Think Twice Before A Bite: Toward A Skeptical Framework of the U.S. Food System

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**Abstract**

 In reality, the United States’ food system stretches to incredible lengths to feed the country’s ever-growing population. Accompanied by key regulatory institutions like the U.S. Food and Drug Administration (FDA) and U.S. Department of Agriculture (USDA), the age of industrial food production has proven its ability to provide Americans with readily available food at all times. However, this fusion of administrative food regulation and industrial food production has also proven itself to be unsafe through numerous recurrences of foodborne illness both before and during the twenty-first century. With such heavy regulations set in place for food safety assurance, there is plenty of room to ask why the threat of foodborne illness continues. For precisely that reason, this paper asks whether corruption within the FDA and USDA explains outbreaks of foodborne illness. From an administrative perspective, regulators working on behalf of the FDA and USDA serve to protect the U.S. populous from dishonest, unsafe food production. However, the American public deserves to know if this is not actually the case. Through using both qualitative interviews and quantitative analysis, this paper seeks to establish a relationship between institutional corruption and the consequences of unsafe regulation that have plagued the American food system.

**Introduction**

 As of 2018, the United States’ population reached a total of 327.2 million people (U.S. Census Bureau). Therefore, one of the U.S. government’s most spectacular administrative responsibilities is to ensure that there is enough food to sustain America’s still growing population. Taken together, readily available fast food as well as vastly stocked grocery stores full of produce and meats say that the country is doing a fairly exceptional job. Ranging from out of season dragon fruit to peanut butter to even precooked chicken strips, the American grocery stores appear to carry just about any kind of food to satisfy one’s craving. However, with such a wide variety of food at constant convenience comes an equal amount of constant production, and sometimes not the best quality. Although agencies such as the Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) collectively serve as safeguards for the country’s food supply, numerous cases of foodborne illness have proven that the regulatory process contains flaws.

 For example, research between the years 2000 and 2003 indicates that there were at least 713 food recalls reported by the FDA and USDA; 313 recalls caused by present pathogens, 12 recalls caused by outbreaks of illness, and 7 recalls caused by reported death (Salin, Darmasena, Wong, & Luo, 2006, p. 150). Taken together, there were 332 recalls that either potentially could have harmed or did harm consumers. Specifically, 11 percent of the recalls between 2000 and 2003 were due to E coli O157:H7, 26 percent due to Listeria, and 43 percent just from mislabeled products or undeclared ingredients. Smaller percentages of recalls due to pathogens include Salmonella at four percent and bacteria at two percent (Salin, Darmasena, Wong, & Luo, 2006, p. 151). Just in the year 2000 there were 1,564 illnesses due to E coli alone, which resulted in the deaths of four people (Dunn, 2007, p. 44). If these numbers should tell the American public one thing, it is that carelessness beyond common human error exists in the U.S. food system.

 Everything that Americans consume is regulated in some way by the FDA or the USDA. Since the emergence of heavy industrial agrarian practices in particular, the food and agriculture sector have become closely intertwined. Thus, the mass production of food to meet American demand has cultivated a food culture in which the FDA and USDA work hand-in-hand with each other as well as with conglomerates that seek to dominate the food industry. With pure pursuits of protecting the American public from unsafe food, the FDA and USDA regulate the dominant food producers. However, major producers operate with the intention of meeting the U.S. food demand, but in a way that saves money while maximizing efficiency. Moreover, the alarming recall/illness statistics from 2000 to 2003 may indicate that there is something missing: namely, compliance with all safety procedures set forth by regulations.

 To explore this mysterious gap in what seems to be dishonest regulation, this paper asks whether corruption within the FDA and USDA explains outbreaks of foodborne illness. This question is significant in politics and public administration as well as in public health and economics. If answered positively, the results of this research question generate the potential for major administrative reform within the food industry and the agencies responsible for regulating it. In her book, *In Food We Trust,* Thomas emphasizes a critical fact from the documentary *Food, Inc*. She says specifically that “food production changed more between 1950 and 2000 than it did in the ten thousand years prior to that point (Thomas, 2014, p. 3). With such intensive modifications to food production, there is significant room to ask whether or not corruption plays a role in the food making process. Whether known or unknown, the American people are the ones who must trust administrators with their livelihood on a daily basis. To that point, the American people ought to know whether the regulators in charge of their breakfast, lunch, and dinner are trustworthy enough for such a responsibility.

**Literature Review**

 Addressing the research question necessitates an in-depth consultation with the relevant literature. To gather the necessary materials for testing such a question, this review breaks the question down into parts which relate to this study. Moreover, this review is divided into three sections, each addressing the different components of the research question as well as the relevant background needed for contextual analysis. Section one provides a brief history of the U.S. food system and a description of key regulatory practices and agencies. This study particularly focuses on the FDA and USDA because they are the two most prominent food regulators in the United States. Secondly, section two covers the relevant scholarship as it pertains to critical analyses of the food safety network. In particular, this section addresses concerns of foodborne illness and explores arguments on why the regulatory process is unsafe. Finally, section three covers the relevant literature as it pertains to corruption and capture. This section lays out a method of measuring corruption in addition to synthesizing both terms.

*Section One: On the History of Food Systems*

 Before considering the complexity of food regulation in the United States, one needs to understand the emergence of the current food system. While this paper focuses primarily on questions of regulatory corruption, a brief synopsis of the previous eras will provide a contextual account of what now exists. According to Friedmann and McMichael, the beginning building blocks of the American food system revolve around two regimes of food production: 1.) the period from 1870 to 1914 in which colonial settlers traded their wheat and meat for European goods, labor, and capital (Friedmann & McMichael, 1989, p. 95-96) and 2.) the period from 1940 to 1970 in which the successful intensification of agriculture amongst prospering capitalist countries began international integration (Friedmann & McMichael, 1989, p. 103).

 From an historical-contextual point of view, these two regimes assisted in generating U.S. prosperity due to international trade and the industrialization of agriculture. Weber’s work on the industrialization of agriculture particularly sheds light on the second food regime because she addresses the industrial commodification of corn seeds by a company called Pioneer Hi-bred. Her work suggests that studying Pioneer Hi-bred is a good way to understand the buildup to the contemporary food system because it served as a leader in mass production during post World War Two. According to Weber, “Pioneer embodies the emergent corporate mentality of postwar agriculture and how that outlook was disseminated to the public at large. Whether involved in hybrid seed production or not, all agribusinesses sought to expand their hold on the larger industry and maximize their profits” (Weber, 2018, p. 383). Taken together, the second food regime and companies like Pioneer symbolize the power of the United States during the 1940s to the 1970s.

 Neff (2014) touches on the same subject, but with a different approach than Friedmann, McMichael, and Weber. In her book, *Introduction to the U.S. Food System: Public Health, Environment, and Equity,* Neff covers the innerworkings of the American food system from beginning to end. She discusses the early beginnings of the system, the commodification of crops and animals, and the public health effects from food production and distribution. Perhaps the most notable observation in Neff’s work is that the invention of chemical fertilizers and pesticides in conjunction with the industrial revolution permanently changed the American food system (Neff, 2014, p. 267). As an outcome, farmers were able to focus on the mass production of produce and meats ranging from poultry to pork. Furthermore, adopting Neff’s perspective on the industrial revolution lends a hand in understanding both Friedmann and McMichael’s work.

 Thriving industrial food production from the second regime led to what McMichael refers to as the corporate food regime (McMichael, 2005, p. 267; Friedman & McMichael, 1998). Although McMichael’s work refers to this regime in a global context, this review focuses strictly on the United States to provide background on what necessitated the current regulatory agencies for food safety. McMichael’s account of the corporate food regime is the contemporary era that drives food production and consumption in the American system; and “As such, it expresses not only the social and ecological contradictions of capitalism, but also the world-historical conjuncture in which the deployment of price and credit relations are key mechanisms of ‘accumulation through dispossession’” (McMichael, 2005, p. 265). Weber also sees the American food system as contradictory in that it has perpetuated a sense of agrarian romanticism while still allowing monopolistic corporations as the norm of consumption (Weber, 2018, p. 385). From descriptions of McMichael and Weber, it is apparent that a select few corporations have been given a great deal of power in the American food system. From the description of the cumulative literature thus far, it is also apparent that contemporary food production in the United Sates relies upon mass industrial production.

 However, along with the rise of the corporate food regime came the necessity of increased regulation to ensure the production of safe foods. Currently, the agencies responsible for food safety operate under a complex web of intertwined responsibilities. All agencies involved in food safety include the Food and Drug Administration (FDA), the U.S. Department of Agriculture (USDA), the USDA’s Food Safety and Inspection Service (FSIS), the USDA’s Animal and Plant Health Inspection Service (APHIS), the Environmental Protection Agency (EPA), the Center for Disease Control (CDC), and the Department of Commerce’s National Marine Fisheries Service (Ribera, 2016, p. 2). Given the large number of agencies, this paper focuses primarily on the FDA and USDA.

 According to Salin, Darmasena, Wong, and Luo (2006), the USDA is the primary regulatory agency of meat, poultry, and processed egg products while the FDA regulates all other foods sold in interstate commerce (Salin, Darmasena, Wong, & Luo, 2006, p. 149). As an agency under the Department of Health and Human Services (HHS), the FDA also regulates all pharmaceutical medicine and ensures that all foods other than meat are labeled in accordance with all safety standards. However, the regulation of seafood is a shared responsibility of the FDA and the Department of Commerce (DOC) (Ribera, 2016, p. 1). In 2007, the FDA issued their Food Protection Plan (FPP) consisting of three elements: 1.) a focused authority for regulatory recalls, 2.) a method of preventative control for risky foods, and 3.) a shift to a risk-based inspection system (Wallace, 2010, p. 25).

 Since its birth in 1862, the USDA has been serving the United States’ public with one primary goal: to ensure that there was enough food available to feed the population at all times (Nestle, 2004, p. 63). Although its mission has changed over time to reflect the safety of meats and poultry, the USDA is still responsible for ensuring that the country has a thriving food supply. Regulatory agencies under the USDA are actually the key actors in ensuring food safety. For example, FSIS is responsible for ensuring that industries comply with all major safety regulations. These include the FDA’s Food Safety Modernization Act, the Federal Meat Inspection Act, the Poultry Products Inspection Act, the Egg Products Inspection Act, and the Humane Methods of Slaughter Act (Ribera, 2016, p. 2). Taken together, the main responsibility of the USDA and FSIS is to oversee slaughter and processing operations (Salin, Darmasena, Wong, & Luo, 2006, p. 149).

 The FDA and USDA hold a vast amount of responsibilities to ensure that the American public consumes safe food. In spite of these responsibilities, however, causes of foodborne illness have still managed to make their way into the food supply. In response, the FDA and USDA have created strategies to combat the potential of illnesses. For example, according to Baur, Getz, and Sowerwine (2017), both the FDA and USDA adopted an idealized model of control that stemmed from NASA’s Hazard Analysis and Critical Control Points, or HACCPs. Although originally designed to regulate the safety of astronaut food, the HACCPs made their way into the food regulatory system as well. Accordingly, “This model system-which the FDA now refers to as hazard analysis and risk-based preventative controls, or HARPC-is predicated upon the same two core principles as HACCP: analyze hazards and control the risk that those hazards might cause harm” (Baur, et al., 2017, p. 716).

 Moreover, similar food safety precautions were also implemented at the farm level after a major recall of contaminated spinach (Thomas, 2014). As part of a collaborative effort by the FDA and USDA to draft the “first-ever specific safety standards for fruits and vegetables”, the Good Agriculture Practices, or GAPs, provided a set of guidelines similar to those of the HACCPs (Clinton 1997; Baur, et al., 2017, p. 717). With the intention of reducing potential pathogen contamination during growing and harvesting, the GAPs set forth a two-step framework: “first, identify potential hazards, and second, control them” (Baur, et al., 2017, p. 717). Further, every preventative measure instilled by the FDA and USDA seem to share the same elements. Each method: the FDA’s Food Protection Plan, the HAACPs, and the GAPs, have one major goal. This goal is to simply illuminate risk by identification. However, with the presence of foodborne illness still in the American food system, is this preventative strategy an unachievable ideal? Scholars such as Dunn as well as Salin and her colleagues suggest otherwise in their statistical analyses of foodborne illness in the twenty-first century. With clear room for skepticism, further research might find that there may be a hidden truth to U.S. food regulation.

*Section Two: An Unsafe Food System*

 The literature thus far reveals that the current U.S. food system is fueled by industries whose production is regulated by major federal agencies. In addition, the literature demonstrates food safety as an essential value in the regulatory process. However, Thomas (2014) has noted that food safety is a subjective term, and therefore is bound to different interpretations. According to Thomas, the University of Rhode Island’s Department of Nutrition and Food Sciences defines food safety as, “the protection of the food supply “from microbial, chemical (i.e. rancidity, browning), and physical (i.e. drying out infestation), hazards or contamination that may occur during all stages of food production and handling-growing, harvesting, processing, transporting, preparing, distributing and storing”” (Thomas, 2014, p. 2). On the other hand, the American Peanut Council refers to the same term as the “scientific discipline describing handling, preparation, and storage of food in ways that prevent foodborne illness” (Thomas, 2014, p. 2). While the former definition of food safety takes a hazard approach during all steps of the food production process, the latter takes a scientific approach with overall interest in food longevity. Further, it is from these different interpretations of food safety amongst many others that regulators and legislators build policies.

 Regulations, food governance, or “governmental governance of food” (Denny, Worosz, & Wilson, 2016), became prevalent throughout the United States as industrial food production increased. Governmental governance thus seeks to ensure safe, good quality food in spite of its mass production by corporate industries. However, many scholars (Weber, 2018; Thomas, 2014; Neff, 2014; Nestle, 2004) see food production as a business controlled by a few powerful industries whose interactions with government usually result in tailoring food safety policies to their benefit (Thomas, 2014, p. 4). Food safety regulation therefore became inherently political as a result. For example, Nestle (2004) states that the USDA has a long history of siding with food producers in times of conflict. This is evident during the time when Congress, the USDA, and the industries knew that the “poke-and-sniff” method of inspecting meats failed to identify contamination. (Nestle, 2004, p. 64-66). Using this example as evidence, scholars may ask why regulatory agencies would side with industries in spite of their mission to protect Americans from unsafe food.

 McMahon (2013), Caswell (2006), and Wallace et al (2010) focus specifically on the governance of food safety throughout their work; however, each author offers more critical evaluation than positive feedback. For example, Caswell writes from the perspective that American food governance lacks sufficient risk management and McMahon argues for new methods of food safety governance that focus on food system safety rather than just food itself. As a synthesis, Wallace and his colleagues argue that the FDA can improve safety management while also offering methods of improvement.

 Scholars such as Caswell serve as a lens for the preceding examples of poor risk management. Through her work, she specifically argues that the existence of food scares indicate inadequate risk management on behalf of the United States government. While food scares signify a panic amongst consumers regarding the presence of bacteria, parasites, and viruses in an unknown quantity of released foods, the sudden outbreaks of foodborne illnesses during the early 2000s, such as E coli O157:H7 and Listeria, suggest mismanagement (Caswell, 2006, p. 10). They are an indication that dietary risks, e.g. safety and nutrition, have not been taken as seriously as they could have been taken.

 To understand the mechanisms that are behind protecting the safety and nutrition of consumers, Caswell describes the three interactive components of risk analysis, a key feature of monitoring dietary risk. According to Caswell, the three components of risk analysis are: 1.) risk assessment, 2.) risk management, and 3.) risk communication. Together, all three of these safety approaches include “the scientific evaluation of known or potential adverse health effects resulting from human exposure to hazards, the process of weighing policy alternatives to accept, minimize, or reduce assessed risks and to select and implement appropriate options, and the interactive process of exchange of information and opinion on risk among risk assessors, risk managers, and other interested parties” (Caswell, 2006, p. 10-11). When comparing the three components of risk analysis to the HACCPs, the GAPs, or the FDA’s Food Protection Plan, scholars may see that the safety procedure is relatively the same across the board. Such a uniform process of identifying, communicating, and illuminating present hazards and pathogens continue to sound like exceptional regulation.

 However, several examples of poor risk management lend evidence to the validity of Caswell’s critique. As explained through the work of Baur, Getz, and Sowerwine, the Hazard Analysis and Critical Control Points (HACCPs) were adopted by the FDA and USDA to identify safety risks in the food production process. Serving as an HACCP credibility check, Denny, Worosz, and Wilson (2016) test two common beliefs: 1.) that state inspection on small red meat slaughter establishments helps and 2.) that the HACCPs hurt small slaughter establishments. While their results conclude that state inspection is good for small slaughterhouses, they did not find that the HACCPs had any negative effects on conducting safety inspections.

 However, slaughterhouses do not have a uniform method of inspection. As stated by Denny and his colleagues, the inspection of slaughterhouses varies by three types: federally inspected FI, state inspected SI, and custom exempt CE. Custom Exempt houses differ from FI and SI houses in that there is no inspector present during the slaughtering or processing of meat products (Denny et al, 2016, 611). In addition, each type of slaughterhouse, either FI, SI, or CE, are governed by different types of inspections. Accordingly, inspectors examine FI and SI slaughterhouses to assure compliance of all safety regulations. FI houses contain federal inspectors while SI houses generally contain state level inspectors who have been granted the authority to act as federal agents. Finally, CE houses contain neither federal nor state inspectors. Rather, they are self-governing and are expected to comply with regulations on their own (Denny et al, 2016, p. 611-612). Moreover, while Denny and his colleagues find that the HACCPs do not have negative effects on small slaughter establishments, they do call for additional government intervention on those that are custom exempt. Simply due to the self-governing system granted to them, CE slaughterhouses fall under suspicion of running more risks than those that are FI or SI.

 However, Dunn (2007) suggests that the USDA’s adoption of the HACCPs is a form of paradoxical regulation that generates what she refers to as, “a physical and conceptual space beyond the control of audit where corruption is rampant” (Dunn, 2007, p. 37 & 38). In essence, Dunn’s work says that the type of slaughterhouse does not matter because the industry workers everywhere have been granted the right to self-regulate by using the HACCPs. Whether a slaughterhouse be FI, SI, or CE, the amount of risk is the same. In spite of the fact that the HACCPs were created for the improvement of risk management, Dunn proposes that the reality of self-regulation is visible when tracking cases of E coli O157:H7. Thus, the work of Dunn, Nestle, Thomas, as well as Salin and her colleagues suggest the numerous outbreaks of E Coli are a case in point that the HACCPs are not as effective as intended. Dunn (2007) illustrates the paradox of self-regulation from the HACCPs when she states:

Increasing numbers of USDA inspectors, who once focused on personally inspecting each carcass, were shifted to the task of inspecting HACCP plans and the plant’s own production logs. A special cadre of new USDA inspectors, known as Consumer Safety Officers (CSOs), dipped in and out of the records, reviewing a sample of them, but they did not examine each and every measurement nor ensure that appropriate corrective action was taken when meat was potentially contaminated. Only the packers themselves knew if the HACCP plans were being followed, if food safety interventions were effective, or if food was contaminated (39).

 From Dunn’s work, scholars may see that industries have become the only ones to know of their regulatory processes. Further, Dunn proposes that the HACCPs science-based reputation renders the regulatory process apolitical. This is entirely based on the assumption the HACCPs are not subject to negotiations or interpretations by self-regulators in the food industry. Creating a method to scientifically purify filth and corruption in the industry was thought by the USDA to be entirely apolitical and would therefore not subject federal regulators to legal-political turmoil (Dunn, 2007, p. 41). Further, rather than preventing corruption in the food industry, Dunn suggests that the USDA’s HACCPs amplify it. In the case of Denny, Worosz, and Wilson’s work, Dunn’s contribution to the literature indicates unmonitored possibilities of foodborne illnesses in both federal and state level meat producers.

 Taking a further look into the food industry, Fry, Laestadius, Grechis, Nachman, and Neff (2013) discuss the problems associated with industrial food animal production (IFAP). IFAP is the dominant method of producing dairy, eggs, and meat in the United States (Fry et al, 2013, p. 1; Neff, 2014, p. 291). This method of farming involves housing mass numbers of animals in close proximity to maximize production, and their facilities typically operate within close geographic proximity (Fry et al, 2013; Neff, 2014). However, while thought to be efficient, IFAP sites are the birthing place of many foodborne illnesses as well as other health hazards. Storing and producing animals in tight areas creates massive amounts of accumulated animal waste, which results in groundwater contamination and the over fertilization of crops.

 Neff’s independent work also adds that diseases such as Salmonella and E coli are often spread through this waste because they are naturally found in animals’ digestive tracks. Thus, when crops are fertilized with IFAP manure, it often leads to the cross-contamination of produce (Neff, 2014, p. 306). While Ribera as well as Salin and her colleagues might suggest that the USDA’s FSIS regulators would be in charge of IFAP operations due to its production of meat and eggs, Fry and her coauthors (2013) noted:

A report by the National Council of State Legislatures indicates that primary state-level regulatory authority over IFAP facilities falls largely with Departments of Environment and Natural Resources and that health departments generally have little or no role in these activities [8], which raises concerns that regulations may not be designed to protect human health (2).

 To test the importance of human health, Fry and her colleagues conducted research where they interviewed state and country level health department officials from eight states with IFAP operations. When conducting the interviews, the authors looked to see if there were high amounts of citizen outreach to health departments regarding the hazards associated with IFAP. Astoundingly, the results indicate that health departments tend to handle public concern on a case by case basis rather than by a prescribed set of administrative responses (Fry et al, 2013, p. 3). Fry and her colleagues reveal that the minimal role of public health departments is due to the unique political barriers set forth by jurisdiction and the circumstances which surround IFAP sites (Fry et al, 2013, p. 5). Although the social settings around IFAP operations are out of the scope of this paper, the literature discussed in this section demonstrates that there are political factors at play in the food system that may sacrifice consumer safety. Scholars such Denny, Worosz, and Wilson put it best when stating, “Thus, as Marsden et al. (2010) point out, the increasingly anonymous supply chain relationships have both created and necessitated the expansion in governance to cultivate consumer trust in ways that transcend national regulations for food safety and quality” (Denny et al, 2016, p. 605)

 Leading scholars on the issue of food safety in general argue that the United States (and global) food system is unsafe (Baur, Getz, & Sowerwine, 2017, Thomas, 2014; Neff, 2014; McMahon, 2013; Dunn, 2007; Nestle, 2004). McMahon in particular states that “food-safety governance, whether public or private, is designed and imposed from the perspective of large corporate food retailers and now constitutes a powerful dynamic helping re-organize the agri-food-system” (McMahon, 2013, p. 405). This indicates that the corporate food regime as discussed by McMichael largely influences food safety policy primarily on behalf of its own interests. McMahon additionally states that food safety governance “typically embodies the assumption that those people who are to be kept ‘food-safe’ will be fed through the corporate, globalized, supermarket model” (McMahon, 2013, p. 405). This means that the current food system is structured in such a way that consumers have limited say on where their food is to come from and how food is to be kept safe. According to Thomas, laws involving food safety regulations are designed not only to protect consumers, but to protect and even promote the economic interests of the very corporations responsible for numerous food crises (Thomas, 2014). Further investigation into this claim constitutes a deeper look into why regulators would comply with such malpractices. As further research will show, it is often the case of coercion.

*Section Three: The Link Between Corruption and Capture*

 Asking whether corruption within the FDA and USDA explain outbreaks of foodborne illness necessitates an understanding of corruption as well as what qualifies as corrupt behavior. Although operations within the food system may appear corrupt from the work discussed in the second section, operationalizing corruption is necessary. To gain an encompassing account, it will be helpful to synthesize Walton’s three definitions of corruption with the concept of institutional corruption provided by Light, Lexehin, and Darrow. Walton (2015) consults the public office definition of corruption as well as two other definitions that include nonpublic officials and individual morality. Most commonly discussed in the political realm is the public office account. Walton notes that academics define it as “the abuse of public office for private gain” (Walton, 2015, p. 16). However, when it became obvious that elected officials in public office were not the only ones with selfish motives, the academic community increasingly analyzed corruption as an abuse of power. This account of corruption is understood as “the abuse of entrusted power for private gain” (Walton, 2015, p. 17), which notes that corruption can occur amongst any group that possesses authority. Finally, Walton’s third definition of corruption deals less with the concept of a held position, but more with morality on an abstract level. Much like bacteria rots apples, corruption is said to contribute to the decay of individuals and institutions. Thus, the decay definition refers particularly to the decline of moral behavior usually brought on by bribes (Walton, 2015, p. 18).

 Thus far, it would seem that Walton’s definitions are applicable in thinking about any instance of corruption. However, adding an account of institutional corruption provides both a synthesis and a multilateral method to thinking about corruption. Light, Lexehin, and Darrow (2013) refer to institutional corruption as deviation from basic integrity by influential institutions (Light, Lexehin, & Darrow, 2013, p. 590). Moreover, integrity refers to one’s moral principles and institutions refer to the composition of public and private sector individuals into a unilateral agency or branch of government. Taken together with Walton’s three definitions, institutional corruption includes the same elements: individuals from public office, individuals with power outside of public office, and the breech of integral morality. In a synthesized definition, corruption entails the elements from Walton’s definitions and is institutional as proposed by Light, Lexehin, and Darrow.

 Further, corruption in the case of public office, abuse of power, and decay is visible in Congress. Light and his coauthors (2013) refer to the work of other scholars in portraying this:

According to seminal essays on institutional corruption by Dennis Thompson and Larry Lessig, this baseline of integrity is corrupted because elections are not publicly funded. As a result, congressional representatives must constantly raise funds from a tiny percent of the population and respond to their priorities. This dependency corruption creates an "economy of influence," even if individual actors are well-intentioned (590-591).

 From this “economy of influence” described in the literature, elements of Walton’s definitions are prevalent. Officials in public office, either well intentioned or not, are susceptible to dependency corruption by outside actors due to the unfunded elections. This inevitably leads to the abuse of power, either by the official or the agent outside, as discussed by Walton and further results in moral decay. Furthermore, as far as the relevant literature states, corruption can be thought of as a breach of honest, moral conduct by individuals or institutions with public influence whether it may or may not be of malicious intent.

 Serving as a case study, Light, Lexehin, and Darrow analyze the deceptive behavior of pharmaceutical companies and its effects on patients, Congressional legislation, and the FDA. This case study finds that institutional corruption between the pharmaceutical industry and Congress has: 1.) led to the acceptance of political bribes for legislation that compromises the mission of the FDA, 2.) decreased consumer protection from adverse reactions to drugs, 3.) caused further underfunding of the FDA, and 4.) perpetuated the commercialization of trusted medical experts (Light et al, 2013, p. 590). Although pharmaceutical drugs are outside the scope of this paper, they still, like many foods, fall under the regulatory responsibility of the FDA. When looking at outcomes one and three, anyone can see that the corrupt actions of Congress directly impact the FDA’s ability to ensure maximum protection. When looking at outcomes two and four, anyone can see that corrupt actions of Congress directly impact consumer safety.

 Further, if the interests of the pharmaceutical industry led Congress to undermine FDA regulations, who is to say that the same kind of dependency corruption is not responsible for the foodborne illnesses discussed earlier in this study? Who is to say that employees from the pharmaceutical or food industries do not approach regulators as well as Congress members? Such questions are the focus of this inquiry. While the FDA and USDA may not desire flawed regulations, the above study demonstrates that Walton’s and Light’s accounts of corruption are not just theoretical, but a reality. Scholars refer to this type of corruption as regulatory capture. Light and his coauthors bridge the gap between corruption and capture when they state, “Regulatory capture begins with the dependency corruption of Congress, which passes the regulations and provides the funding for agencies to protect the public” (Light, Lexehin, & Darrow, 2013, p. 594). Further, capture and corruption are two sides of the same coin.

 From the collective work of Shapiro (2012), Etzioni (2009), Dal Bo (2006), Laffont and Tirole (1991), Levine and Forrence (1990), Tirole (1986), Stigler (1971), and Olson (1965), regulatory capture can be conceptualized as the manipulation of regulators by corporate workers and politicians to serve the special interests of the industries which regulators are supposed to regulate (Etzioni, 2009, p. 319; Dal Bo, 2006; Laffont & Tirole, 1991, p. 1089-1090; Levine & Forrence, 1990, p. 167). Referred to by Wilson (1980) as economic theory, regulatory capture focuses on how interest groups shape public policy, how businesses gain power in the regulatory process (Stigler, 1971), and how, through collective action, “regulation is acquired by the industry and is designed and operated primarily for its benefit” (Laffont & Tirole, 1991, p. 1090; Wilson, 1980, p. 358; Olson, 1965, p. 3).

 One of the most important aspects of studying regulatory capture deals with the agents involved in the process. In other words, who participates in capture, who gets dirty, and what group is affected? Scholars such as Dal Bo provide sufficient background for each of these questions. In his work, Dal Bo analyzes Peltzman’s (1976) model that capture consists of three agents: “A politician who holds the coercive power of the state, an undefined quantity of producers, and an undefined quantity of consumers” (Dal Bo, 2006, p. 206). According to this model, the politician wants to maximize his/her majority; and to do so, the politician will approve producer prices that are lower for consumers. Together, lower consumer prices allow firms with few competitors to raise their prices, which leads to profit. Firms without many competitors are able to do this because their initial prices are lower than monopolistic pricing (Peltzman, 1976). Dal Bo’s contribution to the area of study notes that capture occurs between politicians and producers while also affecting consumers. Thus, there are three major groups involved.

 However, Laffont and Tirole allude to the notion that capture also occurs between the political, the regulatory, and the producer groups. Unlike Dal Bo, Laffont and Tirole focus less on the consumer base. Laffont and Tirole state that “The regulatory structure is two-tiered: agency (the "supervisor") and Congress (the "principal")” (Laffont & Tirole, 1991, p. 1092). From this observation, there rests an implication that politicians have just as much of a hand in regulation as do the regulators themselves. When looking at the definition of capture above in addition Dal Bo’s account in the previous paragraph, it appears that Laffont and Tirole’s work reveals a crucial fact. Namely, that producer interest groups seek to capture government officials because doing so gets them closer to capturing regulators. Furthermore, the literature thus far collectively suggests that capture is understood in terms of how the interests of industries influence and affect politicians, regulators, and consumers.

 In addition, numerous scholars have speculated on how capture occurs. In Etzioni’s view, there are six major ways in explaining how capture happens: 1.) by lobbyists and special interest groups playing a role in drafting legislation, 2.) by special interests that weaken or dilute the regulations that are supposed to control them, 3.) by weakening the enforcement of prewritten regulations, 4.) by lobbying regulators until they are willing to eliminate existing regulations after public interests blow over, 5.) by special interests switching regulations from a state to federal level or pinning regulators against each other, and 6.) by jacking up prices and rates in spite of the market to guarantee the increase of profits (Etzioni, 2009, p. 320-321). An important element to note from Etzioni’s causes of capture is that the involved actors include legislators, regulators, and interest groups from the producing industries.

 However, in accordance with Laffont and Tirole’s view, capture potentially occurs when interest groups: 1.) offer monetary bribes to regulator or politicians, 2.) prey on the hoped-for future employment of commissioners and regulators, 3.) build relationships with public officials who will offer incentives, 4.) appease regulatory agencies by not publicly criticizing their management, and 5.) transfer monetary contributions for political campaigns to an elected official who has power over a specific agency (Laffont & Tirole, 1991, p. 1090-1091). Taken together, Etzioni, Laffont, and Tirole provide numerous cases of how capture can happen. Perhaps the most notable aspect from both lists is that the same three actors appear over and over: legislators, regulators, and interest groups from producing industries, or lobbyists.

 Further, the literature provides a model of the key actors and causes of regulatory capture. While it is known that special interest groups have ways of trying to capture legislators and regulators, it is not entirely known if every official is equally susceptible to its unethical practices. According to scholars like Levine and Forrence, the motivations of political agents change depending on whether or not they act on behalf of public interests or private interests; and the type of political dominance agents possess depends upon whether they act on behalf of general interests or special interests (Levine & Forrence, 1990, p. 174). Throughout their work, they use two important concepts in studying individual political behavior: 1.) being allowed slack, which entails that an agent may be hidden from public observation when making a regulatory decision (Levine & Forrence, 1990, p. 174) and 2.) Burkean behavior, which is when political agents make decisions based on their interpretation of what is best without acting in the best interests of their constituents (Levine & Forrence, 1990, p. 174).

 When added to the framework provided by Levine and Forrence, the causes of capture as mentioned by Etzioni and Laffont and Tirole provide excellent insight on susceptibility. Overall, Levine and Forrence hypothesize that capture of a regulatory agent is dependent upon “whether slack has been drastically reduced by moving an issue onto the public agenda and, if not, whether or not the regulator with the relevant slack will behave in a Burkean manner” (Levine & Forrence, 1990, p. 193).

 Although evidence of regulatory capture is difficult to measure, Dal Bo suggests four possible methods: 1.) by measuring nationwide levels of corruption, 2.) by looking at whether policy influence in the form of political campaign contributions matters, 3.) by focusing on Gormley’s (1979) idea that the behavior of regulators may be affected by industry background, and 4.) by giving consumers more control in the form of advocate groups and the direct election of regulators (Dal Bo, 2006, p. 216-218). If the scholarship on capture thus far tells anything of significance, it is that politicians and producers reap the benefits from capture. Politicians may enjoy benefits while the producers, usually conglomerates, enjoy the financial perks of less regulation. Although the regulators may receive incentives if circumstances allow, they are ultimately susceptible to capture by the politicians and producers. Overall, consumers see lower prices, but the political price entails lower quality regulation.

 In his book, *Industry Influence in Federal Regulatory Agencies*, Quirk (1981) outlines several common arguments about how much regulatory agencies are actually working in the interests of industries. He specifically refers to the FDA continuously throughout his work, but most notability states that the FDA views both industries and consumers as favorable to budgetary growth. Although, however, the FDA also “perceived a considerable amount of budget contingency-penalizing actions unpopular with consumers or burdensome to agriculture” (Quirk, 1981, p. 139). Though the reasons for the budget contingency are not entirely known, Quirk implies that Congress’s strong reactions against the FDA may be of importance.

 Moreover, Quirk states that the potential negative reactions from Congress toward a regulatory agency have resulted in key theories. Perhaps the most prevalent theory is that agencies have often failed to provide the amount of protection granted within their authority simply because they do cater to industry interests. Another theory states that the protection of industries by regulatory agencies has gotten to an excessive point (Quirk, 1981, p. 4-5). Whether this theory is true is a matter of speculation. However, measuring the number of captured regulators in regulatory agencies may serve as beneficial to Quirk’s work. Another phenomenon that ought to be addressed is whether these failed regulatory practices have undergone corruption as a result of captured regulators.

 Referring back to Light, Lexehin, and Darrow, scholars might notice that institutional corruption seems to possess similar qualities with capture. Taken to be deviation from basic integrity by influential institutions (Light et al, 2013, p. 590), corruption may be sufficiently measured by the number of captured individuals in a given institution. Serving the special interests of industries that are supposed to adhere to honest regulations is corrupt by nature, even if coercion is involved. Therefore, measuring institutional corruption on the basis of capture would provide excellent insight on many political and administrative issues, including the concern that corruption exists within regulatory agencies. As addressed by the overall scholarship in this review, industrial food production within the United States necessitates heavy regulation, but for some reason foodborne illness remains a threat within the country. Perhaps it is possible that measuring corruption by captured regulators in the FDA and USDA may shed light on why this continues to be the case.

**Methodology**

This paper asks whether corruption within the FDA and the USDA explains outbreaks of foodborne illness. Insofar as the relevant literature characterizes regulatory capture as a corrupt act, the method for answering this question simply involves measuring the amount of capture within both agencies. If capture shows to be high, then the study calls for a regression between those numbers and a CDC data set of foodborne illness outbreaks from the most recent year available. To determine corruption levels, this study seeks to test the amount of capture in a USDA-FSIS subgroup called the State HACCP Contacts and Coordinators. Operating at the state level, this FSIS subgroup works hand-in-hand with the FDA to ensure that small processing plants comply with food safety regulations (Associated Agencies, n.d.; State HACCP, n.d.). The subgroup’s contacts are the specific focus group because they are typically regulatory officials that serve as a hybrid representation of both the FDA and USDA.

To measure capture within the group, written surveys will be given to the regulatory contact in charge of inspection from each state. This includes all fifty U.S. states in addition to Washington D.C. for a total of fifty-one surveys. Although regulatory contacts are also present in U.S. territories, this study does not encompass Guam, Puerto Rico, American Samoa, or any of the territorial islands. This study additionally does not account for the contingency of vacant contact seats. Depending on when the study is conducted, there may be more, less, or no vacant seats at all. Furthermore, closer attention will be given to the issue once the study is actually conducted.

Moving forward, each regulatory contact will receive a closed ended survey consisting of six “yes or no” questions. Question one solely functions to quantify how many contacts had previously been employed by the food industry while questions two through six quantify capture. In addition, an answer that indicates capture on an individual survey is worth one point while an answer that does not indicate capture is worth zero points. Answering “yes” on questions two and six indicate capture because they ask if the contact allows unethical practices. On the other hand, answering “no” on questions three, four, and five indicate capture because they ask if the contact shows ethical, responsible thoughts and behaviors. Once all fifty-one surveys are taken, each individual contact will be given a capture score ranked zero through five. For example, a score of five would suggest that the contact is captured while a score of zero would suggest not. Each survey question is designed to measure capture based on its common traits such as influence from special interests, bribery, and pressures from the industry.

 Once all surveys are collected, a regression will be run between the results and the most recent year’s foodborne illness data from each state to show a two-variable relationship. Factors included in this regression are the number of contacts previously employed by the food industry and the number of contacts that allow self-regulation. Including these variables may provide an account of why some states have higher rates of illness than others. While there are a multitude of other possible variables at play, controlling for all of them may be more practical once a relationship between corruption and illness is established. To start, this study forms specific hypotheses that stem from the two control variables:

**H1**: If inspectors are drawn primarily from the regulated industry, then corruption is likely to be high.

**H2**: If inspectors allow self-regulation within the regulated industry, then outbreaks of foodborne illness are likely to be high.

H1 stems directly from the first question on the regulatory contact survey. Testing H1 would simply involve looking at the fifty-one survey results of question one, comparing the capture scores of all fifty-one contacts, and then with careful examination, seeing if there is a trend amongst high capture scores and the answer “yes” for question one.

Secondly, H2 is interesting because it is a narrowly tailored version of the research question that focuses specifically on self-regulation. This issue also stems directly from question five on the survey. Testing H2 would simply involve looking at the fifty-one survey results of question five and running a separate regression between those answers and the CDC’s recent foodborne illness data.

**Data Analyses and Findings**

The two most important variables in this study are contained in the research question. Asking whether corruption within the FDA and USDA explains outbreaks of foodborne illness is a good question to ask because both variables are identifiable. The previous section provided a detailed explanation of how to measure corruption and suggested running a regression with recent foodborne illness data from the CDC. Overall, this study looks promising. However, there are two possible outcomes to this study, and one of those outcomes would not confirm the research question at all. If the study’s results do not show a positive relationship between corruption and foodborne illness, then that simply means outbreaks of foodborne illness may be explained by other factors. These factors might include the number of SI slaughterhouses or IFAP operations in each state. However, if the results indicate a positive relationship, then there is compelling evidence to share with the American public.

 While both hypotheses are testable, they are, however, only significant insofar as the results indicate a positive relationship between foodborne illness and corruption within the FDA and USDA. If the results were to show the opposite relationship, then this study simply asks the wrong question. Therefore, there is always room to ask if something else other than corruption within regulatory agencies explains outbreaks of foodborne illness.

**Conclusion**

This study asks whether corruption within the FDA and USDA explains outbreaks of foodborne illness in the United States. While this study calls for the most recent year’s foodborne illness statistics from the CDC, incorporating outbreaks from a five to ten-year timespan may also reveal a more trustworthy trend if the first trial shows a positive relationship.

 In addition, areas for further research may include looking into the possibility that outbreaks of foodborne illness are nothing more than human error. Operationalizing human error in a similar study would not only offer a new perspective but might also leave room for administrative reform that incorporates error deterrence. Another avenue for further research may also include looking into how environmental agencies affect the whereabouts and regulatory procedures of industrial food production. Investigating such issues may indicate a presence of social injustices such as environmental racism, ecocide, or even just further cases of corruption.

 As spectacular as the American food system may be, a vast amount of studies tend to argue otherwise. As it appears, foodborne illness is a silent yet controllable threat resting in the hands of the industries that are regulated. Regulators working on behalf of the FDA and USDA serve to protect the U.S. populous from such threats; and to imagine that regulators are doing less than that is worthy of investigation. However, until Congress introduces administrative reform contradictory to industrial interests, it may be worth thinking twice before another bite.

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**Appendix**

 Below is a set of questions that are designed to measure capture of regulatory agents. If given to an agent, this is the exact format they would see:

 The purpose of this survey is to get a sense of the basic standard operating principles within your agency. Please answer honestly, yes or no, to each question as it relates to your own experience as a regulator.

Q1: Were you ever employed by the food industry? (Yes / No)

Q2: As a regulatory supervisor, I feel that I must appeal to the desires of lobbyists. (Yes/No)

Q3: Unless from a family member, I think it is inappropriate to accept a high value gift from anyone in the industry. (Yes / No)

Q4: As a regulatory supervisor, I would rate myself as strict. (Yes / No)

Q5: As a regulatory supervisor, I find myself questioning the motives of the industry, but try not to allow it to affect my judgement. (Yes / No)

Q6: As a regulatory supervisor, I allow the industry to self-regulate. (Yes / No)