

Leading the Herd:

Drought, Governance, and Exit in the Contemporary U.S. Beef Value Chain

by

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## Abstract

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Leading the Herd: Drought, Governance, and Exit in the Contemporary U.S. Beef Value Chain

Thesis directed by Associate Professor Jennifer Bair

As the most valuable agricultural commodity in the U.S., beef is both an economic and cultural foundation of modern American agriculture. Uniting core perspectives from economic, environmental, and agri-food sociology, I examine ongoing transitions in the beef industry that illuminate the factors shaping the structure of the industry and their implications for different industry actors. Stemming heavily from the global value chains tradition, yet also drawing new connections the value chain literature and natural disasters and food regime research, I provide a close analysis of how the rise of private standards, extreme drought, and generational transition form a crucible of pressures reshaping the landscape of American agriculture. As a highly fragmented industry, the beef value chain provides an excellent opportunity to understand how exchanges between distinct segments of the chain—cow-calf producers, feedlots, processors, and retailers—are governed. My findings underscore the variation that exists within a particular value chain segment, and show that a single firm can participate in multiple governance arrangements simultaneously—even with the same exchange partner. The expansion of private standards within the beef industry influences these governance types but with uneven effects for producers depending on the nature of the standard (collective versus individual), and thus the degree to which the standard can “lock” upstream producers into particular relationships with particular buyers. Together, governance, environmental pressures, and a generational transition

encourage exit from the industry, while a strong commitment to hegemonic masculinity and a work ethic valuing self-reliance and dedication keeps beef producers in a seemingly unprofitable business.

*Dedication*

This dissertation is dedicated to my mom (Momster), for always encouraging me in the right ways. In her words, “Anyone can get married. It takes a lot of work to write a dissertation.”

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## CHAPTER 1

### INTRODUCTION

Beef is a staple of American culture, identity, and cuisine. However, in the modern movement to eat healthily and ethically, many consumers have come to question the place of beef in our diets, as well as in our agricultural economy. Food scandals such as ‘pink slime’ or Mad Cow Disease, along with growing rates of obesity in the U.S. have earned beef a bad reputation, symbolizing all that is wrong with industrialized food systems. From the pervasive use of antibiotics to corn-based feed and animal treatment violations, today’s beef industry is imagined as one driven by profits and profits alone. Similarly environmentalists highlight the contribution of beef production to greenhouse gas emissions. The United Nations Environment Programme suggests that in order to keep greenhouse gases at manageable levels, meat consumption must be reduced in developed countries and growth in consumption in developing countries must be restrained (UNEP 2012).

While beef production has significant environmental, ethical, and health implications, it also serves an important economic role. Beef is the largest segment of U.S. agriculture in terms of value, totaling \$44 billion of sales in 2012 (USDA NASS 2012) and accounting for 21% of all agricultural sales (Otto and Lawrence 2013; FAO 2014). In 2012, beef operations accounted for 29% of *all* farms in the United States. Beef is also the sixth largest export product from the U.S. by value (FAO 2014); The United States is the world’s fourth largest exporter of beef, with exports expected to grow to accommodate growing demand in developing countries. On the production side, the beef industry included more than 687,000 ranching operations in 2012. Of these operations, over 60% have fewer than 50 heads of cattle, and 89% are family farms (USDA

Ag Census 2012). The U.S. beef industry also supports over 1.4 million jobs in beef-related industries, including agriculture, manufacturing, trade, and related services (Otto and Lawrence 2013). To fully understand the scale and import of the beef industry to the U.S. economy, one must consider that these 1.4 million jobs from the beef industry and its related services totals more than all of the domestic jobs provided by WalMart, the country's largest employer.

In terms of consumption, Americans consumed a total of 25.8 billion pounds of beef in 2012 (USDA ERS 2014), of which ground beef accounted for more than 40% (USDA). In 2009 beef accounted for 29% of all meat products consumed and the majority of red meat consumption in terms of weight (USDA 2009). The average American consumes around 270 pounds of beef per year – the second highest amount per capita in the world behind Luxembourg (Earth Policy Institute 2012). However the consumption of beef, and the types of beef products consumed, is not equal across all populations in the U.S. Low income families are more likely to eat ground beef as compared to steaks, and they are even more likely to consume ground beef than lean-proteins such as fish and chicken (Darmon and Drewnowski 2008). This trend is partially due to the high energy-density of products such as ground beef that makes these products desirable for consumers on a limited budget. However, studies of food geography also indicate that low-income populations have limited access to a variety of meat options.

Communities in 'food deserts' with few or no grocery stores may only be able to purchase lower quality, lower-priced beef products (Walker et al. 2010; Raja et al. 2008). The affordability and energy-density of ground beef is important to families in these communities, and any drop in its availability or increase in price would preclude beef from the diets of many low-income populations (Jetter and Cassady 2006).

As many agri-food writers are quick to highlight, beef production and consumption come with many problems. The production of fodder for cattle accounts for half of all greenhouse gases from food consumption (Tukker et al. 2011), and cattle are inefficient at converting this fodder into food, requiring 13 pounds of feed for every pound of boneless meat (Singer and Mason 2006). Yet the economic importance of the American beef industry to producers and consumers cannot be overlooked. Using the case of beef as a window into U.S. agriculture, I explore the tensions between growing environmental and ethical concerns on the one hand, and the economic realities confronting agricultural producers on the other hand.

Beef rests at a unique conjuncture of agricultural, economic, and environmental sociology. Within modern agricultural production, the beef industry reflects distinct traits of industrialized production systems and the U.S political economy in which commodity grains are highly subsidized. The transition of the beef industry over the last half-century illustrates several characteristics of modern agriculture, including a consolidation in food processing, an emphasis on efficiency, and a new focus on quality. At the same time, the beef industry stands apart from those of other meat proteins, such as pork and chicken, in that beef remains highly fragmented, with ownership split among various stages of production. This fragmentation and the complex exchange relationships it fosters are of particular interest to economic sociologists.

The case of the beef industry sheds light on how economic exchange occurs at various levels: between individual firms, within an entire industry, and within specialized production for niche markets. The beef industry also reveals the role of environmental factors in shaping agricultural production and exchange relationships. Drought in particular has been prevalent throughout beef-producing regions. An examination of drought in the beef industry contributes to environmental sociology's research program on natural disasters and their effect on society.

The case of the beef industry highlights the impacts of natural disasters on economic outcomes, exchange relationships, and modern agricultural production.

My dissertation focuses on the intersection of economic, agricultural and environmental sociology with the specific intent of examining how the formation and dynamics of markets, together with ecological constraints, affect modern agriculture. My research begins with the broad question: what economic and environmental pressures do agricultural producers face, and how do these factors interact to change individual behavior, inter-firm exchange, and industry structure? My research on the beef industry addresses several core areas of sociological inquiry. First, I engage with the body of work in the sociology of agriculture that examines the causes and consequences of modern, industrialized agricultural systems. I begin with an understanding of modern agriculture as a Post-Fordist regime, rooted in mass-produced food. Yet this regime is arguably in a period of transition in price, availability, and other factors are becoming more important. These newly important factors include quality, convenience, and health. Within this unique period of agricultural production I take a particular interest in the economic relationships supporting key commodities produced in the U.S. Specifically, I build upon the work of agricultural sociologists who explore the ever-increasing consolidation in American agriculture by extending research to examine an industry that has experienced consolidation in particular segments of the value chain (chiefly, at the processing stage), but has remained highly fragmented at other stages. In other words, consolidation at particular segments has occurred without vertical integration of the value chain.

To begin, I set the stage by providing a detailed overview of beef production in Chapter 2, drawing from the field of agricultural sociology to place this industry in the context of the development of the modern, industrialized agriculture system. In particular, I detail how

American agriculture reached its current industrial peak and how contemporary agricultural production is distinct from previous periods. Via a review of key research from the sociology of food, the sociology of agriculture, and the political economy of agriculture, I highlight how the current system of beef production fits within a broader trajectory of modern agriculture. I emphasize the concept of ‘food regimes,’ which captures how current agricultural production today differs from that of previous eras, especially regarding its implications for agricultural producers, consumers, and agricultural markets.

Before delving into the substantive and analytical portions of my dissertation, in Chapter 3 I explain the methods I use to answer my core research questions. My methods stem from qualitative traditions with an emphasis on ethnography. Through a combination of in-depth interviews and participant observation, I gathered data on the experiences of beef producers throughout the various stages of production. Site visits, industry events, and consultation with industry leaders also guided my methodology to best fit the case of the beef industry. In total, I collected over 40 in-depth interviews and conducted 70 hours of participant observation.

Following my discussion of methodology are the four core analytical chapters of my dissertation, each of which addresses a key research question. In Chapter 4 I consider the implications of the burgeoning field of natural disasters research for the beef industry. I specifically ask **how does drought affect the structure and practices of the U.S. beef value chain?** Within the sociology of natural disasters, a wealth of knowledge exists on the social dimensions of natural disasters, including considerations of race, gender, class, and other inequalities. My research aims to expand a theme within this research by focusing on the economic impact of natural disasters on agricultural producers. While it is widely known that natural disasters produce significant economic effects such as direct and indirect economic

losses, very little extant literature addresses how natural disasters affect agricultural value chains. Given the potential for natural disasters to disrupt value chain activity by halting the production of key resources or destroying infrastructures that are necessary for the distribution of commodities, this area of research demands more scholarly attention. My research uses the specific case of drought to contribute new insights into the effect of natural disasters on value chains. Specifically, my research shows that drought not only disrupts production as disaster researchers expect, but it also produces a myriad of unexpected outcomes for producers that have long-lasting reverberations for industry actors and consumers. In the case of beef, drought has produced a period of uncertainty and change, from a temporary surge in supply as a surplus of cattle were being slaughtered, to the development of new production practices and exchange relationships along the value chain in response to drought. My research highlights the ability of natural disasters to restructure entire industries and change production practices previously viewed as fundamental to success in the industry.

Drought is a case study well suited to understanding the economic implications of natural disasters, specifically in the context of value chains. As discussed at length in this chapter, drought is a crecive event (Beamish 2002), with a slow onset over an extended period of time. Additionally, drought is a common and extensive event, affecting numerous countries, populations, and agricultural crops. Moreover it is expected to become increasingly common and severe due to climate change. Thus it is valuable to understand the economic impacts of such an event, as it severely affects new and larger areas.

In the case of beef, drought is restructuring the beef industry and creating new ideas about how to affordably and effectively raise cattle. My findings also reveal how current models

overlook the ways in which value chain position and activity can contribute to vulnerability and preclude opportunities for recovery.

Drawing on the tradition of the disaster literature that examines perceptions of disaster, risk, and recovery, I explore how these concepts play out in the case of modern agriculture, with specific attention to vulnerability and recovery. In particular, I draw on the robust research of scholars such as Denis Mileti (1999) and Mark Pelling (2003) whose work examines how we understand disasters and the social phenomena leading up to a disaster event, such as precursors of vulnerability. While actors within the beef value chain recognize their vulnerability to drought and the risk posed by drought, they do not consider vulnerability to changes in industry structure and production practices brought about by drought. Building upon the research of Mileti and Pelling, I explore how risk perception and perceptions of vulnerability among U.S. beef producers fail to capture the structural changes possible from drought. My research finds that one particular segment in the value chain – stocker/backgrounders who raise calves on grass – are highly vulnerable to drought. This vulnerability stems from value chain position, and not geographic, infrastructural, environmental, or demographic attributes, as commonly discussed within disaster research. Based on this finding, I explore new attributes of vulnerability that incorporate value chain position and activities.

In Chapter 5, in order to investigate exchange relationships within the modern food regime, I draw upon the global value chain framework. With this body of literature, I explore how exchange is coordinated in modern agriculture, drawing especially on the concept of chain “governance.” Specifically, my research examines how in the context of modern agriculture, the case of the beef industry enriches our understanding of the ways in which economic and social relationships among actors—what this literature calls “governance”—are coordinated in modern

industries. By examining the complex case of the beef industry, I seek to contribute to models of value chain governance.

Also in Chapter 5 I ask my second core research question: **How is the beef industry, as a highly fragmented value chain, governed, and to what degree do existing theories of value chain governance capture the dynamics of these networks?** I begin by delving into a detailed analysis of value chain governance, drawing extensively on extant governance models posited by Gereffi et al. (2005) as well as Ponte and Gibbon (2005). I ask how well these models explain the relative influence of beef value chain actors and in turn the distribution of value and influence in the chain. I argue that these models fail to capture numerous complexities in the industry, such as the land constraints of cattle production and the impact of drought on value chains. Global value chains scholars continue to debate the best model to capture governance structures. Ranging from the foundational model of buyer versus producer driven chains posited by Gereffi in 1994, to more nuanced models that incorporate a range of social arrangements, the global value chains field is ripe with models. This case study will further inform these models and refine our understanding and theorization of governance because it illuminates short-comings in existing governance models, specifically regarding the complexity of on-the-ground exchange systems along with environmental factors that influence exchange decisions. My aim is not only to empirically test governance models, but also to explore how individual exchange relationships—that is, dyadic exchanges between two specific actors—are shaped by the larger dynamics characterizing an entire value chain. The in-depth analysis of specific exchange relationships along the chain highlights how individual economic actors can to some degree *choose* the governance structure in which they participate and can even participate simultaneously in value chains with multiple governance structures.

In Chapter 6 I discuss governance in the context of private standard initiatives. As a rapidly-growing aspect of the agriculture industry, private standards establish a niche market for consumers wanting products of higher quality. Organic, all-natural, and hormone-free products constitute “value-added” commodities made in accordance with specific private standards and offered for sale to consumers in primarily mid- to high-end grocery stores and restaurants. In this chapter, I extend findings from Chapter 5 to explore the governance of private standard value chains. In the context of today’s agricultural system, with new consumer demands for quality, convenience, and sustainability, I ask my third core research question: **Do the existence of private standards create different governance dynamics vis-à-vis their conventional counterparts, and if so, what are the implications for producer livelihoods?**

My focus on private standards aims to unite two different literatures that essentially address very similar questions: literature on private standards in agriculture and literature on global value chains. Extensive research has been done on private standards, as seen in the work of scholars such as Raynolds (2002; 2004) on Fair Trade, and Ponte and Gibbon (2005) on coffee certification schemes. These scholars contribute greatly to our understanding of private standards on a global scale, with keen insights into the value captured by producers in the Global South compared to chain actors, particularly retailers, based in the Global North. My research aims to apply these insights within a domestic context, examining how private standards affect the distribution of value along chains that are operating entirely within the Global North, as opposed to the value chains commonly examined in the extant literature, which originate in developing countries but end in developed-country markets. My research reveals that there is a surprising degree of similarity between South-North and North-North value chains, in that in both cases producers fail to capture significant economic gains from the existence of private

standards, despite the additional production costs that they incur from complying with these requirements. However, I find that Northern producers do benefit from participating in “value-added” chains to the degree that those chains provide non-pecuniary returns, such as fine-grained information sharing and increased traceability.

Chapter 7, I take a slight detour from governance structure analyses to examine the recent exodus of agricultural producers from the industry. In light of the extensive scholarly attention focused on the consolidation of agricultural production, which is largely due to the exit of small-scale producers, I investigate small-scale beef producers who have resisted this trend and remained active in the beef industry. In setting up my puzzle, I draw from research on consolidation in U.S. agriculture, and research on economic pressures in agriculture that emphasizes the inhospitable environment for small-scale agricultural producers in today’s political economy. The industrialization and consolidation in the U.S. agricultural system that these and others authors document suggests that most small-scale producers will succumb to economic pressures and be forced to abandon the beef industry. Research on the industrialization and consolidation of modern agriculture leads me to ask: **Why do small-scale beef producers remain in the industry despite the economic and environmental obstacles that they face, including minimal financial returns?**

Ranchers give numerous non-economic rationales to explain why they remain in a low- or sometimes no-profit industry. I explore how the cultural frames employed by beef producers lead them to make sense of what may, from a distance, appear to be a series of economically irrational decisions. In particular I highlight how beef producers employ ideals of family, gender, tradition, and religion to explain their commitment to ranching. While perhaps not immediately related to the issues of governance discussed in the two preceding chapters, the decision of

producers to stay or exit the industry is a crucial issue facing the industry today, and one that has the potential to transform governance over time. Moreover, analyzing actors' narratives of their decisions to stay in the industry provides ethnographic insight into how ranchers navigate the economic and environmental pressures they face, and also reveals the link between individual livelihoods and industry landscapes.

I conclude with an overview of my key findings and a discussion of how the findings from each distinct research question contribute to three areas of the discipline: economic, environmental, and agricultural sociology. My goal is not to combine these traditions into a seamless explanation, but instead to highlight how my analysis of the beef industry contributes to core debates in each. Drawing on my research findings I show how an array of environmental and economic pressures produced unexpected and nuanced outcomes for beef producers within the modern, industrialized food system. The extended drought and the economic hardship it brought restructured an industry that had been relatively stable for decades on end. With drought and other weather extremes expected to become more common, my research aims to guide future analysis into how natural disasters shape economic activity along value chains.

## CHAPTER 2

### MODERN AGRICULTURE AND THE U.S. BEEF INDUSTRY

In order to answer my key research questions about the economic and environmental pressures facing the beef industry, it is essential to understand the fundamentals of how beef is produced and the historical developments leading to today's systems of beef production. As discussed in later chapters, structure and process within the beef industry are central to understanding the effects of drought and market changes on the industry. Moreover, many current features of the industry stem from past events within modern agriculture, such as the adoption of biotechnologies and the creation of subsidy programs for commodity crops.

Beef production today is a highly efficient system that turns a calf into a steak in as little as 18 months, whereas in a natural setting calves take nearly twice as long to reach maximum weight. This emphasis on maximum productivity is common throughout modern U.S. agriculture, as farmers and ranchers strive to produce more and more on the same amount of land, with even fewer inputs. In this chapter I explore the development of modern agriculture and provide an overview of how American agriculture reached the point of hyper-rationalization seen today. By highlighting the evolution of industrialized agriculture, I aim to show how agricultural production today differs from previous periods, as a first step for understanding the shifting landscape of the beef industry. In order to do this, I draw on the food regime framework posited by Friedmann and McMichael (1989) as a robust means to analyze the political and economic shifts in food production.

The food regime perspective is well suited to my research questions given its connection to global value chain logics. This approach addresses distinct systems of agricultural production with acute attention to the political economy in which these systems are developed. Not only does this framework identify historical changes in production, but it also asks who shapes agricultural production and to whose benefit. As Fred Buttel observes, the food regime perspective “reflects periodic shifts in hegemonic regimes which are anchored in the politics of how commodity chains and production systems come to be constructed and coordinated” (2001:173). In examining the beef value chain and the economic and environmental pressures faced by chain actors, the food regime perspective provides necessary context on the political economy of agriculture, both in the U.S. and globally, and also enables an analysis rooted in the fundamental components of global value chains regarding inequality among chain actors.

In addition to providing an overview of modern agriculture, I also outline the stages of production necessary to raise beef cattle from birth to slaughter. A clear understanding of these distinct stages of production is essential for analyses in the following chapters. Next I detail the market structure from the early 1900’s to today in order to provide historical context for the consolidation of the beef industry. I provide key background information showing how the beef industry arrived at its current structure, characterized by a high degree of concentration among packers and a low degree of concentration among cow-calf producers. Drawing on the food regime framework, I show how broader changes in the U.S. agriculture system brought about significant changes in production practices. Last, I provide cultural context for the beef industry in the U.S. by highlighting the main criticisms of beef production and consumption. In a review of environmental, health, ethical and other concerns, I provide the background necessary to understand the framework in which American beef producers operate.

My analysis engages key questions in the sociology of agriculture, with keen attention to the consequences of modern farming. The background in this chapter aims to position the U.S. beef industry in this context. The forces at play in modern agriculture, such as increased industrialization and concentration, along with new niche markets, are an essential part of the story of contemporary beef production. Together, the history, culture, and production systems of the U.S. beef industry, along with insights regarding modern agriculture, illuminate the structural forces shaping the industry and set the stage for the value chain analyses that follow.

### **From Calf to Slaughter**

The contemporary U.S. beef industry is one of the most highly segmented agricultural industries, with production occurring in a sequence of distinct stages. However, this was not always the case. Until industrialized agriculture swept the U.S. in the 20<sup>th</sup> century, cattle lived out their entire lives under the ownership of only one or two operations. Cattle-raising appeared closer to the idyllic scenes in movies where cows spent their entire life on grass, driven by cowboys from pasture to pasture in small herds.

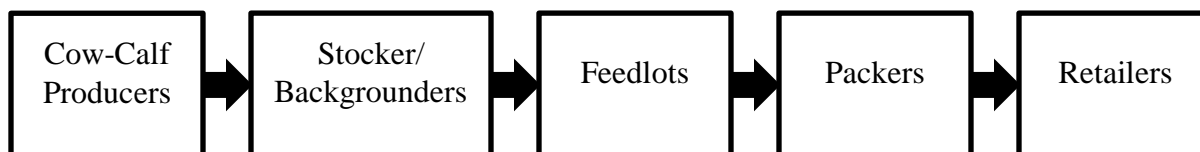
In contrast, the beef industry today is marked by specialized stages of production that emphasize maximum efficiency<sup>1</sup>. Each stage specializes in a particular aspect of production, including producing bull semen for artificial insemination, birthing and raising calves, feeding adult cattle, and slaughtering. This segmentation was caused by the emergence of industrial processes common in most of American agriculture and was further enabled by the

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<sup>1</sup> The term efficiency, in the context of modern agriculture, refers to an increase in outputs in relation to the level of inputs. Most commonly, increased efficiency is measured solely by higher volume or weight yields with a stable level of inputs, without consideration for other factors. In particular, environmental and social factors such as concerns of labor, environmental impact, and human health, are often excluded from discussions of increased agricultural efficiency/

development of transnational railroads. With a new national railroad system completed by the end of the 19<sup>th</sup> century, rather than doing their own slaughtering, upstream beef producers could send cattle to slaughterhouses then located in major cities (Pilcher 2004). It was only in the mid-20<sup>th</sup> century that slaughterhouses relocated to rural areas in order to be closer to ranches, avoid rising shipping costs, and gain physical distance from organized labor that threatened profits with higher labor costs. Since the consolidation of beef production and slaughter in rural areas, the stages of beef production have remained relatively stable, with the exception of changes stemming from the period of recent drought discussed in chapter 4. Currently the beef value chain is organized into five distinct stages: cow-calf producers, stocker/backgrounders, feedlots, packers, and retailers as shown in Figure 2.1.

**Figure 2.1: Structure of the beef industry**



The term “cattle rancher” is commonly used to describe any member of the beef industry working with live cattle (the first three stages described in Figure 1). However, beef producers use this term to refer only to cow-calf producers and stocker-backgrounders. The title of cattle rancher is applied loosely to any members of the industry working on a ranch, but this usage can become complicated. If a feedlot manager maintains a small herd of cattle as a hobby, he may refer to himself as a cattle rancher despite his primary position in the feedlot segment. Similarly, the term cattle rancher, and rancher more generally, carries cultural references to members of rural communities, further confusing the usage. To bring some clarity to the terminology, I use

the term beef-producer to refer to any member of the beef value chain and note specific segments by their title, omitting use of the more familiar term “cattle rancher.”

Beef production begins with cow-calf producers who raise heifers (mother cows) for the sole purpose of producing calves. Their main responsibilities include ensuring healthy births of calves and keeping the calves alive and well until they are old enough to be weaned from the mother cows at about six months of age (Allen et al. 1992). The calves are sold specifically for beef production, and so calves are bred for traits that yield the best beef. For example, cow-calf producers prefer calves that are big when born but not too big that it makes for a difficult birth. They also want calves that grow quickly, stay healthy, and produce high quality meat. In order to achieve these traits, cow-calf producers must choose their heifers carefully to obtain the best genetic traits. For example, a desirable heifer has a large cervix size to make for an easy birth, produces healthy calves, and achieves pregnancy easily with a high rate of carrying to full-term (Funston and Deutscher 2004).

Cow-calf producers require a large amount of land so the mother cows and the calves can roam. In contrast with other protein-providing species, calf birthing does not occur in captivity. Heifers give birth to calves in the fields and are healthiest with ample space to graze (Keane and Allen 1998). Cows are not natural consumers of corn, even though this is fed at later stages of life, and so if cows are given too much corn too early they will develop health problems (Pollan 2002; Bittman 2008). Given that cows cannot survive for much more than a year on a grain-fed diet, heifers need grass throughout their productive years. Additionally, calves need ample grazing land when young. If calves were to be given a diet of grain such as what is provided at feedlots, they would get sick and die from the stress on their stomachs.

Artificial insemination is now common among cow-calf producers. Traditionally a cow-calf producer would purchase a bull to be placed among the heifers and hope for impregnation. To ensure higher rates of pregnancy, as well as an easier breeding process, cow-calf producers utilize bull semen purchased from seed stockers (Cartmill et al. 2001) who raise bulls specifically for their breeding traits and sell the bull semen to producers looking to breed their heifers. Semen can even be sexed to increase the likelihood of obtaining a calf that is the desired sex, such as a heifer for breeding or a bull for seed stock (De Vries et al. 2008). Seed stockers commonly utilize photographs of their bulls to advertise their health and fertility, and even produce bull “pin-up” calendars to highlight their most popular lines of bulls. Although seed stockers precede cow-calf producers in the stages of production, they do not raise, sell, or participate in the beef cattle market directly because they specialize in semen only. For this reason, I excluded them from my analysis of the beef value chain.

Once a calf is old enough to be weaned, it can be sold to a stocker/backgrounder. Stockers and backgrounders raise calves from the point at which they are weaned to the point at which they can be put into feedlots. Most simply, stockers and backgrounders are grass farmers; they provide extra grazing for calves that a cow-calf producer might not have. As discussed in chapter 3, stocker/backgrounders are fading from the industry, as calves either stay at cow-calf producers longer or enter feedlots at a younger age.

The sole purpose of a feedlot is to put weight on cattle as quickly as possible until the animals reach ideal slaughter weight. Modern feedlots are almost exclusively confined feeding facilities in which cows are put in pens and given upwards of 30 pounds of feed per day. The type of feed varies depending on their age, but the feed mix is very closely monitored to provide the exact portion of protein, fiber, and other nutrients. (Stull et al. 2006). The feed ration is

tailored to the age and weight of the cattle as well, so that younger cows receive lower rations of corn, which is hard on a cow's stomach.

When cattle arrive at a feedlot, they are individually sent through a chute where they may be tagged or given medicine, such as preventative medicine for respiratory problems. Cattle are separated by pens according to where and when they were purchased in order to optimize traceability (FAO 2004). For example, if cattle from one cow-calf producer have problems, the feedlot wants to know which cow-calf producer provided those animals so that it can report the problem. If the feeder were to mix pens, it would be difficult to know where the cattle came from and in turn track which suppliers offer better cattle. Mixing animals also increases the risk of spreading contagious disease (Spinage 2003). This system also separates young cattle more susceptible to disease from older cattle. The younger, more vulnerable cattle are given more space per cow as compared to older cattle with stronger immune systems (Gottardo et al. 2004). The separation by pen also allows the feedlot to feed different cattle different rations, as well as a means to maintain private standards such as all-natural or age and source, as discussed in Chapter 6.

The need for traceability is not just desired but also government-mandated under the Hazard Analysis and Critical Control Points (HACCP) program. In the case of any food-borne illness such as E. coli or Mad Cow Disease, beef producers must be able to provide information that allows the U.S. Department of Agriculture (USDA) to trace the source of the disease back to the facility at which the animal originated. With complete traceability to the source, the USDA can test for disease at various points in the supply chain and identify the point of contamination. However the HACCP regulations are also seen by many industry members to encourage

consolidation in the industry, as smaller firms struggle to meet the requirements, while large firms have adequate resources to implement and monitor HACCP protocols.

When cattle are moved in a feedlot, whether for processing on their arrival or moving to new pens, the handling of cattle is important for their health and quality. Stress, especially within feedlots, can cause sickness, weight loss, and emotional distress in cattle (Grandin 1993).

Additionally the misuse of batons, as seen in the prodding or hitting of cattle, can cause abscesses and physical damage that reduce the quality of the beef, and in turn the profits received by the feedlot when selling to processors (Grandin 2007).

Cattle typically arrive at feedlots weighing 300 to 400 pounds and are slaughtered at around 1100 to 1500 pounds, depending on the gender and breed (Tatum 2006). Cattle health is a main concern of feedlots since cows may easily get sick when put in confined spaces. While cattle are given health vaccinations earlier in their life, they can develop other health issues while being fed. For example, if the feed yard is too dusty they can develop respiratory problems (Mader 2003). Feeders aim to minimize the death loss of a herd since any cow death can greatly reduce their profits. In order to monitor cattle health, feeders employ staff, called “cowboys/girls” to ride horses around the pens and look at the cattle for signs of illness.

Many feeders grow a portion of the feed their operations require, but almost all have to purchase some volume of feed from nearby farmers. The ingredients in the feed rations are highly substitutable. For example, it was long believed that it was impossible to feed cattle without corn; however many feeders now do not use corn at all given its high price due to drought, and instead use a mix of distillers grain and corn silage (discussed in Chapter 3). Feeders must also manage enormous quantities of animal and water waste. Most manure is composted on site and sold or given away to farms as fertilizer. Feeders construct large waste

ponds for runoff, and they must have enough capacity to hold excess volume in times of heavy rain (Campbell et al. 2003): The capital needed to build waste ponds, as well as to purchase the necessary infrastructure, encourages economies of scale that increase infrastructure use and thus maximize yearly profits. Small feedlots often struggle to turn enough profit to pay for the capital investment; although a lower investment is required for smaller waste systems, the amount of capital required to create and maintain them is substantial, especially in the face of growing environmental regulation (Morse 1996).

Once cattle reach an ideal slaughter weight, they are sent to a packing plant to be killed and turned into the final cuts of meat that reach grocery store shelves. Today the slaughter and processing is done at one facility; however, historically one plant would slaughter and another may butcher, turning the entire carcass into the final meat cuts (Horowitz 1997). Some packers still do more processing than others, such as making sausage, smoking meats, or forming processed items like hamburgers. The largest packers mostly produce boxed beef – literally a standardized box that contains a particular set of cuts from a cow. Boxed beef allows for a highly standardized processing system that offers one particular product for the vast majority of customers (Horowitz 1997).

When cows enter a slaughterhouse, they are led through a set of chutes intended to minimize stress. The cow is then killed using a bolt gun to the head, resulting in instantaneous death. Once the cow has stopped kicking (a biological reaction even after the cow is dead), its throat is cut and it is hung upside down to drain out its blood into a collection container. At this point, a cow is cut in half and left to hang in a cooler for two to three days, after which the cuts in the cow are made. The grade of the cow—an overall measure of the meat quality—is determined by a photo taken of the ribeye. USDA graders often do not directly see the carcass,

but see a picture of the ribeye from which the grade is given – either prime, choice, select, or standard. The main determinate of the grade is the marbling, considered together with carcass maturity, color, texture, and firmness (Hale et al. 2013). During the period in the cooler, the fat will rise to the top of the ribeye, making it easy to distinguish how much fat is in the cut. Prime, choice, and select grades are the most common retail grades, with any lower graded beef used by food processors and canners. Prime is distinguished as the highest quality with a higher amount of intramuscular fat. Choice carcasses, about half of the retail market, have less fat, and in turn less marbling than prime, but more than select. And Select is leaner than the other two grades, resulting in a tougher and less juicy beef product (Salvage 2009).

It is crucial to note the variation between conventional cattle and private standard beef cattle, such as all-natural, grass-fed, and organic cattle. For these three private standards, it takes much longer for the cattle to mature to final slaughter weight (Cozzi et al. 2010). Unlike conventional cattle that receive antibiotics at a young age, hormones when at a feedlot, and growth promotants in the final stages of feeding, natural, grass-fed or organic cattle do not receive any of these interventions. If a cow becomes sick and requires antibiotics in order to remain alive, the antibiotics will be administered and that particular cow is pulled from the private standard program. For healthy non-conventional cows, an additional six months, at minimum, may be required for the animal to reach final slaughter weight. The additional maturation period forces beef producers to use greater volumes of feed, pasture, and water, greatly increasing the overall cost of production (Fernandez and Woodward 1999).

One struggle that packers face is marketing all cuts of a cow. In the U.S., cuts like steaks and ground beef are much more popular than livers and brains (Regmi 2001; Jeremiah 1982). But in order to optimize the profit from the cattle, all cuts of a cow must be sold. In order to sell

abroad, packers must have country of origin labeling, as well as other requirements that vary by country. For example, until January 2014, Japan only allowed the importation of cattle slaughtered at 20 months of age or younger since BSE was more commonly found in older cattle.

The final stage in the beef supply chain is sending beef cuts from the slaughterhouse to retail outlets, restaurants, and food service companies. In order to maximize profit, retailers tailor their products to consumer demand. For example, low-cost grocery stores like Safeway offer lower quality meat at low prices, while high-end stores such as Whole Foods offer more expensive private standard beef products, such as grass-fed and organic. Retailers, especially grocery stores, operate with limited refrigerated space for proteins, and thus must choose how much beef to offer in comparison to fish, chicken, and pork. Beef is the most expensive protein per pound (except for certain kinds of fish), and thus may be purchased in smaller quantities, especially at low-end stores (Regmi 2001).

Retailers play a significant role in determining the type of beef products on the market and the price at which they sell. Given that retailers are the direct link to consumers, they serve as an intermediary between producers and the final market. In other words, cow-calf producers, feeders, and packers must produce according to what retailers want in order to ensure their products reach consumers. This influence is particularly salient during holidays, when consumers demand more of certain cuts of meat; for the 4<sup>th</sup> of July consumers may purchase more ground beef (for hamburgers) and steaks, and thus packers work to make more of those items available.

Although beef is the most valuable segment of American agriculture and a popular product among consumers, it is not devoid of opponents. The industry as a whole faces severe critiques ranging from the environmental impact of beef production to the treatment of animals and the rights of workers. While many of these critiques are not new to this era of production,

they are gaining the attention of consumers and advocacy organizations that put considerable pressure on industry members to improve their practices. The most common critiques center on threats to human health, the environment, animal welfare, and human welfare.

With respect to health, beef is increasingly seen as an unhealthy meat to consume in large quantities. As presenters at the 2014 National Cattlemen's Beef Association Conference declared, "the era of the roast is over." Pot roast, rump roast, and top round roast are no longer the feature of American dinners, as many consumers either choose to eat smaller portions of red meat or no red meat at all. Health concerns over the consumption of red meat grew over the last three decades, with research linking red meat consumption to heart disease, obesity, and a range of other health-related diseases. As the U.S. became the fattest country in the world, health organizations began advocating for "Meatless Mondays," and encouraged consumption of low-fat proteins such as fish and chicken in place of beef (<http://www.meatlessmonday.com/>).

In the wake of more recent food journalism, greater attention has been given to the health implications of eating cattle raised on a corn-based diet. As author Eric Schlosser highlights in *Fast Food Nation*, and as Michael Pollan argues in *Omnivore's Dilemma*, beef-eaters are in reality mostly eating corn. Although raised on grass until a year old, the average cow consumes such a large amount of corn while in a confined feeding operation that the resulting beef product reflects the corn-based diet (Pollan 2002). In most feedlots cattle are fed corn to create the preferred meat profile: steaks with a high degree of marbling. Both the use of feedlots and the consumer expectation for marbled, high-fat beef products are unique to the U.S. The pervasiveness of corn and corn products in the American diet has repeatedly been cited as contributing to rising rates of obesity. In particular the use of corn and corn products in processed foods is problematic, given that most snack foods and sodas rely on high fructose corn

syrup, along with other corn by-products, all of which are linked to health-related diseases such as Type 2 Diabetes. Thus the consumption of corn-via-beef is also seen as contributing to these health-related diseases (Sinha et al. 2009), particularly in low-income communities where limited food access and financial resources encourage higher rates of consumption of cheap corn-based products and fast food.

The modern production methods for beef are also seen as posing a threat to human health. In particular, the widespread use of antibiotics in cattle may lead to more antibiotic-resistance in humans (Eckholm 2010). Antibiotics are used in two situations: on an as-needed basis for sick cattle and on a routine basis in animal feed. The use of antibiotics in both these cases is increasingly common given that modern beef production relies upon concentrated animal feed operations (CAFOs), or in the case of beef, feedlots. When placed in confined spaces with many other cattle and given limited mobility, cattle are more likely to get sick and require antibiotics (Carolan 2011). Moreover, this system of feeding, which raises the rate of animal sickness, is also blamed for viral health outbreaks such as E.coli or “Mad Cow Disease” that threaten the lives of humans exposed to these diseases. Since cows do not naturally eat corn, the corn-based diets in feedlots can result in E.coli in animals’ digestive systems. If cattle were kept on corn-based diets longer than in a typical feedlot, the animals would eventually die from the stomach infections and illness caused by this diet (Pollan 2002).

In terms of environmental effects, beef cattle also contribute significantly to greenhouse gas emissions through their methane emissions and in the large quantities of feed consumed in their lifetime. The FAO (2006) estimates that livestock production accounts for 18.3% of all greenhouse gas emissions, although beef advocates argue that the actual contribution is closer to 3.4% of emissions as calculated by the EPA (Capper 2011). No matter the emissions, beef is one

of the most inefficient meat proteins, requiring 40 calories of energy input to create a single calorie of food output (Pimental and Pimental 2003). This ratio has improved slightly as cattle feeding operations have grown more efficient, yet environmentalists are quick to note that beef production is unsustainable due to the vast inputs required for minimal outputs.

Humans also face enormous risk by working within the beef industry. Labor-rights activists highlight the significant health risks faced by workers at CAFOs as well as in slaughterhouses, famously described over a century ago in Upton Sinclair's *The Jungle*. Animal agricultural industries rank as one of the most hazardous occupations in which to work. This has not always been the case, but as meat production and processing grew increasingly intensive, with an emphasis on speed and volume, workers were put at greater risk. Many workers face injuries from the environment, such as asthma and chemical contamination, as well as from machinery and animals (Mitloehner and Schenker 2007). In large slaughterhouses, the processing of animals is run on an assembly line where a worker makes the same cut thousands of times in a single shift, leading to repetitive strain injuries and severe cuts, as well as mental trauma (Donham et al. 2007). Slaughterhouse jobs have rapid turnover given the physical demand and high risk, and are disproportionately occupied by immigrant populations (Gouveia 1997).

The risk for workers is created by the industry's pressure to increase production; by running a slaughterhouse at maximum capacity, a company increases its return on investment and overall profits. Workers bear the consequences of the fast-paced assembly-line production, and as noted, these workers tend to be immigrant populations and often lack formal citizenship. Although law enforcement has begun to target the use of undocumented workers, as seen in the raid of Agriprocessors in Postville Iowa in 2008 in which over 400 workers were arrested for

lack of documentation, the working conditions for workers remains range from subpar to abysmal.

The social and environmental problems of beef production pose significant threats to beef producers' legitimacy and financial security, which depend on a stable customer base. Public scandals such as the 'pink slime' E.coli outbreaks, along with viral videos of animal abuse, cost the industry greatly. Tensions exist within the industry over who is responsible for these problems, exacerbated by the high degree of fragmentation within the value chain. As discussed further in chapters 5 and 6, the movement of cattle from birth to grocery store shelf is not a simple, integrated linear process, but involves a complex system of exchange between segments of the industry. Moreover, the way in which cattle are raised, sold, and packaged for sale depends on the broader food regime. The transitions occurring within agriculture, both domestically and abroad, are altering the structure and production practices of the beef industry. In the next portion of this chapter, I detail the agricultural context shaping beef production over time, drawing on the food regime framework to highlight the distinct periods that have defined agricultural production, including beef, over the last century.

### **Food Regimes and the Development of Modern Agriculture**

The food regime perspective was first proposed by Friedmann and McMichael in 1989 within the context of a newly globalized agri-food system. Drawing on political regime theories and world systems theory, Friedmann and McMichael created the food regime framework to capture the hegemonic food production systems. This perspective marked a distinct turn toward a global understanding of food relationships, as opposed to previous structural Marxist analyses of rural production systems (Campbell and Dixon 2009).

With an emphasis on food relationships, the food regime approach moves beyond research agendas focused on a single point of production and instead captures entire commodity systems as well as the institutional context that shapes global production. Prior to establishing the concept of food regimes, Friedland (1982) wrote extensively about the connection between commodity systems analysis and agri-food production. In doing so, Friedland helped found the Sociology of Agri-Foods as a distinct area of research separate from, and extending beyond the confines of, rural sociology (Bonanno 2009). Friedland cemented the pairing of agri-food studies with commodity systems analysis (Friedland 1978) and established the first form of commodity chain analysis, highlighting the processes entailed in production as well as the broader political-economic context. Both the commodity systems analysis and food regime framework illustrate how agri-food studies complement, and are complemented by, the global value chain perspective.

The food regimes approach was widely embraced in the early 1990's especially as a means to understand the ongoing transitions affecting rural livelihoods within an increasingly globalized capitalist system. As opposed to research perspectives predicting that all small-scale agriculture production would be subsumed by large-scale industrial agriculture (Gibson-Graham 1996), the food regime perspective recognized the current moment in the mid-20<sup>th</sup> century as a limited period of crisis within a broader reconstruction of agri-food systems. Moreover scholars such as Friedmann and McMichael argued that the ongoing transition in global agriculture was not an inevitable downward spiral towards "capitalist-induced doom," but a single food regime open to contestation and alternative outcomes (Campbell and Dixon 2009, p. 264).

For the purposes of this research I draw heavily on the food regime framework as a means for understanding the global political economy that shapes the production systems and

consumer markets for agri-food products. In particular, the current reign of the Post-Fordist regime illuminates new patterns of production and consumption. However before detailing the Post-Fordist framework, it is necessary to explore the food regimes leading to today's system of production. According to Friedmann and McMichael (1989), the first food regime was a "Settler-Colonial" regime extending from 1870 to 1914. During this period settler states became increasingly common in order to supply expanding and rapidly industrializing urban areas. Agriculture at this time was nationally bound, with an emphasis on competitive advantage in the emerging global market. In the U.S. meat industry during this time, packing plants slaughtered multiple species in each plant, including cows, chickens, and pigs, to serve consumer demand for a variety of proteins. Packing plants were located first in cities and then in rural areas, closer to the point of animal production, and the final products were shipped to the rapidly growing urban areas. Once the animals were slaughtered, the entire carcass was shipped either to a retail outlet or distributor, and processed into final meat cuts in these locations. Packing plants required enormous capital investment for the machinery, space, and refrigeration systems. This barrier to entry created a limited marketplace in which larger packing companies increasingly captured a greater share of the market.

In the early 1900's only five companies dominated the packing industry, and these companies continued to expand their existing plants to accommodate increasing numbers of cattle (Azzam and Pagoulatos 1990). In 1920, the concentration among packers reached a zenith and was broken up by the Packer Dissent Decree of 1920 (Mathews et al. 1999). Following allegations of anti-competitive behavior, the big five packers were forced to divest in stockyards, stockyard railroads, and cold storage facilities, as well as to agree not to retail meats or other commodities. While the decree was successful in diluting control by the big five packers, it also

planted the seed of suspicion of packers in the minds of the upstream producers—the cow-calf producers, backgrounders, and feeders—for decades to come. The decree also set a precedent for the government to intervene in the packing sector, spurring future petitions for anti-trust action.

The second food regime, known as the “Surplus” regime, or the “Fordist” regime, began after World War II, following several decades of instability in the food regime during a transitional period. In the surplus regime, food technologies enabled an expansion of production, supported by an export market in the Global South for surplus commodities (Pechlaner and Otero 2008). This period marked the institutionalization of a heavily subsidized agriculture sector in the U.S., as the American government pushed for lower food costs made possible by “fence to fence” planting, utilizing all available farm land (McMichael 2005; Friedmann 1993). Today, corn, wheat, cotton, and soybeans, along with other feed grains receive over 70% of all U.S. crop subsidies (USDA 2013), indicating a strong government commitment to managing its core agricultural products. As Edwards summarizes, “when food supplies appear to be short and food prices start to rise precipitously, the political establishment becomes nervous and urges farmers to increase production,” creating a cycle of subsidization, followed by overproduction (Edwards 1990). The U.S. government has a strong interest in maintaining low food prices not only to satisfy political constituents but also to ensure that a growing population has access to ample food. However, these subsidies are so extensive that the U.S. population spends a smaller percentage of its income on food than residents of other countries. The average American in 2012 spent 6.6% of household income on food, compared to 10.9% in Germany and 13.2% in France (USBEA 2013). The vast system of subsidies throughout U.S. agriculture lowers the cost of food, making it more affordable to low-income populations and freeing up funds in household budgets for other necessities.

In the U.S. context, subsidies lower the cost of feed necessary to raise beef cattle. The most common feed products for cattle are all subsidized, including corn, wheat, and alfalfa. Corn is one of the most heavily subsidized crops, with 8 different programs in place ranging from deficiency programs to crop insurance premium subsidies (EWG 2013). Subsidies for corn in the U.S. peaked in 2005, totaling over \$10 billion (USDA 2013). The largest type of subsidy for U.S. corn is the crop insurance premium subsidy, with total payments of nearly \$19 billion between 1995 and 2012, closely followed by production flexibility subsidies at \$16.3 billion (EWS 2013; USDA 2013). The variety of subsidy programs covers many dimensions of corn production, including subsidies for loans, compensation for market losses, commodity certificates, and insurance. Corn producers have become heavily reliant on these subsidies. For example, insurance subsidies cover over 60% of farmers' insurance bills (Lynch and Bjerga 2013). However subsidies are disproportionately received by large commercial farms, as opposed to smaller farms that may have greater need of them. According to the Environmental Working Group, 70% of all large farms received \$30,483 in 2008, compared to only \$7,283 received by intermediate sized farms, and \$4,430 received by small-scale farms (EWG 2010; USDA 2013). My aim in discussing subsidies is not to detail the complex system of financial supports for commodities producers, but instead to highlight the extensive government intervention in commodities that in turn bolsters the beef industry. Of all corn produced in the U.S., 36% goes to animal feed either in the form of milled corn rations or in the form of corn-based distiller's grain, an ethanol byproduct (Foley 2013).

In tandem with the growth of subsidies and other mechanisms of Fordist agriculture, the nature of beef production began to change as the industry pursued lean production methods, high volume inputs and standardized production. By the mid-20<sup>th</sup> century, enormous restructuring had

taken place in the beef industry, with packing plants relocated from major cities to rural areas in order to reduce the distance from feedlot and ranch to the packing plant. This trend was spurred largely by Iowa Beef Packers, one of the first plants to move close to the point of production and utilize single story plants that facilitated easier slaughtering (Azzam and Anderson 1996). The physical proximity reduced shipping expenses, especially as transport became increasingly truck-based, and avoided pressure to improve labor conditions from organized labor in large cities. In particular, immigrant communities in rural areas provided low-cost labor for packing plants (Gouveia and Stull 1997). Especially as undocumented Latino immigrants populated these rural areas, packing plants relied heavily on their low-cost labor, often violating labor rights in the process (Gouveia and Stull 1997). Additionally, following World War II packing plants began to specialize in single-species slaughter, which further helped reduce concentration in meat processing as a whole, but also increased the development of cattle feedlots and set the stage for future concentration in the beef processing sector. With packers now specializing only in beef cattle, they could accommodate more cattle in a single plant and in turn sought larger volumes of cattle from a single supplier. Additionally, cattle packing plants could operate with a highly mechanized process, using assembly line production in which each employee made a single cut in a cow that moved along a conveyer belt type system, impossible when plants were processing many different species. With highly mechanized processing, packers desired highly uniform cattle with similar weight, size, and build, which minimized the need for employees to alter their assembly line cutting and allowed for an increase in speed. In response to the demand from packers for large quantities of uniform cattle, feedlots grew in popularity. Between 1961 and 1969 the number of cattle feedlots in the Texas panhandle increased at a rate of 20% to 30% each

year, further enticing packers to move to the rural areas where feeder cattle were concentrated (Galyean et al. 2011).

Another major change to beef packing occurred in the 1960's when packing plants began to process carcasses into "boxed beef" (Ward 2002). These boxes of beef contained smaller cuts and a variety of beef products that were much easier for retailers to use straight out of the box. The box system had been used in pork for decades but only in the 1960's did it enter the beef industry with great benefits for packers, including longer shelf life and lower shipping weights. However boxed beef required assembly line processing that further deskilled the labor force and mechanized the slaughter process.

Over the next decade cattle slaughter expanded enormously, with record high numbers of cattle slaughtered in the early 1970's. However this trend did not last long; as new technologies were adopted at the calf-raising and feeding stages, the size of an individual cow grew. With larger cattle, a packer could get more meat from a single cow and required fewer cattle to meet the overall demand. The size of the cattle herd slaughtered annually dropped 2 million head over five years, from 38.3 million in 1976 to 36.3 million in 1981, while simultaneously the average carcass size increased from 612 pounds in 1971 to 632 pounds in 1982 (Putnam and Gerrior 1997; USDA 1995). Today the average carcass size is over 800 pounds and expected to peak at around 850 pounds by the spring of 2015.

The zenith of efficiency in cattle production was part of the broader shift in American agriculture towards maximized outputs from new technologies, all part of the Fordist food regime, also called the Surplus food regime. Using technologies such as advanced seed types and chemical fertilizers, agricultural producers achieved record yields that would have been unimaginable decades earlier. The pressure to increase yields stems not only from economic

efficiencies gained through economies of scale, but also from the limited availability of U.S. farmland in the post-war period. By the 1960's the vast majority of all arable land was exhausted, forcing any increase in production to come from higher yields on the same area of land (Manning 2005; Fitzgerald 2003). In order to increase yields and satisfy growing food demand domestically and abroad, producers sought new technologies, bolstered by the biotech industry, to drastically increase yields. For example, the U.S. was the first country to use hybrid and genetically-modified seeds, as well as intensive chemical fertilizers, all developed within the post-war food regime (Manning 2005).

Relevant to the beef industry in particular, the 1960s saw the first commercially successful hybrid corn. Traditionally, crops such as corn were grown from the same variety year after year, using one year's seeds to produce the next year's crops. As producers experimented with hybrid varieties that mixed traits from one variety with those from another, they discovered that certain types of hybrid corn were more resistant to drought and generated increased yields (Thomas 1997; Fitzgerald 2003). Not only could this new variety of corn withstand extreme weather, but it also substantially increased the total profit from the same amount of land. The profits from planting hybrid corn spurred its widespread adoption; hybrid corn accounted for 1% of all corn produced in the U.S. in 1933, and within only a single decade hybrid corn grew to account for over half of all the corn planted in the United States (Buttel 2003).

This period also witnessed the creation of plant "architecture" science, in which the structure of plants was altered to direct natural resources to the part of the plant desired in harvest, in turn maximizing the fruit or seed weight in proportion to the rest of the plant (Fitzgerald 2003). In particular, producers used the practice of "dwarfing" to alter the architecture of plants by breeding plants that have very small stems and larger heads. In crops

such as wheat and rice, the head of the plant is the piece used for food, and thus dwarfing allows producers to increase yields from the plant heads with the same amount of inputs. Agricultural producers measure the productivity of a crop in terms of a harvest index, defined as the ratio of the weight of the edible grain (the head) to the weight of the total plant (head plus stem). In 1920, the harvest index for wheat averaged around 35. Today, modern wheat and rice ranges from a 50 to 55 harvest index, with a maximum level thought to be 60 (Manning 2005). Thus the seeds themselves are producing substantially more saleable food today than a century ago.

The increase in yields was also greatly aided by off-farm inputs, as well as advances in machine technology that reduced or eliminated the need for human labor. Together, new seed technologies, off-farm inputs, and developments in machinery produced enormous growth in total food produced per acre of land. In 1900, farmers grew 20 bushels of corn per acre. By 1990, this number increased to 130 bushels per acre, a more than 600% increase in total productivity (Manning 2005). The efficiency of production enabled by biotechnology, along with the standardization of production, led scholars to title this regime as “Fordist.” Applying the Fordist terminology communicated the degree to which agricultural production embodied attributes of assembly line production: increased scale of production, uniform products, reduced labor skill and increased technological intervention, with the ultimate goal of economies of scale and low production costs.

As agricultural production became increasingly industrialized, farm-based aspects of production were replaced by technology. As Goodman, Sorj, and Wilkinson (1987) note, this process represents appropriationism and substitutionism of agricultural production, in which industrial elements replace natural processes. Substitutionism refers to the replacement of farm-based products with industrial products, as seen in vitamin-fortified orange juice or cereals that

do not naturally contain those vitamins. Appropriationism describes agricultural activities that have been taken over by industrial activities, and turned into non-farm inputs. For example, in the beef industry, artificial insemination replaces natural breeding practices and requires the purchase of bull semen. Pechlaner (2010; 2012) adds to this framework by describing how biotechnologies developed as part of the industrialization process also alter how capital interacts with agriculture in three distinct ways: 1) extending opportunities for appropriationism and substitutionism to new parts of the production process, 2) increasing concentration of both suppliers and processors, and 3) establishing a new means of capital accumulation (Pechlaner 2010: 245).

And indeed, biotechnology played an especially large role in encouraging consolidation in the industry. Since hybrid corn, for example, cannot propagate, producers must buy new seeds and replant each year, in turn raising the total costs of production significantly. The need to purchase seeds drastically restructured the industry; farmers who could afford to capitalize on seed technology benefited greatly, while farmers who could not easily purchase these inputs struggled to compete (Kloppenborg 2010). The expansion of this production system also spurred the growth of capital-intensive farming reliant on off-farm products. The cycle of consolidation and conversion to mono-crop production that exploded after the adoption of hybrid seeds in the 1960's brought about the market for fertilizer, pesticide, and herbicide products that now is a dominant part of the American agricultural economy (Manning 2005). Moreover, seed and fertilizer technology permitted the entrance of biotech firms into the agricultural industry. The profits from selling these key inputs advanced the position of biotech firms, giving them enormous capital gains, and in turn leverage over U.S. agricultural activity (Pechlaner 2010). As Kloppenborg is keen to note, it is not just the existence of biotechnology that altered the

agriculture industry, but who is using it and for what purpose: “to focus too much on the tools rather than on who is using the tools and for what the tools are being used is to misapprehend the problem” (Kloppenburg 2004: 352). What Kloppenburg suggests is that many of the outcomes from biotechnology are not simply from the technologies themselves, but also from the disproportionate control and use of the technologies by a privileged group of economic actors. The concentration in the beef industry described below is an example of this process, as those value chain actors with enough capital to utilize advanced technologies were able to expand their operations, acquiring smaller operations in the process. Thus the following decades saw the rise of biotech firms within agricultural production, as well as increased consolidation among producers, shaped by the ability to access these technologies.

Concentration among packers is a marked trait of the modern beef industry that began at the start of the 20<sup>th</sup> century, reversed slightly after the 1920 Decree, and surged again in the 1970’s. In 1976, there were approximately 145 slaughter plants with annual slaughter capacities of at least 50,000 head of cattle (GIPSA 2000). However, five of these firms accounted for 14.8% of all slaughter occurring in plants of this size. As consumer demand and overall cattle production continued to grow, the 1980’s marked the expansion of the packing industry, especially through mergers and acquisitions. An increasing percentage of cattle were slaughtered at large plants, as small plants closed or were bought out by larger ones. By 1998, the number of plants slaughtering over 50,000 head per year dropped from 145 to 38, with 14 plants accounting for 66.8% of all slaughter in that size category (Ward 2010). Additionally, these larger plants represent the majority of new operations. Since 1985, only one size of plant managed to grow in numbers: those processing more than 1 million head in a year (USDA 2013). As these data indicate, enormous concentration in the packing sector took place, resulting in substantial market

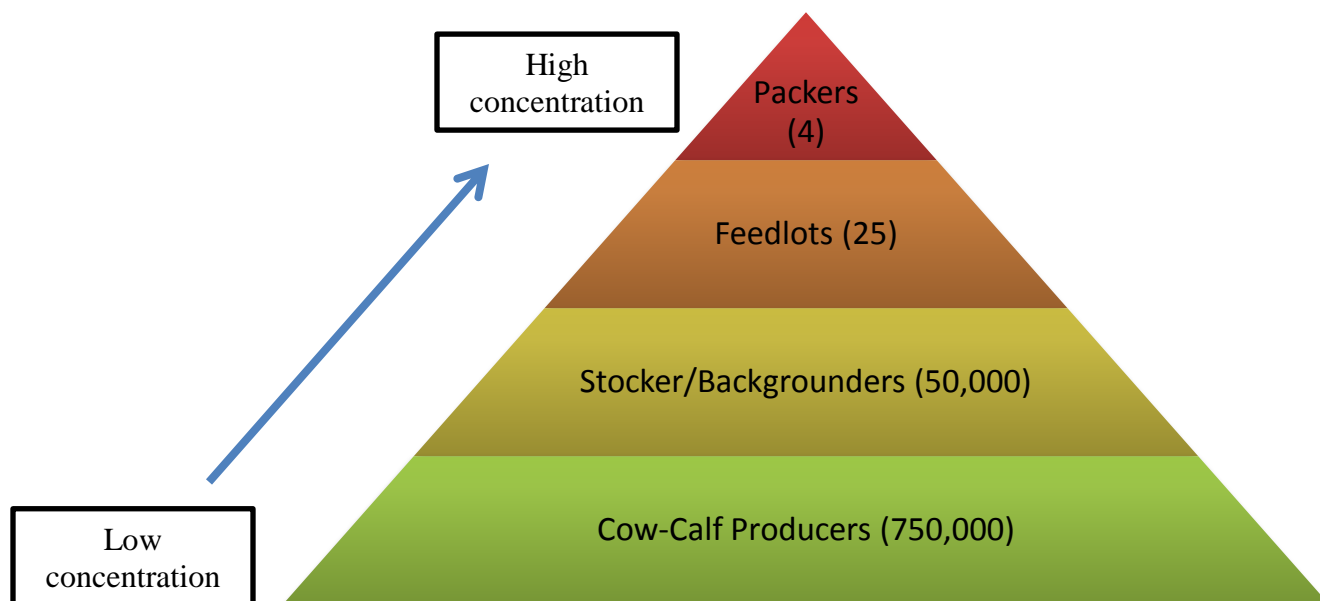
control by large packing plants. By 1996, over 79% of all beef cattle were slaughtered by only 22 plants, many of which were owned by the same companies. The market control of large packing plants continues today, as four main packers control 85% of all cattle slaughtered in the U.S: Cargill, JBS, National, and Tyson (USDA 2013). This oligopoly contained five leading companies up until 2001 when Tyson purchased IBP, further consolidating the packing sector.

Similar concentration can be seen in the feedlot segment, although to a much lesser degree. Today the majority of feedlots are small operations, with 89% of all feedlots operating with less than 1,000 head of cattle (MacDonald and McBride. 2009). However these small feedlots only account for 14% of all cattle purchased by feeders, with the rest bought by large feedlots. In 1992, 150 feedlots had over 32,000 animals each, as feedlots capitalized on economies of scale and continued to expand their operations. Today, only 1,200 feedlots produce 80% of all cattle in the U.S., indicating the enormous scale of larger operations (Macdonald and McBride 2000). The largest feedlot today, Five Rivers in Greeley, Colorado, has a total capacity of 1 million head of cattle. Consolidation among feedlots is facilitated by technological improvements in feeding that allow feedlots to keep more cattle in a smaller place and to more quickly grow the animals to optimal slaughter weight. With the use of growth promotants, hormones, and antibiotics, cattle are able to stay healthy in confined spaces, while putting on as much as 5 pounds per day at a feedlot.

Concentration continues in the feedlot segment as economies of scale still favor large operations that run at maximum capacity. The larger the capacity of the feedlot, the lower cost per cow, and in turn a greater overall profit. For example, feedlots require wastewater canals, feed mills, and machinery to provide feed and clean waste. Once a feedlot invests in this infrastructure, owners can more quickly pay off the cost by processing as many cattle as possible

through the lot. Figure 2.2 provides a graphical representation of the beef industry structure, showing the declining concentration down the chain from the small number of very large packers to the large number of small cow-calf operations.

**Figure 2.2: Number of firms controlling the majority of the market, by segment**



\*The number in parentheses is the number of operations that comprise the vast majority of the market, as provided by industry representatives at the “Beef + Transparency = Trust” conference.

The beef industry today operates in at a transition point between a Fordist and Post-Fordist regime, in which an emphasis on quality, convenience and health operates together with concern for price and quantity. In the context of the beef industry, Post-Fordism accurately highlights today’s growing market for higher quality beef products, such as lean beef, organic beef, all-natural beef, and hormone-free beef. Additionally it captures a new cultural narrative identifying meat and its associated health risks, detailed later in this chapter. However an enormous push to maximize output, such as the pounds of beef harvested from a single cow, are indicative of Fordist production. The beef industry still relies heavily on standardized, assembly

line production within packing plants, enabled by low-cost immigrant labor. Today, immigrant workers, many of whom are undocumented, comprise a large portion of the labor force in packing plants. The 2000 Census found that over 29% of employees in animal processing and slaughtering were foreign born (Artz et al. 2010); however this figure only includes documented workers, severely underestimating the degree to which animal processing relies on immigrant labor.

Despite the continued emphasis on economies of scale and increased efficiency in beef production, the U.S. beef industry is transitioning to the current food regime, described by Friedmann and McMichael (1989) as the “Neoliberal”, or “Post-Fordist” food regime. Much debate exists as to what to call this regime, with scholars proposing a variety of names. Friedmann refers to it as the corporate-environmental food regime; McMichael (2009) uses “corporate food regime”; and Otero and Pechlaner (2010) use “neoliberal food regime.” Each name seeks to emphasize a different aspect of the current agri-food system, as seen in Otero and Pechlaner’s deliberate rejection of the moniker corporate food regime, arguing that corporations will exist as long as capitalism, and thus that their involvement is not a distinctive trait of this food regime as compared with others (Otero and Pechlaner 2010). Other scholars frame the current food regime in industrial terms, defining it as a “Post-Fordist” food regime following the prior “Fordist” regime (Friedmann 1992, 1993; McMichael 1994).

This regime is marked by a shift from the Fordist logic of the previous regime whereby the exclusive focus on quantity and price is giving way to an emphasis on quality, health, and convenience. This can be seen most clearly in the surge of niche markets offering organic and ‘all-natural’ food and the demand for year-round produce in grocery stores, despite the inherent seasonality of such products (Friedmann and McMichael 1989). In the beef industry, the market

for all-natural beef is the fastest growing segment, more than doubling between 2011 and 2013. And although it is a niche market, representing a small portion of consumers, the Post-Fordist regime represents the interests of a very wealthy and influential portion of society. These elite consumers not only represent higher-income strata but also a group capable of influencing policy and regulation surrounding food production in the United States. Moreover, although Post-Fordism represents a minority of consumers, the regime is hegemonic in terms of the purchasing decisions made by this relatively affluent minority.

On a global scale, the current food regime is also defined by neoliberal ideals, or as McMichael explains, the “political elimination of barriers to capital in social and natural relations” (2004: 4). McMichael commonly notes that the Fordist regime is characterized by “food from nowhere” in which production is separated from consumption through export markets, and most agricultural production is controlled by corporations rather than family farms (2004). Specifically, the Fordist regime stems from the expansion of global trade, in which high value products are exported from the Global South for wealthier consumers in the Global North (Pritchard and Burch 2003).

Among consumers, Post-Fordism reflects a market based on variety and shifting production to meet consumer demand. In contrast to the uniformity of Fordist products, Post-Fordism creates a landscape of choice with options for every type of consumer (at least every consumer with sufficient purchasing power), and greater emphasis is placed on the origin of production, or as Friedmann (2005) titles it, the reemergence of “food from somewhere.” Instead of offering one type of product, a company may offer five varieties, each with slightly different attributes. Economies of scope have implications for economies of scale. This ‘flexible

specialization' requires more specialized jobs and small batch production (Amin 1994; Baca 2004; Kiely 1998).

Despite an emphasis on consumer preferences and high quality products, it is important to note that Post-Fordism continues to advance the neo-liberal ideals embedded in Fordist production. At the heart of Post-Fordism rests regulation through market mechanisms and an absence of government intervention. The problems Post-Fordist production aims to address, such as environmental, ethical, and social concerns of contemporary food production, are addressed by creating a market that valorizes alternative forms of production, instead of by transforming the way existing agricultural products are grown or raised. Consequently, the neo-liberal dynamic of Post-Fordism results in a bifurcated market – one market for conventional and one for value-added products – with limited government intervention to address the root problems of the dominant system.

For the purpose of my research, I utilize the Fordist and Post-Fordist frameworks for two core reasons. First, these frameworks are well-suited to my research, given their emphasis on both scale and efficiency of production, as well as consumer preferences related to quality and health. The Post-Fordist regime highlights how consumer markets change what food is produced and how it is produced. Second, this framework is well suited to analysis of beef in the U.S., which is currently undergoing this transition towards higher quality, healthier beef products. The U.S. beef industry is currently grappling with how to address the rising demand for products such as humane certified, lean, and organic beef. While this framework is a useful means of analysis, I employ it with an awareness of its limitations and supplement the Post-Fordist framework, which I argue is disproportionately focused on consumer demand, with empirical attention to factors shaping production, including the regulatory environment.

Scholars continue to draw on the food regimes framework for its insights into value relations within agri-food productions, and have since granted greater attention to other factors such as labor (Araghi 2003), regulation (Dixon 2009) and “green capitalism”(Campbell 2009). Most notably, food regime analysis has shifted to focus on ecological factors, as captured in the “Food from Somewhere” regime proposed by McMichael (2009). As part of this shift towards documenting the ecological dimensions of food production, auditing and private standards have become a central topic within food regime theories. However food regime scholars are quick to identify tensions between a focus on ecological factors and more traditional foci of the framework, such as relations within agri-food production. As Campbell (2009) points out, the food regime research agenda now asks “is the ‘Food from Somewhere’ regime more equitable, less exclusionary and less exploitative of vulnerable agricultural producers,” as compared to the opposing “Food from Nowhere” Regime (p. 317).

This foundational question of contemporary food regime analysis informs my investigation of the beef industry, as I explore not only how value chain governance affects relations within beef production, but also how a turn towards the kind of private standards associated with the emergence of a Post-Fordist food regime influences existing inequalities within the value chain. As the beef industry incorporates aspects of the “Food from Somewhere” regime, in which differentiation among products is promoted, and some companies boast increased auditing of ecological and ethical production practices, how does this alter the relationship between upstream producers and downstream buyers?

While the perspective provided by the Post-Fordist framework highlights a growing consumer concern with ethical and environmentally-sound production and suggests that we are transitioning from an industrially-oriented food regime based on efficiency and price to one that

prizes quality and well-being, the majority of Americans, let alone global consumers, remain outside this system. The higher price of value-added food prohibits low-income populations from accessing these markets, even if these consumers share the desire to consumer for healthier, higher-quality products. Similarly, only a fraction of agri-food producers can afford the capital investment often necessary to enter the value-added production that is unique to Post-Fordism. Thus, unlike the Fordist regime that swept nearly all of agri-food production, access to high-quality, high-variety foods remain limited to wealthier, and largely white, segments of society.

In short, aspects of contemporary agriculture differ from the previous era, but the Fordist logic remains dominant among both producers and consumers. Instead of envisioning the current period as a *transition* from to a Fordist to a Post-Fordist regime, I argue instead that Post-Fordism is better conceived as an emergent regime only applicable to a small share of production. The new emphasis on “food from somewhere,” private standards, and customized production does not displace the core logic of an agricultural system centered on the mass production of low-priced, export-oriented agri-food products. Instead the two systems co-exist, with the Fordist regime accounting for the vast majority of production. While advocates of Post-Fordist production systems would like to see the regime rise to dominate American and global food production, and thereby displace Fordism, this seems unlikely, given the relatively marginal status of Post-Fordist production at this time and the fact that its expansion would necessitate a dramatic increase in the number of consumers that are able to pay more for their food.

Applying the value chain perspective to the food regime framework reveals the segmentation possible within the contemporary era of agricultural production, as a subset of today’s agri-food value chain actors participate in a separate and distinct Post-Fordist regime. Given that a subset of value chain actors produce according to agri-food dynamics that are in

tension with the mass-produced industrialized logic of the Fordist regime, such as private standards and value-added production, a single regime framework fails to capture all logics driving agri-food production. While the traits of Post-Fordism are ultimately rooted in the political economy of agriculture that Fordism describes, proponents of the food regime framework err in treating each regime as mutually exclusive or successive. Instead, contestation processes over agri-food production can result in multiple, simultaneous regimes with divergent attributes of production. When examined from the global value chain perspective, the food regime framework is limited in that it only captures the hegemonic production system, while simultaneously overlooking the emergence of competing regimes. By highlighting the shift toward private standards and value-added production, the global value chain approach illuminates the emergence of Post-Fordist production systems while still granting adequate attention to the dominant logic of industrialization, as seen in the continued consolidation at the feedlot and processing links in the beef value chain.

It is crucial to note that while Post-Fordism exists as a competing logic, its existence is largely contingent on the dominant Fordist production system; much of what defines Post-Fordism and gives it value to the consumer is the fact that these production methods are understood as an alternative to, and a direct refutation of, the dominant Fordist system. While I do not mean to suggest that all regimes emerge as a contestation of the prior dominant regime, I do want to draw attention to the rise of Post-Fordism as a socially-constructed and consciously developed alternative to Fordist agri-food production—one based on a set of cultural values and beliefs that are opposed to mass-production in industrialized food systems. In this sense, Fordism and Post-Fordism mutually constitute each other. The coexistence of competing regimes highlights the growing tensions between two production systems, one advancing low-cost

industrialized food production for lower-income consumers, and another catering to the segment of society with the purchasing power to select higher quality products.

## CHAPTER 3

### METHODS

My research applies a variety of qualitative methods in order to capture different dimensions of and perspectives on beef production. Specifically, I combine in-depth interviews, participant observation, and historical data analysis in order to weave micro-level insights drawn from extensive fieldwork into an analysis of the meso-level dynamics of the value chain and the macro-trends in the political economy of agriculture more broadly. I divide my discussion of research design in this chapter into two brief sections addressing data collection and data analysis, respectively.

#### **Data Collection**

In order to identify participants for in-depth interviews, I used a combination of quota and stratified sampling as well as snowball sampling. First, I obtained directories of beef operations within the Rocky Mountain region by type of facility. From these lists, I stratified the operations by distance from Denver using google maps and the publicly listed addresses of operations, and then selected all operations within 150 miles of Denver, of which there were over 200. I cross checked the three different lists and narrowed my sample to the operations that appeared on all three lists to increase the likelihood of getting a response – operations appearing on one list may be out of business, and indeed many were, as I found later on. I began trying to schedule interviews with packers, given that existing literature identified this segment as an important and influential segment of the value chain. I attempted to recruit interview participants

via phone and found that many operations included in the directory were out of business or did not have answering machines on which I could leave a message. Fewer than 10 operations directly declined to participate in the interviews out of approximately 100 that I contacted.

The sampling from industry directories provided me with a first set of operations to interview, and then I collected information on other potential participants from those interviews, using snowball sampling. I concluded every interview by asking participants if they could recommend other members of the industry I could talk to, to which most interviewees were very responsive. While on average 1 in 15 producers from the directory resulted in an interview, nearly 8 of 10 producers provided in snowball sampling led to interviews.

I also found informants through participant observation, including attendance at industry conferences, industry events, and auctions. Once I had established connections through my first set of interviews, I established some credibility within the industry. At industry events I was able to introduce myself to members of the industry and note that I had conducted interviews with their colleagues (with the participants' prior consent to reveal their involvement in the research). This technique allowed me to interview high-profile industry members who presented at conferences and events.

All interviews were scheduled over the phone, and when at all feasible, took place at the participant's place of work. In three cases, phone interviews were conducted in lieu of in-person interviews due to time restrictions or geographic barriers. In all cases the interviews were recorded with consent of the participant, and transcribed directly by me. However, given the nature of work in the beef industry, conducting interviews at the work site often entailed riding in a truck or walking a ranch at the same time as conducting the interview. In a handful of cases this affected the recording quality of the interview, or the progression of the interview questions

given unpredictable interruptions. Some interviews took place in formal office settings, typically at a feedlot or packing plant where the physical infrastructure allowed such a space. But even in an office, the interviews were often interrupted by employees entering, customers walking in, or the noise of the business – saws at packing plants, mooing at feedlots, or ‘elevator music’ in the formal offices. All interview participants signed an informed consent form that detailed the purpose of the study and asked for consent to audio record the interviews. One participant who completed a phone interview was provided the form via email and gave verbal consent.

In total I completed 40 interviews, as described in table 3.1. I selected participants from all segments of the value chain as well as external actors, including third-party auditors, government officials, sale barn representatives, and industry association leadership. The external actors were important for capturing a complete picture of the industry, given their roles in certifying, supporting, and regulating the industry. In particular, these interviews included members of the beef check off-program, a mandatory fee-based program in which beef producers pay approximately \$0.50 per cow to support advertising, education, and industry expansion through state-led beef councils. Additionally, I included regulatory agencies at the federal level that oversee trade and export and key beef associations to which thousands of beef producers belong. Other organizational interviews included representatives from beef associations at the state and national level, as well as associations focused on improving the quality of beef products. Beyond industry associations, I interviewed representatives from third party auditing companies that provide certification to beef producers, such as all-natural, grass-fed, or ‘age and sourced’ beef products. These companies provide onsite audits, as well as technologies and tools to improve traceability in the value chain from calf to slaughter and even to store shelves.

After approximately 30 interviews it appeared I was nearing saturation, as much of the information I heard from participants repeated that gleaned in previous interviews. However, I aimed to include at least three participants from each portion of the industry. The interviews lasted between 22 minutes and 2 hours, with the average interview lasting 52 minutes.

**Table 3.1: Interview participants by segment**

Segment	Number of Interviews	Size Range (2013)
Retailers	3	\$150 million – \$23 billion in annual sales
Packers	8	5 head per day – 26,000 head per day
Feedlots	10	3500 head – 980,000 head
Cow-Calf Producers and Seed Stockers	9	5 head – 300 head
Third-party auditors	4	5 staff – 100 staff
Government and Industry Associations	6	Association membership: 2,500 – 29,000
<b>Total</b>	<b>40</b>	

Although I only completed three interviews with retailers, this represents a large portion of this segment of the industry, given the degree of concentration at this link in the chain. Obtaining interviews with the retailers proved to be the most challenging; retail representatives (along with other industry members) were somewhat suspicious about my motivations, and/or were more proprietary about information and therefore hesitant to discuss any details of their sourcing strategies. Additionally many obstacles existed to identifying the employee within a retail store that was best suited to interview. For segments such as cow-calf producers, often the publicly-listed phone number was the one for their family’s home that the owner would directly answer. Alternatively cow-calf producers and feedlot operators had cell phones they carried with them within their ranches and pens, and answered directly when I called. In contrast, obtaining an interview with a retail representative required several phone calls to numerous corporate

divisions and locations, often spread over several weeks. When the appropriate person was identified, it required several more phone calls to either request a return call from that individual or learn that the individual (or the company employing him/her) was unwilling to participate.

The interview protocol used for the in-depth interviews consisted of questions that were consistent across segments as well as questions that were tailored to each particular type of participant. All interviews were semi-structured, and adapted according to the sui-generis dynamics of the interview. For example, certain interviewees clearly stated that particular information was proprietary when first asked, so I excluded all following questions that addressed the same issue. Generally speaking, interviews within a particular segment of the chain (e.g. packers) were similar in both substance and style of conversation, with some variations according to size of operation. However, there was substantial variation across segment. For example, one interview with the largest premium natural food retailer took place in a cozy office with the executive's pet dog resting on the floor. Another interview took place in the pick-up truck of a seed-stocker while he helped stack hay bales. Still another interview took place in the cutting room of a small slaughterhouse while I stood and watched the owner cut up large pieces of a cow carcass.

All interviews included questions regarding the demographics of the organization, including size in terms of sales, land, or volume; an overview of the operation's core activities; the interviewee's role in the operation, as well as general items related to my research questions, including the impact of drought on the operation, perceived changes in the industry during the last ten years and anticipated changes to come. In addition, tailored questions appropriate to the segment were asked. Given my interest in value chain dynamics, these questions often focused on interviewees' relations with upstream and downstream actors. For example, interviewees

from feedlots were asked in detail about how they obtained and sold cattle; packers were asked in detail about the kind of information they made available to feedlots what kind of specifications they received from retailers, and so on. The full interview protocols can be found in the appendix.

In conjunction with in-depth interviews, I conducted participant observation. This entailed attending industry conferences, such as the National Cattlemen's Beef Association annual meeting and a regional conference titled "Beef + Transparency = Trust"; attending industry events such as the National Western Stock Show; and attending trade events such as sale barns and auction houses. My degree of anonymity varied depending on the form of participant observation. At industry conferences I formally registered as a researcher, and introduced myself as such when meeting fellow attendees. But when at industry and trade events, my status as a researcher went unnoticed. In total, I completed over 70 hours of participant observation over 16 months.

Throughout my in-depth interviews and participant observation, I faced several challenges to gaining entrée to my targeted population. First, I often tried to dress more casually than I would for an interview in a more formal office setting, given that many of the interviews took place on a ranch, feedlot, or slaughterhouse. However I seemed to regularly mis-predict the setting, given that some feedlots had formal offices and others did not. In cases where I arrived at the interview in semi-professional clothes, only to immediately be literally walking through mud, I felt out of place and perceived that I was judged as such by members of the agricultural community. On more than one occasion, this perception was confirmed when interview participants noted my status as an outsider, either based on my appearance, my car (a hybrid

Honda civic with Ohio license plates), or my behavior, such as locking my car door in a remote rural area where participants view locking doors as unnecessary.

Second, my association with the University of Colorado-Boulder preceded me. Given CU-Boulder's reputation as a liberal institution, especially in contrast to the nearby land-grant institution of Colorado State University (which has a large meat sciences department), participants were skeptical about my interest in the beef industry. Students from Colorado State often worked at the operations that participated in my research—for example, as part-time assistants in meat grading where their job entailed taking pictures of animal carcasses. One packing plant manager I interviewed joked that they have not had any students from CU-Boulder interested in working at their plant –apparently an idea so preposterously comical that our interview was interrupted for some time by the man laughing at the very idea . Many directly asked why I was interested in the beef industry, or asked if I was from the People for the Ethical Treatment of Animals (PETA). Respondents were accustomed to negative attention from groups such as PETA and were hesitant to agree to an interview until I assured them the information was confidential and anonymous and was part of a research project aimed at improving the beef industry. Many participants appeared reassured when I mentioned that I ate, and enjoyed, beef on a regular basis (at a beef industry conference I witnessed a room of over 5,000 attendees give a standing ovation to NFL legend Archie Manning for saying his favorite cut of beef was a T-bone steak) Even after completing an interview, several respondents asked me why a student from Boulder would be interested in the beef industry.

Finally, it took several months to learn the language of the industry. The terminology of the beef industry is complex, technical, and highly specialized. In my first several interviews I came across as unprepared and uninformed about the beef industry, as I often used the incorrect

word to refer to aspects of the production process. Only after two months of interviews did I fully understand how to employ the proper vernacular. For example, only an industry insider would be familiar with the definition of a cow as female cattle that have given birth, while heifer refers to females that have not given birth. In existing literature on the beef industry many of these distinctions are not made clear, leading me to regularly err in my attempts to use them.

In addition to fieldwork, I made use of available secondary data. A wealth of data exists on the beef industry in the U.S., collected by agencies such as the U.S. Department of Agriculture Economic Research Service, the National Agriculture Statistics Service, and the Bureau of Labor Statistics. Prior, during, and after conducting in-depth interviews and participant observation, I utilized historical data to provide context to the emergent findings from my research. Instead of solely relying on the accounts provided by beef industry participants, I verified their claims regarding trends in the industry through statistical historical data. Additionally, given that drought plays a central role in the beef industry and in my subsequent analysis, I explored how the drought beginning in 2012 compared to other previous droughts. Using the U.S. Drought Monitor and the National Climatic Data Center, along with data from the United States Geological Survey, I was able to highlight the degree to which the 2012 drought was more severe in both scope and scale than most droughts in the past 50 years.

Additionally, I used historical data to inform my value chain analysis. Although most interviewees agreed on trends in the industry, including the degree of concentration and changes to production, information from participants could have reflected only their perceptions and therefore exaggerate or underestimate the degree of change. This was especially important given the inflammatory nature of certain topics in my interviews; some participants responded angrily and emotionally to questions about concentration in the industry and control by certain segments.

Producers from each segment seemed to have a different target to blame for any misfortune, whether it was a monopoly among packers, government regulation, or suburban expansion into farmland. While these claims may be based in factual trends, it was crucial for me to verify the degree to which these trends proved true.

## **Data Analysis**

Once all data were collected, they were analyzed using qualitative analysis methods. The transcribed interviews were coded to identify initial emergent themes on which the following chapters are based. Then all interviews were coded again with these themes in mind, selecting supporting information in the process. One final round of coding was completed to identify any information that contradicted the themes and evidence within the first two stages of coding in order to cross-check the validity of these themes. In cases where ample evidence questioned the validity of a theme, I performed further analysis of the data before making a decision on whether to further pursue this theme in light of contradicting data, and if so, what the contradicting data revealed.

Once preliminary findings were established, I consulted with a small advisory group who agreed to assist in my research. This group consisted of interview participants, as well as members of beef associations whom I had not included in my research. The creation of this advisory group was in accordance with deliverables for a grant received from the USDA Sustainable Agriculture Research and Education Graduate Grant. In an effort to include key agricultural stakeholders, especially producers, in my research, the advisory group was consulted after I established my research findings.

Consultation with the advisory group occurred in person at the time of an industry conference. Despite the attendance of all group members at the conference, only three of the five members attended the planned meeting. These three members came from the cow-calf segment and the feedlot segment. The conversation was informal, with a brief presentation of my findings (as of that date) and a discussion among the three members. Specifically, I asked how these findings resonated with their experiences within their particular value chain segments, as well as in their particular businesses. I also asked questions about any critiques they had regarding my findings, suggestions to improve my research, or additional industry members I should consult. The response from participants was relatively benign, and in general the group members just seemed pleased that someone was doing this research in a way that appeared to pose no threat to the industry. For members of the group who did not attend the in-person meeting, I followed up by phone and by email to ask the same questions posed at the group meeting. One participant promised to send comments, but never did, and the other provided brief notes via email.

The feedback from the group did not in any way alter my findings, but instead provided perspective on how my findings fit with the views of agricultural producers. Most commonly, members of the advisory group agreed with my findings, but provided caveats about why these findings were true. For example, many had strong reactions to the claims that beef production was environmentally, ethically, or physiologically harmful. Even if they agreed, they claimed that incidents of public scandal were isolated cases or only due to the actions of one beef producer who made the entire industry look bad.

In accordance with IRB approval, all participants are kept confidential and anonymous, and thus I use pseudonyms throughout my analysis. Additionally, I remove any information that would reveal the identity of either an individual or an organization. The beef industry in the

Rocky Mountain region is large, yet relatively tight-knit, and thus even seemingly small details could violate the anonymity and privacy of my informants. Therefore in some instances I am overly vague in my descriptions of members of the industry and their businesses in order to avoid identification by their peers who might review my findings.

If time and funds allowed, I believe on-site, extended participant observation would have bolstered my research findings. As an outsider to the industry at first, I was surprised by the lack of troubling behavior I witnessed; I expected to find more cases of animal neglect or cruelty, disregard for animal health, and extensive labor issues that are well documented in the industry. Instead, I encountered an enormous respect for both the natural environment and employees as told by the interview participants and industry members I observed. While initially wooed by the romanticized version of beef producers as caretakers of people and land, I had to question the degree to which this was an accurate picture of the industry. Working directly on site at each segment of production, for a longer tenure than a day's visit, would have helped to illuminate this contradiction. Nonetheless, while I do not believe industry members intentionally lied to me, it is crucial to approach contradictory and controversial findings carefully and perform due diligence to validate claims. Thus I provide the caveat that my research is largely based on the accounts provided by beef producers, without consideration for other actors who may refute them, such as animal-rights activists or labor organizers.

## CHAPTER 4

### DROUGHT IN THE U.S. BEEF INDUSTRY

The United States experienced severe drought repeatedly in the early 21<sup>st</sup> century, most notably in 2008, extending until 2010, and again in 2012. The most recent drought of 2012 continues and is so severe and widespread that it is commonly compared to the record droughts of the 1930's Dust Bowl era. In July 2012, the drought covered 81% of the contiguous United States, with more than two-thirds of this area affected by moderate drought conditions, or worse. According to the USDA (2013), the 2012 drought was more extensive in its reach than any drought since the 1950's. According to FEMA, if this drought continues as expected it will become the costliest natural disaster in U.S. history; Texas alone experienced agricultural losses beyond \$10 billion from this particular drought (Kimery 2012) In total 1,369 counties across 31 states were declared disaster areas by the USDA, the most in the history of the USDA's existence and worse than throughout the Dustbowl era (Schwartz 2012; NOAA 2012), indicating that the drought was not just broad, touching the vast majority of agricultural producers, but also severe and extreme.

During this time, the drought conditions greatly affected the beef industry as well as other segments of agriculture heavily reliant on rainfall. According to extant literature on natural hazards and disasters, beef producers are highly vulnerable to drought and recognize the financial risks extended drought can impose. Certain stages of production have greater vulnerability, as well as lower resilience that limit recovery when drought conditions come to an end. In this chapter, I outline the role of drought in restructuring both the value chain and

practices of the beef industry. I begin by reviewing fundamental concepts from the field of natural disasters research regarding drought. I use these concepts as a springboard to investigate how the industry changed in response to recent droughts, and then draw upon the ethnographic data to elucidate the processes driving these changes.

### **Vulnerability in the Beef Industry**

Vulnerability within natural disasters and hazards research is a crucial concept for understanding who, to what degree, why, and how different groups of people are affected by natural disasters. However, operationalizing vulnerability is not an easy task. As Vogel and O'Brien (2004) highlight, vulnerability is multidimensional, varying across space, time, and social groups. Moreover, these scholars note that it is also scale dependent, varying in definition from an individual, to a social group, or to a geographic region. Given these complexities, numerous definitions of vulnerability have emerged from the disasters literature. Certain traditions include the ability to cope, or response capacity, as a measure of vulnerability (Bohle 2001; Turner et al. 2003), while others separate vulnerability from coping capacities (Davison 1997; Bollin et al. 2003; Villagran de Leon 2004). Other scholars devote greater attention to the root causes of vulnerability, such as the pressures that produce unsafe conditions, or unsustainable development (Wisner et al. 2004; Bogardy and Birkmann 2004; Bogardy et al. 1999).

The difference between the first two fields of thought – that defining disasters as inclusive of coping ability and that which does not – are not that drastically different, given that resilience and vulnerability are interconnected. Scholars such as Cutter and Finch (2008) explain that resilience and vulnerability are inseparable in many ways, given that individuals or groups

will be more vulnerable if they lack the ability to cope with disasters. Moreover, separating the two fails to capture the long-term outcomes of disasters that reflect back upon the vulnerability of certain social groups, extending from the individual and family level (Bolin 1985) to the city level (Webb et al. 2002) and beyond.

Much of natural hazards research focuses on the impact of hazards and disasters on cities (Pelling 2003; Wisner 2004). However, rural communities and agricultural producers are highly vulnerable to natural disasters (Morrow 1999), especially drought (Wilhelmi and Wilhite 2002). In the last 50 years, agricultural producers have been pushed on to arid land unsuited for agricultural production. Under pressure to increase yields to remain price competitive, producers utilize any land available and plant fence to fence (Manning 2005). Especially as land prices increase and suburban development threatens the remaining agricultural land, agricultural producers have little option regarding the land they use. The vulnerability from growing on marginal land is not natural, per se, but socially created by the web of social forces encouraging agricultural production in certain regions and on certain types of land. As Mileti (1999) observes, natural disasters can be seen as a mix of culture and nature; social forces lead to the presence of humans, as well as man-made structures and activities, in areas where extreme weather events may occur. It is partly our decision, together with social constraints that shape those decisions, to exist within certain spaces that result in harm and losses from disaster events (Mythen 2007).

Another subfield of research focuses on the economic impact of disasters, with a particular emphasis on business continuity (Chang 2010; Chang et al. 2012) and losses to business communities (Yang 2009; Webb et al. 2002; Hallegatte et al. 2008). Research highlights that business communities are highly vulnerable to natural disasters, not only in terms of the downtime during and immediately after a disaster, but also in secondary impacts such as a loss of

local customers and infrastructural damage to stores and surrounding communities (Haynes et al. 2011; Xiao et al. 2010; Flynn 2007). The economic impact of natural disasters extends beyond the financial costs of infrastructural rebuilding, and as described below, has had secondary and tertiary effects throughout the beef industry.

Beef producers exist in highly vulnerable locations largely due to the demand for beef products both in the U.S. and abroad. Political, economic, and social factors encourage intensive ranching operations characteristic of the beef industry today. In particular, ranchers seek cheap, ample land on which to keep large herds of cattle. Most often these lands are in rural, remote, arid regions. As described by disaster scholars, vulnerability stems from numerous factors, including place, natural environment, and the built environment (Cutter 1996; Cutter et al. 2003). For beef producers in early stages of production, including cow-calf producers, stockers/backgrounders, and feedlots, vulnerability is high based on these factors. Specifically in the case of drought, beef producers are often located in arid regions in which key input crops necessitate extensive irrigation or watering in addition to rainfall. Moreover, these beef producers' profits are directly linked to cattle health, which is compromised in drought conditions. The risk of cattle sickness increases with dusty, dry conditions, and during drought periods, when temperatures may be high, cattle require additional water resources.

Beef producers also face vulnerability based on their demographics, especially as relatively low-income populations with large families (Tierney 2006; Bolin 2006). Beef producers commonly have the majority of their wealth in physical assets, limiting the amount of disposable income to use on preparedness and recovery efforts. Additionally, ranching at all stages of production is typically a family business, with the majority of operations family-owned, and in turn reliant on children to take over the business (USDA 2013). Even today the average

cattle herd size is 40 head, indicating the perseverance of small-scale operations (USDA 2013). Although beef producers are mostly white men (and therefore less vulnerable than women and people of color), their position in rural communities increases their vulnerability. The geographic isolation of beef operations limits access to resources such as emergency services for humans and animals and to key inputs only available in city centers. In periods of drought, beef producers may not be able to secure additional feedstuffs on short notice if the main market centers are over a hundred miles away.

### **Risk Perception in the Beef Industry**

Despite the level of vulnerability, individuals, communities and organizations may perceive risk differently. Risk, defined by Pelling (2003) as the potential for disaster, is a subjective interpretation with very real consequences for human action. In the extensive literature on risk, scholars emphasize the subjective nature of risk perception that creates misconceptions about the level of threat, both exaggerating and minimizing it depending on the circumstances (Taylor-Gooby et al 2006; Beck 1992; Ekberg 2007). In the case of drought in the beef industry, the perceived risk of drought is highly normalized both through individual and organizational processes. This is partly due to the fact that drought has been a very common experience over the last half century. Drought periods have occurred more frequently and for longer than in the past, largely due to the effects of climate change (Yohe et al. 2010; Westerling et al. 2006; McCabe 2004; Dale et al. 2001). Research conducted by the National Oceanic and Atmospheric Administration concluded that the frequency of droughts is linked to human-caused climate change, and in turn more frequent and more severe droughts could be expected (Hoerling et al. 2011). The regularity of drought periods makes it a “normal” natural disaster, so much so

that a presenter at the 2014 National Cattlemen Beef Association conference encouraged beef producers to consider drought the “new normal.” By this, as he went on to explain, he encouraged ranchers to plan for drought rather than rainfall.

This same presenter highlighted the ever-optimistic thinking of beef producers, constantly convinced that the rain will come tomorrow, and tomorrow, and tomorrow. While not all beef producers share this optimism, this presenter hinted at the nature of drought that skews risk perception. In particular, drought is a crevice, slow on-set disaster. Unlike tornadoes, hurricanes, earthquakes, or forest fires, droughts take months to occur. As defined by the U.S. Drought Monitor, a drought is defined as a “moisture deficit bad enough to have social, environmental, or economic effects” such that a short-term drought is demarcated as one that lasts less than 6 months. Although much subjectivity exists in defining a drought, even a short drought can take several months to occur. This slow-onset can reduce the risk perceived by beef producers, since rain *could* potentially happen at any time to preclude or end a drought.

Beef producer-organizations also influence the perception of risk. National organizations such as the National Cattlemen’s Beef Association, the National Livestock Association, and the American National Cattlemen’s Association communicate the risk of drought. Through websites, emails to members, conferences, and online videos, these associations both magnify and minimize perceptions of drought conditions. In particular, these organizations present information on a national level, such that although drought might be severe in California, beef producers in Tennessee have ample rainfall.

## Recovery in the Beef Industry

In discussing disaster recovery, O'Brien et al. (2004) highlight the importance of understanding recovery not only as a return to 'normal' and a resumption of the status quo, but also as the ability to rebuild to a higher standard of resilience. Given that the impact of a disaster is measured in part by pre-disaster vulnerability, it is necessary to build back with greater resilience than before (Berke et al. 2008). Particularly among scholars focused on the root causes of disasters, such as unsustainable development, simply rebuilding to pre-disaster conditions may not address existing vulnerabilities and create the conditions for future disasters. Moreover, scholars focused on the economic impacts of disasters emphasize the need to build greater resiliency, and in turn reduce vulnerability, in order to avoid interruptions to business continuity in the future (Chang 2010; Chang et al 2012).

In the case of drought in the beef industry, beef producers have begun to adopt this view of recovery by adapting their production practices and business strategies to plan for drought as the new normal. For example, when drought eradicated corn supplies, many feedlots turned to distiller's grain and other feed substitutes. When drought conditions subsided they continued to use substitutes, since they already created systems to source these substitutes, and it was perceived that there was less chance of future volatility in supply and price as compared to corn. One feedlot manager noted that he had not fed corn for over four years because corn prices had become too high from drought conditions. Although there was drought when he first stopped feeding corn, he continued using the substitutes in anticipation of more frequent and severe drought conditions in the future. Thus in his case, as in the case with many other beef producers, recovery did not entail a return to normalcy and the status quo pre-drought, but rather encouraged long-term adaptation.

Beyond production practices, drought can severely damage the quality of land used for beef production, both directly for grazing cattle and in the production of key inputs such as corn and alfalfa. Although multiple government programs exist for supporting beef producers who experienced losses from drought, many beef producers resist taking government assistance. As discussed in greater detail in chapter 7, a commitment to masculine ideals significantly shapes the management decisions of beef producers. Beef producers, almost exclusively men, resist taking government “handouts,” viewing them as a sign of weakness and emasculation when not able to maintain their ranches on their own. This gendered construction of accepting government assistance is inconsistent, however. For example, beef producers have little or no problem accepting government subsidies for key commodities, such as corn. However when the government tried to enter the space occupied by beef operations, the owners saw this as intrusion. From their perspective, while government could subsidize products they used on their operations, the government should not tell them how to take care of their land, handle their animals, or manage their businesses. Beef producers repeatedly indicated distaste for government intervention on their land, especially in the context of environmental regulations, and thus were also resistant to government support in managing their drought-damaged land.

Instead of taking government support to aid drought recovery, many ranchers elected to retire entirely, sell part of their herds, or relocate their herds to different land. These three alternatives to government assistance were heavily emphasized by individual producers, as well as at the organizational level. In a session at the Cattlemen’s College conference, in November 2013 titled “The Ecology and Economics of Drought Management: Recognizing Drought Conditions and Implementing Effective Mitigation Strategies,” leading experts outlined the various options for beef producers facing drought conditions. The options listed repeatedly by

the presenters included the three options noted above; presenters devoted only one brief moment to loan assistance programs. That program was listed on one of dozens of slides, while the other three options were reiterated nearly ten times within a 30-minute presentation.

As evidenced by this presentation, given during the beef industry's annual flagship event, organizations play a central role in both shaping risk and recovery strategies. Even though selling part of a herd or entering retirement damaged the strength of the beef industry and reduced the number of active producers, the National Cattlemen's Beef Association encouraged these options in lieu of government assistance. Although these strategies may only reflect the beliefs of a particular presenter, they are communicated at the organizational level and shape the understanding of beef producers regarding which strategies are preferred as the correct and legitimate ones for dealing with drought.

## **The Drought of 2012**

The 2012 drought most heavily affected one aspect of production: feed inputs. With limited rainfall, the availability of corn, hay, and alfalfa crops dropped, and in turn prices skyrocketed. In the feedlot stage of production, a single cow eats over 30 pounds of feed in a day, so when feeding several thousand, if not tens of thousands of cattle, feed costs can be enormous. A small increase in price will exponentially increase production costs, and with limited ability to pass these costs down the chain, this increase results in diminished profits for beef producers.

Drought not only increases the price of purchased feed, but also diminishes available grazing land. At the cow-calf and stocker stages, cattle roam freely on grazing land and receive most, if not all, of their nutrition from available grass. When the grass is in poor condition or

non-existent due to drought, beef producers must purchase even greater amounts of feed at an elevated price or relocate their cattle to better land. Leasing additional grazing land is a common practice; however, producers must pay not only for the land but also for the cost of shipping their cattle to it. In drought periods, high-quality grazing lands may be thousands of miles away, as seen when ranchers in Texas ship their cattle to Wyoming to graze. In this situation, shipping costs are astronomical and can preclude small beef producers from utilizing this option.

If beef producers cannot afford to relocate their cattle or purchase adequate feedstuffs, they may be forced to sell part or even all of their herds. Cow-calf producers may elect to sell their calves to feedlots at a younger age than usual, for a lower price, in order to lower feed costs and concurrently receive cash to purchase feed for the remaining herd. In all stages of production, I found that beef producers sold animals early to reduce their total feed costs and receive cash payments. Data indicate that the number of beef cows for herd replacement is decreasing, down from 5.6 million in 2005 to 5.1 million in 2011 (ERS USDA 2014). As producers elect to sell cattle early, the market experiences a spike in the number of cattle slaughtered; in May of 2012 over 300,000 beef *cows*, as opposed to bulls or steers, were slaughtered, up from 262,000 in May 2009, and 242,000 in May 2006 (ERS USDA 2014). The rise in beef cattle slaughter indicates that producers are selling their breeding cows, and not rebuilding their herds. However when selling cows earlier, producers lose money on the financial investment in a cow, since they do not utilize all productive years of the animal for birthing calves. Producers liquidating their entire herds, also lose profits by selling cattle prematurely. Since cattle are sold based on weight, cattle not yet at their peak weight for a particular stage of production will draw lower prices.

Many producers opted to sell their entire herd and exit the beef industry. By liquidating their herds, beef producers avoided future losses from drought conditions, but also ended their businesses altogether. While it is possible for these producers to rebuild their herds at a later point in time, it takes many years and significant resources to do so. Beef producers emphasized that once an entire herd was sold, the business was over and the chance of restarting in the future was minimal. The sale of entire herds was so pervasive that when I was trying to contact beef producers for interviews, many explained over the phone that they had “got out of the business,” or they “no longer do that.” Approximately 15% of all beef producers I contacted had exited the business in the last year or two. While few cited drought as the cause, it became clear from the ethnographic data that drought was the main reason for producers exiting the industry. Producers regularly told stories of friends, neighbors, and peers who gave up ranching when they could no longer afford the price of feed. Many beef producers reported having smaller herds than in previous years, citing the need to sell part of the herd in order to pay for increased production costs. Of those I contacted who were already out of the industry, most noted that they “couldn’t make it work.”

The drought of 2012, as well as the previous drought from 2008-2010, encouraged even greater concentration in the beef industry. Concentration had been underway for several decades, particularly in the packing industry, and consequently by the year 2000, a handful of packers already controlled the vast majority of the packing market. However the drought encouraged concentration further up the chain, especially in the feedlot segment. Many feedlots could not remain profitable with such high corn, alfalfa, and hay prices. When a feedlot went out of business, another feedlot operation would purchase it in order to capitalize on the scale economies of cattle feeding. Given the capital-intensive nature of feedlots, including the need for

grain mills, grain grinders, trucks, and waste water systems, feedlot owners could improve profits through high levels of efficiency facilitated by economies of scale.

Moreover, the drought made the stocker/background segment unnecessary, restructuring the supply chain so cattle moved directly from cow-calf operations to feedlots. Traditionally cow-calf producers sell calves to stocker/backgrounders that raise the calves on grass until they are old enough to enter a feedlot. However when under financial strain due to the cost of feedstuffs, cow-calf operators held on to calves longer in order to earn a higher price when selling directly to the feedlot. Similarly, feedlot operators increasingly accepted younger calves in order to keep their pens full and run the feedlot at full capacity. When at full capacity, the feedlot operates most efficiently, as an empty pen is seen as a lost chance to make money. Younger calves remain segregated, like any other shipment of cattle, and may require additional care due to their age and health risks. However by cutting out the middle-man – that is stocker-backgrounders – both cow-calf producers and feedlots can increase profits and reduce expenses to mitigate the problems brought on by the rising cost of feed.

Stocker-backgrounders are a unique segment of the beef value chain given that the activities they perform overlap to a substantial degree with those performed in the upstream and downstream segments. For example, calves must be raised on grass at the cow-calf stage, so grazing cattle is not an activity unique to stocker backgrounders. Rather, what distinguishes stocker-backgrounders is the age of the cattle that they graze. Cattle, too, have awkward teenage years, during which they are seen to be too old to remain at a cow-calf operation, yet too young to enter a feedlot and receive a corn-based diet. The teenage calves are first ‘preconditioned,’ which includes activities such as weaning from their mothers, starting a rationed diet, castration, dehorning, and learning how to eat out of bunks (the troughs used at feedlots). This period is

very stressful on the cattle and thus can result in health problems. Stocker-backgrounders provide the necessary care during this period of development.

However, most stocker backgrounders today also operate in other industry segments. According to the 2008 BEEF National Stocker Survey, only 17.2% of stocker backgrounders operate *exclusively* in the segment, with 64.6% also operating as cow-calf producers and 4.8% as feedlots (Ishmael 2012). Since 2008 the number of producers exclusively operating as stocker backgrounders has declined, with even more entering other segments of production or exiting the industry entirely. This stocker survey was the first and last to provide a snapshot of the segment. It therefore fails to reveal the slow dissolution of stocker-backgrounding into other segments of production over time. Prior to 2008 when this survey was completed, more stocker-backgrounders operated as a distinct segment, and have only recently been subsumed as part of cow-calf operations and feedlots. Interview participants and industry documents describe the fading out of these producers. The slow disappearance of the “pure” stocker backgrounder is attributable to two main factors: 1) the increased need for traceability for “age and source” beef (discussed in chapter 6), and 2) pressure to buy high quality cattle that draw higher profits during the long period of drought. When asked if he purchases cattle from stocker backgrounders, one feedlot manager explains that the stocker “has kind of gone by the wayside. There’s not too many of them.” He goes on to note that many stocker-backgrounders now run their own herds, because otherwise “they can’t prove the birthdate...he can’t prove his genetics on his animals. He may have been to a dozen different sale barns in a two month-period, put these cattle together, now you got a mish mash of one for every day of the month.” The ‘mish-mash’ of cattle and lack of genetic information indicates to buyers that there is a high risk that cattle purchased from backgrounders will not perform well; the buyer has no reassurance regarding the

genetic breed or source of the cattle, or that they will put on weight well or grade well upon slaughter.

Purchasing cattle without this information would be a risky decision, especially during a time of drought. The feedlot manager notes that the drought directly influences these purchasing decisions, saying that if the drought continues, fewer cattle will be available:

Beef producers are going to start looking at their nickels and dimes a lot closer... That guy that just buys a mish-mash of cattle, the stocker guy, he's not gonna make it cause we're not gonna buy those cattle. But if he offers me cattle, we know they're three-quarters Angus or seven-eighths Angus or whatever, and we know his program is good health-wise, we're going to be far more willing to deal with him.

A sourcing manager for one of the largest packing companies corroborated these claims about the plight of stocker backgrounders. When asked who bore the brunt of rising costs in the industry due to drought, he replied, "that'd be the backgrunder." He went on to explain that the stocker backgrunder no longer has a financial advantage in the value chain due to the rising cost of production caused by drought. Now, the cost is prohibitively high for stocker backgrounders to purchase cattle and still be able to sell them to make a profit, as compared to several decades ago:

For years, maybe 30 years, the middle man, the backgrunder or the stocker, the guy that would really buy the calf from the cow calf guy and put it out on wheat pasture... for years he could go buy those calves cheaper than he could sell them.

To be clear, the exclusion of the backgrunder segment of the chain was a trend under way prior to the drought, but the drought severely accelerated it. By increasing backgrounders' production costs, drought made it even more difficult for operators in this segment to remain profitable.

Because of environmental conditions, the availability of grass on which to graze young cattle was drastically reduced, leaving many producers to either put their cattle directly on feed or to slaughter them early. As a livestock manager explains:

With the drought that's happening all over the Midwest and the West now, people bought heifers, were gonna breed them, turn around in hopes that the drought would be recovering from it and they'd be available... We're finding that now we don't have the grass to turn around and run the cows on.

Another industry member, managing education for an industry association, reinforced the notion that grass was scarce and leading to the disappearance of stocker-backgrounders. "I know producers who instead of selling their calves in November, they're selling them in September cause there's no grass to feed them." Without grass, and with tight finances, stocker backgrounders have moved towards obsolescence in the beef industry. While this segment may re-emerge in times without drought, the current value chain is being restructured to exclude this segment, with cow-calf producers and feedlots encroaching from both sides on the stocker-backgrounder's traditional position in the industry.

## **U.S. Total Herd Size**

The severe droughts of 2008 and 2012 exacerbated economic pressures for beef producers. For those already struggling to turn a profit, the droughts encouraged exit from the industry. In turn, the total U.S. cowherd is the smallest since the 1950's, with fewer cow-calf producers raising new cows for the herd. The herd is at a record low partially because of producer exit from the industry, but also from increased efficiencies in the raising of beef cattle that enables more beef per cow. Today's cattle are larger and yield more beef than ever, allowing producers to get more meat from fewer cattle. Producers set new records in 2013 with a beef steer reaching over 1800 pounds, a number unimaginable even a few decades ago. With the aid of bovine technologies, including antibiotics, growth hormones, and new breeding techniques, cattle can grow bigger than ever and yield more beef during harvest. Given that the price of cattle

is largely determined by weight, beef producers can earn the same amount of profit from one cow today than would have been generated from several cows decades ago. In short, fewer and fewer cows roam America's pasturelands and fill the feedlots today than at any time in decades.

Despite the shrinking of the U.S. cattle herd, markets seem flush with beef. Throughout the droughts of 2008 and 2012, there did not appear to be any problem with the supply of beef. However two main factors must be considered when assessing the relationship between the current volume of beef on the market and future availability: cows have an 18 month production cycle from birth to slaughter, and fewer live cows result (at least for a time) in more finished beef products. First, the life cycle of a cow creates a lag in the amount of beef available, since a shortage in calves will not lead to a shortage in beef until 18 months later. Thus in order to ensure a stable supply of beef on the market, there must be enough calves in the process of being born and raised to replace the cattle that were slaughtered to create the current amount of beef available, which is not currently the case. Second, when beef producers choose to liquidate their herds, they sell all their cows at one time instead of periodically, as each animal reaches its prime selling point determined by weight. In turn, a larger number of cows may be slaughtered at a particular time. Thus, when many beef producers liquidate within a small period of time due to drought, the total volume of beef available on the market rises. As the number of live animals is reduced, the volume of beef increases, disguising future shortages. As beef producers regularly noted, consumers and retailers did not understand the problems the beef industry faced throughout the drought due to shrinking herd size. Grocery store chains witnessed a rise in the availability of beef products to fill their butcher counters while the number of cattle available for future beef supply simultaneously dwindled.

The shortage of live cattle made sourcing difficult for downstream actors, including feedlots and packers. With fewer live cattle being produced on cow-calf operations, sourcing managers for feedlots and packers emphasized the new challenging of locating enough cattle to keep their operations running at full capacity. When running below full capacity these operations suffered financial losses. Thus procurement occupied the time and energy of a large and important subset of company staff. However during drought periods, with fewer young cattle to purchase, feedlots and packers had to create new strategies for procuring cattle. The traditional methods of using auction houses and order buyers did not guarantee enough cattle.

The most common strategy adopted by downstream actors was the use of brand-specific programs. A packer may create a program dedicated to certain grades, breeds, and beef traits. JBS, one of the largest packers in the U.S., as well as in the world, offers several programs of this nature. These programs are for conventional beef products (not organic, all-natural, or other private standard certifications), and are used to distinguish various quality traits. JBS offers the following beef brands: Swift, G.F. Swift 1855 Brand Premium Beef, Swift Black Angus, 5 Star Beef, Chef's Exclusive, and Showcase Premium Ground Beef. The difference between these brands is often unclear or minute. For example, the G.F Swift 1855 Brand Premium Beef comes from "a distinguished herd of cattle" and is only available to "fine establishments". Other brands have clearer components, such as requiring certified Black Angus beef, or Northern Plains cattle.

The use of these programs allows packers to "enroll" upstream producers, in turn creating long-term and stable sources of cattle. Some cattle for these programs may still be procured on a weekly basis through auctions and cattle buyers; however the packers stabilize any fluctuation in national availability of cattle through their program participants. In comparison, non-program beef is often purchased within a week of processing, based on that week's demand. A packer

does not want to process more beef than it can sell, and so timing cattle supply with beef demand is crucial. Thus traditionally packers forward-buy some of their cattle supply up to 6 months in advance and purchase the rest close to the time of slaughter. With program cattle, as packers often say, the calves are dead before they are born. By this they mean that the calves are already committed to a particular packer, with a set slaughter date while they are still in the womb. As described in chapter 6, this form of ‘program sourcing’ has significant implications for exchange relationships and the distribution of profit captured by various beef producers along the supply chain.

### **Implications for Disaster Research**

Beef producers experience vulnerability from their existence on arid lands, their location in rural areas, and their reliance on natural resources. However, the case of drought in the beef industry also suggests that beef producers are vulnerable depending on their position in the value chain and the type of relationship that exists between suppliers and buyers. As the 2012 drought revealed, stocker-backgrounders were more vulnerable to drought than traditional vulnerability models would predict, given the ability of the surrounding value chain actors – cow-calf producers and feedlots – to operate without them. The services provided by stocker-backgrounders were substitutable by extending the activities of cow-calf producers further down the chain, and also extending the activities of feedlots up the chain, such that the time that cattle normally spent with stockers was completely accounted for by the actors on either side of this link. This type of vulnerability does not stem from the traditional categories provided by disaster scholars, such as location, race, class, social networks, type of employment, and age. Instead, this vulnerability comes from position within a value chain. Stocker-backgrounders face greater

vulnerability to drought not simply because of their reliance on natural resources, but also because their exclusion from the value chain is a disaster strategy used by *other actors* in the value chain. As feed prices rise and grazing lands become scarcer, cow-calf producers and feedlots minimize costs by eliminating stocker-backgrounders as a superfluous intermediary.

If value chain position is a form of disaster vulnerability, disaster researchers need to develop tools to better identify the risk profiles, preparedness, and recovery needs of highly vulnerable value chain segments. An analysis of a particular segment's role in the value chain and opportunities to substitute or replace this segment's activity would inform the understanding of vulnerability faced by that segment. As Cutter and Emrich (2006) emphasize in their research on social vulnerability, a one-size-fits-all model of vulnerability is far less effective than one that is attentive to social complexities in assessing disaster vulnerability, along with risk, resilience, preparedness and recovery.

Moreover, highlighting value chain position as a dimension of disaster analysis contributes to the growing body of research on the economic impact of natural disasters. Not only do beef producers suffer economic losses from the high cost of key feed ingredients and the loss of grazing areas, but those in the stocker/backgrounder segment are nearly excluded from the value chain. Their position in the chain makes them highly vulnerable given the ability to substitute their activities in the surrounding parts of the chain, suggesting the need to examine value chain position, in relation to the entire chain, as a component of disaster vulnerability.

Lastly, when considering what recovery looks like, as often done within disaster research, the beef industry provides informative empirical evidence. In particular, the current state of the beef industry reinforces the idea that recovery is not a return to normalcy, but rather the development of a more resilient status quo. For beef producers, this includes finding

substitutions for feed components whose abundance, availability, and quality are less affected by drought. Additionally, beef producers have developed new and different relationships within the value chain that provide better strategies for coping with uncertainty in the chain, such as closer relationships between up and down-stream actors and longer term relationships. While the structure of the beef industry may appear largely unaltered before and after extensive drought, beef producers drastically alter their economic relationships, production practices, and management strategies in order to respond to trying environmental conditions. These fundamental changes may improve their resilience to the next period of drought, expected to come any year, and help them adapt to new challenges posed by what are anticipated to be even more severe and longer drought periods.

The implications of extended drought described in this chapter do not necessarily imply a transformation in the overarching food regime. However, the trends I document—the restructuring of the beef value chain to exclude stocker backgrounders and the development of new forms of dedicated exchange that “program cattle” represent—have important and lasting implications for the governance of the beef value chain, to which I now turn. As I discuss in the proceeding chapter, the role of drought within the beef industry indicates the often overlooked ability of environmental factors to shape value chains, in terms of both structure and governance. The reliance on grass pasture and the direct tie between natural inputs and cattle prices reveal the linkage between environmental phenomena, including climate change, and the relative influence of certain actors or economic activity in a value chain. As the effects of climate change continue to increase in severity, it will become increasingly crucial to examine the means and mechanisms by which value chains are altered due to environmental forces. Given a tendency in the value chain literature to treat chain structure and governance as relatively stable, global value chain

researchers can benefit by considering how environmental factors can alter institutionalized governance forms and in turn change value chain dynamics.

## CHAPTER 5

### VALUE CHAIN GOVERNANCE IN THE U.S. BEEF INDUSTRY

Since its inception the concept of commodity chain (Gereffi and Korzeniewicz 1994) and later value chain, governance has received extensive attention from scholars of production networks in global industries.<sup>2</sup> Much of this work has involved elaborating and refining both typologies of governance—defined variously as the power relations that exist along the chain or the logics of coordination characterizing inter-firm transactions—and the theoretical frameworks for explaining governance outcomes in particular industries. While there is recognition that multiple forms of governance exist within a particular value chain, governance structures continue to be discussed as ideal types that correspond to particular industries, or perhaps to particular segments within an industry’s value chain. This disjuncture between our understanding of the empirical diversity of governance as it plays out on the ground, on the one hand, and the conceptualization of these governance forms as ideal types on the other, reflects the inherent challenge of developing an analytical schema that can make sense of complexity by identifying patterned regularities that have consequences for particular outcomes of interest.

Yet while some degree of simplification is inevitable, one way to ensure that our analytical frameworks for understanding value chain governance do not depart too far from the complexity of “real world” chains is by evaluating how well they capture the relationships that exist among actors in a particular industry. In this chapter, I draw on data gathered through semi-structured interviews with participants in all segments of a value chain in order to document the

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<sup>2</sup> Portions of this chapter are taken from a collaborative paper by Lake and Bair that is being prepared for submission to *Review of International Political Economy*.

degree of diversity in governance structures that exist within the production of beef. The findings not only demonstrate that multiple forms of governance exist along the chain in terms of *distinct segments*, but also show that various governance structures co-exist within the *same segment*. In fact, I demonstrate that a *single firm* can simultaneously be involved in multiple governance logics, sometimes even with the same exchange partner. This is important, I argue, because the variation in producer experiences within a single chain has implications for how we evaluate the potential for industry actors to gain from their participation in a value chain. For example, analysis of governance is critical for identifying which actors within the chain are able to influence producer behavior in ways that promote desirable outcomes, such as increased animal welfare or environmental sustainability, and the conditions under which they are able and willing to exert such influence over their exchange partners.

## **Global Value Chain Governance**

In the 1994 volume *Commodity Chains and Global Capitalism*, Gary Gereffi introduced the concept of governance to describe the distinct patterns of coordination and control found across different industries within the manufacturing sector. Defining governance as the “authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain” (1994: 97), he went on to introduce what would become a seminal distinction within the commodity (later value chain) literature: producer-driven chains and buyer-driven chains. Producer-driven chains are characteristic of capital-intensive industries such as autos and aircraft manufacturing. In these industries, producers drive the chain, both via their control of product and process technology and through their direct ownership of key assets, including the physical plant where most manufacturing takes place. Buyer-driven chains are

mostly found in light manufacturing industries, such as apparel, consumer electronics, and footwear, in which the lead firms are retailers or brands that focus on design and marketing, but contract out most or all of the tangible production to independent firms. Compared with producer-driven chains, these contract manufacturers or subcontractors are more likely to be located in less-developed countries, both because the barriers to entry in these links of the chain are lower and because labor costs are a major determinant of competitiveness.

The concept of buyer-driven governance highlighted the increasing importance of non-equity forms of coordination and control in global industries dominated by commercial, as opposed to industrial, capital (Gereffi 1999; Bair 2005). Although they do not own the factories in which their branded goods are made, companies such as Nike and Gap nevertheless “drive” the value chain by deciding what is to be produced, where, and at what price. The power that lead firms exert in buyer-driven chains derives not from their ownership of physical assets, but rather from their ability to perform “intangible” but capital- and knowledge-intensive activities such as design and product/brand development ownership, as well as their access to the market.

Much of the early work on governance confirmed the increasing prevalence of buyer-driven governance in different industries, with some scholars arguing that the category applied not only to light manufactures but also to high-value agricultural products, such as fresh fruits and vegetables. For these horticultural products, supermarkets played the role of the lead firm, or “big buyer” that was able to dictate product, process, and pricing standards to the offshore farms and packhouses from which they imported (Dolan and Humphrey 2000; Raworth and Kidder 2009).

However, other contributions to the burgeoning commodity/value chain literature began to challenge the utility of this dichotomy, with researchers calling for an expanded typology of

governance structures, especially outside of the manufacturing sector. Peter Gibbon (2001) observed that the commodity chains for some agricultural commodities are driven neither by producers nor buyers, but rather by intermediaries. He proposed the term “trader-driven” to describe those industries in which transactions are coordinated by long-standing trading companies with global reach. Nils Fold (2002) argued on the basis of his work on cocoa that some chains exhibit a bi-polar governance dynamic, with two different types of lead firms driving particular segments of the chain.

Based on his work on computer production, Timothy Sturgeon challenged the very notion of drivenness essential to the original governance typology proposed by Gereffi. He argued that in the electronics industry, the power dynamic between lead firms and their highly competent “turn-key” suppliers is relatively symmetrical; as compared with the relationship between General Motors and its main supplier Delphi, or the relationship between Levi’s and a Mexican garment contractor producing its jeans, it is not at all clear that companies like IBM or Hewlett-Packard dominate their main, first-tier suppliers (e.g. Flextronics, Solectron) (Sturgeon 2002).

Sturgeon’s work encouraged a more thorough-going and collaborative rethinking of the producer-driven and buyer-driven categories among several value chain scholars, including Gereffi himself, resulting in a new theory of value chain governance. Rather than defining governance in terms of what kind of lead firm “drove” the chain, Gereffi, Humphrey and Sturgeon (2005) took a more deductive approach, claiming that governance should be understood as an outcome resulting from particular combinations of three variables: the complexity of the transaction between buyer and seller, the extent to which the information or specifications that need to be exchanged can be codified, and the supplier’s capabilities relative to the demands of the transaction. These variables can be assigned values of “high” or “low.”

Gereffi, Humphrey and Sturgeon claim that three possible combinations of these variables, though logically possible, are empirically unlikely, leaving five possible governance outcomes: *market* linkages, governed by price; *modular* linkages, governed by standards that allow the transmission of complex but codified information; *relational* linkages, governed by trust and reputation; *captive* linkages, governed by buyer power; and linkages occurring within a firm, governed by *hierarchy*.

This theory of global value chain governance, proposed in Gereffi, Humphrey and Sturgeon's paper has proved to be the single most influential text in the literature on global production networks. To date, it has been cited more than 3,000 times by a wide range of social scientists and policymakers. Yet it is not without critics. One such criticism is that the 2005 theory does not just proffer new categories of governance; it also shifts in a more fundamental way the very meaning and scope of the concept (Gibbon and Ponte 2005; Bair 2009). As the original categories of producer-driven and buyer-driven chains make clear, governance was originally centered on the question of who controls the activities occurring along a chain of value-added activities, how that control is exercised, and with what implications for stakeholders, such as supplier or subcontractor firms and their workers. In contrast, Gereffi, Humphrey and Sturgeon define governance as a mode of inter-firm coordination. Critics argue that the coordination of dyadic exchanges is not the same as governance, which is an analytical concept that aims to capture the nature of the power dynamic existing among a sequence of activities or a set of firms. As compared with drivenness, coordination implies a more neutral and less power-laden concept that critics argue is not necessarily consistent with the findings generated by case studies of many industries. Additionally, the theory of GVC governance narrows the scope of governance from the whole chain, or sequence of links, to particular links.

It is unclear, for example, what the governance mode at one link in the chain—be it market, modular, relational, captive or market—implies for the form of governance existing at the next or later links of the chain.

The most recent contribution to the evolving target of GVC governance builds on this criticism by arguing for the need to specify what relationship, if any, exists between the way that a particular exchange is coordinated between two firms and the type of coordination occurring elsewhere in the same chain. As a first step in this direction, Ponte and Sturgeon (2014) identify three levels at which analyses of governance can proceed. The first, or “micro” level, refers to the bilateral exchange between two links in the chain. As Ponte and Sturgeon observe, this is the level of analysis at which the 2005 theory of GVC governance is pitched. But Ponte and Sturgeon observe that there is no necessary correlation between the kinds of governance found at one link with that prevailing at different links within the same chain. The “meso” level of governance begins to unpack this relationship by examining whether and how the type of coordination occurring at one link affects the type of governance occurring elsewhere. In other words, meso-level analysis asks to what extent forms of governance travel up or down the chain. Here “the focus is on comparison between nodes [links], with the goal of establishing what factors operate exclusively at the level of individual nodes, and what factors are transmitted between nodes in the chain.”

The final, “macro” level of analysis aims to capture the composite or aggregate governance dynamic found in a chain. Ponte and Sturgeon introduce the notion of “polarity” as a way to capture governance at the macro level. Polarity is a way of describing the degree, location, or drivenness in a value chain. While the original producer-driven and buyer-driven distinction implicitly posited drivenness as a function of position in the chain, and the later 2005

five-fold typology of governance suggested that drivenness is a variable characteristic of some forms of coordination (most clearly, in the case of captive and hierarchical governance), Ponte and Sturgeon's notion of polarity mediates between these formulations. Chains that are unipolar are ones in which the lead firm (typically, though not always, the one at the head of the chain) has the power to call the shots in ways that are consequential for other chain participants, while the power dynamics in bipolar or multipolar chains are more complex (Ponte and Sturgeon 2014).

As the current frontier of work on GVC governance, Ponte and Sturgeon's programmatic call for a multi-level theory of governance provides something of a point of departure for the analysis in this chapter in two ways. First, I share their interest in resurrecting the concept of drivenness, or polarity, as a way to center the question of how power operates in value chains. Their contribution responds to numerous calls to shift the discussion of GVC governance away from an excessively narrow focus on governance as a mode of inter-firm coordination and towards a "a 'whole-chain' framework for GVC governance" that

can help explain observed outcomes in terms of: the functional division of labour; the creation, destruction, allocation and distribution of value; the processes of inclusion, exclusion and marginalization; upgrading and downgrading trajectories; and the effects of socio-economic and environmental conditions on production and employment (Ponte and Sturgeon 2014: 214).

In explaining the need to build this kind of 'whole-chain' framework from the "bottom-up," the authors observe that "one of the problems arising in the broad literature on economic governance" is that "the identification and characterization of governance is often oversimplified and has weak empirical bearing" (2014: 214). Indeed, this observation is the second way in which the analysis in this chapter proceeds from Ponte and Sturgeon's work. While they argue for the value of theory building as a way to advance the insights gleaned from numerous

studies of value chains, we are aware of very few studies that actually *apply* the GVC theory of governance proposed by Gereffi, Humphrey and Sturgeon. Further, while Ponte and Sturgeon maintain that “most value chains (and industries) contain a range of linkage types,” (2014:206) there is relatively scant empirical evidence of this variation at the level of the specific networks comprising “real-world” value chains.

### **Mechanisms of Exchange**

For most of the post-World War II period, beef was a mass-produced commodity. The product was generally undifferentiated, and competition within each segment of the chain was based primarily on price. In fact, beef was a virtually paradigmatic example of classic market governance: Transactions between links in the value chain were governed by price, and given the absence of other details or specifications regarding the product, little other information was relevant. Put another way, “Traditionally, the transaction price as cattle move through the supply chain is the only information exchanged between participants” (Mulrony and Chaddad 2005: 19). However, price-based market governance has come under pressure from a variety of trends, including changes in consumer preferences and retail strategies and increasing consolidation within particular segments of the chain.

Among the developments buffeting beef producers in recent decades is the growing concern among consumers about the health consequences of red meat consumption. As a result, the beef industry overall faces increased competition from other proteins for the consumer’s dollar. In response, industry actors are actively searching for new ways to “de-commoditize” beef – even though for most of its history, beef has been regarded as a commodity product (Gereffi and Lowe 2009). Via its check-off program, the Cattlemen’s Association Beef Board

has for several decades been working to create demand for beef among consumers, but recent efforts focus not just on cultivating demand for beef vis-à-vis other proteins, but rather promoting particular kinds of beef. This is a particular concern for grocery stores and other food retailers, and is driving the emergence of private standard initiatives (PSIs). Discussed at length in chapter 6, these standards are sometimes aimed at creating higher “value-added” beef products that are supposed to be superior in some way to their conventional counterparts, in terms of taste, health, quality, or nature of production (e.g. environmentally-friendly, humanely-raised). At other times, PSIs amount to what are essentially marketing initiatives that aim to brand basic beef products (e.g. the Safeway Select label). The implications of PSIs for the beef value chain, especially for value chain governance, vary significantly depending on the type of PSI and the degree to which it necessitates activities that are different from those found in the typical value chain for conventional beef products.

As noted earlier, the beef industry remains highly fragmented, with a supply chain organized into distinct segments. Yet within particular segments, significant consolidation has occurred. Mulrony and Chaddad (2000) note that there has been a decline in the number of producers at virtually every link the chain, and that, in this sense, the entire supply chain has experienced consolidation. However, consolidation has been most extensive and important at the processing and feedlot segments of the chain. The retail links in the chain remains far less consolidated, particularly in the foodservice and restaurant segment, although there is some consolidation there as well (e.g. Walmart). Furthermore, there has been some (albeit still modest) backward integration by the largest processors, who have invested in feedlots.

What is the upshot of these developments? Some industry observers suggest that we are seeing increased cooperation and alignment along the chain. For example, Mulrony and Chaddad

(2005: 18) note that “concentration in food retailing and changes in consumer preferences and buying habits are affecting business practices, resulting in tighter linkages and coordination between segments of the beef supply chain.” Salin (2000: 1099), on the other hand, hypothesizes that we may be witnessing the emergence of a “two-tiered system: chain alliances for premium beef, open markets for lower quality hamburger meat.” These assessments raise a number of interesting questions about value chain governance. To what degree are these changes requiring tighter coordination among distinct segments of the chain? How widespread is this trend? Perhaps most important in terms of the preceding discussion of governance, even if more tightly integrated alliances are becoming common, how are these linkages being governed? These are the questions I discuss in the remainder of this chapter, after providing information regarding the ways in which transactions in this industry can be carried out.

## **Ways to Transact**

Exchange between segments of the beef value chain can occur using many mechanisms. Producers can elect to use public auctions, online video auctions, or even forward contracts for yet-to-be-born calves. In addition to producer preference, the types of transactions used for inter-firm exchange are influenced by the overall governance of the value chain and the type of coordination under which the exchange occurs. Detailed below are the most common forms of transactions, as discovered through in-depth interviews, industry reviews, and industry conferences. While some forms of exchange, such as direct sales, have existed for centuries (even before Adam Smith proposed man’s innate desire to truck, trade, and barter), other forms, including video auctions, emerged from new structural and technological developments in the industry.

## **Sale barns/Auctions**

Cow-calf producers, backgrounders, and feeders can sell cattle through markets, specifically utilizing sale barns, video auctions, or on-site sales. If choosing to sell through a sale barn, a producer will contact the sale barn staff to let them know he wants to sell cattle. Then, once the producer submits the details of his/her cattle, including type, gender, weight, vaccination history, and other health information, the cattle are then listed in a catalogue. This catalogue can be both hard copy or online, depending on the sale barn.

Sale barns serve as a social venue for many beef producers who, although geographically dispersed, utilize the auction to connect with friends and acquaintances. The auctions I attended all had places for social gatherings as well, such as diners where attendees could purchase coffee and food. In order to determine which auctions are useful for a producer interested in buying cattle, the sale barns provide a calendar that details what type of cattle are sold on each day. For example, the calendar will show that Fridays typically involve the sale of yearling cattle, Saturday is hay auctions, and Sunday is for bulls and steers. Once they arrive at an auction, the animals are unloaded into a holding area in the back of the auction house, and then brought out into the public arena as that particular seller's turn comes up. The cattle, (or a sample of the herd if a large quantity of animals is being sold), are corralled into the pen and made to trot back and forth. A handler in the pen waves and snaps a stick with a nylon flag on the end, making a noise that startles the cattle and makes them move. It is rare to see handlers hit the cattle with the stick; instead they use it as a noise maker or gentle guide to move cattle in, around, and out of the show pen.

Once the cattle are in the pen, the auctioneer describes their gender, breed, weight, and seller and then begins taking bids. Bidders can submit bids in person by raising their auction numbers, but sometimes auctions are also set up to accept bids online or even over the phone. The auctioneer asks for higher and higher prices until the bidding stops and then sells the cattle to the highest bidder. At the end of the auction, buyers visit the auction sales booth to pay for their purchases and arrange the details of delivery, such as when the cattle are to be delivered if the seller is responsible for delivery. At this time, some buyers take advantage of direct communication with the seller to learn more about the cattle, such as who (if anyone) owned them before, detailed medical histories, and other information, if available, that is relevant for knowing how well the cattle are likely to perform.

With the spread of technology, video auctions have largely replaced sale barns. With video auctions, all cattle are video-recorded by an auction representative. On a set day, the cattle for sale are presented online, and buyers can bid online. The video format saves sellers the trouble of transporting cattle to a sale barn, during which cattle become stressed and lose weight. Additionally, it is not uncommon for sellers to “no sale” their cattle and then have to transport the cattle back to their operation. For video auctions cattle may be sold ahead of time, with a delivery date several months out. The details of the transaction are outlined at the point of sale, such as when they are to be delivered, the expected weight loss during transport (usually 1 to 3% depending on distance), and form of payment.

## **Forward Contracting**

It is not uncommon for a cow to be sold even before it is born. At all segments of the beef value chain, cattle are forward contracted, meaning they are guaranteed to a buyer months ahead of when the actual transfer of cattle takes place. For cow-calf producers with reputations for high quality cattle, buyers may purchase the calves before they are born. In this instance, stockers, backgrounders, or feedlots provide payment to the cow-calf producer months ahead of receiving the cattle. Packers do not forward contract calves because the value chain is not vertically integrated throughout; packers only purchase fed cattle that are ready for slaughter.

Forward contracting also occurs at other stages of beef production further down the value chain. Feeders and packers are the segments that most heavily rely on forward contracting. One major reason for this is because of the volume and capital investment of these operations. Both feeders and packers must operate at maximum capacity and efficiency in order to stay economically profitable. For feeders, this entails keeping all their pens at full capacity, while for packers this means slaughtering an amount of cattle equivalent to the plant's maximum capacity. In order to achieve this efficiency, both feeders and packers purchase cattle months ahead of time. Given the ebb and flow of available cattle, feeders and packers plan their inventories far ahead of time to ensure they can have enough cattle at their operations.

For packers, forward contracting also ensures that they can meet the high volume demand of retailers. If a packer was unable to procure the volume requested by a retailer for a certain week, that packer may lose that retailer's business to a competitor. Thus, it is essential for packers to know they have the ample volume of the right types of beef for their customers.

## **Direct Sales**

Many producers sell and buy cattle using direct sales. In direct sales, buyers choose to purchase from sellers based on the seller's reputation. If a producer has purchased cattle several times through various types of transaction, and the cattle continually prove to perform well, then that buyer may opt to buy directly from the seller. This type of transaction occurs at every point in the value chain, and serves as the basis for long-term exchange relationships among producers. The bulk of beef is sold through direct sales; large packers and retailers maintain long term, high volume contracts to supply the majority of the beef that ends up on grocery store shelves.

The details of direct sales vary depending on the type of producer and producer preferences. For example, packers may use direct sales in purchasing from large feeders and determine whether to use grid pricing, in which payment is based on yield and grade, or live-weight pricing, at the time of each transaction. Among the feedlot segment, direct sales occur in the form of on-site sales where cattle are sold on a 'live basis' based on a price per pound for their current weight. Feedlots sell the bulk of their cattle to packers through weekly sales under long-term contracts. However, in order to manage the small percentage of cattle that may be sold at unusual times or become surplus stock, feedlots may hold on-site sales. Feedlots may invite packers to come to the feedlot to see cattle and buy them live at that moment. On-site sales help both feeders and packers manage slight changes in demand, so if a packer needs to produce a few thousand extra pounds of beef he can procure that quantity on short notice through on-site sales. This transaction style is not done for the majority of cattle, and instead a grid-system is more common in which the price paid to the feeder depends on the quality and yield of the cattle. Purchasing on a live-weight basis is seen to be higher risk, given that buyers do not know the quality of the meat or the weight of the carcass relative to the saleable meat on it.

## Order Buyers

Order buyers are a type of cattle middleman who help beef producers procure cattle from all over the country and even from around the world. Given the geographic spread of U.S. beef producers, it is often difficult for a feedlot in Arkansas to determine the health and quality of cattle in Oregon. Moreover, when purchasing from a seller for the first time, a buyer may not be sure as to the trustworthiness of the seller. Is he accurately describing his cattle? Will he deliver payment as promised? The insecurity around purchasing cattle from an unknown, distant source is remedied by the use of order buyers. Order buyers reside in one location and build relationships with beef producers in their areas in order to assess the quality of the cattle they sell and connect the producer to interested buyers. Additionally, a procurement officer for a large feedlot or packer may develop a close relationship with an order buyer and repeatedly use him to locate cattle that meet their desired traits. A manager from one of the largest feedlots in the U.S. notes that order buyers can account for over 90% of their purchases at times:

We use commissioned order buyers... They're self-employed type people and they actually have the relationships [to local cow-calf producers]. So in California there's 3 people we use... They call and get our bids and then go and buy the cattle, make the trade, they actually pay the rancher at the scales, and they know 'em all, so it's that person who knows the people and that person sends us the cattle.

The order buyer provides assurances through close ties to local producers when the feedlot is located across the country. This manager goes on to explain the difference in buying from distant suppliers and using an order buyer: "If I know the guy, I'm comfortable with him. What we worry about is somebody in California, we mail them a check and the bank had a lien and somebody doesn't get paid right. So this way we stay away from all that."

Order buyers are commonly individuals with a background in the beef industry, either having been raised on a cow-calf operation or sometimes having retired from a career spent

raising cattle. They can be found in any type of sale, whether direct sales, forward contracts, or auctions, and they serve as representatives of buyers in those instances. While order buyers can make substantial profits, they can easily be dropped by a buyer if they source bad cattle; how well cattle perform is viewed as a direct reflection of an order buyer's success and determines whether the buyer will use this agent again.

### **Transaction Details**

When feedlots sell to a packer, the pricing received by a feedlot can depend not just on the weight of the animal but also on the quality of the meat. Many feedlots choose to sell cattle 'on a grid,' meaning a set of predetermined attributes that either increase or decrease the price per pound, depending on the quality of the meat. The motivation for a grid system is to reward suppliers that provide high quality meat that in turn receives higher prices from retail and foodservice buyers; feedlots receive discounts or benefits to the per-pound price based on the quality grade (set by the USDA), the yield grade, and other factors such as marbling and fat content. By utilizing a grid system, packers avoid the risk of purchasing seemingly high quality cattle that produce low quality beef. Instead, the onus is on feedlot sellers – if they choose to sell on a grid they risk potential losses in the event of problematic beef, but in the case of quality beef, they also stand to earn more per pound than if they sold simply on a flat live-weight basis.

### **Governance in the U.S. Beef Industry**

As noted above, Gereffi et al. (2005) identify five key governance types that include spot markets, three types of networks (modular, relational and captive), and hierarchy/ownership.

They argue that the type of governance found at a particular link in the chain depends on the codifiability of information, the capability of suppliers, and the complexity of transactions. As shown in Table 5.1, there are five types of governance according to this theory: market, modular, relational, captive, and hierarchy.

**Table 5.1: Governance modes (adapted from Gereffi et al. 2005)**

<b>Governance type</b>	<b>Complexity of transactions</b>	<b>Ability to codify transactions</b>	<b>Capabilities in the supply-base</b>	<b>Degree of explicit coordination and power asymmetry</b>
<b>Market</b>	Low	High	High	Low
<b>Modular</b>	High	High	High	↓
<b>Relational</b>	High	Low	High	
<b>Captive</b>	High	High	Low	
<b>Hierarchy</b>	High	Low	Low	High

The five governance types proposed by Gereffi et al. (2005) range from market to hierarchy, with the degree of power asymmetry and explicit coordination increasing with each type. To begin, market governance is defined by spot transactions based largely on price with no long-term relationships between chain actors. Suppliers control the attributes of the product without having to produce according to the specificity of a buyer. In modular governance types, buyers can change suppliers with relative ease. Although suppliers often produce to the specifications of certain buyers, it is not difficult for suppliers to meet the needs of multiple buyers simultaneously. Modular relations are often ‘turn-key,’ in that technical standards exist to guide component, product, and process specifications. The ‘codification’ of production details into these standards allows information to be exchanged between buyers and sellers, but little explicit coordination is needed, enabling market-like transactions. Relational governance occurs when complex transactions are coordinated through close ties between exchange partners. Personal relationships and/or proximity (social or spatial) between exchange partners are used to

communicate complex information, often via close and repeated contact. Unlike market and modular governance, exchange partners have some degree of mutual dependence that creates high costs for switching exchange partners. Next, captive governance describes asymmetrical exchange in which suppliers grow dependent on buyers due to a low capability to produce to other buyers' specifications. In this instance buyers directly intervene in the production process and provide complementary and necessary support for suppliers, but this support comes with a cost: captive suppliers can become "locked in" to these relationships, giving buyers the ability to extract concessions (e.g. on price) or make other kinds of demands on suppliers. Last, hierarchical governance refers to vertically-integrated production in which there is no organizational distinction between buyers and suppliers, and production is performed in-house or by operations owned by the same lead firm. All five governance types are found throughout the beef value chain, and each link in the chain contains actors who enact exchanges according to different governance logics as explained below.

The biological features of cows contribute to the complicated governance of the beef industry. Unlike pigs and chickens, cows require ample land to graze, especially in the reproductive stages. While pigs and chickens can be confined to pens for the entirety of their lives, both adult cattle and calves must have mobility to remain healthy and in turn retain their value for beef producers. Subsequently, the land necessary to raise cattle is immense, requiring large amounts of capital to acquire adequate grazing land. On average, a single beef cow requires one acre of grazing land and a cow with calf requires two acres (Chilonda and Otte 2006; FAO 2005). At the same time, as one beef industry member explained, the more land a producer owns, the greater the financial risk. And for the case of packers and retailers further down the value chain, the sheer scale of these operations in terms of head of cattle means that it is basically

impossible for them to own the area of land that would be necessary for them raise their own cows from the calf stage. This limitation precludes any vertical integration of the industry back to the first stage of production. One of my informants, a state representative of a national beef association, explained that if one of the leading packing companies wanted to produce enough calves to meet the slaughter capacity of its operations, it would require all the land *in several states* in the U.S. Not only is this area of land not available in contiguous plots, but the assets necessary to purchase the land are beyond what a packing company could ever afford or would want to risk. Thus, vertical integration to the degree seen in other meat commodity chains such as pork and chicken is not economically viable in the beef industry. Lead firms exert control in other forms, such as setting standards and developing private value-added programs (discussed in chapter 6,) but not through direct ownership of upstream links in the chain.

The U.S. beef industry thus provides an interesting case of chain governance, because the governance structure is not easily defined using either the traditional producer-driven and buyer-driven categories or the fivefold typology of governance described above. In terms of the former, the producer- and buyer-driven governance types do not neatly apply to the beef industry, given that it is fundamentally unclear who is the producer and who is the buyer: a packer is both a buyer, in the sense that it purchases cattle from feedlots, and a producer, in that it processes the raw material, and, in turn, sells it to the retailer. Beyond this fundamental question, the chain displays elements of *both* buyer-drivenness and producer-drivenness. On one hand, the chain appears to be buyer-driven; large retailers and packers utilize a dispersed network of suppliers located all over North America. With high levels of concentration among these buying firms, each individual buyer can exert control over how beef is produced and introduce its own standards for suppliers to follow. As the intermediaries between ranchers and final consumers,

retailers and packers can heavily influence how consumer demand is translated into production practices further up the chain. However, on the other hand, the beef industry has elements that are more similar to a producer-driven chain; cow-calf producers control the supply of cattle with little or no influence from buyers. For example, cow-calf producers control the breed of the cattle, the type of feed, medical treatment for cattle, and so on, even though those wanting to develop relationships with particular buyers may make these choices with a retailer's or processor's specifications in mind.

Overall, the different segments of the chain can be said to share a mutual reliance on one another for “complementary competencies” (Humphrey and Schmitz 2002); Packers rely on cow-calf producers to maintain an ample herd size, while cow-calf producers and feedlots rely on packers to continue to purchase grown calves down the chain. All of these chain participants rely on retailers to purchase their product. But this does not imply that all chain participants are equally dependent on one another; the existence of “complementary competencies” does not mean that all participants are created equal in terms of their influence over upstream links. The traditional categories of producer-driven and buyer-driven governance do not necessarily capture this dynamic.

Yet the typology of governance proposed by the Gereffi et al. is also problematic. Take, for example, the three key variables in Gereffi et al.'s theory of value chain governance: complexity, codifiability, capabilities. First, there is variable *complexity* in the beef industry. With regard to specific certifications and standards (discussed in greater detail in the following chapter), there are numerous requirements for cow-calf producers and feedlots to manage. In order to meet the standards of the non-hormone treated certification (NHTC), for example, suppliers must provide information on the age, source, feed, vaccinations, and treatments of all

animals, and this information needs to be linked to individual identification tags attached to each head of cattle. Unlike other commodities, such as manufactured goods that are highly uniform, cattle vary immensely in shape, size, quality, and health. Managing this variation and ensuring as much consistency as possible, even for commodity beef, means that the production process can be relatively complex. When there are specific standards detailing how the production process is carried out, and when compliance with these standards has to be confirmed at each stage and then communicated between each link in the chain (e.g. organic beef, for example), complexity is significantly greater.

The transfer of complex information is easier when it can be *codified*. For example, cattle that are certified to comply with a particular standard (taking organic beef, again, as an example), wear ear tags or some other kind of device capable of tracking all relevant information associated with a particular cow. Electronic ID tags (EIDs) connect to an online database, either run by a third-party auditor or the ranching operation itself, which contains all of the details of the certification, allowing buyers to verify the information with the click of a button. Even more simply, certifications (albeit only when they are tied to collective standards, as explained in chapter 6) create a shared understanding among all industry actors. If a cow is labeled as NHTC, grass-fed, age-and-source verified, or part of the “never-ever 3” program, all segments understand the specifications required of each program<sup>3</sup>.

However, some aspects of cattle production are difficult to codify prior to slaughter. It is nearly impossible to know the quality of the beef produced, the percentage of fat in the beef, and the final carcass weight when cattle are still alive. This information cannot be communicated from seller to buyer and is only revealed at the packing stage of production. At this point packers

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<sup>3</sup> The details of these programs are discussed in detail in Chapter 6.

hold sole ownership over this information. Upstream producers have a very strong interest in knowing how well their cattle performed, but no institutionalized system exists to transfer this wealth of information back up the chain. Some of this information is transmitted to feedlots selling on a grid system, meaning that the price they receive reflects their cattle's performance. However, in most cases more detailed information is not available unless the feedlot can purchase it from the packer. And even when the feedlot receives this information, it is not typically passed further up the chain to the cow-calf producer. So while there is some codifiability in the beef industry, certain aspects are unable to be codified until the point of slaughter, at which point they are infrequently communicated up the chain.

The *capabilities* of suppliers vis-a-vis the transaction requirements are relatively high in the beef value chain. U.S. producers in the commodity beef value chain are recognized by buyers to be highly competent, and produce cattle that perform better than any other cattle in the world. While some variation does exist, such as the adoption of new technologies that improve production practices, or death rates among herds, markets exist for cattle of all quality; low quality beef can be sold as 'cutters and canners' for processed and packaged goods, and high quality beef can be sold as USDA prime in butcher counters. Among buyers there is a need for cattle that span different qualities, and ample beef is produced for the higher quality types as well as low quality, indicating a high degree of capability of producers to meet the needs of buyers.

Among producers in private standard beef value chains, the most basic certifications require relatively little effort on the part of suppliers, such as recording birth-dates of calves and paying for an off-site audit by a third-party company. While some certifications require much more work, such as meeting organic standards, suppliers can meet the transaction requirements necessary for the commodity beef market in the U.S, simply by taking their calves or cattle to

auction and transporting them to the buyer (or alternatively paying for the shipping). Failure to meet some certifications may limit market access, such as prohibiting export of beef to foreign markets, but other market options remain.

In short, attempts to operationalize these key variables for beef, and thus to assign them clear value, reveal the difficulties of applying the governance types that Gereffi et al. propose to the beef value chain. The level of variation that exists within the industry, particularly between commodity beef and beef produced to specific private standards, complicates the task of assigning values of “high” or “low” to any of these variables. Perhaps for this reason, what one finds in the beef industry are examples of *each* of the five governance types proposed by Gereffi et al., as I explain in the remainder of this chapter. I first discuss the range of governance types found at different links in the chain and then proceed to give a specific example of the complexity of governance types, using a value chain map showing the set of inter-firm relationships through which Kwik-Mart, a major food retailer, secures the beef for its grocery store shelves.

### **Link 1: Cow-calf Producers to Feedlots**

Among cow-calf producers selling to feedlots, I found examples of market, modular, captive and relational governance. Market linkages are very common between cow-calf producers and feedlots (as well as other links in the beef value chain). Cow-calf producers regularly utilize live auctions at sale barns, as well as video auctions hosted on the Internet, to sell beef calves and breeding heifer cows. In these auctions, cow-calf producers sell to the highest bidder, and often do not keep any record of who purchases their cattle. Cow-calf

producers selling at auction raise the cattle however they deem best, according to their own preferences, without any input from feedlot buyers. Similarly, feedlot procurement managers will attend auctions to purchase cattle. Although feedlots will generally select animals according to a set of characteristics (age, breed, type, and other preferred characteristics), like at any other auction, transactions are based largely on price alone.

In addition to market linkages, cow-calf producers and feedlots operate according to modular linkages. As summarized by Ponte and Sturgeon (2013:7), modular linkages exist “where complex information regarding the transaction is codified and often digitized before being passed to highly competent suppliers, governed by standards.” Cow-calf producers are highly competent, especially in the arena of cattle genetics; they must select the breeding bulls and heifers that will produce the calves best suited for the beef market. Not only must cow-calf producers determine which bulls and heifers to utilize for breeding based on those detailed genetic profiles of these animals, but they must also track the performance of the calves produced by each bull and heifer. Cow-calf producers will codify information in terms of breed and use genetic testing to communicate to buyers that a herd of cattle are seven-eighths Angus and one-eighth Charolaise. Feedlots, as the buyers, shape the production standards of cow-calf producers by creating a sense of demand for certain breeds and attributes. The production characteristics are standardized through both industry conventions and third-party verification, such as Angus associations or auditing organizations, eliminating the need for extensive communication or coordination between buyer and seller and minimizing the dependence of any particular buyer on any particular seller, or vice versa.

Exchange between cow-calf producers and feedlots also occurs under relational governance in which trust and reputation play a dominant role in shaping the transaction. Many

traits in cattle are difficult to codify, such as the rate at which a cow will gain weight in a feedlots and as one feedlot owner expressed, the only way to know how well a cow will perform in a feedlot is to try it out. Feedlot managers regularly rely on previous transactions with cow-calf producers to determine whether or not to continue business, and they refer to a cow-calf producer's reputation as the determining factor when deciding from whom they purchase cattle. Additionally, feedlot managers often communicate with one another, whether formally as part of associations or informally at community gatherings, and share information pertaining to cow-calf producers that proved problematic. Once a cow-calf producer gains a reputation for having bad cattle or proving problematic in other ways, feedlot managers will avoid purchasing from that operation. When asked about how to tell if a supplier has good cattle, a feedlot manager declared, "reputation has a lot to do with things in our industry, you gotta know who's the good guys and who's the bad guys." He goes on to explain that reputation is all about talk: "Talk...everyone gets together at the coffee shop every morning" to share news and information about members of the community. Another feedlot manager similarly noted that he found his suppliers by "word of mouth" because "this business is one of trust."

Finally, for cow-calf producers, captive governance shapes their exchange with feedlots. Especially among certified beef programs, feedlots directly intervene in the operations of cow-calf producers to ensure their cattle meet desired specifications. While some certification programs are easily codified and therefore easy to communicate in the exchange between cow-calf producers and feedlots, other programs are much more complex and lack this codification. For example, some feedlots manage unique certification programs; although cattle may be classified as all-natural beef, the feedlot may also use a particular genetic make-up, a specific vaccination and health protocols, and even detailed health protocol beginning from birth. Since

these requirements are unique to the feedlot, the cow-calf producers enter into captive exchange in which they produce specifically for that feedlot program. Moreover, feedlots will provide hands-on assistance to the cow-calf producers when the producers lack the capacity to meet the desired standards. This capacity may include know-how regarding health practices, or even the financial capital to obtain third-party audits. As one feedlot manager explained regarding his certification program, “We have an employee and he manages the natural program so he audits the ranches.” The audits entail providing advice and guidance on how to best comply with their standards.

## **Link 2: Feedlots to Processors**

Between feedlots and processors, we find multiple governance types as well, including all modes described by Gereffi et al.: market, modular, relational, captive and hierarchy. As is also the case with the previous link in the chain, feedlots hold on-site sales in which processors participate in spot-market sales, purchasing cattle based on their live weight. These exchanges are one-off transactions, in which the feedlots are not producing for any standards informed by processors but solely selling whatever cattle they have on hand. In addition to this market governance, many feedlots operate under modular governance, in which processors establish standards for their branded programs and feedlots produce according to these standards. However the standards are easily codified according to industry-wide specifications, such as meeting certain USDA grades, fat content, or certification program. Thus minimum coordination is required, and feedlots sell to processors without close relationships, either through short term contracts, auctions, or direct sales.

In exchanges between feedlots and packers, as well as in other linkages of the value chain, relational governance is also found, especially in commodity beef. Unlike in certified beef programs where the *attributes of the beef* distinguish the quality of the producers and cattle from one another, commodity beef is a homogenous product with minimal variation between producers. For this reason, *attributes of the producer* – particularly his (or less often, her) trustworthiness – become important. A manager for a large natural packing program described the importance of relationships in commodity beef, noting:

It's really hard to quantify why our plant here is better than Big City's plant. I mean you buy basically the same cattle, you've got the same processing. You know what makes it different? I'm a nicer guy than that guy is. It kind of becomes relationships more than anything at that point... If you've got a rapport with the sales person then you're gonna kind of give them a nod if pricing is comparable. With naturals [all-natural or other kinds of PSI beef] you truly develop a relationship based on the program... so you have relationships on both but there's very little to differentiate on the commodity side as far as product attributes.

As the informant noted, although relational governance can be found at different links in the value chain, it plays a larger role in commodity beef than in natural beef. Interpersonal relationships may also matter in the value chain for natural beef, but relational governance is more likely to be found between buyers and sellers of commodity beef because reputation or trust become a more important criterion when there is little in the way of product or process differentiation among the beef on offer.

Captive governance also appeared in exchanges between feedlots and packers, particularly among feedlots selling high-risk cattle, defined as older, lower-quality, non-U.S. cattle. These cattle are most commonly heifers from the dairy industry that are older and no longer able to produce milk, or cattle from Mexico that are lower quality and fail to meet certain standards to be sold raw (instead being sold as 'cutters and canners' for canned and processed

meat products). High-risk cattle are a small portion of all cattle in the U.S., but they can yield high profits given that they are cheaper to buy, if the buyer is willing to take on the risk of potential health problems and low quality in the herd.

Feedlots purchasing these cattle also take on the risk of entering into captive exchange relationships with packers. Given the quality and traits of high-risk cattle, the beef must be sold to niche markets as opposed to large retail stores for their butcher counters. Packers play a critical role in linking feedlots to these outlets; however not, all packers deal in high-risk cattle. In fact high-risk cattle are an exception packers take on, leaving feedlots with few packers to rely on to help their product reach consumers. In commodity beef products, if a packer stops purchasing from a particular feedlot, that feedlot can find another buyer relatively easily, although perhaps at a lower price. In high-risk cattle, however, if the packer to which a feedlot sells ends the exchange relationship, the costs for that feedlot are enormous. As the manager of a feedlot specializing in high-risk cattle explains, they purchase the high-risk cattle only when they know that they already have a packer lined up: “For [high-risk] cattle, most of our Holsteins [dairy cattle], they’re dead before they get here. Dead on paper is what I mean by that.” He goes on to explain, “I went to the packer and did some research: how far out are you, how much back are you gonna be, what’s the spec of the deal? I found all that out before I purchased the cattle. Then I knew what I could get.” Only once a packer is set to take the high-risk cattle will the feedlot purchase them. And given the small number of packers that deal in high-risk cattle, feedlots are extremely reliant on packers to follow through on the exchange, and to continue purchasing high-risk cattle in the future. Such exchanges constitute creating a mode of captive governance.

Lastly, some feedlots are owned directly by processors, under which they operate according to hierarchical governance. Some of the largest processors in the country have integrated backward into the feedlot sector to secure an ample supply of cattle, particularly cattle that meet their desired traits. Only a few firms engage in this backward integration, given the immense risk associated with acquiring high volumes of land, cattle, and infrastructure. To mitigate some of this risk, companies will create separate entities under the ownership of one parent company. Some of the informants I interviewed were upset about this trend, which they regarded as a way to force smaller producers out of the value chain. Interestingly, they referred to this as “captive supply.” By this, they did not mean to evoke the category of “captive governance” as it is understood in the Gereffi et al. typology; rather, they were pointing out that feedlots owned by packers are “captive” to their packer-owners, on whom they rely for financial support and market outlets. Yet direct ownership of a feedlot by a packer is in reality an example of hierarchical governance in which the feedlot is a subsidiary of the parent company but loses much autonomy from its parent such

### **Link 3: Processors to Retailers**

At the next segment in the value chain, exchange between processors and retailers occurs under various forms of governance, especially market and modular governance. Market coordination accounts for the vast majority of beef sold as discount beef for in-store promotions given that it is commodity, lower quality beef. Retailers make a decision based almost exclusively on price about from whom to purchase this beef. This decision is made every few weeks, as retailers switch among suppliers for discount beef on a regular basis. One informant

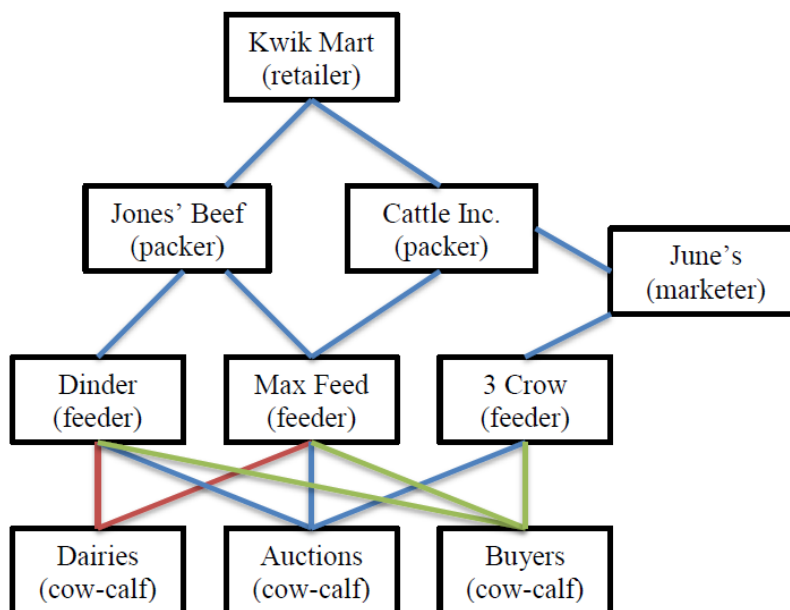
responsible for beef procurement described the purchasing decisions that he and other retail representatives make this way:

It wasn't about ok, how was this load of chucks raised? It was 'what's your price on chucks this week?'... It was all about price whether it was 3 cents or 4 cents or a nickel. It was never as little as a penny that I made a decision on but you got into three cents and that would sway you.

Processors and retail stores also operate under modular governance. Retailers seek out types of beef desired by consumers, such as recognizable branded programs and certifications. Most commonly these products include Angus, USDA prime grade, and hormone-free. Retailers do not directly help processors obtain this beef or certify it, and instead buy from the available stock of cattle that meet their desired criteria. The purchase may be made through direct sales or even auctions, but when the standards are codified, and when they are collective (i.e.: when they do not apply only to one particular buyer) retailers can switch between suppliers and vice versa with relative ease.

Not only does governance vary within a particular segment, with multiple forms found at each link, but a single firm can also participate in numerous governance types, even with a single exchange partner. The value chains in which Kwik Mart participates is not as simple as existing governance models would predict. As illustrated in Figure 5.1, Kwik Mart sources from a tangled web of suppliers, and does so under a variety of governance types.

**Figure 5.1: Value chain map for Kwik Mart**



Kwik Mart purchases beef for three distinct purposes: 1) in-house branded programs, 2) promotions and special store sales, and 3) the constant supply that accounts for the bulk of its beef. In the first instance Kwik Mart purchases beef under relational governance to offer in house brands of beef. The “Better Beef” brand offered by Kwik Mart does not have any certification, such as all-natural, but carries the Kwik Mart label and boasts USDA Prime grade at affordable prices. As a retailer aiming to attract a stable customer base, Kwik Mart aims to offer consistency in its beef products, so that customers know and trust the retailer’s brand. As a Kwik Mart procurement manager explains:

We hang our hat on our “Better Beef” program. [It] differentiates us from a lot of our competitors. It’s not certified angus, but we do have some very stringent requirements... We want to offer a premium eating experience to the consumer so that they know when they get a steak from us or a roast from us that it’s gonna be the best possible eating experience they can get.

The beef for this branded program is sourced through relational governance in which Kwik Mart works closely with a handful of suppliers on a long-term basis. This manager goes on to note that the company sends its specifications to multiple suppliers, gauges their interest, and then selects a few suppliers for the program that are expected to maintain long-term contracts. The contracts are reviewed on a semi-annual or annual basis to provide both parties an opportunity to exit the exchange relationship or renegotiate details of the contract. Informants from the retail sector gave the impression that once a supplier earned a contract it was unlikely to change unless problems arose with product quality; suppliers covet these high-volume, long-term contracts that offer stable market outlets.

The second type of beef purchasing, for sales and in-store promotions, occurs strictly under market governance in which price alone dictates one-off exchanges for the purchase of particular featured products. From the vantage point of the retailer, Kwik Mart's sole purpose in offering special discounts or weekly specials is to use beef as a "loss leader" to bring customers into the store. The expectation is that the retailer will lose money on the sale product, but will recoup the loss when the customer purchases the other elements of the meal, such as starch or vegetables, or non-food items. In this instance, Kwik Mart forward contracts the beef eight weeks out using a 'bid and quibble' system; it bids out the sale to suppliers and whoever comes in lowest earns the contract. This process for in-store promotions occurs seasonally, and each time Kwik Mart may use a different supplier, depending on who offers the best price.

Third, Kwik Mart purchases the bulk of its beef through longstanding contracts with a single supplier via links consistent with relational governance. Depending on the geographic location of a distribution center, Kwik Mart selects a 'regional partner' – always one of the four main packers. While this beef is purchased on a weekly basis using the prior week's weighted

prices, Kwik Mart maintains a close and long relationship with the packer, guided by a long-term contract that is revisited at a maximum of every six months. Although the beef products are delivered each week, the terms of the exchange relationship are non-negotiable within the time frame of the contract, such that the buyer cannot switch to another supplier simply based on price. A Kwik Mart manager explains, “Each division has its own regional partner...On the weekly term basis we’re set and we work with one in each region.” Every week, each division of Kwik Mart purchases beef from the same packer, according to a price that, agreed ahead of time by both parties, will be based on the previous week’s weighted average, leaving no room to “bid and quibble” or to switch suppliers from week to week.

The suppliers providing long-term weekly sales of beef may or may not be the same packers providing beef through the weekly promotions; if the packer has extra capacity or is looking to offload pounds of beef, it can vie for a chance to earn the forward contract through the bid and quibble system. In this instance, Kwik Mart and a single supplier exchange beef through both market and relational governance simultaneously. Thus the type of governance under which Kwik Mart operates varies depending on the end goal of that beef product; if purchased as part of the regularly large volume sale to Kwik Mart, the beef is exchanged through relational governance under a long term contract, but if purchased as part of transactions for one-time sales and promotions, it is exchanged through market governance.

## **Discussion**

My research on the U.S. beef industry reveals that multiple forms of governance exist, not only along the chain in terms of distinct segments, but also within a single segment. The variety of governance extends to such a great degree that a single firm can simultaneously be

involved in multiple governance logics, sometimes with the same exchange partner. While this investigation provides an empirical ‘test’ of governance models, it offers much more by revealing the disparate experiences of value chain actors within a single commodity and even a single value chain.

The case of the beef industry highlights the empirical complexity of value chain governance that produces a variegated landscape for beef producers. My findings contribute to advancing models that accurately capture which actors within a value chain hold the ability to influence producer behavior and the distribution of value along the chain with significant impacts for producers. Given the goal of value chain research to identify the inequalities created within and by globalized production, a rejection of the value chain as an ideal type is essential to understanding how and why producers are vulnerable in certain forms of exchange. The variation in producer experiences within a single chain has implications for how we evaluate the possibilities for industry actors to gain from their participation in a value chain.

The governance under which producers operate has very real, tangible implications for the value they capture through chain activities, and thus their livelihoods. As illustrated in Table 5.2, certain governance forms are more likely to prevail than others at a particular link in the chain: exchange between cow-calf producers and feedlots most commonly displays market, modular, or captive governance; exchange between feedlots and packers occurs under all five governance modes; and exchange between packers and retailers is carried out via market, modular, and relational governance. The variation between each segment indicates two important findings: certain governance forms enable more symmetrical power relations (in particular at the retailer-packer link,) while other imply more asymmetrical power relations; and at any link in the chain, producers in dyadic exchanges characterized by relational governance are more likely to

capture greater value along the chain, given the mutual dependence and supportive ties that relational networks entail.

**Table 5.2 Types of governance found along the beef value chain**

<b>Value Chain Link</b>	<b>Market</b>	<b>Modular</b>	<b>Relational</b>	<b>Captive</b>	<b>Hierarchy</b>
Packers-Retailers	X	X	X		
Feedlots-Packers	X	X	X	X	X
Cow-calf-Feedlots	X	X	X	X	

The first finding reflects existing asymmetries within value chain governance, in which downstream firms are less exposed to becoming captive to or subsumed by buyers. In turn, these upstream buyers create the terms of exchange to their benefit and advance the dominance of captive and hierarchical exchange at the expense of suppliers. In contrast to ‘whole chain’ models of governance that suggest all segments of the chain operate according to captive or hierarchical exchange, my findings reveal patterns in governance among different tiers of suppliers; second and third-tier beef suppliers disproportionately operate in exchange relationships in which their buyers influence production practices, control market access, and set standards, while first-tier suppliers avoid these predatory relationships. In turn, lead buyers and first-tier suppliers can shape production to favor their interests and to garner a greater proportion of the value produced along the chain, at the expense of upstream suppliers. This asymmetry reflects an interesting cross between micro and macro-level governance, in which the dominance of certain governance types at a *segment* in production advances a segment’s position, contributing to this segment’s position as a lead firm in ‘whole chain’ governance.

Second, producers, both within and across segments participating in exchange relationships guided by relational governance, stand to greatly benefit from the closer relationships that this mode of governance implies. In the case of the beef industry, the relational

governance typical of branded beef programs and PSIs can encourage greater information exchange among actors, although participation in PSIs can also facilitate asymmetrical exchange and the dominance of captive governance, as discussed in detail in Chapter 6. However in the cases of relational governance within PSIs, producers gain substantial benefits from their participation in the supply chain. For example, informants regularly noted that when they maintain close relationships with suppliers, they are more likely to share details on how well the cattle graded when slaughtered or give advice on how to improve the quality of the cattle. Additionally, the increased transparency within this governance mode establishes trust and rapport among exchange partners that fosters long-term relationships and support mechanisms for beef producers. One feedlot manager recounted giving water to suppliers during the drought to ensure they could feed their cattle, and another feedlot manager described lending machinery and parts to the neighboring packer to whom their cattle were sold.

The information exchange and rapport built between segments suggests that these actors stand to greatly benefit by participating in value chains under relational governance. Producers receive advantages from relational governance, whether it is information that allows them to improve cattle quality and thereby secure higher prices, or assistance in hard times. However, if a supplier becomes too dependent on a single buyer due to the specificity of the standard, as discussed the proceeding chapter, the relationship can become predatory and operate according to captive governance. In this instance, information exchange may still occur, but only in instances where it benefits the buyer, without any increased share of value for the producer.

Even though I was able to find examples of relational governance in all four links of the chain, it is important to note that relational governance is not necessarily the most common form found at any of the links. Thus, the diversity of governance types within a segment means that

not all producers benefit equally from their exchange relationships, and greater attention must be given to the characteristics of both specific producers and specific transactions in order to understand when and why producers are able to secure better conditions from their exchange partners.

Finally, the diversity found within the beef chain suggests that governance is more malleable than often thought. Not only do monolithic conceptions of governance fail to capture exchange throughout the entire chain, or even at a single link; they also assume a stable and lasting governance structure. The empirical evidence reveals that changes such as the creation of an in-house branded program or the decision to have a storewide sale can produce rapid shifts in governance. This volatility in governance suggests the need to further investigate the ability for individual actors to exert agency over the prevailing governance type—not only within a specific dyad, but also at the meso- and macro-levels within the value chain.

## CHAPTER 6

### PRIVATE STANDARD INITIATIVES IN THE U.S. BEEF INDUSTRY

The Post-Fordist food regime brings with it an explosion of certifications and standards aiming to differentiate products based on quality characteristics. Today's beef industry is not immune to this trend; a steak is no longer just a steak but an all-natural steak, a grass-fed steak, an Angus steak, a Wagyu steak, a hormone-free steak, a "Rancher's Reserve" steak, or a certified humane steak. All of these programs comprise "private standard initiatives" (PSI) in which the product quality or traits (or both) stand apart from conventional counterparts. Unlike government regulation, such as the grading of beef products into prime, choice, and select, private standard initiatives reflect production practices implemented by private companies as they see fit. No private standard is mandatory, nor is it uniformly adopted throughout the industry. However products certified to specific standards account for an increasingly large share of the U.S. agriculture system (Ouma 2010; De Battisti et al. 2009), especially in the beef market (USDA 2014). Given their rising importance to beef producers and consumers, I examine how private standard initiatives alter the governance of the beef value chain and explore the implications of this difference for beef producers.

Private standard initiatives (PSIs) refer to regulation by private sector actors either in conjunction with, or in lieu of, public regulation. PSIs became prevalent in the Post-Fordist food regime, as the focus of production switched from an emphasis on price and quantity to an emphasis on quality (Friedmann and McMichael 1989). Grocery stores ceased to compete solely on price, as factors such as variety, convenience, quality, and year-round availability became

more important (Busch and Bain 2004). While price still plays a major role, a new emphasis is being placed on niche markets, such as fresh produce, organics, and health-foods, many of which are regulated through PSIs (Giovannucci and Reardon 2000; Reardon et al. 2001). PSIs serve to communicate information that allows consumers to choose products that closely match their preferences and/or commitments (Valceschini and Nicholas 1995).

It is widely acknowledged by value chain scholars that private standards alter value chain governance. Chiefly, private standards are implemented by lead buying companies and help to legitimize certain practices over others (Leach et al. 2010). However a growing trend exists in the agri-foods literature to move beyond the ‘vertical’ dimensions of governance used traditionally in the global value chain tradition. Instead of conceiving governance as the power relations that structure exchanges among firms at different segments of the chain, scholars advocate for recognizing the important role of ‘horizontal’ governance. By this they mean to emphasize the role played by a broad array of non-firm actors, or stakeholders, who are external to the chain (in the sense of not participating in economic exchanges) but nevertheless affect governance through interactions with chain actors (Neilson and Pritchard 2009; Tallontire et al. 2011; Nelson and Tallontire 2014). For example within collective private standards, third-party auditors in the beef industry inform the ways in which exchange takes place between segments of the value chain but are not a part of the production process. They exist outside of the value chain in the sense of not being directly involved in the production of goods or services, yet by providing services to different segments they are able to influence chain behavior.

In this chapter, I seek to unite literatures on PSIs and global value chain governance in order to propose a framework for better understanding the implications of standards for chain actors. As part of a broader research agenda targeted at identifying the contexts in which

agricultural producers garner the most economic benefit, I argue for a closer analysis of how private standards affect both vertical and horizontal dimensions of governance. In particular, I focus on the varying degree of change in chain drivenness that occurs depending on the type of private standard. In order to construct this framework, I first focus on value chain governance as a means to illuminate the relative position of chain actors and review literature addressing how private standards shape chain governance. Next, I review how production aligned with private standards is seen to be qualitatively different from production in conventional value chains. Last, I draw on the case of private standards in the U.S. beef industry to examine the diversity of ways in which chain actors are affected by private standards, depending on the type of standard and the type and range of actors involved. By distinguishing how governance varies by type of private standard, we can better identify the benefits and drawbacks of PSIs for chain participants. In particular, I conclude that collective private standards that engage a range of stakeholders are less likely to increase the leverage of lead firms and are more likely to benefit upstream producers through increased value capture.

I examine the growing role of private standards in shaping the governance of the beef industry, giving particular attention to how horizontal dimensions of governance, or lack thereof, operate in conjunction with vertical governance to give certain actors the ability to advance their preferred private standards. In this chapter, I provide background on the expansion of private standards in contemporary agri-food systems. In the process I detail the extensive selection of private standards in the beef-industry alone and then move to discuss how these standards alter governance. I then review research on how private standards affect buyer drivenness and then cast a wider net to address how the inclusion of horizontal governance contributes to our understanding of the relationship between private standards and drivenness. Last, I provide an

analysis of how various attributes of private standards affect lead firm drive, including how the ties of lead firms to non-value chain firms reduce the leverage of lead firms over upstream producers.

I focus especially on two differences between private standard value chains and conventional chains: the degree of coordination and degree of drivenness. In particular, I examine how increased drivenness varies by type of private standard and discuss the implications of various private standards for the economic success of producers. By closely examining the variation among private standards, and better understanding the types of private standards that yield the greatest benefits to producers, I draw policy implications for the economic profitability of producers in agricultural value chains. In conclusion, I propose a framework for analyzing private standards to determine how such programs create different winners and losers, and which segments of the chain capture the greatest gains.

In addition to an analysis of the drivenness in value chains with PSIs I draw on insights from convention theory regarding the need to consider actors external to the value chain in shaping chain activity (Ponte and Gibbon 2005). In looking beyond quality conventions alone, I address horizontal variation of private standards by asking to what degree does a standard include or exclude additional actors that have the ability to shape the standard, and what are the implications for upstream producers in private standard value chains with the highest degree of exclusivity of external input. This approach builds upon Reynolds' suggestion to search beyond a single value chain driver to robustly capture "contestations over divergent qualifications and how collective enrollment in particular conventions permits forms of control at a distance" (2002, p. 409).

The diversity of private standards in the beef industry begs the question of how drive varies among standards and to what effect for upstream producers. While private collective standards such as organic and age/source verified engage with external actors through networks of certification, including in the creation and monitoring of the standard, private company standards remain isolated from key institutions outside the beef industry. In order to highlight the differential effects of the horizontal dimensions of these standards, I investigate the all-natural private standards in the beef industry within a particular firm, across the industry, and in contrast to other beef standards.

### **Background of Private Standards**

The neoliberal project beginning in the 1980's enabled the growth of private standards as part of the broader move toward privatization and divestment of government control. In particular, the neoliberal project encouraged private standards; government intervention was scaled back to a minimum, and private regulation was advocated as a substitute to encourage economic growth. Private firms took an expanded role in the economy, building their influence relative to government entities such that private standards became a regulatory force that rivaled governmental regulatory bodies (Busch and Bain 2004). This trend is especially apparent in agriculture, in which attributes of health and environmental sustainability are regulated by private entities, such as certifying bodies and non-profit organizations (De Battisti et al. 2009).

Perhaps counterintuitively, as consumer demand for private standard products rose, so too did the dominance of mass discount food-retailers. Companies like WalMart and Target expanded control of the retail market and simultaneously met demand for low cost food while

offering certified products for niche markets. Previously branded food processors (e.g. Kraft) dictated prices and production practices, but increasingly retailers began to drive chain activities (Marion 1998). The resulting picture of the agri-foods industry was one in which commercial capital—that is, large, multinational corporations that market and sell, but do no “tangible” production—began to function as lead firms. Retailers exerted control by defining quality and standards for agri-food products. By 2011, WalMart offered over 400 in-house organic products and expanded its offerings via the acquisition of Wild Oats organic products in 2014 (O’Connor 2014). Overall, the last thirty years saw the re-regulation of agri-foods by the private sector such that the rise of non-conventional or PSI value chains occurred alongside the growth of multinational retailers such as WalMart. Although the political economy of agriculture is still dominated by the Fordist logic of mass production and industrialized agriculture, a second competing regime of Post-Fordism simultaneously advances the role of private standards and value added production, as discussed in Chapter 2.

Today, a plethora of private standards exists within agri-foods. These standards address different aspects of production, including environmental, ethical, and market dimensions, and are monitored through an equally diverse number of certificates and labels (Henson and Humphrey 2010; Reynolds et al. 2007). Some of the most common private standards include organic foods, an industry with over \$30 billion in sales in 2014 (USDA ERS 2014); Fair Trade; hormone free; GMO-free; cage-free; free-range; rBST-free<sup>4</sup>; and certified humane. Some certifications span numerous products, such as organic, which applies to fresh produce, dairy, meat, and processed items such as chocolate and coffee, while other certifications pertain to a specific item, such as cage-free eggs and rBST-free milk. Among beef products, a subset of agri-food standards can be

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<sup>4</sup> Recombinant bovine somatotropin (rBST) is a hormone used in dairy cows to increase their milk production.

found including all-natural, organic, certified humane, and hormone free. Other certifications are unique to the beef industry, such as grass-fed, age and source verified, certified Angus, and Never-Ever all-natural<sup>5</sup>. New standards emerge every year in response to consumer concerns and producer efforts to distinguish their products from their conventional counterparts.

### **Governance of Private Standards**

It is widely accepted that the governance of private standard value chains requires greater coordination in comparison to conventional production. Many private standards, such as Fair Trade or Sweat Free explicitly work to modify exchange relations according to the goals of each program (Taylor et al. 2005). For example, fair trade programs work to construct mutually beneficial exchange relationships between producers and traders, and between traders and buyers, to counter the exploitative nature of mainstream market channels. However within private standard programs, lead-firms are commonly the ones to enforce standards and certifications. As scholars note, one way in which lead firms exert control over chain activities is through setting strict standards and product specifications for suppliers. Lead firms can design standards according to their desires, creating high opportunity costs for potential suppliers that are unable to meet them (Humphrey and Schmitz 2000; Tallontire 2009; Ponte and Gibbon 2005). As Ponte and Gibbon (2005) explain for the case of global coffee production, the control of standards serves as a powerful form of “hands off” coordination that allows lead firms in buyer-driven chains, which do not directly control production, to nevertheless exert control over upstream actors through the use of standards and certifications. In this case lead firms can control

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<sup>5</sup> Never-Ever all-natural is a USDA certification for beef from cattle that has never received antibiotics, growth hormones, or hormone-treated feed.

the production behavior of upstream producers without even engaging directly in an exchange relationship.

Moreover, as a part of establishing standards and certification, lead firms also determine how quality is defined in the value chain. Quality is rarely objectively defined; rather, its definition is instead a contested process influenced by the preferences of value chain actors. While some standard of quality exists across an industry, certain actors can influence quality definitions by adding to or opposing quality attributes (Ponte and Gibbon 2005). This contestation of quality is especially important when a multitude of competing retail programs claim different certified products as high quality. Furthermore, it is often difficult to measure or observe quality, making the verification and certification of standards even more complicated. Products have two types of quality, according to Ponte and Gibbon (2005). Quality that can be verified metrically at the time of the transaction is ‘search’ quality. This can be seen in the size, color, or weight of a product. Quality that cannot be objectively measured is known as credence quality and refers to the requisite trust of an exchange partner in whether or not, for example, a tomato is truly grown according to organic standards.

Several themes emerge from the literature on the core differences between private standard governance and conventional chain governance. First, chain activities are more closely aligned between segments in PSI chains in order to facilitate and verify compliance with program standards. Second, private standards, on average, increase the degree of lead firm drivenness. By drivenness, I mean the degree of asymmetry in a value chain regarding a lead firms’ ability to control coordination, chain activity, and distribution of value along the chain. PSIs not only create pressure for closer alignment of distinct segments via coordination among value chain actors, but they also tend to endow particular actors -in this case lead firms – with a

disproportionate ability to decide how this alignment and coordination is achieved. Third, given that the majority of lead firms are located in the global North, the “added value” of private standards is largely captured by value chain actors based in those countries, and not by producers in the global South. Last, and in light of the preceding three claims, PSI value chains create different “winners” and “losers” as compared with conventional production. For the purposes of my research, I focus on the second and third of these characteristics – the increased drivenness of private standard value chains, and how standards create new winners and losers.

To begin to parse the various types of private standards and their relevance for governance, I first begin with Tallontire’s distinction between private company standards and private collective standards. The first type of standard refers to PSIs that are set and managed by an individual firm, while the latter are collaborative efforts involving a combination of private sector, government, and civil society actors. The distinction between private company standards and private collective standards is a useful one, as it highlights the importance of which actors are involved in the creation and enforcement of PSIs. Especially when analyzing value chain governance, it is crucial to understand the key actors implementing and enforcing chain standards and certifications, as retailers and other lead firms use standards to re-regulate production in ways that defend and advance their interests (Utting 2005; Loconto and Busch 2010). Additionally, private company standards have fewer links to actors and institutions external to the value chain. These standards are more limited in their reach given their existence within the bounds of a particular company, yet they also do not require the support or approval of other actors, though the lead firms establishing such standards may choose to have compliance with these standards monitored by more or less independent actors in order to increase the perceived legitimacy of the PSI. This kind of compliance auditing is particularly important for

credence attributes, such as “sweat-free” apparel or “humanely-raised” beef). Thus, while collective standards, created and implemented by a group of actors, may reflect the commitments and preferences of an array of agri-food actors, including, potentially consumers and workers, individual company standards are more often devised unilaterally and in the interests of a single company. Therefore, they do not necessitate compromise or negotiation with the preferences of other actors.

Within the beef industry and agri-foods broadly, the use of standards, certifications, and close quality examination are common in order to ensure consistent products that meet the criteria of the private standard. Today, retailers, especially grocery chains, play a significant role as the lead firms driving agri-food chains. Scholars frequently note that large grocery stores utilize private standards to capture a greater share of the market and ensure supply according to their desired criteria. This in turn increases the drivenness of the chain and compounds the already great advantage of these retailers (Humphrey 2006; Dolan and Opondo 2005; Traidcraft 2007). This claim proves true especially in horticulture (Dolan and Humphrey 2000), fair trade (Neilson and Pritchard 2009), and agri-foods more broadly (Busch et al. 2005; Vorley 2003). Within horticulture and fair trade programs, for example, producers enter into captive exchange relationships in which they become reliant on buyers for market access and are subject to the whip and whim of retailer demands.

The increased drivenness of these value chains has strong implications for global production, given the predominance of lead buying firms, such as grocery stores, in the global North, and agricultural producers in the global South. Numerous studies document the influence of private standard programs on producers in the Global South with particular attention to agricultural producers engaged in Fair Trade programs (Gibbon and Ponte 2005; Raynolds et al

2007; Neilson and Pritchard 2009). The consensus in this literature is that the premia for these products are captured by value chain actors in the Global North, most notably retailers, leaving producers with minimal gains, despite the ostensible intention of such programs. In their examination of Fair Trade coffee, Vilkila et al. (2010) find that producing countries receive an even smaller percentage of profit in Fair Trade than in conventional coffee; Fair Trade coffee growers receive 13% fewer profits than growers in conventional production. Although not always explicitly stated, studies such as Vilkila et al. relate the increased buyer-drivenness of the chain to losses among producers in the Global South. Additionally, the smaller profits captured by southern producers obstruct opportunities for “upgrading” production to higher-margin products and industries (Humphrey and Schmitz 2002).

Given the efforts of various actors to influence private standards, researchers have examined the degree to which they represent certain interests over others (Busch and Bain 2004; Nelson et al. 2005; Raynolds 2014). Within economic sociology and especially global value chain traditions private standards are seen to alter the ‘drivenness’ of value chains in ways that advantage lead firms over upstream producers. As noted above, drivenness within the context of a value chain refers to the ability of certain actors to control the behavior, practices, and value captured by other actors throughout the chain. GVC literature has emphasized an increased dominance of buyer-drivenness over the last half century throughout global industries in which lead buying firms, especially retailers, exert control over chain activities (Dolan and Humphrey 2000; Ponte and Sturgeon 2005).

While lead firms can influence attributes such as quality, their definitions must resonate with societal narratives in order to prove successful (Ponte and Gibbon 2005). In their work on certification schemes, Ponte and Gibbon draw on convention theory to show that the definition

of quality proposed by a firm must reflect shared understandings both among chain actors and the broader public to whom these products are marketed. Convention theory emphasizes the cultural and symbolic dimension of economic life, including the way in which multiple definitions of quality are implicated in production, exchange, and consumption. The authors reject traditional economic models of quality that view it as objective and uniformly understood and instead propose convention theory as a means to understand the plurality of quality attributes that are relevant for value chain governance.

Convention theory broadly refers to the reciprocal expectations held about others (Salais 1989) that shape how we interpret behavior and judge others' actions (Biggart and Beamish 2003). Conventions become particularly important when price alone cannot be used to convey or communicate the attributes of a product. Unlike market transactions governed by price alone, other transactions rely on conventions such as trust or external evaluation to distinguish quality. As Ponte and Gibbon (2005) summarize, conventions resolve uncertainty about quality when price cannot. For example, 'domestic' conventions utilize trust, 'industrial' conventions utilize external evaluation such as certification, and 'civic' conventions utilize impact on society or the environment to assess quality.

As Ponte and Gibbon (2005) illustrate, conventions play a large role in value chain governance. Lead firms influence the conventions used to communicate quality, and thus hold an especially powerful role in private standard value chains, where quality supersedes other product attributes. Lead firms exert greater influence not only through control of standards, certifications, and quality conventions, but also through direct alignment of the production process according to the conventions. In turn, this produces a chain with a greater degree of buyer-led drivenness. While lead firms use coordination as a tool to control quality in conventional production, they do

so to a greater degree in private standard production, given the need to more closely monitor quality as related to program compliance.

As discussed in chapter 5, the producer-driven and buyer-driven framework derives from the ‘governance as driving’ approach to value chains. And as scholars highlight the trend towards buyer-driven value chains, lead buying firms have garnered new attention. Ponte and Sturgeon summarize how lead firms drive a chain “by defining the terms of supply-chain membership, incorporating or excluding other actors, and allocating where, when and by whom value is added”(2014, p. 201). What theories of ‘drivenness’ contribute is an understanding of how buyers can control aspects of production even when *explicit hands-on* coordination, let alone ownership, is absent

As I explore how private standards increase the ‘drivenness’ of the beef value chain in the remainder of this chapter, I draw on the previous definition of drivenness to highlight how standards, with and without explicit coordination among firms, increases the ability of buyers to control aspects of production. The way in which drivenness manifests itself depends on the standard, but can be summarized, in line with the literature, to include high opportunity costs for non-compliance, control over chain participation, and influence over how value produced along the chain is allocated. In the latter half of this chapter I detail how these aspects of drivenness manifest within the beef industry, drawing specific examples from my qualitative research.

### **Private Standards in the Beef Industry**

Private standards permeate the beef industry as value-added beef, as opposed to conventional beef, is the fastest growing segment in the industry. Although private standards

represent less than 10% of the total sales in the beef industry, it is a fast growing segment.

Programs such as natural, organic, antibiotic-free, hormone-free, and grass-fed beef are growing in popularity, especially with the expansion of food retailers such as Whole Foods. In 2012-2013 alone, beef consumption overall dropped three-tenths of a percent, while all-natural (hormone, antibiotic, and growth promotant-free) consumption increased by 54% (USDA 2014). Although they only comprises a fraction of total production, certified beef products are growing in popularity as consumers seek higher quality and environmentally- and ethically-sound foods.

The most common private standards in the industry include: certified Angus, grass-fed, organic, age and source verified, and hormone free. As described in Table 1, these standards range between private collective and private company standards, even within a single type of standard. For example, the USDA implements its own all-natural program, but companies also create their own all-natural programs that differ according to their preferred product traits.

**Table 6.1: Private standards in the beef industry**

<b>Private collective standard</b>	<b>Example actors involved</b>	<b>Private company standard</b>
Organic beef	Oregon Tilth	Hormone-free beef
All-natural beef	AgInfoLink; Certified Angus Beef Association	All-natural beef
Certified Angus beef	Certified Angus Beef Association	
Grass-fed/finished beef	American Grassfed Association	
Age and source verified beef	AgInfoLink	

All-natural beef stands apart from other private standards given the sheer number of programs under this one standard and the variation among them. In 2010, over 30 different companies had lines of all-natural beef as part of their private label, branded beef programs (Machen 2010). The differentiation within all-natural beef stems partially from the loose

regulations of the label. To use the term “natural” on any food label, according to the USDA, a product must be, minimally processed, free of artificial ingredients, and free of any preservatives. Beyond these three requirements, private companies can determine other attributes of all-natural beef according to their own desires. As Troxel notes, “Natural beef is produced to fit into a specific branded beef program, and therefore, the owner of the brand sets the requirements and is responsible for regulating compliance. This makes the natural beef program’s integrity extremely important” (2014, p. 1). Certain criteria are commonly found across all-natural programs, including a ban on antibiotics, feed additives, hormones, and feed containing animal proteins (Cattle Fax 2014).

Given that branded beef programs emanate from packers or retailers, this set of actors has the greatest influence on how all-natural beef is defined. Compared to other private standards such as organic or grass-fed beef, a small number of value chain actors control the attributes and monitoring mechanisms of all-natural beef. While informal industry standards exist, no codified standard exists for all-natural programs, such that each firm can design its own criteria. And as this standard continues to grow in popularity, partially due to the lack of oversight from other institutional or regulatory bodies, it begs the question of how such a variegated standard influences the governance of the value chain, and how upstream producers fare in a market riddled with different all-natural standards. I use the case of all-natural beef as a springboard to delve into this question and explore how horizontal dimensions of private standard governance affect vertical drive and producer well-being.

## **Governance of All-Natural Beef Programs**

All-natural programs vary greatly; the term “all-natural” alone signifies very little about how a cow was raised and the traits of the final beef product. The most stringent form of all-natural beef is the USDA “Never-Ever” program, which requires hormone-, antibiotic-, and animal by-product-free production. To be a part of the never-ever program (either certified by the USDA or self-proclaimed, cattle may never, at any point in their lives, receive these products. Producers can elect to obtain the USDA certification, but many producers incorporate Never-Ever into their in-house brands and then claim they meet these criteria without any independent audit. For example, one of the largest natural retailers, Jones’ Beef, manages a natural program called Aspen Hill. The criteria set by Jones’ Beef for this program is the same as Never-Ever programs, but they do not obtain certification. A driving factor for the lack of certification for Never-Ever beef is that the certification is not a consumer-oriented label. Unlike beef that is labeled as Angus or Prime grade, most consumer products will utilize a “hormone free” or “all-natural” label without any clarification of what precisely this means in terms of the production process.

Additionally, some all-natural cattle may also be grass-fed, organic, age-and source verified, or breed certified. For example, some producers utilize an all-natural program that contains only genetically-certified Black Angus. Other all-natural producers utilize withdrawal programs in which cattle are given antibiotics or hormones up until they are close to the point of slaughter. If producers stop providing antibiotics or hormones within 90 to 150 days of slaughter, the resulting beef can be sold as antibiotic or hormone free, even though it cannot be marketed under the Never Ever program.

Together, there are dozens of combinations possible in all-natural programs. Thus, coordination between producers and buyers is essential to ensure cattle meet the intended

program specifications. As suggested by the literature on private standards and certification schemes, the standards for all-natural programs (with the exception of the USDA Never-Ever program) are largely defined by lead firms. For example, grocery store chains decide which standards they desire, and then bid out to packers to see who can supply beef to those specifications at a desirable price. Similarly, packers can create their own natural programs to market to retail and food service outlets. For example, one of the largest packers in the country offers a natural program it created in-house that includes the specifications of the never-ever program along with a genetic Black Angus certification. The company then markets this program directly to food service companies, restaurants, and retailers as an advanced, and higher-value all-natural program.

The all-natural standard can be categorized as a private company standard with high variation within the standard, a high degree of variance from conventional beef, and high asset specificity according to a specific firm's standards. These attributes suggest a high degree of 'drivenness' by lead buying firms over upstream producers, especially in the form of control over production practices, and opportunity costs for non-compliance. Producers experienced this at different points in the chain, noting the control of lead firms in setting the production practices, as well as broadly yielding influence over suppliers' practices. A feedlot manager, supplying to one of the larger all-natural programs in the country run by a large processing company, described the extensive process required to meet the specific standards of this program. This feedlot supplied one, and only one, brand for the packer, and that packer, in turn, provided the brand in question to one retail outlet. The supplier had to go to great lengths to meet the standards of this one firm, and was made vulnerable by the fact that there was only one client

to which it could sell its cattle. When asked what the supplier did to meet the all-natural program of this marketing firm, she replied:

Oh man, jump through a lot of hoops. A lot. I mean they have a big, everything...how you treat the animals, how you work them, run them through your chutes...take random [feed] samples, make sure the feed is all natural, make sure you're not putting any additives, and then just lots of paperwork. Background checks on the [supplying] ranches and such, what they fed their cows, if they fed them any type of medicated mineral.

In addition to determining the production standards, the marketing program plays a large role in the buying and selling of cattle. The marketing program controls all procurement of cattle, as well as the sale of all cattle, which is distinctly different than in conventional programs where feedlots and all other segments determine their own purchases and sales. As the feedlot manager explained:

We usually have no say on when they're gonna go [to slaughter]... For instance, we had them contracted for April and [the buyer] didn't need the beef in April...so they made us feed those cattle longer, so we had to keep putting more and more money...that's 20 or 30 days longer than you anticipated so that's more money into the cattle, so more loss. They kind of dictate to us a little bit, which is kind of rough.

The financial loss can be significant, given the small margins received by beef producers. A feedlot operation may receive only \$100 profit per head of cattle, so an extra month of feed can quickly minimize, or even entirely erase those profits. One feedlot manager explained that his operation had to take a significant loss as part of a natural program: "Right now they came in so high, high priced...They came in so high and you know, everything's losing money huge, \$100 to \$200 a head right now." In this statement, the manager refers to the high price at which cattle are sold to the feedlot, that when matched with the low price they sell to the natural program, ultimately costs them several hundred dollars per cow. This feedlot manager continued to explain that with such a high sale price, "this feedlot's gonna be empty until fall," because the cattle are too expensive to buy, and ultimately "it wouldn't hurt us just to let it retire." The ability of

buyers to control product specifications, as well as the sales of suppliers, illustrates the increased control of buyers over the production process. As a participant in a PSI, this feedlot is contractually obligated to sell to one buyer, and only one buyer, and must produce according to that buyer's standards. Additionally the feedlot relies on the program to market its beef and secure buyers as described above. As a result, the marketing firm dictates when cattle arrive and leave the feedlot, as well as the 'hoops' the producer must jump through, and the price at which the cattle sell. Ultimately the financial losses from participating in the program were enough to make the manager consider closing the operation.

This increased buyer-drivenness is also facilitated by the close coordination between segments of the chain. As previously discussed, close coordination ensures greater control over quality and compliance with standards, and this is easily seen within natural beef production. One of the largest beef packers in the nation coordinates natural production through direct vertical alignment among the packer, the feeder, and ranchers. Vertical alignment does not entail ownership of upstream producers, as is the case in vertical integration, but instead operates according to contracts and coordination along the value chain. As the manager of one natural program explains, "it is much more of an aligned process on the naturals... with the natural categories [sic] I have a pretty good idea of next month of where the stuff we produce is gonna go." Additionally on the purchasing side, this natural packer owns a feedlot from which the majority of its natural cattle supply is sourced and even extends its influence to the most upstream link in the chain—the cow-calf producers. The natural program manager notes that "there's a gentleman at the feedlot who is the direct link in signing up new producers, getting them ready for the audits, dealing with all the documentation." The natural packer not only owns and operates an in-house feedlot, but also uses staff to enroll supplying ranchers, and ensure they

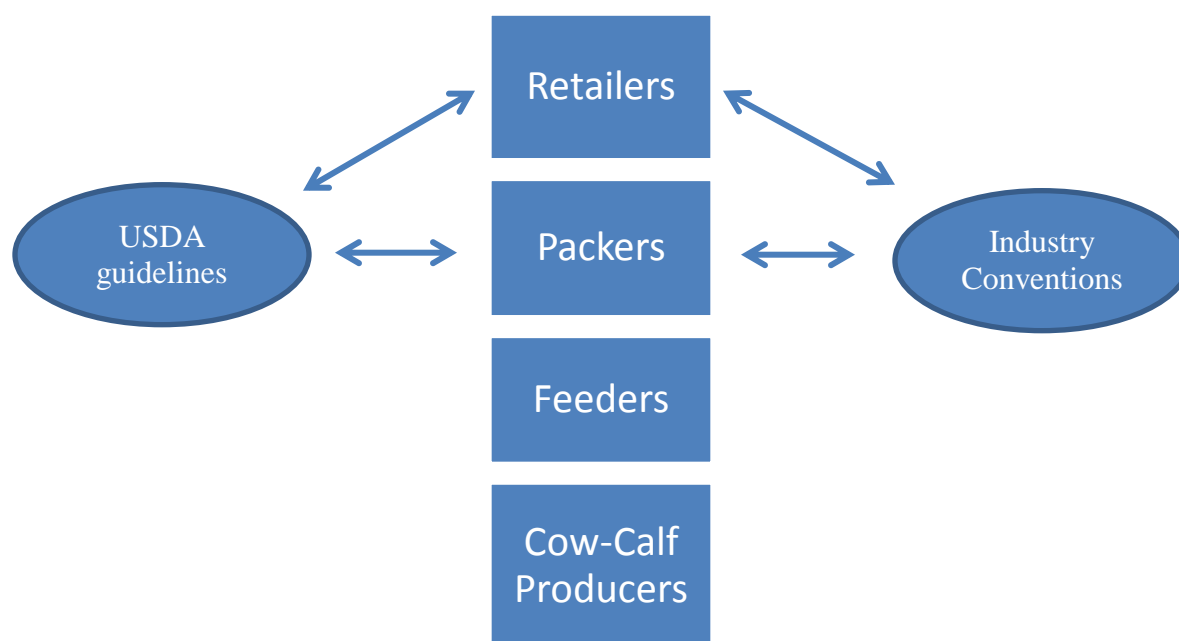
meet the necessary requirements. While producers may benefit from the direct assistance provided by this firm, such as assistance with meeting production requirements, this case illustrates the high degree of alignment throughout the natural beef value chain.

The close alignment contributes to buyer-drivenness by granting buyers different kinds of control over production practices, as well as giving them access to detailed information at the production stages. Several natural producers noted the transparency in production costs, such that buyers know the cost of production (and thus, the supplier's margin), as well as the details of the production practices. In addition to third party audits, affidavits, and immense documentation, the close alignment facilitates the "hands off" governance described by Ponte and Gibbon (2005). Buyers use formal agreements such as affidavits to hold suppliers accountable and to ensure compliance with their particular all-natural standards in lieu of on-site inspection or directly managing the production process. This close alignment among segments, in combination with production tailored to private company standards that require producers to go to great lengths (as compared with conventional beef production), grants buyers indirect control of the natural beef value chain.

It is important to underscore that the category of all-natural beef involves relatively weak horizontal governance of the sort that could act as a brake on lead firm drivenness. As illustrated in Figure 1, the linkages to external actors, institutions, and networks are sparse; packers and retailers create the all-natural standards only in alignment with the loose USDA guidelines and industry conventions surrounding the norms of all-natural beef. While the USDA has some influence on all-natural standards, this influence is weak at best, given the vague guidelines provided within USDA regulations. As described above, the criteria to classify a product as all-natural beef can be interpreted in many ways; for example, "minimally processed" is relative,

subjectively defined, and varies across products,. Thus the main factors influencing how packers and retailers construct all-natural beef programs are their own desires and interests, which they endeavor to align with the broader industry and social conventions. These conventions include emergent industry norms of what an ‘appropriate’ all-natural program entails – attributes that resonate with cultural narratives and ideals of natural food and market trends that position natural-beef relative to other products.

**Figure 6.1 Horizontal linkages of all-natural private standards**



The lack of horizontal linkages grants packers and retailers greater flexibility in designing, implementing, and monitoring all-natural programs. Without direct accountability to an extensive network of extra-institutional actors, the lead firms expand their influence over chain activities and can be seen to increase the drive of chain governance. As described by a leading natural program manager, the lead firms coordinate close alignment under their programs

using hands-off governance that extends their reach up the value chain, enabled by the lack of horizontal ties to other actors and institutions. The autonomy of the lead firms manifests itself in highly differentiated and variegated private standards that not only differ from conventional production but also differ from one another as well as other private standards. It is this differentiation that supports the close alignment of production under lead firms, expands the control of these firms, and in turn increases the drivenness of the chain.

To highlight how all-natural programs increase the drivenness of beef value chains, I next compare all-natural private standards to those for certified Angus beef. Although these private standards also have some degree of variation within them, they also include several ties to external networks and institutions that restrict the autonomy of lead firms. As I illustrate, the horizontal ties to the USDA and the industry association, along with industry conventions, limit the drivenness of the chain and the position of lead firms relative to upstream producers.

### **Governance of Certified Angus Beef**

Certified Angus Beef (CAB) is a private collective standard that verifies the breed of cattle used in beef. Angus is often assumed to produce higher quality beef, and thus the certification signifies a value-added product. The program first emerged in the 1970's in response to consumer dissatisfaction with the quality of beef and continues to serve as one of the major private standard programs in the beef industry. The certification is managed through the Certified Angus Beef Program, a part of the American Angus association, a nonprofit organization. With over 30,000 members, the association charges producers to join in exchange for the benefits of registering cattle, marketing the beef as certified Angus, and access to industry

resources. As the organization's website details, in order to meet the certification beef must have ideal marbling, less than one-inch of fat, a certain size of ribeye, and other specifications regarding quality which do not vary greatly from conventional production. For example, all certified Angus beef must grade as USDA prime, choice, or select, which is the common requirement for conventional beef products sold in retail outlets.

Most simply, certified Angus beef must come from cattle of the Angus breed. While on the surface this appears to be an easy and consistent measure, it in fact varies across Angus programs. The main difference that can occur in the breed certification is whether the cattle are phenotypic or genotypic Angus. In Angus programs that require phenotypic Angus, any cattle with black hides are eligible, given that Angus are known for their black hides. A phenotypic Angus cow may only be 20% Angus yet still yield a black hide. But for some buyers to know that a cow will perform to the high degree expected of Angus, a black hide alone is insufficient. In contrast, genotypic Angus programs require genetic testing of cattle to ensure at least 50% Angus lineage. As a manager at a packing plant explained, if a program claims to be certified Angus, but does not claim to have genetic testing, "Well guess what? Then it's gonna be a phenotype program... If that's the case then the cost of that animal is significantly cheaper...the consumer has no clue about the difference between genetics and phenotype."

Phenotype programs produce a varied eating experience, given that the genetics, and in turn the quality of the beef, will vary greatly from one cow to the next. The packing plant manager goes on to explain, "You're really not gonna know cause you don't know the genetics this time versus the next time." In contrast, genetic testing enables the producer to better predict quality, as the manager says, "product is gonna be better, and it's gonna be better this time, next time, the following time... The costs are gonna be a heck of a lot higher, but we feel that the

finished product is gonna be that much better.” The genotypic Angus provides consistency in the cattle from one herd to the next given that producers can control for the genetic make-up of a cow. In phenotypic Angus the genetics can vary so greatly that it is hard to predict the final quality and yield of beef from one herd to the next. Given technological advances, genotypic Angus is becoming increasingly popular and affordable among producers, yet many producers at all segments of the value chain still market certified Angus beef based solely on phenotype.

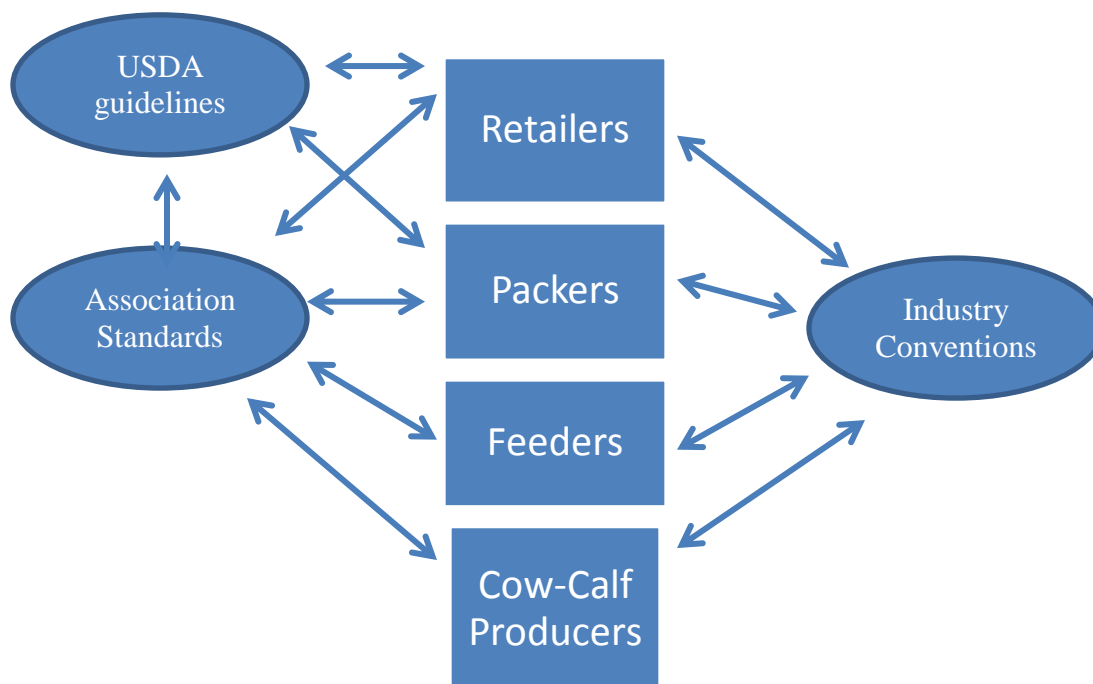
Producers participating in Angus programs do not need to make significant changes to their practices to transition from conventional production. Especially in phenotypic programs, many ranchers and feedlots already raise black-hided cattle. The only additional step to market them as certified Angus is to pay for certification by a third-party agency that verifies the cattle are indeed black hided, as well as to market them as certified Angus cattle through the packing company or marketer. Genotypic Angus programs require a slightly larger change for producers, who must genetically test their cattle and not rely simply on hide color. The producers pay for this testing and recover the cost of testing in the premium paid for these cattle. Other than the genetic testing, the steps necessary to transition from conventional are the same as in phenotypic Angus programs.

Given the general uniformity across Angus programs, certified Angus producers have a vast number of market outlets. Producers do not have to rely on a single firm or a small niche market in order to sell their product. Certified Angus Beef is commonly sold in restaurants and grocery stores, and is a low-cost certification program that retailers can use to distinguish their selection of beef products from their competitors’. Additionally, many packers and retailers will include the Angus certification within other value-added labels, such as marketing Angus beef as

also all-natural. In turn, upstream suppliers have greater flexibility regarding to whom and on what terms they sell certified Angus beef.

The certified Angus value chain is buyer-driven to a degree; however, the drivenness of this is not significantly greater when compared with the conventional beef value chains. Upstream producers in Angus programs raise cattle according to the certified Angus standards, but these standards are not set by individual buyers, and their uniformity means that producers of Angus cattle are not dependent on a single buyer. In other words, while producers may raise cattle according to the certified Angus standards for a particular retail store, the retailers do not influence particular practices and only serve as market outlets. One ranch owner, who raises Angus cattle noted that the ranch raises them as any other cattle, and could even decide after slaughter whether to market them as certified Angus, noting that “they’ll qualify for certified Angus beef program based off the carcass,” when the quality of the beef could be determined in conjunction with the hide color. This rancher also explained that certified Angus does produce premia from packers to satisfy retail demand. If packers “have an order to fill on certified Angus beef in a grocery store then the stores need to pay premium to get it”; otherwise, the retailer may purchase from a different packer. Thus while retailers exert some control over packers in both the conventional and certified strands of the beef chain, the drivenness of the Angus program does not increase simply due to the attributes of the certification program. Because the program is a private collective standard that is uniform throughout the industry, producers operate without oversight or control by buyers and receive premia for participation in the private standard.

**Figure 6.2: Horizontal linkages of certified Angus private standards**



It is important to note that one reason the private standard for Angus beef is more highly embedded in a network of actors external to the value chain is because the standard relies on cattle characteristics determined at birth. Cattle can be born as Angus beef and maintain that distinction throughout the production cycle with minimal to no intervention on the part of producers. In contrast all-natural beef relies on specific production practices implemented downstream. As opposed to being born with the necessary traits like certified Angus beef, all-natural cattle are raised to achieve the private standard certification. Because of this, upstream producers are differently positioned with regard to the creation, enforcement, and maintenance of the Angus certification. And in turn, the involvement of upstream producers reduces the

influence of lead firms vis-à-vis the private standard. Instead, retailers and packers must rely on feeders and cow-calf producers for the production of Angus cattle.

### **Benefits of Private Standards**

While there is ample evidence to indicate that private standard value chains may be more buyer-driven than conventional beef products, my research also suggests that participation in these chains can yield greater benefits for producers. As seen in the certified Angus and all-natural programs, producers receive premia for certain private standard programs that are not lost entirely to the cost of production. In natural programs, producers at the upstream end of the value chain, including ranchers and feedlots, cited the benefit of increased information sharing, a secure market outlet, and less variability in the prices received. For example, a feedlot supplying one of the largest natural retail outlets in the country explained that the price he receives is based on the cost of production; if the cost of feed increases due to drought or other reasons, the buyer pays the difference. When asked if participating in the natural program proved economically beneficial, the feedlot owner answered, “Oh yea, I mean, all of the extra stuff that they require costs and they just pay the production costs... It’s a cost-plus so whatever my cost is plus the cost of providing the service and they pass that on to whomever they’re selling to.” In this scenario, packers pay more when the cost of production rises, and upstream suppliers are protected from volatile changes in production costs. This proves especially important in the context of drought, in which feed prices increased as much as 400%. While this feedlot owner paid substantially more for feed, he received an equal increase in his payment from buyers, who base their pricing off the production cost.

This form of pricing is rare in the conventional strand of the beef value chain, in which the price of cattle is either based off of a live-weight, a three-state average, or a grid system where sellers get premia and discounts on the base price depending on quality and other beef attributes. In contrast to the natural programs described above, buyers of conventional beef products will switch suppliers if their prices change, even minimally. Thus some natural beef producers are buffered from changes in pricing and production costs more than their conventional counterparts.

Another major benefit of participating in the natural beef value chain includes a secure and stable market outlet. The close alignment among segments of the chain, along with the specifications unique to a particular firm, ensures producers have a consistent buyer for their certified beef. As noted above, packing plants that manage natural programs know to which retail outlet their beef is going week to week, and even a month ahead of time. The same is true of their sourcing. As the director of a large natural program explains:

[Conventional purchasers] will be buying cattle today that they're gonna kill on Friday or Monday... And [they] might buy them at video auctions, sale barns, we really don't know where it might be, and we don't have the traceability back to the producer. In these natural programs we buy them 6 to 9 months in advance. We know who they're coming from.

Just as the natural buyers know where the natural cattle will be sourced 6 to 9 months in advance, the natural ranchers know where their cattle will be sold 6 to 9 months ahead of time. The forward-buying in natural beef allows upstream suppliers to have a secure market outlet prior to when the cattle are ready to slaughter; in turn this allows producers to better plan financially for the following year.

Another feedlot supplying natural beef to one of the main natural beef packers noted how, unlike in conventional beef, he receives detailed information on how well his cattle

“performed” when slaughtered, meaning data on the USDA grade, the overall yield, fat percentages, yield grades, and other highly useful information. This feedlot manager shares the information with ranchers so they can adjust their genetics in order to improve the quality of the cattle, and in turn, their profits. As the feedlot manager explains,

If [a rancher’s] cattle for some particular reason are grading 15% less choice than the plant average...he needs to know that. And maybe he can change some of his genetic selection by purchasing bulls or making breeding decisions...It’s communicated verbally. When a rancher ships one and you get to the end of the feeding program and you do a close out, that identifies what kind of actual performance you saw, feeding performance is just part of that equation now, and slaughter performance is the other...so we found that rather than just mailing them that information it better serves us to have that kind of verbal communication.

This feedlot manager goes on to explain more about issues regarding information exchange in the industry and the control by packers over this information:

We have 200,000 ranchers, and you narrow that down to 250 feedyards in this country, and you narrow that down to three-and-a-half packers in this country. And then it goes the other way to distributors, food service, and ultimately to consumers. And wherever that hourglass is the tightest, they have the most control. And there’s three-and-a-half of those guys, they harvest some 80% of the cattle every year. They’re the ones that get to dictate what that flow of information looks like...If we set that aside and I’m going to give you whatever information you want, you need, and you in turn supply me with the information I need, then I think it becomes win-win. They helped us become a better cattle feeder because the motivation existed for both of us to be successful. I wanted to supply them with exactly what they wanted, and they wanted me to understand exactly what they wanted.

As this feedlot manager notes, packers, as lead firms, control the flow of information. In conventional value chains, there may be no incentives or even disincentives for sharing that information with other participants. But in certain private standards, packers use this information as a means to help upstream suppliers improve their cattle herd to better match the specifications and claims of the PSI. While “improvement” here is defined by the packer’s criteria, suppliers can still gain relative to what they would earn in a conventional value chain. Thus, when packers share the information they control, upstream producers stand to benefit. Another beef producer

explains the value of this information, noting that “our ability to get individual information was pretty critical in helping us identify culling decisions,” referring to which cattle to continue to breed and which are sent to slaughter. He goes on to explain “our ability to get that information on each individual animal, I think allowed us to make more rapid genetic improvement on the female side than we would have been able to do otherwise.” With genetic improvements in his herd, this producer raised higher quality cattle that brought greater profits.

This information exchange among actors is unique to private standard production. In conventional production, lead firms hold information in confidence as a form of competitive advantage. For example, if a supplier has cattle that grade exceptionally well, but does not sell on a grid, that supplier could be making more money from the packer. If the packer were to tell the supplier how good his cattle graded, then the supplier could demand higher prices or elect to sell on the grid, either of which would reduce the packer’s profits. As a producer explains, suppliers can use the information against buyers to demand better prices. When this buyer shared yield grade information with one of his suppliers, his supplier used that information to solicit higher-paying buyers. As he notes, “I mean he’s taking information I supplied to him and he’s using it against me.” Thus lead firms are only incentivized to share information when it produces tangible benefits from the cattle they receive; and is thus a win-win scenario as opposed to a transfer of value from the buyer to the supplier.

## **Discussion**

As research predicts, the governance of private standard beef production is fundamentally different than that found in conventional value chains, given the greater but frequently more “hands-off” control exercised by lead firms and the relatively greater amount of information sharing between exchange partners. These differences reflect the fact that PSIs tend to reinforce

the privileged position of the lead firms that create, implement, and often monitor the standard in question. However, the case of the beef industry shows that PSIs vary in terms of the degree to which they increase drivenness. There are two factors that are relevant here: whether the PSI entails horizontal governances—that is, the degree to which institutions, actors, and networks beyond those in a specific value chain are engaged in creating a private standard; and, whether the PSI requires chain actors to tailor production in ways that limit or preclude their ability to supply other lead firms.

First, as the case of certified Angus beef illustrates, the ability of lead firms to drive the chain is greatly restrained by the need to coordinate with industry associations, along with USDA standards and industry conventions, on what constitutes Angus beef. In contrast, the degree of horizontal governance in all-natural beef is lower. Here, standards are highly dependent on lead firms alone to create, implement, and monitor the standards, without engagement from external actors, with the exception of loose guidelines from the USDA. Lead firms in this value chain garner greater control over chain activities and reap the lion's share of the returns generated by the product marketed to the PSI.

Second and relatedly, drivenness is increased by PSIs that are more tailored and specific to a particular lead firm. As compared with collective PSIs, individual PSIs generally entail greater asset specificity for upstream value chain participants. The governance of all-natural beef programs highlights the importance of asset specificity in contributing to captive exchange relationships and increased drivenness in a chain. The degree to which all-natural programs differ from conventional production and other private standards, as well as from one another, helps position lead firms in an advantageous position over suppliers. Not only can lead firms exert hands-off control that is typical within private standards, but particular firms can coordinate

closely alignment with suppliers that can grant hands-on control over production practices and exchange relationships, such as in on-site staffing and direct monitoring of production practices. The attributes of the private standard also affect governance through determining which stages of productions engage in the standard, as well as the horizontal ties to actors, institutions, and networks outside of the chain. In the case of Angus beef, the private standard refers to the genetic composition of cattle, which is only determined in the breeding stages reducing or eliminating the influence of downstream actors.

Despite the opportunities for increased drivenness by lead firms in private standard value chains, the evidence of increased information sharing suggests the potential to create mutually beneficial exchange relationships even when lead firms exert extensive hands-off – and sometimes hands-on – control. Future research aimed at identifying opportunities to improve producer welfare can target information exchange as a means for producers to capture greater value from the chain and build lasting ties with downstream buyers. However as this study and other research suggest, the continued expansion of private standards may be an omen of expanded control on the part of already dominant lead firms. Although attracting greater profits to the industry as a whole, private standards may pose a threat when there is a lack of consistency and monitoring through an extensive network of value chain actors.

## CHAPTER 7

### EXIT AND CONSOLIDATION IN AMERICAN AGRICULTURE

Over the last 40 years American agriculture and agriculture in many other countries have witnessed a widespread restructuring. Through vertical and horizontal integration, multinational corporations consolidated agricultural production. Particularly in the retail sector, large food retailers such as Wal-Mart and Kroger actively coordinated production from manufacturing to the final point of sale. As described by Hendrickson et al. (2001), these “food-chain clusters” came to dominate the agri-food industry, resulting in a market concentration by the top four processing companies – Cargill, JBS, Tyson, and National – at over 70% in the early 2000’s.

Continuing today, concentration permeates agricultural production as large farms account for an increasing percentage of total production. While the majority of farms still remain small “family” farms, large farms account for a large percentage of total farmland and production and have dramatically increased their share over the last 20 years. In 2011, over 34% of farms contained more than 2000 acres of land. However the average farm size was only 234 acres, indicating the large number of small-acreage farms (USDA ERS 2011). While over half of farmland remains in farms with less than 1,100 acres, large farms account for the majority of production in the U.S. In 1997, even though small farms accounted for more than 75% of all farms, they only produced 7% of all sales, while the top 3.6% largest farms by size produced more than half of agricultural sales in the U.S (US Census Bureau 1999). Thus small farms exist in large numbers, but do not produce high volume. Large farms continue to increase their share of sales, especially as small and medium farms exit the industry, leaving more land available for

purchase by large farms (Buttel and LaRamee 1991). Although there has been some increase in the share of small farms in the U.S. over the last two decades (MacDonald et al. 2013), the vast majority of U.S. agricultural products are produced on large farms. In addition to the concentration in the beef industry at the feedlot and packing segments, other crops like corn, cotton, rice, soybeans, and wheat have witnessed a shift toward larger size farms. Between 1997 and 2007 alone, the median farm size for corn grew from 350 acres to 600, and cotton grew from 800 to 1,090 acres (USDA ERS 2007). Like beef production, hay is one notable exception in which the majority of farms remains small. The median size of hay farms only increased by 20 acres between 1987 and 2007 (USDA ERS 2007).

In a 2001 piece in the *Annual Review of Sociology*, Lobao and Meyer provide a concise overview and analysis of this agricultural transformation. As the authors explain, scholars take three main perspectives: the political economy paradigm, community effects, and household impacts. The political economy view examines the role of technology and markets in encouraging the growth of large farms and the exit of small operators. The political economy paradigm emerged as one of the more important frameworks for understanding agricultural transitions, especially given its ability to explore inequalities within agriculture and within the global agricultural economy. As McMichael and Buttel (1990) note, by 1990 rural sociology mainly focused on the political economy of agriculture. While the political-economic framework highlights the role of markets and capitalist farming in restructuring American agriculture (see Buttel and Newby 1980 and Friedland et al. 1991), it overlooks how political and economic factors operate at the individual and community level. As Lobao and Meyer highlight, the political-economy paradigm “tends to ignore human agency and culture. It says little about how farmers’ choices, beliefs, and political actions shape farm transformations.” Thus I use this

shortening in the political-economy approach as a springboard to examine the cultural forces at play in the beef industry that simultaneously shape economic behavior at the individual and industry level.

Specifically, I use Lobao and Meyer's critique of the political-economy paradigm to explore cultural dimensions of American beef production, including human agency, beliefs, and political actions. As a complement to the previous chapters, which focused exclusively on economic exchange from the perspective of economic sociologists, this chapter explores how economic factors operate in conjunction with individual perception and cultural norms. I unite economic and cultural frameworks to explore how beef producers interpret a growing rate of exit from the industry, as well as explain why many beef producers remain in the industry despite economic hardships.

This chapter begins by outlining four rationales employed by producers to explain their, and others' exit from the industry, based upon ethnographic research: a shift towards the next generation, reduced profits, the inheritance tax, and extended drought. While some of these factors, such as transition to the next generation, have always been present, the combination of these factors appears to increase the likelihood that producers will exit the industry. Next, I explore why producers remain committed to the beef industry despite factors commonly cited as reasons to pursue other activities. Again, the cultural dimensions of beef production plays a significant role, in the form of valuing hard work, raising children on a ranch, and maintaining hegemonic forms of masculinity. Together with the expectation of improved markets in the future, cultural narratives of values and beliefs centering on rural livelihoods are employed by beef producers to rationalize their work in an economically difficult industry.

It is crucial to note that the following insights reflect producer beliefs and not the economic realities of the beef industry. One producer recognized the tension between the narrative told within the beef industry and the economic reality of many producers: “There’s an old story that ag people live like paupers and they die like millionaires, and it’s true. We like our lifestyle, we live like this, we tell you we don’t make any money, but at the end your net worth is either tied up in your cattle or your land or your facilities, and it is.” On one hand, average beef producers faces enormous obstacles to producing profits, and often loses money on the sale of their cattle. However, on the other hand, the value of land and assets continues to grow, adding to the total wealth of beef producers. So while producers can claim low or no profits and very modest income, they may in fact have substantial wealth. Nonetheless, the perceptions held by beef producers are very real and shape their economic decisions, lifestyle choices, and the entire beef industry.

### **Exit from the Beef Industry**

Exit from U.S. agriculture is relatively common, with nearly 10% of all farms going out of business each year (Hoppe and Korb 2006). The total number of farms has remained relatively stable, given that the rate of new farms entering the industry approaches the rate of exit. However, the demographic characteristics of these farms exiting the industry differ from those entering. The farms most likely to exit the industry are small in terms of sales, have younger owners, and/or are owned by a person of color between 55 and 65 years old. In the beef industry in particular, cow-calf operations are most likely to exit given the small level of sales and age of the operator.

Research shows that beef producers elect to leave the industry for an array of economic and non-economic reasons. Some producers, especially cow-calf producers and stocker-

backgrounders, may choose to exit in lieu of adopting new technologies that are both costly and inconsistent with traditional practices (Barkema et al. 2001). These same sectors of the value chain suffer from generational turnover when younger generations do not want to take over the family business or when the cost of doing so is seen as too great (Hart 2003). Research on the California beef industry highlighted the role of land prices and the cost of regulation in encouraging exit from the industry (Andersen et al. 2002), while others point to a decline of beef consumption throughout the U.S., and in turn a shrinking market (Otto and Lawrence 2001)

Most commonly, literature cites economic factors driving exit from the industry: the rising cost of production, including new technologies; low market prices for cattle; and competition with more efficient producers. In this chapter I explore how beef producers explain exit from the industry beyond the simplified explanation that it no longer proves profitable. I found that beef producers employ nuanced explanations of the forces encouraging exit from the industry that include cultural, environmental, and political-economic factors.

### **Exit Rationale 1: Generational Shift and Urban Encroachment**

One of the most common agricultural problems mentioned by ranchers was the rising age of operators, in conjunction with children who did not want to take over the ranch or farm when other job opportunities were available. With the average age of operators today at over 60 years old, many participants noted fears about who would take over when they died. Ranchers gave several reasons why children did not want to take over the operations. First, many noted a “generational shift” in which children raised in a ranching family did not have an interest in agriculture. According to a feedlot manager, even though she raised three boys on their farm, “they’re just not that interested in it... We didn’t raise cowboys. There’s just more stuff out there,

there's more things to do and they just aren't [interested]." Additionally, ranchers frequently noted that children today do not want to do the work required of ranching. As one feedlot employee explained, children today "don't know what a hard day's work is." The type of work required in ranching was seen as undesirable by children, who had other, often better, options. "There's not a lot of folks who want to work. They'd just as soon go to college and get a good job. Haven't proved anything," explained a feedlot manager. Going to college and getting a job is not seen as the same type or value of work demanded in ranching. The manual labor, long days, few days off, and tough weather set ranch work apart from that of non-agricultural industries. Another feedlot manager explained it as "a generational transition" in which "you've got fewer and fewer people born every day that want to do that kind of work." Often respondents compared agricultural work to "town" jobs such as banking, finance, or "9 to 5's." The president of an industry association described how "it looks better to just go to town and get a job." He continued to explain that ranching was "too hard of work" for many and told the story of his childhood friend who decided to work for Time Warner instead of on a ranch:

He went to fiber-optics school, he did not want to go home and take over his family operation, didn't have any desire to do anything with cows or corn or nothing cause it was too hard of work... There's a lot of kids that are kind of going down that road. They aren't going into animal science or ag econ, or crop science to come home and take over the place because it looks like it's easier to just go to town and get health insurance.

This contrast between agriculture and "town" jobs was mentioned frequently in interviews with ranchers. Some ranchers even used "going to town" as a euphemism for going to college, getting a non-agricultural job, or moving out of rural areas. As another association president similarly explained, "it looks better to just go to town, and get a job, work 9 to 5 or 8 to 5 or whatever that is. It's easier, cause agriculture is an all-the-time everyday job." This town-rural dichotomy hints at growing tensions between full-time agricultural producers and others who

want to work off the farm. Scholars in rural sociology often cite urban encroachment in explanations of agricultural transition, focusing on impacts on land prices and the dilution of rural communities (Lopez et al. 1980; Newburn and Berck 2006). Ranchers emphasized encroachment in terms of land, but also as a form of a cultural clash. For example, a ranch owner vented that:

Housing development went up across the road, and [my wife] says you keep waving at them and they don't wave back. And I said, look, they moved to the country cause they like the country. By god they're gonna learn how to live in the country, they need to learn to wave. People in Mercedes and Cadillacs just don't wave do they?... learn to wave, it's not that hard to be friendly.

This rancher went on to express his concern about the behavior of new residents, as he goes on to say, "When it gets too crowded out here you start acting like city people and when you start acting like city people you start eating your young." Although his concern is about crowding in rural communities, he emphasizes the behavior of new residents, as opposed to the loss of land. Participants also noted urban encroachment as a problem related to land use. Increasingly, suburban sprawl abuts rural areas, creating an intermingling of residential development with agricultural property. As one rancher observed:

You'll just be going along and there'll be high rises and all kinds of stuff, then boom! There are cattle as thick as can be standing right there next to the streets. And what's going on is that somebody comes in and buys another chunk of that ground. If you're a rancher you're like man, this ground is worth a lot, they're buying it by the foot or the yard. I normally sell it by the acre and I have some debts I need to pay down, I don't know if I can pass this up. So they sell that ground and then they put another set of buildings or houses and it keeps going out and out....Every time a new house goes up and the people move into suburbia further and further out, we're losing agriculture. So we'll never get that land back.

As discussed below, agricultural producers face enormous economic pressures. Thus, the opportunity to sell small portions of land for quick money becomes appealing, even to ranchers who understand the detriments to rural communities of selling their property.

### **Exit Rationale 2: Limited Profitability**

A main reason for exit from agriculture, according to ranchers, is the limited profitability in the beef industry. Not only were there several new obstacles to making significant profits as a rancher at any stage of production, but also profitable ranchers still saw only a minimal profit margin. In any agricultural industry, especially ranching, the capital investments required in terms of land, machinery, and infrastructure are quite large. The land necessary to maintain a small herd of cattle alone might cost more than the money one could make off the cattle. The majority of ranchers obtained land from previous generations that passed down both the land and the operation. To begin a new operation and purchase the land today would be nearly impossible, as a senior beef procurement manager for a large packing plant explained, “If you went out today and tried to begin a ranching operation from scratch, land values are so high beyond what the economic value of a cow-calf operation is, you’d never get a banker to loan you money.” A feedlot manager echoed this sentiment, claiming “It’s extremely tough for a young person to come in and get started on their own due to the high cost.”

However, even ranchers currently in the industry struggle to make a profit. When asked how his feedlot stayed profitable in the face of rising feed prices, a feedlot office manager answered, “Who said we were making a profit?” Profit is not a given in the beef industry. Some years ranchers take significant losses, especially when input prices are

high; they plan on making up losses in following years when input prices drop. Even in successful years, however, ranchers make very slim margins on their cattle. As an association president explained, describing the assets necessary to operate a ranch:

No businessman, no CEO in their right mind, would ever want to be a part of this system. It does not make financial sense. The guy who runs AIG and has his little parachute would come here and say you people are stupid. Why would you ever want to do all this work, put all this capital into this product and get a 1.5% return at the end of the day? You are stupid. The people up at Apple, Steve Jobs, he's making money hand over fist. He doesn't own any land, everything is high value, high return. You are crazy for what you are doing for a 1.5% margin and you think you're successful. You are stupid. You have to be in cattle for a different reason.

Ranchers echoed the sentiment that there is little money to be made in the cattle industry. Instead of profit, the main motivation lies elsewhere, such as the value placed on family, connection to the land, or a passion for the business. However, ranchers also recognize that a single operation could not support multiple families, leaving many children to select non-agricultural careers. A procurement manager at a packing plant explained, “[I] grew up in an agricultural background. We don't do that for a living because there wasn't a living to be made.” Similarly, a lead member of a beef association summarized the lack of opportunity by claiming that, “there's not enough room for all of us to be on the ranch.” Although some family members might want to stay in agricultural production, a single operation does not produce enough income to support an entire family, let alone multiple families. Instead, these family members found work in the beef services sector, such as working for an industry association or a third-party auditor, or as buyers for large feedlots and packers. While their family members worked directly on a cow-calf operation, for example, these individuals could not be supported by the single beef operation and were left to find employment elsewhere. In these cases, many individuals continued to raise a handful of cattle for their families' beef consumption, but

did not operate as full time beef producers as a livelihood. Instead of exiting the industry entirely, they remained involved in a beef-related job that allowed them to contribute to the industry and raise cattle on the side.

### **Exit Rationale 3: Inheritance Tax and Excessive Regulation**

For families that want to pass on ranching operations to their children and for children who want to inherit the family ranch, enormous obstacles exist, the largest of which is the inheritance tax, which was commonly referred to by my respondents as the “death tax.” The inheritance tax is a steep tax on any assets, including property, inherited upon the owner’s death. In the case of ranches, younger family members take ownership most commonly through inheritance, especially given that older members often continue working as long as they are physically able. Additionally, the tax is especially severe for ranchers given that the majority of their wealth is in the form of property assets. As a ranch becomes increasingly profitable, it is common for owners to invest in expanded production in the form of new property, new infrastructure, or new machinery. Thus it is not uncommon for a rancher to have the majority of his wealth in the form of assets that are taxable upon his death. When this rancher dies, his heirs will have to pay a steep tax on these assets, and in turn lose a large percentage of the overall inheritance.

While the tax amount has varied over the last ten years, currently any amount over \$5.25 million is taxable at a rate of 40%. Ranchers commonly cited this tax as a severe problem in the industry and as a major obstacle to passing operations on to younger family members. When asked what major issues the beef industry faced, one feedlot operations manager answered:

The inheritance tax. So many of these ranches are worth millions of dollars they’ve never ever traded hands, and you know, grandpa dies and gives it to the son and he’s got to sell

half of the ranch in order to pay taxes cause he has no money. It's not like they're sitting on cash, they're sitting on a very valuable asset. But they don't have money to pay for anything...the ranch is worth a lot but you'd never access that money until you sold it, but it never gets sold, it gets passed on, passed on. It's a shame to see where they sell the place and the kids go, well, we don't have the money to pay the taxes so they sell part of it and go on.

Even for family members interested in continuing the ranching operation, the inheritance tax may make it economically impossible, or at least require the sale of part of the operation. In combination with the lack of interest among children and obstacles to maintaining a profitable business, the inheritance tax strongly discourages agricultural producers from remaining in the industry.

Beyond the inheritance tax, ranchers also cited government regulation as a significant problem in maintaining an operation. Ranchers face numerous regulations, such as environmental regulations on wastewater from cattle pens, air pollution controls on grinding corn for feed, and oversight on all antibiotics. Compliance with the numerous regulations can be costly both in the time necessary to complete documentation and paperwork and in the infrastructure, such as the construction of wastewater ditches. While these regulations are standard throughout the beef industry as well as in other agricultural industries, ranchers viewed them as an impediment to maintaining profitable businesses. Prior to conducting an interview with a cow-calf producer, the owner warned me that I probably would not like his politics. When I later asked why he thought this, he explained that it was because of his views on regulation:

Well the regulations that these people dream up are just, they're just incredibly expensive and add to the cost of production and really they don't accomplish a whole lot because most everybody who's in the business, and I'd say 100% of the people I know, do everything the way it's supposed to be done because they live off the land and the production that they have is their livelihood. So a lot of the times the government will come up with some sort of regulation that ends up costing you thousands of dollars to implement, especially in the feedlot industry. And it doesn't do anything except satisfy somebody that went to school for 20 years that thinks he knows what's going on.

This cow-calf producer went on to explain that he found environmental regulations to be the most problematic. This sentiment against environmental regulation was widespread among participants, who repeatedly emphasized that ranchers were the best caretakers of the land and did not need government oversight. As a feedlot manager explained, he is required to control dust especially during dry summers, however “we’ll do the best we can but if you want us to do that, that means we gotta pump water out of the ground to keep the dust down and we don’t think that’s very responsible. So you can see regulations like that really have a negative impact on the business...it’s not sustainable.” Another small rancher supported this view of environmental regulations, stating that “there’s a lot of people who want to regulate the crap out of agriculture and they don’t realize that eventually that’s gonna start putting smaller guys out of business.”

Ranchers not only despised government regulation but also expressed a wish that the government would cease all involvement in agricultural markets. When asked what they imagined as the ideal situation for government regulation, many ranchers answered that no government involvement would be ideal, with the exception of food safety. For example, one feedlot manager answered the question “what would you like to see happen in government for your benefit,” by exclaiming, “Get the heck out of the market place and just keep the food chain safe. I realize that’s maybe opening a Pandora’s Box to get that simple, but the government can’t do anything simple. They gotta cover their ass just like everybody else does. It just flows downhill like all the crap in the pens.” A cow-calf producer similarly said, “I wish the government would get out of all of it.” The distaste for government stands in stark contrast to the substantial government benefits receive through subsidies for corn, crop insurance assistance, and disaster support. In the U.S. between 2010 and 2012, any farmer who produced corn received loan assistance at a rate of \$1.95 per bushel and direct payments of \$0.28 per bushel

(USDA ERS 2014). These subsidies can account for a large portion, if not all, of a farmer's profits, making agricultural producers entirely reliant on government support programs.

While the anti-government sentiment appears contradictory in light of the heavy subsidization of the industry, beef producers suggested that financial assistance represented a different form of government intervention that was more acceptable. Government intervention was despised when it applied to regulation and on-farm practices; it violated the social boundary of a farm that was controlled, managed, and operated according to the male head of household. On the other hand, subsidies and financial assistance were acceptable and largely overlooked as a taken-for-granted attribute of a farming livelihood. Beef producers rarely discussed subsidies, even when prompted. Yet new and growing regulations regularly sparked passion from interview participants who expressed stronger opinions on the topic and believed they held the ability to effect change in this realm largely by electing a different president of the United States.

#### **Exit Rationale 4: Drought**

The interviews with ranchers were conducted between 2012 and 2013, immediately following a severe two-year drought. Throughout the drought, corn and feed prices for cattle reached a record high, and water was in short supply. In turn, the cost of production for beef producers at nearly all stages of the supply chain increased dramatically and greatly reduced profit margins. In many cases ranchers lost money throughout the drought years, with more economically well-off operations enduring through the drought until production costs decreased and they could once again make a profit. However many ranching operations already operating with small profit margins could not survive the period of extended drought. As ranchers frequently explained, they were forced to sell a portion, if not their entire herd during the

drought, if they could not afford the feed necessary to sustain the cattle. One cow-calf operator explained that “a lot of ranchers have cut their herds, 20, 40, some places half, and in some cases they’ve just gone out of business. Especially the older ranchers, they said we’re not gonna go through this drought thing cause it takes a while to build a herd.” This rancher went on to explain, “when you don’t have water, and hay’s gone from \$4.50 a bail to \$14, \$15, \$16 some people I’ve heard are paying like \$17 a bail for hay, you just can’t do that.” While this operator was able to maintain the size of his small herd, he recognized that he may have to downsize or sell entirely in the future: “I hope we don’t have to sell all of them, but it could come to that and we could just grow hay... I said we would’ve done a whole lot better this year if we would’ve gotten rid of the animals and just sold hay.” Even ranchers who did not sell their entire herd struggled to stay in business given smaller sales from a smaller herd, which takes years to rebuild. Brian Wales, a cow-calf producer, experienced severe losses from the drought and described the effort it took to build his herd and the emotional stress for ranchers who had to sell:

We don’t want to sell them. We’ve worked really hard to build a cow herd and we don’t want to sell them so we’ve had to get creative. We’ve tried to keep our cow herd together without dispersing and I’ve watched other people disperse and it’s not just financial, it’s mental. It just tore ‘em up.”

The drought not only caused financial strain leading to the sale of operations and exit from the industry, but also caused mental strain for ranchers. Even for ranchers who did not have to sell any cattle, the drought produced doubts about a future in farming. A feedlot manager explained that her operation did not have to sell any cattle or shrink its herd size, but the drought led owners to consider the possibility of exiting the industry in the future. With lower profits during the drought period, the feedlot owner sought additional income: “[Ranching] used to be primary income, now it’s kinda like a little side thing.” When asked about the operations’ future plans,

she laughed, answering, “It wouldn’t hurt us just to let it retire.” Thus indirectly, the drought encouraged off-farm income that facilitated the option to retire the operation.

### **Industry Exit: Why Now?**

The rationales described above are not unique to this moment in time; drought, generational shift, urban encroachment, lack of profit, and government regulation have occurred throughout the last half century, if not longer. However these pressures have become more acute and together now produce disincentives powerful enough to encourage beef producers to exit the industry. For example, the droughts from 2008 to 2010 and 2010 to 2012 were some of the worst in decades, both in their severity and geographic extent. In 2012, the total number of active beef operations reached a low of 728,000, down from 900,000 operations – a 19% decrease – only 25 years earlier (USDA NASS 2014). Although mergers and acquisitions produce a decline in the total number of operations, the industry also witnessed a decrease in the total number of operators.

Simultaneously, the U.S. economy faced a recession that threatened consumer markets for beef and increased production costs. Additionally, although the estate tax was repealed in 2010, the repeal only lasted a single year. When it was reinstated in 2011, the exempt amount of an estate was increased from \$3.5 million to \$5 million, and the maximum tax rate was lowered from 45% to 35%. However, the tax must be approved by Congress each year, which leaves many farmers and ranchers anxious about future changes. Even at the current level, the increased price of land, in part due to urban encroachment and subsequent development projects has drastically raised the total taxes paid under the estate tax. As land values rise, the price of inheriting a ranch grows even as the amount of land stays constant.

The economic pressures today may not be new, but they are intersecting in a unique way which is creating a heightened level of anxiety surrounding the future of the beef industry, as seen in concerns regarding the estate tax. The estate tax has existed for nearly a century, and while the amount taxed has changed somewhat year to year, the overall impact on agricultural producers is not dramatically different today than it was in previous eras. While farmers are disproportionately affected, given that their large land assets continually increase in value, the estate tax acts as a catalyst for industry exit due to the generational shift occurring at this particular moment in time. The average age of U.S. farmers in 2007 was 57, but this number has increased every year since 1974. The industry now faces a moment when many ranchers are reaching the point of retirement, often not by choice but by the physical need for aging ranchers to cease physical labor. At the same time as ranchers are reaching the age of retirement, the children they planned to pass their operations on to are choosing careers outside of agriculture. Thus, much of the concern around the estate tax is not the tax itself, but anxiety over who in the family, if anyone, will want to take on the investment. Moreover, the investment seems particularly daunting in light of record low margins in the industry and long and severe periods of droughts that have led to record high production costs and the smallest cattle herd in history.

Although these pressures may resemble previous epochs of economic hardship in American agriculture, together they produce a newly hostile landscape. The financial obstacles of taxes, regulation, and low profits stand in stark contrast to the off-farm possibilities and tempting wealth from selling outright; the factors pushing producers out of the beef industry are met by equal and aligned pull factors greater than in previous eras. As Brown and Weber (2013) reveal in their research on non-farm employment in 2010, 91% of farm households have at least one family member working a non-farm job. A New York Times op-ed article by Bren Smith, a

farmer in New York, highlights the need for off-farm employment and the pressures pushing ranchers out of the industry. Smith, who titles the article “Don’t Let Your Children Grow Up to be Farmers,” (2014) emphasizes that farming is increasingly an occupation completed after a day’s work at other jobs. Smith, noting that the average farm income in 2012 was -\$1,453, explains “the much-celebrated small-scale farmer isn’t making a living. After the tools are put away, we head out to second and third jobs to keep our farms afloat.” Smith’s experience highlights the unique and ironic juncture of today’s farmers and ranchers: pushed out of agriculture to other jobs in order to financially support failing farms and ranches. While the economic hardships of agricultural production are not new, the ability to work additional jobs is. Farms and ranchers can now commute to nearby cities, as well as work virtually, thanks to urban encroachment in rural areas and the development of communication and transport technologies. But one might wonder why a farmer or rancher would go to some great lengths to save a failing farm instead of simply selling the land. In the remainder of this chapter, I explore why beef producers remain committed to the industry despite these significant hardships.

### **Enduring the Hardship: Why Producers Stay in the Beef Industry**

Despite the economic obstacles to maintaining profitable businesses, beef producers persevere and remain committed to the industry. A major rationale behind this commitment is the cultural values that beef producers share. Their economic action is “ideationally embedded” within their cultural values of family, work, masculinity, and supply-demand economics. As Somers and Block (2005) explain, ideational embeddedness refers to the notion that ideas shape, structure and change markets. Drawing on Polanyi’s analysis of markets as embedded within society, Somers and Block elaborate how ideas can exert influence on the social, economic, and political understanding of markets. Even market reforms do not “un-embed”

markets from the influence of ideas, but instead re-embed markets in the context of different ideational systems. In the case of the beef industry, ideas regarding hard work, providing for family, the forces of supply and demand, and masculinity shape beef producers' decisions to remain in the industry despite economic hardships.

We would expect these particular cultural ideals to influence agricultural producers. As Bell (2004) reports, gender and gender performance played a large part in the daily lives of Iowa farmers. Farmers regularly perform hegemonic masculinity especially through refusing help, romanticizing hard work, and putting down other men. Bell's findings directly align with my observations in the beef industry. As Bell notes in his interactions with one farmer named Dale: "My validation of his approach to farming was also a validation of him as a man, for his is a very manly style of farming. He may use old equipment but he's not afraid of the hard physical work it entails... He takes rugged satisfaction in his commitment to farming his own way" (Bell 2004, p. 99). As Bell explains, farming, hard work, and independence are part of the farmer's performance of masculinity. In the remainder of this chapter I explore how values, including hard work, independence, family, religion, and masculinity, operate within the beef industry and examines how beef producers employ these cultural ideals as a reason for staying in the beef industry despite the economic hardships

### **Continuity Rationale 1: Family**

The National Cattlemen's Beef Association annual conference is the largest meeting of beef producers in the U.S. Thousands of beef producers, industry members, and college cattle club members come from around the country for four days of meetings and presentations. One of the most renowned parts of the conference is Cattlemen's College, a full day dedicated to helping

producers improve their profitability via seminars addressing leading issues in the industry. At the 2014 conference, the Cattlemen's College included a series of sessions dedicated to ranch management. Of these sessions, all but one focused on how to manage the family aspects of ranching. For example, one session was titled "Stop the Fighting on the Way to the Funeral Home! Avoiding potential family squabbles that can break up business." Another was similarly titled, "What Were the Smartest Things Our Families Did to Maintain Ranch Profitability, Sustainability, and Family Values? Passing on the legacy and heritage of ranches."

These two conference sessions highlight the significant role of family within the beef industry. As family-owned businesses, beef operations must consider how to pass on the business to children, how to manage an inheritance among siblings, and even how to define who is family and who is not. At one of the family-oriented sessions, the issue of prenuptial marriage arrangements was discussed, prompted by an audience member's question to a panel of leading beef producers. In most businesses the marriage arrangements of the owners, or even the owner's siblings, do not influence how the business is run or long-term planning. However in an industry like beef in which almost all operations at the cow-calf stages are family-owned, such issues can determine whether an operation remains successful for decades to come.

Despite the slim profit margins most small beef producers negotiate, many elect to stay in the business in order to raise their families on a ranch. In nearly every interview with cow-calf producers or stocker/backgrounders, participants explained at length how difficult it was to make a profit in the business, citing the reasons noted above. After they listed the numerous reasons why profit was nearly impossible, especially in drought years, I asked why they continued to stay in the business despite these financial losses. One of the most common answers participants provided was that they wanted to raise their children on the ranch, given that the ranching

lifestyle provided them with life-lessons they would never learn outside of the ranch. As a cow-calf producer in partnership with her husband, explained:

One of the greatest things about it that I'm always thankful for is the lifestyle that it provided our family when the kids were growing up and stuff...I just feel like it's added a dimension to our family that is really wonderful. I mean they get the circle of life thing, they have seen a lot of different kinds of animals...give birth and seen things die and the struggle that you go through for both and I just think that's an invaluable lesson for these kids. They're so well rounded and I'm so proud of them and I feel like it's because of this agricultural lifestyle, it was like a blessing for our family.

Other beef producers echoed this sentiment, referring to the "family-aspect" of ranching that allowed the owners to raise children in an ideal way, on the ranch. Another producer emphasized that he would not raise his children in any other way. Although he did not mind if his children did not want to take over the ranch when he was too old to run it, he repeatedly noted that he refused to raise his children outside of the agricultural lifestyle even if it was hard (if not impossible) to make a profit for several years at a time.

Beyond wanting to raise children in the agricultural lifestyle, others continued in the industry in order to keep the land and ranching operation within the family. An association director, who also had his own herd of cattle explained:

My dad wants to hand the place over to my brother and I, and my brother and I, we have kids and we want our kids to have that place. Like I said I'm the 6<sup>th</sup> generation on that place, I want my little girl, or my little boy, or my brother's little boy or his little girls, somebody to really want to come back and take this place over and keep it in the family, and keep doing what we do. Having horses and cattle, and growing up raising a family and those kinds of things. That's really what it's about at the end of the day.

This same producer went on to note that this sentiment was unique to members of agricultural industries: "If you don't have any background with beef cattle, a lot of folks who I talk to they don't understand the connection to the land and the animals and the family piece. Cause there's no financial reason, even at the feedyard level, to really want to be in cattle." As this producer

concludes, the motivation to remain in the industry is not a financial one, but instead is rooted in the cultural ties to land, animals, and family.

### **Continuity Rationale 2: Value of Farm Work**

While at the National Cattlemen's Beef Association (NCBA) annual conference, the vast majority of presenters noted at some point that they wished to die with their boots on. This statement expressed their passion for farm work as well as their aversion to the idea of retirement. Many presenters even argued that a rancher would die as soon as s/he retires given, the importance of work for maintaining health and longevity. This belief highlights the idolization of agricultural work among beef producers. It stands in stark contrast to other industries in which retirement is the status quo, complete with large retirement packages. Among the life lessons that children raised on farms learn, perhaps the most important is the value of hard work. One feedlot manager argued that the respect his children learned for hard work gave them an advantage in life over many others. As he noted, "There's probably lots of places they could've gone and made more money. But at the end of the day they both get along much better than a lot of their contemporaries do, but I think mostly it's cause they learned at an early age that you gotta work, there's no shortcuts." Knowing that someone was raised on a ranch carries value in the industry, and represents an understanding of "hard work." A herd manager at a feedlot, responsible for hiring cowgirls/boys, explained that she looks for people who understand the type of work only learned by being raised on a ranch. She says:

I'm more willing to hire those people from the Midwest because I know they grew up in hard working families... they grew up milking cows or doing 4H stuff, they've always been involved with it and they know what good work is. They know what hard work is. Versus some of the kids that are from Colorado and the surrounding states, maybe not necessarily Wyoming and Nebraska, but you get farther and farther displaced from agriculture so they don't know what a hard day's work is.

As noted previously, the distinction between city dwellers and ranchers is made clear and carries significant social meaning. If raised on a ranch, you are assumed to have certain values that include a hard work ethic and an understanding of the work required in the beef industry.

The distinction between agricultural labor and other industries can also be seen in the popularity of the Peterson Farm Brothers' YouTube videos. In these videos the three brothers, working on a ranch, cover popular songs and replace the lyrics with ones about farming. Two of their most popular songs are "Chore" (covering Katy Perry's "Roar") and "Farming Style" (covering "Gangnam Style" by Psy). In the first of these, they highlight the type and difficulty of the work they do for their daily chores. The second of these, in which the main line is "working farming style," discusses the importance of agriculture and families working together to provide food to the country. The Peterson Brothers were invited to the NCBA conference to be surprise musical guests given their popularity within the agricultural community. In their introduction by the president of the NCBA, the teenage boys were praised for advocating for the industry, and received extra cheers when they mentioned their faith in God.

### **Continuity Rationale 3: Masculinity and the Provider Role**

Hegemonic masculinity is pervasive in the beef industry, especially given that the vast majority of beef producers are male. In my data collection process, men regularly referred to me as miss or ma'am, performed acts of chivalry, and made jokes with other men regarding needing to impress me as a woman. One participant went as far as to ask me out to dinner and sent a Christmas card in an attempt to begin a romantic relationship. It is widely recognized that the beef industry is dominated by men, so much so that the vast majority of operations I studied were owned by men, and these men referred to other members of the industry exclusively as 'guys.' In

total, members of the beef industry used the term ‘guy’ or ‘guys’ over 350 times during the course of my interviews, regardless of to whom they were referring. Although women are increasingly taking on roles within the beef industry and agriculture more broadly, the men I interviewed still viewed it as a ‘man’s world.’ In an interview with two beef producers, one male and one female, the woman cited a recent report on women’s entrance into the industry: “I think more women are getting into ranching too. I heard a report on the radio the other day that [...] younger women are coming into the industry,” to which the male producer replied, “I would doubt it. You can’t believe everything you hear in the news.” However as USDA statistics show, the number of women operated farms doubled between 1987 and 2007, with nearly half of those specializing in grazing livestock such as beef cattle (Hoppe and Korb 2013).

The pervasive commitment to hegemonic masculinity intertwines with the ideals of hard work and providing for family. Although producers rarely directly stated that their reason for staying in the industry was due to their gendered ideals, gender was employed in conjunction with hard work and providing for family to suggest that masculinity played some role in their decision-making. As part of this, male respondents strongly rejected government assistance and regulation as though it posed a threat to their ability through hard work to be the exclusive provider for their families. Hegemonic masculine ideals permeate the industry such that men employed these ideals to explain their choice to work in the industry, while never directly referring to their gender or masculinity. For example, a feedlot manager employed masculinity as a way of interpreting his choice to remain in the industry, and even the particular sector he worked in. He explained his choice to work at a feedlot in these gendered terms:

The ranching lifestyle is a good lifestyle, but it doesn’t pay very well. I could probably handle it but my wife probably couldn’t, so this allows me to work with cattle and people... and be able to provide a better living to my kids than I grew up with. So that’s why I’m here.

Not only does this manager suggest that ranching is better suited to men, given's women's inability to 'handle it,' but by working in the industry he is able to provide for his family through hard work unsuited for women.

Moreover, male respondents spoke of government intervention as a threat to their autonomy. While beef producers rarely noted the extensive government subsidies central to the industry, they complained about efforts to intervene in on-farm practices. For example, male respondents commonly complained about environmental regulation and animal-welfare oversight. These men claimed to be stewards of the land and animals, and attempts by the government to intervene were interpreted as slights or insults, which suggested their weakness or inability to run a successful operation. Men appeared threatened by the physical transgression of government support and regulation on to their land. When asked to name the biggest obstacles to profitability, one cow-calf producer explained, without hesitation, "government intervention, they're either after water or EPA or some kind of regulation, we're about sick of it." He goes on to explain how hard the drought has been:

The drought has been devastating, it's cost a lot of cow herds, and they need to be rebuilt because right now we're at an all-time low... I mean other than that we're not asking for any favors, we're tough people, we can handle the ups and the downs... we can live with the economic issues; it's just keep government out of our hair and let it rain and we'll be fine.

In this statement the cow-calf producer recognizes the need for government assistance in drought recovery, but simultaneously expresses frustration at government intervention.

Although not directly noting this assistance as a threat to his masculinity, the producer touches on other aspects of hegemonic masculinity to which government assistance poses a threat including, independence, hardiness, and merit. In so doing, beef producers resist what they perceive as the direct hand of government in shaping how they manage on-farm practices. Beef

producers view government as an intrusion into their sphere of life and view government intervention as unacceptable, undesired, and unnecessary. Another beef producer aggressively reinforced this idea that although beef producers are the best caretakers of the land, government intervention suggests otherwise: “we’re the best caretakers of the land – we don’t need help. We certainly don’t need help from government.” Comments such as this were most often made *not* in a response to questions about regulation or government intervention, but rather questions about obstacles to profitability or changes they would like to see in the industry. The context in which these responses arose is important to understanding the degree to which anti-government, anti-regulation sentiment is at the forefront of beef producers’ thinking.

Another cow-calf producer emphasized how it seemed that government doubted the ability of beef producers to take care of land and animals, explaining that the Environmental Protect[ion] Agency seem to have this idea in their head that ranchers or farmers abuse or misuse their land or their cattle...it doesn’t pay to do that, it doesn’t make any sense. If we don’t take care of the land or the cattle then they don’t pay for us.” Beef producers view themselves as the best caretakers of the land, and any threat to their control threatens their masculinity by insulting their knowhow and skills at ranching. The threat to their masculinity is enhanced given that ranching operations provide for families that live on the ranch and for children who will later inherit the ranch. Thus government intervention not only threatens the masculinity of beef producers as owners and ranchers, but also as fathers and providers.

This threat is compounded further by the common Christian beliefs held by beef producers that idolize the male farmer as put on earth by God to work the land. Perhaps most famously seen in Paul Harvey’s 1978 speech to the Future Farmers of America, the intersection between religion and farming has deep roots. In his 1978 speech, Harvey, a famous radio

broadcaster, explains that God created farmers to be caretakers of his newly created world. The speech emphasized the need for farmers to be both gentle and strong in various aspects of farming, from birthing calves and doing manual labor, to caring for his neighbors and his wife.

Most notably the speech ends by describing the type of caretaker God desired:

Somebody who'd bale a family together with the soft strong bonds of sharing, who would laugh and then sigh, and then reply, with smiling eyes, when his son says he wants to spend his life 'doing what dad does.' So God made a farmer.

As epitomized by Paul Harvey's speech, farmers' masculinity entails a combination of caretaking for the land, family, and God. If a beef producer decides to sell his operation, he fails to uphold the masculine ideals entangled in ranching, and in turn disappoints his family as well as God. Thus enormous pressure exists to remain in the business, even if when it is not profitable, in order to fulfill one's masculine duties to land, family, and religion. In the beef industry the dedication to uphold this masculinity is seen in numerous ways, including in the literal words of Paul Harvey. In 2013, the Dodge Ram truck became the official car of the National Cattlemen's Beef Association and together they ran a Super Bowl advertisement featuring Paul Harvey's speech. At the 2014 NCBA annual conference, this Super Bowl ad was shown as part of the opening ceremony, and free posters with the full transcription of the speech were given out to the thousands of attendees.

#### **Continuity Rational 4: Faith in the Forces of Supply and Demand**

Agriculture is one of the most heavily subsidized industries in the U.S., but beef producers see their economic world as driven by supply and demand. In-depth interviews revealed that beef producers have a strong faith in the power of supply and demand to determine

how markets operate, and to solve ongoing economic issues. When asked to discuss the problem of high feed costs, one feedlot manager explained:

As far as getting cattle in here and keeping the yard full, there's not really anything different there than what's been going on for years. And I doubt there's anything coming down the pike that will change that, except the herds are getting smaller, the number of producers are getting smaller, agriculture is one of the few industries left in the world that is strictly supply and demand driven. Car manufacturers don't, they do to a certain extent, but their supply and demand is not a problem. They know how many cars they're going to make, and they're going to make them whether they sell them or not. If they wind up at the end of the year, they have a sale. I can't do that.

This same feedlot manager went on to explain that his operation lost money when selling cattle to the packer. I asked if the feedlot could negotiate on price at all, given that packers rely on a steady supply of cattle from feedlots. In answering, he reiterated the role of supply and demand in agriculture: "The price is set for us. Now we can negotiate up to a certain point, but usually it's to the down side. You know, there's a top side but it's a day to day thing too. Strictly laws of supply and demand. Today's pricing is gonna be different from tomorrow pricing unless we have it set down in writing and now we use the futures markets." Another feedlot manager agreed that the price at which he sold cattle was dictated by supply and demand. In determining the price with packers he explained:

Think about it this way, the more forgiving the packer is gonna be on a larger amount of contractible cattle, supply and demand, so you go to the packer with thousands of cattle throughout the year and they can get a for-sure kill, that's less cattle they have to buy live, they're going to be a little more lenient.

Other beef producers at various stages of the value chain cited supply and demand in determining their economic fate. A cow-calf producer, when asked how he would manage his operation if the drought continued, answered, "I think they'll also be a lot to do with the economy and the demand for beef because right now supply is short but demand is still trumping, as far as prices go."

Beef producers strongly believed economic misfortune could be turned around simply by a change in “supply and demand.” If consumers ate more beef, and packers wanted more cattle, then the prices would change and fix the economic burden of drought, high corn prices, and high operation costs. Despite little evidence that increased demand supported their profits, beef producers drew optimism from the simple concept of supply and demand economics that encouraged them to remain in the industry. As one association leader explained when asked to explain why he thought ranchers preferred auctions over other sales methods:

It’s this fundamentally instilled belief that the market works. That supply and demand works. And if they differentiate themselves and have a superior product that they are going to get a bigger share of the money per animal that day, any given day, then their neighbor... they just really believe [markets] work.

However, it is striking to see this strong belief in an industry highly bolstered by government interventions in the form of direct subsidies and insurance discounts, among other programs. Producers frequently and almost religiously cite supply and demand as natural and inevitable forces, as if these are unconnected to the plethora of government interventions affecting American agriculture. Despite direct engagement with agricultural support programs, beef producers appear ignorant as to how the beef market is bound up with and constituted by government intervention that creates the appearance of a ‘free’ market. It is not that some form of a free market exists in which beef producers enact exchange in certain instances and not others, but instead at all times, even when citing the role of supply and demand as a “pure” market mechanism shaping the industry, beef producers operate within a highly regulated and structured economic environment.

## Discussion

Today, beef producers rest at a unique juncture, caught between the economic pressures to abandon the beef industry and their cultural commitments to family, tradition, and agricultural livelihoods. As scholars of modern agriculture note, beef production has become increasingly consolidated at every stage of production, but especially among feedlots, packers, and retailers—the most capital-intensive segments with the highest barriers to entry. This consolidation is further spurred by new pressures that encourage exit from the industry; not only has drought once again plagued beef production, but beef producers have simultaneously faced increased threat of urban expansion, increased land prices, and competing opportunities for the next generation. Despite these obstacles, a surprisingly large number of beef producers, especially small-scale operations, remain in operation. Given the historical trends of concentration in the industry, one would expect these small-scale producers to be subsumed by their increasingly large and integrated competitors. Yet small beef producers still account for over 40% of all operations, even though they are responsible for producing a small percentage of the industry's total output (USDA ERS 2014).

In examining the individual and community level within the broader political economy of the beef industry, my research reveals the ideological forces shaping beef producer's decision-making as economic actors. In line with Lobao and Meyer's critique of the political-economy paradigm, a closer consideration of human agency and culture informs our understanding of how beef producers' choices, beliefs and political actions shape the industry. The political-economic approach alone fails to explain why beef producers remain committed to livelihoods with dwindling profits and significant economic obstacles. Only by combining this approach with

cultural beliefs and attitudes do we gain a robust picture of the forces shaping the decisions behind transformations in the beef industry.

## CHAPTER 8

### CONCLUSION

Beef holds a unique place in the agri-food systems of the United States, and provides a view into the changing landscape of agricultural production in today's political economy. Beef production reveals new insights into existing sociological frameworks through its core characteristics: a highly fragmented industry, reliant on vast natural resources and with strong ties to American culture and ideals. While a wealth of research explores the beef industry, my research aims to expand this body of knowledge by uniting approaches from the sociology of agri-foods, global value chain governance, and natural disasters. When combined, these three distinct approaches highlight the complementary, as well as contradictory, forces at play in shaping the largest agricultural industry in the U.S. Together, unprecedented drought, expanding consolidation, and the emergence of private standards alter both the structure and dynamics of the beef industry. And as my research indicates, these three ongoing phenomena have significant impacts for beef producers' livelihoods, along with the future of the U.S. beef industry.

Currently and not surprisingly, the beef industry has the highest historic levels of consolidation among retailers, packers and feedlots. Yet ownership of cow-calf operations remain dispersed among tens of thousands of producers despite predictions that all stages of beef production would succumb to the trends of modern agriculture. Moreover, the beef industry remains highly fragmented, with not a single case of vertical integration throughout the entire value chain for large-scale production. Instead, cow-calf operators, feedlots, packers, and

retailers remain as distinct segments of production. Almost like a last bastion against industrialized food production, especially compared to other meat proteins, the highly fragmented beef industry reveals limits to intensive, large-scale, agriculture. Not only do biological traits of cattle limit the ability to intensify production, but also the financial risk required to acquire necessary land precludes backward integration from large buying firms.

Partially due to these unique traits, the case of the beef industry complicates existing models of global value chain governance. Original models describing buyer-driven and producer-driven governance do not fully capture the nuances of the beef industry, in which retailers *and* packers simultaneously act as lead buyers. More complex analytical frameworks that consider coordination and inter-firm linkages also fail to accurately describe exchange throughout the beef value chain. As detailed in chapter 4, evidence from the beef industry reveals that a single value chain can accommodate multiple forms of governance, with various logics of exchange characterizing different segments. Additionally, individual producers can be involved in multiple forms of governance simultaneously, partially dependent on the product type and product characteristics. The complexity of governance within the beef value chain illuminates the varied experience of producers: some operate within highly captive or even hierarchical exchange relations while others have relationships with suppliers and client that more closely resemble market governance. Telling a unified story of governance in the beef value chain overlooks the diversity of experiences of various segments, as well as various producers, within the industry. To best identify the implications of chain governance and necessary policy to address inequalities, there is a need for a nuanced examination open to the possibility of multiple governance structures.

To further refine examinations of governance and the implication for producer well-being, my research adds to the understanding of how private standards alter value chain governance. By extending research on the tendency of private standards to increase the degree of lead-firm ‘drivenness’ within a chain, I explore the diversity that exists *between* standards and *within* standards with regard to the increased influence of lead firms. Drawing on convention theory and conceptions of horizontal governance, I illustrate the ability of lead firms to exert differential control, depending on the attributes of the standard and the ties to actors and institutions outside of the value chain. In a comparison of all-natural and certified Angus standards, I note how the expansion of private standards as part of the Post-Fordist food regime tend to privilege large lead buyers through their ability to define, implement and monitor these standards. However some private standards grant greater value to upstream producers, despite a growing body of research that suggests otherwise. Evidence from the beef industry reveals that close coordination, through information exchange in particular, and a stable market outlet provide financial benefits to producers.

The analysis of value chain governance within the context of convention and private standard beef production yields important policy insights that are relevant to both the beef industry and global agricultural production more broadly. Increasingly scholars identify the implications of private standards for North-South value chains, especially given the dominance of Northern buyers in creating the standards with which Southern producers must comply. Private standards are seen as affecting the opportunities for development and the livelihoods of agricultural producers in the global South, yet my findings reveal important implications for how standards can best be shaped to guarantee benefits for Northern producers. If private standards continue to expand in line with current consumer demands, careful attention must be given to the

diversity that exists among standards. Of particular importance are whether a standard includes actors outside of the value chain and the degree to which the participation of non-firm stakeholders protects the value captured by upstream producers. My research suggests that value chains with greater horizontal connections, which tie standards to external institutions and actors, along with extensive information exchange among firms, can improve the likelihood that producers capture significant gains. As the case of all-natural beef suggests, lead firms stand to create, implement, and monitor private standards that best suit their needs and detract from the economic capture of upstream producers. But with policies that require greater oversight from industry associations and government agencies, private standards may, in some cases, protect upstream producers from increased drive by lead buying firms.

In addition to the influence of private standards on value chain governance, the case of drought in the beef industry reveals the power of natural forces to reshape century-old industries. While it was once unimaginable to raise cattle without corn or without the help of stocker-backgrounders, beef producers now have different production norms. Not only did drought restructure production practices, but it also altered the structure of the industry and the relationships among segments of the value chain. The economic costs of drought exceeded those of previous drought epochs, yet more importantly encouraged producers to make hard decisions, leading some to reimagine their approach to operating a successful beef operation and others to exit the industry entirely. The literature in disaster research predicts the financial costs of drought, but comes short of envisaging the ability of natural disasters to restructure entire value chains. In the era of climate change, insights into the impact of natural disasters on economic activity is a crucial area of research that can help reduce the impact of drought, rising sea levels, and more severe natural disasters on agricultural production. As described, agricultural producers

face unique vulnerabilities that if reduced, can increase their resilience and recovery from such disasters.

As private standards and drought restructure the beef industry and the governance under which producers operate, beef producers face new challenges to remaining profitable and continuing their family traditions. Despite a steady *number* of beef operations in the industry, the demographics of the industry are shifting towards larger scale production, increased consolidation among downstream sectors, and an increase in “hobby” ranchers who only raise beef cattle as a second job on weekends to complement income from non-agricultural industries. This shift signals the changing face of agriculture in the U.S., in which aging ranchers increasingly exit the industry when economic pressures make liquidating a cattle herd a viable alternative. Given the new economic pressures, the children of ranchers are choosing jobs outside of the industry, attracted by stable jobs outside of agriculture.

Members of the beef industry worry about the future of the industry, wondering who will take over family ranches, yet the industry continues to thrive with growing overseas markets and unprecedented production even as the total herd size shrinks. Herein lies a paradox that should stimulate future research on the industry: While economic pressures on producers are real and growing, the beef industry remains a highly successful (and highly subsidized) segment of American agriculture.

The implications of my findings extend beyond the beef industry to the broader scope of private standards, especially salient as the current food system incorporates a growing number of certification schemes. Agri-food producers and retailers are increasingly adopting standards and certifications as a means to communicate ethical and environmental production and sourcing

practices. But as these standards spread throughout global agri-food production, it is essential to understand the implications for value chain actors, and the political economy shaping global production systems.

In particular, global certification schemas are emerging to shape standards of sustainability. The lessons of private standards in U.S. beef suggest that while such global schemes can yield tangible benefits for the environment and producers, they also encourage increased control by a small number of lead actors. Similar to beef, other commodities such as soy and palm oil rely on hundreds of thousands of small producers, as opposed to large concentrated operations. In developing criteria for these emergent schemes, such as the Global Roundtable for Sustainable Beef, the Roundtable for Responsible Soy, and the Roundtable for Sustainable Palm Oil, my findings shine light on how they can best achieve uptake by these smaller producers.

As described in my findings, beef producers commonly complained about government intervention and the cost of regulation. The cost of complying with regulations, along with achieving certification is relatively greater for small producers who must dedicate a larger share of their profits to these requirements. In the context of value chain governance, these small producers also fall subject to the whip and whim of lead actors, who simultaneously are the ones to design certification schemes or influence regulation. However to be successful in its uptake, any certification scheme must incorporate small producers. The case of the beef industry reveals that resistance to regulation, or the inability to pay the cost of certification, will halt the expansion of and overall effectiveness of the certification scheme.

Last, it is crucial to recognize that both Fordist and Post-Fordist regimes represent two sides of the same neoliberal coin. Although Post-Fordism represents an alternative form of production to Fordism, it continues to advance a market-driven food system in which wealthier consumers can leverage their income to purchase higher quality, safer, and more ethically produced goods. The resulting bifurcated market advances broader inequalities, such as food insecurity and lack of access to quality, healthy food options in low-income areas. The case of the beef industry reveals that not only does Post-Fordist production advance inequalities for consumers, but it also may exacerbate inequality among producers, as not all producers have the ability to leverage certification schemes to their own advantage. Post-Fordism increases the importance of private standards in the global agri-food system and in turn the relative position of lead firms vis-à-vis these standards. Within the context of this food regime, small producers are more vulnerable to the pressures of lead firms; just as low-income consumers remain unable to access many of the higher-quality products that Post-Fordist production makes available to wealthier shoppers, so too may these changes make small, low-income producers subject to stricter control by lead firms. Simultaneously lead firms, and what one might call ‘lead consumers,’ advance an agri-food system tailored for a powerful minority of the U.S. population.

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## APPENDIX

**Interviews Completed**

Interview #	Date of Interview
1	6/1/2012
2	7/1/2012
3	7/1/2012
4	8/1/2012
5	8/1/2012
6	8/1/2012
7	9/12/2012
8	9/19/2012
9	10/1/2012
10	10/1/2012
11	10/3/2012
12	10/5/2012
13	10/10/2012
14	10/16/2012
15	11/1/2012
16	11/14/2012
17	11/29/2012
18	12/4/2012
19	12/19/2012
20	12/20/2012
21	2/18/2012
22	3/10/2012
23	6/11/2013
24	6/13/2013
25	6/13/2013
26	6/13/2013
27	6/14/2013
28	6/14/2013
29	6/14/2013
30	6/14/2013
31	6/17/2013
32	6/17/2013
33	6/22/2013
34	8/2/2013
35	8/2/2013
36	8/26/2013
37	8/28/2013
38	9/26/2013

39	10/1/2013
40	10/3/2013

## **Interview Protocols**

Note that these protocols were preliminary questions used to start the conversation with interview participants. The interviews were semi structured, and in nearly every case diverged from these set of questions.

### **Interview Protocol for Ranchers**

How many head of cattle do you have?

What is the biggest and smallest herd you've had? When was this?

When you need to replace any cows in your herd, where do you get them?

Do you use the same supplier?

How did you select this supplier?

How do you gauge the quality of the cattle you receive?

Do you ever have problems with the cattle you receive (quality, health, etc)

How do you resolve these problems?

When you look for a new supplier, how do you find a new supplier?

At what age do you sell your cattle? Or do you keep them to the point of slaughter?

To whom do you sell our cattle?

Is there one primary backgrounder/feedlot you use?

Why did you select this backgrounder/feedlot compared to other processors?

How would you describe your relationship with this backgrounder/feedlot?

Do you have any certifications for your cattle?

Does the backgrounder/feedlot have any certifications?

How do you determine the quality of your own cattle?

What aspects of the cattle do you looks at?

What feed do you use?

Where do you get your feed from?

How has the drought and increased cost of feed affected you?

Has there been any change in the quality of your cattle?

How do you know if there has or hasn't?

How do you know if the backrounder/feeder likes your cattle?

If they do not like your cattle, do they let you know? How so?

Do they ever convey preferences for the type of cattle they like, and how you can meet those preferences?

When the cattle from your ranch are slaughtered, do you know how well they grade?

Why or why not?

Would you like to know?

Why or why not?

How would you imagine that information be communicated to you?

**Interview Protocol for Feedlots**

What is your official position at this feedlot?

What responsibilities do you have at the facility?

How long have you worked here?

Are you a full time employee?

Is your pay based on a contract, hourly, or on a commission type scale based on sales?

Who owns this facility?

From where does the facility source calves?

How long have you been sourcing from these breeders?

Who are the three biggest calf suppliers you use?

How do you find calf suppliers?

How do you negotiate the purchase of calves from these suppliers?

Do you utilize contracts with these suppliers?

If not, how do you negotiate price and quantity of the calf purchases?

How long do the calves stay at your facility?

What certifications does the facility have?

How often are you inspected, and by whom?

Are you considered all natural? Organic?

What do you do with any sick calves?

Who pays for the lost profit of a sick calf?

Who are the three biggest buyers of your calves?

How long have you been selling to these buyers?

How did you initiate relationships with the buyers?

Do you have a contract with the buyers?

If not, how do you negotiate price and quantity?

What conflicts arise between your facility and the buyers?

How do you resolve these conflicts?

Has your portfolio of buyers changed in the last five years? If so, how?

Has your portfolio of calf suppliers changed in the last five years? If so, how?

What are the biggest changes in feeding practices you have witnessed in your time at this facility?

What are the biggest changes in your relationship with suppliers and buyers you have witnessed in your time at this facility?

Who are your biggest competitors?

Do you ever collaborate with other feedlots?

**Interview Protocol for Processing Plants**

How do you establish relationships with suppliers?

Do they seek you out, or do you seek them out?

Once a rancher utilizes your processing services, how long do they continue to use your services on average?

Why do ranchers stop utilizing your services?

How often do you talk with your suppliers?

How do you determine the terms of the processing contract with ranchers?

How do you decide the price of processing?

What problems arise between you and your suppliers?

How do you solve these problems?

Why do ranchers use your processing services as compared to other processors?

How many total cattle do you process a day?

Has this number changed over the last five years?

Do you process more cattle at a certain time of year?

Has your processing process changed at all over the last five years?

If so, how? Why?

Have you changed any of the machinery, chemicals, or techniques used in processing cattle in the last five years?

If so, how?

How much do the ranchers that use your processing services know about the specific processing process?

Were they aware of any changes made to your process in the last five years?

**Interview Guide for Retailers**

What is your position with this store?

How long have you held it?

Did you work in another position before this one?

Have you worked for other retail stores?

How do you decide from whom to buy your beef?

What factors do you consider when comparing different beef providers?

Who are your five main beef providers?

Do you know where they obtain their cattle from?

What are the biggest challenges you have faced in the last five years?

What actions did you take to address these challenges?

How would you describe your relationship with your main beef providers?

What branded types of beef do you offer?

How did you create the brands and labels for this type of beef?

What role do your beef providers have in shaping the type of beef you offer?

## **Recruiting Script**

Hello,

I am calling as a research at the University of Colorado, Boulder. My name is \_\_\_\_\_ and along with (co-investigator) I am conducting research on the Colorado beef industry. I found your information in the online directory of [ranchers, backgrounders, feedyards, 3<sup>rd</sup> party auditors, processors, retail stores] in Colorado.

Our project focuses on the relationship between the different segments of the beef supply chain, and I am calling to see if you would consider participating in our study. Participation entails an in-person interview conducted at your place of business that would last between 1 and 2 hours in length. Your participation is completely voluntary, and while there is no compensation, the information you provide would greatly aid the body of knowledge regarding the market dynamics of beef production. In particular, we are interested in examining the social characteristics of relationships between ranchers, backgrounders, feedyards, third party auditors, processors and retail stores specifically surrounding the maintenance of certification standards. The questions we ask will focus on your communication, information sharing, and contracts with suppliers and buyers.

If you would be interested in participating, we can schedule an interview at a time that is convenient for you. The interviews are all kept confidential and made anonymous, so we guarantee your privacy as well as the privacy of your business. Additionally at the time of the interview we will also ask if there are other members of the beef industry in Colorado that you know and might be willing to participate in the study. You have the right to decline providing this information, and this will not affect your own participation in the study. Alternatively you may provide this information but request that we do not reveal your identity to the processors who you recommend as participants.

At this point are you interested in participating and setting up a time for an in-person interview?