even more hidden from public view, however, the meat processors are reshaping a system that was previously characterized by a long series of stages/markets between farmers and consumers, each composed of numerous competitive firms. In its place, they are moving toward an increasingly “seamless system,” with just a few firms controlling every aspect of production (Heffernan, Hendrickson, and Gronski 1999).

Government subsidies, both direct and indirect, have been crucial in supporting these trends. These are numerous, and include direct ownership stakes, payments or tax breaks for production, low-interest funds to finance acquisitions, policies that shift the burden of environmental and community impacts of their operations to taxpayers, and regulatory barriers that disadvantage competing firms. This chapter focuses on two key subsidies that reduce the costs for (1) obtaining the key input of animal feed, and (2) acquiring competitors. Such advantages have greatly assisted the leading firms in overcoming previous limits to global dominance, both biophysical and social.

This chapter also explores the tensions between “legitimation and accumulation” (O’Connor 1973), as government efforts to assist the most dominant firms also threaten to undermine public support—not only for subsidies, but also for the authority of governments themselves. Political and economic changes in the meat processing sector, for example, have restructured societies in ways that have led to the loss of livelihoods of numerous smaller packagers, processors, farmers, and breeders. In addition, they have resulted in negative impacts for public health, animal welfare, and local and global ecosystems. Furthermore, they threaten the resilience of the food supply by locking in a highly centralized system that is increasingly vulnerable to potential disruptions, such as climate change and disease outbreaks. Both governments and dominant firms seek to justify these consequences through rhetorical strategies, and by efforts to obscure the full costs of their actions.

The next section reviews the literature on government subsidies and their role in facilitating global corporate concentration. This is followed by case studies of the three largest meat processors globally, with a focus on data from the most recent twenty-year period (1996–2016). The analysis compares the different strategies that national governments have used to fuel and rationalize the growth of these firms, as well as the role of these firms in garnering these supports. It suggests that Tyson has benefited greatly from subsidies for animal feed, WH Group from finance subsidies, and JBS from both types of subsidies, which has helped the latter to achieve its current ranking. The concluding section then highlights the impacts of these trends, and then explores the likelihood that they will continue.

Global Concentration and National Government Subsidies

Decision-makers in dominant firms are constantly seeking to increase the power of their organizations (Nitzan and Bichler 2009). If they do not, they are likely to lose investors or become vulnerable to takeover by other firms, or both. Governments frequently assist these efforts (Baran and Sweezy 1966), as their policy changes are overwhelmingly shaped by elites (Bartels 2010; Gilens 2014; Schlozman, Verba, and Brady 2012). O'Connor (1973) described the challenges that governments face, however, as they negotiate tensions between helping dominant firms to accumulate more power, and a loss of legitimacy as this process negatively impacts the rest of society. Corporations increasingly recognize the importance of maintaining broad support for the political economic system, and are devoting more resources to public relations, funding for think tanks and endowed faculty positions, and other methods of reducing the potential for resistance (Boyd 2000).

Government subsidies often give dominant firms advantages over competitors, and even small gains can become magnified as the “rich get richer” (Barabási and Bonabeau 2003; Easley and Kleinberg 2010), thus reinforcing trends toward concentration. As leading firms have encountered limits to increasing power in their nations of origin, they have expanded globally in search of cheaper inputs and additional markets (Constance and Heffernan 1991). This greater scope provides even more advantages over competitors, as they are able to pit nation-states against each other, scouring the globe for the most favorable government supports and the weakest regulatory oversight (Bonanno and Constance 2010). A global scope also makes tensions between legitimation and accumulation more visible, as the governments that fostered the rise of these firms find it even more difficult to rationalize the benefits for their own bureaucracies, let alone the majority of their citizens.

Government actions to support accumulation by dominant firms have been essential in overcoming both biophysical and social barriers to their growth. Biophysical limits have been overcome through government actions that subsidized and artificially cheapened the costs for feed and for long-distance transportation, as well as increased the ability to produce livestock in more confined spaces (government-funded research for faster growth, reduced feed consumption, disease control, disposal of more concentrated

wastes, etc.). Social limits have been overcome through actions that, for example, helped to give dominant firms advantages over competing firms (easier access to finance, higher direct subsidies, lower levels of regulatory oversight, increased barriers to entry for smaller firms), reduced labor costs (anti-union “right-to-work” laws, more government assistance to supplement below-subsistence wages) (see chapter 6 for discussion of low-wage work), and reshaped dietary patterns (increased consumption of meat and more highly processed meats).

For dominant firms that seek to grow faster than competitors, Nitzan and Bichler (2009) identified two key pathways: pursuing *depth*, which involves raising prices or reducing costs, and *breadth*, which involves internal or external growth. Subsidies that enable dominant firms to employ these strategies more effectively or with less risk than their closest competitors may provide critical advantages.

Some of the most important subsidies in meat processing are those that reduce animal feed costs and finance acquisitions. Feed, for example, is typically the largest cost embodied in the retail price of meat, accounting for 60 to 70 percent of expenses in confined production systems (van Huis et al. 2013, 171). In addition, internal growth is difficult for processors focused on markets in the global north, where per capita meat consumption has leveled off. The ability to achieve external growth through acquisitions (figure 2.1), especially if financing can be arranged at low interest rates, can significantly influence which firms (and their executives) rise or fall.

Not surprisingly, overcoming previous biophysical and social limits to the growth of dominant meat processors has resulted in substantial negative impacts, not only the intended effects of increasing social inequalities, but also the collateral damage of additional human and environmental costs (Cochrane 2010). These “externalities,” which are not typically calculated in economic analyses, include the loss of viable rural communities, the public health impacts of increased consumption of industrially produced and highly processed meats, resource depletion, pollution, and the increased suffering of animals. Meat processors and government actions increasingly are delinking livestock production from its previous ties to nearby land resources (e.g., sources of feed), enabling the concentration of much higher numbers of livestock in increasingly small areas (Naylor et al. 2005).

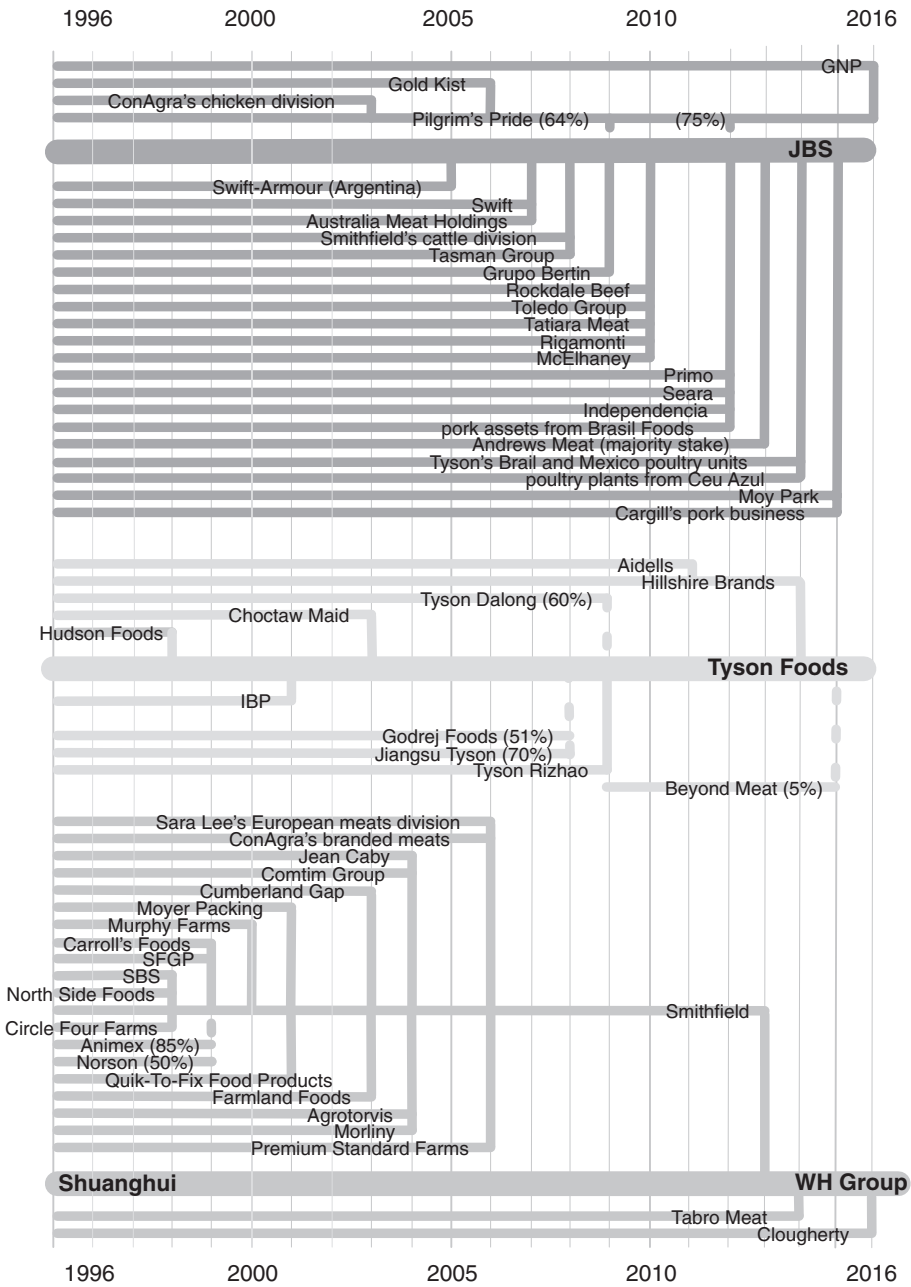


Figure 2.1

Leading global meat processing firms: timeline of ownership changes, 1996–2016

One example of the increasing socioeconomic and environmental interactions between distant places is the exponential rise in shipments of soybeans from Brazil and the United States to China for livestock consumption (Liu et al. 2013). This is not only a process of concentrating ownership and production, but a process of separating people from their means of production, and livestock from feed and nutrient cycles (Schneider 2017b). These actions to reshape society and ecosystems increase the “ecological hoof-print” of meat by constantly increasing the amounts of external inputs like energy, water, nutrients and chemicals in its production and distribution (Weis 2013a,b). In addition, these trends, which have also led to greater genetic uniformity of livestock, increase the risk of disease outbreaks in both animals and humans (Manning, Baines, and Chadd 2007).

These impacts are rationalized or obscured through rhetorical strategies, including direct statements from firms and government agencies, as well as proxies, such as trade associations, think tanks, fake grassroots (“astroturf”) groups, and so on (Hamerschlag, Lappe, and Malkan 2015). Some common themes include appeals to the “efficiency” of an increasingly centralized system and the need to feed growing populations. The illusion of efficiency is reinforced by relatively cheap prices for consumers (Carolan 2014), but that can only be maintained if subsidies and damages are ignored (Weis 2010, 2013b). Claims of feeding hungry populations are similarly shaky—the increasing throughput of industrialized systems does not address distributional issues, which are exacerbated by these trends (e.g., undermining informal food systems and displacing smaller, less resource-intensive producers) (Schneider 2014). What Freudenberg (2005) calls “diversionary reframing” (or more plainly, changing the subject) is also a common strategy, such as deflecting blame for these problems toward other actors. Industries and governments have attributed recent outbreaks of avian influenza to wild birds, for example, rather than large-scale confinement operations (Wallace 2017), although smaller, outdoor operations have been less affected than industrial operations (Philpott 2015).

Feed Subsidies: Tyson

Tyson Foods is the second largest meat producer in world and the largest in the United States. The publicly traded corporation is ranked first in processing of poultry and beef, with U.S. market shares of 21 percent and

24 percent, respectively. It is also ranked second in pork, with an 18 percent market share (Tyson Foods 2016). Tyson initially was founded as a poultry firm in the 1930s by John W. Tyson, shortly before this industry began rapidly consolidating and vertically integrating.

Tyson receives a diverse array of subsidies, but among the most important are those that reduce the costs of corn and soybeans that are fed to livestock. In the United States, Department of Agriculture programs providing direct payments to farmers of these crops enabled Tyson to save an estimated \$288 million per year just for its chicken division, according to an analysis of data from 1997 to 2005 (Starmer, Witteman, and Wise 2006). These calculations do not include the opportunity costs of growing government-subsidized animal feeds, rather than crops for direct human consumption, which would require significantly fewer resources per calorie (Winders 2017). Nor do they include the ecological impacts of growing crops that require substantial fertilizer and pesticide inputs, such as the zone of hypoxia (low oxygen) in the Gulf of Mexico that results from the runoff of these inputs and suppresses aquatic life.

The industrial model of animal agriculture was first developed for chickens, which are smaller and reach maturity faster than other key livestock species. This model is now being effectively applied to pork. Barriers to its application in beef systems are stronger but are also slowly being dismantled (e.g., via growth promoters such as ractopamine). Significant differences in feed conversion efficiency persist, however, averaging 1.7 pounds of feed to produce a pound of body mass in chicken, compared to 2.9 pounds of feed for pork, and 6.8 pounds of feed for Hereford beef (Bourne 2014).

This currently gives advantages to firms specializing in species with the most efficient conversion rates, particularly in geographic regions where feed costs are lower than in other parts of the world. Examples include poultry and pork firms in the United States, Brazil, and Argentina that have cheaper access to soybeans than firms in China and the EU. For firms specializing in less efficient species, such as beef, geography can also provide advantages, such as those in Brazil, Argentina, and Australia that make use of less expensive pasture (all year-round) for the majority of their cattle feed.

Tyson is not the only firm in the United States to have the advantage of subsidized animal feed for pursuing growth through *depth*, but its executives

were willing to take more risks than competitors to achieve *breadth*. The founder's son, Don Tyson, convinced his father to continually reinvest revenues in expansion when most of their competitors did not. In what is considered a low-margin industry, the firm was able to better withstand market cycles, as well as to acquire competing firms when poultry prices dropped (Leonard 2014). For example, in 1998 Tyson acquired Hudson, another large meat processing firm, at a relative bargain price of \$682 million (aided by an outbreak of E. coli and a subsequent USDA-ordered recall that some analysts viewed as excessive). Even so, founder James Hudson's family received \$515 million to exit the business (Warner 1997).

Tyson's corporate motto is "segment, concentrate, dominate" (Bonanno and Constance 2010, 132), and Tyson considered it important enough to file a trademark application on these three words in 1998. Its executives follow this motto by identifying narrow markets on which to focus their resources, increasing the firm's share of these markets to achieve the top ranking, and then selecting other segments to dominate. Figure 2.2 shows the location of Tyson acquisitions over a recent twenty-year period. In 2001, for instance, the firm acquired IBP for \$4.7 billion, after winning a bidding war with Smithfield. This move helped Tyson to achieve a dominant market share in beef processing, and a temporary position as the world's largest meat producer and processor (Barboza and Sorokin 2001). Tyson's geographic expansion has focused primarily on Asia through several joint ventures with firms in China and India, and some of these have been converted into full ownership.

Tyson's upstream subsidiary Cobb-Vantress supplies breeding stock for its operations, and it has acquired or partnered with a number of other poultry genetics firms in recent years, as shown in table 2.1. An estimated 95 percent of the world's commercial breeding stock for chickens produced for meat is now controlled by Tyson and just two other firms: EW Group and Groupe Grimaud (IPES-Food 2017). This has resulted in a high degree of genetic uniformity, combined with highly concentrated production, which enables diseases to spread more easily (see chapter 3). Tyson and other firms in the United States and Asia have experienced epidemics of avian influenza that have impacted poultry breeding and production (although some costs have been offset by hundreds of millions of dollars in subsidies for disease control, as well as government payments to growers who experienced losses) (Greene 2015).

Table 2.1

Ownership change for Tyson's Cobb-Vantress subsidiary

Date	Ownership change	Location
2007	Acquisition of Hybro (from Hendrix)	Netherlands, EU
2008	Joint venture for R&D with Hendrix	Netherlands, EU
2008	Acquisition of Avian Farms	Maine, United States
2008	Partnership with Sasso	France, EU
2013	Majority stake in Hubei Tong Xing	Hubei, China
2014	Acquisition of Heritage Breeders	Missouri, United States

Don Tyson, who died in 2001 at age eighty, was by that time a billionaire and one of the four hundred richest people in the United States. Yet most of the people employed directly by Tyson are no longer unionized and receive extremely low wages (see chapter 6). A sign in a Tyson processing plant in Arkansas states in both English and Spanish: "Democracies depend upon the political participation of its citizens, but not in the workplace" (Striffler 2002, 306). Tyson also exploits the labor of farmers who raise the company-owned poultry through its use of contracts. The firm uses a tournament system, which it pioneered, although other processors have adopted the system (and it has extended to the pork industry). In this system contract farmers are ranked against each other using nontransparent information, and their compensation is adjusted to reward high performers and punish low performers. Many variables such as the quality of feed and livestock are out of the farmers' control (Domina and Taylor 2009). Although Tyson's power has increased substantially over time, the benefits have not trickled down to the rural communities in which it operates. The journalist Christopher Leonard (2014), for example, found that per capita income in the majority of the seventy-nine counties where Tyson has facilities did not grow as fast as the state average.

Tyson and other U.S. meat processors have lobbied extensively to protect crop subsidies, and they have also lobbied against subsidies for ethanol that have diverted feed crops for use as fuel and slightly increased the price of feed in recent years (Kabel 2006). In response to pressure to end direct payments, these programs have shifted to subsidies for crop insurance, including insurance against market price declines, resulting in very similar

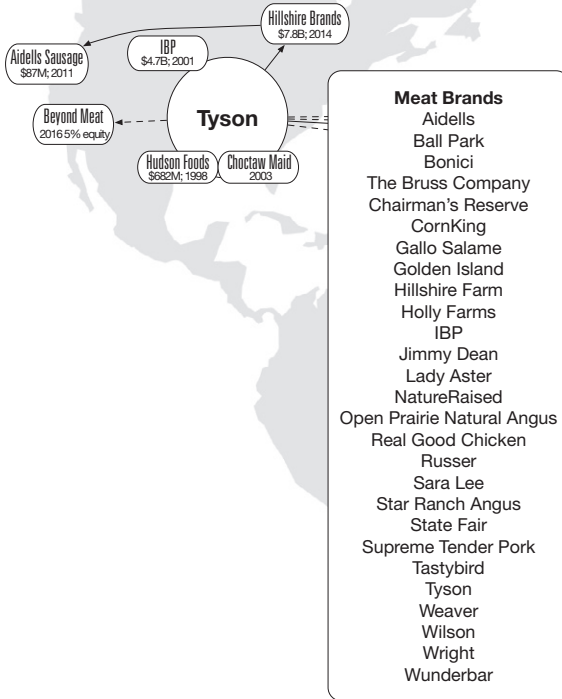


Figure 2.2
Tyson: ownership changes, 1996–2016

impacts for keeping feed prices low. Tyson also funds a number of organizations that attempt to put a positive spin on the corporation’s increasing dominance, including the Center for Consumer Freedom, Center for Food Integrity, and the AgChat Foundation (Hamerschlag, Lappe, and Malkan 2015). The corporation’s website touts its commitment to animal welfare, sustainability and charitable giving. Tyson also promotes its image with advertising, which is a tax-deductible expense.

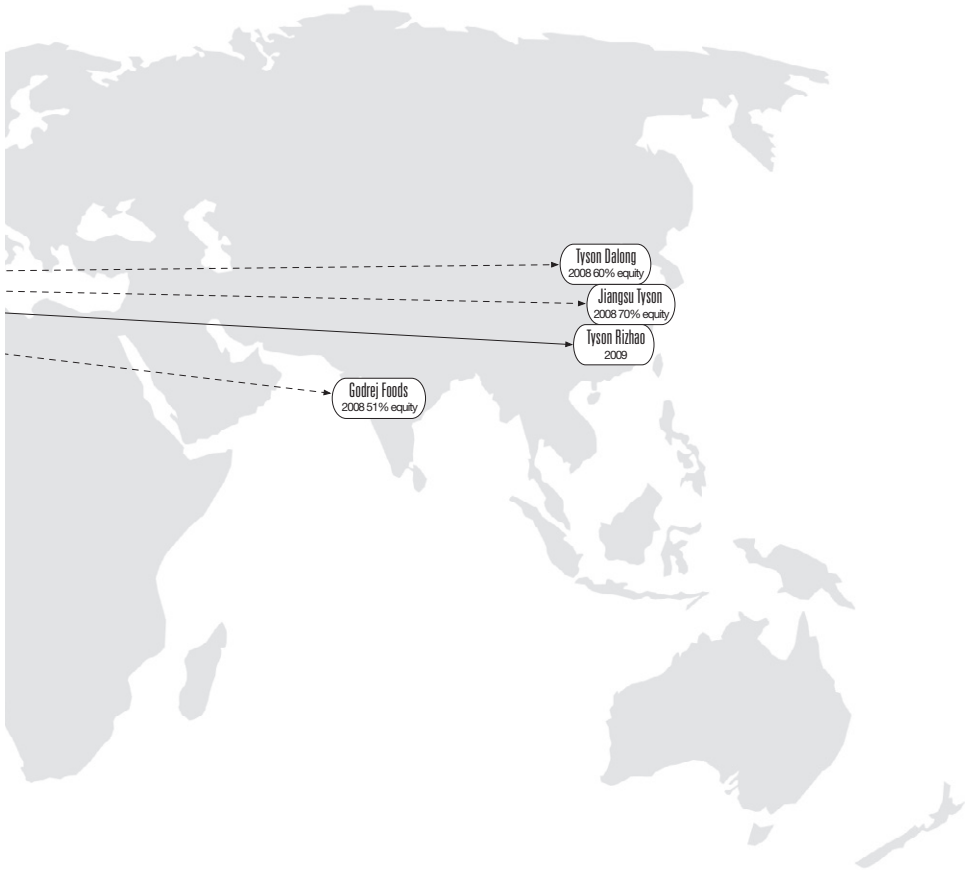


Figure 2.2 (continued)

Finance Subsidies: WH Group

In comparison to Tyson, WH Group has benefited far more from government finance subsidies than subsidies for animal feed. WH Group is the world's largest pork processor, and it is also dominant in the United States with a 25 percent market share (Tyson Foods 2016). The firm was started as the government-owned Luohe Slaughterhouse in the province of Henan, China, in the late 1950s, but it went bankrupt in 1984. It was

then reorganized with the appointment of Wan Long as general manager of the factory (Tao and Xie 2015). The firm was later renamed Shuanghui and grew to become one of the leading pork firms in China, a nation that produces and consumes half of the world's pork (see chapter 4). When Shuanghui acquired Smithfield in 2013, however, it was just half the size of the latter, as measured by sales. This resulted in the largest takeover of a U.S. firm by a Chinese corporation, and Smithfield at that time held the title of the world's largest hog raiser and pork producer.

The Bank of China provided a \$4 billion loan for this acquisition and approved it in just one day. Larry Pope, CEO of Smithfield, after being shown the documents detailing this move, said, "Wow. I don't think I could go out today and get the U.S. government to support making a \$4 billion loan as a social responsibility for Smithfield to move forward on a foreign ... country's territory. No, I don't think that's doable in any industry that I can think of" (Woodruff 2014). Pope was expected to receive \$46.4 million in compensation upon the sale of the corporation, which came as Smithfield was under criticism for its high level of executive compensation and poor performance relative to firms in closely related industries (Smith 2014). Wan Long remains head of WH Group and paid himself a \$460 million bonus after acquiring Smithfield (Halverson 2015), making him a billionaire—he is now one of the four hundred wealthiest people in China.

Shuanghui subsequently reorganized under the name WH Group. It has continued to expand globally with government support and has since made more acquisitions in the United States, as well as Australia (figure 2.3). The firm is planning further acquisitions with a goal of becoming world's largest packaged meats firm, and it is expected to reduce the cost of financing for their Smithfield subsidiary to allow it to be the face of many of these transactions (Sito 2016). WH Group is rapidly expanding from its origins in pork processing to vertically integrated poultry production. One example is a joint venture with Nippon Ham Japan to supply technology for facilities in Henan province that will initially produce 50 million chickens per year (Pi 2014). The higher feed-conversion efficiency of chickens will allow the firm to produce more meat at a lower cost than its pig operations in China, although it will also require shifting strong cultural preferences for pork toward this alternative.

It is notable that Smithfield benefited from USDA feed production subsidies prior to its acquisition by WH Group—these were estimated to have saved \$284 million per year for its hog division from 1997 to 2005 (Starmer and Wise 2007). Smithfield was also very aggressive in making acquisitions before its growth slowed and the firm became vulnerable to takeover. In addition to buying a number of its U.S. competitors, Smithfield took advantage of Poland and Romania's admittance into the European Union in the early 2000s to privatize previously government-owned firms there. It also established front companies to acquire more farms to circumvent limits to foreign ownership (Public Citizen 2004). In Romania its expansion coincided with the loss of 90 percent of hog farmers (400,000 farms) in just four years (Carvajal and Castle 2009). Smithfield also received \$40 million in loans from the World Bank to expand its Norson joint venture in Mexico, just a few months before being acquired by WH Group.

After WH Group acquired Smithfield, its new subsidiary immediately began exporting cheaper U.S.-raised pork to China. Imports in China have increased significantly since 2007 when it became a net pork importer, reaching a record high in early 2016 (Gale 2017). One limiting factor in China is the lack of sufficient arable land for feed crops to supply industrial pork farms, so China has increased its imports of corn and soybeans in an attempt to overcome these limits (Peine 2013; Schneider 2011). When including subsidies for other aspects of production (such as a strategic pork reserve, grants, subsidized loans, and tax breaks), the pork industry in China receives an estimated \$22 billion, or \$47 per pig (*Economist* 2014). Despite this, the USDA estimates that it is currently cheaper to produce hogs in the United States than China, with feed costs playing the largest role (Philpott 2013). WH Group, through its division Smithfield Grain, is also vertically integrating its supply chain for animal feed in the United States to reduce costs further. The firm is purchasing grain elevators in Ohio and securing contracts with grain farmers to supply the majority of its feed inputs, as well as ending previous contracts with many grain traders (Hirtzer 2016).

Also limiting the growth of pork production in China are the environmental impacts and lack of regulatory enforcement of existing operations. One example was 16,000 dead pigs that were found dumped into the Huangpu River in 2013, after a crackdown on sales of dead meat—the animals were affected by porcine circovirus (Davison 2013). Incidents

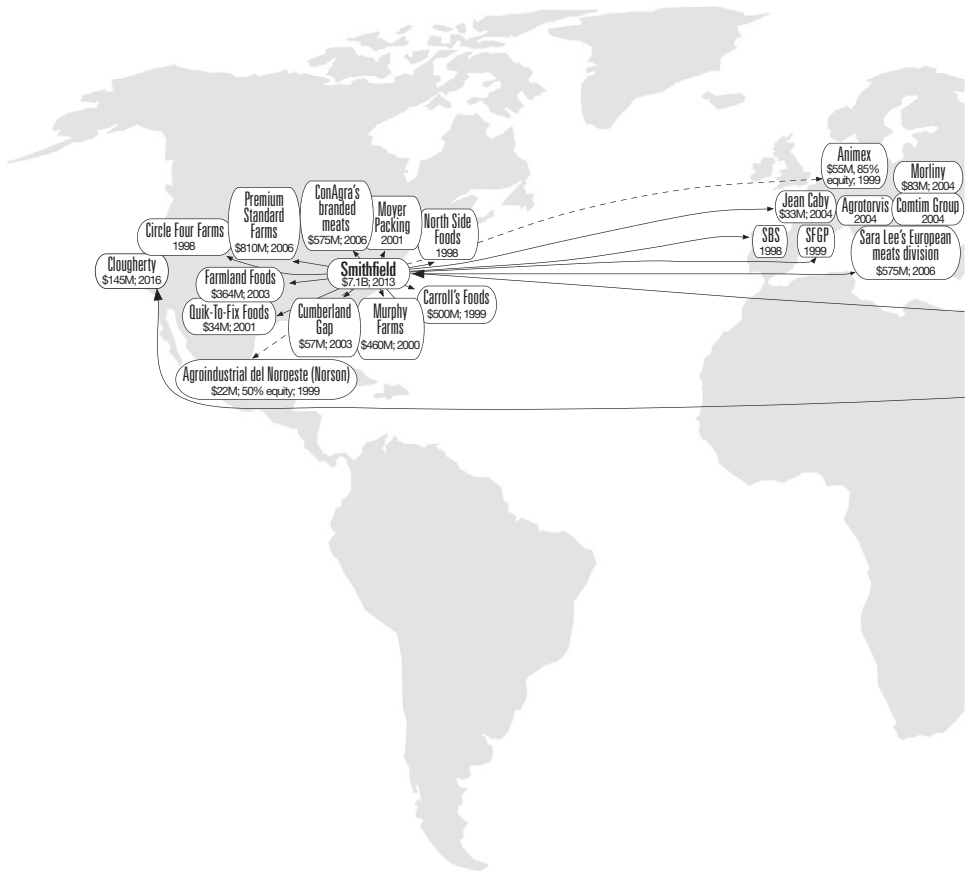


Figure 2.3
WH Group: ownership changes, 1996–2016

like these have resulted in increasing restrictions on production near rivers and more affluent areas and have contributed to insufficient domestic supplies to meet the growing demand for pork. A 2011 national government directive detailed a five-year plan to acquire foreign businesses to help address this issue, which justified providing Shuanghui/WH Group with the resources to acquire a larger U.S. firm (Halverson 2015).

The Chinese government has also rationalized the growth of WH Group and other large meat processors with rhetoric of efficiency and rural development (Schneider 2017a). Following the U.S. industrial model, government policies specifically encourage economic and geographic concentration by



Figure 2.3 (continued)

designating “dragon head” enterprises—the term refers to dragon dancers in parades, and the importance of the person who wears the head of the creature for those who follow in line as its body. This leadership role has been assigned to select firms in a number of agribusiness industries (e.g., COFCO for grain trading, New Hope Group for animal feed) to facilitate increasing the scale of production, as well as more vertically integrated supply chains. Dragon head meat processing firms are technically obligated to contract with household-level producers to address rural development goals, but frequently inflate these numbers, and instead work with larger-scale producers (Schneider 2017a). These policies have been effective in dramatically transforming the pork sector in China, reducing smallholder

producers from 74 percent of pig production in 2000 to less than 37 percent just a decade later (Schneider and Sharma 2014).

These actions by the government of China contribute to increasing pork consumption, particularly for its more affluent citizens, which aids in its legitimization (Schneider 2014). This is an example of a process that Weis (2013b) describes globally as “meatification,” and is spurring increased consumption of meat in other less industrialized nations such as Brazil, Russia, and South Africa. The ecological, social, and human health impacts of these trends are downplayed by both WH Group and the government of China. Smithfield’s slogan, for example, is “Good food. Responsibly” (which is a registered trademark). The corporation has an annual sustainability report that highlights its initiatives in animal welfare, the environment, and food safety. Its parent corporation, however, is not part of the Round Table on Responsible Soy (discussion follows), and the government of China has not encouraged any firms headquartered in the nation to participate in this organization (*Economist* 2014).

Feed and Finance Subsidies: JBS

JBS is the world’s largest meat processor, a position that was greatly aided by both feed and finance subsidies. The firm is dominant globally in beef and poultry processing but is ranked second for both in the U.S. market, with market shares of 22 percent and 17 percent, respectively. It is also ranked third in the United States for pork processing, with a market share of 20 percent (Tyson Foods 2016). The firm was founded by José Batista Sobrinho in 1953, with a focus on slaughtering beef, and was renamed after his initials in 2005—it was initially called Friboi.

The dramatic growth of JBS in recent years coincided with receiving access to low-cost loans from the Brazilian government, in exchange for becoming a shareholder. This reflects Brazil’s “national champions” development strategy, which resulted in government investments in some of its largest firms, and particularly in the meat sector, due to its world-leading position in exports of these products (Pigatto and Pigatto 2015)—other industries of focus included beer (Ambev/InBev), iron ore (Vale), telecommunications (Oi), and petroleum (Petrobras). Brazil’s development bank, BNDES, acquired a stake in JBS in 2007, which currently accounts for 20.36 percent of shares, and another government-owned bank, Caixa, has a

4.99 percent stake. The total government investment was once as high as 31.41 percent (Degan and Wong 2012), but is being reduced to avoid being affected by the nation's credit rating. BNDES also made smaller investments in the Brazil-based meat processor Marfrig, which enabled it to acquire firms in the United States and UK (Pigatto and Pigatto 2015), and financed a merger of two leading firms to create Brasil Foods (BRF)—Marfrig and BRF are also ranked in the top ten among global meat processors (Sharma and Schlesinger 2017).

JBS has faced increasing criticism for receiving unfair advantages from the government of Brazil. In 2015, for example, it fell under investigation by the federal accounts court, questioning the “privileged treatment granted to the company,” such as the speed with which loans by BNDES were approved for very complicated and risky acquisitions (Clarke 2015). In 2016, two of the founder's sons, Wesley Batista and Joesley Batista, temporarily stepped down from their roles as CEO and chairman of JBS, respectively, due to being detained (and later jailed) in an investigation of pension fund fraud, which targeted other firms held by the family (Magalhaes and Jelmayer 2017). Although state-run firms are not allowed to finance political campaigns, the government's minority stake allows JBS to spend more on candidates than any other firm in Brazil, including nearly a third of the members of the chamber of deputies.

Sergio Lazzarini, a professor of organization and strategy at a Brazilian university said, “The company has invested a lot in the management of the political interface,” and “would JBS have had this success without the support of state capital? Probably not” (Schmidt 2014). Joesley Batista admitted as much in 2017, after receiving immunity from some criminal charges (resulting from an investigation of the alleged sale of tainted meat) in exchange for his testimony. Joesley disclosed payments of \$220 million in bribes to thousands of politicians, and said that without these actions, the growth of JBS “wouldn't have worked. It wouldn't have been so fast” (Freitas, Freitas, and Wilson 2017). The future growth of JBS is now threatened, as the firm was assessed a fine of \$3.1 billion for admitting to these bribes. It is in the process of selling off some assets to pay this penalty, such as feedlots in the United States and Canada. Nevertheless, five of six Batista's children hold investments in the company, and each of the five are now billionaires (Schmidt 2014).

Figure 2.4 shows major ownership changes involving JBS from 1996 to 2016, totaling more than \$20 billion. This included acquiring the much larger U.S. firm Swift in 2007, which had become vulnerable to takeover due to declining profitability. Swift was itself the result of ConAgra acquiring Swift and Montfort, before eventually selling to the private equity firm Hicks, Muse & Co. in 2002. Plans to quickly sell the business for a large profit were thwarted by the outbreak of bovine spongiform encephalopathy

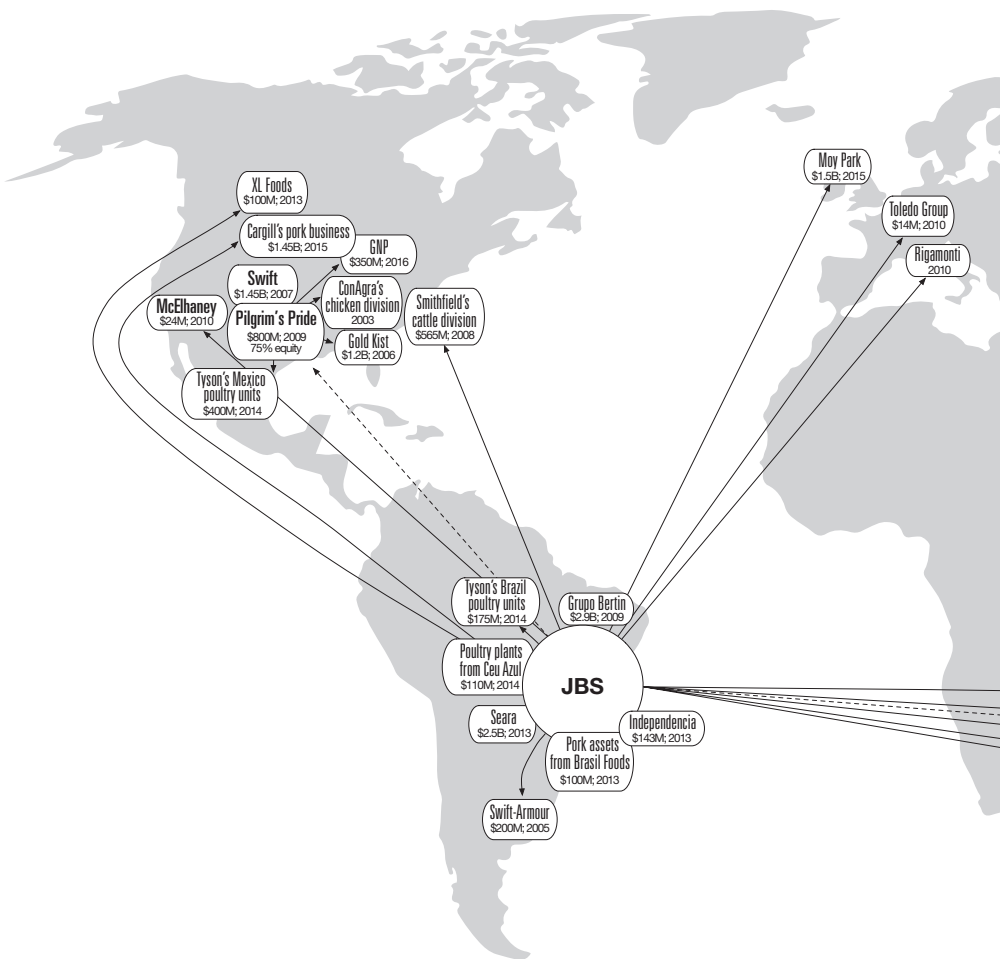


Figure 2.4
JBS: ownership changes, 1996–2016

(BSE) in the United Kingdom, which led to the loss of export markets for U.S. beef (Bell and Ross 2008).

In 2009 JBS acquired a majority stake in the poultry processor Pilgrim's Pride, which had previously acquired ConAgra's chicken division in 2003, and Gold Kist in 2006 (Gold Kist was formerly a producer cooperative that converted to a publicly traded corporation just two years prior). In 2012 JBS increased its stake in Pilgrim's Pride from 68 percent to 75.3 percent,

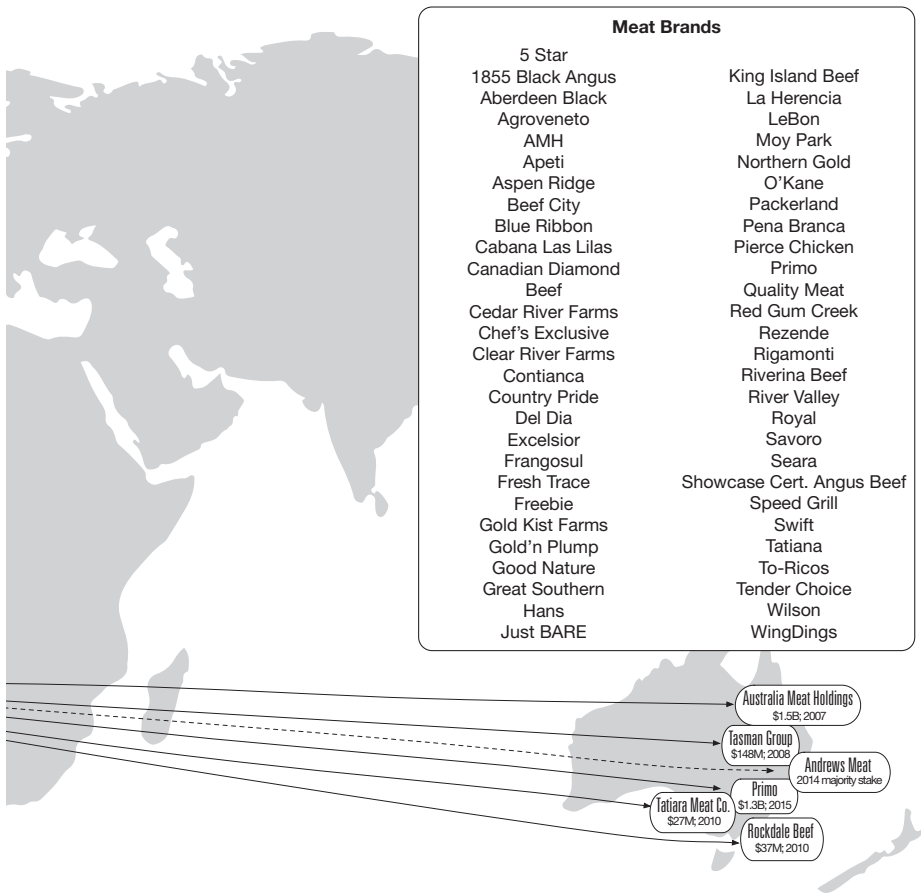


Figure 2.4 (continued)

by paying Bo Pilgrim \$107.2 million for his shares in the company (Pilgrim was notorious for handing out \$10,000 blank checks on the Texas Senate floor, and for accounting irregularities to reduce tax liabilities) (Richardson 2011).

Just prior to this, in 2008, JBS proposed to acquire National Beef Packing, the fourth largest beef processor in the United States. In a rare anti-trust enforcement action, however, it was opposed by the U.S. Department of Justice (USDOJ), due to concerns that the resulting market share would increase prices for consumers and lower prices for ranchers. Because of JBS's more recent legal and political troubles, its BNDES-funded competitor Marfrig saw an opening in 2018, and acquired 51 percent of National Beef Packing for \$969 million—a move approved by the USDOJ.

JBS was allowed to make other significant acquisitions in the United States in the past decade, however, including Smithfield's beef business, and Cargill's pork business (for \$1.45 billion). Even though Cargill is privately held, and therefore less subject to the short-term demands of investors in publicly held corporations, firm executives decided to focus on grain trading and animal feed production, for which they held more dominant market shares. This move allowed JBS to become even more dominant in meat processing. Tyson made a similar decision in 2014, selling its divisions in Mexico and Brazil to JBS for \$575 million, rather than compete directly with a firm that had strong support from a Latin American government. Tyson had acquired three Brazilian firms in 2009, and established joint ventures in Mexico in the 1980s (Constance, Martinez, and Aboites 2010) before ceding these regions to competitors.

Although U.S.-headquartered firms benefited from subsidies that reduce the price of animal feed, as discussed in the case of Tyson, many became vulnerable to takeover in a rapidly consolidating industry in recent decades. Firms headquartered in Brazil have advantages that include government support for the financing of takeovers, but also access to animal feed that is even cheaper than in the United States. Brazil is the largest exporter of soybeans, and second largest exporter of corn, aided by its low cost of production (Sharma and Schlesinger 2017). The price of these commodities is lowered by government supports, such as subsidies for inputs and building/maintaining infrastructure that reduces transportation costs (Fearnside 2001). Corn and soybean prices also exclude many of the negative impacts that result from their production, such as the destruction of rainforests, displacement of small-scale and indigenous farmers, and agricultural chemical

pollution. As a result, Brazil continues to rise in the commodity export rankings, recently adding poultry to the world-leading position it already held for beef, along with fourth place for pork exports (Sharma and Schlesinger 2017). Consumption of both beef and chicken is high in Brazil, relative to most other countries (including more industrialized countries), and per capita consumption of all meats in this country is expected to increase further (Zastiral 2014).

Since 2013, JBS has published reports that tout its social and environmental achievements, including claims that it takes measures to ensure suppliers are not destroying rainforests (JBS 2016). It is a member of the Round Table on Responsible Soy, which has standards for sourcing from producers that have not directly converted to soy production. This commitment, however, was only made after months of significant pressure from environmental groups, including Greenpeace. More recently the firm was accused of buying 59,000 cattle from illegally deforested regions of the Amazon (Maisonave 2017) and is among the leaders of the U.S. Roundtable for Sustainable Beef, which was criticized by a large coalition of nongovernmental organizations (NGOs) for its “blatant greenwashing” (Hamerschlag 2018).

Conclusion: Approaching Limits of Public Acceptance?

Differential government supports have helped shape the winners and losers among meat processing firms. Access to low-cost financing for acquisitions shaped the rapid rise of both JBS and WH Group, which enabled them to take over much larger competitors worldwide, as well as to expand from their initial focus on a single species. This is a risky strategy, requiring high levels of debt, but the increased power that resulted for both firms has helped them to reduce these debts, and plan for even more acquisitions. European-headquartered meat processors, in contrast, have lost power globally because they have made few acquisitions outside Europe (where they also face slow growth in meat consumption and more expensive traceability regulations).

Tyson’s ability to remain a global player was shaped by its initial focus on poultry—which was more efficient in conversion of U.S. government-subsidized feed relative to domestic pork and beef packers—and an aggressive strategy of acquiring major competitors. In an increasingly global

industry, however, Tyson's focus on the more limited geographic regions of the United States and Asia may result in vulnerability to takeover, much like meat processing firms that have already been acquired by JBS and WH Group in the United States (and the EU and Australia). In the beer industry, for example, Anheuser-Busch was acquired in a hostile takeover by the Brazilian-led/Belgium-headquartered InBev, due to the previous CEO's unwillingness to acquire global competitors (MacIntosh 2011)—this industry is now approaching global domination by just one firm after InBev's acquisition of SABMiller in 2016. Barriers to expanding Tyson's presence in China may play a role in constraining the corporation to slower-growing markets (e.g. more industrialized countries with declining meat consumption), which would disadvantage it even more relative to JBS and WH Group.

The scope of government subsidies provided to Tyson, JBS, and WH Group suggests that without these supports the global meat industry would be far less concentrated in ownership, and the top executives of all of these firms would not be billionaires (nor would executives of firms that were acquired in recent decades have received tens or hundreds of millions of dollars in pay). In addition, the meatification of diets might not have proceeded as extensively, meat production would be less geographically concentrated, and livestock and feed crops would be less genetically uniform. Therefore, the problems posed by these trends, including the increased likelihood of outbreaks of disease in humans, livestock, and feed crops, would not be as substantial as they are now. Government and industry efforts are creating path dependencies or lock-ins for this type of system that will make it more difficult to address these negative consequences by, for example, decentralizing and diversifying production (IPES-Food 2016). Some of these lock-ins include the loss of heritage breeds, the decline of small producers and their knowledge, and the disappearance of smaller processors and their infrastructure.

Government and corporate efforts to legitimize these trends and to conceal their negative impacts are facing greater resistance, however. This has motivated governments to block a few proposed acquisitions or relocations, and even to open criminal investigations in the case of dominant firms in Brazil. In addition, increasing consumer pressure has resulted in promises by the leading firms to phase out some practices that threaten human health (e.g., certain antibiotics, growth promoters like ractopamine) or

raise animal welfare concerns (e.g., gestation crates for pork). New communication tools have increased awareness of the problems of a globally concentrating meat industry and enhanced the efficacy of collective action strategies. This is occurring at a time when global climate change and dwindling natural resources, such as fossil fuels and key fertilizers, pose greater challenges to further concentration. The strategies of the largest firms are therefore vulnerable not only to differential support from governments, but also to the biophysical and social limits that are becoming increasingly difficult to overcome, even with substantial subsidies.

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