

5-2018

## **Punishment of Public Corruption in China and the United States**

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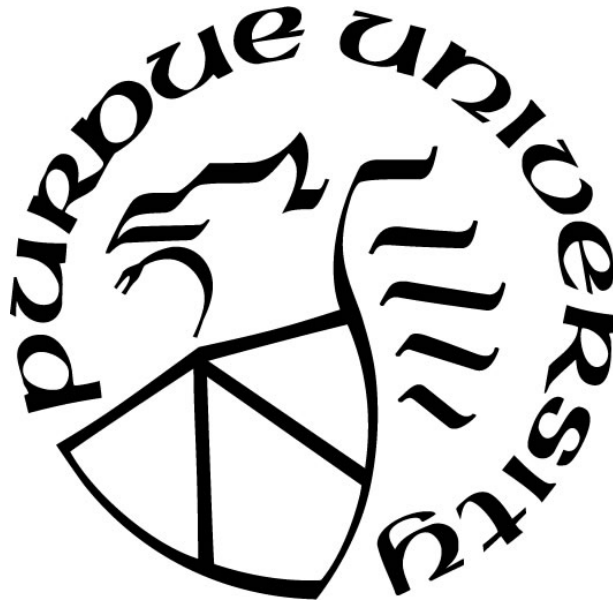
**PUNISHMENT OF PUBLIC CORRUPTION  
IN CHINA AND THE UNITED STATES**

by  
**Linjing Wang**

**A Dissertation**

*Submitted to the Faculty of Purdue University  
In Partial Fulfillment of the Requirements for the degree of*

**Doctor of Philosophy**



Department of Political Science

West Lafayette, Indiana

May 2018

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献给我的父亲母亲  
王仙友和林敏

For my parents  
Wang Xianyou and Lin Min  
Who always support my dreams

## ACKNOWLEDGMENTS

This dissertation is a reality thanks to the help and input of many people. I would like to take this opportunity to thank all the people who provide support throughout my Phd journey. First and foremost, I would like to express my sincere thanks and appreciation to my advisor, Professor Dwayne Woods, for his invaluable advice and the most prompt feedback ever. Thank you for your trust in my pursuit of the comparative study in this dissertation, for pushing me to go an extra mile, for the special online courses you taught, and for providing the encouragement and support in various stages of my graduate study and dissertation writing. Without you I would not have reached this moment. I am truly grateful to Professor Eric Waltenburg for his insights and generosity with his time to help me understand the American judicial system. Thank you for serving as my committee member and for your important support as the Graduate Studies Director. I warmly thank Professor James McCann for his guidance in helping me with methodology and always challenging me to think out of the box. I am grateful to Professor Melanie Manion of Duke University for the insightful discussions and her encouragement to me in the development of this dissertation.

I am especially thankful to Professor Rosie Clawson for her kind support to me as a committee member and as a mentor encouraging me to *lean in*. She is my role model as a scholar and a leader in helping students flourish. I am grateful to Professor Bert Rockman for his guidance in understanding scholarship and encouragement to me to address him by first name. I am very thankful to Professors Glenn and Suzanne Parker for their initial guidance, which ushered me into American politics and political economy. I would also like to thank Professor Will McLauchlan for his knowledge and discussion on law and economics, which was very helpful in preparing me for the dissertation writing. I am thankful to Professor Pat Boling in my

earlier years and last year as a Graduate Chair. I would also like to thank the wonderful clerical staff Betty Hartman, Tracy Emerson, Brenda Ditmar, Daniele Sharp, Munazzah Rahman, Annette Wheeldon, Emily Warter, and especially Stacey Baisden.

The financial support of Purdue University and the Department of Political Science is gratefully acknowledged.

Good research is a system project. It requires the help of many people. I am grateful for the special friendships developed in my Ph.D. journey with Emily and Tom Berndt, Deb, Rose and Michael King, Andrea and David Graves, Lee and Alexandra Benham, Joanne and Dan Webb, Gu Guowei, Wu Ningying and Chen Xin, Zhao Bi, Yang Haifeng and Li Miao, Liza Gutwein, and Dennise Brucken.

I am forever indebted to my parents, Wang Xianyou and Lin Min, for their endless patience, love and encouragement and for the way they devoted all the resources they could gather for their daughter's education. To them I dedicate this dissertation.

Finally and most importantly, I would like to thank my dear husband and best friend Zhang Minghui for his love, encouragement and patience in my graduate years. My gratefulness also goes to my children Andrew, Victor and Erica Zhang, who were born during my graduate years and have grown with the dissertation.

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## ABSTRACT

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Institution: Purdue University  
Degree Received: May 2018  
Title: Punishment of Public Corruption in China and the United States  
Committee Chair: Dwayne Woods

Corruption is pervasive in many countries. However, the most effective punishment to deter corruption remains unknown. Some have suggested that the death penalty is required to reduce corruption and ensure clean government. However, research shows that the likelihood of punishment is the strongest factor, not the severity of the punishment. It requires large social costs, such as expenditure on policemen, court personnel, and specialized monitoring equipment, to improve the probability of punishment. Can elevation of the severity of punishment be a good substitute? The empirical results from this dissertation suggest that the probability of punishing corruption, i.e., how likely a corrupt public official is to be detected, investigated, apprehended, convicted, and ultimately sentenced, matters a great deal. This dissertation finds that if the probability of punishing corruption is low, even the most severe punishment cannot effectively deter corruption. Instead, a high probability, even of mild punishment, appears to work effectively.

This dissertation examines corruption punishment in China, a country that relies heavily on the most severe form of punishment, as well as the United States, a country that implements milder forms of punishment to deter corruption. I conducted the comparison with individual-level corruption case data in both countries. It is inherently difficult to obtain data on the probability of corruption punishment. Thus, I created a novel inverted measurement for the probability of corruption punishment-- the duration of corruption. This measurement instrument enables comparisons between probabilities of corruption punishment. Using this novel measurement, I find that the probability of punishing corruption is substantially smaller in China than in the United States. Within each country, I also find evidence of institutional designs for compensating for the low probability of punishment with raised severity. The probability of punishment differs between subcategories of public officials within a country; however, the severity of punishment varies. I also find that implementation consistency plays a role. The graphed relationship between the total

corruption amount and the severity of punishment is that of a concave parabola in China and linear in the United States.

Although large amounts of missing data for individual cases may cause bias, our results show that, in contrast to relying on severity for deterrence, improving the probability of punishment consistently relates to the effectiveness of anti-corruption activity. Additionally, the case details show that public servants think rationally and respond to these probability differences.

## CHAPTER 1. INTRODUCTION

### 1.1 Overview

Corruption is pervasive. Punishment is a tool used to combat and promote clean government. Most members of the United Nations belong to the United Nations Convention against Corruption (United Nations 2003). This indicates that nearly all governments engage in some form of anticorruption. The goal of anti-corruption activities is to create a clean government composed of honest, ethical public servants. Promoting compliance to the law is essential to create a clean government. One path to attain this is to induce voluntary obedience. However, this tactic does not always work. Another avenue is carefully designed reward and punishment mechanisms, or “carrots and sticks,” that can be used to deter corruption. This dissertation examines the role of punishment in combating corruption.

Punishment is a widely used deterrence tool. For example, police officers issue speeding tickets to require safe driving. Parents take toys away from children to ensure obedience. Judges issue imprisonment sentences to criminals to engender lawful behavior. Before violating rules, most violators have the chance to gauge the likelihood of being caught. A late driver may think that no one on the road means that there is a low probability of being caught speeding. A child with a strict mother may take advantage of the mother’s absence to play video games; even children can assess the likelihood without any knowledge of mathematical probability. Notably, authorities also gauge probability. More often than not, authorities adjust the severity of punishment according to the probability of detection. The severity of punishment in various societal scenarios may vary between warnings to the driver, taking away cellphone privileges from children, lowering grades for students, issuing a fine for three times the product price for shoplifters, forfeiting driving licenses, community service for minor felonies, and prison time or the death penalty for serious crimes. Besides these considerations of how much harm is caused by the offenders, the severity of

punishment issued tends to reflect the probability of investigation and punishment as well. For example, the punishment in hit-and-run is usually more severe than in other traffic collisions.

Governments use punishment to deter potential violators. The potential violators observe how the crime they consider committing has been punished. In theory, the effectiveness of deterrence is linked to both the severity of punishment and the probability of being caught. Increasing the severity of punishment sometimes enhances deterrence. Using speeding as an example, raising the fine from 50 to 200 dollars may deter some drivers who worry about the financial consequences; however, raising the fine from 300 to 500 results in a smaller marginal effect in deterrence. More importantly, deterrence comes from the probability of punishment. Although many who speed do not get caught, most drivers drive cautiously within the speed limit after they receive a ticket from the police. At the time of receiving the ticket, the probability is greatest (100%). However, most people drive more cautiously after passing a roadside police car that has pulled over another car because it raises their subjective perception of being caught speeding. Notice that on this occasion, the objective probability of being caught does not change. The objective probability can only be improved by adding surveillance personnel, more advanced monitoring equipment, and techniques, which incurs more costs; however, subjective probability can be inflated by a cardboard police car with flashing lights.

When applying these concepts of severity, objective probability, and subjective probability of punishment, a question arises in various disciplines: what is the most effective punishment to produce deterrence and improve the probability of apprehension, conviction, and punishment while saving on costs? I will review related literature from psychology, law, economics, and political science in detail in the next section. The general conclusion is that it is very costly to raise the probability to the ideal level, a hundred percent. Therefore, increasing the severity of punishment to compensate for the low probability is recommended and often observed in practice.

It is costly to improve the probability of punishment due to the costs of detection and apprehension. However, elevating severity may not represent a good substitute either. Severe penalties if designed inappropriately, such as, life imprisonment for speeding on the highway,



creates weak deterrence, because law enforcement personnel are reluctant to implement it. As a result, the objective probability of punishing highway speeding is very low. Subjective probability adjusts gradually and leads to more highway speeding, despite a harsh codified punishment. Probability matters. A mild penalty with a high probability of punishment creates a strong deterrence. For instance, parking meter violations in urban downtown areas are usually effectively deterred.

In this dissertation, I examine the punishment of public sector corruption empirically at the individual case level. I examine the key attributes of punishment design and implementation in China and the United States, which differ dramatically in anti-corruption effectiveness. The death penalty is the most severe form of punishment for corruption in China. However, the death penalty does not deter pervasive corruption, as the probability of getting caught is small and the enforcement of the law is inconsistent. In the United States, the highest form of punishment for corruption is 20 years of imprisonment, as shown in chapter 3. Anticorruption is implemented with a higher probability of conviction than China, and the corruption level is substantially lower.

It is nearly impossible to know the extent of corruption since we are limited to information on how many who committed the crime were punished. Thus, true data on the denominator cannot be obtained. Corruption differs from other crimes, which have a victim and facilitate estimations of the denominator. Most corruption cases are prosecuted by a general representative of the state instead of a standout victim.

In light of the difficulty of directly obtaining data on corruption, I have developed a useful proxy. This proxy is a novel inverse measurement of the probability of corruption punishment, the duration of corruption, which allows for a comparison between corruption probabilities. A longer duration between the corrupt act and the apprehension of the perpetrator is related to a smaller probability of punishment. To calculate the duration of corruption, I searched news, sentencings and legal reports for information on the starting and ending date of the corrupt acts. For example, I used news (“Ex-official Admits Guilt” 1988) regarding an ex-Navy official taking bribes and selling insider information to infer that he started corruption in 1982 and ended in 1983. When

information on the month is missing, I use the sixth month of the year (June) as a proxy. This ensures accuracy at the year level. Information regarding the beginning and ending of the corrupt acts is often missing from the American cases but is more common for the Chinese cases. For example, a retired bureau-level official in the Department of Land and Resources in Anhui Province was sentenced to life imprisonment in 2014. Several news media outlets (Huang 2014 “Tuixiu” 2016 “Yang xianjing” 2014) disclosed detailed information on various stages of the bribery case, such as the year, location, and even the usage of the corrupt income and the official’s emotions. Therefore, I was able to code 2003 to 2012 as the start and ending years for calculating a duration of 9 years in this case. The month and exact date can sometimes be found for individual cases; however, information is often missing, and at other times the information differs between sources. References were crosschecked to maximize accuracy.

The United States and China present differing probabilities of punishing corruption. The average duration of corrupt acts by a public official in the United States lasts for 2.7 years with a maximum of 9 years, while the average duration in China lasts for 5.8 years with a maximum of 26 years. The probability of punishment appears to be far smaller in China. This probability difference corresponds with the severity of punishment. The most extreme form of punishment for corruption in China is the death penalty; in the United States, the most severe punishment is only a 20-year prison sentence. By conducting a Cox survival analysis, which enables translating duration to probability, I found such a “seesaw” combination of probability and severity within each country in the subcategories of public officials.

Despite the low probabilities, inconsistency in punishment also contributes to ineffective deterrence. The data show a concave parabola-shaped relationship between total corruption amount and the severity of punishment in China. The data fit well with the concave quadratic equation, i.e., when the amount of illegal income increases, the punishment in terms of imprisonment increases but then decreases when the amount exceeds 273 million *yuan*, the maximizer for the Chinese corruption dataset. In other words, the de facto punishment encourages corruption rather than deters corruption. This is not the case in the United States. The relationship

between punishment in terms of imprisonment and the size of corruption is linearly positive and even slightly bow-shaped upward. That is, a harsher penalty is consistently associated with a larger amount of corrupt income.

The weakness of the research is missing data from the individual cases. I hope that transparency efforts to release case details will reduce this problem in the future. Nonetheless, the results show, *ceteris paribus*, that relying on the severity of punishment for deterrence is not sufficient and causes inconsistency. The probability of apprehension and punishment plays an important role in deterrence. In borrowing an old Chinese saying, “Teaching is for not teaching”, I argue that punishment is not merely for the sake of punishment. Improving the probability of punishment and the consistency of implementation will help suppress corruption.

On the subjective side, corrupt officials act rationally by gauging the probability of being caught and punished in both China and the United States. It is even harder to gather random data systematically on the subjective probability of punishment. Case studies show that public officials engage in corruption only when they believe they are safe, i.e. a low subjective probability of punishment. Therefore, in addition to raising the objective probability of punishment, anti-corruption can resort to changing subjectively probability. Practices in the private sectors in asset protection provide valuable lessons.

## **1.2 Roadmap**

In the remaining of this chapter, I review literature on punishment and compliance, severity and probability of punishment, and punishment of public corruption. Punishment is an alternative to reward, to promote compliance to law and rules. Institutional punishment relies on both severity and probability to generate deterrence. Anti-corruption agencies prosecute corrupt offenders in the courts and judges issue punishment in fines, jail time, and even with the death penalty. I contrast China and the United States in their punishment of public corruption, in order to examine the role of severity and the probability of punishment in combating corruption.

Table 1.1 The Expected Relationship of Independent Variables with Regard to the Severity and Probability of Punishment of Corruption

	<b>Severity</b>		<b>Probability</b>	
	Dependent Variables (DV) <i>Models</i>	Subsection	Dependent Variables <i>Models</i>	Subsection
<b>China</b>	DV1 : Imprisonment <i>Model: OLS</i>	2.4.1	DV3: Duration <i>Model: Cox Survival Analysis</i>	2.4.3
	DV2: Death Penalty <i>Model: Probit</i>	2.4.2		
<b>USA</b>	DV1: Imprisonment <i>Model: OLS</i>	3.4.1	DV3: Duration <i>Model: Cox Survival Analysis</i>	3.4.3
<b>Expected Relationships between Key IVs and DVs</b>	Key Independent Variables (IV)	<b>Severity</b>	Definition of IV	<b>Probability</b>
	Total Amount of Corruption	+	Sum of the illegal income from all forms of corruption	+ *
	Public Official	+	Being a public official in the US and a public servant in China	+ *
	Elected	+ **	Elected officials	+ **
	Political Ranking (China)	+	Ranks assigned to public employees, appointed or elected	+ *
	Judicial (USA)	+	Judges and staff	-

Note: \* denotes an opposite result from the expected relationship.

\*\* denotes different results for the two countries.

Chapters 2 and 3 analyze punishment of public sector corruption in China and the United States, respectively. The two chapters are written in parallel form. Readers can start from either chapter. Each chapter covers the country-specific anti-corruption literature, criminal laws, types of corruption, forms of punishment, anti-corruption agencies, data, methods, and results. I explain econometric methods in more depth in chapter 2 and provide links to the explanation in chapter 3. Table 1.1 listed all the dependent variables, models used for analysis, and key independent

variables. The expected relationships are provided in the table, with star signs indicating different results from the analyses. The table also include subsection numbers of the models.

The primary finding is that severity of punishment is used in practice to compensate for a low probability of punishment; however, the probability is more effectively in deterring corruption. Specifically, (1) In both countries, an elevated severity of punishment is corresponding to a low probability of punishment in laws and in practice. (2) Public officials and officials are held to higher moral standards by the public and were punished more harshly. (3) Larger amount of corrupt income is associated with harsher punishment but a lower probability of receiving punishment. In addition, there are country-specific findings. (4) The deterrence effects of severer punishments, including the death penalty, were compromised by the inconsistent implementation with regard to the amount of corrupt income, in a concave parabola-shaped relationship. (5) Elected officials were punished more harshly with a lower probability of punishment than their counterparts in China, while elected officials were punished less harshly with higher probability of punishment in the United States.

Chapter 4 summarizes the findings by comparing the severity and probability of punishment in the two countries. Different roles of objective and subjective probability of punishment offer more cost-saving policy choices in anti-corruption efforts. Chapter 5 examines the results in a broader political context. Corruption facilitates political exchange in China where legal venues are missing. Improving the probability of punishment will maintain and enhance the legitimacy of judicial system. Anti-corruption efforts relying on high probability of punishment, instead of severity, punishes corruption more effectively.

### **1.3 Punishment and Compliance**

Why do we punish? How can we punish effectively? How can we punish corruption effectively? In the following sections, I focus on the role of punishment in inducing compliance to law. I examine the elements of effective punishment, namely, the combination of severity and the

probability of punishment, as well as the punishment of public sector corruption in general. I address the country-specific literature regarding punishment of corruption in chapters 2 and 3.

Because punishment is an interdisciplinary research topic, I review the related literature in political science, law, economics, psychology, and neuroscience. Compliance is used interchangeably in this chapter with obedience, cooperation, and conformity, as they are the jargons of various disciplines. In addition, “public servants” in China are the counterpart of “public officials” in the United States. These two phrases are used interchangeably in the dissertation.

### **1.3.1 A Positive View of Punishment**

The purpose of punishment is not only *deserts*, but *deterrence* and *prevention*. Kant (2012) argues that punishment should have no other purpose beyond punishing criminals, only for the sake of penalty per se – *deserts* (Carlsmith et al. 2002; Darley et al. 2002). However, deterrence is more important to the institution designers of punishment in modern days (Kingsley and Brown 2015). Although the words anti-, corruption, and punishment have strong negative connotations, this dissertation approaches punishment of corruption in a more positive way. Similar to the inquiries in positive psychology, instead of asking what causes mental illnesses and treatment, they ask how to nurture the best and believe that “the major strides in prevention [of serious problems] have come largely from a perspective focused on systematically building competency” (Seligman & Csikszentmihalyi, 2000). In this dissertation, I investigate the attributes of punishment in order to explain the differences in corruption levels. In other words, which punishments will be effective in producing more compliance and less corruption? I hope to show readers attributes of clean government and ethical public servants after discussing negatively connoted cases and statistical results of punishment of corruption.

### **1.3.2 Ensuring Compliance through Punishment**

Ideally, obedience prevails without punishment. Everyone is a saint in his own heart. Voluntary obedience may be promoted through changes of heart, such as can occur following religious teaching (Hobbes 2013), group identities via party identification (Dinas 2014), the

zealous communist teachings of the 1960s (Kirkby 2018), reputation control (Parker 2004; Sperber and Baumard 2012), and others. Neuroscience researchers found that the right lateral prefrontal cortex is involved in voluntary norm compliance (Ruff et al. 2013).

Unfortunately, voluntary obedience cannot be guaranteed. Religions anticipate people will disobey, and communist ideology faces global challenges. Voters, even senators, deviate their votes from the party line (Converse 1964; Keena and Knight-Finley 2018). When a change of heart cannot be produced, institutions must channel behaviors through reward and punishment, i.e., the “carrot and stick” (Olson 1965, Andreoni 2003). Locke stated that “Good and evil, reward and punishment, are the only motives to a rational creature” (Locke 1889). Notably, changes of heart in religious scenarios also require a punishment mechanism to provide feedback. In Ecclesiastes 8:11 of the Old Testament, “when the sentence for a crime is not quickly carried out, the hearts of the people are filled with schemes to do wrong” (New American Standard Bible 1995) Therefore, punishment as an institutional instrument plays a crucial role in cultivating compliance.

Neuroscience, for example, provides biological explanations for human capability of conforming to rules, though there is a distinction between voluntary and punishment-induced conformity. With the aid of functional magnetic resonance imaging, scientists have found that atrophy or damage to the prefrontal cortex of brains results in less compliance to social norms; in addition, changes in prefrontal cortex grey matter volume directly relate to increases in conformity during preadolescence and decreases during adolescence (Costanzo and Shaw 1966; Campbell-Meiklejohn et al. 2012). Specifically, the right lateral prefrontal cortex is involved in both voluntary and sanction-induced norm compliance but responds to transcranial direct current stimulations in the opposite direction (Ruff et al. 2013). Abnormalities in key fronto-striatal regions hinder people’s ability to integrate social contextual information to guide normative decision-making behavior, such as when responding to punishments (O’Callaghan et al. 2016). In sum, evidence for the neural circuitry underlying sanction-induced norm compliance in humans remains limited (Hurtley 2013).

Neuroscience findings nevertheless show that there is biological foundation for a person to conform to rules and there is no biological explanation for racial and ethnic differences in compliance. Therefore, it requires an institutional explanation to account for the drastic contrast among the nations and subgroups of public officials who differ in their degree of conforming to the ethical criteria.

### **1.3.3 Peer and Institutional Punishment**

Historically, victims, group members, third parties, or aggregate representatives have issued punishment. Punishment has been a focus in the evolution of cooperation (Gächter 2012). Peer punishment and retaliation among group members are common in maintaining cooperation with the motivations of “deserts” and “deterrence” in human society (Carlsmith et al. 2002; Axelrod 1986), as well as among social animals (Clutton-Brock 1995). For example, a group member’s ability to obtain revenge from others who infringe upon his interests helps maintain cooperation. Ironically, contrary to self-interested rationality, non-involved group members or third parties often punish norm violators even if they must sacrifice their own benefits (Jordan 2016). Economists previously examined fairness norms, an essential aspect of cooperation, in experimental settings. They found that such altruistic third party punishment is very common (Fehr and Gächter 2002; Fehr and Fischbacher 2004; Janssen and Bushman 2008). In many corruption cases in China, the mistresses of public officials become whistleblowers at the price of damaging their own reputations.

However, peer punishment is not sufficient for modern human societies, which require formal sanctioning systems whereby rewards and punishments are carried out by rule-bound institutions (Gächter 2012). Institutions are the collective representatives in the society that punish the norm violators to ensure compliance and maintain cooperation. The general public has an inherent need for institutions to punish transgressions and ensure collective security (Gerber and Jackson 2016). Combining rewards with punishments strongly encourages cooperation because they complement one another (Andreoni 2003). Governments of low quality are more inclined to adopt coercive regulatory instruments and showed an aversion toward reward-based instruments



(Harring 2016). Why use punishments instead of rewards? Lab experiments show that rewards alone are relatively ineffective to ensure compliance and that punishment is the less costly method (Andreoni 2003; Gächter 2012; Sasaki et al. 2012). Punishment deters norm violators and incentivizes people to “test the waters of cooperation” (Andreoni 2003). Reward then takes over to encourage further cooperation. Punishment signals violation and often accomplishes deterrence (Mooijman 2015).

## **1.4 Severity and Probability of Punishment**

### **1.4.1 Becker’s Argument**

The overall effectiveness of institutional punishment relies on both the severity and probability of being punished. Laws and regulations delineate benchmarks for defining violations as well as provide the forms and sizes of punishment—severity of punishment. At the same time, the probability of punishment, i.e. the likelihood of being punished, plays an important role. In his seminal research on crime and punishment, Becker (1968) defined the probability of punishment as “the ratio of offenses cleared by convictions to all offenses”, later referred to as “clearance rate” by legal scholars, which is the same as “the over-all probability that an offense is cleared by conviction” (Becker 1968, p174). Becker argued that the optimal enforcement of punishment can be achieved by a low probability, which is compensated by “an equal percentage increase” in the severity of punishment. He cited the practices of setting the probability of capture and conviction at rather low values while punishing offenders rather severely in the Anglo-Saxon countries during the eighteenth and nineteenth centuries and the Communist and under-developed countries in 1960s. He also had concerns that “judges or juries may be unwilling to convict offenders if punishments are set very high” (Becker 1968, p183-184). This is exactly what happened in the anticorruption cases in China. As shown in detail in chapter 2, the judges were unwilling to issue the death penalty to corrupt officials even when they met the benchmark stipulated by the Criminal Law. Becker also proposed to fines as an effective punishment tool. The size of the fine should

cover the loss to the victim and the social costs, i.e., the costs of apprehension and conviction, as well as the costs of carrying out the punishments imposed (Becker 1968, p190-198).

#### **1.4.2 View of Punishment in Economics**

Becker's research shifted the research paradigms in Economics and Law. The key question is whether, in terms of deterrence, adjusting the forms and the severity of punishment could effectively compensate probability. In economics, researchers examine the punishment within the framework of cost and benefit analysis. Theoretical economists developed a mathematical model incorporating the probability and severity of punishment to examine a rational offender's choice (Rose-Ackerman 1978; Fender 1999). A rational person calculates the costs of punishment compared with the benefits of illegal behavior. When the gain surpasses the punishment, the product of probability and the severity of punishment, it is rational to engage in the illegal behavior. Hence, the game theory analyses conducted by political economists demonstrate that there is an ongoing battle between the punishment designers/enforcers and the potential lawbreakers (Tsebelis 1989; Andreozzi 2004; Friehe 2008). Experimental economists simulate the punishment in labs. They found that the threat of a strong punishment can achieve cooperation at a very low cost and that punishment has an advantage over reward (Sasaki et al. 2012). However, the drawback of lab experiments is the unrealistically high probability of detection and punishment. In the real world, not all violators can be detected easily and punished accordingly, which lowers the overall effect of punishment. The probability of punishment matters. Counterintuitively, researchers found that offenders with a past experience of punishment are more likely to engage in crime as they believe "they would have to be exceedingly unlucky to be apprehended again" (Pogarsky and Piquero 2003).

#### **1.4.3 View of Punishment in Legal Study**

Legal scholars however disagreed on the application of rationality assumption in criminals. Bohm (2016) argued that murderers demonstrate irrational reasoning logic and sometimes even demonstrate a "counterdeterrent or brutalizing effect". Criminals may dramatically differ from

institution designers in ranking the severity of punishment. Crank and Brezina (2013) found that criminals “adjust to prison life with relative ease, [offenders] do not view their time in prison as severe punishment, and may even prefer prison to ... boot camp or probation.”

Concerning probability of punishment, legal scholars suggested replacing Becker’s objective “clearance rate” with “perceived sanction risk” or “subjective sanction risk” in the recent studies of deterrence (Nagin et al 2015, Pickett and Roche 2016, Pogarsky and Loughran 2016). In this dissertation, I use *objective* and *subjective probability of punishment* to capture the difference between the objective clearance rate and the perceived, subjective sanction risk. Chiricos and Waldo(1970) convinced legal scholars that objective probability of punishment is uninformative in the effect of deterrence. Rather, crime decision relies more on the subjective probability of punishment, which is a function of the objective probability but could differ dramatically from each other (Pickett and Roche 2016, Pogarsky and Loughran 2016). Subjective probability of punishment is malleable by private information, sanction threats and experienced punishment, and updates accordingly (Anwar and Loughran 2011). Therefore, if perception, the subjective probability of punishment, is “manipulable by policy” to achieve the desired deterrence effect (Nagin 1998), institutional designers should adjust the resource allocation to influence both objective and subjective probabilities of punishment.

#### **1.4.4 Debate over the Death Penalty**

The deterrence effect of the death penalty, the ultimate punishment in modern society<sup>1</sup>, is a hotly disputed question between economists and legal researchers. Economists conducting empirical research on death penalty data in the United States repeatedly confirmed the deterrent effect from execution and imprisonment on the perpetrators (Ehrlich 1977; Cloninger 1992; Dezhbakhsh et al. 2003). These arguments supported Becker’s theory that the severity of punishment imposes a deterrence and thus can compensate for a low probability. This reduces the social costs of apprehension and conviction. However, based on evidence of the death penalty in

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<sup>1</sup> In ancient Chinese culture, a harsher punishment than the death penalty was enacted when the extended families of the criminals would also face the death penalty (“Zhulian jiuzu”株连九族).

homicide cases in the United States, legal scholars found no evidence for deterrence resulting from the death penalty, the most severe punishment (Sorensen 1999; Bohm 2016). The murderers simply do not think rationally. Additionally, it takes a long time to execute the death penalty, which further curtails the deterrence effect (Bohm 2016). This echoes the findings of lab experiments that more severe punishment in forms of higher fines may reduce the willingness to punish, which in turn reduces the deterrence effect of high fines (Feess 2015). Although legal scholars dismissed the deterrence effect of the death penalty on offenders, scholars found an effect for it on the jury: simply removing the option of the death penalty as punishment resulted in a harsher jury in the United Kingdom (Bindler and Hjalmarsson 2017).

Therefore, this dissertation will likely be the first analysis of the deterrence due to the death penalty in corruption cases. In China, the stipulated death penalty and sporadic executions did not deter those rational thinking corrupt public officials. These criminals fit better into the economists' rationality assumption, which does not incorporate the concerns of legal researchers. They were well aware of the low objective probability of punishment and took cautious measures to lower further their subjective probability of punishment. I hope that this dissertation contributes to understanding the deterrence effect of severity and its compensating relationship with probability.

## **1.5 Punishment of Public Corruption**

### **1.5.1 Definition of Corruption**

Corruption is a wrongdoing committed by rational actors and requires institutional correction with punishments and effective deterrence. However, there is no consensus regarding the definition of corruption. The definition differs between countries, private and public sectors, as well as between the mass public and the legal definition. Narrowly defined, “[g]overnment corruption is the sale by government officials of government property for personal gain” (Bardhan, 1997). Broadly defined, corruption is “an extra-legal institution used by individuals or groups to gain influence over the actions of the bureaucracy” (Johnston 2017). Even more broadly, corruption refers to “an act by a public official (or with the acquiescence of a public official) that

violates legal or social norms for private or particularistic gain” (Gerring and Thacker 2004). Corruption can also be gauged from the mass perception perspective (Bowler and Donovan 2016; Cameron et al. 2009), which may dramatically deviate from the legal definition and varies according to the political culture but eventually may shift the legal delineation of corruption from legitimacy. There are some grey areas, such as providing free goods, services, or cash to entice electorates to vote for incumbent candidates (Devadoss & Luckstead 2016).

In this dissertation, I define corruption strictly within the legal definitions in a given country and examine the deterrence used by legal institutions to discourage corrupt behaviors. In addition, I only study public sector corruption as opposed to corruption in private businesses.

### **1.5.2 Anti-corruption Instruments**

Anti-corruption efforts rely on various institutional instruments in addition to punishment. Successful anti-corruption efforts require governments to clearly signal to the public their commitment to eliminating corruption (Acar & Emek 2008; Manion 2004, “Lessons”), designing educational institutions that advocate ethical behavior (Manion 2004 “Corruption by Design”), protecting and encouraging reports from whistleblowers (Amegashie 2016), and clearly designating responsibility for government decisions and actions (Tavits 2007), etc. In comparing democracies, Gerring and Thacker (2004) found that unitary and parliamentary governments more effectively reduce levels of corruption because of openness and transparency, intergovernmental competition, localism, and party competition, among other factors. Cross-country data also show that corruption is less severe where women hold a larger share of parliamentary seats and senior positions in the government bureaucracy and when they comprise a larger share of the labor force (Swamy et al. 2001; Neudorfer 2016). This is because women are less inclined to reciprocate bribes and are more concerned with fairness than men (Lambsdorff and Frank 2011). Regarding psychology, certain beliefs and personality traits, such as Machiavellianism, narcissism, and psychopathy, are associated with engagement in corruption, and people with these characteristics believe in good luck (Zhao et al. 2016). Therefore, recruiting people with an intrinsic public service motivation helps establish clean government (Christensen et al. 2017).

### 1.5.3 Punishment of Corruption

Punishment is the most widely used institutional instrument to combat corruption. Punishment can be meted out by voters or anti-corruption agencies. Electoral democracies serve as constraints on corruption. Most scholars believe that punishment through voting, the essence of democracy, functions well in anti-corruption efforts against elected officials (Krause and Méndez 2009; Winters and Weitz-Shapiro 2016). In contrast, Johnston (2013) suggested that we should lower our expectations for voters to systematically hold elected officials accountable. Whether voters are willing to punish the next sets of delegates in the chain of delegation, i.e., the officials appointed by the elected officials and bureaucrats, remains under debate (Strom 2000; Tavits 2007; Winters and Weitz-Shapiro 2016).

Anticorruption agencies and prosecutions are the most widely used instruments to punish corruption worldwide. For example, Manion (2004 “Corruption by Design”) contrasted Hong Kong and mainland China to argue that a powerful and independent anti-corruption agency will achieve major enforcement success if it is quickly and widely publicized. Manion also stated that focusing on corruption prevention would more likely yield a clean government. The failure of anticorruption efforts in Mainland China were primarily due to the campaign enforcement model, in which most intensive enforcements often went along with amnesty and reduced penalties, as well as infrequently monitored public servants and variations in the severity of punishment (Manion 2004). The core of the current American strategy for preventing corruption involves applying increasing amounts of punishment (Klaw 2012); mail- and wire-fraud statutes have been the principal tools used by federal prosecutors to combat corruption in state politics (Cohen 2013). In Uganda, despite a vigilant legislature and media, anti-corruption agencies have failed to prosecute or punish leaders and have been ineffective in reducing high-level corruption in public affairs (Tangri and Mwenda 2001). Turkey needs a set of coherent principles and policies to prevent, prosecute, and punish corrupt behaviors (Acar & Emek 2008). Whistleblowers are vital for detecting corruption in public procurement in Norway (Gottschalk 2017). Additionally, there is a fine line between legal rent seeking and illegal corruption. In addition to the legalization of

many rent-seeking activities (Johnston 2013), some scholars further suggest legalizing bribe giving but not bribe taking and to allow for partial refunds of the bribe to encourage corruption reporting in harassment bribes (extortion) (Basu 2012; Amegashie 2016).

#### **1.5.4 Case Selection**

In this dissertation, I empirically compare the punishment of corruption in two countries. One may ask why China and the United States were chosen as cases. First, I have access to individual corruption cases of these two countries. My language skills and knowledge regarding the two political systems and political culture allow me to decipher and code the case details.

Second, at baseline, there is no biological evidence suggesting differences between the corruptness of public officials, with the exception of the above gender and age differences around adolescence. However, China and the United States differ dramatically in corruption at the macro level. In 2016, the United States ranked as the 18<sup>th</sup> cleanest government, while China ranked 79<sup>th</sup> among 176 countries in the world (Transparency International 2017). What explains the contrast between the micro level similarity and the macro level discrepancy? The answer lies in the intermediate level: institutions. I would like to explore how institutions of punishment shape public officials' thoughts and channel their behavior.

Third, despite the similarity of using the "carrots and sticks," with emphasis on the latter, anti-corruption institutions of punishment differ dramatically in China and the United States in regard to the legal definitions of corruption, the anti-corruption legal system, the anti-corruption agencies, the severity and types of punishment, the enforcement strength, among other factors. These similarities and differences enable us to observe how institutions channel similarly rational individuals into a contrasting aggregated picture of corruption. Consistency is important for prosecution and sentencing; however, many biases remain toward subgroups of the population (Curry and Klumpp 2009; Donohue and Levitt, 2001). Could penalties for corruption be affected by the judicial prejudice against or favoring certain subgroups of defendants?

As this dissertation is at the intersection of political science, law and economics, I will examine how the combination of the severity and the probability of punishment deters corruption in China and the United States.



## CHAPTER 2. PUNISHMENT OF CORRUPTION IN CHINA

### 2.1 Literature Review

Governments represent the formal constraints for corruption, and these governments adopt severe penalties and laws with the ultimate aim of deterring rather than punishing corrupt acts. Corruption detection is often costly because there is often no obvious victim. Becker postulated that more severe punishment policies are chosen *ex ante* to save on the social costs on detection, trials, imprisonments, and compensation to the victims, as well as to compensate for the low probability of detection and conviction (Becker 1968). The combination of high severity and low probability of punishment is expected to create deterrence and ensure compliance.

China is a good case to explore whether Becker's postulation has empirical traction. China adopted a very stringent punishment scheme to punish and deter corruption. The Criminal Law of the People's Republic of China stipulates that death is the ultimate penalty for serious cases. In the previous version of Criminal Law, effective from 1997 through 2015, the primary criterion for punishment was the amount of income taken by corruption. The criminal can be sentenced to death for serious cases with an amount beyond CNY 100,000 *yuan*. Despite issuing more than 170 anti-corruption regulations over the past three decades (Gong and Ren 2013), corruption level of China is still high compared with other countries. According to the Corruption Perception Index published by Transparency International, China ranked number 100 of 175 countries in 2014 (Transparency International 2014) and move up to 79<sup>th</sup> in 2016(Transparency International 2017), with a larger number referring to a more corrupt country. Why did such a stringent death penalty provision not curb corruption in China? The answer may lie in enforcement (North 1991, 1994).

Prior to Xi Jinping's term, anti-corruption activities in China demonstrated that the central government is unable or unwilling to investigate a large number of officials, especially high-ranking officials; therefore, such selective discipline compromises the credibility of the state and creates uncertainty for corrupt agents (Zhu 2015). A lack of independence in law enforcers,

including procuratorates, courts, and even the discipline inspection commission within the Communist Party of China (Liu 1983), is the key cause for weak anti-corruption enforcement (Manion 2004 “Corruption by Design”, Guo 2014). A more recent cause is the central government’s new strategy for addressing agency loss problems at the local level; instead of the early campaign style anti-corruption strategy based on nationwide uniformity, the new strategy, “a top-down anti-corruption crusade”, relies more on initiatives and innovation by local governments to manage government integrity (Gong 2015). Hence, we should observe more diverse patterns of corruption behavior and corresponding punishment under this localized anti-corruption strategy.

Manion (2004, “Corruption by Design”) compared corruption control in mainland China with that in Hong Kong and argued that “some institutional designs promote clean government, while others generate and sustain corruption.” Mainland China adopted the campaign enforcement model in which most intensive enforcements often went along with amnesty and reduced penalties. Public servants are infrequently monitored, and the severity of punishment varies from time to time. Although massive campaign enforcement is no longer in effect at the upper level, a long-term and consistent anti-corruption system has not been used in practice (Zhao, 2013).

This chapter examines punishment consistency in terms of prison time and the factors affecting the death penalty. It also assesses the probability of punishment, which is measured inversely by the duration of corruption. The data used for the analysis are at the individual level corruption cases reported at Chinacourt.org from July 2007, when the website started to release corruption cases, to December 2014.

The individual level sentencing records for corruption cases in China provide a unique perspective for observing the pattern of punishment. Punishment as seen in practice is inconsistent with the stringent punishment scheme stipulated in the Criminal Law. Enforcement even encourages corruption at certain levels. The analyses demonstrate enforcement that dramatically differs from the spirit of the laws and provides conflicting and even misleading incentive structures to potential corrupt public employees. Therefore, I argue that the enforcement practices, rather

than the written laws, yield the effect of deterrence and shape the individual-level corruption decision-makings.

The following section provides background information for corruption cases and punishment for public sector corruption in China. Section 3 introduces the main variables and hypotheses in accordance with theories and policies. Section 4 explains the regression results with three sets of models on imprisonment, the death penalty, and the duration of corruption respectively. Section 5 concludes with a discussion.

## 2.2 Description of Corruption and Anti-Corruption Measures in China

Anti-corruption authorities in China consist of three parts. The Communist Party Commissions of Discipline Inspection (CDI) is the chief anti-corruption organization within the ruling party organization. The two other parts are judicial organizations: the People's Procuratorate (PP) and the People's Court (PC). The Central Commission for Discipline Inspection (CCDI)<sup>2</sup> is the national institution that enforces internal rules and regulations in the Party. This institution overlaps with the Ministry of Supervision<sup>3</sup> in personnel and functions as a subordinate office under the State Council. The CCDI designates CDI branches down to ministries, provinces, and local governments as well as all public entities and state-owned enterprises (SOE). Because most top positions in these offices are held by Party members, CDIs, the Party internal anti-corruption commissions serves the role of reducing corruption in the government in general.

The judicial component of anti-corruption institutions is represented by the Supreme People's Procuratorate (SPP)<sup>4</sup> and the Supreme People's Court (SPC)<sup>5</sup>. The SPP is the State's organ for legal supervision and the highest procuratorial institution, whereas the SPC is the highest

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2 “Zhonggong zhongyang jilv jiancha weiyuanhui”中共中央纪律检查委员会[The Central Commission for Discipline Inspection of the Communist Party of China] [www.ccdi.gov.cn](http://www.ccdi.gov.cn).

3 “Zhonghua renmin gongheguo jianchabu”中华人民共和国监察部[Ministry of Supervision of the People's Republic of China] [www.ccdi.gov.cn](http://www.ccdi.gov.cn).

4 “Zuigao renmin jiancha yuan”最高人民检察院[the Supreme People's Procuratorate] [www.spp.gov.cn](http://www.spp.gov.cn).

5 “Zuigao renmin fayuan”最高人民法院[the Supreme People's Court][www.court.gov.cn](http://www.court.gov.cn).

trial institution. The SPP investigates cases of embezzlement and bribery and supervises the anti-corruption work of provincial and local procuratorates. Likewise, SPC guides anti-corruption trials in the provincial and local courts and possesses veto power over all death penalty executions.

The CCDI and SPP coordinate their anti-corruption efforts in taking whistle blowers' reports on corruption leads. For communist party members, the investigation is often initiated within the Party. If the criminal evidence is clear, the criminals are subject to in-party punishments ranging from within-party probation, removal from leadership positions, a political demotion, retiring early, or being expelled from office and expelled from the party,<sup>6</sup> and being transferred to the judicial departments for legal punishment.

Corruption in Chinese legal practice involves five categories of crimes: taking and seeking bribes, embezzlement, misappropriation of public property, property of unknown origin, and illegal possession. A bribe is usually offered by private companies or persons in exchange for favored policy treatment or sometimes offered by the subordinates in exchange for promotion opportunities. Embezzlement refers to taking public or collective assets with the purpose of personal use. In contrast, while misappropriation also means taking public or collective assets for private use, the purpose is often to use it temporarily for profit with the intention of returning the property in the future. Misappropriated funds are often squandered in gambling, invested in the stock market, used for generating interest, or loaned to others for a certain period of time. Property of unknown origin is sometimes referred to as a failure to explain the sources of a large amount of income (Zhu 2015). Illegal possession usually occurs when village or city community level leaders illegally take a subsidy provided by the government that was intended for the people in the village or community.

The Criminal Law, stipulated by the National People's Congress (NPC), is the foundational guidance for sentencing. The SPC issues sentencing guidelines and opinions for specific crimes in accordance with the principles laid out in the Criminal Law. In accordance with regional

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<sup>6</sup> A special term in Chinese “shuangkai” 双开 was coined to refer to the double expulsion.

circumstances, the high people's court of each province issues detailed sentencing manuals for the intermediate and basic courts within the province.

Bribe and embezzlement are clearly defined in the Criminal Law as corruption. The penalties use the same scheme, and sentences are issued ranging from one year imprisonment to the death penalty in accordance with the amount of illegal income. Misappropriation is penalized less harshly with the highest level of punishment being life imprisonment. Property of unknown origin is used in practice as a consideration factor for punishment but did not appear as a formal crime until the newly revised 2015 version of the Criminal Law. Although illegal possession of another's property is not explicitly categorized as corruption according to the law, it is explained by the SPC and implemented in practice as a form of corruption.

Most corruption cases involve multiple forms of corruption. In some cases, the corrupt official was sentenced for multiple crimes concurrently rather than being issued punishments for each crime. For example, Zhao Zhangqing, a technological bureau chief and the Party secretary of Anyang County of Henan province, was sentenced 20 years in prison due to multiple crimes of misappropriation, taking bribes, embezzlement, bribing others, and dereliction of duties. However, in other cases, sentencing was given for each crime respectively and followed by a combined, concurrently served prison term. For instance, Pang Xingming, a Public Security Bureau Chief of Huozhou City in Shanxi Province, was sentenced to 10 years for embezzlement, 2 years for misappropriation, and 13 years for taking bribes, respectively. However, instead of 25 years, which is the sum of all the sentences, the court ruled that the penalty for the combined crimes would be 17 years.

Corruption cases, as with other criminal cases in China, are subject to two-tier final trials. The first trial is usually at the local courts where the corruption happens. If appealed by the defendant or counter-appealed by the procuratorate, the appeal sentencing issued by the intermediate court is the final legal decision (Chen 1999). The Supreme People's Court has implemented a de facto third trial for the death penalty without reprieve cases since 2007. Many of these cases were disapproved in the SPC and returned to the trial court for re-trial. As a result,

a substantial number of cases ended without the death penalty being executed (Zuo 2014). Nevertheless, the third review remedy is only available for a small number of death penalty cases. Local and intermediate courts in provinces still possess the absolute authority to try the majority of cases and issue punishments ranging from the exemption of legal penalties to the highest form, which is the death penalty with reprieve.

Penalties for corruption cases take five forms and are associated with additional financial penalties. These include the death penalty for the most serious cases, the death penalty with a two-year reprieve, life imprisonment, imprisonment with fixed terms, imprisonment with reprieve (up to five years), and being exempted from a penalty for the least serious corruption behavior. The associated financial penalties include restitutions, fines, and forfeiting part of or one's entire personal property. Restitutions refers to voluntarily paying back the illegal income to the Court by the criminal or his family members. Fines and forfeiting personal property are used for minor or serious corruption cases, respectively. Although all other penalties are used by most countries in the world, the death penalty with reprieve is a creation of "Chinese wisdom" (Shen 2012). All criminals sentenced to the death penalty with reprieve defer their execution for two years. Notably, 99.9% of these criminals finally received life imprisonment or an even shorter period of 15 to 20 years in prison after the two-year reprieve period due to the "execute less and execute cautiously" principle (Ma 1999, Shen 2012).

In conclusion, CCDI, SPC and SPP implement anticorruption laws with overlapped responsibilities. They coordinate anti-corruption efforts horizontally as well as from national level down to the local branches. Since laws were vaguely designed for corrupt crimes, judges have leeway to choose from a wide range of penalties. In the next sections, I analyze individual case level data to show the incentives and disincentives to corruption through the implementation of punishment.

## 2.3 Data and Hypothesis

The formal institution, the codified law, is very stringent on corruption; thus, the de facto punishments through individual cases deserve a closer look. Criminal cases and judgments were not fully disclosed in China until 2014; I have collected all corruption cases from July 2007 to December 2014 disclosed on the portal website for the courts nationwide<sup>7</sup>([www.Chinacourt.org](http://www.Chinacourt.org)). The website content is in a news format and reports on various stages of trials, such as the investigation, first trial, and second trial. Most cases last for more than two years, so I gathered missing information for coding variables through other sources such as the Baidu, Google, Bing, Sina, and Sohu search engines.

There were a total of 3733 corruption cases. However, some cases involved giving bribes only rather than receiving bribes. In some cases, corrupt officials also committed murder or intentional assault; in other cases, no information regarding the legal penalty or specific extent of corruption was found. None of the above cases were included in the statistical analysis.

### 2.3.1 Descriptive Statistics

Table 2.1 presents the descriptive statistics of all variables. The dependent variable in the first set of models is the length of months in prison. The components of the independent variable *Total Corruption Amount*, the amounts of five forms of corruption, are listed. The control variables include both the case-specific information, including *Confession*, *Tiff off during Custody*, *Accomplice*, *Actively Pay Back*, *Recover Loss by the Court*, and *Sentenced in other Country*, as well as information regarding the criminal's personal characteristics: *Political Ranking*, *Public Servant*, *Elected*, *SOE (State-owned enterprise)*, *Gender*, and *Retired*.

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<sup>7</sup> This is ministered by the Supreme People's Court and maintained by the People' Court Daily.

Table 2.1. Descriptive Statistics for Corruption Cases in China

Variable Role	Variable Name	Number of observations	Mean	Standard Deviation	Minimum	Maximum	Unit
<b>Dependent Variable</b>	<b>Prison Time Sentenced</b>	2,786	103.24	57.77	0	312	Months
<b>Independent Variables</b> (before taking natural log)	<b>Total Corruption Amount</b>	3,343	1298.98	11719.94	0.27	329647.50	CNY 10,000 <i>yuan</i>
	<b>Bribe Received</b>	2,383	296.34	964.92	0.14	19573.00	CNY 10,000 <i>yuan</i>
	<b>Embezzlement</b>	956	739.35	7211.29	0.27	200000.00	CNY 10,000 <i>yuan</i>
	<b>Misappropriation</b>	292	6275.73	21588.59	1.82	203000.00	CNY 10,000 <i>yuan</i>
	<b>Property of Unknown Origin</b>	164	650.43	994.90	0.69	8000.00	CNY 10,000 <i>yuan</i>
	<b>Illegal Possession</b>	58	3825.73	26246.24	0.50	200000.00	CNY 10,000 <i>yuan</i>
<b>Control Variables</b>	<b>Political Ranking</b>	3,289	8.75	2.37	2	13	Class 1-13
	<b>Public Servant</b>	3,597	0.66	0.47	0	1	1-Yes 0- No
	<b>Confession</b>	3,597	0.12	0.32	0	1	1-Yes 0- No
	<b>Tipoff during Custody</b>	3,597	0.02	0.12	0	1	1-Yes 0- No
	<b>Accomplice</b>	3,597	0.02	0.13	0	1	1-Yes 0- No
	<b>Actively Pay Back</b>	3,597	0.23	0.42	0	1	1-Yes 0- No
	<b>Recover Loss by the Court</b>	3,597	0.01	0.07	0	1	1-Yes 0- No
	<b>Sentenced in other country</b>	3,597	0.00	0.04	0	1	1-Yes 0- No
	<b>Elected</b>	3,689	0.14	0.34	0	1	1-Yes 1- No
	<b>SOE</b>	3,689	0.17	0.38	0	1	1-Yes 2- No
	<b>Gender</b>	3,281	0.92	0.28	0	1	1-Male 0- Female
	<b>Retired</b>	3,597	0.02	0.15	0	1	1-Yes 0- No



Table 2.2 The Total Corruption Amount under Different Penalty Categories in Chinese Cases

Unit: CNY 10,000 *yuan*

Total Corruption Amount	Number of Observations		Mean	Standard Deviation	Minimum	Maximum
Exempted from Penalty	14	0.47%	5.54	12.95	0.50	50.00
Imprisonment with Reprieve	332	11.24%	364.46	5602.65	0.50	102000.00
Imprisonment	2,278	77.12%	985.03	12390.19	0.60	329647.50
Life Sentence	196	6.64%	3595.38	9366.47	114.00	80200.00
Death Penalty with Reprieve	124	4.20%	6613.55	22430.86	444.91	203318.00
Death Penalty	10	0.34%	11535.57	10792.64	1191.61	38369.04

### ***2.3.1.1 Total Corruption Amount***

Because most corruption cases involve multiple forms of corruption, the sum of various types of corruption is used to calculate the variable Total Corruption Amount (hereafter referred to as the total corruption amount). Tables 2.1 and 2.2 show the descriptive statistics for the total amounts of corruption under different penalty categories. The lowest amount of corruption is 2,700 *yuan*, while the highest is 3,296,475,000 *yuan*. The means for the corruption total increase from 5,540 *yuan* in the exemption category to 115,355,700 *yuan* for death penalty cases. The standard deviation reaches the highest level in the death penalty with reprieve cases, 224,308,600 *yuan*.

### ***2.3.1.2 Categories of Penalties***

The penalties for corruption include being exempted from penalty, imprisonment with reprieve, imprisonment for up to 20 years, life imprisonment, death penalty with reprieve, and death penalty. As Table 2.2 shows, the majority of cases received imprisonment with or without reprieve, accounting for over 88% of the total cases. Cases in the categories of being exempted from penalty or death penalty represent no more than 1% of the sample. Life imprisonment cases represent 6.64%, and the death penalty with reprieve cases represent approximately 4.2% of the total cases.

Certain conditions affect the severity of punishment assigned. When the corrupt officials or their families actively pay back the illegal income, which implies less harm to public finances, they usually receive less severe punishment. When courts forfeit the person's personal assets to compensate for the loss, there is no effect on the severity of punishment. If the corrupt officials pleaded guilty and confessed facts unknown by the procurator, they are usually punished more leniently.

The relationship between the total amount of corruption involved in the cases and their final penalties announced by the courts is examined. The means of the variables demonstrate a positive correlation between a harsher punishment with a larger extent of corruption. However, the standard deviation tells a different story. The average amount for the imprisonment cases is 9,850,300 *yuan*, while the standard deviation is 123,901,900 *yuan*. In the majority of cases, the corruption amount

is well beyond the 100,000 *yuan* threshold specified in the 1997 version of the Criminal Law<sup>8</sup>. Nevertheless, the death penalty was not issued in these cases. Other factors beyond the amount of illegal income must account for the penalty decision.

For the imprisonment cases, a scatterplot in Figure 2.1 can help visualize the relationship between the total amounts of corruption and the associated penalties. As the total amount of corruption spans from 6,000 *yuan* to 3,296,475,000 *yuan*, a natural log amount more clearly shows its impact. The quadratic function is used to fit the data. I applied the *lowess* command in Stata to examine the relationship with a non-parametric regression method. The results are very close to those of the quadratic function. Appendix A provides the *lowess* smoother results for Figure 2.1 and the following Figure 2.2.

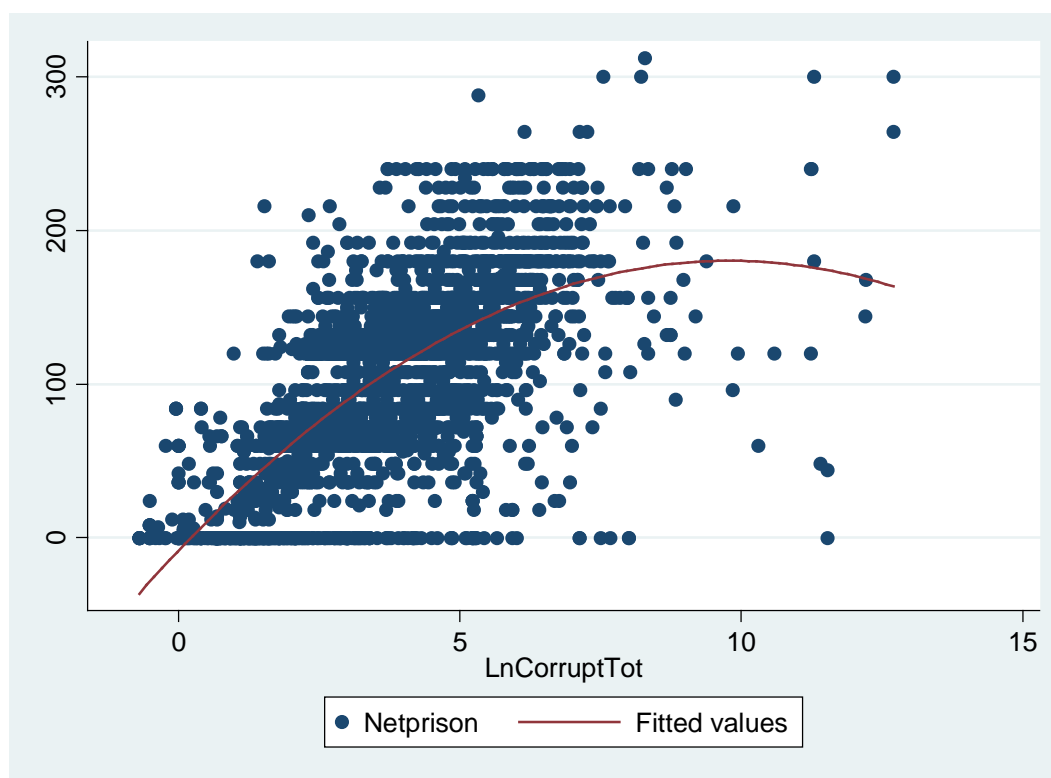


Figure 2.1 The Months Sentenced against the Logged Total Corruption Amount in Chinese Cases, Fitted Values by the Quadratic Function

<sup>8</sup> This amount criterion was eventually abandoned in the 2015 Criminal Law.

The fitted value in the scatter plot clearly shows an increase in the length of the sentences for corruption totals in the logged form from 0 to approximately 10; however, after the level-off point, there is a decrease in the length of sentence beyond a logged value of 10. This concave parabola-shaped relation is confirmed in the following regression results.

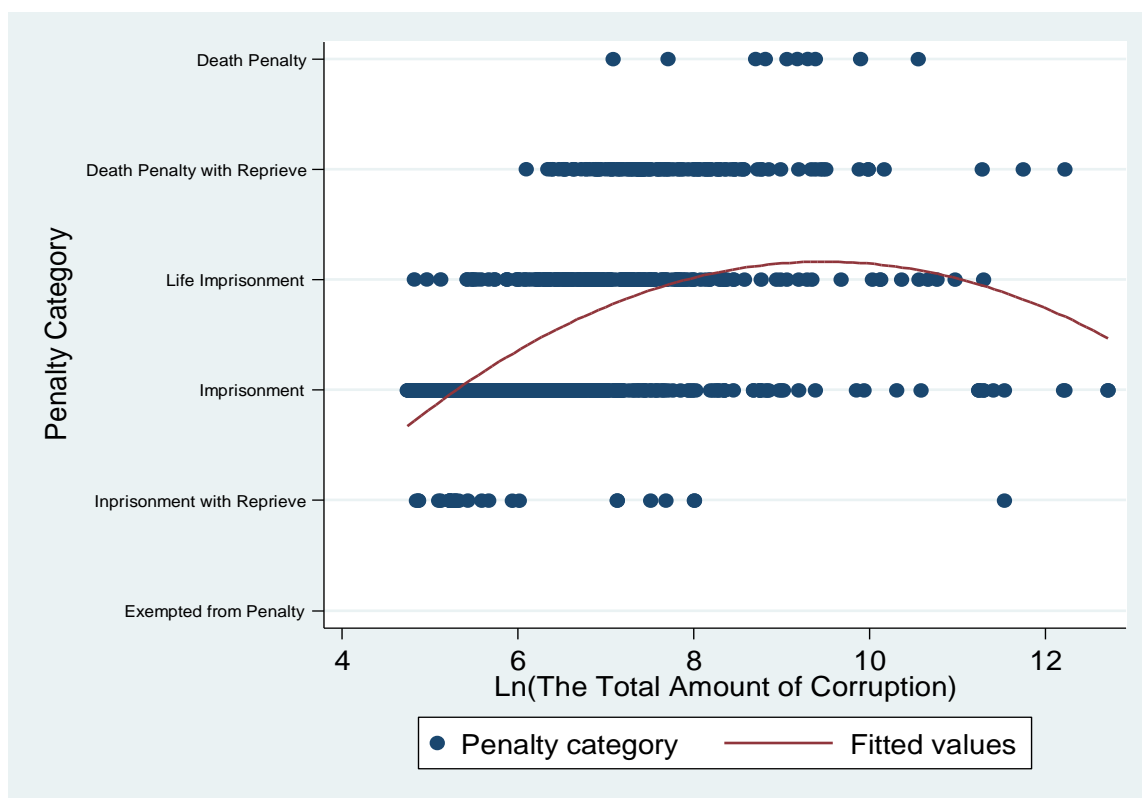


Figure 2.2 The Penalty Categories against the Logged Total Corruption Amount in Chinese Cases

Such a concave parabola-shaped relationship between the penalties and the total amounts of corruption is more obvious in the scatterplot showing the penalty categories against the logged corruption totals. I used the total amount of 1,140,000 *yuan* as the starting point because this is the minimum amount for the life imprisonment penalty in the data set and below both minimums of the more stringent penalties, namely the death penalty and the death penalty with reprieve. The

natural log of 114<sup>9</sup> is 4.7362, and all cases with a greater extent of corruption are shown in Figure 2.2. The results are consistent. The maximum point of the corruption amounts is approximately 10 in the logged form, which, if converted back to the original CNY form, is approximately 220 million *yuan*.

### 2.3.1.3 *Political Ranking*

Political ranking is tied to the public employee's hierarchical position as well as salary. The specific ranking is assigned by the higher authority when the appointment is announced. The ranking can be one class higher compared to peers, taking into consideration of the position holder's credentials or additional appointments. Public servants are given a political ranking, as are the employees in the SOE and public service institutes such as public universities, schools, hospitals, and government-sponsored social organizations. In other words, those who have political ranking are not necessarily public servants; however, those with high political ranks of bureau chief and above can move seamlessly between government, SOE, or other public institutes according to their rank. For example, many public university presidents are ranked at the vice-minister level. They can be move to a vice-minister level public servant position, such as the vice governor of a province, vice minister of a ministry, or chief of the vice-minister level of a government institute. Movements in either direction are quite common.

Table 2.3 lists the 13-class coding scheme adopted in this paper. The first 11 classes are stipulated by laws and regulations, while the 12th class is the residue category to capture all of the entry level, non-ranked public employees. The 13th class includes village leaders in the rural area or street-community level leaders in the urban area who are not legally considered government officials. However, according to the Explanation of the Criminal Law, these leaders are treated as public servants for the purpose of sentencing (Wu and Zhang 2013).

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<sup>9</sup> The amount 1,140,000 *yuan* becomes 114 *wan*, where the unit *wan* 万 in Chinese means 10,000 *yuan*. The traditional number system in China uses four digits (starting from wan), rather than three digits used in the western tradition. This dissertation follows the Chinese tradition because corruption amounts in all laws, judgments, and news reports were reported in this form.

Table 2.3 Political Ranking Coding Schedule for Chinese Cases

Ranking	Code	Title	Examples
Class 1	113	National level	President, Chairperson of the National Committee of the Chinese People's Political Consultative Conference
Class 2	112	National Vice-level	Member of Central Politburo of the Communist Party of China, Chief of the Supreme Court
Class 3	111	Governor or Minister level	Minister of Customs Administration, President of Xinhua News Agency
Class 4	110	Governor or Minister Vice - level	Vice governor of Beijing, Major of Hangzhou (Vice province level city)
Class 5	109	Bureau, Department or Prefecture level	Director-general of the department of European Affairs in the Ministry of Foreign Affairs; Mayor of Hohhot City (a prefecture level city)
Class 6	108	Bureau, Department or Prefecture Vice- level	Vice Director of the Shandong provincial Communication Department; Vice President of Zhejiang Science and Technology University (a provincial level university)
Class 7	107	County or Division level	Chief of the Public Security Bureau of Huozhou City in Shanxi Province; Mayor of Linhai City (a county level city) in Zhejiang Province
Class 8	106	County or Division Vice-level	Chief Justice of the Shimen County Court in Hunan Province; Direction of Longqiao Power Factory in East Sichuan Power Group
Class 9	105	Township or Section Level	Youth Leaguer Chief of Wangjiang County in Anhui Province; Chief of the Public Security Bureau of Qingpu District of Huai'an City in Jiangsu Province
Class 10	104	Township or Section Vice-Level	Vice director of Tobacco Monopoly Bureau in Wenling City, Taizhou, Zhejiang Province
Class 11	103	Staff level	President Assistant of Beijing Telecommunication Intellectual Technology Co. Ltd
Class 12	102	Clerk level	Accountants, Office Clerk
Class 13*	101	Village or street-community level	Party Secretary of a village, Director of a street-community

Note: \* Class 13 is not in the official public servant ranking, but is treated as public servant

Table 2.4 The Total Corruption Amount under Different Rankings in Chinese Cases

Unit: CNY 10,000 *yuan*

Total Corruption Amount	Number of Observations		Mean	Standard Deviation	Minimum	Maximum
National level	0					
National Vice-level	2	0.06%	1,392.37	1,629.70	240.00	2,544.74
Governor or Minister level	10	0.32%	4,732.29	6,122.24	48.00	19,573.00
Governor or Minister Vice - level	34	1.09%	7,459.99	34,678.03	31.00	203,318.00
Bureau, Department or Prefecture level	201	6.45%	2,769.00	10,484.51	4.60	102,000.00
Bureau, Department or Prefecture Vice- level	294	9.44%	787.71	2,153.80	5.55	30,000.00
County or Division level	578	18.55%	3,856.08	24,719.64	0.60	329,647.50
County or Division Vice-level	397	12.74%	543.85	4,455.51	1.00	76,400.00
Township or Section Level	583	18.71%	253.94	884.16	0.50	10,000.00
Township or Section Vice-Level	226	7.25%	122.93	341.64	0.60	3,008.85
Staff level	272	8.73%	315.25	2,938.20	0.27	47,370.00
Clerk level	253	8.12%	135.33	324.99	0.50	2,929.66
Village or street- community level	266	8.54%	145.96	587.51	0.50	6,013.04

As demonstrated in Table 2.4, among all rankings, the deputy governor-vice minister level officials show the most corrupt activity, with the highest average corrupt income and the largest standard deviations. According to these criteria, the next highest corruption ranking is the country division level. Figure 2.3 is a scatterplot of the relationship between the logged total corruption amount and political ranks. It shows the magnitude of corruption for each political rank. A higher rank is positively associated with a higher amount of corrupt income.

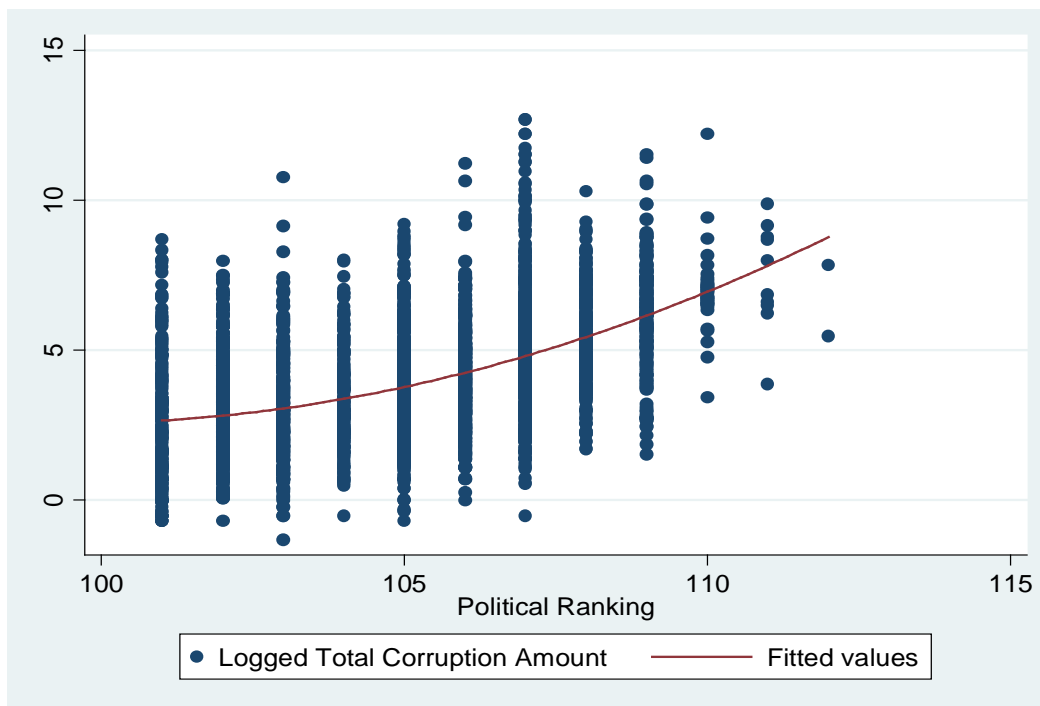


Figure 2.3 The Logged Total Corruption Amount in Accordance with Political Ranks in China

#### 2.3.1.4 Elected

Elections are often cited as a democratic tool to combat corruption (Krause and Méndez 2009; Winters and Weitz-Shapiro 2016). In the Chinese political system, the NPC elects the President and Vice Presidents of the State, Chairman and Vice chairmen of the NPC, Premier of the State Council, President of the SPC, and the Procurator-General of the SPP. The National Congress of the Communist Party of China (NCCPC) elects members of the Central Politburo and CCDI. The Central Politburo then elects the Secretary General and the members of the Standing Committee, which is the highest governing body of the Party. CCDI members elect the Secretary and Vice Secretaries during their first meeting. The National Committee of the Chinese People's Political Consultative Conference (CPPCC) elects the Chairman and Vice Chairmen of the CPPCC (CPPCC 2018). Below the national level, there are four local levels of the People's Congress under NPC matching State administrative areas: province, prefecture, county, and township (NPC 2018).



These local level Congresses elect corresponding governors, mayors, prefecture chiefs, county chiefs and town chiefs, as well as the respective Judges of the People's courts and the Procurator of the People's Procuratorates.

The above elected officials were coded as being elected in this investigation. Other national, provincial, prefecture government office holders, as well as leaders of the SOE and public entities are appointed by superior levels of government and were hence coded as nonelected.

### ***2.3.1.5 Duration of Corruption***

Corruption is rarely one-time behavior. It usually starts small within the scope of being legal, such as accepting small gifts, reimburse mixed official and personal trips. Those who engage in corruption were reported "initially nervous and restless" ("Yian jingshi" 2017). However, the greed for easy money enticed them seizing any opportunity, when they believe legitimate and safe. A corrupt official usually continues with corrupt acts repeatedly until such opportunity is not any longer available. Most of the corrupt officials in the dataset did not stop until an investigation was initiated by the CDI or PP. Some stopped corrupt acts after being removed from lucrative positions, such as transferring to positions without power or retirement.

Figure 2.4 shows the duration of corruption in months. A majority of the corrupt acts lasted for over a year. 12.9% of the cases went longer than 10 years. 0.4% of the cases lasted longer than 20 years, while the longest period was 26 years.

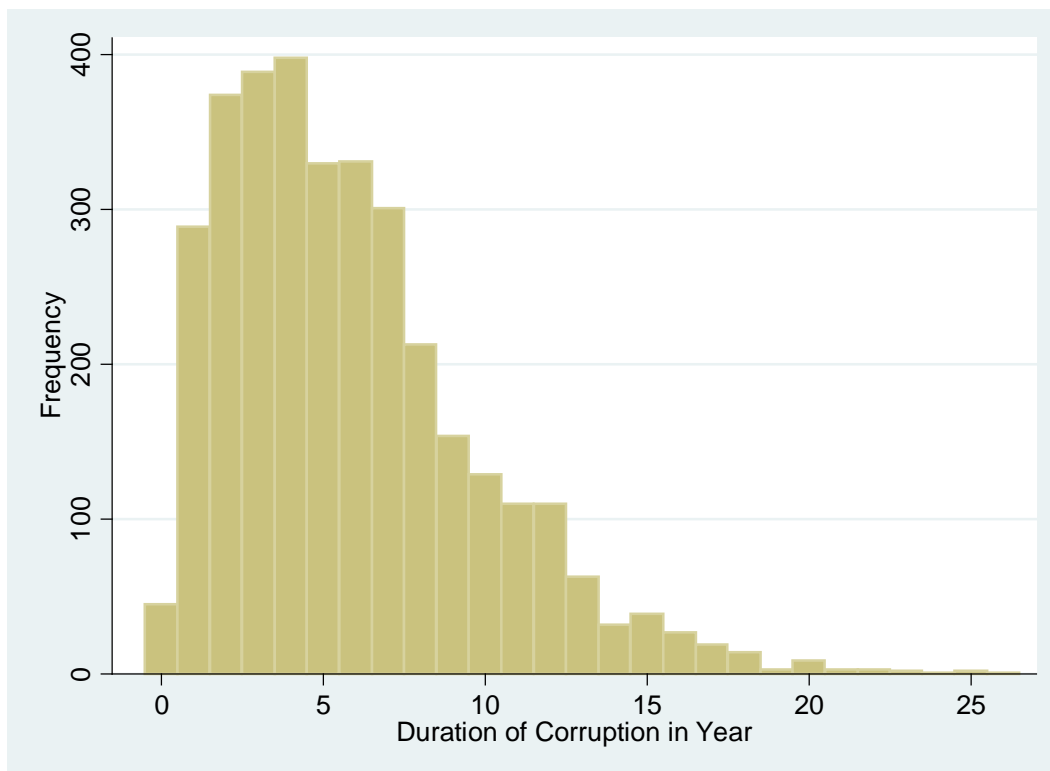


Figure 2.4 Durations of Corruption in Chinese Cases

### 2.3.2 Hypothesis

According to the Criminal Law, the amount of income obtained through corrupt acts is the key criterion for assigning punishment. Death is the ultimate penalty for serious cases with an amount beyond CNY 100,000 *yuan*. However, the criteria for the seriousness of the crime are not clearly stated and thus leave substantial leeway for judges to make decisions. At the least, the penalty should be positively correlated with the amount of income obtained illegally.

In practice, other factors play important roles in determining the severity of the penalty, as shown in the judicial regulations and judgments of the courts. These factors include whether the defendant confessed to the procuratorate or the court, whether the defendant was rewarded for disclosing information about another corrupt defendant, whether the defendant was the prime culprit or an accomplice, whether the defendants or their family members actively paid back the illegal income, and whether the court was able to recover all of the losses to the society by obtaining the illegal income from the defendant.

Penalties for corruption aim to create deterrence for latent corrupt officials and to punish those who have been caught. At the founding of the People's Republic of China (PRC), many Communist Party members, especially highly ranked leaders, were issued very severe punishments because the founding leader Chairman Mao Zedong required more stringent penalties for Communist Party members and government employees. In 1937, prior to the foundation of the PRC, a young but highly ranked army leader killed his fiancée in Yan'an. Despite many pleas for acquittal, Mao insisted on a public trial and wrote a letter to the judge "...if [you] grant [a] pardon, there is no way to teach the Party, the Red Army, the Revolutionaries, and no way to educate an ordinary person...Just because Huang Kegong is different from an ordinary person, just because he is a veteran communist member, a veteran red army soldier...Communist Party and Red Army have to enforce more stringent discipline to their party members and Red Army members than to ordinary civilians" (Meng 2015). Huang was executed immediately after the public trial. In 1952, three years after the foundation of the PRC, two chief leaders of Tianjin (then a prefecture of Hebei Province), Liu Qingshan and Zhang Zishan, were reported guilty of embezzling huge amounts of money. Answering the pleas against the central committee's decision of the death penalty, Chairman Mao argued "just because the high positions, high achievements [during the revolutionary war], and big impact of these two [cadres], we are determined to execute them. Only if they are executed, can twenty, two hundred, two thousand, and twenty thousand cadres with various degrees of mistakes be saved" (*Looking Back* Editorial Board 2009). According to this tradition, we would expect government employees and communist party leaders to be subject to harsher punishments.

Various conditions for issuing less or more severe punishment are provided for in the SPC sentencing guidelines and opinions. These are reflected in the court judgments, where reasons for issuing less or more severe punishment are explained. When the corrupt confess or plead guilty of the crime, when they provide tips to the procurators or the court in helping investigate other corruption crimes, when they are the accomplices, when they actively pay back the income obtained illegally, or when they have not spent the funds in embezzlement or misappropriation cases and allow the court to recover the loss for public institutions or the SOE, they are rewarded with less severe punishment. In contrast, when they actively seek bribes or engage in a new form of corruption, they will usually be punished more harshly.

In summary, I hypothesize that a harsher punishment is associated with a greater extent of corruption, being a higher ranked government employee, no confession, no tips provided by the defendant, being the prime culprit instead of an accomplice, not paying back the illegal income, and not being able to recover losses, *ceteris paribus*. Table 2.5 presents the expected relationship between variables and punishment in the hypothesis.

Table 2.5 The Expected Relationship between Explanatory Variables and Punishment for Corruption in China

Explanatory Variables	Punishment	Definition
Total Amount of Corruption	+	Sum of the illegal income from all forms of corruption
Political Ranking	+	The ranking assigned to public employees when appointed or elected
Public Servant	+	Being an official government employee
Duration	+	Duration of corruption, an inverse measurement of the probability of punishment
Confession	-	Confession prior to or during investigation
Tipoff during Custody	-	Providing tips to facilitate investigations of other crimes
Accomplice	-	Being an accomplice instead of the prime culprit
Actively Pay Back	-	Actively return the illegal income by the corrupt or their family
Recover Loss by the Court	-	Court is able to recover the social loss incurred in the corruption case

## 2.4 Results

In this section, I use three methods to examine the relationship between the attributes of punishment of public sector corruption in China and their corresponding explanatory variables. First, ordinary least square (OLS) with a quadratic function is used to estimate the parameters of imprisonment sentences. Second, a probit regression model is used to estimate the effects of explanatory variables on the probability of a death penalty sentence. Third, Cox proportional hazard model is applied to analyze the duration of corruption, an inverse measurement of the objective probability of punishment.

### 2.4.1 Imprisonment and its Determinants

I investigate the determinants of punishment, in particular, the relationship between the magnitude of corruption and the length of imprisonment. Ordinary least square (OLS) with a quadratic function was used to analyze the extent of punishment via imprisonment. Robust standard error is used to control for heterogeneity (Alt and Lassen 2003, Greene 2007). The dependent variable, months sentenced in prison, is a numerical continuous variable, which enables testing for a quadratic function in a linear regression model. The quadratic function requires the independent variable, the natural-logged total amount of corruption, as well as its square form to be included in the linear regression model (Wooldridge 2006). Other explanatory variables, include being a public servant, political ranking, being elected, confessing, providing tips during custody, being an accomplice, actively paying back the illegal income, recovery of the loss by the court, whether the case was sentenced in a country/region other than China, whether the sentencing was held in another province, gender, being retired during the investigation, or being relatives with an official who was previously found to be corrupt. This model is written as equation (1).

$$\begin{aligned}
 F = \text{Number of Months Sentenced} = & \beta_0 + \beta_1 \text{Ln}(\text{Total Corruption Amount}) + \\
 & \beta_2 (\text{Ln}(\text{Total Corruption Amount}))^2 + \\
 & \beta_3 \text{Public Servant} + \beta_4 \text{Political Ranking} + \beta_5 \text{Elected} + \beta_6 \text{Confession} + \\
 & \beta_7 \text{Tipoff} + \beta_8 \text{Accomplice} + \beta_9 \text{Actively pay Back} + \beta_{10} \text{Recover Loss} + \\
 & \beta_{11} \text{Sentence in Other Country} + \beta_{12} \text{Sentenced in Other Province} + \\
 & \beta_{13} \text{Gender} + \beta_{14} \text{Retired} + \beta_{15} \text{Relatives} + \varepsilon \quad \dots (1)
 \end{aligned}$$

The results of the eight models are shown in Table 2.6. Because the R-square in most models is above 0.5, it implies that more than half of the variations in the months sentenced are explained by the explanatory variables.

Table 2.6 Regression Models of the Months Sentenced with Robust Standard Error in China

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<b>Ln (Total Corruption Amount)</b>	22.927 *** (0.591)	37.937 *** (1.553)	38.097 *** (1.546)	38.511 *** (1.626)	37.581 *** (1.567)	39.123 *** (1.720)	38.890 *** (1.717)	38.017 *** (1.618)
<b>Square of Ln (Total Corruption Amount)</b>		-1.857 *** (0.205)	-1.878 *** (0.205)	-2.044 *** (0.207)	-1.852 *** (0.207)	-2.109 *** (0.217)	-2.076 *** (0.216)	-1.894 *** 0.214
<b>Public Servant</b>	15.876 *** (2.022)	14.758 *** (1.993)	13.921 *** (2.050)	10.283 *** (2.132)	14.610 *** (1.991)	8.996 *** (2.265)	8.990 *** (2.264)	12.566 *** (2.195)
<b>Political Ranking</b>				1.637 ** (0.488)		0.945 * (0.522)	1.044 ** (0.528)	*
<b>Ranking: Minister</b>					11.062 (10.959)			26.030 ** (11.784)
<b>Ranking: Bureau</b>					6.115 * (2.678)			
<b>Elected</b>			4.190 † (2.388)	4.512 † (2.356)		5.275 ** (2.435)	5.684 ** (2.453)	5.022 ** (2.488)
<b>Confessed</b>	-1.712 (2.396)	-1.541 (2.372)	-1.502 (2.370)	-2.719 (2.387)	-1.614 (2.371)	-3.050 (2.506)	-3.199 2.507	-2.356 2.487
<b>Tipoff during Custody</b>	-17.100 *** (4.919)	-18.653 *** (4.954)	-18.692 *** (4.946)	-20.246 *** (4.991)	-18.763 *** (5.005)	-19.253 *** (4.913)	-19.289 *** (4.912)	-18.118 *** (4.937)
<b>Accomplice</b>	-75.791 *** (10.941)	-64.980 *** (9.304)	-64.791 *** (9.283)	-64.924 *** (17.432)	-64.226 *** (9.267)	-63.906 *** (18.041)	-62.427 ** (18.007)	-51.637 *** (13.931)
<b>Actively Pay Back</b>	-8.431 *** (1.915)	-8.421 *** (1.886)	-8.384 *** (1.883)	-8.554 *** (1.889)	-8.462 *** (1.882)	-8.219 *** (1.960)	-8.188 *** (1.959)	-8.281 *** (1.958)

(Table 2.6 continued on next page)

Table 2.6 Regression Models of the Months Sentenced with Robust Standard Error in China (continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<b>Recover Loss by the Court</b>	3.547 (13.519)	13.972 (13.030)	13.740 (13.172)	0.819 (12.266)	12.029 (13.543)	4.179 15.109	7.312 (15.087)	17.436 (15.795)
<b>Sentenced in Another Country</b>	-36.324 (41.200)	52.463 (42.817)	53.615 (42.888)	80.685 † (43.917)	55.226 (42.939)	82.469 * 44.545	79.319 * (44.506)	50.547 (43.671)
<b>Sentenced in Another Province</b>							-15.781 * (9.156)	-31.446 ** (10.996)
<b>Gender</b>						10.126 ** (4.708)	10.179 ** (4.705)	14.992 *** (4.335)
<b>Retired</b>						0.887 (5.809)	1.273 (5.749)	4.111 (6.410)
<b>Relatives</b>						-5.132 41.654	-5.975 (41.166)	5.852 (17.424)
<b>Constant</b>	8.961 ** (2.659)	-14.428 *** (2.982)	-14.672 *** (2.964)	-181.249 *** (49.828)	-13.824 *** (3.001)	-117.415 ** (53.462)	-127.5431 ** (54.058)	-26.237 *** (4.896)
R-square	0.4834	0.5089	0.5094	0.5233	0.5099	0.5196	0.5201	0.5097
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Observations	2626	2626	2626	2626	2626	2240	2240	2402

Note: Robust Standard errors in parentheses; † denotes  $p < 0.1$ ; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$ .

### 2.4.1.1 Total Corruption Amount

Because the total corruption amount is the only criterion explicitly stated in the Criminal Law to determine punishment, we should expect a positive association between the amount and the punishment. In Model 1 of Table 2.6, the total corruption amount is taken in the logged form, as it aids visualizing the relationship and the range of the value expands from  $[0, +\infty]$  to  $[-\infty, +\infty]$ . The natural logged form can be interpreted as a percentage (Wooldridge 2006), and a 1% increase in the total corruption amount adds nearly 23 months of imprisonment. This relationship is significant and positive.

However, the relationship is more than linearly positive. The R-square in Model 2 is larger than that in Model 1, which means that the only difference, the squared logged total amount of corruption in Model 2, played a significant role in explaining the months sentenced. This quadratic variable accounts for 2.55% of the variance of the imprisonment sentenced.

The total corruption amount hence fits the quadratic function and demonstrates a concave parabola-shaped effect in determining the number of months sentenced when controlling for other variables. This finding is consistent across all remaining six models. To calculate the x value that maximizes y, we can take a partial differentiation of the function of multiple variables with respect to x, let it be 0, and solve the equation for the value of x (Wooldridge 2006). Using model 2 to calculate the value of  $\text{Ln}(\text{Total Corruption Amount})$  that maximizes the *Number of Months Sentenced*, we can rewrite equation (1) as equation (2).

$$\begin{aligned}
 F &= \text{Number of Months Sentenced} \\
 &= -14.428 + 37.937 \text{ Ln}(\text{Total Corruption Amount}) \\
 &\quad - 1.857(\text{Ln}(\text{Total Corruption Amount}))^2 + \dots + \varepsilon \\
 &\quad \dots (2)
 \end{aligned}$$

Taking the partial differentiation of  $F$  with respect to  $\text{Ln}(\text{Total Corruption Amount})$ , equation (3) is obtained.

$$\frac{\partial F}{\partial \text{Ln}(\text{Total Corruption Amount})} = 37.937 - 1.857 \text{Ln}(\text{Total Corruption Amount}) \quad \dots (3)$$



Let (3) equal 0 so we can solve for the value of  $\ln(\text{Total Corruption Amount})$ .

$$37.937 - 1.857\ln(\text{Total Corruption Amount}) = 0 \quad \dots (4)$$

Solving equation (4), we have

$$\ln(\text{Total Corruption Amount}) = 10.215 \quad \dots (5)$$

To convert the logged value back to the original form, we simply need to plug the value back into the exponential function with a base of e.

$$\text{Total Corruption Amount} = \exp(10.215) = 27,309.78 \quad \dots (6)$$

Hence, based on the above results, a larger corruption amount is associated with a harsher punishment, a longer prison term, only if the amount is less than 273,097,800 *yuan* because the unit is 10,000 *yuan*. Once beyond this amount, the severity of punishment declines.

The percentage change represents another method to interpret the coefficient for natural logged variables (Wooldridge 2006). The result can thus be understood that if the corruption amount increases by 10.215%, the result in equation (5), the penalty of imprisonment will reach the maximum. However, if the corrupt official is able to continue to accumulate illegal wealth at a higher percentage, the penalty will fall after that.

An explanation for this finding is that if a corrupt official takes a large bribe or embezzles a large amount of money, he or she will have more resources available to prevent being detected or prosecuted and can thus delay or degrade punishment.

Corrupt officials took various cautious steps to prevent detection and escape from severe punishment. Most frequently used method is to send one's wife and children to countries without extradition treaties with China, such as the United States (Tiezzi 2014). Other methods include preparing a fake passport, pre-designing multiple escape routes, seeking protection from supervisors with bribes, and hiring more capable lawyers. Last but not the least, when the investigation confirms some corrupt acts, officials can lower the severity of punishment by actively paying back the illegal income claimed by the court, which could be substantially smaller than the actual amount taken by the original corrupt practices. Several criminals in the sample who would have faced a death penalty in China ended up with fixed terms in prison simply because they fled to the United States (Tiezzi 2014), Canada, or Australia and were extradited back to China on conditions that they would not be sentenced to death. An extreme case is Yu Zhendong<sup>10</sup>, a local

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<sup>10</sup> According to the Chinese naming tradition, last name is placed before the given name. Both Chinese and English media often apply this tradition to Chinese names in the news. For example, <https://thediplomat.com/2014/08/us->

branch president of the Bank of China, who embezzled and misappropriated USD 482 million dollars and fled to the United States. There was no extradition treaty between the two countries, and Yu hid in the U.S. for several years before he was deported under the condition of being sentenced to no more than 12 years (FBI 2004). In another case, Zhang Hai, chairman of the board of the Jianlibao Group was initially sentenced to 15 years in prison. Zhang while in custody, conspired with lawyers and several legal investigators and purchased a tipoff by buying another criminal's testimony against a third criminal. Taking advantage of the corruption in the legal system, Zhang was "rewarded" a reduced sentence of 10 years in the second trial. During the time serving in prison, he received imprisonment reductions two times by providing tips. He was released after serving only six years ("Zhanghai" 2014).<sup>11</sup>

#### **2.4.1.2 Political Ranking and Duration**

In accordance with the Communist Party and government ruling tradition, higher level officials should be penalized more harshly to educate the rest of the people (He 2015). However, no clause in the Criminal Law states that political ranking should have any effect on the penalty decision. A closer look at the empirical evidence from the sentencing records is warranted.

The results confirm the policy guidance that courts assigned more stringent sentences to public servants compared with other public employees, and to those of higher rankings compared with lower rankings. The models in Table 2.6 consistently show that public servants were sentenced more stringently, *ceteris paribus*. Compared with SOE members or public entity employees, public servants face more severe punishments ranging from 9 to 16 months more of prison time, even after controlling for their rankings.

Punishment for higher level officials is approximately one additional month for each political ranking, *ceteris paribus*. That is, for all other conditions being the same, a central politburo member, ranked class two, would face 10 more months of imprisonment than a class 12 clerk in a government office. This confirms the hypothesis prediction that corruption in the government is considered a more serious crime and is punished more harshly to deter future corruption.

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top-destination-for-chinas-fugitive-officials/. This dissertation adopts this tradition as well and last name is used when the person is referred again.

<sup>11</sup> There were 24 people engaged in this case, which involved a corrupt practice of imprisonment reduction. Most of them were law enforcers, including officials in judicial sections, prisons guards, court workers, and several lawyers.

One may wonder if this conclusion contradicts the results from the last section indicating that a greater extent of corruption leads to less sentencing time after the maximum point. Notably, the most corrupt officials, those taking corrupt amount over the maximizer, i.e. 10.215 in the logged form, concentrated at the division, bureau and vice-minister levels. This can be seen in the Figure 2.3. Public officials at these upper-middle levels demonstrated a wider range of corruptness. Put it technically, standard deviations are larger for these level officials, as shown in Table 2.4.

To be more specific, punishment for bureau/department/prefecture and vice level officials (hereafter referred to as bureau chiefs) was investigated in Model 5 of Table 2.6. The results indicate that bureau chiefs were punished more harshly than lower rankings, 6 months more, when controlling for other conditions. As the high court of each province issues provincial sentencing guidelines in accordance with SPC sentencing guidelines, the sentencing is more homogeneous within a province. Corrupt bureau chiefs and officials with lower rankings are always sentenced within the same province. Therefore, consistent to policy guidance, higher level officials within a province are subject to harsher punishment.

In addition, the political ranks do not affect the concave parabola shaped relationship between the corruption amount and the prison time sentenced. When examined with officials at different levels, the quadratic relationship discussed in the previous subsection still holds.

Duration measures the length from the first corrupt act to the year of the investigation leading to eventual conviction. The results in Appendix B show that one year longer of the duration resulted in 1.1 months in prison time as punishment, *ceteris paribus*. That is, even after taking all other factors into account, judges considered the probability of detection when issuing punishment.

#### ***2.4.1.3 Sentenced in Another Province or Another Country***

Location of the court, whether the corruption case is tried in another province in China or another country, affects the punishment significantly. It explains the mixed picture of punishments to governor/minister and vice level officials (hereafter referred to as governors), in contrast to the bureau chiefs discussed in the last subsection. Governors were sentenced 11 more months on average, but this is not statistically significant in Model 5. Such insignificance is explained in Model 8 of Table 2.6, where the Sentenced in Another Province variable is used. Because many governors are influential in their own provinces, the provincial courts recused themselves, and the SPC appointed courts in other provinces to handle the trials. The imprisonment time for cases

sentenced in another province is 31 months less when controlling for other variables. Under these conditions, governors are more harshly punished with 26 more months than other public servants. Combining these two effects, minister-level officials face a punishment of 5 months less than other ranking officials if sentenced in another province.

Fugitive officials were often sentenced in the courts of other countries instead of Chinese courts, when no extradition treaty enables repatriation. Because of the difference in the legal systems, a corrupt official usually receives an imprisonment sentence instead of life imprisonment or the death penalty, no matter how serious the case is. The length of such an imprisonment sentence could be longer than the 20 or 25 years maximum as stipulated in the Criminal Law in China<sup>12</sup>. Therefore, being sentenced in another country often resulted in a seemingly longer imprisonment duration. The coefficients of the variable Sentenced in Another Country are statistically significant in Models 4, 6, and 7 when controlling for the political rankings but not governors or bureau chiefs. The magnitude of the prolonged imprisonment sentence is also significant, on average around 80 months more of prison time if sentenced in other countries than in China. These criminals served prison time in foreign countries or were repatriated to Chinese prisons on the condition of serving the original sentencing. For example, Li Jixiang, a manager of Nanhai Zhiye, a State-owned real estate company, misappropriated 40 million *yuan* and transferred it to Australia over 1998-2001 (Zheng 2011). He was sentenced in Australia for 26 years of imprisonment. Li differs from the previously noted Yu Zhendong in that Li served the imprisonment in Australia. Due to judicial cooperation between the two countries, three quarters of the misappropriated funds were transferred back to China.

#### ***2.4.1.4 Confession, Tipoff, and Accomplice***

In many judgments, as stipulated in the SPC sentencing guidance, a criminal who confesses is entitled to a reduced penalty. The results of all eight models however do not show this, although none are statistically significant even at the  $p < 0.1$  level.

However, a tipoff was rewarded with nearly 20 months of penalty reduction. Providing tips to procurators and courts eased the investigation process, and the tip providers were rewarded with less time in prison. This result is confirmed in all models.

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<sup>12</sup> The maximum of prison time was 20 years in the earlier versions of Criminal Law effective until April 30, 2011. It changed to 25 years in the 2011 Amendment.

Being an accomplice rather than the prime culprit resulted in a significantly shorter sentence. According to the models, on average, an accomplice spends approximately 64 fewer months in prison.

#### ***2.4.1.5 Actively Pay Back and Recover Loss***

It seems that courts distinguish the motives behind restitution when assigning punishment. Actively paying back the illegal income is an initiative taken by the criminals or their family and is not ordered by the court. The coefficient indicates a reward of 8 fewer months in prison for such initiatives. *Recovering the losses by the court*, in contrast, was not initiated by the corrupt officials. The court regards this as a complementary punishment to imprisonment. Such restitutions are not rewarded likely due to the social costs incurred by investigation and collection agencies to recover the loss. In these cases, punishment in the form of imprisonment was even longer, though this result was not statistically significant.

#### ***2.4.1.6 Gender, Being Retired, and Relatives***

Most people charged with corruption are male, accounting for 92% of the public servants in the dataset. In accordance with models 6-8, women are sentenced to at least 10 months fewer than their male counterparts when other conditions are equal.

There are no statistically significant differences between retirees and those still in the workforce. This is likely due to a mixed effect from two factors, seriousness of the crime and respect for the seniority. On the one hand, prior to the anticorruption efforts during Xi's term starting around 2014, retirement is almost equivalent to "landing safely" in terms of exemption from punishment (Manion 1993, Wang 2015). Only those corrupt retirees who had serious offenses were traced and subject to trials during the period covered in the dataset; hence, a more severe punishment is expected. On the other hand, traditionally, older criminals or retired officials face a reduced penalty. It was de facto implemented until explicitly stated in the 2011 Amendment of the Criminal Law. Criminals over 75 years old may be given a lighter or mitigated punishment ("Zhonghua" 2012). Nevertheless, these cases, where retirees are subject to punishment, sent out a signal that retirement is no more an asylum for corruption.

A similar signaling effect is achieved by sentencing relatives. Spouses, children, siblings and even the mistresses of the corrupt officials were under legal punishment, though less significantly.

### 2.4.1.7 *Interactive Terms of Corruption Amount with Tipoff and Another Province*

When using Model 7 as the baseline model, the interactive terms are included in the regression analyses. Appendix B presents the OLS regression results. The interactive term of total corruption amount and providing tips to investigators regarding other criminals is significant at  $p < 0.05$  level. The coefficient 5.4 months offsets the punishment reducing effect of providing tips. Another significant interactive term is between total corruption amount and the sentencing being held in another province. The coefficient is -10 months, which lessened the severity of punishment if the sentencing was issued by judges in another province for senior public officials. Wald test is performed to test the joint significance of the interactive terms and the results are statistically significant. The interaction terms with the quadratic form of the total corruption amount is not significant.

Appendix C calculates the effects of variables when including these interactive variables. The diagonal numbers indicate that for a one percent increase in the total amount of corrupt income, the prison time would increase dramatically if sentenced in another province without providing tips. At the same time, if sentenced within the province, providing tips were punished much more leniently.

In summary, for the fixed-term imprisonment penalty, factors influencing the penalty decision go beyond the amount of money taken through corrupt means, which is the only criterion stipulated in the Criminal Law. As the quadratic function suggests, a smaller amount taken from corruption is positively associated with the number of months sentenced; however, if the amount is over CNY 273 million *yuan*, such a positive association was replaced with a negative association. A higher amount of corruption resulted in a less stringent penalty.

Political rank represents another important factor. Higher ranked criminals face harsher penalties than their counterparts in the lower ranks, *ceteris paribus*. However, if sentenced in another province, minister-level officials are likely to be sentenced more leniently. Take a further look at the scatterplot of the relationship between total corruption amount and rank, as shown in Figure 2.3. Apparently, higher rank is positively associated with a higher amount of corrupt income. As a result, the seemingly harsher punishment to highly ranked public officials is nevertheless offset partially by the parabola shaped relationship between corruption amount and imprisonment.

Other variables also affect the sentencing decision. Being non-public servants, providing tips against other criminals, being accomplices rather than perpetrators, actively paying back the illegal

income, and being female were associated with less severe penalties. However, confession, recovering losses by the court, being retired, and corrupt relatives did not affect the penalty.

Therefore, from the deterrence perspective, imprisonment sentencing in practice indicates an inconsistent application of the corruption amount criteria. It is a concave parabola shaped. Additionally, the practice of punishing public officials as well as highly ranked ones more severely intersects with the obscured application of the corruption amount criteria. In the next section, the extreme form of punishment, the death penalty, is examined empirically.

#### **2.4.2 Death Penalty and its Determinants**

The death penalty is stipulated in the Criminal Law to punish severe corruption with an amount greater than 100,000 *yuan*. A Probit regression model is used to test the empirical probability of a death penalty sentencing. Both with and without reprieve sentencings were used as dependent variables.

Table 2.7 shows that the total corruption amount, being a public servant, political ranking above the bureau level, and trial held in another province were positively associated with the probability of the death penalty. The interpretation is not straightforward in the Probit regression (UCLA, “Probit”). The constant is a large negative number, -5.200, if all other variables are 0. This is understandable; for an innocent person, when converting a z score of -5.2 to probability, the probability of receiving the death penalty is 0 (9.964e-08 to be exact).

To help interpret the coefficient, using the average value of these variables, as listed in the *Mean* column of Table 2.7, we calculate that when the marginal effect of the total corruption amount increases by 1%, the probability of the death penalty increases by 0.4%. The marginal effects of all the variables are listed in *dy/dx* column.

Table 2.7 Probit Regression of Death Penalty in Chinese Cases

	Coefficient	Mean	dy/dx
<b>Ln (Total Corruption Amount)</b>	0.490 *** (0.034)	4.173	0.004 *** (0.001)
<b>Public Servant</b>	0.506 *** (0.134)	0.679	0.005 ** (0.002)
<b>Ranking: Bureau and above</b>	0.275 * (0.118)	0.162	0.003 * (0.001)
<b>Confess</b>	0.063 (0.199)	0.114	0.001 (0.002)
<b>Tipoff during Custody</b>	omitted		
<b>Sentenced in Other Province</b>	0.710 ** (0.215)	0.015	0.006 * (0.003)
<b>Constant</b>	-5.200 *** (0.299)		
Pseudo R-square	0.413		
Prob>F	0.000		
Number of Observations	3284		

Note: Standard errors in parentheses; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$ .

Because most variables in the regression are dummy variables, valued 0 or 1, I use the following four examples to illustrate the probability of a death penalty sentencing in sentencing. If an above bureau-level public servant is involved in a corruption case with an amount at the mean level, i.e., 649,000 *yuan*, being sentenced in another province would increase his probability of the death penalty by 4.4%<sup>13</sup>. If a public servant is involved in the corruption case with an amount at the mean level and is sentenced in another province, his political ranking above the bureau level would result in a 2.4% higher chance of receiving the death penalty.

What is the likelihood of receiving the death penalty for the most corrupt individual in the dataset, who has a total corrupt income of over 3 billion *yuan*? The substantial probability of issuing death penalty in a specific case is also informative. Being an SOE manager, below the bureau level, and sentenced within his province, he has an 85% chance of receiving the death penalty. In reality, this very corrupt official, Yu Zhendong (Tiezzi 2014 ;Office of Public Affairs 2009), fled to the United States and was arrested in Los Angeles and sentenced in the Nevada

<sup>13</sup> To calculate the probability, use the value of each variable to calculate the z-score. Then convert it back to the probability value. The difference between the calculated probability, when using 0 and 1 for the dummy variable, is reported. This method is used to calculate probabilities in all cases in this section.



District Court. He was repatriated to China with the condition that he only receive 12 years of imprisonment as sentenced initially by the U.S. District Court.

Recall the 100,000 *yuan* threshold as stipulated in the Criminal Law. In the dataset, 2640 of 3341, i.e., 79% of cases involve corrupt incomes larger than 100,000 *yuan*. For an above-bureau level public servant involved in a corruption case who confessed and was sentenced within the province, a corrupt income of 100,000 *yuan* will result in only a 0.05% chance of receiving the death penalty. This is a very small probability that significantly deviates from the spirit of the law.

In summary, the death penalty is rarely used to punish corrupt officials with illegal income above the 100,000 *yuan*, as stipulated in the law. However, judges are more likely to issue death penalty as a form of punishment, when a greater corruption amount, public servant, and higher rankings are present in the case. Being public servant and rankings are not the criteria for issuing punishment the Criminal Law and yet play significant roles in both the imprisonment and the death penalty sentencings, as shown in the analyses of these two sections. This is one side of the coin. The other side is the difficulty of detecting public corruption and more so for higher level officials. In accordance with the theoretical relationship between the severity of punishment and the probability of detection and punishment, probably unconsciously, judges compensate the low probability with a harsher punishment in these cases. To test this hypothesis, I use an inverse measurement of the probability of punishment --the duration of corruption as a proxy in the next section, to show the role of probability of punishment.

### **2.4.3 Duration of Corruption and its Determinants**

Let's start by reviewing the definitions and calculation of the probability of punishment. First, it refers to a clearance rate, "the ratio of offenses cleared by convictions to all offenses" (Becker 1968). Secondly, it also equals to "the over-all probability that an offense is cleared by conviction" (Becker 1968). Applied to anti-corruption, the probability of punishment refers to the ratio of the convicted corrupt officials to all corrupt ones; it also equals to how likely a public official is punished if he engages in corruption. When using the first definition, it can be inaccurate because the denominator is hard to measure as many cases are not reported by victims. Moreover, only a few corruption cases involve victims, such as bribe extortion. In the absence of victim report, the denominator, how many have been corrupt, is even harder to know. We resort to the second definition to infer the probability of punishment.

Instead of directly measuring how likely a public official is punished, I use the duration of corruption to inversely measure the probability of punishment. A longer duration before a corrupt act being uncovered indicates a smaller probability of punishment. That is, if the probability is high, a corrupt individual is caught very quickly, whereas a low probability indicates that the corrupt individuals are free for an extended duration. The length of duration facilitates comparing probabilities directly.

Calculation of the duration of corruption is feasible. Many cases in the dataset disclose the time when a convicted corrupt official started the corrupt act. The time at which the investigation was initiated is coded as the end time<sup>14</sup>. The difference is the duration. Although the duration of corruption is calculated regarding the first corrupt act till the time of investigation, since corrupt behavior rarely stopped voluntarily, it represents a period of continual corruption as well. Indeed, in very few cases, corruption is a one-shot crime. Most corruption did not end until the investigation was initiated by either CDI or PP. Some individuals stopped corrupt activities involuntarily when leaving lucrative positions, such as being transferred to positions without substantial power or simply due to retirement.

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<sup>14</sup> News reported the investigation time for most bureau level and above public officials. In case such data is missing for lower ranked officials, court sentencing time is used in these cases. The duration for the lower ranked officials therefore biases toward being longer. Such bias does not affect the comparison between political rankings. The results indicate a shorter duration for lower ranked officials.

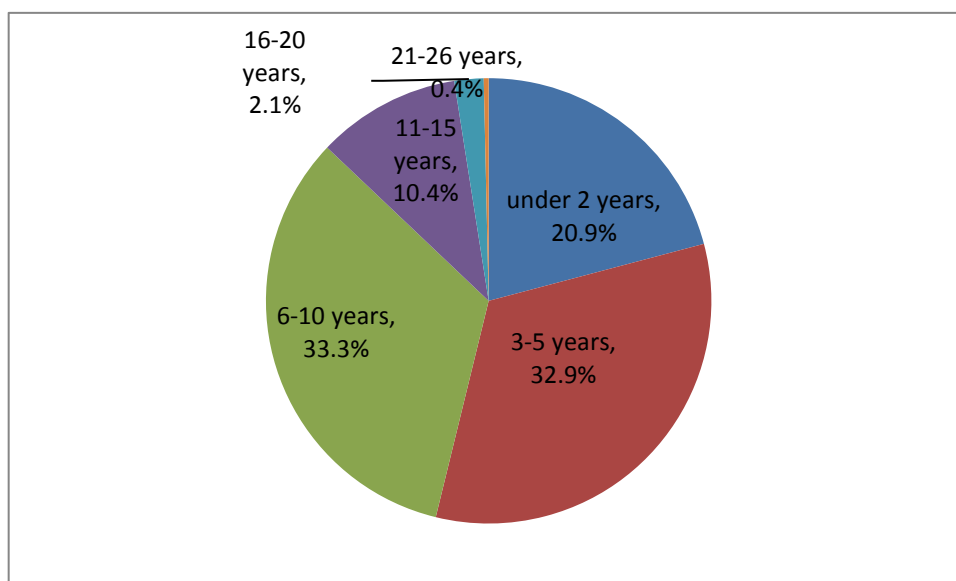


Figure 2.5 Durations of Corruption in Chinese Cases by Categories  
(unit: percentage)

As measured by the duration in years, corrupt acts of a corrupt official lasts for 5.8 years on average, as shown in the previous Figure 2.4. Categorically, Figure 2.5 shows that two thirds of the corruption lasted between 3 to 10 years. Only 21% of the corruption criminals were punished within 2 years, while over 10% of the corruption cases lasted from 11 to 26 years. Table 2.8 presents the case numbers as well as the percentages of the corruption duration. For 438 public officials which account for about 12.9% of total cases, corruption lasted for over 10 years. Among them, 12 officials were not punished until two decades later.

Table 2.8 Duration of Corruption of Chinese Cases

	case number	percentage
under 2 years	708	20.9%
3-5 years	1117	32.9%
6-10 years	1128	33.3%
11-15 years	354	10.4%
16-20 years	72	2.1%
21-26 years	12	0.4%

When parsing through the lens of political rankings, a longer duration of corruption is associated with a higher rank, as shown in Figure 2.6. A longer duration indicates a lower probability of punishment. This explains the puzzling results in the previous sections, i.e. more highly ranked officials were sentenced to a longer duration in prison and were more likely to receive the death penalty. Judges probably use severe penalties to compensate for a low probability of punishment. Figure 2.6 shows that as the rankings increased from the village or community level (code 101) to the vice national level (code 112), the duration of corrupt activities also increased. The standard deviation within both bottom ranking officials and top officials is small, which means that corruption by a lower ranked official is more easily discovered than the corrupt act by a higher ranked official. Therefore, even though there is no official criteria using political rankings for punishing corruption, judges compensate the low probability with harsher punishment<sup>15</sup>, or issue harsher punishment to allow for low probability<sup>16</sup>.

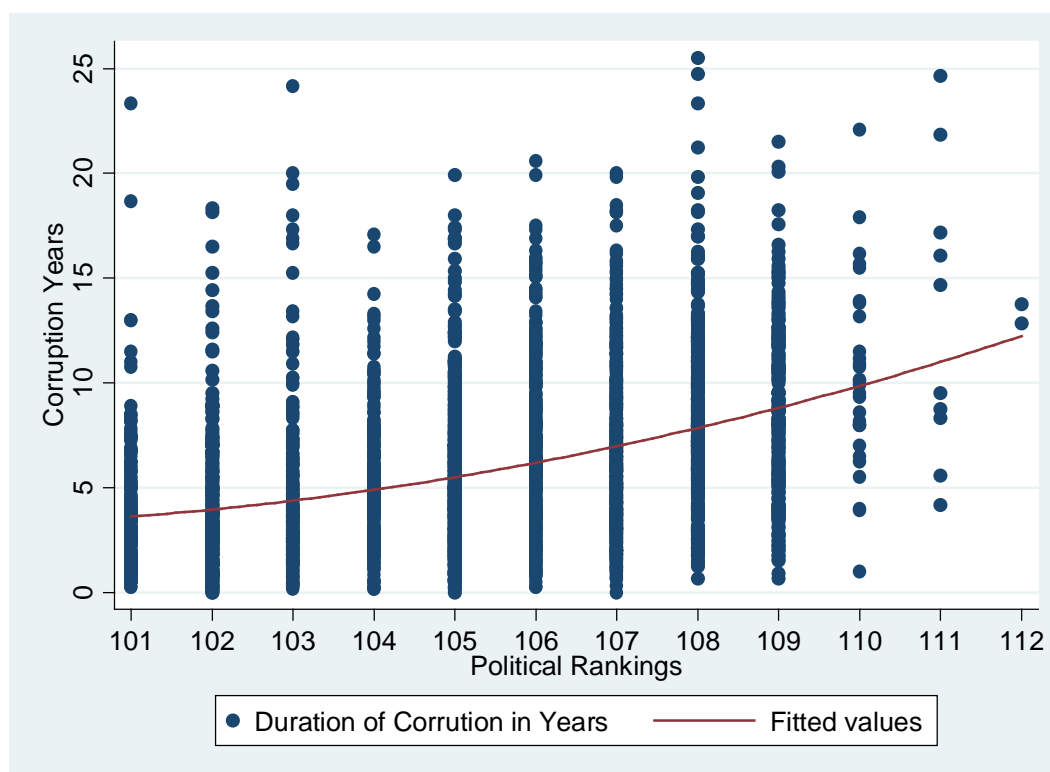


Figure 2.6 Duration of Corruption for Different Political Ranks in China

<sup>15</sup> This is probably done unconsciously. Future experiments can be conducted to examine such tendency in judicial personnel.

<sup>16</sup> High probability of punishment results in more convictions. If the number of corrupt public official is overwhelmingly large, it could affect public confidence in the ruling ability of the government. I believe this is less likely the case, because judges are more law enforcers rather than institutional designers in general.

Cox survival analysis is a good statistical tool to infer the “survival” probability of a corrupt official before being punished (Greene, 2008, p934-936). Cox proportional hazard regression, or Cox survival analysis was initially developed in the biomedical sciences to observe the time to death (UCLA, “Survival”). It is used to analyze the duration between a treatment and an event, such as from the time of organ transplantation to death. The probability of death can be estimated according to different points of time after the treatment. It often takes on the “bathtub” shape (UCLA, “Survival”). That is, the high probability of death during the transplantation operation levels off during the period immediately following the operation. The probability then gradually increases.

Table 2.9 presents descriptive statistics for Cox survival analysis of corruption duration. The duration lasts from 0 to 306 months (26 years). The youngest official began corrupt activities at 20 years old, while the oldest began at 64. The corrupt activities ended at 77 for the oldest, who served as the president of an SOE.

Table 2.9 Descriptive Statistics of Variables in the Survival Analysis of Chinese Cases

<b>Variable Name</b>	<b>Number</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Unit</b>
Duration in months	3391	69.67	47.18	0	306	month
Duration in years	3391	5.81	3.93	0	26	year
Age when corruption began	1760	42.50	7.28	20	64	years old
Age when corruption ended	1843	49.15	7.87	22	77	years old
Average Amount of corruption per year	3152	279.763	2,395.069	0.109	51,829.790	10,000 <i>yuan</i>

The survival analysis in Table 2.10 shows the hazard ratios of the factors of corruption. Models 1-3 indicate that as the total corruption amount increases by 1% and all other variables are held constant, the rate of conviction decreases by  $(100\% - 91\%)=9\%$ . If the political ranking increases by one class while holding all other variables constant, the rate of conviction decreases by  $(100\%$

– 89%)=11%. An elected official has a decreased rate of conviction by (100%- 87%)=13% compared with his unelected peers, *ceteris paribus*. Interestingly, if the corruption scheme involved more than one person, while holding all other variables constant, the rate of conviction increases by (122% – 100%)=22%. For a retired official, while all other variables are held constant, the rate decreases by (100% – 73%)=27%.

Table 2.10 Survival Analysis of Corruption Duration of Chinese Cases with Cox Proportional Hazard Regression

	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Ln (Total Amount obtained through Corruption)</b>	0.906 *** (0.010)	0.905 *** 0.010	0.905 *** 0.010	0.915 *** (0.014)	0.893 *** (0.014)
<b>Political Ranking</b>	0.885 *** (0.008)	0.890 *** (0.008)	0.892 *** (0.008)	0.854 *** (0.011)	0.943 *** (0.013)
<b>Elected</b>		0.876 * (0.045)	0.873 ** (0.045)	0.780 *** (0.051)	0.825 ** (0.055)
<b>Collusion</b>		1.222 *** (0.058)	1.229 *** (0.058)	1.180 * (0.083)	1.254 ** (0.088)
<b>Retired</b>			0.725 ** (0.095)	0.428 *** (0.067)	1.134 (0.179)
<b>Age when Corruption Began</b>				1.054 *** (0.004)	
<b>Age when Corruption Ended</b>					0.956 *** (0.004)
LR chi2(2)	500.94	525.19	531.88	423.74	387.76
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Observations	2951	2951	2951	1598	1598

Notes:

1. The hazard ratio is reported with standard errors in parentheses.
2. Robust standard errors in parentheses; † denotes  $p < 0.1$ ; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$

Models 4 and 5 investigate the effect of the initial and ending age on the duration of corruption. Interpreted statistically, as an official defers one year to becoming corrupt and all other variables are held constant in model 4, the probability of punishment increases by  $(105.4\% - 100\%) = 5.4\%$ . In model 5, the hazard ratio suggests that if an official can manage one more year to continue corruption and all other variables are held constant, the probability of punishment decreases by  $(100\% - 95.6\%) = 4.4\%$ . Stated plainly, the coefficients suggest that in order to lower the probability of punishment, a public official should start corruption at a younger age and continue to be corrupt as older as possible.

One might wonder how the personal attributes affected the probability of punishment. In most cases, the corrupt officials only accepted voluntary bribes as opposed to extortions. They took efforts to conceal the illegal income, such as by hiding money under the bed, in an underground vault, beneath a pond, in others' account, or even in the water tank of a toilet. They used resources to bribe a higher ranked official to become a protégé, seek powerful positions and influence the investigation with political power, silence whistleblowers, use money to cut off investigation leads, prepare escape plans, send family members to foreign countries, or other acts. The probability of being punished is thus substantially reduced.

In summary, the result of the survival analysis suggests a set of disincentives completely contradicting to the spirit of the Criminal Law. It shows that in order to avoid punishment through lowering the probability of punishment, public officials could start corruption at a younger age, accumulate more corrupt income, aim at a higher political ranking, seek elected positions, perform the corrupt acts solo, continue to perform the corrupt acts to as old an age as possible, and hopefully sail into the retirement asylum.

## **2.5 Conclusion and Discussion**

The Criminal Laws in China are very stringent on corruption, with the aim to create a strong deterrence effect. Such raised severity of punishment up to the death penalty is designed to compensate for a low probability of punishment. Despite the evidence in the written laws, law enforcers in practice also compensate for the low probability of punishment with raised severity. The empirical data shows that public officials and highly ranked officials are punished more harshly and have a higher probability to be punished with the death penalty. This deviates from the anticorruption laws that require using amount gain from corruption as the criteria for issuing

punishment. The reason behind this deviating practice is the low probability of punishment. Duration of corruption is longer with a higher political ranking. Cox survival analysis of the case data indicates that being public officials and having higher ranking, corrupt public officials can escape punishment for a longer period and enjoy a much smaller probability of being punished. Therefore, from the written law to the law enforcement practice, a raised severity of punishment is used to compensate the low probability of punishment.

However, the overall corruptness of China suggested an ineffective deterrence created by the high severity and low probability combination. The raised severity up to the death penalty leads to an inconsistent implementation of the laws. The empirical analysis shows that corrupt officials with larger amount of corrupt income, the only criteria for determining punishment as stipulated in the Criminal Law, did not receive harsher penalties. The graphed relationship between the total corruption amount and the severity of punishment is that of a concave parabola in China. That is, beyond the maximum point, more corruption amount reduces the severity of punishment, because the corrupt officials have more resources to spend to avoid punishment.

The extreme form of punishment, the death penalty, is rarely executed. This designed deterrence to corruption by using a severe punishment was in reality offset by the unwillingness of enforcement. In the dataset, 2640 of 3341 public servants, i.e., 79% of cases met the 100,000 *yuan* threshold as stipulated in the Criminal Law for the death penalty. And yet, only 10 were sentenced to the death penalty, and 124 were sentenced to the death penalty with reprieve, that eventually will turn to be a life imprisonment. Among the ten death penalty cases, one is still under review by the SPC. In sum, only 0.3% of the cases that met the criteria were executed. This low *de facto* probability of punishment significantly harms the deterrence effect of the codified law.

The empirical analyses show an incentive structure of punishment indeed encouraged corruption. When offered bribes and embezzlement opportunities continually, a public servant could reduce the severity of punishment and lowered the probability of punishment by starting corruption at a younger age, taking a larger amount of illegal income, pursuing highly ranked and elected positions, and seeking asylum from seniority and retirement. This objective incentive system impacts over the perception of the severity and especially the probability of punishment. As a result, the enforcement element of the anticorruption institutions shaped public officials' corrupt behavior. In chapter 4, I will discuss more with cases the role of subjective probability of punishment in anti-corruption.



From the side of the law enforcement, it is not only very costly but structurally difficult to effectively investigate and punish corruption in China. Lacking court and procuratorate independence (Liu 1983; Manion 2004 “Corruption by Design”) complicates corruption detection and investigation. Positive changes have been underway in the current administration. CDIs, the prime anti-corruption organization within the Communist Party of China, has gained a degree of independence under the leadership of the Secretary of the Central Commission for Discipline Inspection, Wang Qishan. In March 2018, a Supervision Commission was established to replace the function of the Ministry of Supervision but with a national status, no more a subordinate office under the State Council. A worldwide judicial assistance network through bilateral treaties is under construction to extradite corrupt citizens who flee abroad. Despite this progress, punishing corruption consistently remains difficult. Local trials by provincial or city courts can often result in inconsistent penalties. Moreover, as more corruption cases have emerged with larger amounts of illegal income, a debate over the question of the criteria for punishment emerges: should the criteria for punishment keep up with the inflation rate and the growth of wealth (Li 2011)? The starting amount that is subject to legal punishment, as stipulated in the Criminal Law and the judicial explanations, has increased from 1,000 *yuan* in 1979 to 2,000 *yuan* in 1988 to 5,000 *yuan* in 1997 (Yang 2004). A specific amount was deleted from the 2015 amended version of the Criminal Law. One would think that the criteria for the death penalty would also inflate accordingly. Consistent criteria for assigning the death penalty with reprieve, life imprisonment, and fixed terms should be stipulated in laws and regulations rather than left to the discretion of local judges.

The statistical analysis of the case details shows the effect of enforcement characteristics on the incentive structure, which could offset the effect of formal constraints originating from the laws. A written law that is designed too stringently prevents actual implementation. Few judges are willing to issue and execute the death penalty even if the criminal has stolen millions of *yuan*; too many death penalties would have to be carried out. Therefore, the law provisions are only symbolic and are not taken seriously by law enforcers or potential criminals. The key to successful anti-corruption efforts lies in the fair and consistent enforcement across all factors. Rather than relying of the deterrence effect, which stems from the death penalty, China should enhance enforcement, improve the probability of detection, and enhance the overall quality of governance at all levels to curb corruption.

## CHAPTER 3. PUNISHMENT OF PUBLIC CORRUPTION IN THE UNITED STATES

### 3.1 Literature Review

The United States ranks highly in anti-corruption surveys and is generally perceived to have low levels of corruption. The Transparency International 2016 Corrupt Perceptions Index ranks the United States as the 18th-least corrupt nation of 176 studied (Transparency International 2017). The World Democracy Audit's 2014 survey ranks the United States as the 15th-least corrupt and the 14th-most democratic nation (Bronstein 2016). Although the United States ranks highly in its efforts to combat corruption, there are nevertheless many concerns regarding its integrity system, such as legal loopholes to use shell corporations for money laundering, campaign and political financing, and defense expenditures, which present corruption risks (Bronstein 2016). Furthermore, convictions of high-ranking federal officials, along with ethical violations punished at the civil and administrative level, are not uncommon. Over the past two decades, 14,644 corrupt public officials were convicted, among whom 55%, 13%, and 32% were federal, state, and local officials, respectively (PIN 2016)<sup>17</sup>.

Anti-corruption efforts in the United States at the federal level have undergone a major change since the 1970s<sup>18</sup>. Anechiarico and Jacobs (1994) traced the history of efforts to control corrupt behavior by public officials in the United States. They established four phases of corruption control, ranging from 1870-1900, 1900-1930, 1930-1970, and 1970-present, naming them anti-patronage, progressive (professionalism), scientific management, and panoptic vision. The panoptic vision, which is currently predominant in large governments in the United States, "assumes that officials will succumb to corrupt opportunities and advocates comprehensive surveillance, investigation, and target-hardening strategies (pp. 466)." Corruption is no longer primarily attributed to incompetence, absenteeism, laziness or partisan influence, but to inadequate rules, threats, and controls. Law enforcement is hence heavily emphasized. The Watergate scandal and the fiscal crisis of the mid-1970s are key factors that triggered anti-corruption efforts and

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<sup>17</sup> The public integrity section of the US Department of Justice reports to Congress annually. The report is hereafter referred to as PIN with the year in the reference. For example, PIN 2016 refers to the 2016 Report to the Congress by the Public Integrity Section. <https://www.justice.gov/criminal/pin>.

<sup>18</sup> The content of this section is based on my previously published work. Linjing Wang. 2012. "Political Corruption, Punishment, and Institutions in American States." GSTF Journal of Law and Social Sciences, Vol.1, No.1, 73-38.

added fiscal accountability to the purview of administrators. “The panoptic vision has led to the expansion of anti-corruption institutions and strategies, and to enhancement of the authority of anti-corruption units and personnel (Anechiarico and Jacobs 1994, pp. 468).” Measures adopted include corruption vulnerability assessment<sup>19</sup>, auditing, and internal surveillance. The core of the current American strategy for preventing corruption involves applying increasing amounts of punishment (Klaw 2012). Mail- and wire-fraud statutes have been the principal tools used by federal prosecutors to combat corruption in state politics (Cohen 2013).

States are not homogeneous and differ dramatically in anticorruption strategies. Related literature presents four main explanations for corruption in American states. First, historical and cultural explanations of corruption rely on the socioeconomic and demographic characteristics of states. For example, urban political machines have facilitated the rise of immigrants to power in the United States (Greenstein 1964). Empirical studies (Meier and Hilbrook 1992, Alt and Lassen 2003) found urban populations to be highly correlated with greater corruption. A higher education level is negatively associated with corruption, calculated using the percentage of the population with either a high school diploma or college degree to measure education. The unemployment rate is also negatively related to corruption (Goel and Nelson 1998). The origin of the immigrants also matters. Meier and Hilbrook (1992) found that states with Irish and Italian immigrants were less corrupt, and Alt and Lassen (2003) found that Scandinavian ancestry had a similar effect. Second, the size of the state and the state government plays an important role: the larger the government, the more expenditures and more personnel and thus a greater potential for state corruption.

Third, political institutions produce mixed results. Meier and Hilbrook (1992) found that high voter turnout and party competition reduced corruption and that the percentage of black elected officials led to more corruption convictions due to racial targeting (pp. 150). No statistically significant effects were found for campaign report filings, state centralization, initiative requirements, or referendum requirements; however, single-purpose special districts (water districts, public corporations) appeared to be related to corruption, perhaps because they control substantial public funds and thus present greater opportunities. Notably, using state house reporters’ perceptions of public corruption to measure corruption, Alt and Lassen (2003) found

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<sup>19</sup> Corruption vulnerability assessment measures the potential for corruption inherent in an agency’s operations and organization. For example, the New York City Comptroller’s Office requires agency heads to conduct an annual review of the adequacy of internal controls. Based on these results, specific agencies and operations were selected for intensive audits, which are more costly and time-consuming (see Anechiarico and Jacobs 1994, pp 468-469).

that open primaries, allowing initiatives directly on the ballot, and campaign spending restrictions significantly reduce corruption. They did not find a significant impact for political competition or state gubernatorial term limits.

Fourth, the attributes of law enforcement in states played an important role. Seminal articles on crime, punishment, and law enforcers (Becker 1968, Becker and Stigler 1974) have revived an interest in the importance of law enforcement and the substituting effects of the severity of punishment for the probability of capture. Fines are good substitutes for imprisonment as punishment because fines compensate for the social loss due to the crime. Heavier punishment and greater law enforcement are expected to lower criminal activities. New York and California had more corruption cases, with a total of more than 200, while Vermont had only 1 case in three years: 1997, 2002, and 2007 (Wang 2012). The difference is partly due to the size of the government. When measured by the average corruption cases per 100,000 employees, Alaska, Louisiana, and Alabama are the most corrupt states, while New York and California ranked No. 17 and No. 30 (Wang 2012), respectively. Responding to overwhelming corruption cases, states such as New York and California incorporate multilevel supervision, prosecuting as well as training commissions. Ironically, the New York City Department of Investigation, established in 1873, was the first dedicated anti-corruption agency in the United States and among the first worldwide (Leen et al 2016). Many other cities, such as Chicago and Philadelphia, have emulated its model of inspectors general with strong investigative powers. New York City also pioneered a strong public campaign finance program based on matching grants in 1988, which has since been used as a model by the state of Connecticut and cities such as Miami and Los Angeles (Leen et al 2016). Similarly, California created a robust oversight system that includes the statewide Fair Political Practices Commission, and the state tends to do well in surveys on corruption risks. Moreover, numerous cities in California have substantive ethics commissions with significant powers (Jun et al 2017). In contrast, Vermont has few corruption laws or enforcement mechanisms, relying on strong traditions of participatory democracy and civic engagement (McManus et al 2016).

However, empirical studies provide mixed results regarding the effectiveness of law enforcement in anti-corruption efforts. Resources on law enforcement include the U.S. Attorney, federal judges, police expenditures, state attorneys, the FBI, and other justice department employees, as well as the severity of punishment (Meier and Hilbrook 1992, Goel and Nelson 1998). These variables revealed slightly significant relationships, or, in contrast, negative

relationships between judicial strength and corruption convictions; in addition, harsher punishment<sup>20</sup> in the earlier period resulted in more corruption convictions in later years (Goel and Nelson 1998; Wang 2011).

Despite the heterogeneity of state anti-corruption institutions, all states have established oversight commissions in one form or another and have stipulated penal codes for corruption. Bribery is a felony in all states (Center for the Advancement of Public Integrity). However, embezzlement, misappropriation, influencing a public officer, accepting gratuities, official oppression or extortion, misuse of official or confidential information, and fraudulent or unlawful interest in a public contract are regarded differently and may be a felony, misdemeanor, civil penalty, or no specific violation depending on the state.

Most importantly, corruption offenses in most states are prosecuted at the federal level by the District Offices of United States Attorneys (Center for the Advancement of Public Integrity, Leen et al 2016, Jun et al 2017, McManus et al 2016, PIN 1978-2016). Although states have various definitions of corruption, legal prosecutions are taken at the federal level and are thus under the jurisdiction of federal laws. The definition of corruption in this dissertation is confined to the legal definition, and most prosecutions are conducted under federal laws and prosecuted in federal courts. Thus, the following sections focus on federal anticorruption laws and cases. Note that the corrupt public officials prosecuted nevertheless include federal, state, and local public officials.

The following section provides background information for corruption cases, including the types of public sector corruption, punishments for corruption, anti-corruption agencies, and the legal prosecution process in the United States. Section 3 introduces the main variables and hypotheses in accordance with theories and policies. Section 4 explains the regression results with two sets of models on imprisonment and the duration of corruption, respectively. Section 5 concludes with a discussion.

### **3.2 Definition of Corruption and Anti-corruption Measures in the United States**

This section briefly reviews the commonly used statutes regarding corruption in criminal laws and administrative laws and rules, agencies in a decentralized anticorruption system, and

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<sup>20</sup> The mean maximum sentence for all types of crime in the state was used as a proxy for punishment.

the process of corruption prosecution. These provide background information when analyzing punishments for public sector corruption in the United States.

### **3.2.1 United States Codes regarding corruption**

Anti-corruption efforts in the United States at the federal level consist of strong and highly-developed anti-corruption laws and decentralized enforcement agencies. Anti-corruption laws include the provisions in the United States Code (U.S.C.), the Code of Federal Regulations, as well as the Code of Official Conduct of the House of Representatives, the Senate Code of Official Conduct, Code of Ethics for Government Service, the Code of Conduct for United States Judges, and the Code of Conduct for Judicial Employees. The U.S.C. is the foundation for most legal prosecutions. Other codes represent administrative laws and rules, which provide guidance to public officials in various government branches.

The U.S.C. prohibits unethical behaviors and provides fundamental guidance for anti-corruption prosecutions. Most corruption-related laws are under Title 18-Crimes and Criminal Procedures (hereafter referred to as “18 U.S.C.”) and under Title 5-Government Organization and Employees (hereafter referred to as “5 U.S.C.”). Although the United States adopts the common law jurisdiction, 18 U.S.C. and other corruption-related laws serve a role that is similar to the Criminal Laws in the civil law jurisdiction. Chapter 11 of 18 U.S. C. focuses on bribery, graft, and conflicts of interest, which include sections 201 to 227 (Legal Information Institution, “18 U.S.C. Chapter 11”). The following sections are most commonly referred to in corruption prosecutions.

18 U.S.C. § 201 details the provisions regarding the bribery of public officials and witnesses. Both taking and offering bribes are subject to punishment. Public officials are defined broadly. “Member of Congress, Delegate, or Resident Commissioner, either before or after such official has qualified, or an officer or employee or person acting for or on behalf of the United States, or any department, agency or branch of Government thereof, including the District of Columbia, in any official function, under or by authority of any such department, agency, or branch of Government, or a juror”(Legal Information Institution, “18 U.S.C.§ 201”). Forms of punishment for bribery include (1) fines, issued under this title or not more than three times the monetary equivalent of the thing of value, whichever is greater; (2) imprisonment for no more than fifteen years; (3) both a fine and imprisonment; and (4) disqualification from holding any office of honor, trust, or profit under the United States.

18 U.S.C. § 209(a) stipulates that the salary of government officials and employees is payable only by the United States. Except for those special situations listed in the section, other supplements to the salary of federal employees are deemed illegal.

18 U.S. C. § 1001 prohibits falsification, concealment, or cover-ups of material facts by any trick or scheme. Many public officials intentionally or unintentionally fail to disclose incomes, personal loans, or other financial relations in accordance with the Ethics in Government Act. Forms of punishment include (1) fines; (2) imprisonment for no more than 5 years, or, if the offense involves international or domestic terrorism, imprisonment of no more than 8 years; or (3) both fine and imprisonment.

18 U.S. C. § 371 is cited in cases where public officials and individuals plead guilty to conspiracy to commit offense or defraud the United States. For example, Richard Hanna pleaded guilty to conspiracy to accept bribes and defraud the United States (PIN 1978). Related punishments include a fine, imprisonment lasting no more than five years, or both.

18 U.S.C §641 is in regard to embezzlement, i.e., converting public funds for personal use. Depending on the amount of embezzled money (greater or smaller than \$1,000), punishment is no more than either 10 years or one year of prison, a fine, or both. For example, Linda Ann Carroll converted \$10,900USD of USICA funds for her personal use. She pleaded guilty, paid a restitution of 9000 and was sentenced to 2 years of supervised probation (PIN 1983, p16).

18 U.S.C. §1961-1968 (Chapter 96), also known as the Racketeer Influenced and Corrupt Organizations (RICO) Act, allows the government to prosecute persons involved with organizations that engage in racketeering. This is broadly defined as any act or threat involving murder, kidnapping, gambling, arson, robbery, bribery, extortion, dealing in an obscene matter, or dealing in a controlled substance or listed chemical. RICO is, as the Supreme Court has noted, "a carefully crafted piece of legislation"(US Court of Appeals for the Seventh Circuit, 1981). Since public official corruption and the subversion and undermining of public agencies is one of the primary tools of organized crime, Congress used strong language to declare war on crime, corruption, subversion, and the undermining of public officials (US Court of Appeals for the Seventh Circuit, 1981). The corresponding penalties include fines, imprisonment of no more than 20 years (or for life if the violation is based on a racketeering activity for which the maximum penalty includes life imprisonment<sup>21</sup>), or both, and shall forfeit to the United States any property

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<sup>21</sup> Life imprisonment is issued when death results in the case, for example in 18 U.S. Code § 1952.

and interests in violation of 18 U.S.C. § 1962, irrespective of any provision of State law. Note that the RICO Act provides a de facto superiority of federal law to the anti-corruption provisions in state laws.

18 U.S.C. 1951, also named the Hobbs Act, is often cited when extortion occurs in bribery cases. Extortion means the obtaining of property from another, with his consent, induced by the wrongful use of actual or threatened force, violence, or fear, or under color of official right. Violation of this section results in a fine or imprisonment of no more than twenty years, or both. The state of mind of the extorted victim is an essential element of the crime charge. Extortion "under color of official right" is the wrongful taking by a public officer of money or property not due him or his office, whether or not the taking was accomplished by force, threats, or the use of fear (Sandler 1974). Federal Rules of Evidence 803 lists exceptions to the Rule Against Hearsay (Legal Information Institution, "Rule 803"). The third exception is regarding a then-existing mental, emotional, or physical condition. "A statement of the declarant's then-existing state of mind (such as motive, intent, or plan) or emotional, sensory, or physical condition (such as mental feeling, pain, or bodily health), but not including a statement of memory or belief to prove the fact remembered or believed unless it relates to the validity or terms of the declarant's will."

18 U.S. Code § 1952, also known as the Travel Act, prohibits interstate and foreign travel or transportation in aid of racketeering enterprises. Specifically, the law prohibits the travel or use of mail services with the intent to distribute racketeering proceeds or promote unlawful activity via interstate or foreign commerce. Violators are fined, imprisoned for no more than 5 years, or both. If using violence, the violators are fined, imprisoned for no more than 20 years, or both, and if death results they are imprisoned for any amount of years or for life.

18 U.S.C. § 1509 prohibits acts obstructing court orders. Whoever, by threats or force, willfully prevents, obstructs, impedes, interferes with, or willfully attempts to prevent, obstruct, impede, or interfere with, the due exercise of rights or the performance of duties under any order, judgment, or decree of a court of the United States, shall be fined, imprisoned no more than one year, or both. Another law often cited in corruption cases includes 18 U.S. C. § 1623, which prohibits false declarations before a grand jury or court.

5 U.S.C. consists of statutes regarding government organization and employees. Chapter 11 of 5 U.S.C. is commonly known as the Civil Service Reform Act (CSRA) of 1978. Merit systems replaced the original "spoils system" in which the hiring and firing of Federal Government



workers was based on political loyalties. CSRA therefore enhances managers' ability to wisely manage while preserving the principles of merit and fairness and the legal and constitutional rights of federal employees and applicants (U.S. Merit Systems Protection Board 2017).

5 U.S.C. § 7353 prohibits government employees of all three branches from soliciting or accepting anything of value from a person doing business with the individual's employing entity or from someone whose interests may be substantially affected by the performance or nonperformance of the individual's official duties. Punishment includes appropriate disciplinary and other remedial action in accordance with any applicable laws, executive orders, and rules or regulations.

5 U.S.C. APP. 1 §§ 101-11, also known as the Ethics in Government Act, requires certain government employees from all three branches of government to file financial disclosure reports.

5 U.S.C. § 7351 prohibits the giving and receiving of gifts by federal employees in certain situations, such as accepting a gift from an employee receiving less pay or giving a gift to an official superior. Violators are subject to appropriate disciplinary action by the employing agency or entity.

Additionally, 52 U.S.C. §10307 lists prohibited voting acts. Election fraud involves a failure to permit casting votes, false information in registering or voting, voting more than once, and other infringements. Punishment can be a fine of no more than \$10,000, imprisonment of no more than five years, or both.

The provisions in the U.S.C. provide a legal foundation for anti-corruption prosecutions. In accordance with the statutes, various independent anticorruption agencies were established and provide resources to prosecute corrupt public officials at all levels of government.

### **3.2.2 Anticorruption Agencies**

The anti-corruption enforcement system of the federal government is uniquely decentralized. The system consists of independent agencies that are responsible for education, oversight, investigation and prosecutions, respectively, in all three branches.

Anti-corruption education and oversight functions in the executive branch are performed by the Office of Government Ethics (OGE), independent inspectors (IG), the United States Office of Special Counsel (OSC), and the Government Accountability Office (GAO). The OGE is the

primary federal oversight body, which is responsible for training, guidance and compliance on issues of public ethics. The OGE refers violations to IGs for disciplinary matters.

Seventy-three independent IGs embedded among various federal agencies are at the frontline of integrity oversight, corruption prevention, and anti-corruption law enforcement (Bronstein 2016). Audits were not used until 1989, when the inspector general began to play a role in anti-corruption efforts (PIN 1989, p19). On November 15, 1989, Joseph F. Rydzewski was sentenced following his guilty plea to three counts of paying illegal gratuities to several Deputy United States Marshals in the Central District of California, in violation of 18 U.S.C. § 201(c). This is the first criminal conviction resulting from an investigation by the new Office of the Inspector General. Thereafter, IG's audits successfully discovered many officials who attempted to conceal their corrupt activities. The GAO uses audits to investigate the efficiency and effectiveness of federal government expenditures.

Whistleblower Protection Ombudsmen were created by the 2012 Whistleblower Protection Enhancement Act. These officials are designated by the IGs and are responsible for educating public employees on prohibitions against retaliation for protected disclosures, as well as their rights and remedies related to such retaliation (Bronstein 2016). The OSC is responsible for safeguarding the federal merit system, which seeks to protect employees from discrimination, nepotism, and whistleblower retaliation. Additionally, the Defense Criminal Investigative Service investigates public corruption within the Department of Defense.

The legislative oversight bodies include the Senate Select Committee on Ethics, House Committee on Ethics, and Office of Congressional Ethics (OCE). The former two committees investigate and take disciplinary actions against violations of the Codes in their respective chambers of congress. OCE is an investigation office that reviews allegations of misconduct against representatives and their staff members with a minimal fact-finding role.

In the judicial branch, the Circuit-Level Judicial Councils investigate complaints against federal judges. The Administrative Office of the United States Courts creates administrative financial disclosure guidelines for the judicial branch.

Anticorruption prosecution primarily resides in the Department of Justice (DOJ). Authorities specializing in anti-corruption prosecution include the Public Integrity Section (PIN), the U.S. Attorneys, and the FBI. The PIN of the Criminal Division of the DOJ leads federal prosecution efforts against elected and appointed officials at all levels of government for violations of federal

corruption offenses, often by partnering with one of the Offices of the United States Attorney (Bronstein et al 2016, PIN 1978-2016). The U.S. Attorneys, situated among 94 districts throughout the United States and its territories, prosecute federal crimes occurring in their districts, including public corruption cases at all levels of government. The Federal Bureau of Investigation (FBI) is responsible for investigating violations of federal criminal laws, including public corruption offenses. The Public Corruption Unit within the FBI's Criminal Investigative Division generally handles public corruption crimes at all levels of government (Bronstein et al 2016).

The PIN was created in 1976 to consolidate the Justice Department's oversight responsibilities for the prosecution of criminal abuses of the public trust by government officials. As the vast majority of federal corruption prosecutions are handled by the local United States Attorney's Office for the geographic district where the crime occurred, the PIN facilitates prosecution as a result of recusals, sensitive and multi-district cases, federal agency referrals, or special requests within the DOJ.

In addition to prosecuting individual cases, the PIN, in conjunction with the United States District Attorneys and attorneys from other sections, pursues targeted group corruption in operations, such as Operation Ill wind in 1989 and Operation Byte in 1992. The PIN prosecuted a number of cases stemming from Operation Boprot, the DOJ's wide-ranging investigation of corruption in the Kentucky state legislature. The litigation activities of PIN can be strongly affected by the budget and number of personnel. For example, the budget was sharply reduced in 1988, and the number of indicted and convicted public officials, especially at the federal level, was significantly fewer than the adjacent years.

In addition, the PIN serves as a legal advisor to the Integrity Committee of the President's Council on Integrity and Efficiency (PCIE) and the Executive Council on Integrity and Efficiency (ECIE). The PCIE/ECIE is a body composed of the Inspectors General of the various agencies in the executive branch of the federal government. The Integrity Committee of the PCIE/ECIE is charged by the executive order with handling allegations against inspectors general and senior members of their staff.

The PIN also assists in the implementation and execution of the DOJ's Ballot Access and Voting Integrity Initiative. The purposes of this ongoing initiative are to increase the Department's efforts to deter and prosecute election crimes and to protect voting rights. The Election Crimes Branch was created within PIN in 1980 to supervise the Department's nationwide response to

election crimes, such as voter fraud and campaign financing. Federal criminal statutes can be broadly applied to state and local violators. As long as federal candidates are on the ballot, federal criminal statutes can be applied to state and local voter fraud without proof of an actual effect on a federal campaign (Donsanto and Simmons 2007).

The PIN reports annually to Congress on the activities and operations of the section. The report usually consists of three parts: operational responsibilities, individual case briefs for all cases handled by the PIN in a given year, and statistics of federal prosecutions of corrupt officials by all District U.S. Attorneys. The categories of corruption include bribery, embezzlement, fraud, as well as election crimes and conflicts of interest. The case details provided in the reports are the source for the empirical analysis in section 3.3.

### **3.2.3 The corruption prosecution process**

Before proceeding to the empirical analysis, a brief introduction of the prosecution process is warranted. Anticorruption litigations usually begin with District US Attorneys or the PIN filing corruption charges against public officials. After the officials are formally indicted, some are then officially convicted in the federal courts and sentenced by judges. Many others are dismissed prior to the trial. Others are acquitted in the trial. Corrupt criminals are convicted either through pleading guilty or being proven guilty. The judges issue a formal judgment, which pronounces the punishment.

In accordance with the PIN annual report to Congress, most trials take place in the federal district courts. The defendant can appeal to circuit courts and the Supreme Court; however, the Supreme Court rarely hears these cases. The sentence usually takes effect while appeals occur.

The jury is a key component in corruption trials. Jurors determine whether there is sufficient evidence for a criminal trial to go forward. They examine evidence presented by a prosecutor, who issues indictments and investigates alleged crimes; the jury may then reach a guilty verdict. Corruption cases primarily include a petit jury to hear the evidence and determine a verdict after deliberation. Judges inform juries by providing instructions for the methods of making the decision. However, judges do not directly affect the conclusion. In some cases, when the petit jury cannot unanimously reach a conclusion, a hung jury is declared. In other cases, a grand jury is invited to evaluate the evidence.

Courts in the United States allow for plea agreements. If a suspect pleads guilty and is convicted, the criminal usually receives a reduced punishment. A guilty plea is a contract between the prosecutor and the defendant, who both relinquish the highest punishment and the chance for acquittal (Scott and Stuntz 1992). Such institutional design saves on the social costs of the investigation but also serves the purpose of punishing wrongdoings. For example, both officers W. P. "Pat" McMullan and Jimmy Drane Anderson entered plea agreements with the government that required their cooperation with the government's ongoing investigation into the collapse of a bank and related corrupt acts by officers in Mississippi (PIN 1986, p23). As another example, in return for Richard D. Ramirez' guilty plea, the United States agreed not to prosecute Ramirez for his alleged receipt of money and other favors from numerous individuals and business entities throughout the United States (PIN 1988, p23).

The following section provides variables and data details, as well as hypotheses in accordance with punishment theories.

### **3.3 Data and Hypothesis**

Individual level corruption case data are collected and coded from the Reports to Congress on the Activities and Operations of the Public Integrity Section for 1978-1992 and 2007. Most of these reports cover cases handled by the PIN during the calendar year. An exception is the 1978 Report, which was the very first report submitted in May 1979; this report thus covers the cases from March 1976 to May 1979.

I focus on the 1978-1992 period because it was the initial stage after the Ethics in Government Act of 1978 was in effect and after most anti-corruption offices were reorganized. I also include the 2007 data for a robustness check. The 2007 PIN report to Congress is substantially longer than the reports from the 1980s. One year alone generates 101 entries of corruption cases. The number of corruption cases handled by the PIN has increased, as has the punishment in terms of prison time issued by courts. However, the key concept behind the punishment, i.e., compensating for the loss of society, remains the same.

All cases are handled either solely by the PIN or in a shared operational responsibility between the PIN and a United States Attorney's Office. Cases that are handled exclusively by the U.S. district courts, i.e., without help from the PIN, are not included in the dataset. This is primarily because the name of the criminal was not revealed in the reports. This dataset is on

each person, which facilitates the matching of the punishment and the type of corruption. These cases have thus been dropped.

### **3.3.1 Descriptive Statistics**

Table 3.1 presents the descriptive statistics of all variables. The dependent variable in the OLS models is the *Prison Time Sentenced*. The dependent variable in the Cox survival analysis is the *Duration of Corruption*. The independent variable is the *Total Corruption Amount*, in original and logged format. The control variables include both the case-specific information, including *Guilty Plea*, *Restitution*, and *Collusion*, as well as information regarding the criminal's personal characteristics: *Public Official*, *Elected*, and *Judicial*.

Table 3.1 Descriptive Statistics for Analyzing Corruption Punishment in the United States

<b>Variables</b>	<b>Variable Name</b>	<b>Number of observations</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Unit</b>
<b>Dependent Variable</b>	<i>Prison Time Sentenced</i>	224	37.68	39.63	0.00	264.00	Months
	<i>Duration of Corruption</i>	47	32.87	28.76	0.00	108.00	Months
<b>Independent Variables</b>	<i>Total Corruption Amount</i>	200	461,748.10	1,538,979	200	10,500,000	USD
	<i>Ln (Total Corruption Amount)</i>	200	10.32	2.35	5.30	16.17	
<b>Control Variables</b>	<i>Guilty Plea</i>	699	0.46	0.50	0	1	1-Yes 0- No
	<i>Restitution</i>	699	0.14	0.35	0	1	1-Yes 0- No
	<i>Public Official</i>	699	0.67	0.47	0	1	1-Yes 0- No
	<i>Elected</i>	699	0.06	0.25	0	1	1-Yes 0- No
	<i>Judicial</i>	699	0.05	0.22	0	1	1-Yes 0- No
	<i>Collusion</i>	699	0.01	0.10	0	1	1-Yes 0- No

### ***3.3.1.1 Punishments***

As described in subsection 3.2.1, all punishment forms and maximums were stipulated in the U.S.C. However, in practice, judges have substantial discretion to issue various punishments. Table 3.2 presents the descriptive statistics of punishments. Among the total 699 cases, 10 were dismissed and 40 defendants were acquitted. Nearly one third of the corruption cases led to an imprisonment sentence. Approximately one fifth of imprisonment sentences were accompanied by a period that was suspended. The average time in prison, after subtracting the duration that was suspended, is 37.68 months. The minimum imprisonment duration was a half day, and the maximum was 264 months, i.e., 22 years. In 23% of the cases, judges issued probation as an additional punishment. Other freedom restriction punishments include residing in halfway houses and home detention.

A total of 14% of the corrupt individuals made partial or full restitution ranging from 700 to 5.1 million US dollars. Fines were used as punishment in 26.3% of the cases with amounts ranging from \$50 dollars to \$20 million USD. In two cases, the cost of supervision was assessed.

Community service is another widely used punishment used to rehabilitate and repay society. In 63 cases, community service was ordered, ranging from 40 to 2,500 hours over five years.

### ***3.3.1.2 Duration of Corruption***

The corruption period was occasionally disclosed, lasting from the first day of corruption to the end of corruption, which ended either voluntarily or due to investigation. Only 47 cases disclosed the time period. The period stretched from 0, i.e., one corrupt act discovered right away, to 108 months, i.e., 9 years. The average duration was 33 months with a standard deviation of 29 months. Figure 3.1 shows the percentage of the duration in years. Nearly 80% of the corruption cases were discovered within 5 years.

### ***3.3.1.3 Total Corruption Amount***

In the dataset, 28.6% of the cases were either directly involved with money or disclosing the amount of money involved. The corruption amount was reported for embezzlement and bribery cases. This amount ranged from \$200 USD to \$10.5 million USDs, with a mean of 461,748 dollars.



Table 3.2 Descriptive Statistics for Punishment Categories of Corruption Cases in the United States

<b>Variable Name</b>	<b>Number of observations</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Unit</b>
Case Dismissed	10	1	0	1	1	1-Yes 0- No
Acquitted	40	1	0	1	1	1-Yes 0- No
Prison Time	224	37.68	39.63	0.00	264.00	Months
Prison Time Suspended	38	24.95	17.01	1	60	Months
Probation	162	32.79	16.47	3	60	Months
Halfway House	4	3.25	2.22	1	6	Months
Home Detention	25	4.60	2.45	1	12	Months
Community Service	63	288.33	464.87	40	2500	Hours
Fine	184	195,783.20	1,549,940.00	50.00	20,000,000.00	USD
Restitution	699	0.14	0.35	0	1	1-Yes 0- No
Restitution Amount	91	337,616.00	860,343.80	700	5,100,000	USD
Cost of Supervision	2	1,580.00	2,233.04	1	3,159	1-Yes 0- No

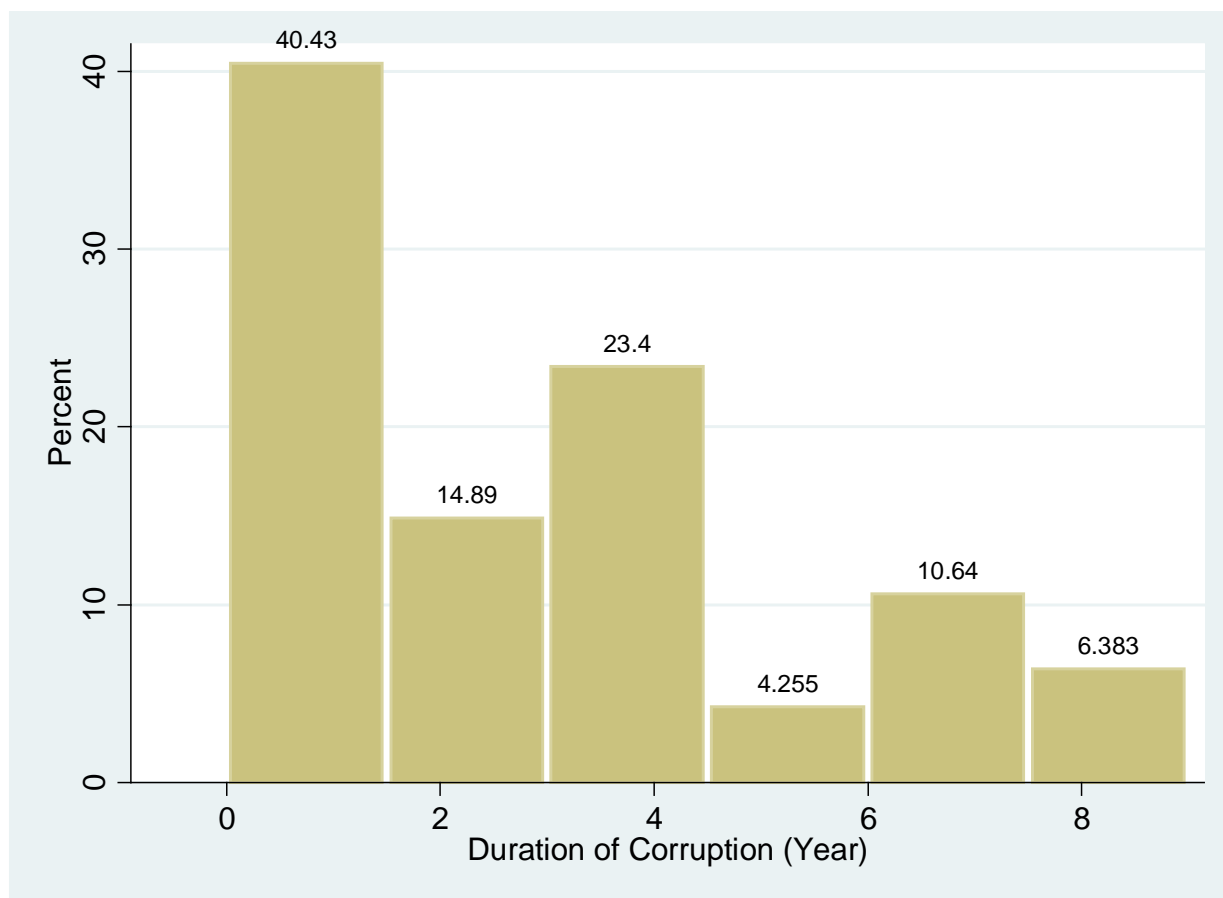


Figure 3.1 Duration of Corruption in the United States

#### 3.3.1.4 *Guilty Plea*

In approximately half of the cases, defendants enter into plea agreements. They pleaded guilty to crimes, made restitution, and resigned or retired from the current position in order to receive less prison time or probation-only punishments. Therefore, the data used for analysis could underestimate the actual corruption amount, frequency, and duration.

#### 3.3.1.5 *Public Officials*

The public officials variable is a dummy variable. Public officials are coded in a broad sense for federal, state and local officials, similar to that defined in 18 U.S.C. § 201 for federal officials. The PIN also reports private parties involved in public corruption cases. Those nonpublic officials

included businessmen, individuals who previously but no longer held public positions at the time of the crime, corporates as legal persons, or spouses and relatives of the corrupt officials.

### **3.3.1.6 Elected**

Elected public officials include elected officials at the federal, state and local levels, such as members of Congress, governors, and members of the state legislature, as well as their chief staff members. The reasons for including chief staff members are that elected officials appointed the chief staff members and these staff worked closely with their supervisor to help the supervisor get reelected.

### **3.3.1.7 Judicial**

For the judicial variable, judges as well as judicial staff were coded “1”. However, in some states, judges are elected rather than appointed. Because their judicial attributes are more important in corruption cases, corrupt judges are coded in the judicial category. Judicial personnel are also coded “1” in the judicial variable because they were supposed to know the laws and therefore were held to a higher standard in corruption cases. In the dataset, even a judicial intern who was corrupt faced a harsher punishment.

### **3.3.1.8 Collusion**

The collusion variable captures whether the public official was found to perform corrupt acts solely or with accomplices, such as colleagues, relatives, or friends.

## **3.3.2 Hypothesis**

The U.S. Code stipulates no more than 20 years imprisonment and/or a fine as punishment for corruption. Very vague amounts of illegal income are used as the criteria for issuing punishments. Public officials are expected to have high moral standards. I hypothesize that a harsher punishment is associated with a greater extent of corruption, being a public official, no restitution or plea agreement, *ceteris paribus*.

### 3.4 Results

OLS regression with robust standard error is used to determine whether a relatively mild punishment is consistently enforced in corruption cases in the United States. Cox survival analysis is adopted to investigate the factors of the duration.

#### 3.4.1 Imprisonment and its Determinants

To facilitate comparisons, an OLS regression was used to analyze the extent of punishment via imprisonment. See subsection 2.4.1 for a more detailed explanation of the methods. The only difference is that the quadratic form is insignificant and dropped in later models.

Only approximately one third of the cases were sentenced with imprisonment. Due to missing data, approximately 80 cases were left to analyze the consistency of sentencing. Formula 7 presents the estimation model. Table 3.3 shows the results of OLS regression with robust standard errors.

$$\begin{aligned}
 F = \text{Number of Months Sentenced} = & \beta_0 + \\
 & \beta_1 \text{Ln}(\text{Total Amount of Corruption}) + \beta_2 (\text{Ln}(\text{Total Amount of Corruption}))^2 + \\
 & \beta_3 \text{Public Servant} + \beta_4 \text{Plead Guilty} + \beta_5 \text{Elected} + \beta_6 \text{Judicial} + \beta_7 \text{Restitution} + \\
 & \beta_8 \text{Collusion} + \beta_9 \text{Year} + \varepsilon \qquad \dots (7)
 \end{aligned}$$

##### 3.4.1.1 Total Amount of Corruption

Comparing Model 1 and 2, I found that imprisonment time and total corruption amount were positively related. When fit into the quadratic function, an increase in the total amount of corruption was related to a dramatic increase in punishment. Figure 3.2 shows a bowl-shaped relationship between the logged total amount and the number of months in prison.

The larger R-square in Model 2 indicates a better fit, where a linear relationship between the two variables were assumed to estimate the model. Figure 3.3 shows a linear relationship. The three outlier cases with prison durations of more than 150 months were removed from the analysis in Models 3 and 4. Two of the outlier cases involved sheriff corruption, and the third case involved a large amount of corruption. The coefficient does not substantially change after removing these extreme cases. On average, a 1% increase in the total amount of corruption increased the prison stay by 8 months.

Table 3.3 OLS Regression Models of the Months Sentenced in the American Cases with Robust Standard Error

	Model 1	Model 2	Model 3	Model 4
<b>Ln (Total Corruption Amount)</b>	-23.723 (16.381)	7.995 *** (2.247)	8.838 *** (1.352)	8.442 *** (1.257)
<b>Square of Ln (Total Corruption Amount)</b>	1.323 † (0.688)			
<b>Public Official</b>	4.874 (7.661)	5.322 (8.588)	5.356 (5.366)	6.261 (5.448)
<b>Plead Guilty</b>	-30.034 *** (7.185)	-31.013 *** (7.449)	-21.037 *** (4.842)	-19.888 *** (4.826)
<b>Elected</b>	-11.525 (11.191)	-22.404 † (11.626)	-13.133 (10.120)	-11.942 (9.613)
<b>Judicial</b>	26.185 * (13.100)	25.096 * (11.358)	36.001 *** (8.560)	35.865 *** (6.893)
<b>Restitution</b>		-13.448 † (7.303)	-11.708 * (5.381)	-13.701 * (5.411)
<b>Collusion</b>		-5.158 (10.253)	-1.965 (5.503)	-4.427 (5.777)
<b>Year</b>				0.432 (0.261)
<b>Constant</b>	140.525 (98.331)	-35.638 (25.704)	-56.797 *** (14.825)	-913.023 † (522.008)
R-square	0.3426	0.3331	0.5211	0.5211
Prob>F	0.0000	0.0000	0.0000	0.0000
Number of Observations	81	81	78	78

Note: Robust Standard errors in parentheses; † denotes  $p < 0.1$ ; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$ .

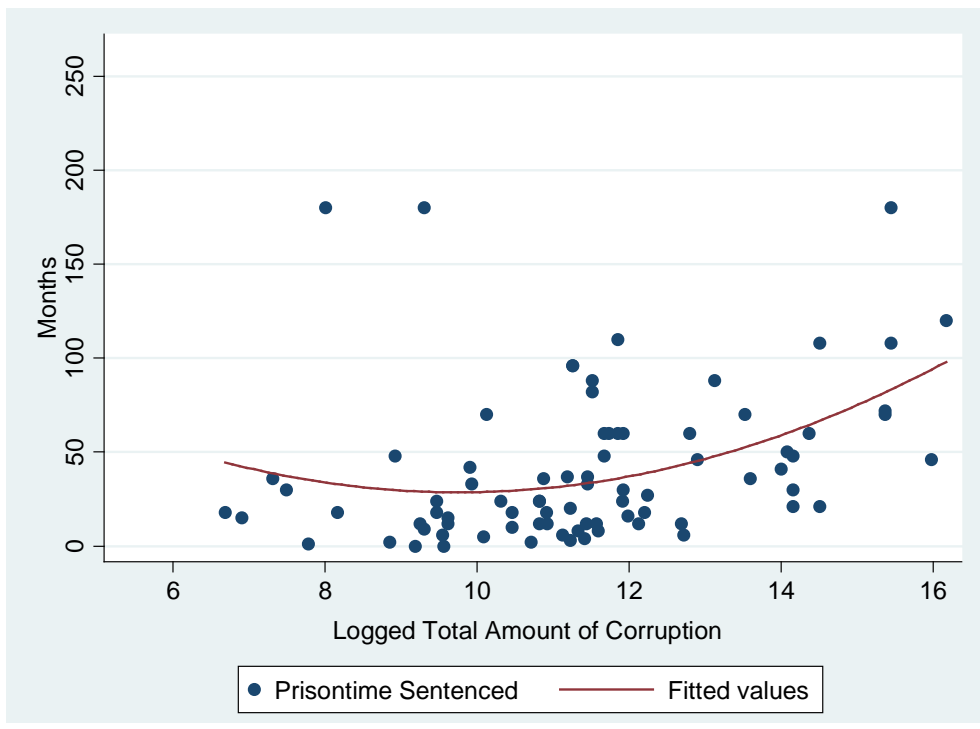


Figure 3.2 Quadratic Fit of Sentenced Time in Prison against Total Corruption Amount in the U.S. Cases

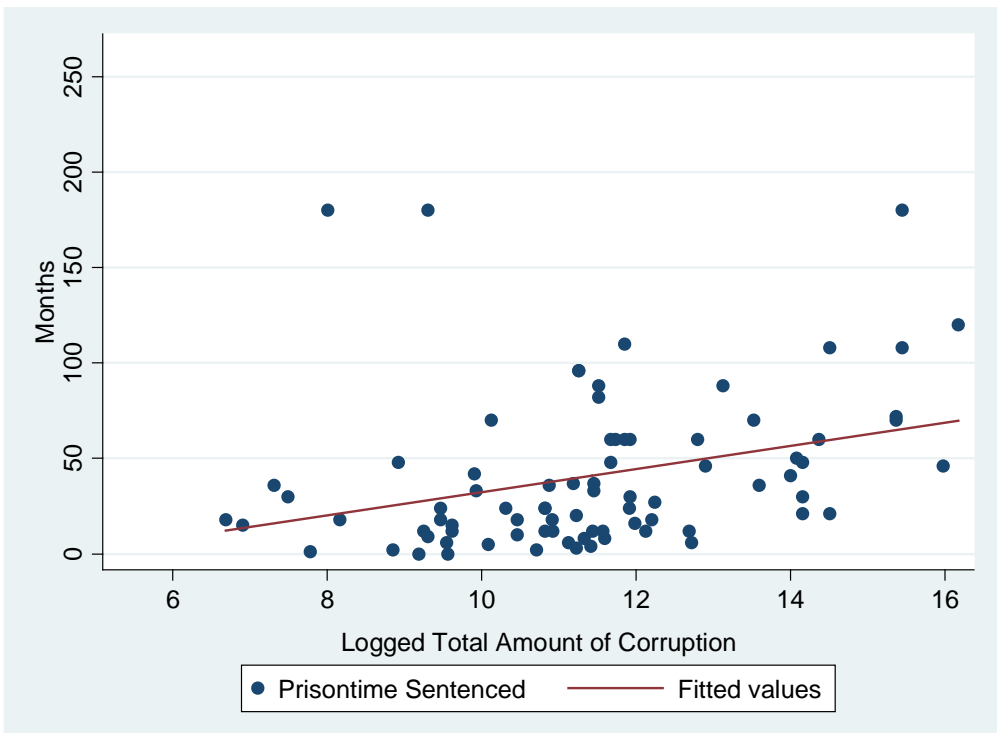


Figure 3.2 Linear Fit of Sentenced Time in Prison against Total Corruption Amount in the U.S. Cases

Public officials from different branches were not punished equally. Public officials received more severe punishment than their non-public sector counterparts, though this was not statistically significant. Punishment was less severe but also not significant for elected officials and their staff members.

#### ***3.4.1.2 Judicial and Elected***

Personnel from the judicial branch were significantly punished more severely. The magnitude is also surprising. On average, as shown in Models 3 and 4 of Table 3.3, public officials working in law-related fields were sentenced to 36 more months when holding other variables constant. Judges are issued more severe punishment because they know and enforce laws. For example, in 1988, former Philadelphia Common Pleas Court Judge Herbert R. Cain, Jr. was found guilty of one count of attempted extortion under color of official right, in violation of the Hobbs Act, 18 U.S.C. § 1951. The jury found that Cain obtained \$1,500 from a defense lawyer in exchange for agreeing to find the lawyer's client not guilty in a non-jury trial. The sentencing judge stated that Cain's conduct threatened "everything our judicial system stands for," and sentenced the former jurist to three years' imprisonment, a \$5,000 fine, restitution to the United States in the amount of \$1,500, and the mandatory \$50.00 special assessment. The United States Court of Appeals for the Third Circuit later affirmed Judge Cain's extortion conviction (PIN 1988).

However, elected officials were punished less severely, though this difference was not statistically significant.

#### ***3.4.1.3 Other Determinants***

Plea agreements between the corrupt individuals and the prosecutors significantly reduced the punishment. Before removing the extreme cases from models 1 and 2, pleading guilty significantly reduced prison time by more than 30 months. Even after the extreme cases were deleted from the analysis in Models 3 and 4, pleading guilty resulted in 20 fewer months of prison time.

Restitution for the loss to the U.S. government or local government offices resulted in a reduction of 13 months, *ceteris paribus*. In many cases, corrupt individuals who were fully restituted would be punished with probation instead of prison time.

Collusion cases were punished less severely, though this was not statistically significant. Additionally, the severity of punishment did not substantially change as time progressed.

In summary, punishment in the form of imprisonment is consistent with the laws and regulations and is issued at consistent levels over time. More corruption resulted in harsher punishment. Public officials, judges, and judicial personnel, who know the law but violated it, were punished more severely. Pleading guilty and making restitution are encouraged with reduced punishments.

### 3.4.2 Death Penalty and its Determinants

In the American corruption case dataset, there is no death penalty or life imprisonment as punishment. This section title is left solely for the purpose of alignment with Chapter Two.

### 3.4.3 Duration of Corruption and its Determinants

While there are no reports on the probability of conviction in corruption cases, the probability can be inversely inferred based on the duration of corruption. How long the criminal is at large can be a good inverse indicator for the probability of conviction. That is, if the probability is high, a corrupt individual is caught in a short time. A low probability indicates that the corrupt individuals are free for an extended duration.

Cox survival analysis of the duration can help obtain the hazard ratio of the determinants of the corruption duration. For a more detailed explanation of the method, see subsection 2.4.3. The model is presented in Formula 8.

$$\text{Duration of Corruption} = F(\text{Ln}(\text{Total Amount of Corruption}), \text{Public Official}, \text{Elected}, \text{Judicial}, \text{Executive}, \text{Jointly}) \dots\dots(8)$$

The survival analysis in Table 3.4 shows the hazard ratios for the factors of corruption. Both models 1 and 2 indicate that as the total corruption amount increases by 1% and all other variables are held constant, the probability of conviction decreases by  $(100\% - 77\%) = 23\%$ . Again, it is counter intuitive that a larger amount of corruption did not result in a more rapid discovery. A higher corruption amount likely allows the corrupt officials more resources to hide their corrupt behaviors.

Holding all other variables constant, the rate of conviction of a public official decreases by  $(100\% - 23\%) = 77\%$ . This result is insignificant but the magnitude is surprising. In other words, it



is substantially more difficult to disclose the corrupt behavior of public officials than their private sector counterparts.

However, an elected official has an increased rate of conviction by  $(115\% - 100\%) = 15\%$ , though this increase is not significant. This increased rate is likely because elections put officials under more careful public scrutiny than their nominated peers. This also echoes the analysis in the previous section in which elected officials were usually punished less harshly.

Table 3.4 Survival Analysis of Corruption in the United States with Cox Proportional Hazard Regression

	Model 1	Model 2
<b>Ln (Total Corruption Amount)</b>	0.771 ** (0.070)	0.770 ** (0.070)
<b>Public Official</b>	0.232 (0.250)	0.226 (0.246)
<b>Elected</b>		1.155 (0.633)
<b>Judicial</b>		omitted
<b>Executive</b>		omitted
<b>Jointly</b>		omitted
LR chi2(2)	9.90	9.96
Prob > chi2	0.0071	0.0189
Number of Observations	32	32

Notes:

1. The hazard ratio is reported with standard errors in parentheses.
2. † denotes  $p < 0.1$ ; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$

Other categories of public officials were unfortunately omitted from the model due to few cases available. I hope more data will become available to aid in investigating the relationship between the categories of public officials and the duration of corruption.

In summary, the survival analysis of the corruption duration in the United States indicated that a greater corruption amount also resulted in a smaller probability of conviction when holding

other variables constant. More skillful corrupt individuals and more resources for hiding the scheme likely explain this. Corruption in public officials shows no statistically significant difference compared with that in the private sector. However, elected officials present a special case because their corruption was more easily exposed and because they received reduced punishment compared with their appointed peers.

### **3.5 Conclusion and Discussion**

Generally speaking, decentralized anti-corruption efforts in the United States successfully combat corruption. The U.S. Code and administrative laws and rules define in detail various forms of corruption and respective punishment, which provide guidance for the prosecution of corrupt public officials at all levels of government. Despite the heterogeneity in anti-corruption strategies and institutions in states, most corrupt officials were prosecuted at the federal level. Independent anticorruption agencies were established in accordance with the statutes, which guarantee resources and authority to prosecute corrupt public officials at all levels of government.

An analysis of the corruption cases handled by the Public Integrity Section provides information on the attributes of corruption cases as well as their punishments. Imprisonment is consistently carried out with the laws and regulations and is administered consistently over time. In general, the probability of punishment is high and therefore the duration of corruption is usually short.

Despite missing data, the small number of cases still shows a compensatory relationship between the severity of punishment and the probability of punishment. Corrupt officials with larger illegal incomes received harsher punishments but had a lower likelihood of being punished. Punishment is more severe for public officials compared with other people involved in corruption cases. However, public officials were less likely to be caught and punished, though this difference was not statistically significant. The punishment was less severe for the elected officials but the probability of punishment was higher. The judicial personnel were punished significantly more harshly than other public officials; however, the probability of punishment was not obtainable due to a lack of data.

Judges in corruption cases compensate a low probability of detection with a harsher punishment, and the same result was found with judicial personnel involved in corruption. However, judges issue more lenient sentences for elected officials, who are under more scrutiny

from the media and electorate. Therefore, judges adjust the severity of punishment to compensate for a low probability of punishment in corruption case while remaining within the discretion of the law.

## **CHAPTER 4. OBJECTIVE AND SUBJECTIVE PROBABILITY OF PUNISHMENT**

In the previous chapters, punishments of public sector corruption in China and the United States are analyzed respectively. The primary finding is that severity of punishment was used in laws and in practice to compensate for a lower probability of punishment in China. The United States, however, relied less on the severity but maintained a relatively high probability of punishment.

This chapter starts from a comparison of the severity and objective probability of punishment between the two countries. Then, cases in both countries are discussed to explain the concept of subjective probability of punishment. The chapter concludes with discussion of policy implications of the subjective and objective probabilities of punishment.

### **4.1 Objective Probability of Punishment**

China and the US differ in the effectiveness of their anti-corruption efforts. China and the United States differ dramatically in corruption at the macro level. In 2016, the United States ranked as the 18<sup>th</sup> cleanest government, while China ranked 79<sup>th</sup> among 176 countries in the world (Transparency International 2017). Deterrence is weaker in China compared to the United States. This dissertation draws on these examples to offer an explanation for the relationship between the severity and probability of punishment. The Criminal Law in China stipulates the most severe punishment, the death penalty, for corruption. In practice, 77% of corrupt officials were punished imprisonment for an average of 103 months. 6.6% received life imprisonment, while 4.5% received the death penalty with or without reprieve, as shown in Tables 2.1 and 2.2. In contrast, only one third of the corrupt officials convicted in the United States were sentenced to imprisonment, with 38 months on average, as shown in Table 3.1. All other corrupt officials were either punished with probation, time in a halfway house, home detention, community service, or other less severe forms of punishment. As shown in both written laws and in practice, China enforced harsher punishment than the United States.

However, the severity of punishment does not explain the difference in corruption rates between the two countries. The difference in the probability of punishment accounts for the real

difference in effectiveness. A low probability of punishment results in a longer duration before the corrupt act is uncovered and punished. In China, an official's corrupt acts last for an average of 69.7 months. As shown in Figure 2.4 and Table 2.8, two thirds of the corruption lasted for between 3 to 10 years and more than 10% of the corruption cases lasted from 11 to 26 years. In contrast, the average duration of corruption is 32.9 months in the United States with a maximum of 108 months, i.e., 9 years, as shown in Table 3.1. For the specific forms of corruption, the duration of corruption is longer for bribery than embezzlement in both countries. As shown in Table 4.1, the durations of both forms of corruption in China are longer with larger standard deviations.

Judges in China took the probability of punishment into consideration when issuing punishment, while it seemed to be a minor concern for American judges. In China, duration is positively associated with the prison time sentencing. As shown in Appendix B, one year elapsed before the corruption is associated with 1.1 more months in the imprisonment punishment, *ceteris paribus*. That is, judges use more severe punishments to compensate for a lower probability of being punished. However, this relationship is found to be insignificant in the American corruption cases.

Table 4.1 Duration of Bribery and Embezzlement in China and the United States

	Duration (unit : month)							
	Bribery				Embezzlement			
	No. of Cases	Mean	Standard Deviation	Max	No. of Cases	Mean	Standard Deviation	Max
China	2244	77.8	48.2	306	899	62.1	44.0	290
USA	21	39.3	29.2	108	23	30.2	28.5	97

By pooling the American and Chinese corruption cases into one dataset, Cox survival analysis shows that the probability of punishment is  $(100 - 35.5) = 64.5\%$  lower in China, *ceteris paribus*. Since it is difficult to compare Chinese currency *yuan* with U.S. dollars, I standardize the corruption amount into percentile in respective countries before merging the data. Table 4.2 presents the results.

Table 4.2 Survival Analysis of Corruption with Cox Proportional Hazard Regression  
Comparing China and the United States

<b>Total Corruption Amount (measured as percentile in respective countries)</b>	0.988 *** (0.001)
<b>China</b>	0.355 *** (0.063)
<b>Elected</b>	0.866 ** (0.045)
<b>Public Official</b>	0.909 * 0.036
LR chi2(2)	395.15
Prob > chi2	0.0000
Number of Observations	3184

Notes:

1. The hazard ratio is reported with standard errors in parentheses.
2. † denotes  $p < 0.1$ ; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$

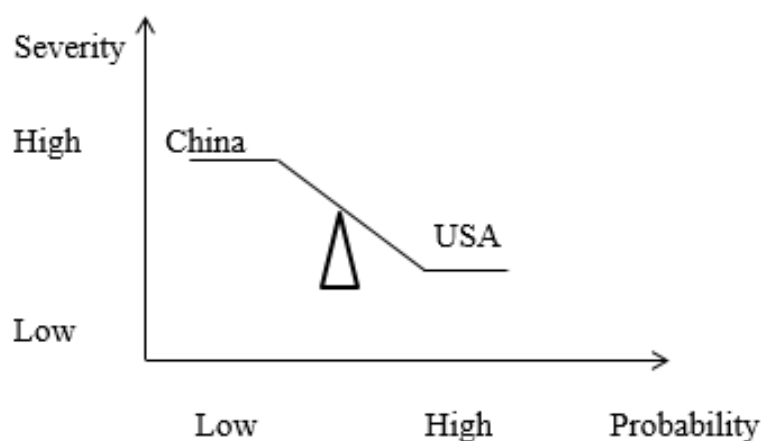


Figure 4.1 Punishment of Public Corruption in China and the United States

A coordinate space of punishment is created to help visualize the relationship between the probability and severity. The space consists of the probability of punishment, represented by the

x-axis, and severity, represented by the y-axis. The location of the two countries is shown in Figure 4.1. China is located in the upper left corner with low probability and high severity, whereas the United States is at the lower right corner with a high probability and low severity. The empirical results indicate that the lower right corner is more effective in deterring corruption.

Such a seesaw position with a combination of high probability and low severity versus another combination with low probability and high severity is also observed in the subcategories of corruption cases. Figure 4.2 shows this relationship in public officials versus non-public officials. Despite different definitions in the United States and China, corrupt public officials face more severe punishment, approximately 10 more months of imprisonment in China and 5 more months in the United States, compared to their respective counterparts in public corruption cases. Public officials in China are more likely to receive the death penalty than their counterparts. However, the probability of punishment is lower than their counterparts in public corruption cases: 77% less likely in the United States and 1.25% less likely in China<sup>22</sup>. Despite the insignificance of coefficients in the survival analyses, the probability is more obvious when inversely measured by the duration of corruption. In China, corruption of public servants lasts for an average of 73 months compared to 65 months by non-public servants. In the United States, public official corruption lasts for an average of 33 months with a maximum of 108 months compared to the only two nonpublic official corruption cases, which lasted 10 and 60 months, respectively.

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<sup>22</sup> Using the public official variable in the Cox survival analysis for corruption duration, the coefficient is 0.9875. This means that for a public official with all other variables held constant, the probability of punishment decreases by  $(100\% - 98.75\%) = 1.25\%$ , though this result is not statistically significant.

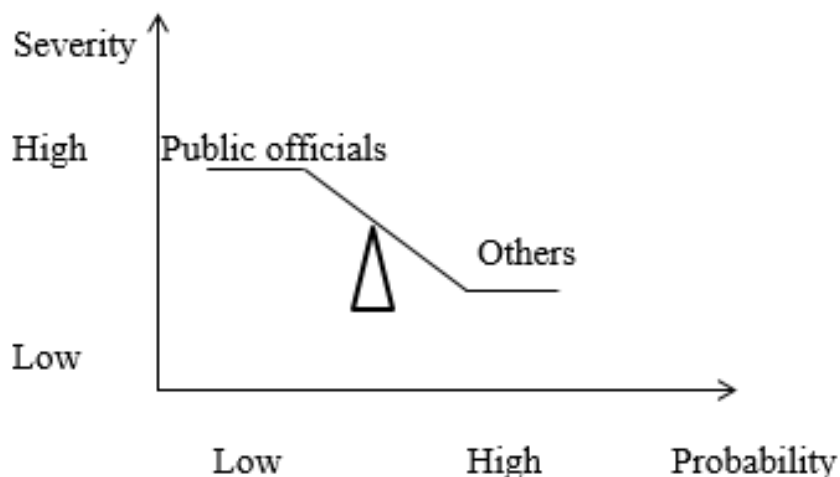


Figure 4.2 Punishment of Public Officials vs Non-public officials in Public Corruption Cases

A similar pattern of punishment is also evident when comparing corruption cases involving a higher corruption amount with a lower amount. A one percent increase in the total corruption amount results in more than 36 additional months of imprisonment in China<sup>23</sup> and approximately 8 more months of prison time in the United States, holding other variables constant. However, the probability of punishment is lower in cases with higher corruption amounts. As the total corruption amount increases by 1% and all other variables are held constant, the probability of punishment decreases by 23% in the United States and 9% in China. All of the coefficients are statistically significant at the  $p < 0.01$  level. Moreover, in China, cases with an extremely large corruption amount have reduced punishment severity. As demonstrated in subsection 2.4.1, the relationship between the total corruption amount and the severity of punishment is that of a concave parabola. Figure 4.3 captures the relationship between the severity and probability of punishment in China.

<sup>23</sup> The calculation is based on formula (2) in Chapter Two.



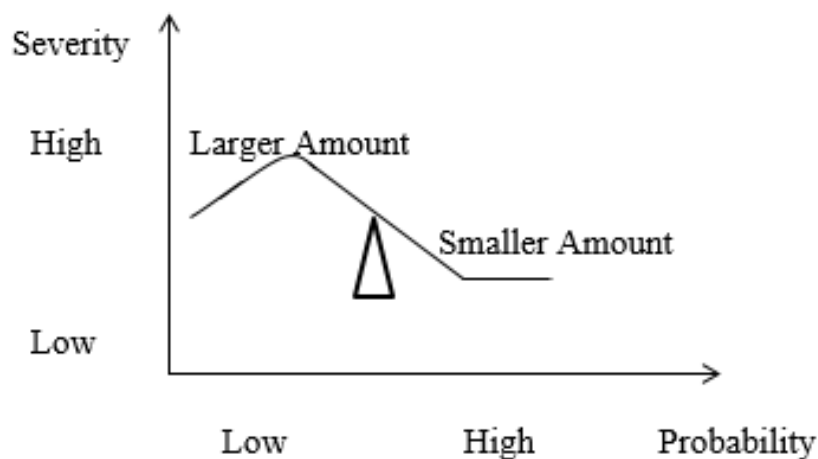


Figure 4.3 Punishment of Public Corruption by Total Corruption Amount in China

The seesaw pattern also applies to the different ranks of public officials in China. For the 13 ranks of public officials in China, one level higher results in 1.04 more months of prison for corruption punishment, *ceteris paribus*. At the same time, the probability of punishment decreases by 11% with one level higher in political rank. This relationship is shown in Figure 4.4. Law enforcers demonstrate a strong anti-corruption willingness with severe punishment, while the underlying cause is likely a substantially low probability of detection and conviction of highly ranked public officials in China.

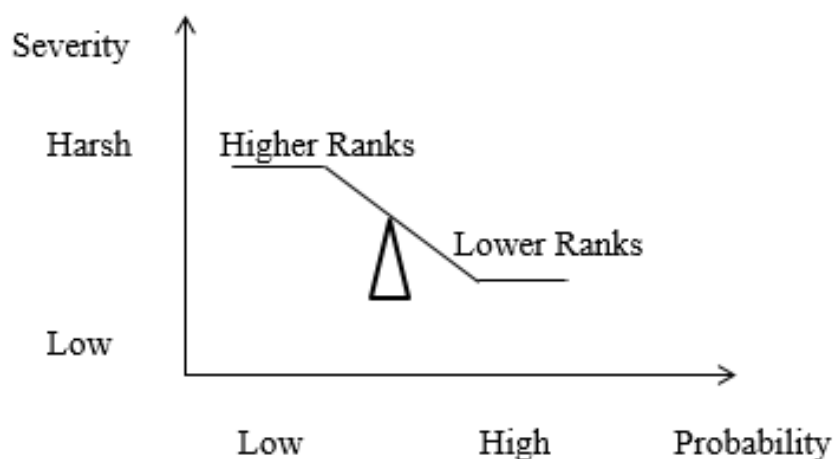


Figure 4.4 Punishment of Corrupt Public Officials by Rank in China

In the United States, the seesaw pattern between the judicial personnel and elected officials in corruption punishment echoes the political hierarchy analysis in China. The judicial personnel were subject to 35 more months of imprisonment than others, whereas elected public officials received 11 fewer months of imprisonment. However, the probability of punishment for elected officials is higher than others involved in corruption cases, though this increase is not significant. In punishing corrupt elected officials, electoral democracy significantly increases the probability of anti-corruption prosecution and thus lowers the severity of punishment. These officials are more deeply scrutinized by the media and constituents and are punished by losing reelections.

In summary, a higher probability of punishment combined with a low severity of punishment is the best option for designing punishment. As shown in Figure 4.5, the four quadrants represent four possibilities of the combination. In Quadrant I, the deterrence stemming from a high probability of punishment is easily offset by a high severity of punishment because law enforcers face pressure from the constituents and are therefore reluctant to enforce the stringent laws. Therefore, a punishment institution design starting in Quadrant I will gradually merge to Quadrant II and Quadrant III. A low probability of punishment combined with stringent written laws is ineffective in deterring corruption. Both the convicted and latent corrupt officials dismissed the conviction and punishment as bad luck. More resources, extracted by corruption, will be allocated to lower the probability of punishment and the severity of punishment even further. This will end with Quadrant III, where a low probability combined with a low severity of punishment creates weak corruption deterrence.

Therefore, I argue that effective anti-corruption punishment should act in Quadrant IV. A high probability of punishment means that detecting corruption must occur when the amount is still small. A mild punishment will then be sufficient for the convicted officials while creating a more effective deterrence for officials that have not yet broken the law. Relying on raising the severity to compensate for a low probability, whether in written laws or in practice, is not an effective deterrence. Probability dictates the effectiveness of deterrence. Increasing the probability requires more social resources devoted to an anti-corruption punishment system; however, the effectiveness is worth the resource input. Therefore, institution designers should focus on increasing the probability of punishment instead of relying on severity.

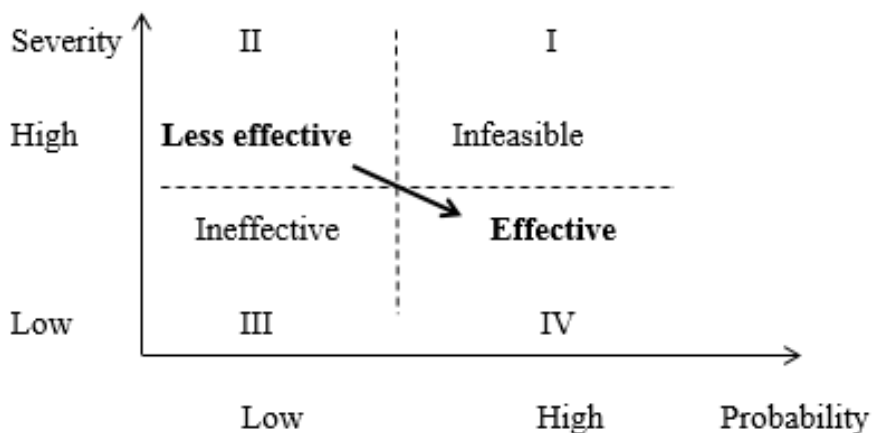


Figure 4.5 Effects of Deterrence under Different Combinations of Punishment Severity and Probability

Until this point of the dissertation, the probability of punishment is a statistic in anti-corruption law enforcement. I call this probability, whether estimated from data or an estimate by institution designers or law enforcers, the objective probability of punishment. However, this objective probability may dramatically differ from the perceptions of corrupt public officials. I refer to this perceived probability as the subjective probability of punishment. Cases involving subjective probability are discussed in the next subsection.

## 4.2 Subjective Probability of Punishment

The subjective probability of punishment refers to the perceived probability of corruption being uncovered, investigated, and punished. The decision to engage in crime relies more on the subjective probability of punishment, which is a function of the objective probability but could dramatically differ from it (Pickett and Roche 2016, Pogarsky and Loughran 2016). Subjectively, Nazism in Germany during and prior to WWII was perceived to be dramatically different from what we know today. Many Nazi Germans believed in National Socialism, “[b]ecause it promised to solve the unemployment problem. And it did” (Mayer 1966). Perception can drastically deviate from objective reality.

Public officials, whether in China or the United States, engage in corrupt acts only when they believe that they are safely performing corrupt acts, or in other words, when the subjective probability of being caught is low. During the investigation, their subjective probability of

receiving punishment is low because they incorporate resources to lower the subjective probability of punishment. The following are examples for how the subjective probability of punishment plays a role in corruption-related decision-making.

A low subjective probability of conviction leads public officials to believe in their ability to fly under the anti-corruption radar. Zhang Jichun, the Chief of Urban Real Estate Administration Office of the Shichahai Area of Xicheng District, Beijing City, is a good example. Zhang was very competent in his position and regarded the funds of the Urban Real Estate Administration Office as his personal assets. Utilizing policy loopholes, he misappropriated public funds for people throughout the office, which added to his reputation among subordinates. He employed various methods to disguise the corruption, such as using others' bank cards, setting up unofficial account books, making fake contracts, faking tax receipts, and persuading colleagues to become accomplices. He believed that he had a very small chance of being discovered. He remained undetected until he embezzled 7.3 million *yuan* for gambling in Macau. He admitted to the procurator that "I have a baseline. No matter how much I use public funds for personal leisure, I would never gamble with public funds; however, I owe gambling debts and this [embezzlement] is the final resolution..." ("Beijing" 2012). However, regarding the de facto severity of punishment, his subjective probability was likely correct. He was sentenced to the death penalty with reprieve in 2009. After the two-year reprieve period, his sentencing was changed to life imprisonment. Because he was a good bookkeeper in the prison factory, his imprisonment may be reduced to 20 years. Further reduction is very likely.

A low subjective probability of punishment can also stem from the various preventive measures taken by the public officials. Former U.S. Army Major Eddie Pressley and his wife Eurica Pressley were convicted in 2011 in connection with a bribery and money laundering scheme related to defense contracts awarded in support of Operation Iraqi Freedom. During 2004 and 2005, Eddie Pressley was a U.S. Army contracting official at Camp Arifjan. He performed various contracting actions to benefit certain contractors who paid him bribes, including Terry Hall. In February 2005, Eddie Pressley arranged for Hall to obtain a blanket purchase agreement to deliver goods and services to the U.S. Department of Defense and its components in Kuwait and elsewhere. Pressley demanded a \$50,000 bribe before he would issue orders to receive bottled water shipments from Hall's companies. Hall and his associates arranged for the bribe money to be paid to a shell company, EGP Business Solutions, Inc. The bribe demand was later increased to \$1.6

million. Eddie Pressley enlisted his wife, Eurica to receive the bribes, including traveling to Dubai and the Cayman Islands in 2005 to open bank accounts into which the bribes were paid. These preventive measures deceived corrupt officials and resulted in their underestimation of the probability of punishment.

The subjective probability of punishment for highly ranked officials is smaller, and a longer duration of corruption shows an interaction between the subjective and objective probabilities of punishment. Xian Wen, a previous Vice Chairman of the People's Congress in Zhuhai City, Guangzhou Province, was a typical case. In response to whistleblower leads, the Zhuhai City Party DIC launched four corruption investigations during the 11 years before his final corruption conviction. All of the prior investigations were closed due to lack of key evidence. Xian's fortune depended on a giant *guanxi* (connection) net, an incredibly sensitive information system, and abundant financial, political, and interpersonal resources, which were successfully compiled by Xian because he worked in the political and economic areas in Zhuhai City for decades. Many local officials were afraid of retaliation if he was exempted from conviction and were hence reluctant to provide evidence. Xian is only one of many corrupt officials who were able to utilize their political and financial resources to lower the probability of conviction and hence extend the duration of corruption.

Public officials use their expertise and insider information to lower the probability of punishment. As a result, a low subjective probability of punishment leads to corrupt acts. Federal District Judge of Southern District of Florida Alcee Hastings knew that the forfeiture of \$85,000 cash would be returned to the Romano brothers, whose case was under his supervision. This was a relatively safe attempt at bribery. He had a broker, a D.C. Attorney William Borders, act on his behalf to seek \$15,000 cash from the Romano brothers in exchange for lighter punishment via another intermediary. The Romano brother turned down the offer, and the intermediary reported the corruption scheme to the FBI. The FBI then organized a sting operation with an undercover agent to act as one of the Romano brothers to offer a bribe to Borders and to record the communication between Borders and Hastings. Borders was eventually arrested, and Judge Hastings was impeached by the Senate in 1989 (Volcansek 1993, p70-77).

Regarding how corruption is punished, a low subjective probability of receiving punishment with a particular severity also leads to a corrupt act. Most public officials who received the death penalty did not anticipate that the punishment would be issued. Zheng Xiaoyu, a former

director of the State Food and Drug Administration, was sentenced to death and executed in July 2007 due to corruption and dereliction of duty. He was ranked as Vice Minister. In his last words, he stated that he did not deserve the death penalty (“Bufusi” 2007). He surveyed various punishments given to highly ranked officials; none were sentenced to death. In other words, his subjective probability of receiving the death penalty for an official at his rank was very small.

In another death penalty case, the sentencing by a provincial higher court was rejected by the SPC. Song Wendai was the president of the board of directors of Qiankun Gold and Silver Group, the top SOE of the gold industry in China. Song embezzled 52 million *yuan*, 58.9 kg of gold, and 1.4 tons of silver and misappropriated 21 million *yuan*. He was sentenced to death by the Higher Court of Inner Mongolia. The sentencing was rejected by the SPC review process in 2015. Song is still waiting for a retrial. Ironically, prior to working in the SOE, Song had worked in the Inner Mongolia Higher People’s Court for five years and is thus very familiar with the legal clauses and processes in China (“Songwendai” 2015). Song knows the precedents for similar situations and knows that he would not likely be sentenced with death again. In an extreme death penalty case, after rejection in the SPC review, Wu Shangli, a non-public servant corruption criminal, received a much lighter punishment. His death penalty sentence was changed to only ten years of imprisonment in the retrial (“Xingbang an” 2014).

In this dissertation, I show an inverse measurement for the objective probability of punishment using the duration of corruption as an indicator. Notably, it is more difficult to measure the subjective probability of punishment. Moreover, the absolute value of the subjective probability is of little use because the degree of risk aversion differs according to the person. A more useful measurement is each official’s corruption decision-making mechanism in relation to the subjective probability of punishment. Future lab experiments will be helpful in finding people’s decision based on their subjective probability of punishment.

Nevertheless, it is clear that the subjective probability of punishment played a role in corruption-related decision-making. In other words, public officials took preventive measures against anti-corruption institutions. These officials gauged the probability of punishment before performing corrupt acts but underestimated the probability.

In the next section, I propose anti-corruption policies based on findings related to the objective and subjective probability of anti-corruption punishment.

### 4.3 Anti-corruption through Changing Probabilities

#### 4.3.1 Improve Objective Probability

Knowing the importance of the probability of punishment, a successful anti-corruption strategy should focus on raising the objective probability combined with a mild severity. Prevention and deterrence should occur through probability rather than severity. Notably, mild punishments, such as combining restitution and a real resignation from prestigious public position, is tantamount to a life sentence to public officials. A real resignation means no more chance of returning to public service positions or any deferred corruption arrangements. Restitution and an appropriate fine serve well according to Becker's theory to compensate for the social loss and social costs of investigation, conviction and punishment.

The willingness of government to devote resources to increase the probability of detection, investigation, conviction, and eventually punishment, is key. A high probability of punishment means that even small acts of corruption will be detected and stopped. No severe punishment is thus necessary. Raising the probability requires trained personnel, equipment, sound oversight institutions and clearly delineated responsibilities and authorities.

Increasing the objective probability of punishment, as Becker argued, requires a substantial amount of social costs. However, inviting private parties to create "plural policing" or "third-party policing" (Stoughton 2017) will help reduce the oversight burden of governments. The private policing of commercial spaces is well known, as is the private incarceration of convicted offenders (Rappaport 2017). A new police department in Alabama was recently created with full policing duties and authorities; however, the officers are fully funded and are regarded as employees of the Briarwood Presbyterian Church (Stoughton 2017). Furthermore, Rappaport (2017) suggested that states should aim to foster optimal conditions for the success of private justice because it "subsists upon—and appears to mitigate—the severity of the public justice system." In other words, as private justice improves the probability of punishment, the severity can even be lower and achieve more effective deterrence.

Moreover, modern technology may lower the costs of raising the objective probability of punishment. In private businesses, advanced technology has enabled supermarkets to increase the objective probability of punishing shoplifting to nearly 100%. Amazon developed technology used in the Amazon Go store for approximately five years and opened the store to staff for testing in 2016 (Weise and Addrissi 2018). The store uses advanced computer technology, sensor fusion, and

an algorithm to ensure a high probability of detection for shoplifting. Tmall Online Supermarket of the Alibaba group in China launched a cashier-free offline store in Hanzhou on July 8, 2017. Customers using Alipay with a cellphone enter the store and check out as they exit a double door. Amazon finally opened its first check-out-free Amazon Go store in Seattle on January 22, 2018 (Wingfield 2018, Reuters 2018). A cellphone with an Amazon account and app enables the “just walk out technology”. There are no lines and no checkout but a high probability of punishment.

In summary, improving the objective probability required strong-willed governments and corresponding resources devoted to anti-corruption efforts. As the advancement of modern technology, it will no longer be costly as postulated by Becker. In the next subsection, I discuss an alternative to the objective probability of punishment in creating a deterrence while being more cost-effective.

#### 4.3.2 Change Subjective Probability

Subjective probability is a function of objective probability but is not equivalent to objective probability. People tend to underestimate this probability. Therefore, raising the subjective probability at least to the objective level can be an effective method to enhance deterrence. Moreover, it is usually cheaper to accomplish.

Private businesses adopted this technique for raising subjective probability in asset protection. For example, Wal-Mart places signs stating “Shoplifting is stealing” in the bathroom door. It also details the punishment. “It is not a prank, a joke, or a thrill. It’s a crime. Even if it’s your first offense, you could be punished with a lengthy prison term and a substantial monetary fine, plus a record that will haunt you for the rest of your life.” To increase the degree of awareness, i.e., the subjective probability, such signs are not only put on the entrance doors and walls but also doors of every bathroom stall. These printed signs cost little but change latent shoplifter’s perceptions of punishment. Although few people may be aware, Wal-Mart increases the probability of punishing shoplifting with security personnel, especially undercover security, security cameras, and private collection companies. To amplify the deterrence effect, Wal-Mart works on bringing the subjective probability of punishment up to the objective level. Wal-Mart has stationed a security guard at each entrance, serving a real as well as symbolic security function. Moreover, in the most frequently shoplifted aisles, such as those containing infant and cosmetic products, Wal-Mart installed self-reflection security cameras. When a customer approaches the



target products, the flashlights are activated to alert customers that they are being monitored. Notice here that the objective probability does not change but the subjective probability is raised immediately when the customer sees himself on the screen. When more self-service checkout stations are adopted, signs stating “Security cameras in use” are installed on top of each monitor to elevate the subjective probability of punishment.

In the public sector, police patrols aim to change subjective probability. In their sentinel role, police deter crime by reducing offender perceptions of the probability that the crime can be successfully completed (Nagin 2013). The elimination of the actual opportunity or the belief in the opportunity for successful misconduct is the basic purpose of patrol (Wilson and McLaren 1972).

Changing the subjective probability of punishing corruption may represent a new direction for creating effective deterrence. The failure of past anti-corruption efforts in China is likely due to a low subjective probability of punishment, which resulted from an anti-corruption campaign model accompanied with a large amount of amnesty (Manion 2004 “Corruption by Design”). To increase the subjective probability of punishment, anti-corruption efforts should focus on creating an environment that does not tolerate “low-level misdemeanors and disorders” (Wilson and Kelling 1982, Nagin et al 2015, Land 2015). The “broken windows” theory suggests that low-level disorder, when left unchecked, creates an environment for more serious crime to flourish (Wilson and Kelling 1982). Therefore, zero tolerance to small corrupt acts with more corruption oversight can create an environment that increases the subjective probability of punishment.

#### 4.4 Conclusion and Discussion

This chapter compares corruption punishment in China, a country that relies heavily on the most severe form of punishment, and that in the United States, a country that implements milder forms of punishment to deter corruption. The objective probability of punishing corruption is substantially smaller in China than the United States. Within each country, written laws as well as practices demonstrate increased severity to compensate for a low probability of punishment.

The case study shows that public servants in China and the United States think rationally and respond to the probability of punishment. More importantly, their subjective probabilities of punishment are usually lower than the objective levels, which encouraged their engagement in corruption. Hence, deterring corruption should focus on both objective and subjective probabilities.

In contrast with relying on severity for deterrence, raising the probability of punishment should be a goal of effective anti-corruption activities. Raising the probability requires social resources inputs. However, the development of modern technology and plural anti-corruption mechanisms will make it more affordable for governments to improve both the objective and subjective probability of punishing corruption.

## CHAPTER 5. CONCLUSION

Corruption is pervasive. When there is a genuine willingness to combat corruption, resorting to punishment is more effective than to reward ethical behavior; relying on the probability of punishment is more effective than elevation of severity. This study expands the understanding of how to punish effectively to deter future corruption through a combination of severity and probability. Individual level corruption cases were used to compare empirically the punishment in public corruption cases in China and the United States. The results show that the enforcement elements of anti-corruption institutions, especially the probability of punishment, that channels individual public officials' corrupt decision-making.

In this concluding chapter, first, I briefly summarize the findings regarding the severity and probability of punishing public corruption in China and the United States. Second, I expand the focus to the broader political culture in the United States and China to examine the role of corruption in political exchanges. Third, I examine the legitimacy of the judicial system in both countries to understand the probability of punishment. Finally, this chapter closes with concluding thoughts and policy implications.

### 5.1 The Severity and Probability of Punishment

Punishment depends on both severity and probability to ensure compliance. Peer punishment and retaliation among group members are not sufficient to maintain cooperation in modern society; hence, rule-bound institutions are called to implement punishment. Institutional punishment requires large social costs, such as expenditures for a police force, court personnel, and specialized monitoring equipment, to improve the probability of punishment; elevation of severity is often used as a substitute. However, severity is not a good substitute. In order to demonstrate the importance of the probability of punishment, I contrast the attributes of anti-corruption efforts in the United States and China, which were ranked as the 18th and 79th cleanest governments, respectively, among 176 countries in the world in 2016 (Transparency International 2017).

Whether relying on severity or probability of punishment, the goal of anti-corruption efforts is to achieve the same level of deterrence while save social costs. The Chinese philosophy of punishment is to punish harshly in order to create deterrence: "Killing a chicken in order to scare

off monkeys”<sup>24</sup>—in other words, using the most severe punishment, such as the death penalty, on a less significant issue to deter a targeted audience. Criminal law in China mandates the death penalty for the most serious corruption cases—those above the 100,000 *yuan*—but conveys the seriousness in relatively vague language. In contrast, the United States prescribes relatively mild punishment for corrupt offenders, but relies on decentralized anti-corruption institutions with a high probability of punishment. The U.S. Code, as well as other administrative laws and rules, define in detail various forms of corruption and respective punishments, providing guidance for the prosecution of corrupt public officials at all levels of government.

These institutional differences explain the discrepancy between macro-level differences and micro-level similarities. At the macro-level, corruption is more pervasive in China than in the United States; while at the micro-level, individuals in both countries are fundamentally the same in their obedience to laws. The starting point for comparing the two countries is the micro-level similarity in individuals. Neuroscience research finds no biological foundation for racial or ethnic differences with regard to conformity. However, we observe a dramatic macro-level difference between the two countries. Hence, it is the middle level, the anti-corruption institutions, that shapes individual corrupt behaviors. The purpose of this study was to examine the key attributes of punishment and its implementation in the United States and China by analyzing the individual case-level punishment of public corruption. Anti-corruption institutions consist of both formal written laws and the enforcement of these laws. In both written laws and in practice, China depends on severity, whereas the United States relies on a high probability to create deterrence. Criminal law in China stipulates the most severe punishment, the death penalty, for serious corruption cases. In practice, 77% of corrupt officials were punished imprisonment for an average of 103 months. Nearly seven percent (6.6%) received life imprisonment, while 4.5% received the death penalty with or without reprieve. In contrast, the highest form of punishment for corruption is 20 years of imprisonment in the United States. Only one-third of the corrupt officials convicted in the United States were imprisoned, with 38 months on average. All other corrupt officials were punished with probation, time in a halfway house, home detention, community service, or other less severe forms of punishment, such as fines. Notably, China enforced harsher punishment on corruption than did the United States. However, why did severity fail to deter corruption?

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<sup>24</sup> The Chinese idiom 杀鸡骇猴 is also translated as “beat the dog before the lion.”

The answer lies in the probability of punishment, a stronger factor than severity in deterrence. The probability of punishing corruption is a lump sum probability. It measures how likely a corrupt public official is to be identified, investigated, apprehended, convicted, and ultimately sentenced. The empirical analyses show that the probability of punishment is 64.5% higher in the United States than in China, holding other conditions constant. When the probability of punishing corruption is low, and the law enforcement is inconsistent—in China—even the most severe punishment cannot effectively deter corruption. Instead, a high probability accompanied by mild punishment appears to work effectively in the United States.

In China, relying on severity to compensate for a low probability is the logic behind designing laws and in practice. Criminal laws in China are very stringent on corruption with the aim to create a strong deterrence effect. This logic is also evident in law enforcement, using raised severity to compensate for a low probability of punishment. Public servants in China who receive larger amounts of illegal income were punished more harshly in general, although not consistently. A concave parabola-shaped relationship between illegal income and the severity of punishment indicates that extreme corruption results in a reduced severity of punishment. Additionally, public servants and highly-ranked officials are punished more harshly and have a higher probability of being punished with the death penalty, as compared with non-public servants and lower-ranked ones, respectively. Again, greater severity used in anti-corruption sentencing at the individual cases still cannot explain pervasive corruption at the macro level.

The low probability of punishment in practice accounts for ineffective anti-corruption efforts. A low probability of punishment results in a longer duration before the corrupt act is uncovered and punished. In China, an official's corrupt acts last for an average of 69.7 months. Duration of corruption was positively associated with having larger corrupt income, being a public servant, and holding a higher-ranking position. Cox survival analysis indicates that being a public servant and holding a higher-ranking position leads corrupt public officials to enjoy a much smaller probability of being punished. Therefore, from codified law, to law enforcement practice, a raised severity of punishment is designed and used to compensate for the low probability of punishment. However, the overall corruptness in China suggested an ineffective deterrence created by the high severity and low probability combination.

The ineffective deterrence stems from the elevated severity to the death penalty. Such stringent penalties lead to inconsistent implementation of the laws. The extreme form of

punishment, the death penalty, is issued sparingly and even more rarely executed in practice. The death penalty as designed by codified law to deter corruption was, in reality, offset by the unwillingness to enforce such a severe penalty. Few judges are willing to issue and execute the death penalty. In the dataset, 2640 of 3341 public servants (79%) of cases met the 100,000 *yuan* threshold specified in criminal law for the death penalty. Interestingly, only 0.3% of the individuals who met the criteria were executed. This low de facto probability of punishment significantly harms the deterrence effect of the written law, thereby resulting in a high level of corruption in China.

In contrast, the United States is ranked the 18th-least corrupt nation of 176 studied in 2016 Corrupt Perceptions Index (Transparency International 2017). The U.S.C. and administrative laws and rules define in detail various forms of corruption and their respective punishments, providing guidance for the prosecution of corrupt public officials at all levels of government. Specifically, 18 U.S.C. and other corruption-related laws serve a role that is similar to the criminal laws in the civil law jurisdiction. Despite the heterogeneity of anti-corruption strategies and institutions among the states, most corrupt officials were prosecuted at the federal level. Most punishments consisted of fines and/or the maximum prison time of 20 years. In accordance with the statutes, various independent anti-corruption agencies were established and provided resources to prosecute corrupt public officials at all levels of government. Anti-corruption prosecution resides primarily in the Department of Justice. Authorities specializing in anti-corruption prosecution include the Public Integrity Section, U.S. Attorneys, and the FBI. Individual-level corruption case data from the Reports to Congress on the Activities and Operations of the PIN for 1978-1992 and 2007 were collected to conduct this comparative study.

Unlike China, the severity of punishment is much lower in the United States. Not all cases charged in the United States ended in convictions, and even fewer cases resulted in imprisonment as punishment. Of the 699 cases reviewed, 10 were dismissed and 40 defendants were acquitted. Only one-third of the corruption cases resulted in imprisonment. Approximately one-fifth of all corruption-related prison sentences were accompanied by a period that was suspended. The average time in prison, after subtracting the suspended duration, was 37.68 months. The minimum imprisonment duration was a half day, and the maximum was 264 months. Punishment in the form of imprisonment is consistent with existing laws and regulations, and is issued at consistent levels over time. Higher levels of corruption resulted in harsher punishments. Public officials, judges,

and judicial personnel, who know the law and knowingly violated it, were punished more severely. Pleading guilty and making restitution are encouraged with reduced punishments.

Mild punishment alone again cannot explain the comparatively less corruptness in the United States. The key to the successful anti-corruption efforts lies in the probability of punishment. As inversely measured by the duration of corruption, the probability is much larger in the United States than in China. In the United States, the average duration of corruption is 32.9 months with a maximum of 108 months; in China, these figures are 69.7 months and 312 months, respectively. The survival analysis shows the probability of punishment for elected official is higher than for non-elected ones, and that the probability of punishment for public officials is higher than for non-public officials. The results correspond to the raised severity in the punishment for these subcategories of offenders in the public corruption cases. Clearly, the United States also compensated for a low probability with an elevated severity but, in general, chose a low severity and high probability combination.

In sum, findings from the analyses of the corruption cases handled by the PIN reveal that judges issued prison sentencing consistently with the laws and regulations. Despite missing data in American cases, the small number of cases still shows a compensatory relationship between the severity of punishment and the probability of punishment in practice. Corrupt officials with larger illegal incomes received harsher punishments, but had a lower likelihood of being punished. Judicial personnel were punished significantly more harshly than other public officials were. Judges issued sentences that are more lenient for elected officials, who are under more scrutiny from the media and electorate. Therefore, judges adjust the severity of punishment to compensate for a low probability of punishment in corruption cases, while remaining within the discretion of the law.

The contrast between China and the United States indicates the important role of the probability of punishment. By standardizing the corrupt income into percentiles, the probability of punishment is 64.5% higher in the United States than in China, *ceteris paribus*. A high probability of punishment means that detecting corruption must occur when the amount is still small. A mild punishment will then be sufficient for convicted officials, while creating a more effective deterrence for officials who have not yet broken the law. Relying on raising the severity to compensate for a low probability, whether in written laws or in practice, is not an effective deterrence. Interestingly, China and the United States are similar in adopting the seesaw

combination of low probability and higher severity of punishment in cases with larger amounts of corrupt income. Wealthy offenders enjoy a low probability of punishment and the judges compensate for it with harsher punishments. Probability determines the effectiveness of deterrence. That is, increasing the probability requires more social resources devoted to an anti-corruption punishment system; notably, the effectiveness is worth the resource input.

## 5.2 The Role of Corruption in Political Exchange

In this section, I address the broader landscape and political culture behind the anti-corruption efforts in China and the United States. The probability of punishment, whether high or low, reflects the strength of law enforcement, since the probability of punishment is a lump sum probability that begins by taking leads, followed by initiating an investigation, apprehending, convicting, sentencing in courts, and ending with the truth in sentence, i.e. serving a substantial proportion of the sentenced time. An independent judiciary and life term of Supreme Court justices in the United States minimizes political influence on the judicial decision, while the party-state nature of China swings the judicial decision in favor of political needs. One might argue judges sitting in courts other than the Supreme Court still face term limitation and elections, and therefore they are still subject to political influence. Nevertheless, the appeal mechanism in the United States provides an ultimate institutional protection for a less political if not apolitical sentencing. Minimizing political influence improves the probability of punishing corruption and maintains the consistency in the severity of punishment.

One might wonder what causes corruption in China at all. Besides the greedy nature explanation, an institutional vacuum resulting from the monopoly of the Communist Party latently encourages corrupt means to fill the roles of institutional tools to facilitate the establishment of political trust. Wang (2016) conducted interviews with soon-to-be-demobilized and retired military officers, who spoke honestly without fear of retaliation in their careers. These military officials provided a window into the logic of corruption in the China's public sector. Corruption offers the opportunity to build trust and nurture the connections, *guanxi*, among officials. In the past, *guanxi* was established through family relations, school or university ties, hometown ties, or collegiality. In recent decades, however, it has become more common and effective to gain trust through "doing dirty things" together, as opposed to "doing good things" (Wang 2016, p. 979). By "dirty things," Wang means bribery, embezzlement, gambling, enjoying luxurious entertainment,



or sharing mistresses. The outburst of bathing centers and top-notch members-only clubs in most cities can hardly be explained by the public needs. Bathing centers originally emerged because few families could afford a bathroom equipped with shower, although this is no longer the case. The root cause of the recent outburst is to satisfy the location needs of “doing dirty things” together. It is through conducting corruption together that public officials provide mutual vulnerability to one another to establish political trust and strengthen *guanxi*. In other words, when there are few institutional choices available to establish political trust, evil substitutes emerge. In such a political environment, it is difficult for an upright official to remain ethical. If not choosing corruption together, they will be left isolated and marginalized in promotion opportunities (Wang 2016).

Using the market as an analogy for politics, the major difference between China and the United States is the availability of choice in political instruments to facilitate trust building. In the market, currency emerged to ease trade beyond bartering and financial derivatives were demanded to facilitate trade across time (Gupta 2017). In contrast, only a few political tools are available to choose from in authoritarian countries. For example, political loyalty becomes an important mediator of the effect on corruption in Belarus (Zaloznaya 2015). When there is demand for political instruments, the deficiency of legal ones is filled by illegal means, such as corruption. The commonly used political instruments in the United States, such as political parties, votes, and various forms of campaign donations, function very differently in China.

First, political parties facilitate the trust building. In the United States, party identification creates a sense of a unified group identity in competition with other parties. Each party formulates a set of policies along the ideological spectrum. This allows both the mass public and public officials to choose a stand close to their own beliefs. The political party also enjoys a “rally around the flag” effect in the domestic political competitions, much like what a nation enjoys during an international crisis. In contrast, the parties in China had a much weaker political meaning as perceived by others from the outside. The Communist Party is a giant umbrella party for the mass public. Access to other political parties is restricted to a few top intellectuals. Many people became members of other political parties because of personal incidences, rather than different political beliefs from those promoted by the Communist Party. A limited political agenda is attached to the party ID in other political parties, since other parties are required to pledge allegiance to the Communist Party. Therefore, the Communist Party is more of a national identification than it is a political party. Few people can distinguish the national Communist Party Conference from the

People's Congress Conferences. The public refer those conferences as national, provincial, or city conferences rather than party or congress conferences. For the mass public and officials, party identification plays almost no competitive role, let alone facilitates political exchange among public officials.

Second, votes play an important role as political currency. The electoral democracy in the United States encourages voters to express choices, and allows for the exchange of preferences based on their intensity. Despite the negative connotations of logrolling, gerrymandering, and filibuster, these electoral tools allow minority parties to have their voices heard. In China, as a contrast, democracy is often defined as the submission of minority to the majority. The recently-advocated "harmonious society," intended to reconcile different ideas. However, after the slogan was put in practice, people in minority issue positions sometime joke that they were "harmonized." When there are few institutional tools available for minorities, corrupt means emerge as a substitute. Instead of the grease-the-wheel argument in the 1960s to explain the role of corruption as a second best choice for political and economic development in the developing countries (Leff 1964), corruption has invented new wheels in present-day China to fulfill the necessary but missing institutional tools in the political and economic development.

Third, campaign donations and information from stakeholders facilitate political exchanges in the United States, but are missing in China. The available choices of financial and informational donation provide a venue to voice preferences, although legal limitations of campaign donations are still up for debate. The problem the United States faces is the legal delineation of campaign donation, as the differentiating line becomes more blurred when more rent-seeking behaviors become legal (Johnston 2013). China, however, faces a different problem: the party-state nature implies no campaign donation is necessary. Budget allocation related to election is imposed from the top. It would be unusual for Chinese to donate campaign funding to the Communist Party or to a particular candidate. At the same time, it is universally true that elections, even within the Communist Party require campaign funding. Candidates can only rely on their own income, which is hardly enough, given the low official income. The second option is to accept bribes, being subsidized from private businesses. The third option is shark loans. Candidates expect to pay them off through embezzlement, bribery from businesses or even protégés, after being elected or promoted. When political currency is missing, corruption satisfies the need of political exchange in primal terms, the real currency.

In summary, political venues that facilitate people to reveal preferences are crucial to democracy and reducing corruption. Until legal political currencies become available for public and private players to employ, illegal and corrupt means of achieving an end goal will continue. Recall that the neuroscience research finds no fundamental difference between people with different ethnics or race origin. Thus, it is the political institution designers' responsibility to provide adequate political currencies to channel people's preferences.

### **5.3 Legitimacy of Judicial System and the Probability of Punishment**

As no society is immune to corruption, it calls for the judicial system to play the safeguard's role. How successfully the judicial system fulfills this role depends on its competence in guarding justice. The findings of this study revealed that, in both countries, corrupt officials with higher amounts of illegal income enjoyed a lesser probability of punishment. Wealth in either country means buying more time to evade punishment. In the United States, empirical evidence shows that the criminal justice system works less favorably for low-income suspects than it does for affluent ones. For example, high-income people in the United States have a greater probability of making any given level of bail, have greater access to legal counsel, a higher propensity to go to trial for defendants released on bail, and a lower probability of conviction (Landes 1971; Lott 1987). In China, wealthy offenders prevent investigations of corruption through bribing patrons, threatening whistleblowers, only taking "safe" bribes, and turning down involuntary briberies. They avoid punishment by immigrating to foreign countries without extradition treaties with China, hiring the best attorneys, and bribing judicial personnel.

If injustice is inevitable in any judicial system, how people react to injustice reflects subjective evaluation of as well as their trust over the judicial system. The weak political trust in China resulted from missing political currencies, as discussed in the previous section, which become evident in people's reactions to the perceived injustice. When Zheng Xiaoyu was sentenced to death as a minister-level official, both he and the public believed him to be a sacrificed "chicken," merely there to serve the purpose of teaching others a lesson, rather than deserving the severity of punishment he received. Many other officials regard their corrupt acts as a necessary path to achieve promotion and success. They believe if everyone does it, no one should be blamed. The mass public appreciates anti-corruption efforts, but, at the same time, regard those punished as merely having bad luck. Even after the public trial of Bo Xilai, a vice-national-level official,

people who watched the trials believe Bo is a sacrifice in the political combat. In other words, the distrust in the integrity of the legal system results in a failure to legitimize judicial decisions.

In contrast, the Supreme Court and the broader court system in the United States enjoy a “great deal of legitimacy among the American people” (Gibson and Caldeira 2009, 121). The positive bias theory argues that controversies reinforce institutional legitimacy through exposure to the legitimizing symbols associated with law and the courts (Gibson et al., 2003). For example, after President George W. Bush nominated a controversial candidate, Judge Samuel Alito, to the Supreme Court, Gibson and Caldeira (2009) found that the public’s attitudes toward the Supreme Court and the broader court system did not suffer from partisan or ideological polarization. The support for the court’s decision is a diffuse support, “a reservoir of favorable attitudes of good will that helps members to accept or tolerate outputs to which they are opposed or the effects of which they see as damaging to their wants” (Easton 1965, 273). It is a loyalty and respect to the institutions, a more fundamental loyalty over the long term despite the opposition to specific policies (Easton 1975; Gibson 1989). Controversies nurtured a more salient public. In fact, political knowledge enhances institutional legitimacy of the judicial system: “To know courts is to love them, or at least to respect them” (Gibson and Caldeira 2009, p. 122). It takes time to improve the legitimacy of political institutions among the public. The United States has invested over two centuries on the institutional legitimacy, while the People’s Republic of China only had less than 70 years to construct a new institutional infrastructure, contradicting its thousand-year political legacy. As much as diversity and inclusiveness are valued for individuals in democratic societies, countries take different paths to build a more competent political infrastructure and seek legitimization by the public.

Therefore, the findings of this dissertation provide a breaking point for establishing and reinforcing the legitimacy of judicial institutions. For both China and the United States, the emphasis is on the probability of punishment instead of severity. For the United States, the probability can be enhanced at stages of investigation, after charging a defendant, and securing conviction through auditing, protecting whistleblowers, and increasing resources for law enforcement. Moreover, the probability of punishment can also be improved through protecting the free press and the electoral democracy. Modern technology lowers the social costs of improving the subjective probability of punishment by using social media.

For China, the most important policy implication is to replace the severity slogan with an emphasis on the probability of punishment. If there is a path to a clean government in China, improving the probability of punishing corrupt officials effectively and consistently can be the first step in breaking through the pervasive corruption. Improving probability implies that additional resources be devoted to the judicial system, as well as minimizing intervention in the judicial decision-making process. China still refrains from creating an independent judiciary. However, positive changes have been underway in the current administration. CDIs, the prime anti-corruption organization within the Communist Party of China, have gained a degree of vertical independence under the Central Commission for Discipline Inspection only; this is in contrast to being under the dual leadership of horizontal Party Secretaries and CCDI in the past. In March 2018, a Supervision Commission was established to replace the function of the Ministry of Supervision, but with a national status—no longer to be merely a subordinate office under the State Council. These quasi-independence features are promising for a more robust judicial system.

#### **5.4 Concluding Thoughts**

In summary, improving the objective probability required strong-willed governments and corresponding resources devoted to anti-corruption efforts. As the advancement of modern technology, it will no more be costly as postulated by Becker (1968). This case study shows that public officials in China and the United States think rationally and respond to the probability of punishment. More importantly, their subjective probabilities of punishment are usually lower than the objective levels, which encouraged their engagement in corruption. Hence, deterring corruption should focus on both objective and subjective probabilities.

In contrast with relying on severity for deterrence, raising the probability of punishment should be a goal of effective anti-corruption activities. Raising the probability requires the input of social resources as well. Meanwhile, the development of modern technology and anti-corruption mechanisms will make it more affordable for governments to improve both the objective and subjective probability of punishing corruption.

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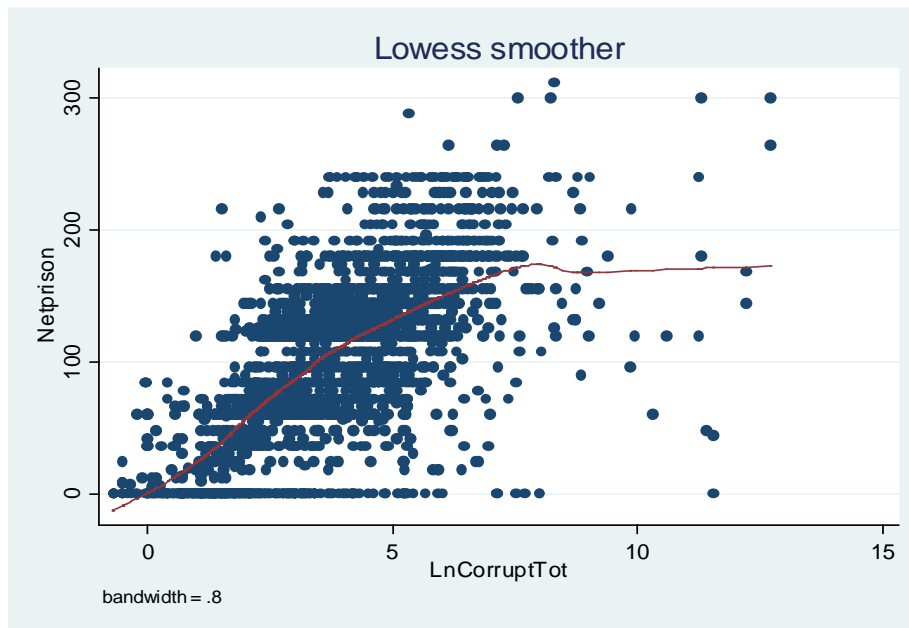
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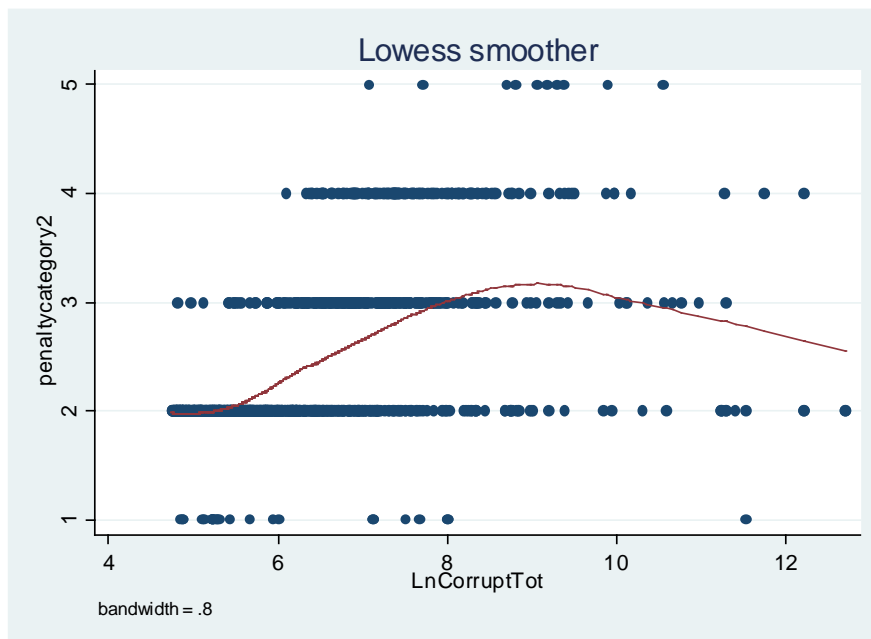


## APPENDIX

### Appendix A



*Lowess Smoother for the Data in Figure 2.1*



*Lowess Smoother for the Data in Figure 2.2*

## Appendix B

Regression Models of the Months Sentenced (Table 2.6) with Interactive Terms and Duration

	Model 7	Interactive I	Interactive II
<b>Ln (Total Corruption Amount)</b>	38.890 *** (1.717)	36.659 *** (1.863)	36.649 *** (1.901)
<b>Square of Ln (Total Corruption Amount)</b>	-2.076 *** (0.216)	-1.893 *** (0.229)	-1.891 *** (0.234)
<b>Public Servant</b>	8.990 *** (2.264)	8.685 *** (2.317)	8.667 *** (2.321)
<b>Political Ranking</b>	1.044 ** (0.528)	0.777 (0.533)	0.781 (0.533)
<b>Sentenced in Another Country</b>	79.319 * (44.506)	73.491 (44.852)	73.372 (44.997)
<b>Sentenced in Another Province</b>	-15.781 * (9.156)	43.251 † (24.853)	18.453 (56.439)
<b>Elected</b>	5.684 ** (2.453)	5.555 (2.454)	5.498 * (2.460)
<b>Confessed</b>	-3.199 (2.507)	2.767 (5.572)	2.682 (5.578)
<b>Tipoff during Custody</b>	-19.289 *** (4.912)	-37.377 *** (8.475)	-32.434 (16.640)
<b>Actively Pay Back</b>	-8.188 *** (1.959)	-14.964 *** (4.247)	-14.877 *** (4.270)
<b>Corruption Duration (Year)</b>		1.110 *** (0.249)	1.105 *** (0.250)
<b>Ln (Total Corruption Amount) * Confessed</b>		-1.749 (1.498)	-1.714 (1.504)
<b>Ln (Total Corruption Amount) * Tipoff</b>		5.433 * (2.141)	2.222 (10.339)
<b>Ln (Total Corruption Amount) * Actively Pay Back</b>		1.731 (1.121)	1.697 (1.131)
<b>Ln (Total Corruption Amount) * Sentenced in Another Province</b>		-10.004 ** (3.727)	-2.561 (16.841)
<b>Square of Ln (Total Corruption Amount) * Sentenced in Another Province</b>			-0.497 (1.148)
<b>Square of Ln (Total Corruption Amount) * Tipoff</b>			0.436 (1.266)
<b>Constant</b>	-127.5431 ** (54.058)	-100.625 † (54.306)	-101.022 † (54.361)
R-square	0.5201	0.5273	0.5273
Prob>F	0.0000	0.0000	0.0000
Number of Observations	2402	2154	2154

Notes:

1. Robust Standard errors in parentheses; † denotes  $p < 0.1$ ; \* denotes  $p < 0.05$ ; \*\* denotes  $p < 0.01$ ; \*\*\* denotes  $p < 0.001$ .

2. Other control variables included in the regression but not reported in the table are *Relatives*, *Accomplice*, *Recover Loss by the Court*, *Gender*, and *Retired*.

## Appendix C

The Effect of the interaction Term with Total Amount on the Prison Time (Unit: month)

		Sentenced in Another Province	
		yes	No
Tipoff	yes	36.07	2.82
	No	68.01	34.77

## VITA

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May 2018            PhD in Political Science  
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## **TEACHING EXPERIENCE**

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PROMISE Award. Purdue University. April, 2016.

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"Confusing Signaling Lights: the Punishment of Corruption," paper prepared for the Annual Meeting of China Institutional Economics Association, Beijing, 2014.

"Institutional Design of Retirement and Corruption in China." paper prepared for the 2nd Annual Xiamen University International Workshop on Economic Analysis of Institutions, Xiamen, China, 2014

"Retirement Age and Corruption in China," paper prepared for the University of Chicago Law School Summer Institute, Scholar's Colloquium, Chicago, 2013.

"The Micro-level Costs of the Herdsmen Migration Policy," paper prepared for the International Conference on Public Service Reform in China and the Asia-Pacific: Theories and Practices, Beijing, 2012.

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“Rent Seeking and the Institutional Design of Bureaucracy,” paper prepared for the Annual Meeting of the Midwest Political Science Association, Chicago, Illinois, 2010.

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- ❖ Summer Institute for the Preservation of the Study of the History of Economics  
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