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**I, Hei Lam Chio, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Criminal Justice.**

It is entitled:

**Gender, Opportunities, and Antitrust Offenses: Exploring the Evolving Role of Women in the Workforce and White-Collar Crime**

Student's name: **Hei Lam Chio**

This work and its defense approved by:

**Committee chair: Michael Benson, Ph.D.**

**Committee member: John Eck, Ph.D.**

**Committee member: Ben Feldmeyer, Ph.D.**

**Committee member: Miranda Galvin, Ph.D.**

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**Gender, Opportunities, and Antitrust Offenses:**
**Exploring the Evolving Role of Women in the Workforce and White-Collar Crime**

A dissertation submitted to the
Graduate School
Of the University of Cincinnati
In partial fulfillment of the
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By

Hei Lam Chio

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Dissertation Committee: Michael L. Benson, Ph.D. (Chair)
Ben Feldmeyer, Ph.D.
John Eck, Ph.D.
Miranda Galvin, Ph.D.

## ABSTRACT

Antitrust offenses are an important form of white-collar crime. They exemplify Sutherland's definition of white-collar crime as an offense "committed by people of high social status in the course of their occupation." These offenses impose substantial economic harm, reducing competition and innovation. Yet, women in antitrust violations have received limited attention from researchers regarding their prevalence and roles. As such, this dissertation hopes to explore and shed light on women in antitrust violations in the United States through an opportunity perspective.

This project creates a database and uses content analysis to collect information on schemes, cases, and entities. Antitrust cases were drawn from the Antitrust Division in the Department of Justice and filed from January 1st, 1990, to December 31st, 2018. Cases were selected according to the following criteria. They 1) have an antitrust or related violation, 2) are criminal or civil, and 3) have at least one female defendant. Then, related cases were grouped into schemes for analysis. An additional sample of male-only cases was drawn using random sampling stratified by years to create a control sample. All court documents and supplemental information gathered from online searches were reviewed and coded into variables. There are four groups of variables in the coding scheme: 1) case information, 2) documentation, 3) defendant information, and 4) organizational information. Additional employment statistics are collected for selected industries. Overall, during the study period, 54 female antitrust offenders in 41 schemes were identified.

The analyses explore gender differences in patterns within schemes, industries, occupational positions, and roles in the conspiracy. First and foremost, very few women are involved in antitrust offenses. No scheme is a woman-only conspiracy. Female presence is sporadic between 1990 – 2018. Moreover, the analyses revealed similarities and differences in

the roles played by women and men in schemes. Both men and women are likely to be owners. And both appear to participate for personal and corporate gains. The analysis also found that even in female-dominated occupations/industries, women are underrepresented in antitrust cases. Moreover, a small portion of women is involved in schemes through informal/familial relationships. This suggests that some women follow a different pathway into antitrust schemes. The results of this study are consistent with studies of gender in other high-level white-collar crimes.

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# Chapter 1: Introduction

Between 1990 and 2018 the Antitrust Division of the U. S. Department of Justice filed 1,704 cases of antitrust violations by business organizations and individuals in federal courts. Of these 1,704 cases, 41 of the cases involved women who were working in organizations that were charged with violating antitrust laws. A total of 54 women were convicted of various offenses related to their participation in these illegal antitrust schemes, constituting approximately three percent of the individuals charged in the cases. As will be shown later, the involvement of women in antitrust cases appears to have been sporadic but trended upward during the years under study. This dissertation focuses on these women who participated in antitrust schemes and explores whether gender-related structural changes in the composition of the American workforce played a role in their crimes.

Antitrust and anti-competitive behaviors damage the economic underpinnings of society. By reducing competition, they reduce productivity and innovation. They interfere with the law of supply and demand. Antitrust offenses not only damage consumer welfare, but also the market where conspirators operate (Anderson et al., 2007). Calculating the direct and indirect costs of antitrust can be complex. The most straightforward of all antitrust behaviors is price-fixing, where consumers pay a higher price than the supply-demand scale of the market at the time. For example, a seemingly small 2-dollar increase from distributors in a case involving vitamins resulted in a $305 million settlement (Kosicki & Cahill, 2006). This cost does not include all consumer welfare damages that were not claimed or known at the time of the settlement. In addition, other collateral consequences such as harm to other competitors, would-be purchasers, manufactures, and the reputation of the industry cannot be counted precisely. In short, antitrust offenses cause huge damage to consumers, competitors, and regulators.

The analysis is guided in part by the opportunity perspective on crime (Benson & Simpson, 2018; Clarke, 1983; Cohen & Felson, 1979). This perspective assumes that an offender's access to a criminal opportunity plays a causal role in the commission of the offense. Much of the work on the opportunity perspective has focused on the situational and ecological factors that create or facilitate opportunities for street crimes (Clarke, 1995; Cohen & Felson, 1979; Felson & Boba 2010; Weisburd et al. 2004; Weisburd et al. 2012). Unlike street crimes, however, antitrust crimes are occupationally based, and the opportunity to commit antitrust offenses typically requires access to certain types of occupational positions. It follows, therefore, that the persons who hold these occupational positions will be the ones most likely to commit antitrust offenses. Further, it follows that if the demographic characteristics (i.e., age, sex, and race) of the people who hold such positions changes then the demographic makeup of the population of offenders ***may*** also change. Specifically, if women now hold more upper-division executive and managerial level positions in the types of businesses or organizations that commit antitrust offenses then they may be more involved in these offenses than in the past, at least according to the opportunity perspective. However, this expectation may not be true if there are gender-related factors that influence the likelihood of females offending. For example, if, as some gendered theories of crime have suggested (Steffensmeier & Allan 2000; Steffensmeier et al. 2013), women are more risk-averse than men, this may hold them back from engage in antitrust offenses even if they have the opportunity to do so. Because of the lack of prior research on gender and antitrust violations, it is not clear how the existing data comports with either of these perspectives. Hence, this dissertation is designed to shed light on this important question.

To achieve this goal project data are gathered from the Antitrust Division of the U. S. Department of Justice. In addition, as explained in further detail in Chapter 5, the data gathered

from these official sources are supplemented with data from various news media sources. All of these data are combined and then examined with two objectives in mind: (1) to describe the involvement of women in antitrust offenses and (2) to investigate potential causal factors that may underly their patterns of involvement.

This dissertation is organized as follows. To set the historical and legal context for the study, Chapter 2 discusses the development of antitrust law and the various types of antitrust offenses. This chapter also discusses how antitrust offenses fit within the conceptual domain of white-collar crime. Chapter 3 reviews the evolution of women's participation in the workforce in general and their involvement in business organizations specifically. In Chapter 4, attention is turned to an explication of the opportunity perspective and its application to white-collar crime in general as well as specific to antitrust offenses. This chapter also briefly reviews the gendered theory of crime developed by Steffensmeier and Allan (2000), which suggests that for various gender-related reasons women are less likely to take advantage of criminal opportunities than men. Chapter 5 describes the data and statistical analysis techniques that will be used for this project. The results are presented in Chapter 6. A discussion of the results is presented in Chapter 6 along with comments on the limitations of the project and suggestions for future research.

## Chapter 2: Understanding Antitrust Violations

### The Development of Antitrust Law

Antitrust offenses are sometimes seen as the very pinnacle of white-collar crime with cases that can make headlines in the national news. It is a form of behavior with a long history in the marketplace (Geis, 1988), but it is a crime with a relatively short legal history in the United States. From the very beginning of the "free market" in the U.S. economy, there have been individuals and companies that use unfair methods to get around the problem of having to compete on a level playing field with others. Such behavior underlies disruptions to the U.S. economy and politics during and after the industrial revolution. In industries where the government does not grant monopolies, any group of competitors (a cartel), any entity representing multiple businesses (a merger), or a giant corporation (a monopoly) can conspire to disrupt competitive pricing and services to customers in ways that violate the Sherman Act 1890 (Orbach & Rebling, 2011). The major pieces of antitrust legislation include the Sherman Antitrust Act of 1890, the Clayton Act of 1914, the Federal Trade Commission Act of 1914, the Robinson-Patman Act of 1936, and the Celler-Kefauver Act of 1950. To set this dissertation in its legal and historical context, this chapter will briefly describe the development of antitrust law and the various types of antitrust offenses.

Antitrust behaviors are intended to suppress or disrupt competition in the market. Competition is an essential condition of a "free market" society. In theory, prices for goods and services in a free market are determined solely by competition and the law of supply and demand. In theory, the government does not regulate production or labor. The law of supply and demand dictates the price of goods and services and the volume of goods in the market. In reality, the U.S. economy and elsewhere is a mixed economy that has some level of competition

in the market along with some level of governmental regulations. Indeed, the U.S. is ranked 17th by the 2020 Index of Economic Freedom and is considered a "mostly free" market with moderate "intrusive regulation" in certain market sectors (i.e., health care) (The Heritage Foundation, 2020). Antitrust law is one of the many types of regulations that governments impose on the market to prevent unfairness.

Antitrust Laws are often enacted after the discovery of business-related scandals. For example, in the 19th century, Rockefeller's Standard Oil Company of Cleveland used coercive means to merge with or get rid of competitors. By 1879, he "controlled 90 percent of the oil refining capacity," a network of oil pipelines, and large reserves of petroleum in the United States (Carnes & Garraty, 2006). Carnegie Steel Company controlled every level of steel production to create a vertical monopoly in the steel industry. By 1879, it controlled nearly the entire steel industry, from raw material transportation, and manufacturing, to distribution (Geisst, 2000). In the early 20th century, the meat-packing industry was also monopolized by Swift & Co., which controlled all meat-packing processes. These giant corporations made "trust-busting" a political necessity and led to the Sherman Antitrust Act of 1890.

The Sherman Antitrust Act of 1890 focused on monopolistic practices among monopolies, cartels, and trusts. A monopoly is said to exist when a single corporation controls an abnormally large share of a particular industry and can suppress other businesses in the involved industry. A cartel is a group of supposed competitors in the industry who agree to non-competitive actions. For instance, at one point in time, the American Tobacco Co. controlled nearly fourth-fifths of the licorice industry, but its control was dissolved by federal prosecutors using the Sherman Act in 1911 (Hannah, 2006). This act has since been the major law used to impose preventions and some controls over the three types of economic entities.

Although the Sherman Act was a good start, it also had weaknesses. Thus, roughly two decades later Congress returned to the issue of competition in the marketplace and passed the Clayton Antitrust Act of 1914. The Clayton Antitrust Act prohibited business practices that are conducive to forming monopolies or that result from monopolies (Trattner, 2017). Known as the antimerger law, it essentially added mergers and interlocking directorates as forms of illegal business practices leading to monopolies. A merger is where competitors join into a single company/entity title to allow one entity to control an inordinate amount of the industry (vertically or horizontally). An interlocking directorate allows the same person or group of persons to make decisions for competing companies. The Clayton Act authorized the Federal Trade Commission (FTC), which was created by the FTC Act of 1914, to prohibit evolving strategies by businesses using mergers and other proxies to achieve monopolistic results.

Initially, neither act barred mergers between companies or acquisitions. It is not until 1950 that a revision of the Clayton Act covered this loophole to make mergers of such kind unlawful. The Clayton Act also bans discriminatory prices/services in dealings between merchants. Section 2 of the act was further expanded by the Robinson-Patman Act of 1936. It protects small businesses by prohibiting price discrimination, limits promotional allowances, and regulates advertising by large, franchised companies (Haslett, 1948). The Clayton Act was criticized for failing to recognize that mergers are essential to competition. This led to the Har-Scott-Rodino Antitrust Improvements Act of 1976 which allows large mergers or company acquisitions as long as companies notify the government of their plans in advance. In some senses, it promotes the legal use of antitrust behaviors, but also it expands the government's ability to regulate mergers or behaviors that would possibly lead to a monopoly or reduced competition.

Currently, the federal antitrust laws are enforced by the Federal Trade Commission (FTC) (Bureau of Competition, 2013) and the Department of Justice (DOJ) Antitrust Division (Antitrust Division, 2014). The FTC conducts antitrust investigations, issues administrative complaints, and transfers cases to federal courts during the adjudication process depending on the underlying facts. It makes the final decisions about administrative complaints. There are many overlaps in enforcement between the FTC and the DOJ, so they work together and are commonly known as "the agency" (Antitrust Division, 2014). The primary types of antitrust behaviors that are outlawed include price fixing, bid-rigging, market divisions, group boycotts, and certain other anti-competitive agreements between competitors. In addition to antitrust law, the Antitrust Division may use other federal laws to charge conduct that accompanies or relates to the antitrust scheme, results of the scheme, or related investigations, such as perjury, mail, and wire fraud. All violations can be enforced and prosecuted in administrative action, civil suits, and criminal cases by the federal agency in front of federal judges.

## Types of antitrust violations

### Restrictive trade agreements

One of the most important forms of antitrust violation that typifies the image of an antitrust crime is the restrictive trade agreement. A restrictive trade agreement is any form of agreement between competitors in the market to restrict how the market works, disrupt the law of supply and demand, and reduce competition. The three types of restrictive trade agreements are price fixing, bid-rigging, and market division/allocation schemes. Restrictive trade agreements are considered *per se* violations that are inherently illegal. Once such an agreement is established and proved by direct testimony, it cannot be defended by arguing that the price was reasonable or that there was no harm.

*Price Fixing.* An agreement among competitors to raise, fix, or maintain the price of their goods and services at a certain level. Although they do not need to all charge the same price or have all competitors join the conspiracy, the activity restricts price competition. Price fixing can take many forms. It can be competitors adopting a standard formula for computing prices (i.e., the same percentage of profit) or agreeing to not advertise prices (i.e., same standard service for inquiry). Two mechanisms are often found in a price-fixing conspiracy – an agreement to adhere to one pricing standard and a monitoring system among competitors that are part of the agreement.

Price fixing happens in our everyday lives in industries ranging from dairy products (U.S. vs. CWT, 2017; U.S. vs. United Egg producer, 2010) and auto parts (a series including U.S. vs. Usui Kokusai Sangyo Kaisha Ltd., 2016) to diabetes medication (U.S. Heritage Pharmaceuticals Inc., 2019). Every buyer can fall victim to paying higher prices or to having limited buying choices unknowingly. Although cases that are discovered and charged can result in criminal penalties and civil damages, the damages often do not equal the monetary loss to consumers. As a crime with diffuse victimization, it is difficult to calculate the exact monetary losses suffered during the duration of price fixing.

The detection of price fixing often arises from the Antitrust Division's or FTC's ongoing investigation of specific industries (i.e., the motor vehicle industry). Any unusually high or unchanged price may lead to further investigations by the agency. Sometimes community organizations detect restrictive trade agreements and file civil class actions against companies in an industry and this may prompt further investigation among other competitors (i.e., consumer association against milk farmers). Evidence of price fixing includes ongoing communications, employee testimony, and substantial evidence of unusual activity in the market. Sometimes the

organizations involved in white-collar crime sacrifice pawns for a king. During the investigation, companies may enter a cooperation agreement with the FTC or DOJ-AD in advance and agree to resolve all civil claims, plead guilty, and provide evidence of the conspiracy in return for permission to continue operation under oversight. This evidence may then be used to file civil and criminal charges against other co-conspirators.

*Bid-rigging.* This practice involves an agreement among competitors to decide in advance who will submit the winning bid and amount in a competitive bidding process. The purchasers in these cases are often federal, state, or local governments. The idea is for some bidders to raise their bidding price so that the winning bid (that is, the "lowest" bid) is higher than it would be in a normal competitive bidding process. A bid-rigging conspiracy may use one or both of the following strategies to "win". First, competitors may agree in a bid suppression scheme to withdraw previously submitted bids or refrain from bidding, so the bid falls on the designated winner. Second, competitors agree to a complementary bidding system that creates the illusion of competitive bidding. However, they may include unreasonably high prices, unacceptable special terms, or other incomplete plans that make the designated bid winner the only reasonably priced complete contract with reasonable terms. This is the most frequent form of bid-rigging.

There are two ways that conspirators can receive benefits from joining the conspiracy. First, competitors may agree in a bid rotation scheme to take turns being the designated winner, whether it is by bid suppression or complementary bidding. This happens when the scheme is not made up of straw boys – bidders that have no intention of trying to win the bid. Rotation allows conspirators to receive the benefits they wanted to stay in and mouth-closed about the conspiracy. Although rotation defies the law of chance, successful schemes often create the illusion of chance to avoid suspicion and detection from enforcement agencies. Second,

competitors in a big rigging scheme may acquire benefits from subcontracting arrangements. The designated winner agrees to provide subcontracts or supply contracts to competitors who agree to the scheme. A subcontract can involve dividing a high-priced bid among competitors or joining other contracts owned by the winner. The winner may also share other supply contracts or benefits in return. In sum, the key characteristic of bid-rigging is an agreement that eliminates parts or all of the bidding competition and thus predetermines the winner.

Victims of bid-rigging include the purchasers as well as users of a service. The bubble created by the artificially made price may burst and impose enormous costs on others in the market. One remarkable case in the international finance realm was discovered during the Financial Crisis of 2008. A group of "traders and brokers in big investment banks in the United States, England, Switzerland, Germany, and Japan conspired to submit inaccurate information to Libor", which is a rate used to set short-term interest rates (McBride, 2016; Benson & Simpson, 2019). The number is calculated daily based on information submitted by global banks regarding estimated rates if they borrow money from other banks. The banks, together, rigged the formula and manipulated the Libor rate to be artificially high or low according to their desires. At the same time, the Libor rate is used as the basis to construct derivatives and credit default swaps sold to investors. In return, by knowing exactly when the Libor rate was going to be high or low due to their manipulation, traders, brokers, and bankers were able to invest and make money quickly. Victims of the Libor scandal included everyone who holds shares in an investment, including homeowners with Libor-based mortgage repayments, employees with pension funds invested in Libor-based securities, municipalities, and any country that bought stocks packaged by Libor-based U.S. derivatives markets. (McBride, 2016)

In common bid-rigging schemes, detection comes from unusual patterns of bids (Bajari & Ye, 2000; Porter & Zona, 1992; Huber & Imhof, 2019) and characteristics of industries and a bidding process that is prone to big rigging (Bajari & Summer, 2002; Huber & Imhof, 2019; Antitrust Division 2020). Using the theory of competitive bidding, Bajari and Ye (2000) created a detection tool that reversed engineered a bid process based on conditions that would have happened in it is truly a competitive bidding process. As a result, bids that correlate bids from various firms and/or failed to follow through with publicly observed factors affecting costs and bids would raise a warning sign (Bajari & Ye, 2000; Bajari & Summer, 2002). In general, bid-rigging is more likely to occur in industries with fewer sellers, more standardized products, repetitive purchases, established informal networks among sellers, and close geographical proximity among sellers.

*Market division/allocation.* Competitors in a market division scheme agree to spilt up the market so only one of them works in one area at a time. Competitors may divide markets by geographical areas, types of buyers, and/or types of products to sell products/services. They may stop producing certain products that serve a subgroup of customers or orchestrate a surge in prices in a geographical area or a product line to achieve market division. For example, between 2013 and 2015, two pharmaceutical companies agreed to fix prices on certain generic drugs which lead to particular customer allocations. Being the only two manufacturers of drug D, companies A and B encouraged a price increase on drug D while signing agreements with other companies who produce a substitution drug to not sell in the same place, leading customers to buy drug D from companies A and B (U.S. v. Teva Pharmaceuticals USA Inc. and Glenmark Pharmaceuticals Inc., USA, 2020; U.S. v. Sandox Inc., 2020). Bid-rigging often involves market division as well. In a bid-rigging scheme involving insulation contacts, companies divided bids

among themselves to solicit noncompetitive outcomes (U.S. v. Paul M. Camara, Jr., 2019; U.S. v. Gary DeVoe, 2019). They also would perform a different portion of the work by subcontracting if the project were large enough to divide.

## Antitrust as a White-Collar Crime

Antitrust is a perfect example of white-collar crime. It fits both Sutherland's and Edelhertz's definitions of a white-collar offense. Sutherland's (1983) offender-based definition describes white-collar crimes as "a crime committed by a person of high social status and respectability in the course of his occupation." The perpetrators of antitrust crimes often consist of a group of high-level executives conspiring to reap benefits for their business organizations and themselves. They often have higher educational degrees, held high occupational positions, and have relatively high social status (Benson & Simpson, 2018; Weisburd et al.,1991). On the other hand, Edelhertz's (1970) offense-based definition describes white-collar crime as "a series of or an illegal act(s) committed by nonphysical means and by concealment or guile to obtain money or property, to avoid the payment or loss of money or property, or to obtain business or personal advantage". Antitrust offenses often involve a series of illegal acts across a long period that rely on concealment to hide the crime. It aims to gain money/property (i.e., price fixing) or obtain business/personal advantage (i.e., market divisions) from victims. When a group of antitrust offenders conspires to restrict competition, these actions are often camouflaged to appear as legal activities. Finally, antitrust offenses are nonviolent. They do not impose direct physical harm on individuals.

Antitrust offenses also contain the three special features of white-collar crime – legitimate access to targets/victims, spatially separated from victims, and superficial appearance of legitimacy (Benson & Simpson, 2018). Referencing the different types of antitrust offenses

described, they all share these special features. First, antitrust is innately a crime of business and a crime by business owners/executives; thus, they have full access to targets/victims. Offenders have information regarding their product/services' purchasers and customers. They also have the power to manipulate the targeted feature to reduce competition, such as price tags, bidding contracts, and information to evaluation agencies. Changing the price of a product, creating and turning in a bidding contract, or submitting credit information to agencies are all part of the businesses' normal activities. Second, these illegal acts are part of normal business operations behind closed doors where customers are unaware. They are committed at a different location and time away from targets/victims. Communications among executives in a conspiracy, creating a fake bidding contract, or collectively changing the price of a product are completed whenever the offenders agreed to, without the need to inform the targets/victims. The act is committed before purchasers are victimized. Lastly and closely related to the first two features, antitrust offenses are often part of normal business operations that will not bring the attention of enforcement agencies. Thus, antitrust offenses have a superficial appearance of legitimacy. At other times, offenders will create the appearance of legitimacy from their knowledge. For instance, bid-rigging offenders often create the illusion of chance and competition through a carefully calculated bidder rotation system or the use of a group of complementary bidders. These illusions conceal the illegal acts under the appearance of legitimate activities.

## Chapter 3: Women In The Work Force

### Women's History in Work Force

Women's involvement in the labor force has been a story of conflict and activism in the United States. Exactly how it has evolved is debated. In this chapter, I review some of the more notable historical turning points that improved occupational opportunities for women from the early 1900s to the present. These developments were often brought about by historical opportunities, technological changes, and waves of women's movements that broke through many obstacles that prevented women from having the same opportunities as men in the workforce. The industrial revolution, War World II, and the Golden Age of Capitalism are among the major events that brought an influx of job opportunities that allowed women access to more jobs and occupations. Technological advancements in household products also helped to ease women's static needs as a housewife and allow for dual-career households. Yet, the road to equality has not reached its end, especially for women's opportunities to hold top positions in private and public industries.

During the industrial revolution, the rise of unskilled work opportunities allowed females of all educational backgrounds new opportunities to earn independent wages and provide a better standard of living for themselves and/or family (Fernández, 2013). Before the First World War, children and women worked at unsafe factories to earn for their families. When examining the work of women during the 18$^{th}$ and 19$^{th}$ centuries, we see that women often worked when their husbands were incapable of earning enough for the family or if their husband's work needed assistance. Few women worked for independent earnings. The jobs involved largely unskilled or skilled manual work in factories or gender-specific works (i.e., seamstresses) (Corcoran &

Duncan, 1979). Women also worked as assistants in their husband's businesses. For instance, many female scientists' assistants were often relatives of male scientists (Jackson & Jones, 2007). In these times, most people believed that it is costlier for married women to work than to take care of the family (housewives). Only 2% of married women worked in 1880 and the percentage slightly increased to 6% in the 1920s (Jackson & Jones, 2007).

Gradually, women's participation in the labor market started to change before the First World War and continued throughout the Second World War. From the 1880s to the mid-1900s, a combination of technological advancements that eased the time involved in housework (i.e., dishwashers in the 1850s, clothes washers in the 1900s) (Fernández, 2013; Greenwood et al., 2005) along with greater educational attainment and job opportunities, gave rise to greater female participation in the labor force. Technological advances alleviated the time women had to spend on housework and childcaring (Greenwood et al., 2005). Household machinery such as dishwashers, clothes washers, and vacuums was increasingly more affordable for dual-earning households. Not only did it become cheaper to take care of children, but women had more time beyond housework to participate in other activities, including work.

However, the belief that women could and should work for independent earnings and interests was not widespread. The stereotypical female who worked as a provider only did so because the man in the household could not support the family for some reason. During the women's civil right movement and the ratification of the 19$^{th}$ Amendment in 1920, women were "more" recognized as being capable individuals on par with men – able to vote. It affirms women's "constitutional equality" with men (Brown, 1993). The continual work of female activists before and after the 1920s shaped and empowered women to enroll in educational

programs that previously had been barred to them (Title VI/Title VII), take up jobs for independent wages, and run for political positions (Galles, 2004).

The trend of women's labor involvement expanded again during the Second World War, which is commonly thought of as one of the most significant turning points for women's job opportunities. Not only because of labor needs in factories after men had left for war but most importantly, because women could also join the military for noncombat missions and other war-related duties (Lockhart & Pergande, 2001). The demand for labor gave rise to female participation in much-needed noncombat areas. Thousands of women took up the factory and military-related work that was once dominated by men and not open to women. Women came to be seen as just as capable as men in more varieties of jobs that were once the exclusive province of men.

The trend of expanded female labor participation did not end when men returned to the country from war after the 1950s. The rise of women's labor participation was a major factor in the U.S. labor force growth from the 1950s to 1999 (Toossi & Morisi, 2017). The population growth after the war (i.e., the Baby Boomer generation) was reaching their working age, increasing both the number of men and women in the workforce. In 1950, about one-third of the total labor force was female workers (19.4 million). Not only did younger females, unmarried or married, become more willing to enter the workforce, but older females continued to stay in the workforce aside from merely "assisting" their husband's wages or business.

Moreover, women's beliefs regarding work changed over these few decades. From a calibrated model of learned beliefs regarding female working, Fernandez (2013) found that from the 1880s to the 1960s, women became "less pessimistic about the disutility of working", became "more sensitive" to the combined (their own and their husband's) wages, and believed

"it is not bad for a woman to work". These optimistic changes in beliefs were also due to huge increases in wages and job opportunities in skilled work during the so-called Golden Age of Capitalism that brought worldwide economic expansions, which began after World War II and ended with the 1973 recession. Female participation in jobs did not reduce male occupational opportunities. Rather, there was an overflow of jobs in the United States that needed workers of all skills and genders.

The landmark civil rights and labor law, the Civil Rights Act of 1964, outlawed employment discrimination based on race, religion, nationality, and sex (FTC). 1972 marked yet another breakthrough in female equality – the extension of Title VII of the Civil Rights Act of 1964 to educational institutions and the Equal Employment Act of 1972 across all levels of government. Men and women no longer were forced into gender-specific educational programs. Science, Technology, Math, and Engineering (STEM) were opened to and encouraged for female students. Employment and job promotions rose for female employees (Bureau of Labor Statistics, 2016). Although legal achievements were a tremendous success, the top-down effect to reduce the overt exclusion of females from the male workgroup required many years to come (Epstein, 1995).

Between 1975 to 1991, female employment continued to rise even though the percentage of females in the job market declined. Due to the recession of 1973, many unskilled job positions had stagnated wages or were closed (Lombard, 1999). Rather than choosing work for their "rising wage" and promotion opportunities, women's employment increased due to their increased willingness to work for any given wage (Lombard, 1999). This is especially true for married women, who had increased their participation in employment from 42% to 63% in the United States from 1975 to 1990. Many worked to financially assist with household costs.

However, the percentage of overall female participation in the job market did not increase as much as male participation, due to limited opportunities. According to Lombard's (1999) statistics on job trends, disparities and inequalities remain when the supply of jobs is lower than the demand for jobs. Employers prioritized men over women in the labor force. 1999 marks the peak for both male and female employment participation, as both later declined due to recessions in 2000, 2008, and 2020. The rate of female employment participation stagnated over the next two decades (2002 – 2018), and females now make up over half of the workforce in the United States (Women's Bureau, DOL).

Currently, women made up over half (51.7%) of the labor market in the United States as of 2018. About 131 million women are employed (Women's Bureau, DOL). From the World Bank statistics, 56% of the female population participated in the labor force, which is a slight decline from the 1999 peak (59.02%). Since the 1920s, women are more distributed among various types of occupations. The statistics counting the top 10[1] occupations employing the largest number of women once employed 70% of all women labors in the 1950s (Women's Bureau, DOL). In 2018, the number of women employed has gone up while the concentration of women in the top 10[2] occupations has gone down to 32.8% (Women's Bureau, DOL). Certain industries have gradually become dominated by women, such as health care and teaching professionals (ILOSTA, 2022). It shows that opportunity for women to participate in various kinds of occupations and industries has equalized to allow an increasing number of women to get

[1] The 10 occupations employing the largest number of women in 1950 are (in their ranked orders): 1) operatives; 2) typists/secretaries; 3) clerks; 4) salesmen and sales clerks; 5) private household workers; 6) teachers; 7) nurses; 8) bookkeepers; 9) waiters and waitresses; and 10) managers, officials, and proprietors. (Women's Bureau, DOL)
[2] The 10 occupations employing the largest number of women in 2018 are (in their ranked orders): 1) teachers; 2) nurses; 3) nursing, psychiatric, and home health aides; 4) secretaries; 5) cashiers; 6) customer service representatives; 7) retail salespersons; 8) waiters and waitresses; 9) first-line supervisors of retail sales workers; and 10) managers. (Women's Bureau, DOL)

the jobs they wanted. The types of jobs gained by women moved toward administrative, white-collar jobs, as the U.S. economy continues to move toward a service and technology economy.

## Women in Organizations

While female participation in the workplace is normal in the present day, gender-based inequality continues to inhibit women from working in the same workplace environment as men. According to the organizational and management research literature, females continue to experience reduced but substantial hostility in the work environment, an adverse consequence from family matters (i.e. pregnancy, marriage), limited social networks, wage gaps, and glass ceilings in occupational advancement (Wrigley, 2002). All of these reduce females' opportunities in participating in higher positions within an organization or creating a successful business.

In early organizational work, two views explained the male and female promotion gap. While a majority of organizational studies and feminist studies (Cotter et al., 2001) suggest that a glass ceiling and traditional beliefs regarding woman's role in the family barred females from being promoted to senior management positions, others believed that innate female personalities led them to be incompetent or to be perceived as incompetent for higher positions (Morrison, 1992; White et al., 1992; Hakim, 1996; Liff & Ward, 2001). The glass ceiling is a popular notion suggesting that as a subpopulation, women are more and strongly disadvantaged the higher they attempt to move up the occupational hierarchy. A female glass ceiling has been supported by some studies (Morgan, 1998; Cotter et al., 2000). On the other hand, studies (Hakim, 1996; Liff & Ward, 2001) suggest that the glass ceiling is a distorted feminist view of the female promotion path. They suggested that family values and gender-specific personalities naturally separate females from males and those females tend to be incompetent managers. The organizational

environment also makes females aware that they are incapable of keeping family duties and supervisory job duties. In this view, females who fully recognize, understand, and follow the rules, have equal promotional chances as men (Morrison, 1992; White et al, 1992).

Both views work in ways that shape how individuals, men and women, view the work environment and promotion chances. Legal and formal organizational rules provide seemingly the same opportunities for male and female job recruitment and promotion. However, informal practices and views regarding gender differences reduce such opportunities for females. Female interviewers of an organizational survey (Liff & Ward, 2001) suggest that female employees felt that not having a child, working longer/more flexible hours, and behaving like men increase the female's chance of promotion and reduce their chances of being "labeled by their superiors as not a career person". Senior managers use informal networks to constrain women from taking chances in the promotion and using help for family duties. Organizations are comprised of male-dominated networks of managerial levels, even in modern days. (BLS, 2020) The male dominant workplace repeatedly confronts women with negative messages. The image that a manager should be a super-human workaholic who will devote his entire self to the company is one seen as appropriate only to men. To be a manager should not be the aspiration of a woman who needs to take care of her husband and children. Any woman who takes a managerial position is not "womanly" and neglects her family. These messages stress the incompatibility of family and work commitments of women who are assumed to want children and need to take care of the family.

Social networks across different work settings imply gender differences and disadvantages for female employees and employers. In addition to male-dominated networks at superior levels within an organization, business owners' social networks are also male-

dominated. Studies (Hisrich & Brush, 1986; Robinson & Stubberud, 2009) found that men are "more likely to identify" "lawyers, accountants, and other professionals" as important social network supporters. Spouses are ranked second. They are also more likely to see professional acquaintances and consultants as sources of advice. On the other hand, female owners ranked spouses as "their most important supporters, followed by close friends". The survey implies that more formal sources, such as professional acquaintances and consultants that allow for better business advice, may be restricted to female business owners. Robinson & Stubberud (2009) also found that gender differences in owners' social networks have implications on business performance, which allows the industries to remain male-dominated environments.

Other studies of gender differences in social and financial capital found an association that influences survival rates, profits, and sales or female-owned businesses. Social capital is conceptualized as "the expectations for action within a group or organization," often described as relational resources (informal social networks) (Portes & Sensenbrenner, 1993). Business owners' social capital can increase advantages for the organizations and increase the number of local consumers for small business owners (Runyan et al., 2006). A study (Runyan et al., 2006) found that, in the sample of 467 small business owners", women reported a higher level of social capital but had no differences in firm performance. The study did not conclude whether the female was less accessible to network resources (though the number of networks is higher) or was incapable of using the network sources. Watson (2011) found similar results that male and female small and medium-sized enterprise (SME) owners have similar accesses to informal and formal network, as well as similar survival and growth net of other individual factors. In a different study, the sample of female-owned businesses were found to typically have "less business human capital through prior work experience" and "less prior work experience in a

family business" compared to men (Fairlie & Robb, 2009). Females' lower financial capital was also associated with a lower survival rate, profit, and sales (Fairlie & Robb, 2009).

In addition, there are gender differences in economic support and financial capital. The United States hosts equity crowdfunding campaigns through Title II, angel and venture capital (VC) investments. Of the 6,234 equity crowdfunded offerings across 17 platforms, only 15.2 % were offered to women-owned companies (Malaga et al., 2018). Female business owners also have less startup capital in general (Fairlie & Robb, 2009). Although gender has "no effect on the likelihood of successful fundraising," results from these studies imply that informal practices and culture have self-recruited women out of entrepreneurship.

What these studies do not and could not examine is the gender differences in being able to start a business. According to the Organization for Economic Co-operation and Development (OECD), 10% of women are self-employed, almost half that of men (18%) in the surveyed 37 countries (OECD, 2016). In the U.S. about 6% of females are self-employed versus 12% of self-employed males, which is a larger difference than the OECD average (OECD, 2104). Thus, research may require oversampling females to calculate a significant difference with lower standard error. However, the proportion of the female-male ratio varies among studies regarding gender differences in social and financial capital. Studies with some or mostly significant results generally oversample females to increase reliability. In studies that do not find a gender difference in social/financial capital or financial achievement, the sample often has disproportionally lower numbers of females in the sample. Watson's (2010) study in Australia has 2,919 male and 181 female SME owners, making females only 6% of the sample. Females still represented a much lower percentage in ownership and managerial occupations compared to the legal achievement of women's equality.

A very similar image is painted for women in executive positions at large firms. 1972 marked the very first female executive at a Fortune 500 company (Catalyst, 2020). Katharine Graham at Washington Post Co. has been the head of the company since 1963. Marion O. Sandler is the second female executive ranked at a Fortune 500 company. It was not until 25 years later that a third female executive appeared on the rank in 1987. Then, the same three female executives remained on the list and in the same companies, while other companies who have come in and out of the list from 1972 to 1995 were led by men. Slowly, the number of female executives begins to increase to 4 (2001), 10 (2006), 12 (2011), boosted to 21 (2016), and 37 (2020). The number of female executives increased exponentially in the last few years; however, it remains at 7.4% of total executives in Fortune 500 firms. The percentage of female executives in the Fortune 501-1000 from 1997 to 2014 did not differ from the top ranks, implying a lower glass ceiling than one would expect from the relatively long history of the women's rights movement.

As the literature review suggests, occupational opportunities for women have progressed from the 1880s to present day, but not as much as we would hope for in a society based on merit. Female employment at lower positions is normalized, although a wage gap can be seen across industries. Educational attainment has a steeper growth compared to promotion advancement for female employees. Women are still seen with most of the household duties apart from work life. Many of the ingrained perspectives held by women may bar them from promotion to managerial levels. Female business owners also have a less professional social network, less social capital, and less financial capital compared to male business owners. A glass ceiling remains unshattered for many females who would be the counterfactual sample to these studies.

In summary, although the history of women's increasing involvement in the workforce is messy and complex, more women now hold managerial or supervisory positions in organizations than ever before. However, there is also reason to believe that women's experiences as executives, managers, and supervisors differ from those of men. For example, women may be excluded from informal networks in business settings. These differences in the experiences of women in the workplace may influence their involvement in antitrust offenses, which this dissertation is designed to explore.

## Chapter 4: The Opportunity Perspective, White-Collar Crime, And Antitrust Offenses

### Understanding the Opportunity Perspective

In examining white-collar crimes in general, the opportunity perspective can be used to explain why particular types of offenses tend to occur in particular places at particular times. Deriving from routine activities theory, situational crime prevention theory, and rational choice theory, the opportunity perspective sees criminal opportunities as an important cause of crime (Clark, 1995; Cohen & Felson, 1979; Cornish & Clarke, 2008; Benson et al., 2021). The presence of a motivated offender alone is not enough. According to the routine activity theory, the three key components needed for a crime to occur are a motivated offender, a suitable target, and a lack of capable guardianship (Cohen & Felson, 1979). Building off of the work of Cohen and Felson, Eck (1995) developed the concept of the crime triangle, which included the component of place and expanded the component of control (that is, guardianship) to include three forms: place manager, handler, and guardian (1995). All or some of these components shape how crime opportunities exist for specific crimes. Each form of street or white-collar crime, including antitrust offenses, has its kind of opportunity structure that creates and facilitates criminal opportunities for particular types of crime to happen.

From the opportunity perspective, the search for opportunity structure often begins with investigating the suitability of targets, guardianships, and settings/places. It assumes that at least one motivated offender is available. Individuals may perceive a target as suitable for crime due to its vulnerability or attractiveness. However, for antitrust offenses, offenders may identify targets as vulnerable when the potential offenders have advantages related to information imbalances. For example, due to limited knowledge of products or services, certain groups of consumers are more susceptible to price-fixing, while others may be targeted for their restricted

access to other available products or goods. The lack of capable guardians who can detect and be willing to intervene also makes targets more vulnerable. The level of capable guardianship (Miethe & Meier, 1990; Tewksbury & Mustaine, 2003) has been shown to influence victimization risks for property and violent crimes. Applied to antitrust behavior, auction officials who are unable to detect fake bid profiles from legitimate bids make the contracting process vulnerable to bid-rigging. Lack of effective oversight division or corrupted guardianship may allow antitrust schemes to remain active for years without detection.

Several factors make some targets more attractive than others. For example, offenders may perceive some targets as more attractive than others depending on portability, value, and fungibility (Benson & Simpson, 2018). The VIVA model proposes features suitable as value, inertia, visibility, and accessibility (Cohen & Felson, 1979). The CRAVED model also points at similar features of hot products, including concealable, removable, available, valuable, enjoyable, and disposable (Clarke, 1999). These models can be applied to different types of crime. Properties or individuals with one or more of these features are more attractive to offenders. Value, repeated in different models of hot products, is perhaps one of the most important features of any property crime, including antitrust offenses. The perceived gain from targets is only attractive if it is higher than the perceived risk/loss (Clarke & Cornish, 1985). Portability, visibility, and concealability go hand in hand. Antitrust offenders try to hide abnormal behaviors by making them appear as legitimate and normal behaviors. For example, non-competitive bids are hidden by creating the illusion of competition via fake bids from supposed competitors, so the appointed winner can "win" in the legitimate process. Clever price-fixing schemes control prices at an "acceptable" and unnoticeable percentage. Finally, fungibility and disposability both relate to how easy it is to exchange property for something else. Money

can be exchanged for anything and can be stamped by a legitimate process (i.e., transaction). Hence, it is a very attractive target. For antitrust offenders, the target or goal of the offense typically is to make more money than would be made through free and open competition with others.

The lack of capable guardianship is also an important component of criminal opportunity. Guardianship is any contextual element that can prevent contact between targets and offenders and/or can increase offenders' perceived risk and effort of offending. According to Eck's crime triangle, there are three forms of control – handlers, guardians, and place managers. Each role influences the respective features of a criminal opportunity: offenders, targets, and places. In theory, handlers can oversee offenders and prevent criminal behaviors; guardians protect targets; place managers control places where crimes could potentially occur.

The standard techniques of guardianship can be generalized into two forms: "blocking access and surveillance" (Benson & Simpson, 2018). First, blocking access, physically or virtually, reduces target attractiveness, because it increases the offender's effort to carry out the crime. Guardians can harden, conceal, or even remove targets from the offender's reachable areas. For instance, a business can build a better security system for its computer network to fend off hackers. Second, extending and strengthening surveillance, formal or natural, reduces target vulnerability because it increases the offender's risk of detection. For instance, the test of random digits based on Benford's law (1938) can screen out fraudulent claims (Diekmann, 2007). All three types of control may use different methods to keep an eye on potential offenders, targets, and places. Also, super-controllers are formal institutions (law enforcement, regulators, law) that can influence and strengthen guardianships. With antitrust offenders, regulators and rules may be influential in controlling owners from conspiring together via regulations that make it more or

less difficult to conceal behaviors that restrict the traditional market mechanisms of supply and demand.

The concepts of suitable targets and guardianship can be extended from street crime and applied to white-collar crime, including antitrust crime. Therefore, we can see the opportunity structure and criminal opportunity of specific antitrust behaviors from the opportunity perspective. As such, different types of industries and organizational structures may have more criminal opportunities for certain white-collar crimes. For instance, technological advancement has replaced bank teller positions with online banking systems. The opportunity to embezzle from banks has drastically decreased while credit card and online identity fraud may increase (USS, 2020). Criminal opportunities are concentrated at vulnerable places and suitable targets.

### Gender and the Opportunity Structures of Antitrust Offenses

Applying the opportunity perspective to antitrust violations, various characteristics of the market, organizations, industries, and enforcement atmosphere often signal to offenders about opportunities to collude and conspire. From the DOJ antitrust reports, in markets with fewer sellers, fewer substitute goods, more standardized products, and/or more stable demand, there are increased opportunities to collude and manipulate the market (Antitrust Division, 2021). Consumers are more vulnerable to adhering to higher prices. In organizations with a more strained incentive system and/or more centralized/localized power, it is more likely to create opportunities for individuals to conspire with other organizations due to reduced guardianship. In industries where the organizations have a localized and tied social network, as well as closer geographical proximities, it allows for easy opportunities to communicate. Groups with informal guardians who often oversee each other may become corrupted and conspire together.

Markets with certain innate features may increase the likelihood that sellers will conspire. In markets where supplies are restricted in the hands of fewer sellers, these sellers have an easier time getting together and agreeing upon a conspiracy. In markets where a few sellers control most of the market, the giant sellers can also form a small group to agree upon a conspiracy. In markets with little or no substitute goods, such that buyers cannot find similar or comparable products, demand will maintain relatively stable for sellers. For instance, certain drug products have no generic substitution or are made by only a few pharmaceutical companies, so demand for these drugs won't decrease even if the price increases.

## Women and Crime in Criminological Theory

The subject of women and crime now occupies a prominent place in criminology, but this was not always the case. The modern approach to the study of women and crime was initiated by Freda Adler and Rita Simon in the 1970s (Crump, 1987). Adler (1975) attributed the rise in female arrests for minor crimes to the women's liberation movement and women's increased participation in the workforce. It was a "side effect of women emancipation" (Crump, 1987). Simon and Sharma (1979) also found that women had increased their "participation in properties and economic crimes," and this increase was in their view associated with women's increased participation in the labor force, especially between 1967 to 1974 (Simon & Sharma, 1979). Since this pioneering work, numerous studies have explored the association between female employment and crime in general. Researchers have discovered that there are gendered pathways to crime that arise out of risks and need factors that are unique to females. But very little work has explored how gender relates to white-collar crime, especially high-level white-collar offenses. Hence, this dissertation is designed to explore whether and how gender

influences involvement in antitrust offenses and whether women's involvement in antitrust offenses is influenced by their occupational positions.

### Social Distribution of Opportunity

Similar to places and targets, access to particular white-collar crime opportunities is not distributed evenly across industries or occupations. Certain industries may be grounded on an incentive structure or norm susceptible to antitrust behaviors while others don't. People who have more power and are in leadership positions can certainly see and do more. Hence, antitrust offenders are often portrayed as executives or owners of a company. And it is typically true. In the Yale study, 71.3% of antitrust offenders were "either owners or officers of their companies" (Benson & Simpson, 2018). Thus, antitrust schemes often involve one or more conspirators who are owners of the organization. However, sometimes lower-level employees may engage in restrictive trade practices without the explicit knowledge or authorization of their superiors (Sonnenfeld & Lawrence, 1978).

The occupational structure is stratified among class, race, and gender – and it translates to variation in criminal opportunities (Benson & Simpson, 2018; Kalev, 2009). While the occupational position may restrict access to antitrust opportunities, women who have less access to these employment opportunities may likely be restricted from accessing criminal opportunities associated with higher positions. Minority subgroups in certain demographic who have fewer opportunities to reach certain occupations also have less opportunity to commit certain types of offenses. In addition to access to the opportunity structure of an offense, the offender's social identity may influence his or her occupational opportunities. Stereotypes and social expectations surrounding females may hinder them from reaching executive-level jobs. For example, women may be seen as more committed to family responsibilities than men are. Such societal labels can

even block women in leadership positions from joining conspiracies organized by men. Because she is seen as less trustworthy or competent than men. In the Enron and post-Enron financial scandals between 2002 - 2007, female defendants constituted only 7% of Brickey's (2005) sample and 9% of Steffensmeier et al.'s (2013) sample. The glass ceiling that affected minorities' and women's employment and promotion opportunities also affected their opportunity to commit antitrust offenses.

The underrepresentation of females in the above official white-collar crime statistics has several explanations. First, law enforcement may be more "chivalrous" towards women offenders (Pollock, 1999). Chivalrous attitudes held by law enforcement authorities could in theory cause them to be less likely to pursue female offenders than male offenders. However, there is little research on this, and what research there is tends to be mixed.

A second possible explanation for the under-representation of women in high-level white-collar crimes, including antitrust offenses would be the sexual stratification of the occupational hierarchy, which in theory would reduce women's access to the occupational positions needed to commit antitrust offenses. Even if the propensity for a woman to take advantage of a criminal opportunity is the same as that of men, fewer women in executive positions would lead to lower women's participation in antitrust crimes. From previous statistics, women still face a glass ceiling in managerial and executive positions. If this is the only explanation, then the proportion of females involved in relevant occupational positions and antitrust crimes should be roughly similar.

However, Steffensmeier et al. (2013) found that the proportion of females involved in managerial positions was higher than the proportion of females involves in corporate fraud in the Enron and post-Enron scandal, and this leads to a third possible explanation for the under-

representation of women in antitrust offenses. This explanation focuses not on women's formal position in an organization but rather on their access to the informal social networks that carry out antitrust conspiracies. Social networks are important for getting promoted, starting up a company, as well as involving in a crime, especially if the crime requires group conspiracy. Women are not only excluded from male employee networks and social capital to start a small business but they are also excluded from networks of crime. In equal occupational positions, women are often excluded from male-dominated informal social networks (Gorman & Kmec, 2009). In Brickey's (2005) and Steffensmeier et al.'s study (2013), women were not only less involved in the network, but even when they were involved, they tended to play only minor or supportive roles. Women were involved primarily due to utilitarian reasons, such as signatures or required positions for filings. Not being involved in these networks reduces females' opportunities to offend. As such, in an antitrust scheme that is heavily involved in informal social networks and trust, women may be restricted from accessing these criminal networks.

While the above three explanations assume that women would act the same as men if they had access to the same criminal opportunities, the fourth explanation differs. This explanation suggests that for a variety of social and biological reasons females differ from males in important ways that influence their likelihood of acting on available criminal opportunities. It postulates that female executives with the same criminal opportunities and social networks as men may still behave differently from men. Females may be more law-abiding than men or more risk-averse than men. Or females may be more concerned with other factors in life than gains from criminal opportunities, such as family. Steffensmeier & Allan (2000) suggested that women "are socialized to accept nurturant role obligations" that focus on "the importance of social relationship and communalistic orientations toward others". The differences between male and

female identity may reduce women's willingness to take risks or complete illegal actions for self-interest. Even in a leadership position, a woman may be more likely to disassociate from social networks that may lead to criminal opportunities or ignore standing criminal opportunities. In this study, we hope to explore differences in female and male antitrust offenders in ways that cast light on these potential explanations.

## Chapter 5: Methods

To address the issues and research questions described in Chapter 1, this study will use data from multiple sources, including official government documents, as well as unofficial sources such as newspapers and news-related websites. This chapter is organized as follows. First, I describe the data sources that I will be relying on. Second, I describe the sample and time frame for the study. Third, the variables and measures that are to be used will be explained. Finally, an overview of the analytic plan will conclude the chapter.

### Data

There are two main sources of data. First, data are drawn on antitrust cases from publicly available information posted on the website of the Antitrust Division of the U. S. Department of Justice (https://www.justice.gov/atr) These data include information on both criminal and civil antitrust cases filed by the Antitrust Division. For this study, I will focus only on cases in which individuals are named as defendants. Thus, cases that are filed against organizational defendants that do not include individual defendants will be excluded from the selection. The documents available on the Division website describe the nature of the case and the roles of individuals involved in the case. More detailed information on the types of variables and measures that can be constructed from the Division website will be presented later in this chapter.

Second, supplemental information on the cases is drawn from newspaper sources such as LexisNexis and Google using appropriate search terms. DOJ enforcement announcements and reports are also used. These data are intended to supplement the information that is available in case documents on the Antitrust Division website. They can be used to confirm the gender of individual defendants and to provide additional information on their roles in offenses. Lastly, employment statistics for certain industries related to the schemes are drawn from various sites and articles. These statistics aid our understanding of how employment opportunities and

criminal opportunities work for men and women in industries, especially in the health care and real estate industries.

## Sample

Cases included in this study are identified through the antitrust litigation record from the Antitrust Division of the Department of Justice. The archive consists of all recorded antitrust cases, including civil, criminal, constitutional, and other types. The archive records antitrust litigations from 1941 to the present, including the original information filing, plea agreements, and verdicts. It is safe to say that it contains all recorded and filed cases in federal offices within DOJ. A total of 1,903 cases were filed between 1941 – 2020. Cases can be recorded at various prosecutorial stages, ranging from complaints, deferred prosecutorial agreement (DPA), to sentencing (including acquittal). All archived cases have been prosecuted for at least one antitrust statute by the central DOJ or a district office. From this population frame, the sample consists of all cases in schemes that have at least one female offender. The documents associated with each case serve as sources for coding offenses, offenders, and organizational measures, as well as search terms for newspaper searches.

### Time Frame

Previous studies have used a range of time frames depending on external events or available data sources. In this study, the time frame to collect information runs from January 1st, 1990 to December 31st, 2018. All cases opened and recorded in the DOJ antitrust archive during this time are included in the analysis supplemented by data drawn from external sources. The start date was chosen because there are substantially fewer cases in the archive before 1990, while the close date was chosen because the year 2019 was incomplete during data collection time. However, as the dataset develops over time more cases can be added for future research on trends.

Unit of analysis

For each antitrust *scheme*, there can be multiple *legal cases* (civil and criminal) that can involve multiple organizational and individual *defendants*. Case information variables will organize antitrust cases into unique schemes, as well as assign individual defendants within cases a unique identifier. The unit of analysis of this dataset is the individual defendant because the main point of this dissertation is to investigate the roles that women have played in antitrust schemes over time. Thus, each defendant will be identified by his/her full name within a scheme. For instances where the same defendant participated in two different antitrust schemes in different years, each will be considered a separate sample case. The defendant's name and legal case title will be used for supplemental searches for confirmation and additional information.

Exclusion/Inclusion Rules

This study includes civil and criminal cases, such as bid-rigging or price-fixing. These types of cases are the ones that include individual defendants who have violated antitrust law and that can be prosecuted in court. Other types of cases, such as cases brought before the Supreme Court that deal with constitutional law and briefs dealing with private-party conflicts, are not included, because they do not involve individuals. All cases at various stages, from initial filing to closing, are included in the dataset. This is because high-level white-collar crime cases that are filed usually have enough factual merit for the prosecutor to allocate enforcement resources and time. By the stage of filing a complaint or criminal information, it is reasonable to assume defendants have played some role in a scheme that violated federal antitrust law. Also, including cases at various stages does not affect this study, because sentencing information is not needed. Of all cases in the archive, 93.4% involve either a civil or criminal charge.

As noted above, only schemes with at least one natural person defendant are included. Many civil and criminal cases are filed against organizations that are separated or excluded from individual defendants. In some cases, schemes also include organizational defendants along with human defendants. These organizational defendants do not hold a gender feature or other offender-related characteristics that allow them to be studied in the gender question. However, it must be acknowledged that both male and female individuals are necessarily involved in organization-only cases even though the DOJ for various reasons decided not to charge individuals. This limitation of the study is discussed in more detail in the last chapter of the dissertation. FTC likely processes more of the organization-only schemes that involve antitrust violations. Of all schemes selected from cases having at least one natural person defendant from 1990 – 2018, 41 schemes included 54 women and 173 men, labeled as female-involved schemes.

A control group of male-only schemes is sampled randomly and stratified by year. Excluding the female-involved schemes, all male-only cases involving at least a natural person are numbered periodically by the date the incident was filed. The number of cases selected per year is proportional to the number of cases (all cases) filed per year. Cases with at least one man were numbered for random selection. A random digit generator created a list of random digits within the number of available cases. Cases are selected in the order of availability. If a case is already grouped in another scheme, the next case is selected. The control sample has 47 schemes that included 212 men, labeled as the male subset sample.

Supplemental Data

Information from newspapers is intended to supplement information drawn from the case dockets and confirm offender-related characteristics drawn from the case dockets. Case dockets sometimes contain only legal information or offender information relevant to the violation. Thus,

newspapers are often needed to confirm the defendant's gender, especially when there are multiple natural-person defendants. Pronouns, names, pictures, and other information are used to confirm each defendant's gender. Thus, only a limited number of newspapers are needed per case, if any, for gender information. Scheme grouping also requires news announcements and annual reports by the DOJ. More often, news articles report all defendants in a DOJ-defined scheme even if filed separately for prosecutorial purposes. The news reports help to verify the accuracy of the scheme classification. Another interesting set of information that requires newspaper sources is organizational information, such as organization size, type, as well as years of operation. This organizational information will permit me to determine whether the involvement of women in antitrust cases is associated with organizational characteristics. Newspapers often provide more information on cases and offenders than is available in official court documents. Newspapers in the current study come from 1) Google and 2) the LexisNexis search engine. Case name, defendant name, and year are good main search terms. A convenience sample of newspaper reports of each case is reviewed and coded until no new information comes up - until saturation is reached.

There are limits to the accuracy of newspaper reports. Thus, triangulation is used to confirm that information is consistent in at least two different newspapers. For more recent cases, LinkedIn and organization websites were used to confirm the accuracy of the offender and organizational information. For offender-related information, the defendant's name is used as a search term on LinkedIn and staff pages within organization websites. For organizational information, the organization name is used as a search term to find the organization's websites. I also collected employment data from two industries with substantial numbers of female antitrust offenders for comparison.

## Variables

The main purpose of this study is to examine gender differences in antitrust cases. The coding scheme of the database, therefore, is designed to capture variables and information related to individual defendants. The coding is based on previous studies on gender and white-collar crimes, as well as through examining the case dockets (Appendix A). There are four groups of variables in the coding scheme: 1) case information, 2) documentation, 3) defendant information, and 4) organizational information.

## Measures

The first four groups are measures drawn from case dockets and newspaper sources. *Case information* will capture measures that are related to the criminal/civil case and its associated scheme, including the number of coconspirators, related legal cases, and the geographical spread of the incident. *Documentation* will record all sources used for the individuals, such as the type of legal documents and third-party sources (i.e., newspaper, LinkedIn, and Doctor Search). *Individual information* will include demographic characteristics, offenses information, and court outcomes specific to the individual defendants. *Organizational information* will record information regarding the business owned by or which employed the defendant, including organization size and industry type.

Case information variables

For each antitrust *scheme*, there can be multiple *legal cases* (civil and criminal) that may charge multiple organizational and individual *defendants*. For example, a bid-rigging scheme may involve three organizations and ten individuals. Both the organizations and the individuals may be charged with multiple criminal offenses in addition to the basic antitrust charge. Case information variables will organize antitrust cases into unique schemes, as well as assign individual defendants within cases a unique identifier. The unit of analysis of this dataset is the

individual defendants. Thus, each defendant will be identified by his/her full name within a scheme. For instances where the same defendant participated in two different antitrust schemes in different years, each will be a separate sample case. The defendant's name and legal case title will be used for supplemental searches for confirmation and additional information.

Case information also includes the general industry, the location of the crime, as well as the time of the incidents. Such information will help to identify whether the legal case is within a bigger antitrust scheme across states, within/across industries, and years. Commonly, schemes are prosecuted by the same courts, involving similar violations and occurring in nearby years. For instance, more than 30 cases of real estate price-fixing were prosecuted in the New York Eastern District Court between 1998 – 1999. These are grouped into the same antitrust scheme. A scheme can also involve multiple courts with different violations across multiple years. For instance, more than 60 cases of Japanese auto companies and executives were prosecuted in multiple Midwest district courts between 2012-2014. Supplemental information such as DOJ Antitrust Division news announcements, annual reports, and other news outlet aid in grouping cases into the correct conspiracy. In turn, the scheme is key to identifying each defendant's role in the criminal conspiracy relative to other co-conspirators.

Case-level information includes the type of case and case status. A case can be a criminal, civil merger, or civil nonmerger case. A defendant who participated in the same scheme can be charged with either a civil violation or a criminal charge or both. This will help merge case information onto the same defendant. Cases that were filed early on but were revised in later years will also be recorded. This happens when a defendant may no longer be charged with a crime, charged with a modified crime, or had her case converted into a civil case. Cases that are reverted due to termination at charge stages are excluded from all analyses. Cases that

were filed but do not have a decision will be recorded as "open". These cases are included in the analysis even though they may not have court outcome information.

Documentations

This set of variables sorts the number and type of sources used to extract information related to the defendant, case, scheme, and organization. The nature of adjudication and case status help identify whether documentation regarding the final decision was available at the time of data collection. Newspaper sources, as well as other supplemental sources, will also be tracked for systematic bookkeeping and easier revalidation.

Defendant variables

This set of variables will include defendant characteristics at the scheme-, case-, and individual-levels. Individual-level information will record demographic information, occupational position, citizenship, offense information, and court outcomes. Case-level information will capture incident-length related to defendants and general monetary losses. Scheme-level information will capture the defendant's role and level of activities within the scheme.

***Gender***. Gender is the key demographic characteristic in this study. The antitrust defendant sample will be separated into two subgroups using this measure, male and female. Each person defendant is identified through legal documents and confirmed by newspaper sources. Legal documents follow a gender-neutral policy very carefully, so pronouns of unspecific targets use paired pronouns (i.e. he or she) or avoid using any at all. A specific pronoun target, such as the defendant in the plea agreement, is typically given pronouns that can identify his/her gender. "He" was barred from representing female individuals in legal documents (Rose, 2010). Thus, it is safe to assume "she" means that the defendant identifies as

female. Newspaper articles will provide background information and photos for more recent cases, which will also help inform and confirm the gender of the defendants. Third-party sources will be weighted heavily when legal documents use "they/them" pronouns consistently throughout the documents for a group of coconspirators. However, this is rare. Most legal documents use singular pronouns when providing background information on different defendants in criminal information and plea agreement documents. For individuals that requested to be identified as "they/them" pronouns in legal documents after 2006, they will be coded as "fluid". However, there is no antitrust defendant identified as "fluid" thus far. From 1990 to 2018, there are 52 female defendants identified from a total of 1,032 individual defendants.

***Occupational Position***. This will indicate the defendant's occupational position within the main organization where the antitrust violation(s) was committed. This measure records the exact job title given to the defendant as well as their job descriptions in a civil complaint or criminal information. The information is grouped in a more generalized position rank among all defendants. The ranks from highest to lowest positions are owner, executive, high manager, manager, employee, and informally related. An *Owner* usually holds a controlling share in the organization and has decision-making authority in the organization. He or she can freely use organizational resources. They may or may not have a visible level of social standing in the industry. A sole proprietorship and a chairman could both be an owner. *An executive* has substantial decision-making power in the organization and may own some shares. He or she can exercise organizational resources. However, the executive reports to the owner, and the available information indicated that there is a higher authority in the organization. A *high manager* has decision-making power over a division or major subdivision of an organization. He or she may control some organization resources but also follows orders from higher positions. A *manager*

follows orders from a higher position and transfers orders to employees. An *employee* follows orders from his or her immediate superiors. A defendant who is *informally related* does not hold any relevant occupational position. They are only involved through an informal relationship with a co-conspirator, such as spousal, familial, and occupational relationships from previous work. If an individual holds multiple positions, then the relevant and higher status is recorded.

***Role in the Scheme***. Defendants may carry out different roles within a scheme. Each defendant's participation in various activities and stages is recorded in a civil complaint or criminal information, often in the "description of the offense" and "means and methods of the conspiracy" sections. They are also supplemented by government and third-party news reports. These activities can be grouped into four levels of involvement following Steffensmeier et al. (2013) – ringleader, major role, in-between role, and minor role. Each activity in which the defendant participated is categorized into one of the four roles. Ringleader activity is rare in antitrust cases because they are often conspiratorial. Commonly, all individuals conspired to do or agree upon some kind of criminal activity (i.e. price-fixing). Ringleader activity includes staging and deciding on a price or service contract. Major roles include decisions to agree, monitor and enforce the conspiracy. The in-between role includes participation in communication and completing a part of the conspiracy (i.e. selling at the agreed noncompetitive rate). Minor roles, or instrumental roles, include engagement in parts of transactions within the organization, such as, perhaps, signing, keeping records, or other clerical functions. Nominal Role is a newly added category, where defendants are involved because a co-conspirator used their names/identity. However, there are no engagements beyond being named as a co-conspirator. Duration of participation and gains may be considered if the prosecutor described all defendants with the same set of activities.

Together, the highest role that a defendant receives for at least one of the participated activities will count as his/her role in the scheme. For instance, a local seafood store whose owner conspired with other stores to sell scallops at a noncompetitive price participated in decision-making, monitoring, selling, and communication activities. While each activity constitutes a different role, individuals with creating, conspiring, and longest participation may be considered a ringleader. It need not be the highest occupation-ranking person in the conspiracy. A defendant who is considered as a minor role would not participate in any decision-making or communication process. The ranking of roles will consider activities from both known and unfiled coconspirators from case dockets in one scheme.

Organizational variables

This domain of variables records information regarding the primary organization affiliated with the defendant in the criminal scheme. Using the organization name identified by legal documents, supplemental searches among newspapers, Treasury, company websites, and other websites may extract additional information about the organization. Basic information such as the organization's industry, size, location, and establishment duration will be recorded. Other supplemental variable includes whether the organization, at its headquarters, had been ranked in the Fortune 500 list of United States corporation and whether the organization has filed bankruptcy from PACERS (United States Court online archive).

***Organizational Size.*** This indicates the size of the organization where the defendant was employed. The geographical multitude included as organizational size may not exceed the defendant's role and the scheme's geographical spread. For instance, an executive in a local division of a national corporation conspired with local businesses. The organization size will only indicate the number of employees at the location division. If a conspiracy was spread

nationally and the corporation is international, organization size will only indicate the number of employees in the United States. Another related measure, *headquarter size*, will record the number of employees in the entire organization.

## Analytic Plan

While data are archived by cases, our analyses also bring attention to individual- and scheme-level information. Antitrust behaviors are conspiracies committed by multiple individuals and/or organizations. A conspiracy can be thought of as a scheme. Prosecutors in the antitrust division can file charges against single or multiple organizations and/or individuals by cases within a scheme. As such, a scheme can involve multiple legal cases filed against different organizations and/or individuals.

Our analyses use schemes where at least one female defendant is involved and charged with antitrust and/or related anticompetition violations. In another word, antitrust cases where the defendants are all males or organizations are excluded from most of the in-depth analyses. While the conspiracy is deemed by the Antitrust Division as an antitrust crime, certain defendants can be involved and charged with non-antitrust criminal behaviors. For instance, individuals involved in a foreclosure bid-rigging scheme are often charged with tax evasion and bid-rigging. On the other hand, an individual involved in the transactions of bribes to allow restraint of trade behaviors can be charged with bribery rather than an antitrust statute. Both are included in our analyses because they are actors of the antitrust scheme. Our unit of analysis will shift between schemes, cases, organizations, and individuals.

I will conduct a series of descriptive statistics exploring offenses and offender characteristics of the sampled cases. Using frequencies, crosstabs, and histograms, I will also summarize the current trend of female participation in antitrust violations over time. Then, I

examine the female patterns and gender differences in 1) offenses characteristics such as types of violations, duration of the act, size of the conspiracy, and location of the conspiracy, and 2) offender characteristics such as defendant's industry, occupational positions, level of involvement, and roles. I will also compare the female-involved schemes subset to a random sample of 47 male-involved schemes. This sample was selected using stratified random sampling with a random digit generator and stratified by year. Since male-only schemes are selected from the rest of the case archive, the comparison allows me to check if male-only schemes differ in some systematic way from schemes that involve females.

## Chapter 6: Results

### Females in Antitrust Cases

From 1990 to 2018, 274 entities were prosecuted in 152 cases involving 41 different schemes[3] that included at least one female who was charged as a result of participation in some aspect of the scheme. Of the 274 entities, 47 are businesses, 173 are men, and 54 are women. The male-to-female ratio within schemes where there is at least one female defendant comes to approximately three to one, so women make up approximately one-third of the individual defendants in cases involving women. However, among all the individuals prosecuted for involvement in an antitrust scheme between 1990 and 2018, women are estimated to make up only about three percent.

While the data from the Antitrust Division is reported as cases (that is charges filed against an individual or organization), the unit of study for this dissertation is schemes involving women as individual defendants. Between 1990 – 2018, the number of entities and schemes involving women that were prosecuted varied from one year to the next (Table 6.1.a), but in general it appears as a bell-curved shape that peaks between 2005 and 2009. This period contained 16 of the 41 schemes (Table 6.1.b). The total number of cases filed annually by the Antitrust Division between 1990 – 2018 also varies over the years (see Appendix C). With high levels of activity occurring between 1995 and 2000 and again between 2010 and 2016. As others have noted, antitrust enforcement activity varies over time, though the precise reasons for these variations are unclear (Posner, 1970; Cartwright & Kamerschen, 1985)

Female-involved schemes ranged in size in terms of the number of entities involved, with some having as few as one entity while others had up to 30 entities. There are no women-only

[3] Please see Appendix B for the list of female-involved schemes, scheme names, and gender distribution

schemes; all of the schemes studied here are mixed with various numbers of women and men. Most schemes (35 out of 41) had only one female defendant, but one scheme involved seven females. The number of male defendants varies more, ranging from zero to 29 men in a scheme. Most cases (34 of 41) have five or fewer men involved. Overall, in the 28-year data, there are a total of 54 female defendants, which is about two per year.

Schemes in the male subset sample range in size from 1 entity to 61 entities. Most schemes have only one individual defendant involved, but one scheme involved 41 men. The sample of 47 schemes contains 212 men and 73 organizations.

Table 6.1.a Number of schemes and entities filed per year

| Year | Schemes (start year) | Entities |
|---|---|---|
| **1990** | 2 | 36 |
| **1991** | 1 | 22 |
| **1994** | 2 | 7 |
| **1996** | 1 | 7 |
| **1997** | 1 | 4 |
| **1998** | 2 | 33 |
| **1999** | 1 | 14 |
| **2000** | 3 | 11 |
| **2001** | 1 | 1 |
| **2002** | 2 | 23 |
| **2004** | 1 | 3 |
| **2005** | 3 | 22 |
| **2006** | 3 | 6 |
| **2007** | 3 | 10 |
| **2008** | 3 | 7 |
| **2009** | 4 | 14 |
| **2010** | 2 | 5 |
| **2012** | 3 | 4 |
| **2013** | 1 | 15 |
| **2014** | 0 | 20 |
| **2015** | 0 | 2 |
| **2018** | 2 | 9 |
| **Total** | 41 | 275 |

Table 6.1.b. Number of schemes and entities filed in a 5-year average

| Year | Scheme | Entities |
|---|---|---|
| **1990 - 1994** | 5 | 65 |
| **1995 - 1999** | 5 | 58 |
| **2000 - 2004** | 7 | 38 |
| **2005 - 2009** | 16 | 59 |
| **2010 - 2014** | 6 | 44 |
| **2015 - 2018** | 2 | 11 |
| **Total** | 41 | 275 |

In the female-involved schemes, 225 entities can be identified in terms of the industries they were involved in (Table. 6.2.a). Among the 25 different industries that appeared in the records, about one-third (32.89%) of the entities could be classified as Real Estate Agents and Managers, and 12 % of the entities fall under the Office of Physicians, excluding Mental Health Specialists. In both of these industrial categories, the schemes tended to involve professionals and businesses that were sole proprietorships. Cases in the real estate industry had the most females (9) involved, followed by online services (6 females) and general warehousing and storage (6 females). However, there were no females in the two industries that appeared in the data set. This happened because male and female defendants in the same scheme belonged to different industries, especially in cases involving vertical anti-competition schemes.

Table 6.2.a Industry for entities charged in antitrust cases in the female-involved sample

| **Industry** | **Org** | **Female** | **Male** | **Total** |
|---|---|---|---|---|
| Real Estate Agents & Managers | 10 | 9 | 55 | 74 |
| Offices of Physicians | 1 | 2 | 24 | 27 |
| On-Line Information Services | 8 | 7 | 12 | 27 |
| Sign Manufacturing | 2 | 3 | 12 | 17 |
| General Warehousing and Storage | 2 | 6 | 7 | 15 |
| Hobby, Toy, and Game Stores | 4 | 1 | 5 | 10 |
| Signs and Advertising Displays | 5 | 2 | 2 | 9 |
| Fluid Milk | 2 | 4 | 2 | 8 |
| Construction Materials, NEC | 4 | 1 | 2 | 7 |
| Computer Systems Design Services | 0 | 2 | 2 | 4 |
| Hazardous Waste Treatment and Disposal | 1 | 1 | 2 | 4 |
| Groceries, General Line | 1 | 2 | 0 | 3 |
| Industrial and Personal Service Paper. | 1 | 1 | 1 | 3 |
| Plumbing, Heating, and Air-Conditioning. | 1 | 1 | 1 | 3 |
| Shellfish | 1 | 1 | 1 | 3 |
| Commercial, Industrial, and Institutional. | 0 | 2 | 0 | 2 |

| | | | | |
|---|---|---|---|---|
| Facilities Support Services | 1 | 1 | 0 | 2 |
| Furniture, Real Estate Agents & Managers | 0 | 1 | 1 | 2 |
| Miscellaneous Retail Stores, NEC | 1 | 1 | 0 | 2 |
| Line-Haul Railroads | 0 | 0 | 1 | 1 |
| Scheduled Freight Air Transportation | 0 | 0 | 1 | 1 |
| **Total** | **45** | **48** | **131** | **224** |

In comparison, 285 entities were identified in the male comparison sample. Among 36 types of industry, about 18.6% were in Motor Vehicle Electrical and Electronic Equipment, with 35 men and 18 organizations. All conspired in a bid-rigging scheme involving Japanese auto parts between 2011 through 2014. Thus, the male comparison sample has more different types of industries involved than found in the female sample. There are a somewhat different set of industries for men not found in female-involved schemes.

Still, both samples have conspiracies and a substantial number of defendants in real estate industries. For example, about 20 men in the control sample were involved in the Real Estate Agents and Brokers industry, in addition to 55 men in the female-involved schemes. These real estate bid-rigging schemes are centered and conducted in county auction houses that handle the bidding on houses. The properties have been subjected to foreclosures and put up for sale by the loan holders. The conspirators agree in advance of the auction to make low but not identical bids on the houses in rotations (bid suppression and complementary bids). This maintains the illusion of chance and competition. Afterward, the conspirators hold a second private auction amongst themselves to decide who gets the properties, or sometimes they are just sold to the agent who submitted the "winning" bid.

Table 6.2.b Industry for entities charged in antitrust cases for the male control sample

| Industry | Org | Male | Total |
|---|---|---|---|
| Motor Vehicle Electrical and Electronic Equipment Manufacturing | 18 | 35 | 53 |
| Semiconductor and Related Device Manufacturing | 12 | 27 | 39 |
| Offices of Real Estate Agents and Brokers | 0 | 20 | 20 |
| Miscellaneous Intermediation | 5 | 15 | 20 |
| Investment Banking and Securities Dealing | 4 | 14 | 18 |
| Remediation Services | 3 | 9 | 12 |
| Commercial and Institutional Building Construction | 0 | 8 | 8 |
| Ready-Mix Concrete Manufacturing | 4 | 7 | 11 |
| Medicinals and Botanicals | 4 | 6 | 10 |
| Signs and Advertising Displays | 1 | 6 | 7 |
| All Other Basic Organic Chemical Manufacturing | 2 | 5 | 7 |
| Deep Sea Freight Transportation | 3 | 5 | 8 |
| Scheduled Freight Air Transportation | 4 | 5 | 9 |
| Urethane and Other Foam Product (except Polystyrene) Manufacturing | 1 | 5 | 6 |
| Heavy Construction, NEC | 0 | 4 | 4 |
| Investigation Services | 1 | 4 | 5 |
| Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing | 2 | 4 | 6 |
| Seafood Product Preparation and Packaging | 1 | 4 | 5 |
| Electronic Shopping and Mail-Order Houses | 1 | 3 | 4 |
| Industrial Organic Chemicals, NEC | 1 | 3 | 4 |
| Other Aircraft Parts and Auxiliary Equipment Manufacturing | 0 | 3 | 3 |
| Photographic Equipment and Supplies | 4 | 3 | 7 |
| Plumbing & Hydronic Heating Supplies | 0 | 3 | 3 |
| Ball and Roller Bearing Manufacturing | 0 | 2 | 2 |
| Architectural Hardware | 0 | 1 | 1 |
| Construction Materials, NEC | 0 | 1 | 1 |
| Fruit and Vegetable Canning | 0 | 1 | 1 |
| Groceries, General Line | 0 | 1 | 1 |
| Metal Barrels, Drums, and Pails, Metal Cans | 0 | 1 | 1 |
| Metal Cans | 0 | 1 | 1 |
| Non-cellulosic Organic Fiber Manufacturing | 1 | 1 | 2 |
| Oil and Gas Field Services, NEC | 0 | 1 | 1 |
| Petroleum Bulk Stations and Terminals | 1 | 1 | 2 |
| Residential Remodelers | 0 | 1 | 1 |
| Roofing & Sheet Metal Work | 0 | 1 | 1 |
| Sign Manufacturing | 0 | 1 | 1 |
| **Grand Total** | 73 | 212 | 285 |

Type of case and violations

Table 6.3.1 Types of Cases Involved in the Female-Involved Sample

| Case Type | Total | Male | Female | Organization |
|---|---|---|---|---|
| Criminal | 202 | 131 | 38 | 33 |
| Civil Non-Merger | 58 | 36 | 10 | 12 |
| Civil Merger | 9 | 2 | 4 | 3 |
| Other | 6 | 4 | 2 | 0 |
| Total | 275 | 173 | 54 | 48 |

Pearson Chi-Square = 10.03; p = 0.124c

Table 6.3.2 Types of Case Involved in Male Control Sample

| Case Type | Total | Male | Organization |
|---|---|---|---|
| Criminal | 284 | 211 | 72 |
| Civil Merger | 1 | 1 | 1 |
| Total | 285 | 212 | 73 |

Tables 6.3.1 and 6.3.2 break down the samples by the types of cases involved in the female sample and the male comparison sample. In the female scheme sample, about 73.45% of defendants are involved in a criminal case. On the other hand, all but one scheme in the male subset sample is criminally involved. This may be because in many civil cases, merger or non-merger cases, the charges involve non-compliance-related codes and are made by the plaintiffs and not by the United States, or the defendants are organizational entities. An example of a non-compliance-related code is “Failure to comply with the Hart-Scott-Rodino Act”, commonly used by both the Antitrust Division in DOJ and FTC. Other plaintiffs could be organizational or individual entities affected by a scheme. In the case selection process for the female antitrust schemes and male random sample schemes, schemes that involved only organizations were excluded. In any year, the case archives contain from 13.8% to 58.9% of cases, with an average

of 41.1%, in which individuals were prosecuted. While not precisely calculated, many of the organization-only cases that were filtered out were civil cases.

Table 6.4.1 Frequency of Primary Violation by Entity (Female-Involved Sample)

| **Violation** | **Org** | **Female** | **Male** | **Total** |
|---|---|---|---|---|
| Bid-rigging | 8 | 14 | 99 | 121 |
| Agreements Not to Compete | 10 | 7 | 10 | 27 |
| Information Sharing | 0 | 1 | 21 | 22 |
| Price Fixing - Horizontal | 8 | 4 | 9 | 21 |
| Aiding and Abetting | 8 | 3 | 6 | 17 |
| Conspiracy to Defraud the United States | 1 | 6 | 9 | 16 |
| Bribery | 1 | 6 | 7 | 14 |
| Conspiracy to Commit Wire Fraud | 1 | 3 | 6 | 10 |
| Clayton Act Section violation | 2 | 4 | 2 | 8 |
| Conspiracy to Commit Mail Fraud | 1 | 3 | 1 | 5 |
| False statements and False claims | 1 | 2 | 1 | 4 |
| Civil Forfeiture | 1 | 0 | 1 | 2 |
| **Total** | **42** | **53** | **172** | **267** |

*Missing information in 6 organizational and 2 individual entities.

Table 6.4.2 Frequency of Primary Violation by Entity (Male Subset Sample)

| **Violation** | **Org** | **Male** | **Total** |
|---|---|---|---|
| Bid-rigging | 34 | 117 | 151 |
| Price Fixing - Horizontal | 28 | 62 | 90 |
| Customer, Territorial or Market Allocation - Horizontal | 8 | 9 | 17 |
| Conspiracy to Commit Mail Fraud | 0 | 7 | 7 |
| Conspiracy to Defraud United States | 1 | 7 | 8 |
| Conspiracy to Commit Wire Fraud | 1 | 4 | 5 |
| Aiding and Abetting | 0 | 2 | 2 |
| Attempt and Conspiracy | 1 | 1 | 2 |
| Conspiracy to make false entries in bank records | 0 | 1 | 1 |
| Criminal Contempt | 0 | 1 | 1 |
| Tax Evasion | 0 | 1 | 1 |
| Total | 73 | 212 | 285 |

Table 6.4.1 shows the distribution by type of violation charged by gender. The most common charge was bid-rigging (121), mostly in the real-estate and government contracting

industries. Prosecutions involving anticompetition agreements (27) and horizontal price-fixing (22) also are common, as well as insider information trading (22). Notably, conspiracy to defraud the United States, bribery, and mail/wire fraud, which are not violations that fall under antitrust laws (15 USC 1), are also used by prosecutors in the Antitrust Division. Females are most likely to be charged with bid-rigging (12), anticompetition agreements (7), and conspiracy to defraud the United States (6). One female had an unknown violation at the time the criminal information was filed. In comparison, males are most likely to be charged with bid-rigging (93), insider information sharing (21), and horizontal price fixing (9).

In the male comparison sample, the most common charge is also bid-rigging (151), followed by price fixing (90). Other violations include conspiracy to defraud the United States, bribery, and mail/wire fraud. Overall, the distribution of antitrust violations (bid-rigging and price fixing) in the female sample is similar to that of the male comparison sample, suggesting a fair and general distribution of violations with selected female schemes.

### Occupational Position and Role in the Conspiracy

Tables 6.5 A, B, and C present the defendant's occupational position within a scheme by gender. In general, Figure 6.5.A shows that most schemes involved charges filed against owners. "Owners" include members of the board of directors, presidents, or sole-proprietorship owners, who have control over decision-making and the assets of the business organization. For instance, in the Cape Girardeau Real Estate Price Fixing scheme (90f0001), all 17 individuals who were involved in the scheme were real estate business owners and mostly sole proprietors. They conspired through the real estate business association to fix the fees imposed on home buyers. While the 1998 New York Marketing Kickbacks scheme (98f0001) involved a vice president of

marketing for an international corporation who conspired with an external marketing company owner to defraud his own company and receive kickbacks in return.

Table 6.5.A illustrated the distribution of occupational positions in each female-involved scheme. Because most schemes have little variations in positions, a light gray cell background helps to identify existing positions. A darker grey cell background highlights positions with 10 or more conspirators. As illustrated, most schemes that involved a large number of owners are real estate bid-rigging schemes. There are 7 schemes (17.1%) with more than 10 individuals, with 6 schemes having more than 10 individuals categorized as "owner". Five of the six schemes are real estate bid-rigging schemes (90f0001, 98f0002, 98f0003, 12f0002, and 12f0003). The exception was the Georgia OB/GYN Price Fixing scheme which involved 22 Obstetrician-gynecologist practitioners and clinic owners in the region who conspired to raise and coordinate fees they charged patients for various services. Interestingly, these large conspiracies did not have a proportionally larger number of females. Regardless of size, all six of these schemes involved only one female defendant.

Table 6.5.A Frequency of individuals by position by schemes in female-involved sample

| | Rank of Occupational Positions | | | | | | |
|---|---|---|---|---|---|---|---|
| Scheme | Owner | Executives | High Managers | Managers | Employees | Family/ not within job | Total |
| 90f0001 | 17 | - | - | - | - | - | 27 |
| 90f0002 | 7 | - | - | - | - | - | 7 |
| 91f0001 | 22 | - | - | - | - | - | 22 |
| 94f0001 | 2 | - | - | - | - | - | 2 |
| 94f0002 | 3 | - | - | - | - | - | 3 |
| 96f0001 | - | - | - | - | 1 | - | 1 |
| 97f0001 | 4 | - | - | - | - | - | 4 |
| 98f0001 | 1 | 1 | - | - | - | - | 2 |
| 98f0002 | 30 | - | - | - | - | - | 30 |
| 98f0003 | 15 | - | - | - | - | - | 15 |
| 00f0001 | 2 | - | - | 1 | - | - | 3 |
| 00f0002 | 1 | - | - | - | - | - | 1 |
| 00f0003 | - | 1 | - | - | - | - | 1 |
| 01f0001 | 1 | - | - | - | - | - | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 02f0001 | 1 | 1 | - | - | - | - | 2 |
| 02f0002 | 5 | 4 | 1 | - | 3 | - | 12 |
| 04f0001 | 1 | - | 1 | - | - | - | 2 |
| 05f0001 | 3 | - | - | - | - | 2 | 5 |
| 05f0002 | 1 | 2 | 1 | - | - | - | 4 |
| 05f0003 | 2 | - | 2 | 1 | 1 | - | 6 |
| 06f0001 | - | - | 1 | - | - | - | 1 |
| 06f0002 | - | - | 1 | - | 1 | - | 2 |
| 06f0003 | 1 | - | 1 | - | - | - | 2 |
| 07f0001 | 1 | - | 1 | - | 1 | - | 3 |
| 07f0002 | - | - | - | - | 4 | 2 | 6 |
| 07f0003 | - | 1 | - | - | - | - | 1 |
| 08f0001 | - | - | - | 1 | 1 | - | 2 |
| 08f0002 | - | - | - | - | 1 | 1 | 2 |
| 08f0003 | 2 | - | - | - | - | 1 | 3 |
| 09f0001 | 1 | - | 1 | - | - | 1 | 3 |
| 09f0002 | - | - | - | 1 | 1 | - | 2 |
| 09f0003 | - | - | - | 1 | - | - | 1 |
| 09f0004 | - | - | - | 1 | - | - | 1 |
| 10f0001 | - | 1 | - | - | - | - | 1 |
| 10f0002 | 1 | 2 | - | - | - | - | 3 |
| 12f0001 | 5 | - | - | - | - | - | 5 |
| 12f0002 | 10 | - | - | - | - | - | 10 |
| 12f0003 | 21 | - | - | - | - | - | 21 |
| 13f0001 | 5 | - | - | - | - | - | 5 |
| 18f0001 | 6 | - | - | - | - | - | 6 |
| 18f0002 | - | - | - | - | 2 | - | 2 |
| Total | 171 | 13 | 10 | 6 | 16 | 7 | 222 |

Table 6.5.B Frequency of schemes by position in the female-involved sample

| | Owner | Executive | Owner or Executive | Managers | Employees | Family/ not within the job | Scheme |
|---|---|---|---|---|---|---|---|
| *f* | 28 | 8 | 31 | 15 | 10 | 5 | 41 |
| % | 68.3% | 19.5% | 75.6% | 26.6% | 24.4% | 12.2% | 100% |

Similarly, if examined by occupational positions, in most schemes at least one owner of an enterprise is charged. Table 6.5.B shows the distribution of occupational positions in these schemes. In a majority of the schemes, 28 to be exact, at least one owner was charged. Three-

quarters (75.6%) of schemes have either an owner or an executive with substantial decision-making power and control over some assets of the organization. This suggests, not surprisingly, that antitrust prosecutors often target higher decision-makers in schemes. In contrast, five schemes involved individuals who participated in the schemes because of informal relationships with other schemers, such as those who were the spouse, sibling, child, or parent of another defendant. The occupational positions of these individuals were unrelated to the conspiracy, but they were still part of the scheme.

Table 6.5.C Position by gender in the female-involved schemes

| **Gender** | **Women** | | **Men** | | **Total** | |
|---|---|---|---|---|---|---|
| **Owner** | 32 | **59.3%** | 137 | **82.0%** | 170 | **73.3%** |
| **Executives** | 3 | **5.6%** | 10 | **6.0%** | 13 | **5.6%** |
| **Managers** | 5 | **9.2%** | 11 | **6.6%** | 16 | **6.9%** |
| **Employees** | 7 | **13.0%** | 9 | **5.4%** | 16 | **6.9%** |
| **Family/ not within job** | **7** | **13.0%** | 0 | **0.0%** | **7** | **3.0%** |
| **Total** | 54 | | 167 | | 222 | |

Pearson Chi-Square = 239.46; p = 0.000
*Missing information in 5 individual entities.

Figure 6.5.C shows the distribution of occupational positions at the individual level and as stratified by gender. There are 32 female owners, 3 executives, 5 managers, and 7 employees. There are also 7 women associated with schemes as family members. Proportionally, 59.3% of all the women in the female sample are owners, but 82% of the male defendants in the sample are owners.

In five of the female-involved schemes, seven women were not involved because of their occupational positions. They were involved because of their informal relationship with a male schemer, such as a spouse, sister, mother, and former co-worker. For example, the 2005 Federal E-Rate Program Fraud (05f0001) involved a family of five who defrauded the U.S. E-Rate Program that funds public schools and libraries and is supposed to help them acquire and

maintain affordable broadband. The involved family members are a mother, her three adult sons, and a daughter-in-law. The three adult sons were the main conspirators. They owned two separate companies in different states that provided broadband services to public schools. The female members were charged with mail fraud because they received fraudulent invoices on behalf of the brothers. While all the family members are associated informally, only the three brothers had legitimate occupational positions that provided them with the opportunity to commit. The two women were involved merely because of their informal relationship with the main conspirators.

All together seven women were involved via their informal relationships with other conspirators. The seven included two mothers, one sister, and four spouses. These individuals were not charged with violating an antitrust statute ((15 USC § 1). Rather, they were charged with other offenses, such as mail fraud, tax invasion, money laundering, and/or defrauding the United States that facilitated the main antitrust offense. Other examples of informal relationships that led to involvement in an antitrust scheme included two schemes in which a woman was made the head of the company in name only, but she did not have any real decision-making power. In one case, the prosecutor described the woman as "the nominal president of the Company. [She] perhaps took no part whatever in its management or has any decision rights" (Military Defense Afghanistan Supply Bribery, 09f0001). Both women were charged with defrauding the United States. Another reason that these family members are involved is instrumental. In another case of military contract bid-rigging and bribery of officials, two women were involved. The husband is a military officer who received bribes to alter military contracts. His wife "visited [him] during his deployment to Kuwait" to transport the graft (Military Defense International Contract Bid-rigging and Bribery, 07f0002). Upon returning, the husband's sister

also assisted the couple in laundering the graft and took a share of the "cleaned" stash (97f0002). The two female defendants, in this case, were charged with money laundering.

On the other hand, there are 137 male owners, 10 executives, 11 managers, and 9 employees. There were no males who were associated only via their informal relationship with other conspirators. All the males had some sort of occupational position that was relevant to the antitrust scheme. In proportion, 82% of all men are owners compared to 59.3% of women.

Comparing across gender, both women and men involved in antitrust schemes are likely to be either owners or executives. They have access to corporate power and control over assets. Men have a higher proportion within-group categorized as owners compared to women. For both men and women, few defendants were managers or employees. As noted above, only women were involved in schemes through informal relationships. Chi-square analysis showed that there is a statistically significant difference in occupational positions and gender ($p = 0.000$). This is important because it suggests that gender influences the pathways through which people become involved in antitrust schemes. For males, the pathway into a scheme is always associated with their occupational position. For females, the pathway usually involves their occupational position but not always. Women can also become involved via a pathway that arises out of an informal relationship with other conspirators.

The data also allowed me to code the role of the defendant in the conspiracy based on the description of their behaviors in the Information (Criminal or Civil) filed by the Antitrust division and news releases from the DOJ. Overall, 5.7% are categorized as a ringleader, followed by 63.9% who had a major role, 28.4% with in-between involvement, and 1.0% for instrumental and Nominal roles respectively (Table 6.6). Most of the individuals charged by the Antitrust Division had a major role in the conspiracy.

Table 6.6 Role in Conspiracy by Gender

| Gender | Women | | Men | | Total | |
|---|---|---|---|---|---|---|
| **Ring Leader** | 4 | 8.50% | 7 | 4.80% | 11 | 5.70% |
| **Major** | 19 | 40.40% | 104 | 71.20% | 124 | 63.90% |
| **In-between** | 21 | 44.70% | 34 | 23.30% | 55 | 28.40% |
| **Instrumental** | 1 | 2.10% | 1 | 0.70% | 2 | 1.00% |
| **Nominal Role** | 2 | 4.30% | 0 | 0.00% | 2 | 1.00% |
| **Total** | 47 | | 146 | | 193 | |

Pearson Chi-Square = 19.42; p = 0.013

Unlike the work by Steffensmeier and colleagues on large-scale accounting frauds, many schemes in antitrust cases do not appear to have a "ringleader." Rather, many of the conspirators appeared to play equally influential roles. Indeed, it is difficult to distinguish between co-conspirators, mostly owners or executives, in a conspiracy from the information provided. For example, many bid-rigging schemes involved real estate agents who own one or more real estate agencies. In the Information document, prosecutors do not list an individual who created the ring. In this case, information may detail length, earliest date of involvement, and gains (number and value of "bid" properties) that are useful for distinguishing subsequent roles except as ringleaders. Thus, an individual categorized as "major" may, in fact, have been a "ringleader" but it cannot be conclusively determined from the available information.

Among the women defendants, 8.5% (4) are ringleaders, followed by 40.4% (19) with a major role, 44.7% (21) with in-between involvement, 2.1% (1) as instrumental, and 4.3% (2) are in Nominal roles (Table 6.6). Women are most likely to have had an in-between role in the scheme, followed very closely by those with a major role. Among male defendants, 4.8% (7) are ringleaders, followed by 71.2% (104) with a major role, 23.3% (55) with in-between involvement, only .7% (1) were instrumental, and none (0) were in Nominal roles (Table 6.6). Chi-square analysis of role in the conspiracy and gender was statistically significant (p = 0.01).

Men are more likely to be in a major role in the scheme than women, but both men and women are likely to play a major or in-between role in the scheme.

## Chapter 7: Discussion

Antitrust offenses are an important form of white-collar crime (Sutherland, 1949; Geis, 1977; 1988). They fit perfectly with Sutherland's definition of white-collar crime as an offense "committed by people of high social status in the course of their occupation." These offenses impose substantial economic harm on American society by raising prices, and they reduce competition and innovation. Hence, they warrant careful study by criminologists interested in white-collar crime. Accordingly, this project was motivated by a desire to shed light on an aspect of antitrust offenses that has received almost no attention from researchers: the prevalence and roles of women in antitrust violations.

The project was guided by the opportunity perspective, which assumes that access to a criminal opportunity is an important cause of white-collar crime. Since many white-collar crimes are occupationally related, the opportunity perspective predicts that women will be less involved in certain forms of white-collar crime because of gender-based discrimination in occupations. However, the perspective also predicts that if the gender make-up of an occupation changes, then the gender distribution of people who commit offenses based on that occupation should also change in tandem. Since women have made substantial occupational advances in the past half-century, this study was designed to see if their involvement in antitrust offenses has also changed, and more broadly to describe women's involvement in antitrust violations. This chapter begins by describing the types of schemes that the investigation uncovered. Next, I discuss women's roles in these schemes and compare their roles to those of men. The shortcomings of the study and suggestions for future research are then discussed. The chapter ends with general conclusions about gender, antitrust violations, and white-collar crimes.

## Types of schemes

When coding the various cases, I grouped patterns of opportunity structure and features loosely into the different types of schemes. More complex schemes may have offenders with different patterns.

### Ant Schemes

While the popular stereotype is that antitrust cases are complex schemes involving high-level executives of multi-national corporations, some of the schemes studied here presented a different picture. Many of the schemes in which women participated involved sole proprietorship or small business owners who, individually, may not have a large share of their respective markets. These owners, like ants in their market, joined local business and professional associations that offered opportunities to network with personnel from similar businesses. In turn, these individuals joined schemes to enhance their profits by engaging in some form of bid-rigging or price-fixing with other small business owners.

This is one of the most common types of schemes observed in the female sample. All real estate bid-rigging schemes (8), real estate price-fixing schemes (2), physician price-fixing schemes (2) and a construction company bid-rigging scheme (1) would fit the above opportunity structure description. In particular, real estate bid-rigging schemes are good examples, and they constitute a substantial portion of female schemes in the dataset. The real estate scheme targets public Foreclosure auctions, where real estate agents seemed to join and exit rather freely as they participated in the scheme. All the real estate schemes in various geographic areas involved conspirators who bid on houses according to an agreed-upon price that was under what should have been the market price. Then, the conspirators would bid on a particular house in a second

private auction to decide who gets it or who received the property based on previously agreed-upon rotation.

From the opportunity perspective, all activities occur in a geographically-fixed target space – a county-level auction house office or a group of consumers. Offenders could be anyone from the industry that routinely interacts with selected targets. There appeared to be a high level of fluidity and rotation of agents that participated in schemes. The conspirators had a natural advantage over consumers (home buyers, patients) because they have unique access to the product/service and the victims have nowhere else to go. For instance, most homes are sold through real estate agents (except those for sale by the owner) and most gynecologist medical services are provided though OBN/GYN clinics and hospitals. Together, conspirators make up a substantial portion of a market in a particular geographic area. A lack of knowledge of consumers and guardianship over auctions regarding how and what happens to price changes or bids creates criminal opportunities for offenders to conspire. There may not be an incentive to oversee bidders by the auction house or through other agents. Their behaviors also appear to be legitimate. For instance, agents will not bid at prices higher than market prices, but they also will not bid too low to avoid appearing suspicious to the auction houses who can exclude agents from bidding.

Criminal opportunities in these schemes are easily accessible but not inclusive of all those involved in these markets. Access to the bid-rigging group is through different informal networks, closed- or loose-knitted. Exclusion rules in accessing criminal networks seemed to depend on the informal bias. For instance, a prosecutor stated that the New York Queens country bid-rigging is “controlled by” real estate agents of certain ethnicities. In the five bid-rigging schemes that occurred in Northern California counties, real estate agents joined in schemes

through acquaintances in the industry and associations. While none of the criminal information brings attention to "gender" as an obstacle to access, there is a relatively low number of female real estate agents in the schemes. Offenders manifested relatively high fluidity in access and participation. Participants can join and leave (as described by legal information) in as little as seven months (98f0002). Nevertheless, even for defendants with the longest duration of participation in a scheme, prosecutors typically do not provide unique descriptions that imply the presence of a "ring-leader" or "ring-leaders".

Defrauding the Government

Some schemes target government programs or public contracts. These schemes usually involved offenders defrauding federal funding programs designed for public entities, such as schools, or economic development, such as small businesses, as well as governmental subcontractors. These schemes have at least one conspirator with sufficient knowledge and/or experience with the government program. Their occupational position is less important as long as they have access to program application materials. They must have some legitimacy to make them superficially eligible according to the program qualifications or they must fabricate such qualifications.

These cases make up a substantial portion of the frauds filed by the Antitrust Division in the female-involved sample. All E-Rate program frauds (8), public school meal program bid-rigging (2), and SBA funding frauds (2). An investigation revealed conspiracies in various states targeting federal broadband/telecommunication funding, the E-Rate program, for public schools and libraries. Offenders who know the program used existing or phony companies to apply as the broadband provider for local schools with fabricated documents to create funding for personal gains. In New York, a company attempted to take advantage of public-school meal programs

(00f0002). The New York City's Division of Municipal Supply Services (DCAS) "conducted competitive bidding for supplies" needed in various departments, including the "Newark Public Schools system" (00f0002). In four years, a company won bids through subcontracting bids or monetary agreements with co-conspirators. It involved a senior executive officer as well as salespeople from different food vendors. Finally, fraud was found in an investigation by the Small Business Administration, created by the Small Business Act to support small and disadvantaged companies. Gender, race, and disability status all fall under funding "socially disadvantaged" categories. As such, the two schemes use women (a white female and a black disabled female respectively), mainly for their identities, as the nominal head of their companies to apply for SBA funding.

From an opportunity perspective, I categorize these schemes largely due to their target – the government. Their motives are gaining profits from government subsidies, programs, or funding. Offenders do not need to be high-level managers or even company owners. Their decision power without a company is less relevant, as long as they have sufficient knowledge and experience with the specific government program. For instance, conspiracies with e-rate programs often involved current/former teachers and administrators of a public school or current/former bandwidth provider. They usually know how to fabricate invoices as a result of their experiences as school administrators and service providers. Occupational positions are not irrelevant to their access to the target. Thus, the schemes are small, involving only one to five individuals.

Some of the cases appear to involve companies that exist solely to defraud the government. A staffing company with a female nominal head was created solely to defraud SBA (09f0001); a bandwidth provider, in addition to the co-conspirator's existing bandwidth

company, was also created just so that the conspirators could apply for the E-Rate program (05f0001). Besides their anticompetitive nature, these schemes have components of false claims/false statements. The individuals involved may not be charged with violating 15 USC 1. Rather, they are charged with Defrauding the United States, mail fraud, wire fraud, and false statements.

Defrauding the Organization

These schemes have at least one conspirator holding an internal position with insider information regarding the victim organization, private or public. The insider has some power and access over the targeted transaction. Schemes also involve at least one conspirator holding an external position, wanting to have or holding a contract with the victim organization. One individual may possess both roles – holding an internal position and owning a separate company. The main motive comes from gaining advantages, bids, or money over a transaction/project from the victim organization.

These schemes involve a smaller number of conspirators and are scattered across various industries in the female sample. 14 schemes fit this category. They are conducted in various ways. For instance, a marketing vice president was responsible for choosing advertisement graphics. She chose the winning bid for a company in return for kickbacks (98f0001). An internal supply director of a Home Depot granted the contract to the supplier and received kickbacks (08f0002). A manager from a Stamp Auction house leaked insider information to certain buyers to provide advantages within a certain stamp auction (02f0001). Finally, various military contract officers received bribes to designate certain companies or give bids to their establishments (07f0002, 07f0002, 08f0001, 09f0002, 09f0003, and 09f0004).

Both the insider and external corporate defendants have substantial control over a transaction within the organization. They can be anywhere from an executive to just an employee. They have the power to grant advantages for profit. There may be some level of concerted ignorance or tolerance for the schemes to occur. Especially in the series of military defense contractor bribery schemes, there seemed to be an incentive structure within the office to receive bribes. With military deployment and rotation, the next officer succeeds the bribe from the same company with no formal guardianship.

The Classic Antitrust Scheme

These schemes have a natural or established advantage in their share of the market. There is little to no competition, or substitute products, in the market. These schemes include the stereotypical conspiracy - executives of multi-national corporations creating anti-competitive agreements to gain profit for the company. It can also be one or a few entities that holds a natural monopoly over a certain product in a smaller geographical area. These individuals can increase the product/service price or lower the raw material price in anticompetitive ways to gain profit. They have full access and control, in agreement with co-conspirators, about the price, while consumers lack knowledge or information to attribute price increases as antitrust behavior.

Schemes may involve many or only a few entities/companies. In female-involved schemes, a shellfish (94f0001[4]) and a waste disposal price-fixing scheme (94f0002) are two examples of localized schemes with natural advantage and control over a product/service. In the male-only sample, the Auto industry auto parts (13m0001) and LCD light price-fixing scheme (10m0001) are two examples of multi-national corporations with established advantages and

[4] The violation of scheme is "Obstruction of Justice", where defendants "false and misleading affidavit to the federal grand jury". The cover-up is related to an antitrust price-fixing violation that undergo investigation.

control over a market. In the shellfish scheme, conspirators owned and worked for multiple seafood-related companies that "buy, peel, sell and process seafood", responsible for most of the market share in Louisiana. Since they have control over the market and therefore the seafood price, they manipulated a higher price to charge purchasers from other states and countries as well as a lower buy-in price from fishermen. In a county in Illinois, conspirators from two companies jointly advertised a higher rate for waste disposal service. In the 2000s, an investigation revealed well-known Japanese auto part makers jointly increased prices for multiple auto parts (i.e., tires, suspensions, automotive systems), which lead to a price surge in motor vehicles. Another investigation revealed top Asian corporations jointly agree to increase prices for LCD light panels in the U.S. and elsewhere. Both cases involved multi-billion losses to consumers and dealers of the products. All defendants were executives and multinational corporations with established control over the market in the U.S. and elsewhere.

As such, the opportunity structure comes from a nearly monopolized market, small or big. There is little to no guardianship over offenders who controlled the market share. The main conspirators are executives and/or owners of a business. They have full access to an imbalanced power dynamic with the buyers. Buyers may not be aware of the illegitimacy behind a price surge because there is little competition. Interestingly, no females were involved in schemes involving multi-national price fixing. Of the 41 executives in 20 corporations in the auto part schemes, no female executives were charged by the Antitrust Division in the U.S.

## Opportunity Perspective and Female Antitrust Offenders

The opportunities for women to commit antitrust offenses appear to have a similar glass-ceiling as their opportunities to obtain leadership positions in large organizations. In other studies of corporate crimes involving accounting fraud, Brickey (2005) found only 7% of women

offenders, while Steffensmeier et al.'s (2013) found only 9% of the defendants were women. Here I found only 54 women filed with antitrust or related charges. While I cannot calculate a precise percentage of women among all individual defendants between 1990 to 2018, it is clear that 54 is a very small proportion. In short, it appears that access to criminal antitrust opportunities is quite low for women.

Earlier, I discussed possible explanations for low-female criminal involvement. First, the differential enforcement perspective theorizes that law enforcement agencies are less likely to pursue female white-collar crime offenders (Pollock, 1999). Second, sexual stratification within occupations may limit women's access to leadership positions in organizations, and such positions seem to be prevalent among those involved in antitrust conspiracies. Third, even if women attain leadership positions, informal social stigmatization may exclude them from male-exclusive or male-dominant informal social networks that conduct white-collar criminal conspiracies (Gorman & Kmec, 2009). Even when they are involved, females appear to play only minor or supportive roles in many conspiracies (Steffensmeier et al., 2013). And lastly, regardless of opportunity, focal concern theory (Steffensmeier &Allan, 2000) suggests that the differences in gender identity reduce a woman's willingness to take risks because of their commitment to "nurturant role obligations".

There is no evidence of differential enforcement based on gender in the data studied here. Most schemes are detected through proactive investigations by the Antitrust Division from different years with only a few reactive/reported cases. An investigation of military contract officers, a screening through Northern California real estate Foreclosure bids, and an international investigation of LCD monitors created waves of filings among different industries. The data cannot tell us whether enforcement agents filed fewer charges among female offenders

within these campaigns. Data shows that the size of the conspiracy and industry may be more predictive of female presence in the conspiracy.

The distribution of occupational positions between female and male defendants also suggests some differences in occupational opportunities. While antitrust defendants, in general, are likely to be owners or officers of their companies, similar to the Yale study result, the percentage of women who hold either of these positions is less than men. Since antitrust offenses are heavily related to occupational position, women's limited access to certain types of occupational opportunities may be relevant.

The real estate bid-rigging scheme served as a good example of the "glass ceiling" effect. According to the National Association of Realtors (NAR) (2017), real estate is a female-dominant industry. Nearly two-thirds of agents (65%) are women. Yet, according to the NAR (2017), women in the real estate industry are still "less represented in leadership". Moreover, only 36% of commercial real estate agents, the more competitive and lucrative market, are women (NAR, 2017). Among all real estate schemes from the two samples studied here, only 9 out of 84 (10.7%) individuals are women. The proportion would be considerably smaller if all real estate cases were counted. As such, real estate bid-rigging conspiracies are dominated by males, even though it is in a female-dominant industry.

Another female-trending industry reveals similar statistics. In the 1990 medical cohort, 46.9% of physicians in Obstetrics and Gynecology and 30.4% of major department leadership are women (Holfer et al., 2017). The field has grown from 18.6% women in the 1980s to 86.3% women in 2022. While the data contains two price-fixing cases in this industry, it still shows a low involvement among female gynecologists. Only 2 out of 24 (8.33%) physicians from 4 clinics/hospitals are women. There seemed to be a gendered variation in the association between

employment opportunities and criminal opportunities for women. While women are gaining occupational opportunities in certain industries, it seems that they continue to remain outside of the informal criminal networks dominated by men.

One intriguing finding related to occupational positions is that 13% of women in the sample were involved through informal relationships only. Cases provided relationship information among conspirators, especially if the prosecutor could not focus on an occupational relationship among them. As such, some schemes are family-based, where conspirators hold spousal, sibling, and parental relationships. Typically, the occupational position is more relevant to how an individual is involved. For instance, two conspirators in the waste disposal price-fixing schemes (94f0002) were family members who co-owned the company. The E-Rate program fraud (06f0002) was a married couple. The husband was an assistant superintendent and his wife was a bookkeeper in a public school. However,13% of women involved are exceptions to this pattern.

Thus, a small, but not insignificant, portion of the female defendants held no relevant occupational position, not even a nominal title in the company, in the scheme. They are wives, mothers, and sisters of one or more of the major conspirators. They generally performed only minor, nominal, or instrumental roles in the scheme. As such, their violations may be racketeering, tax evasion, money laundering, mail/wire fraud, or false statement. This is interesting because they are seen as trustworthy conspirators without individual monetary gain secured by an individual agreement or contract. It is possible that for these women the criminal act was not committed for self-interested reasons. Rather, the criminal act is somehow part of the woman's desire to fulfill their "familial" role by helping their husband, sons, or brothers to carry out a criminal scheme.

However, it is true that within the majority of conspiracies some women have roles that are like those of men. This may be due to the conspiratorial nature of antitrust offenses, which requires participants to conspire and settle upon an agreement that can be monitored and maintained by everyone involved. Thus, in some of the cases studied here, female defendants appeared to have more substantial roles than those observed in other forms of corporate fraud, such as accounting fraud. Thus, in sum, females are not involved in antitrust offenses in proportion to their involvement in certain industries, such as real estate and gynecology, but when they are involved in a scheme, they often have major roles.

## Limitations

This study has two primary limitations. First, the data does not include conspirators who for whatever reason were not charged by the Antitrust Division or listed in the Division's files. Second, while the coding process involved multiple sources to correctly identify the gender of all defendants, there may be errors in these identifications. Each of these limitations and potential ways for future researchers to overcome them are discussed below.

The first limitation is that the method of data collection did not collect data on all "potential conspirators". Sometimes the information documents that are posted by the Antitrust Division mention "conspirators known and unknown thereof" to the conspiracy. Thus, some of the schemes investigated by the Division may be bigger than they appeared to be according to the available documents. Other potential defendants, either male or female may have been involved in schemes, but for some reason, they were not charged. Moreover, the data used here only includes cases that are filed by the Antitrust Division. Local and state courts may prosecute related offenders with non-antitrust violations. In addition, the FTC handles antitrust cases and does refer some of them to the DOJ for criminal antitrust prosecutions. There are likely cases in

which women but that are processed entirely by the FTC and not referred to the DOJ. In short, the data set is incomplete because it does not include cases that were handled by the FTC. This is a shortcoming that may be overcome in the future through investigations that focus on the FTC.

In the future, interviews with investigators or other staff people of the Antitrust Division could help fill gaps regarding potential unknown offenders as well as offenders prosecuted in other legal venues. Collecting all antitrust cases and related court cases would create a more complete picture of the schemes. In addition, the FTC also handles antitrust and anticompetition cases. They are not included in our sample because the FTC generally focuses on organizations that are charged with compliance violations. Future researchers who are interested in organizational behaviors and outcomes should also include cases from the FTC in their samples.

Another potential limitation is that the gender of offenders is not explicitly listed in the court files. While steps were taken to cross-validate the gender identity of the offender using various sources, it is nevertheless possible that false positives and false negatives may have occurred. For example, a defendant may identify himself as male, even though prosecutors and news outlets use female pronouns and descriptions. On the other hand, it may be more common that a defendant identifies herself as female, while prosecutors and news outlets addressed her using male or neutral pronouns and descriptions. For example, cases where passages describe a group of conspirators together using “they” may have a higher error rate. Another limitation is that current court documents are unsuitable for identifying nonbinary gender identities through court documents. They are categorized with either male or female gender descriptors. Interviewing investigators and requesting internal data may enhance the accuracy-related to

gender identities as well as expand research to cover other demographic variables, such as race, citizenship, and marital status that are often not included in court documents.

Overall, both of these limitations arise out of a well-known problem with the use of official data to conduct research. Official data are usually compiled for bureaucratic reasons and not with researchers in mind. Future researchers should consider using qualitative methods to overcome these limitations.

## Future Directions

White-collar crime is gradually gaining more attention from researchers and there are many opportunities for future research. The current study provides descriptive data on antitrust violations, occupational positions, and roles in conspiracies to investigate the role of gender in these cases. It opens several avenues for future research.

First, researchers can expand data to collect information on schemes, individuals, and organizations' outcomes. This study revealed some gender differences in occupational positions and roles, but there may also exist gender differences in the types of legal outcomes that happen in these cases. Researchers should also examine organizational differences, such as differences in the way that large corporations compared to small and medium enterprises are handled. Additional data should prompt further analyses on the opportunity perspective by looking more deeply into the relationship between employment opportunities and antitrust opportunities. In this study, I looked at employment opportunities and gender differences primarily in the real estate and gynecology industries. Future researchers may perform qualitative analyses using employment from all industries to examine whether there are gender differences in employment and antitrust criminal opportunities.

Second, the motives that drive offenders are not apparent in the current data. While I attempted to explain the implications of the statistical information regarding focal concern theory, it is insufficient to prove whether females may be less likely than males to commit antitrust offenses because of differences in their respective focal concerns. The present study also does not shed much light on how people discover and start to participate in conspiracies. Thus, future researchers should also examine the gender and other demographic differences in informal social/criminal networks. Interviewing antitrust offenders and investigators may shed light on their motives, ways of participation, and what specific roles they hold in the group.

Lastly, this dataset is merely a preliminary attempt to create an enriched and continuous dataset on antitrust cases. A comprehensive database should include more details on other demographic information, court outcomes, as well as organizational information. It should also expand data to include potential offenders and administrative cases, as described above. To do so, a mix of data collection methods may be needed. Some data may also require collection beyond the United States cases. For instance, the Japanese auto parts price-fixing case that involved countries outside of Japan may also have been investigated and prosecuted in other countries. The case would be "incomplete" if the data only include cases filed in the United States. Others may require additional organizational information to examine differences between sole proprietors, small and medium enterprises, and corporate owners. With a collection of employment data across industries, an enhanced database can shed light on factors that explain criminal opportunities and demographic variations in antitrust violations.

## Conclusions and Contributions

Antitrust crime is a classic form of white-collar crime. Historically, it has been male-dominated, indeed almost exclusively so. In the Yale study, less than one percent of antitrust

offenders were female (Benson & Simpson, 2018). Subsequent studies on other forms of high-level white-collar crimes (Steffensmeier & Allan 2000; Brickey, 2005) also found low percentages of female participation in corporate crime. Like those studies, this study also finds that women make up only a small portion of antitrust offenders prosecuted between 1990 to 2018. There are only 54 women in 41 schemes in 28 years.

Overall, the main contribution of this study is that it presents the first systematic treatment of gender differences in antitrust violations. This study suggests that women's involvement in antitrust violations appears to be idiosyncratic through time. They appear in antitrust cases only sporadically. In the present study, a proactive investigation that cracked down on a bigger conspiracy revealed female conspirators (i.e., the real estate foreclosure schemes and the gynecology schemes). Likewise, a target with high criminal opportunities, such as the federal E-Rated program, also involved female conspirators. However, some women also appeared in small and independent conspiracies in localized areas. Thus, the results presented here may reflect variations in how antitrust laws are enforced rather than variations in how women in the workforce have changed their behavior.

Regarding their occupational positions, both men and women are likely to be owners in antitrust schemes, consistent with the Yale Study (Benson & Simpson, 2018). But relative to men even in female-involved schemes, women are less likely to be owners. Interestingly, seven out of the 54 women had no occupational position related to the crime. Prosecutors focused on their familial and other informal relationships with co-conspirators rather than their role through occupations. Moreover, these offenders tended to be charged with non-antitrust violations, such as money laundering and mail/wire fraud. On the same note, two women were involved merely because their identity as women allowed their male co-conspirators to orchestrate a scheme to

defraud a government funding program. Their gender identities were instrumental, and their role was nominal to the conspiracy. Indeed, it is odd from the perspective of focal concern theory that some women's criminal behaviors may arise from their desire to fulfill their "familial" role by assisting male family members in a criminal conspiracy.

This study addressed female antitrust participation in two female-dominant industries. Both the real estate and OBN/GYN medical fields are dominated by female practitioners. Both schemes in these two industries I categorized as Ant Schemes, where conspirators may not initially have a substantial share of the market and do not expect to come out of the crime with an increased share. These industries are likely to present criminal opportunities within a geographically fixed target area. Yet, the percentage of female offenders in these schemes is still lower than the percentage of women working and holding high-level positions in the industry. Using the informal social network explanation, these schemes imply that even in a female-dominant occupation, the informal criminal network may still be male-dominated.

In summary, this study found some similarities and differences in the occupational position and roles played by men and women in antitrust schemes. Both men and women are likely to be owners or executives in their occupational organizations, and both appear to participate in anti-competitive behaviors for personal and corporate gains. A majority of them are ringleaders or otherwise major contributors to the schemes. However, women differ from men in that they sometimes are involved in conspiracies because of their informal or familial relationship with male conspirators. The study also finds that even in occupations or industries that are dominated by females, women are still underrepresented in antitrust cases, and they sometimes become involved via different pathways than men. Overall, the results of this study largely coincide with those of other studies on the role of gender in high-level corporate fraud.

## References


Adler, F. (1975). *Sisters in crime: The rise of the new female criminal*. McGraw-Hill.

Anderson, P. L., Bolema, T. R., & Geckil, I. K. (2007 working paper). Damages in Antitrust Cases. *AEG LLC,* (2)

Antitrust Division (2021). Price Fixing, Bid-rigging, and Market Allocation Schemes: What They Are and What to Look for. Retrieved from https://www.justice.gov/atr/file/810261/download

Antitrust Division. (2014). Retrieved, from https://www.justice.gov/atr

Assaad, R. A., Hendy, R., Lassassi, M., & Yassin, S. (2018). Explaining the MENA paradox: Rising educational attainment, yet stagnant female labor force participation.

Benson, M. L., & Simpson, S. S. (2018). *Understanding white-collar crime: An opportunity perspective*. Routledge.

Benson, M. L., Feldmeyer, B., Gabbidon, S. L., & Chio, H. L. (2021). Race, ethnicity, and social change: The democratization of middle-class crime. *Criminology*, *59*(1), 10-41.

Brickey, K. F. (2005). In Enron's wake: corporate executives on trial. *J. Crim. L. & Criminology*, *96*, 397.

Brown, J. K. (1993). The Nineteenth Amendment and Women's Equality. *The Yale Law Journal*, *102*(8), 2175-2204.

Bureau of Competition. (2013). Retrieved from https://www.ftc.gov/about-ftc/bureaus-offices/bureau-competition

Carnes, M. C., & Garraty, J. A. (2006). *The American nation: A history of the United States*. Pearson Longman.

Catalyst (2020). Women CEOs of the S&P 500. Retrieved from https://www.catalyst.org/research/women-ceos-of-the-sp-500/

Celler-Kefauver Act *1950* (Congress) 64 Stat. 1125 (U.S.)

Clayton Act *1914* (Congress) Ch. 323, 15 U.S.C. §§ 12-27 (U.S.).

Clarke, R. V. (1983). Situational crime prevention: Its theoretical basis and practical scope. *Crime and justice*, *4*, 225-256.

Clarke, R. V. (1995). Situational crime prevention. *Crime and justice*, *19*, 91-150.

Clarke, R. V. G., & Webb, B. (1999). *Hot products: Understanding, anticipating and reducing demand for stolen goods* (Vol. 112). London: Home Office, Policing and Reducing Crime Unit, Research, Development and Statistics Directorate.

Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American sociological review*, 588-608.

Corcoran, M., & Duncan, G. J. (1979). Work history, labor force attachment, and earnings differences between the races and sexes. *Journal of Human Resources*, 3-20.

Cornish, D. B., & Clarke, R. V. (2008). The rational choice perspective. *Environmental criminology and crime analysis*, *21*, 21-47.

Cotter, D. A., Hermsen, J. M., Ovadia, S., & Vanneman, R. (2001). The glass ceiling effect. *Social forces*, *80*(2), 655-681.

Crump, A. (1987). Women and crime-A contemporary controversy. *International journal of offender therapy and comparative criminology*, *31*(1), 31-40.

Diekmann, A. (2007). Not the first digit! using benford's law to detect fraudulent scientif ic data. *Journal of Applied Statistics*, *34*(3), 321-329.

Eck, J., & Weisburd, D. L. (1995). Crime places in crime theory. *Crime and place: Crime prevention studies*, *4*. Monsey, NY: Criminal Justice Press.

Federal Trade Commission Act *1914* (Congress) 15 U.S.C. § 41 (U.S.).

Edelhertz, H. (1970). *The nature, impact, and prosecution of white-collar crime* (Vol. 2). National Institute of Law Enforcement and Criminal Justice.

Fairlie, R. W., & Robb, A. M. (2009). Gender differences in business performance: evidence from the Characteristics of Business Owners survey. *Small Business Economics*, *33*(4), 375-395.

Felson, M., & Boba, R. L. (Eds.). (2010). *Crime and everyday life*. Sage.

Fernández, R. (2013). Cultural change as learning: The evolution of female labor force participation over a century. *American Economic Review*, *103*(1), 472-500.

Galles, K. M. (2004). Filling the Gaps-Women, Civil Rights, and Title IX. *Hum. Rts.*, *31*, 16.

Geisst, C. R. (2000). *Monopolies in America: Empire builders and their enemies from Jay Gould to Bill Gates*. Oxford University Press.

Gorman, E. H., & Kmec, J. A. (2009). Hierarchical rank and women's organizational mobility: Glass ceilings in corporate law firms. *American Journal of Sociology*, *114*(5), 1428-1474.

Greenwood, J., Seshadri, A., & Yorukoglu, M. (2005). Engines of liberation. *The Review of Economic Studies*, *72*(1), 109-133.

Hakim, C. (1996). *Key issues in women's work: Female heterogeneity and the polarisation of women's employment* (Vol. 4). A&C Black.

Hannah, L. (2006). The whig fable of American tobacco, 1895-1913. *Journal of Economic History*, 42-73.

Haslett, J. T. (1948). Price Discriminations and Their Justifications Under the Robinson-Patman Act of 1936. *Michigan Law Review*, *46*(4), 450-480.

Hisrich, R. D., & Brush, C. (1986). Characteristics of the minority entrepreneur. *Journal of Small business management*, *24*, 1.

Hofler, L. G., Hacker, M. R., Dodge, L. E., Schutzberg, R., & Ricciotti, H. A. (2016). Comparison of women in Department Leadership in Obstetrics and Gynecology with those in other specialties. *Obstetrics and gynecology*, *127*(3), 442–447.

ILOSTAT. (2022). These occupations are dominated by women. ILOSTAT. Retrieved October 21, 2022, from https://ilostat.ilo.org/these-occupations-are-dominated-by-women/

Jackson, P. N. W., & Jones, M. E. S. (2007). The quiet workforce: the various roles of women in geological and natural history museums during the early to mid-1900s. *Geological Society, London, Special Publications*, *281*(1), 97-113.

Kalev, A. (2009). Cracking the glass cages? Restructuring and ascriptive inequality at work. *American Journal of Sociology*, *114*(6), 1591-1643.

Kauper, T. E. (1968). The" Warren Court" and the Antitrust Laws: Of Economics, Populism, and Cynicism. *Michigan Law Review*, *67*(2), 325-342.

Kosicki, G., & Cahill, M. B. (2006). Economics of cost pass through and damages in indirect purchaser antitrust cases. *Antitrust Bull.*, *51*, 599.

Liff, S., & Ward, K. (2001). Distorted views through the glass ceiling: the construction of women's understandings of promotion and senior management positions. *Gender, Work & Organization*, *8*(1), 19-36.

Lockhart, N., & Pergande, J. (2001). Women who answered the call: World War II as a turning point for women in the workforce. *Journal of women's history*, *13*(2), 154-157.

Lombard, K. V. (1999). Women's rising market opportunities and increased labor force participation. *Economic Inquiry*, *37*(2), 195-212.

Malaga, R., Mamonov, S., & Rosenblum, J. (2018). Gender difference in equity crowdfunding: an exploratory analysis. *International Journal of Gender and Entrepreneurship*.

Miethe, T. D., & Meier, R. F. (1990). Opportunity, choice, and criminal victimization: A test of a theoretical model. *Journal of research in Crime and Delinquency*, *27*(3), 243-266.

Morgan, L. A. (1998). Glass-ceiling effect or cohort effect? A longitudinal study of the gender earnings gap for engineers, 1982 to 1989. *American sociological review*, 479-493.

Morrison, A. M. (1992). *The New Leaders: Guidelines on Leadership Diversity in America. Jossey-Bass Management Series*. Jossey-Bass, Inc., Publishers, 350 Sansome Street, San Francisco, CA 94104.

National Association of Realtors. (2017, March 6). *Women in real estate*. www.nar.realtor. Retrieved October 21, 2022, from https://www.nar.realtor/women-in-real-estate

Orbach, B., & Rebling, G. C. (2011). The Antitrust Curse of Bigness. *S. Cal. L. Rev.*, *85*, 605.

Pollock, J. M. (1999). *Criminal women*. Cincinnati, OH: Anderson.

Portes, A., & Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the social determinants of economic action. *American journal of sociology*, *98*(6), 1320-1350.

Robinson, S., & Stubberud, H. A. (2009). Business incubator explanations: Networking and gender differences. *Management Review*, *4*(2), 4-28.

Robinson-Patman Act *1936* (Congress) 15 U.S.C. § 13 (U.S.).

Rose, L. M. (2010). The Supreme Court and gender-neutral language: Setting the standard or lagging behind. *Duke J. Gender L. & Pol'y*, *17*, 81.

Runyan, R. C., Huddleston, P., & Swinney, J. (2006). Entrepreneurial orientation and social capital as small firm strategies: A study of gender differences from a resource-based view. *The International Entrepreneurship and Management Journal*, *2*(4), 455-477.

Sherman Act *1890* (Congress) Ch. 323, 15 U.S.C. §§ 1-38 (U.S.).

Simon, R. J., & Sharma, N. (1979). Women and crime: does the American experience generalize?. *The Criminology of Deviant Women. Boston: Houghton*, 391-400.

Sonnenfeld, J. and P. R. Lawrence. 1978. “Why do companies succumb to price fixing.” *Harvard Business Review*, July-August: 145-157.

Steffensmeier, D. J., Schwartz, J., & Roche, M. (2013). Gender and twenty-first-century corporate crime: Female involvement and the gender gap in Enron-era corporate frauds. *American Sociological Review*, *78*(3), 448-476.

Steffensmeier, D., & Allan, E. (2000). Looking for patterns: Gender, age, and crime. *Criminology: A contemporary handbook*, 85-128.

Sutherland, E. H. (1983). *White collar crime: The uncut version*. Yale University Press.

Tewksbury, R., & Mustaine, E. E. (2003). College students' lifestyles and self-protective behaviors: Further considerations of the guardianship concept in routine activity theory. *Criminal Justice and Behavior*, *30*(3), 302-327.

The Heritage Foundation (2020). *2020 Index of Economic Freedom*. Index of Economic Freedom: Promoting Economic Opportunity and Prosperity by Country. https://www.heritage.org/index/.

Toossi, M., & Morisi, T. L. (2017). BLS spotlight on statistics: Women in the workforce before, during, and after the Great Recession.

Trattner, W. I. (2017). CLAYTON ANTITRUST ACT. *Reforming America: A Thematic Encyclopedia and Document Collection of the Progressive Era [2 volumes]*, 228.

U.S. v. Gary DeVoe, Case No. 3:19-cr-00086-KAD (2019). https://www.justice.gov/atr/case/us-v-gary-devoe

U.S. V. Paul M. Camara, Jr., Case No. 3:19-cr-00189-KAD (2019). https://www.justice.gov/atr/case/us-v-paul-m-camara-jr

U.S. v. Sandox Inc., (2020)

U.S. v. Teva Pharmaceuticals USA Inc. and Glenmark Pharmaceuticals Inc., (2020)

United States Sentencing Commission (2020) Individual Offender Datafiles 2002-2015). Retrieved from https://www.ussc.gov/research/datafiles/commission-datafiles

Watson, J., Gatewood, E. J., Lewis, K., Weber, P. C., & Geneste, L. (2014). Exploring gender-related perceptions of SME success. *International Journal of Gender and Entrepreneurship*.

Weisburd, D., Bushway, S., Lum, C., & Yang, S. M. (2004). Trajectories of crime at places: A longitudinal study of street segments in the city of Seattle. *Criminology*, *42*(2), 283-322.

Weisburd, D., Groff, E. R., & Yang, S. M. (2012). *The criminology of place: Street segments and our understanding of the crime problem*. Oxford University Press.

Weisburd, D., Wheeler, S., Waring, E., & Bode, N. (1991). *Crimes of the middle classes: White-collar offenders in the federal courts*. Yale University Press.

White, R. P., Velsor, E. V., & Morrison, A. M. (1992). Still dealing with the glass ceiling: Conversations with nine female executives. *Leadership in Action*, *12*(4), 6-7.

Wrigley, B. J. (2002). Glass ceiling? What glass ceiling? A qualitative study of how women view the glass ceiling in public relations and communications management. *Journal of public relations research*, *14*(1), 27-55.

## Appendix

Appendix A. Variable Codebook

There are four groups of variables in the coding scheme: 1) case information, 2) documentation, 3) defendant information, and 4) organizational information.

| Variable Name | Type | Values | Description |
|---|---|---|---|
| ***Case Information*** | | | |
| CaseName | String | | The legal case's full title as filed on the Antitrust Division on the DOJ website. Most cases start with U.S. vs. [defendants] |
| CaseNumber | String | | The court case number unique to each case following the federal court format |
| CaseType | Nominal | 0 = Criminal<br>1= Civil Non-Merger<br>2 = Civil Merger<br>3 = Supreme Court<br>4 = Other | The type of case as filed by Antitrust Division |
| CaseCrim | Numeric | 0 = no<br>1 = yes | Whether the case is criminal, recoded from *CaseType* |
| State | Nominal | range: 0 - 50 | The primary state identified with the case |
| Court | String | | The name of the federal court, circuit or supreme, that processed the case |
| Industry | String | | The type of industry the defendants committed the violation, as filed by the Antitrust division |
| Market | String | | The type of market within an industry the defendants committed the violation, as filed by the Antitrust division |
| CaseOpen | Date | | The date that the case is open |
| YearOpen | Numeric | range: 1941 - 2019 | The case open year |
| MonthOpen | Numeric | range: 1- 12 | The case open month (combined with *YearOpen* as case open date) |
| CaseClose | Date | | The date that the case is closed |
| YearClose | Numeric | range: 1941 - 2019 | The case close year |
| MonthClose | Numeric | range: 1- 12 | The case close month (combined with *YearOpen* as case open date) |

| | | | |
|---|---|---|---|
| IncidentDate | Date | | The earliest date to which the incident is recorded |
| IncidentEndDate | Date | | The latest date to which the incident is recorded |
| IncidentYear | Numeric | range: 1927 - 2019 | The starting year/date of incident found in Information |
| IncidentLength | Numeric | | The length of the incident in months, found in Information; recoded from *IncidentDate, IncidentEndDate* |
| CaseStatus | Numeric | 0 = Open<br>1 = Close | Whether the case has been closed or in progress |
| CaseDefendType | Nominal | 0 = case involves individuals only<br>1 = case involves at least one individual defendant<br>2 = case involves only organizations/ individual who is only on behalf of organizations | The type of entities involved in the case |
| D_num | Numeric | 0-999 | Number of defendants in the case |
| D_inum | Numeric | 0-999 | Number of individual defendants in the case |
| D_snum | Numeric | 0-999 | Number of defendants in a scheme |
| D_sinum | Numeric | 0-999 | Number of individual defendants/entities in a scheme |
| SchemeName | String | Scheme name | A name was given to a scheme/group of cases, following the formula [year][male or female-involved][order within year]. For example, the second female-involved scheme in 2005 is 05f0002. |
| Rcase_num | Numeric | 0-99 | Number of related cases in a scheme |
| ***Documentation*** | | | |
| AdjType | Nominal | 0 = Criminal Information<br>1 = Civil Complaint<br>2 = Appeal<br>3 = Termination of Case of Previous Filed Information | The type of adjudication of the case |

| | | | |
|---|---|---|---|
| Windictment | Numeric | 0 = no indictment<br>1 = has an indictment | Whether the case has a criminal indictment document |
| DecisionType | Nominal | 0 = no decision<br>1 = plea agreement<br>2 = criminal sentencing<br>3 = civil order<br>4 = prosecutorial agreement | The type of sentencing decision document the defendant has |
| Wplea | Numeric | 0 = no<br>1 = yes | Whether case has a plea agreement document |
| Worder | Numeric | 0 = no<br>1 = yes | Whether an Order document is presented |
| Violation | Nominal | range: 1 - 50 | Type of violation filed for the case; please see "Violation" for the full list |
| Overviewtext | String | | The text within the website overview section regarding the case facts |
| LN | Numeric | 0 = no<br>1 = yes | Whether LexisNexis is used for coding the coconspirator information |
| LI | Numeric | 0 = no<br>1 = yes | Whether LinkedIn is used for coding the coconspirator information |
| ***Individual Information*** | | | |
| Defendant | String | | The individual or organizational defendant's name, including a/k/a, r/b/a, d/b/a, etc. |
| Id | String | | The individual defendant's primary name, excluding a/k/a |
| Id_alter | String | | The individual or organization's alternative name is recorded in the legal document. It denoted by d/b/a, r/b/a, or a/k/a |
| IdType | Numeric | 1 = individual<br>2 = organization | Whether the defendant is an individual or organization |
| IdViolation | Nominal | range: 1 - 50 | The primary type of violation the defendant is prosecuted with; please see "Violation" for the full list |
| Stat[1-X] | String | | The specific violation charged |
| Sex | Numeric | 0 = male<br>1 = female<br>. = unknown | The gender of the individual defendant |

| | | | |
|---|---|---|---|
| Race | Nominal | 0 = white/Caucasian<br>1 = black/African American<br>2 = Asian<br>3 = Native American<br>4 = Other. = unknown | The race of the individual defendant |
| Hisporg | Numeric | 0 = not Hispanic<br>1 = Hispanic<br>. = unknown | Whether the main defendant is of Hispanic origin if the defendant is individual |
| Citizen | Numeric | 0 = U.S. citizen (natural, permanent, green card holder)<br>1 = foreign citizen | The individual defendant's citizenship status |
| Citizenship | String | | Individual defendant's country of citizenship, if *Citizen* is foreign, |
| Charged | Numeric | 0 = not charged<br>1 = charged | Whether one is charged |
| Reverted | Numeric | 0 = not reverted<br>1 = reverted | Whether another legal case has reverted, terminated, or acquitted the individual defendant's initial charge |
| PriorCrim | Numeric | 0 = no prior criminal history<br>1 = has prior criminal history | Whether the defendant has prior criminal history in the Information |
| Organization | String | | The primary organization affiliated with the individual defendant for the violation |
| Position | String | | The position title of the individual defendant at the time of the incident |
| PositionOrdered | Nominal | 0 = Owner<br>1 = Executive<br>2 = High manager<br>3 = Manager<br>4 = Employee<br>5 = no relevant employment position and informally related | The position of the individual defendant within the organization, organized into a rank |
| InvolvedDate | Date | Dd/mm/yyyy | The date defendant was involved in the conspiracy |

| | | | |
|---|---|---|---|
| InvolvedRank | Ordinal | 0 = initiator<br>1 = followed, long-term<br>2 = followed, short-termed | Order of defendant's involvement date within the scheme. Individuals involved at the same time have the same rank |
| Activity[1-X] | String | | A series of string texts of the defendant's participation in criminal activities, each variable represents one clause described in the information regarding the individual defendant |
| ActivityType[1-X] | Nominal | 1 = ringleader<br>2 = major role<br>3 = in-between role<br>4 = minor<br>5 = nominal role | The level of such activity stated in the corresponding *Activity* level |
| Role | Nominal | 1 = ringleader<br>2 = major role<br>3 = in-between role<br>4 = minor<br>5 = nominal role | The overall level of activity and role played by the individual defendant in the violation |
| Loss | Numeric | range: 0 - 99,999,999,999 | Monetary Amount of the offense |
| HasLoss | Numeric | 0 = no<br>1 = has some amount | Whether there is a calculated monetary loss due to the defendant's criminal behavior |
| GeoMultidual | Nominal | 1 = local<br>2 = statewide<br>3 = interstates<br>4 = involved foreign countries<br>. = unknown | The level of the geographic area involved in the offense |
| Conviction[1-X] | Numeric | 0 = no conviction<br>1 = has conviction | this indicates whether the defendant has been convicted of the crime (only applies to criminal cases) |
| Sentenced[1-X] | Numeric | 0 = no<br>1 = yes | This indicates whether the defendant is incarcerated |
| SentLength[1-X] | Numeric | | The number of days sentenced to prison/jail |
| Others[1-X] | Numeric | 0 = no<br>1 = yes | This indicates whether physical punishment other than incarceration, excluding monetary punishment, has been made |

| | | | |
|---|---|---|---|
| Agreement | Numeric | 0 = no<br>1 = yes | This indicates whether a compliance prosecutorial agreement was made |
| Debarment | Numeric | 0 = no<br>1= yes | This indicates whether the restriction was placed on the defendant in continuing business or professional activities in the industry |
| DebarLength | Numeric | 0-99 | Years of which the individual was placed on debarment from practices |
| Fine[1-X] | Numeric | 0 = no<br>1 = yes | This indicates whether a fine was ordered |
| FineAmnt[1-X] | Numeric | | The monetary amount of the fine (USD) |
| Probatn[1-X] | Numeric | 0 = no<br>1 = yes | This indicates whether probation was ordered |
| ProbatnLength[1-X] | Numeric | | The number of months ordered to probation |
| Confined[1-X] | Numeric | 0 = no<br>1 = yes | This indicates whether home confinement was ordered |
| ConfinedLength[1-X] | Numeric | | The number of months ordered to home confinement |
| Restitution[1-X] | Numeric | 0 = no<br>1 = yes | This indicates whether restitution was ordered |
| RestAmnt[1-X] | Numeric | | The monetary amount of restitution ordered (USD) |
| ***Organizational Information*** | | | |
| Organization | String | | The primary organization affiliated with the individual defendant for the violation |
| Industry | Numeric | | The NACS-2 defined industry of the organization |
| OrgSize | Numeric | | Number of employees |
| OrgSizeOrdered | Nominal | 1 = less than 10<br>2 = 11 - 50<br>3 = 51 - 100<br>4 = 101 - 500<br>5 = 500 - 1,000<br>6 = 1,001 - 10,000<br>7 = more than 10,000 | Grouped variable of *OrgSize* |
| OrgCity | String | | The city of primary operation of the organization in which the defendant works |

| | | | |
|---|---|---|---|
| OrgIdStates | Numeric | | The state of primary operation of the organization in which the defendant works |
| OrgHeadStates | Numeric | | The organization headquarter |
| OrgGeoMultidual | Nominal | 1 = local<br>2 = statewide<br>3 = intrastate<br>4 = involved foreign countries<br>. = unknown | The level of the geographic spread of the organization |
| OrgYear | Numeric | | The number of years that the organization has been in operation |
| OrgBankrupt | Numeric | 0 = no<br>1 = yes | This indicates whether the organization has been reported to have filed for bankruptcy |

Appendix B. Frequency of different entities involved by scheme, listed by earliest filed date

| Scheme Code | Scheme Name | Year | Organization | Women | Men | Total |
|---|---|---|---|---|---|---|
| **90f0001** | Cape Girardeau Real Estate Price Fixing | 1990 | 10 | 7 | 10 | 27 |
| **90f0002** | Minnesota Dairy Monopolization | 1990 | 2 | 4 | 2 | 8 |
| **91f0001** | Georgia OB/GYN Price Fixing | 1991 | 0 | 1 | 21 | 22 |
| **94f0001** | Louisiana Shellfish Obstruction of Investigation | 1994 | 1 | 1 | 1 | 3 |
| **94f0002** | Illinois Waste Disposal Price Fixing | 1994 | 1 | 1 | 2 | 4 |
| **96f0001** | New York Advertising Displays Material Bid Bigging | 1996 | 5 | 1 | 1 | 7 |
| **97f0001** | Virginia Foreclosure Bid-rigging | 1997 | 0 | 1 | 3 | 4 |
| **98f0001** | New York Marketing Kickbacks | 1998 | 0 | 1 | 1 | 2 |
| **98f0002** | New York Queens County Foreclosure Bid-rigging | 1998 | 0 | 1 | 29 | 30 |
| **98f0003** | New York Kings County Foreclosure Bid-rigging | 1998 | 0 | 1 | 14 | 15 |
| **00f0001** | Texas Construction Price-Fixing | 2000 | 4 | 1 | 2 | 7 |
| **00f0002** | New York Public School Food Contract Bid-rigging | 2000 | 1 | 1 | 0 | 2 |
| **00f0003** | New York Auction House Price Fixing | 2000 | 1 | 1 | 0 | 2 |
| **01f0001** | New York Food Vendor Price Fixing | 2001 | 0 | 1 | 0 | 1 |
| **02f0001** | New York Stamp Auction Bid-rigging | 2002 | 4 | 1 | 5 | 10 |
| **02f0002** | New York Company Graphic Service Bid-rigging | 2002 | 1 | 2 | 11 | 14 |
| **04f0001** | New York Home Box Ads Bid-rigging | 2004 | 1 | 1 | 1 | 3 |
| **05f0001** | Federal E-Rate Program Fraud | 2005 | 0 | 2 | 3 | 5 |
| **05f0002** | Ohio OB/GYN Price Fixing | 2005 | 1 | 1 | 3 | 5 |
| **05f0003** | California Federal E-Rate Program Fraud | 2005 | 6 | 1 | 5 | 12 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **06f0001** | S. Carolina Public School E-Rate Program Fraud | 2006 | 0 | 1 | 0 | 1 |
| **06f0002** | Michigan Public School E-Rate Program Fraud | 2006 | 2 | 1 | 1 | 4 |
| **06f0003** | Arizona Air-Conditioning Contract Bid-rigging | 2006 | 1 | 1 | 1 | 3 |
| **07f0001** | Georgia Public School E-Rate Program Fraud | 2007 | 0 | 1 | 2 | 3 |
| **07f0002** | Military Defense International Contract Bid-rigging and Bribery | 2007 | 0 | 2 | 4 | 6 |
| **07f0003** | Military Defense Supply Contract Bribery | 2007 | 0 | 1 | 0 | 1 |
| **08f0001** | Military Defense Iraq Supply Kickbacks and Bribery | 2008 | 1 | 1 | 1 | 3 |
| **08f0002** | Home Depot Internal Supply Bribery and Kickbacks | 2008 | 0 | 1 | 1 | 2 |
| **08f0003** | Kansas Public School E-Rate Program Fraud | 2008 | 0 | 1 | 3 | 4 |
| **09f0001** | Midwest Federal Incentive Program Subcontract Fraud | 2009 | 2 | 2 | 1 | 5 |
| **09f0002** | USACE supply contractor bribery | 2009 | 1 | 1 | 1 | 3 |
| **09f0003** | USACE consultant bribery | 2009 | 0 | 1 | 0 | 1 |
| **09f0004** | Military Defense Afagh. Supply Bribery | 2009 | 0 | 1 | 0 | 1 |
| **10f0001** | Louisiana Public School E-Rate Program Fraud | 2010 | 0 | 1 | 0 | 1 |
| **10f0002** | Louisiana Public School E-Rate Program Fraud | 2010 | 0 | 1 | 2 | 3 |
| **12f0001** | CA San Francisco Foreclosure Bid-rigging | 2012 | 0 | 1 | 4 | 5 |
| **12f0002** | CA San Mateo Foreclosure Bid-rigging | 2012 | 0 | 1 | 9 | 10 |
| **12f0003** | CA Alameda Foreclosure Bid-rigging | 2012 | 0 | 1 | 20 | 21 |
| **13f0001** | GA DeKalb Real Estate Bid-rigging | 2013 | 1 | 1 | 3 | 5 |
| **18f0001** | Mississippi Foreclosure Bid-rigging | 2018 | 0 | 1 | 5 | 6 |
| **18f0002** | Minnesota Internal Bid-rigging and Fraud | 2018 | 1 | 1 | 1 | 3 |
| **Total** | | 41 | 47 | 54 | 173 | 274 |

Appendix C. All cases filed through Antitrust Division, DOJ by year

| Year | All cases |
|---|---|
| 1990 | 16 |
| 1991 | 18 |
| 1992 | 13 |
| 1993 | 11 |
| 1994 | 39 |
| 1995 | 55 |
| 1996 | 85 |
| 1997 | 66 |
| 1998 | 86 |
| 1999 | 86 |
| 2000 | 87 |
| 2001 | 48 |
| 2002 | 53 |
| 2003 | 50 |
| 2004 | 57 |
| 2005 | 52 |
| 2006 | 54 |
| 2007 | 58 |
| 2008 | 76 |
| 2009 | 63 |
| 2010 | 91 |
| 2011 | 111 |
| 2012 | 74 |
| 2013 | 70 |
| 2014 | 75 |
| 2015 | 65 |
| 2016 | 66 |
| 2017 | 35 |
| 2018 | 44 |