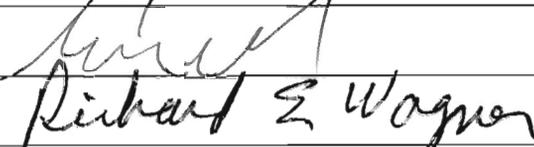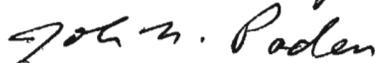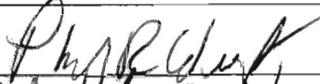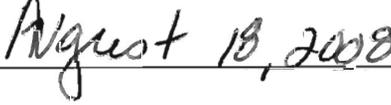# THE POLITICAL ECONOMY OF THE EVOLUTION OF CHINA TOWARDS AN AUTHORITARIAN MARKET ECONOMY

by

Yongjing Zhang
A Dissertation
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Graduate Faculty
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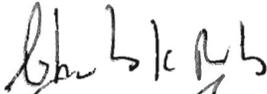
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The Political Economy of the Evolution of China towards an Authoritarian Market Economy

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DEDICATION

This is dedicated to the late Otto "Toby" Davis (1934-2006), a pioneer in public choice, an earnest professor, and a life model.

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ABSTRACT

THE POLITICAL ECONOMY OF THE EVOLUTION OF CHINA TOWARDS AN AUTHORITARIAN MARKET ECONOMY

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This dissertation provides a public choice view of modern China's political economy. It explores the evolution of China towards an authoritarian market economy. In particular, the research focuses on the evolutionary path of institutional changes underlying the so-called China's market miracle. The analysis begins with a fundamental assumption of public choice – "methodological individualism", but it also links public choice to various fields. This dissertation finds that it is a rational choice of the self-interested authoritarian rulers to launch a growth-oriented incremental reform that is primarily driven by the private sector. Furthermore, the pro-competition policy reform steps have been the major institutional contributors to China's market miracle, whereas the growing interest group activities within the private sector may hinder the legal reform and thus jeopardize the advancement of modern China's market economy.

CHAPTER 1: Introduction

1. An Introduction to China's Authoritarian Market Economy

China's market miracle is a riddle to scholars in that no single theory in current political economy can seem to explain it well. The obvious question is how can this miracle be achieved through an incremental market reform under an authoritarian regime? Contrary to the conventional wisdom, however, China did indeed achieve the impossible under only a little changed political system. My dissertation provides an answer to this obvious and yet complex question.

Starting in 1978, China's market reform has achieved impressive economic growth rates over the last three decades, during which China doubled its GDP within the nine years 1978-1987, and doubled it again within the following 9 years 1987-1996. In the years after 1996, China's GDP annual growth rate has still remained as high as 10% on average. Interestingly, China's reform has been a process of *authoritarian market economy*, characterized by an incremental, smooth, and generally successful institutional transition towards a market economy under the conditions of authoritarian political control.

So far scholars have not reached a consensus on why China was able to accomplish the tremendous economic success under the conditions of authoritarian market economy. For instance, some scholars hold the "Washington consensus view" and argue that the

"big bang" rather than the incremental reform is the optimal policy prescription for the development of transitional countries (surveyed in Williamson, 2004). However, the economic growth of China has consistently outperformed the sluggish economic growth of Central and East Europe who adopted "big bang" reforms over the past two decades. In addition, some scholars (*Economist*, March 15-21, 2008) are surprised to find "China appears to be a standing contradiction to the argument that the rule of law is needed for growth." Therefore, China's authoritarian market economy has become a research topic of great value that attracts scholars' attention.

On the economic side, China's authoritarian market economy has undergone an incremental institutional reform towards a freer market economy. Extensive reform steps have been gradually implemented in pro-competition policies, whereas limited effort has been taken to the protection of property rights and even less effort to the rule of law. In addition, a surging private sector has highlighted China's market reform despite the private economy violates the traditional socialism dogmas that China used to comply with. The private sector accounted for less than 1% of China's GDP in 1978. As "2006 Blue Book of Private Enterprises (ACFIC, 2006)" reveals, the figure increased to 42.8% in 2000, jumped to 50 % in 2005, and is expected to reach 55% - 60% within the next five years. ACFIC (2006) also reports that China's private sector has continuously expanded its share of nationwide investment in the fixed assets: its share climbed from almost zero in the 1980s to 41.9% in 2000 and then 60% in 2005.

On the political side, China's authoritarian market economy is indicative that an oligarchic group of authoritarian rulers firmly control Chinese politics. In western

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democracy, new private entrepreneurs will enter the middle class that is more likely to be pivotal in elections. In other words, the economic side may directly determine the electoral outcomes on the political side. In Chinese political economy, in contrast, political rights of citizens are strictly limited. Furthermore, the prosperity of the private sector conflicts with the traditional socialist dogmas in China that is favor of the public sector. Therefore, the authoritarian rulers do not necessarily comply with the ideal point of the pivotal voter from the private sector. However, they have fostered the private sector by planning and taking a series of institutional reform steps.

Obviously, the political-economic structure in China is unique and inherently different from other major economies in the world. Blanchard and Shleifer (2000) label China as a country under economic decentralization with political centralization. Wintrobe (1998, 2005) cannot match China with any major type of dictatorship but name it as a unique "free market communism". Most interestingly, the so-called China's market miracle has lasted for more than two decades, along with the evolutionary path of this unique political-economic structure towards the one that I call an "authoritarian market economy". Therefore, such an evolutionary path deserves careful study.

The rest of this chapter is organized as follows. Section 2 proposes some primary hypotheses about China's authoritarian market economy. Section 3 discusses the fundamental methodology - methodological individualism - that I apply to China's political economy. Section 4 addresses the infeasibility of regression methods due to suspicious statistics. In the final section, I will outline the study plan and research methods for my dissertation.

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2. Basic hypotheses about China's authoritarian market economy

Roland (2000, 2003) and some other leading economists (Lin, Li and Cai, 1994, 2003; Blanchard and Shleifer, 2000) think highly of China's incremental reforms. They note that the transition towards a market economy in China has proceeded under the tight control of the central government. Furthermore, as a number of empirical studies (e.g., Wu and Davis, 1999) have confirmed, political freedom is not indispensable for economic growth in the case of China.

Interestingly though, Roland, Lin and other scholars do not actually give China's private sector credit for its contribution to China's economy in their works. Roland (2000, 2003) proposes an evolutionary game-theoretical model. Though he emphasizes the significance of this route, he fails to acknowledge the contribution of the private sector. Lin's theory of "China market miracle" taking Township-Villageship Enterprises (TVEs) as the leading factor in China's economy could not explain why China still enjoys double-digit growth rates when the TVEs' golden age is over,.

In my view, however, a theoretical framework of modern China's political economy must underline the role of the private sector during the interactions between the market economy and the authoritarian regime. Within China's authoritarian market economy, the economic and political sides interact in a variety of aspects and generate the dynamics of large-scale institutional changes. Specifically, the China's central government has launched a growth-oriented incremental reform to facilitate the gradual expansion of the private sector. Such a reform is actually a rational choice of the

authoritarian central rulers, that is, to trade a small amount of political loss for a larger amount of economic value.

In addition, Chinese central rulers (principal) do not totally control provincial and local government officials (agents). Provincial and local officials exploit private firms by taking advantage of institutional imperfections, but they also collude with private firms at the cost of the public interest. Suffering from an information disadvantage, the central rulers can not scrutinize every predation case and every interest group activity. The central rulers can implement institutional changes that prevent private firms from potential predations, but they cannot easily eradicate "interest group-politician" collusions that are voluntarily created between private firms and local officials.

Accordingly, there arise some challenging but largely unanswered questions concerning Chinese political economy: (1) How do the economic and political sides interact? (2) How do dynamic institutional changes evolve out of these interactions? (3) What is the difference if the economic side rather than the political side initiates an institutional change? (4) How does the authoritarian government deal with the unavoidable "principal-agent" problem? (5) How does the economic side unite with the "political agents", i.e., the potential interest group politics?;

To answer these questions, I employ a rational-choice approach that assumes self-interested officials may not pursue the public interest. Fundamentally, *this dissertation attempts to build up a systematic political-economic framework that delineates China's authoritarian transition towards market economy.* The interactions involved in the transition are exhibited in Figure 1, where interactions from (1) and (6) indicate

bidirectional links among four types of participants and interaction (7) denotes local protectionism or local collusions. In the planned economy, there were three major types of participants: the central government, provincial and local governments, and the State-owned enterprises (SOEs). After the beginning of the market reform in 1978, three new kinds of firms emerged and joined the Chinese economy, including Township-Villageship enterprises (TVEs), the private sector, and foreign direct investment (FDI). The private sector and FDI develop private properties in the market economy, whereas SOEs and TVEs contribute to public properties. It appears the private sector has made the most significant contribution to China's market economy.
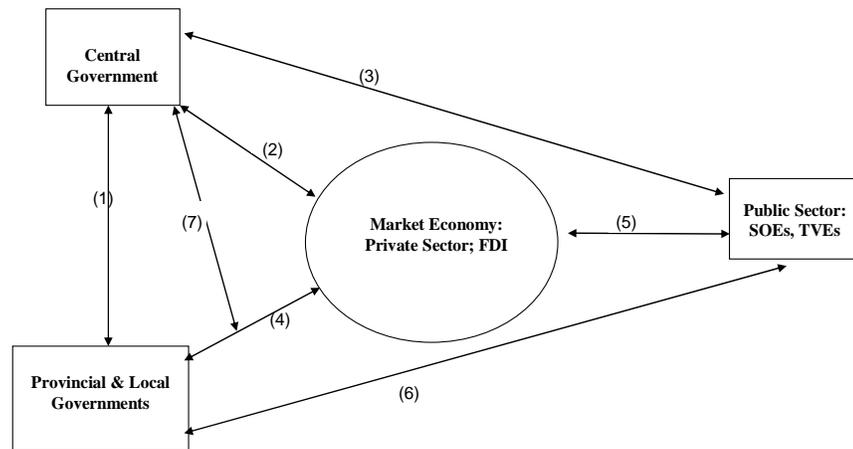
Figure 1: The Interactions between Participants of China's Authoritarian Market Economy

I outline the basic hypotheses of this dissertation as follows:

1. It is a rational choice of the self-interested authoritarian rulers to launch a growth-

oriented incremental reform.

2. Growth-inducing institutional reform steps in China are primarily driven by the initiatives of the private sector.

3. The inherent institutional defects will jeopardize future market success.

4. Essential institutional reforms are difficult, if not impossible, to implement under the current conditions of the authoritarian government.

3. Methodological Individualism and Chinese Political Economy

3a Definition

Numerous studies have examined the concept of "methodological individualism" and proposed various definitions. My conceptual basis of in this regard will be built upon of what has been suggested by the founding public choice scholars. In the preface of *The Calculus of Consent,* Buchanan and Tullock (1962) define the term as "human beings are conceived as the only ultimate choice-makers in determining groups as well as private action." Later on, Mueller (1997) provides a more detailed definition which in my view is good as well:

"The individual agent is taken as the fundamental building block for all economic analysis. Agents are assumed to have certain objectives or preferences and to interact in particular institutional settings (e.g., markets). Aggregate outcomes are discovered and characterized by examining the consequences of the individual agents and the institutional constraints on that behavior (Mueller, 1997: p. 3-4)."

An implicit assumption that methodological individualism rests on is that individuals act rationally. But as Rowley and Vachris (2003) argue, we must specify

whether thin or thick rationality assumptions should be deployed in public choice analysis: in thin-rational accounts, agents are utility maximizers, and their preferences are not clearly outlined; in thick-rational accounts, those preferences are specified in more details. Virginia political economy has largely utilized the thick-rationality approach, identifying the rational agents' individual utility functions. This dissertation is not an exception.

3b. Philosophical Individualism versus Methodological Individualism

Buchanan and Tullock (1962) make it clear to us that methodological individualism should not be confused with "(philosophical) individualism", which is a norm for organizing social activities. Methodological individualism simply reduces all political issues to individuals' confrontation as the ultimate decision makers. In this approach, we must consider the possibility that some individuals might want to obtain additional collective goods by sacrificing private goods (Johnson, 1991). Johnson (1991) further points out that philosophical individualism is the term applied to a set of values that implies: (1) collectivism is undesirable and (2) individuals should be free to pursue their goals with minimal interference from the collectivity or government. Clearly, methodological individualism is a *positive* approach, because it is value free, i.e., individuals are free to follow the logic of choice of their own. In contrast, philosophical individualism is *normative*, for it requires certain value criteria. According to Buchanan and Tullock (1962), after all, the representative individual in my models hereafter may be egoistic, altruist or even irrelevant.

3c. Constructivist Rationalism versus Methodological Individualism

Prior to the market reform, China used to follow the approach of *constructivist rationalism*. The approach assumes the existence of elite minds capable to deliberately design social institutions. Traditional Marxist scholars, such as those who advocated the planning economies in China and the Soviet Union throughout the second half of the 20th century, espoused this approach. Such social democratic scholars as Paul Samuelson, Kenneth Arrow, and John Galbraith were more or less advocates of this perspective as well. Nevertheless, this approach has been proved both theoretically and empirically wrong. On one hand, Hayek (1973) argues that a single elite mind is vulnerable to *synoptic delusion*, because no mind could possess such universal or extensive knowledge to plan and achieve a desirable social order. Samuelson (1954) admits that it is hardly possible for a social planner to accomplish the optimum of public goods. Arrow (1969) also concedes that a social planner could barely price all externalities in a general equilibrium system. On the other hand, the empirical failure of this perspective has been well demonstrated by the dismal performance of the planned economies in China, the Soviet Union and its European satellites.

To conduct research upon China's political economy, it is imperative to contrast constructivist rationalism as an approach to that of methodological individualism. For a long time, scholars have attributed China's market miracle to the merits of dictatorial social decision-makers at various levels of government. For example, Lin, Li and Cai (1994, 2003) argue that China' market miracle won ovations because the central government switched the development strategies from the heavy-industry-oriented

approach to the endowment-oriented one. Similarly, Qian and Weingast (1996, 1997) suggest that Chinese fiscal federalism succeeded mainly because the central government promoted inter-jurisdiction competitions among local governments.

Nevertheless, two crucial drawbacks of constructivist rationalism determine its failure to account for China's market reform: (1) Hayek's (1973) followers and Virginian political economists argue that government officials can not control every aspect in a complex society like China; (2) When an official, after being assigned the duty, becomes a dictator, there leaves a question mark how benevolent his intentions are (Rowley, 1993). Even Hobbes himself (1651) admits that it remains as an unanswered question how Hobbesian sovereigns could be constrained (Buchanan, 1975).

Regarding the first drawback, I throw a question upon Lin's theory of China's market miracle: now that the central government has failed to relieve the planned economy on one hand, why, on the other hand, the central government deserves credit for the transformation of development strategies? In this dissertation, I address this question on the basis of methodological individualism in an attempt to provide an alternative to Lin's explanation of China's market miracle. I assume that central leaders are utility maximizers on the political side; private owners run business as market units on the economic side; and both sides interact with each other.

With respect to the second drawback, I refer to a basic assertion of public choice that a government official is basically self-interested, i.e., he may potentially make use of power for his private ends. Therefore, there is no guarantee that he will remain committed to the public interest of his constituents.

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3d. Collective actions and institutions under methodological individualism:

According to the approach of methodological individualism, collective actions happen simply because individuals choose to fulfill goals collectively rather than individually; and those actions should not be understood as the products of any single mind. In Hayek (1948)'s view, socially aggregate phenomena should be explained as the largely unintended outcomes of individual actions directed toward other people and guided by their expected behavior.

Government, as a type of institution, is merely a set of processes that facilitate collective actions to take place. Since it is an artifact constructed by rational individuals, government is, by nature, subject to change (Buchanan and Tullock, 1962). For more details, Rowley (1993) presents us with an excellent argument how institutions work under methodological individualism:

"Policy emerges as the consequence, whether or not intended, of human action, and institutions are viewed as mechanisms through which individuals choose or not to interact. In this perspective, institutions either evolve without conscious design or are shaped and formed by boundedly rational individuals. Only individuals choose and act, whether severally or in combination (Rowley, 1993) ".

Rowley's statement implicitly follows an *evolutionary approach* which was initiated by Hayek (1973):

"Orderliness of society which greatly increased the effectiveness of individual action was not due solely to institutions and practices which had been invented or designed for that purpose, but was largely due to a process described at first as 'growth' and later as 'evolution', a process in which practices which had first been adopted for other reasons, or even purely accidentally, were preserved because they enabled the group in which they had arisen to prevail over others (Hayek, 1973)".

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The evolutionary approach appears to be consistent with the path of China's market reform, and it is also compatible with the evolutionary-institutionalist perspective by Roland (2000). For instance, the prosperity of private firms was not the primary objective when the market reforms were initiated. However, as private business now contributes the majority of national GDP, China's Constitution started to enshrine private property rights in 2004. According to Hayek (1973), it is of sovereign importance to explore the mechanism through which evolutions occur and how new institutions gradually take the place of old ones.

3e Heterogeneity under Methodological Individualism

The complex heterogeneity among individuals is another reason why I adopt methodological individualism. Hayek's (1952) systematic discussions have emphasized the presence of the heterogeneity. In his view, there are two approaches of research: the subjective approach of social sciences and the objectivist approach of natural sciences. The subjective approach deals in the first instance with the phenomena of individual minds that may process the same information in much different ways. The objective approach identifies collectives with popular generalizations. Obviously, the former approach, rather than the latter, embodies one characteristic feature of methodological individualism, that is, the actions of human beings reflect their varying beliefs and goals.

Heterogeneity does matter. "If we could assume that all the knowledge and beliefs of different people were identical, or if we were concerned with a single mind, it would

not matter whether we describe it as an 'objective' fact or as a subjective phenomenon (Hayek, 1952)." In other words, methodological individualism is less important when people are more homogeneous. In dealing with the goals of China's central government oligarchy, I develop a thick rationality approach that clearly specifies the particular arguments in those individuals' preferences.

4. The Infeasibility of Regression Methods due to Problematic Statistics

To conduct political economy research using regression methods is not only desirable but often desirable. However, I cannot simply rely on the infamous published statistics by the Chinese government. It is known to us all how dangerous or misleading can be if we employ a highly suspected statistics.

Chinese public statistics are highly dubious owing to the promotion mechanism built into China's hierarchical bureaucracy. Under this promotion mechanism, the chance of promotion for a local leader is significantly positively correlated with the GDP growth rate of his jurisdiction (Li and Zhou, 2005). Consequently, self-interested and promotion-oriented local leaders have all the incentives to inflate the local GDP growth rate, as they hold the advantage of asymmetric information over the central government. Hence, I raise a validity issue: GDP statistics are not designed to measure how a local leader is willing to be promoted, but it has happened like this. Consequently, it seems that national GDP statistics is rather more trustworthy than provincial and local GDP statistics, because the central leaders, who have climbed to the top of the bureaucratic hierarchy, have not as much incentive of promotion.

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To further demonstrate the invalidity of GDP statistics, I searched for the provincial GDP growth rates of 2005 and 2006 that were reported by provincial statistical bureaus. In addition, Chinese national statistical bureau announced that China's 2006 national GDP growth rate was 10.7% on January 25, 2007. Comparing this number with provincial GDP rates, we will find out that no province (except Hong Kong, Macao, and Taiwan) has a GDP growth rate significantly (the 5% level) lower than the national rate. The same situation occurred to 2005 and many of previous years. It is worth noting that the national statistical bureau calculates national GDP based on the annual nationwide data, while all provincial GDP data are computed by provincial statistical bureaus independently. Since all bureaus (national and provincial) follow the same GDP accounting criteria and procedures, all GDP data should be precise and there should be no double-counting across regions. However, the reported GDP data tells us a different story.

It is observed from Table 1 that almost every province reported a GDP growth rate that is higher than the national level. There must be something wrong. The official explanation from the central statistical bureau (2007) is that if a factory is located in a province but its headquarter sits in another province, then both provinces may double-count the output value of the factory.

Ironically, such a lame explanation contradicts one basic criterion of GDP, that is, "place of origin". Once again, I would argue that the fault lies in the promotion mechanism in the bureaucracy. No matter what gives rise to the GDP controversy, however, I draw a safe conclusion that China's public statistics are something that every serious researcher should take it with a significant grain of salt.

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Table 1: 2005-2006 Provincial GDP Growth Rates

Province	2005	2006	Province	2005	2006
Country	*9.9*	*10.7*	Beijing	11.8	12
Tianjin	14.7	14.4	Hebei	13.4	13(expected)
Shanxi	12.6	11.8	Neimenggu	23.8	18
Liaoning	12.3	13	Jilin	12.1	17.2
Heilongjiang	11.6	11(expected)	Shanghai	11.1	12
Jiangsu	14.5	15(expected)	Zhejiang	12.8	13.6
Anhui	11.6	12.5	Fujian	11.6	13.4
Jiangxi	12.8	12.4	Shandong	15.2	14.5(expected)
Henan	14.2	14	Hubei	12.1	12.1
Hunan	11.6	12	Guangdong	13.8	14
Guangxi	13.2	13.5	Hainan	10.2	12.2
Chongqing	11.5	12.3(expected)	Sichuan	12.6	12.5
Guizhou	11.6	11.5	Yunnan	9.0	11.9
Tibet	12.1	13.2	Shaanxi	12.6	11
Gansu	11.8	10.6	Qinghai	12.2	12.2
Ningxia	10.9	12.5	Xinjiang	10.9	10.5(expected)

Date Sources: National statistical bureau of China (2006, 2007), Provincial statistical bureaus of different provinces (2006, 2007).

Since China's public statistics are dubious, I find it unacceptable to directly input GDP data into a cross-province single-equation regression. When a data summary is necessary in this dissertation, I choose to draw upon national GDP data rather than provincial and local GDP data. I expect more reliable statistics on Chinese economy such that we may have more accurate accounts of the economic changes in China.

5. Research Methods and Study Plan

In this dissertation, the central topic is the nature of China's market miracle during the institutional transition towards an authoritarian market economy. More specifically, I address the following key questions in sequence as follows: (1) What happens on the

political side (Chapter 2)? (2) What happens on the economic side (Chapter 3)? (3) What distinguishes between institutional changes induced by the economic side and those imposed by the political side (Chapter 4)? (4) Given that the private sector on the economic side is the driving force of institutional changes, what are the primary policy objectives of the institutional reform (Chapter 5)? (6) Why is the institutional reform an incremental process? During the incremental process, how do the economic and political sides interact? How have the institutional reforms effectively contributed to China's market miracle (Chapter 6)? (7) What is the priority ranking among policy objectives of the institutional reform? Will interest group activities endanger China's market miracle (Chapter 7)? Various types of research methods are utilized to answer the aforementioned questions.

First, I will adopt an analytical-history approach to examine the evolving nature of China's authoritarian politics (Chapter 2) and that of China's economy (Chapter 3). More specifically, Chapter 2 reviews the evolution of political institutions from autocracy towards soft oligarchic authoritarianism that is growth-oriented, while Chapter 3 outlines the evolution of economic institutions in which an incremental institutional reform has taken place to accommodate the continuous expansion of the private sector and to attract quality FDI.

Second, I apply a behavioral political economy framework to the natural experiments regarding China's institutional changes, emphasizing the clashes between economic and political institutions (Chapter 4). This framework integrates public choice with behavioral economic that is based on prospect theory. When an institutional change

meets the political interest of China's authoritarian government, the original prospect theory applies. In contrast, when an institutional change conflicts with the political interest of the government, the behavioral political economy framework should be adopted. The high spot in China's market reform has been induced institutional changes from the private sector that bring to the government certain economic gains and certain political losses as well. Therefore, it behooves me to use the behavioral political economy framework to test a key hypothesis: It is a rationale for the China's central government oligarchy to adopt institutional changes induced by the private sector in a sequence of incremental reforms.

Third, I report subjective and objective measures of China's institutional quality that various external sources have documented and display these measures in a table (Chapter 5). With the help of this table of institutional measures, I conduct a comparative analysis between the prevailing literature and the historical facts of China's institutional reform. Although scholars have been surprised by China's market miracle, this comparative analysis suggests that it is pro-competition policy reforms that have driven economic growth in China.

Fourth, I propose a predator-prey evolutionary model with intelligent design that illustrates the importance of pro-competition policies in a transitional reform (Chapter 6). This model integrates public choice with the predator-prey branch of evolutionary game theory. In this model, growth-oriented central government leaders are intelligent designers of institutional changes; provincial and local officials are potential predators; and private firms are potential prey. This model may help us to solve puzzles regarding

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China's market miracle: (1) Why improvements in the rule of law and in the protection of private property rights are not essential for short-run growth in China; (2) why China could succeed in an incremental reform. It is worthy of noting that behavioral economics does not entirely cover the dynamic interactions between predators and prey.

Second to last, I develop an interest-group framework for modeling China's authoritarian market miracle (Chapter 7). This framework consists of three models: (1) A Hirsheleifer (2001) model of peaceful settlements between officials and private businessmen under the shadow of conflict; (2) A composite of the Olsonian (1982) growth theory and the Denzau-Munger model (1986) of interest groups; and (3) An iterated Hawk-Dove game with rent extraction. All three models support a central theme, that is, a "two-stage evolutionary path for China's authoritarian, market-based economic miracle." In the first stage, the private sector with an unorganized interest is the driving force of economic growth. In the second stage, however, new interest groups formed among private firms are harmful to China's market economy. This interest-group framework indicates that China's market miracle will not be sustainable without the establishment of secure property rights and the rule of law

Last, but not least, I conclude the dissertation by outlining the theoretical implications and empirical evidence of this research (Chapter 8).

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CHAPTER 2: China's Evolution from Autocracy towards Soft Authoritarianism

– An Analytical History

1. Hypothesis

The rational choice approach is adopted to understand the evolution in China from autocracy towards soft authoritarianism. At the core of this theoretic framework is my belief that the political motive underpinning this evolution is not pre-designed out of certain top leaders' predetermined will, but rather reflect the rational choices by generations of top leaders to extend their own power by resolving the "successor's dilemma". Specifically, the paramount leaders Mao Tse-Tung, Deng Xiaoping, Jiang Zeming and the incumbent leader Hu Jintao all operate on the basis of this rational goal. As a result, China has experienced incremental inside-party democratization that leads to an oligarchic authoritarian government. In addition, as rapid economic growth sustains necessarily high loyalty among citizens, any significant relaxation in the level of repression has not been an option for China's central government.

2. Introduction

Chinese political regime has evolved from a totalitarian autocracy in Mao Tse-Tung's era to the current soft authoritarianism. In his totalitarian regime, Mao and his inner circle of leaders firmly controlled a strictly planned economy and a highly repressed politics.

Currently, China's oligarchic central government runs a soft authoritarianism regime that combines a market economy with an autocratic political system. To explore this evolution of China's political regime, this chapter provides an analytical history on the basis of a rational choice theory of dictatorship.

Tullock (1974, 1987, 2005) uses rational choice theory to analyze dictatorship. Based on one of his insights, autocratic leaders are faced with a permanent risk of being overthrown from the power. And such risk primarily comes from within the inner circle of the power elite. Thus, in the political power of succession since autocratic leader Mao Tse-Tung, it has been a constant power struggle within the Chinese Communist Party (CCP, hereafter) for the past 60 years at the expense of the loss of lives and great economic sufferings of the people throughout the country. However, China is fortunate to have evolved from a totally autocratic society under the paramount leader of Mao Tse-Tung, to the current leaders with soft authoritarianism characterized by "term-limited presidency". The smooth transition from the former President Jiang Zeming to the incumbent President Hu Jintao "marks the first routine power transition without the impetus of a political crisis or the death of the top leader in the history of the People's Republic of China (Scobell et al., 2001)." The contemporary central government of China, led by a 9-member politburo, holds an oligarchic control over the instruments of the political regime. The evolution of the political power at the top certainly deserves the attention from public choice scholars since it forms a sharp contrast with much more dramatic reforms in China's economic arena.

However, only a few studies are known to have applied the rational choice approach to analyze the contemporary political leadership in China. In a recent literature review by Pittinsky and Zhu (2005) on the subject, the authors conclude that "the consequence of leadership transition … have not been addressed in much details…such consequences are typically discussed in brief concluding remarks." They also admit a more serious problem of the literature in that too many studies are "more impressionistic and reflective than interpretive." Furthermore, most of those studies rely excessively on unreliable stories of the "smoky room" sources. More often than not, they offer the subjective conclusions on the characteristics and behaviors of leaders rather than reporting the information from the objective perspective. Most importantly, we can hardly find any convincing theory based on objective information sources when we interpret the evolving nature of China's authoritarian regime.

Given the aforementioned theoretical gaps in the current literature of Chinese elite politics, this chapter attempts to develop a positive analysis of the evolution of political regime as well as the leadership successions in China. The analysis rests on the central premises of a rational choice approach and focuses on objective information sources. I argue that public choice theory offers a plausible interpretation of Chinese political transition and its nature of evolving. As I demonstrate in later sections, the political evolution of contemporary China has been a trial-and-error process for the regime's survival and the resolution of the "successor's dilemma" has enabled China to avoid the turmoil of an unstable society both politically and economically.

This chapter is organized as follows: Section 3 is a brief introduction that explores the methodological issues. Section 4 discusses the evolution of the political regime in growth-oriented contemporary China. Section 5 introduces the definition of successor's dilemma. Section 6 argues that the institutional design of "Term Limit Presidency" helps China to resolve the dilemma of political succession. Section 7, supplementary to Section 6, answers why all other political successors end up in failures before Hu Jintao who is the current leader of the CCP. Finally, I draw conclusions in Section 8.

3. Methodological Issues

While rational choice theory has been developed largely to describe the motive and behavior of representative democracies, I assume that autocratic leaders in Communist countries like China are most of the time rational. The public choice revolution has demonstrated well that rational behaviors could be driven by either economic or political goals. As Wintrobe (2005) summarizes, "rational choice can be just as useful in understanding the behavior of people who are motivated by power or ideology rather than wealth or consumption." Rational choice theory was not applied to understand autocracy until Tullock (1974, 1987) and North (1981).

Current public choice literature of autocracy largely overlooks an important motive of dictators – "their legacies". Mueller (2003) outlines three main goals of dictators: (1) the consumption, (2) power, and (3) security. However, one of the crucial motives of Chinese rulers has not been attended to here. Specifically, Chinese rulers have

been always terribly concerned if not obsessed with their political succession of power. Scobell (2001) points out that

"Of course many leaders become addicted to the power and privilege of their positions and seek ways to prolong their leadership tenures. Eventually, however, even long-serving leaders must face their own mortality, *reconcile themselves to how they will be remembered*, and plan for the succession (Scobell, 2001: P. 3)."

As I will discuss later, this motive led Mao Tse-Tung to start addressing the dilemma of political succession.

This chapter emphasizes that autocracy politics is an evolutionary political process. To maximize consumption or power, autocrats must deal with common citizens. Similarly, to resolve the dilemma of political succession, autocrats must carefully work with their designated successors. The autocratic politics evolves out of the two types of political interactions.

The main purpose of this chapter is to provide a positive analytical history. Unlike those anecdotes that offered unverifiable stories about the Chinese leaders, my discussion will be only dependent on revealed historical facts. My analysis cannot go into close observations in empirical details due to the limited amount of reliable information, but available information has been sufficient for me to draw all major conclusions in this chapter. My approach throughout the chapter follows that of Wintrobe in "the political economy of dictatorship (1998)," and that of Tullock in "social dilemma (1974)" which "is the first attempt to develop a comprehensive positive theory of the nature of autocracy (Kurrild-Kitgaard, 2000)."

4. Evolution of Political Regimes in China

While dictators may have many goals in common in governing their subjects, they can still be quite different in how to govern their subjects. On one hand, the goal of dictators may be inclined to consumption, power, security, or the mixture. On the other hand, different political regimes impose varying instruments and constraints under which dictators seek their goals. For a dictator, such instruments could be *loyalty* of his subjects and *repression* over them, where subjects could be either his designated successor or common citizens. The dictator is also constrained in two ways (Wintrobe, 1998): (1) the costs of accumulating power, which is "governed by the political institutions of the regime," and (2) the capacity to use power for monetary gains, which is subject to the dictator's economy. More importantly, how a dictator behaves and how his subjects react to his behavior are jointly decided. Wintrobe (1998) also points out that "neither the price of loyalty nor the budget constraint is fixed, but both are endogenously determined." To analyze dictatorships, therefore, it is necessary to utilize an evolutionary argument that emphasizes how the political regime evolves out of the interactions between a dictator and his subjects. Accordingly, this chapter follows a public choice tradition as I will examine not only the decision outcomes but also the decision processes.

The literature on the political economy of dictatorships is somewhat limited. Wintrobe (1990, 1998, 2005) categorizes four types of dictators and analyzes how dictators manage to achieve their goals. He also argues that political authoritarianism could benefit the economy, echoing the opinions of Olson (1993, 2000) and McGuire and Olson (1996). These studies posit that dictators have a great capacity for action, and in

particular "stationary" dictators have "encompassing interests" in wealth producing actions for the sake of sustainable tax revenues. Wu and Davis (1999) offer cross-national evidence arguing that political freedom is not indispensable to economic growth. Niskanen (2003) also provides quantitative evidence that autocrats on average apply a 45 －55％ tax rate, rather than a 100% one.

All of the aforementioned studies emphasize the relationship between dictators and common citizens. A few other studies, mostly following in the footsteps of Tullock (1974, 1987, 2005), stress how a dictator interacts with subordinates around him. They address such problems as "the succession dilemma" and "coup *d'etats*". In other words, while Wintrobe (1998) and similar studies focus on the interactions between economic and political sides, Tullock (1974) and his followers emphasize the battles within the political side[1].

In this section, I will base my analysis on Wintrobe's insights, thereby describing in detail the evolving of autocracy in China. A key question worth exploring is that "since the improvement in economic performance leads to the increase in the supply of loyalty, will the leader reduce the level of repression upon common citizens?"

4a. Mao's Era: Totalitarianism

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[1] Tullock's works cover the issue of revolution in autocracy, too. Acemoglu and Robinson (2005) examine how dictators are constrained by the fear of revolution. However, revolution is not a realistic option in contemporary China according to Fewsmith (2006). Hence, I omit relevant discussion in this dissertation.

In Mao's era, China was undoubtedly a totalitarian regime. According to Wintrobe (1998)'s definition, totalitarianism refers to "the permanent domination of each single individual in each and every sphere of life." It led to a strictly planned/command economy from top to down: "a giant bureaucracy in which all decisions are made at the center (Wintrobe, 1998)." All factory productions were subject to the central planning. Every adult in urban areas was assigned to a "social unit (*Dan Wei*)" that controlled all aspects of his/her life, such as housing, health care, and food. Some large-size *Dan Wei*s even build up their own elementary and high schools to accommodate the children of their employees. Rural residents were geographically allocated to different "production units *(Shengchan Dui)*", and they had even no say in what to grow except from high above.

Totalitarians practice high repression and demand high loyalty and it was a true description of China under Mao Tse-Tung. As the leader of CCP (the so-called revolutionary party), Mao overpaid the working class in cities who was deemed as the leading class of the society. During the wealth redistributions in favor of the class of workers, Mao not only repressed the so-called opponents of workers (including capitalists and intellectuals), but also exploited farmers in the countryside.

From the birth of the People's Republic of China (1949) till his death (1976), Mao initiated several rounds of political movements against the opponents in his judgment, such as "Conquer the Anti-Revolutionists (1950)", "Three Against and Five Against (1951)", "Confiscation of Private Enterprises (1955)", "Anti-Rightists (1957)", "Four Clearance (1962)", and "Cultural Revolution (1966-1976)". He also inflicted a large scale

of abuses on villagers in the "Great Leap Forward (1959-1962)". During that period, Mao required all villagers to stop farming and cooking by themselves, and each "production unit (*Shengchan Dui*)" should own only one cooking stove. Furthermore, peasants were urged to set up small-size steel workshops and work there as steel workers. As a result, 30 million people died of hunger during the "Great Leap Forward". In addition, Mao created and administered the system of "residence registration" that divided the Chinese people into "rural residents" and "urban residents". Urban residents enjoyed numerous privileges that rural residents were short of. For example, *Dan Wei*s provided full medical coverage to all urban residents, while rural residents were not entitled to any health plan.

Despite all the negative and at times even fatal consequences out of the schemes Mao worked out, surprisingly, Mao enjoyed high prestige among masses at the grass-roots level. While this situation coincides with Wintrobe's (2005) assertion that "the use of repression does not mean that dictators aren't popular," it behooves us to explore what caused the situation. One of the reasons is that the propaganda machinery played a significant role in enshrining Mao. Liu Shaoqi (Mao's first designated successor) coined the term of "Mao Thoughts", and Lin Biao (Mao's second designated successor) created another term of "Red Book (i.e., Mao's analects)." Apart from the propaganda's role, another reason that led villagers to worship Mao is that they could at least feed themselves (except 1959-1962) under Mao, in contrast to what they used to experience under Chiang's Era before 1949.

As a typical totalitarian, Mao's goal was to maximize his power at any cost. Even if nobody had challenged his leadership, Mao was paranoid. He kept purging the

intellectuals for fear that those intellectuals might direct public opinion against him. When the loyalty and worship to him reached climax at the beginning of Cultural Revolution in 1966, he accelerated the repression against not only intellectuals but also his fellow CCP members. Consequently, 60% of CCP members were purged from the party.

4b. Deng's Era: From Totalitarianism to "Free Market Communism"

Wintrobe (1998) classifies dictatorships into four types: (1) totalitarian: high repression, high loyalty, with the dictator as "power-maximizer;" (2) tinpot: low on both, with the dictator as "consumption-maximizer;" (3) tyranny: high repression, low loyalty; and (4) timocracy: high loyalty, low repression.

Interestingly, Wintrobe finds that contemporary China does not fit into any of these four categories. He simply labels China "free market communism", in which "extensive political authoritarianism has combined with the opening of free markets to achieve dazzling economic growth (1998)."[2] According to his categorization, when "there is an increase in economic growth that raise the dictator's popularity, tinpots and timocrats both respond to an increase in popularity by lowering the level of repression; tyrants and totalitarians, by raising it (Wintrobe, 2005)." In contrast, China's market miracle has been coupled with little changed political repression since Deng's era. Hence, Post-Mao China appears to be a unique authoritarian regime worthy of greater attention.

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[2] Please refer to Section 3 of Chapter 6 for additional discussion on Chinese authoritarian regime.

During most part of the 1980's, China was a quasi-totalitarianism regime, under which loyalty remained high in spite of the fact that the repression was slowly relaxed. However, Deng was not a totalitarian leader who maximized power. As China's economic growth improved the supply of loyalty, Deng had an opportunity to mass more power but he did not do so. Instead, he initiated a "Term Limit Presidency" that relieved the "successor's dilemma" but weakened his own power. Obviously, as I will discuss in the following sections, Deng earned positive utility from the relief of the "successor's dilemma". That is to say, Deng cared about his legacy.

Paramount leaders who wish to remain in office will prioritize economic growth. They use two policy alternatives – loyalty or repression – to stay in power, but both alternatives exhaust the resources. Nevertheless, economic growth as an exogenous shock could enlarge the resource pie, thereby increasing the loyalty without reducing repression. Therefore, as Wintrobe (1998) summarizes, "modern autocrats typically attempt to earn the loyalty of their subjects through the pursuit of economic growth."

Transitioning from totalitarianism in Mao's era to "Free Market Communism", Deng made a rational choice because he did not obtain the longstanding worship among citizens that Mao was in possession of. Mao could freely maximize political repression without losing prestige (e.g., the situation in Cultural Revolution), but Deng could not (e.g. the Tiananmen Incident). Therefore, in order to cultivate loyalty without drawing resources from political repression, Deng's rational choice was to increase the overall size of resources, that is, to pursue economic growth.

The open-market reforms since 1978 brought to Deng Xiaoping much increased loyalty. A famous case in point was the parade of the 35th National Day in 1984, when students from Beijing University hang a huge slogan that said "Hello, Xiaoping!" This slogan was widely marked as the signal of Deng's very popularity among his subjects.

Admittedly, there was a short-term surprise around 1988-1989. The economy at the time seriously deteriorated, with continuous double-digit inflation rates accompanied by rampant official corruption at various levels of the government. As a result, the level of loyalty went down. In Wintrobe's (2005) words, "when it became unpopular, the regime fell;" and "the possibility that some event might trigger a critical mass of opposition from the general population cannot be neglected." The sudden death of Hu Yaobang, who was a reformer and beloved politician, triggered much lamentation that ultimately changed into a nationwide anti-corruption protest on the street. Eventually, the Tiananmen Incident took place in June 1989. Consistent with Wintrobe's definition of tyranny, during such a short time China was a quasi-tyranny regime. But in general, China under Deng's era was an evolution from totalitarianism towards what Wintrobe calls "free market communism" that denotes free market reform while lagging political reform.

4c. Jiang's Era and Hu's Era:

 From "Free Market Communism" to "Soft Authoritarianism"

If Wintrobe had observed what happened in China in recent years, he might have changed his argument about China's political regimes. Moreover, he might have not taken into full account the concept of "political repression". If we take the definition of

"political freedom" by Freedom House, we would recognize that political freedom consists of two parts – "political rights" and "civil liberties". Universal suffrage has not been adopted in China, but there was still a remarkable transformation inside CCP that indicates improvements in political rights:

"The most important step is Jiang's 'Three Representatives' theory aimed at expanding the party's social base. … with the admission of capitalists into the Party, CCP has begun its second 'great transformation', from a technocratic party to one that will rule by political means (Zheng, 2003)."

The admission of capitalists into the Party could be deemed as an effort to reconcile the sharp confrontation between the loyalists and the politically repressed groups. In particular, capitalists were highly repressed in terms of their legal status and social position, yet they have become the driving force underneath China's economic growth. There is no perceptive measurement of loyalty in contemporary China, but it is widely believed that the improvement of economic performance increases the supply of loyalty. For an authoritarianism regime to survive, a smart choice is to hold onto a sufficient amount of loyalty; otherwise, the security of the Leader will be in jeopardy. It is dangerous to maintain high repression with high loyalty, because it leads to the sharp confrontation between the loyalists and the repressed. Specifically, it results in a polarized society. A most recent example of such is Post-Saddam in Iraq. Apparently, historical lessons from Mao's era have taught Jiang and Hu that their power could be endangered in such a polarized society. There is no wonder that Hu has been promoting a "harmonious society" in recent years.

These recent updates in Chinese politics are different from Deng's platform that utilized economic growth to gain loyalty but did little to change the state of political repression. As Deng's successors, both Jiang and Hu have acknowledged that high economic growth is very much vulnerable if the driving force of economy (i.e. capitalists) is highly repressed in the authoritarian politics. They have not too much choice but to relax the level of repression upon capitalists. In contrast, government still imposes restrictions on those repressions that are not immediately associated with economic growth, including the rights of citizens to criticize government, press freedom, and the rights to form opposition parties.

In sum, Chinese politics is evolving from "free market Communism" towards "soft authoritarianism". Free market economy has been reinforced, whereas the traditional concept of "Communism" has been reinterpreted. Under the soft authoritarianism that is being formed in China, growth-oriented rational leaders intend to not only maintain high loyalty but also reduce political repressions that are negatively related to economic growth (e.g. the status of capitalists).

5. The Concerns of "Successor's Dilemma"

Another noteworthy feature of China's soft authoritarianism is the improvement of "inside-party democracy" that gives rise to an oligarchic decision-unit at the central level. This improving process reflects generations of efforts to solve the "successor's dilemma".

Successor's dilemma is hard to avoid in authoritarian regimes that are "almost by definition characterized by an absence of regularized legal forms of succession (Share,

1986)." The "Successor's Dilemma" derives from the fact that "China, like many authoritarian states, has no institutionalized system of leadership succession, and current leaders must designate loyal successors while still in power themselves (Tanner, 2001)." Scholars from various fields have addressed this interesting problem, including political economists, traditional political scientists, game theorists, business specialists and so on. I am just to name a few studies for us to understand the dilemma of political succession in China.

The problem of succession that the dictator faces is well illustrated regarding the high risk of appointing an established successor (Tullock, 2005). According to Tullock, "the basic problem that the dictator faces here is that if he formally appoints a successor, he gives that successor both strong motives for assassinating him and reasonable security that he will get away with it (Tullock, 2005)." In order to solve the dilemma, Tullock proposes a system for peaceful succession that has been used by the Catholic church for a thousand years. This peaceful succession can be accomplished as follows:

"The dictator appoints a voting body which, while he is a dictator, advises him… Upon his death, this voting body elects someone, usually, but not necessarily always, one of its members, as his successor. This successor then acquires the same dominance over the voting body as the man who originally appointed it (P. 94)," and "the voting body can be made large enough so that the members of it can exercise, on an individual basis, supervision over all parts of the government and so that no one of them has very much power (P.96)", and finally but most importantly, "it is, of course, quite possible that China will move to this system…China has just gone through [Note; before Tullock wrote the original manuscript on 1987] its first succession crisis[3] in as disorderly a way as old Russia during its first succession crisis in the 1920s (Tullock, 2005: P.97)."

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[3] Actually, Tullock was reporting the first succession crisis during Deng's era. There were several succession crises during Mao's era, too.

In addition to predictions on modern China, Tullock also analyzes the Chinese history. The succession crisis has been routine rather than an exception throughout the Chinese history. At the beginning of Tang dynasty, the second emperor killed his two brothers and then coerced his father– the founding emperor– to hand over the crown to him. Similarly, in the early Ming dynasty, an uncle of the second emperor launched a civil war and became the third emperor after winning the war. Instances like these can be readily found in other dynasties throughout the Chinese history.

In a similar fashion, there is a wide-spread faction-ridden Party-state system within China's power struggle in modern times as so described by Huang (2000), who employs the Prisoner's Dilemma to illustrate such a succession dilemma. He argues that the designation of a successor (Liu Shaoqi) was critical to prevent against *coup d'Etat* (the Gao-Rao Coup in the mid 1950's), but "the need and ability of the successor (Liu) to expand his influence at the expense of his peers eventually also threatened Mao himself (Misra, 2002)."

Huang further states that there is an inherent asymmetry between the paramount leader and the designated successor, mainly because the leader controls the channels of communication. The rationale behind of it is quite important because it suggests to us that in our analysis of the dilemma of political succession, our focus of attention should be on predecessors instead of successors. Predecessors are the ultimate setters of political institutions, and they hold the power to promote or demote the designated successors at their will.

Tanner (2001) provides the best definition of the "successor's dilemma" to the best of my knowledge so far. What is most interesting to me is that he nicely tunes his definition into the practice of Chinese elite politics. He writes that

"While the current top leader is still alive and politically influential, the 'successor' must maintain the trust and active support of the top leader. But the successor must also simultaneously establish his own independent power base that will maintain him when the current top leader is gone and can no longer help the successor. If, however, the successor is 'too successful' in building an independent power base, this can leave the current top leader feeling threatened and fearing that the successor may be plotted to push the current leader out prematurely (Tanner, 2001: P.8)."

Tanner (2001) goes on to say that this dilemma game has beaten both Mao Tse-Tung and Deng Xiaoping, because both of them failed to institutionalize successors who could continue to carry on their torch in their policy platform. But Tanner seems to have neglected the fact that Deng's strategy was continued and greatly improved after 1989.

In Tanner's (2001) lens, Hu Jintao successfully solved the "successor's dilemma" because he "demonstrated an impressive skill for attracting the dedicated support of a series of more senior political patrons who represented a fairly broad range of political views." While I share Tanner's recognition of the solution of the "successor's dilemma", I do not intend to overstate Hu's success in this regard. As much as Hu is a charismatic leader, but we should not forget that Mao, Deng and Jiang had all gradually improved (at least, they had tried to do so) the institutions to relieve the dilemma.

6. **The Institutionalization of Retirement and Term Limits of Top Leaders:**

   How China Solved the Successor's Dilemma

6a. The Utility Function of a Retired Top Leader

In an authoritarianism regime, a peaceful political succession may help prevent political turmoil. The mechanism of peaceful transfer of power will be strengthened if the leader is alive during the successor's term. In other words, it could be the leader's rational choice to retire when his health begins to decline. His utility function is defined as

$$U(Leader) = N(Year s\_in\_Power)*[S(Power) - G(Generational\_Gap)]$$
$$+ N'(Years\_in\_\mathrm{Re}tirement)*S'(Discounted\_Power)$$

This utility function shows that the more years in power, the large generational gap between the leader and the successor; if this leader chooses to retire early, he will narrow the generational gap at the cost of power that is discounted after his retirement. Therefore, a rational leader makes his own rational choice when to retire.

The leader may hold his power until his death, but it will enlarge the generational gap between him and the younger politicians. Such a dilemma of succession happened to the Franquist regime in Spain. The Franquist regime (1939 – 1977) was among the most stable and "successful" authoritarian regimes in the world history. However, in Share (1986)'s judgment, after decades of ruling of the country,

"(Francisco) Franco established the mechanism for a smooth succession to the posts of head of state and head of government. However, these mechanisms failed to achieve Franco's major goal: the continuation of authoritarian rule after his death (Share, 1986: P. 549)."

Share (1986) also finds the reason of this dilemma, arguing that

"Ultimately, the generation gap rendered these younger Franquists more willing to abandon the fundamental tenets of authoritarian rule, especially when compared with the older and more loyal Carrero and Arias… Franco's appointees and institutions survived the dictator's death intact, but they could not bridge the generation gap created during forty years of authoritarian rule (Share, 1986: P. 570)."

Similar political overhauls happened in both Soviet Union after Stalin's death in 1953 and China after Mao's demise in 1976. When Deng Xiaoping came into real power in 1978, he immediately began to reshape the structure of the party and the government. More importantly, he started making fundamental changes in terms of the leading ideology of the CCP, namely, from the philosophy of class struggle to that of production doctrine. For instance, on the economic front, the 3rd Session of the 11th Central Committee (1978) decided to practice open-market reforms, thus effectively abandoning the command economy. On the political front, a series of announcements were issued to overrule those policies made during the Cultural Revolution. Eventually at the 6th Session of the 11th Central Committee (1981), Deng and his followers passed the "Resolution to Some Historical Problems of the Party since 1949", which basically overthrew most of Mao's accomplishments (at least in Mao's eyes) under Mao's era. Much of the reason for such an astounding change could be undeniable generation gaps between Mao and Deng in my opinion: Deng was 11 years younger than Mao, and Deng spent several years in France in the 1920s whereas Mao was not exposed to the Western culture in his younger days.

6b. Term Limits of the Top Leader

The political situation in an autocratic society could be quite different if a paramount leader selects retirement, but retains the role of "senior advisor" to his successor. Lee Kuan Yew did this for Goh Chok Tong in Singapore, Deng Xiaoping did the same for Jiang Zemin, and Jiang Zeming is in turn now a senior consultant for Hu Jintao. For one thing, each predecessor left his legacy in the Party Constitution after his retirement, in such a way that makes it hard for the successors to overthrow the predecessor's legacies. The "Deng Xiaoping Theory" was upgraded to be the leading theory of CCP at the 14th Central Committee Convention in October 1992, exactly eight months after Deng's famous 'South Tour Talks." Later, the Theory was enshrined in the Party Constitution at the 15th Central Committee Convention in September 1997, eight months after his death. In a similar fashion, when Jiang officially stepped down at the 16th Central Committee Convention in November 2002, the "Three Representatives Theory", which was under his name, was amended to the Party Constitution.

On the other hand, although the retired leaders may lose some authority, they may gain extra utility by monitoring their successors. In addition, a ruler will suffer from abated power when he retires early, but he will benefit from the narrowed generational gap with his successor. Thus, there is an equilibrium point based on his utility function. What is more important, the revelation of the generational gap is subject to the influence of the retired. Whatever platform the predecessor declares will become the status quo of the successor's policy portfolio. This status quo enjoys the advantage of inertia. That is to say, if the successor makes any significant deviation from the status quo, he will receive blames from the predecessor, and/or he will lose reputation in public opinion. For

example, Deng set Hu Jintao as the successor of Jiang Zemin, Jiang preserved this status quo, and now Hu's presidency has become the reality. Of course, Hu's personal charisma might be another big plus.

Therefore, in an authoritarian regime with a term limit for rulers, the revealed generation gap will not be as wide as that in another authoritarian regime where no term limit is imposed. Furthermore, owing to inertia of the status quo, an incremental political reform is more likely. Setting up such a term limit upon himself, the paramount leader actually makes a rational choice, especially if the retiree could still exert influence through his loyalists.

A sharp comparison between Mao and Deng shows us how this rational choice is crucial. Mao held the power till the end of his life. Less than five years after Mao's death, however, Deng had basically abandoned Mao's political and economic platforms, i.e., dramatic institutional changes occurred. In contrast, Deng officially retired in November 1989, but he still exercised great influence upon his successors. After the Tiananmen Incident in 1989, the leftists' strategy had an upper hand in the entire economic system within CCP, and it was quite obvious that Jiang's administration was unable or unwilling to re-direct the economy to the open-market track initiated by Deng himself. Deng intervened in the process by making "South Tour Talks" in February 1992. He warned that "whoever runs against reform must step down." Such a warning immediately made positive impacts, in that the public statistics of GDP growth rates soared after his "south tour" – 1989 (4.1%), 1990 (3.8%), 1991 (9.2%), 1992 (14.2%), 1993 (13.5%), and 1994 (12.6%).

Now Jiang has transferred the paramount power to Hu, but Jiang remains influential in China's politics. Jiang is still officially ranked at the 2nd among Chinese leaders, only after Hu. Most of his former subordinates are still incumbents in Hu's administration. Hence, we have all the reasons to predict that the "Jiang-Hu" relationship will be similar to the "Deng-Jiang" relationship, thereby relieving the dilemma of succession.

6c. The Authoritarian Successions, the Growth of Government and Separation of Powers

When a retired predecessor and an in-place successor co-exist, a direct consequence is the growth of government at the top level. Such a scenario is foreseen by Tullock (1974, 1987) who acknowledges its importance of stability in authoritarianism governments. Kimenyi and Shughart II (1989) further Tullock's argument and suggest that a successor should be careful to remove coalition members who are loyalists to his predecessor, because

"If all supporters of the previous ruler are removed, they are likely to create difficulties for the new leader by forming an opposing coalition which may effectively destabilize the government. It would therefore appear that during successions, rational leaders would create their own supporting coalitions by adding their supporters to the existing coalitions while retaining, at least in the short run, most of those in the previous leader's coalition (Kimenyi and Shughart II, 1989: P. 173)."

If the previous leader stands behind of his loyalists, such a mechanism will be more likely strengthened. Interestingly, the growth of government at the top level seems

to match the expansion trend of the Standing Committee of Politburo of CCP, which has been the ultimate decision power unit of current China. During most years of the 1980's, the Standing Committee consisted of 5 or 6 members. When Jiang became the General Secretary at the 4th Session of the 13th Central Committee in Jun 1989, the size of the Standing Committee increased to 7 members. Since Hu officially took over the position of General Secretary in 2002, the size has been 9 members.

There is no authoritative information source that tells us the precise picture of the coalitions among Standing Committee Members since 1989. The minutes of their meetings are not publicly available, while all we can find are those stories of the "smoky room." Accordingly, I would rather draw the following safest conclusions given the information constraints for the time being:

First, a peaceful succession makes it very hard to exercise political purges. The supporting coalition of the successor will coexist with that of the predecessor, and even that of the predecessor's predecessor. Thus, the size of the top government will augment in a stable authoritarianism regime. It is observed that the mere expansion of the size of the Standing Committee of Politburo is itself a reflection of distribution of power at the top that represents the interest of predecessors and successors alike.

Second, the separation of powers within the top-level government ("inside-party democracy") is an unavoidable trend following the peaceful successions. Riker (1962) suggests that the minimum winning coalitions are not unchangeable. With more decision-makers around the paramount leader, the Pareto Set of the minimum winning coalitions will shrink, and thus the winning coalition can be hardly stable.

Finally, with peaceful successions being repeated, some new coalition members have to be assigned to lower-level positions, say, regular Politburo members. This is because the Standing Committee of Politburo is hard to expand itself without limit. Hence, the "inside-party democracy" tends to spread to the Politburo level gradually.

7. Why Political Successions All Failed before Hu Jintao?

7a. Mao's Era (1949 – 1976): Four Failed Successors

As early as September 1956, Mao started the process to designate his successors at the 7th Session of the 7th CCP Central Committee. Being Party Chairman himself, he selected four Vice-Chairmen and one General Secretary, among whom Liu Shaoqi was the first Vice-Chairman.

Why did Mao appoint successors? Mao was trying to avoid the destiny of Stalin in Soviet Union. When Stalin died in 1953, he did not clearly designate any successor. Consequently, "within less than 24 hours after Stalin's death, the new leadership, in clear violation of the party's statute and the constitution, decreed sweeping changes in the structure and composition of the central organs of the party and government (Bociurkiw, 1960)." Mao was surely fearful of that the same tragedy would take place following his own death. Therefore, he declared at the 5th Session of the 7th CCP Central Committee in 1955 that CCP must prevent the chaos parallel to what had happened in Soviet Union.

On November 11, 1957, Khrushchev made the inquiry that who would be Mao's successor. The first name Mao raised was Liu Shaoqi, thus making Liu publicly known as Mao's successor. Mao made the same announcement when he met with the British

General Montgomery in 1961. Not long after Liu's status as the successor was established, however, Liu split up with Mao when they disagreed with each other on the tragedy of the "Great Leap Forward". At the "Seven Thousand People Conference (all of them were senior officials)" in 1962, Liu argued that the "Great Leap Forward" was basically a "man-made catastrophe", whereas Mao simply imputed the tragedy to the inexperience of the leaders. Five years later, when Mao met with a delegation from Albania, he criticized Liu that "I had already scrutinized Liu's conspiracy at the 'Seven Thousand People Conference'."

Numerous studies argue that Mao launched the Cultural Revolution mainly for the purpose of stopping the growing threat from Liu. In his memoirs, in particular, one of the most senior leaders Bo Yibo (1991, 1993) held this view as well. Before the Cultural Revolution, Liu had brought up a whole team of supporters inside the central government. It was unlikely that Mao could demote Liu by means of normal inside-party procedures without legitimate excuses. Therefore, Mao initiated the Cultural Revolution, which provoked young students to bring down Liu Shaoqi and his followers.

Liu died from torture in jail during the Cultural Revolution. Thereafter, Lin Biao was selected by Mao as the next established successor in 1967. There was no authoritative study that showed us why Mao chose Lin. A popular view argues that "Lin was in poor health and lacked political ambition, and even sought to avoid the position but could not deflect Mao's Demand (Teiwes and Sun, 1996)." After cumulating power for 3 years, however, Lin started threatening Mao's policy at the 2nd Session of the 9th CCP Central Committee in 1970. When Mao was contemplating to strip some power

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from Lin in 1971, Lin went to the extreme as Tullock's theory (2005) predicts. After failing the attempt to assassinate Mao, Lin died of an airplane crash on his way of fleeing China.

Within the last years of his life, Mao designated Wang Hongwen, a young factory worker, as the third successor. But very soon, Wang was found politically inexperienced, so he was abandoned. Not long before his death in 1976, Mao eventually picked out Hua Guofeng who was a loyalist to Mao but lacked both political and administrative experiences. The only reason Mao selected Hua was Mao's trust in him, as there was a highly publicized quote from Mao before his death saying to Hua that "with you in charge I am at ease." From the frequency of Mao's selection and constant change of his successors, it is safe to assume that nobody really knows whether Mao would have switched to another person, had he remained alive for a few more years.

7b. Deng Xiaoping (1976-1980): Nobody's Successor

The Cultural Revolution ended in 1976, when Hua Guofeng succeeded Mao as the top leader. Deng Xiaoping was never appointed by Mao as the successor, but Deng seemed to become the *de facto* leader by coincidence of historical events. Based on the public known documentary (cited from Teiwes, 2003), it was revealed that Deng's quick return to become a consensus leader received Hua Guofeng's full support. Without the support from other veteran leaders of the first generation in CCP, Deng would not have won the "succession battle". Deng was one of veteran leaders of the first generation, but Hua was not. More importantly, Hua suffered from the successor's dilemma. He was short of time

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to cultivate supporters in order to sustain his leadership; he lacked experience to run the flagship of the state; and his "neo-Maoism" policies[4] lost popularity inside the party. Consequently, Hua had to resign from the top leadership in 1980, leaving the position to Deng.

7c. Deng Xiaoping (1980-1989): Unsuccessful Attempts to Relieve the Dilemma

It appeared that Deng recognized the succession crisis. He was not only famous for his wisdom to promote the open-market reforms, but also to establish a retirement system for the leaders at the top. Nobody knows exactly why he wanted to abolish the one-person autocracy, but it seems to me that he had implicitly followed what Tullock (2005) suggests to resolve the succession crisis. In 1981, the Central Political Consulting Committee was established at his initiative. This Committee was composed of retired senior politicians, and it served as advisory body to Deng and other leaders on various subjects. No subject could be more important than the candidates for successor. Hence, it was wise of Tullock (2005), for he recognized that China would move to the "advising system" that will help resolve the problem of succession. Surely, this system was very much different from the complete autocracy at Mao's age. In Deng's words, "if we find we have chosen the wrong people we can still change them for others (Deng, 1984)." Obviously, these veterans serving on the advisory body actively assisted Deng in selecting his successor.

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[4] Policies strictly followed Maoism dogma.

During the 1980's, unfortunately, the succession crisis still erupted in Chinese politics. Two terms of designated successors – Hu Yaobang and Zhao Ziyang – were abandoned one after another in less than three years. "In the events, both Hu and Zhao fell, not because of 'succession struggle', but because of a combination of their political deficiencies and the events they could not control (Teiwes, 2003)." Hu Yaobang failed to control the 1986 student demonstrations, while Zhao Ziyang was blamed for his inadequate behavior during the Tiananmen Incident in 1989.

After demoting Zhao, Deng Xiaoping surprisingly chose Jiang Zemin as his successor in 1989. Deng retired from his final position—Chairman of Central Military Committee—in the same year. Later, Hu Jintao was appointed into the Standing Committee of Politburo at the 14th CCP Party Congress in 1992, when he was only 49. Since then, people all regarded Hu as the reserved successor by Deng and the legitimate as well as qualified leader after Jiang's tenure. It is hard to assess the selection process, in that the key aspects are less accessible in the black box of elite politics. But the simple facts have been sufficient for us to draw this conclusion.

8. Conclusions

This chapter attempts to interpret the nature of evolution of Chinese autocracy towards the soft authoritarianism regime. Given that autocrats allocate resources between two instruments – loyalty and repression, the analytical history suggests that the nature of evolution consists of two parallel parts: (1) Pursuing economic growth that is to broaden the scale of resources; (2) Solving the "successor's dilemma" of the top leadership that is

to optimize the usage of resources. The combined effects of the two parts determine that China is heading into a soft authoritarianism that features free market economy with an oligarchic authoritarianism politics.

On one hand, Post-Mao leaders have been growth-oriented, though Mao was a totalitarian. A totalitarian state characterized by high loyalty and high repression was a dangerous selection in contemporary China. In order to sustain the necessarily high loyalty, the top leaders have to stimulate economic growth, and at the same time relax the repression when it significantly hinders economic growth. Consequently, China has undergone an evolution towards soft authoritarianism. Serving the Party's purpose of economic growth, capitalists are given political rights to join CCP, which reduces the political repression against them. While there is no imminent sign for universal political reform, the current state of soft authoritarianism is a rational choice of the top leaders to gain loyalty through economic growth without significantly reducing political repression.

On the other hand, the paramount leaders will do whatever it takes to resolve the "successor's dilemma". A rational ruler tends to think about his legacies, and it is imperative for him to select a trustworthy successor. In this regard, the successor's dilemma is actually the "predecessor's dilemma". The nightmare of the post-Stalin era in Soviet Union made Mao Tse-Tung realize that he should designate a reliable successor. However, none of Mao's picks could escape from the curse by the dilemma, and after his death, many of his fundamental policy platforms were deserted by Deng. Deng made some improvement over Mao's era, but his early efforts in the 1980s went in vain.

Fortunately, the succession dilemma was resolved after Deng chose official retirement in late 1989. The analytical history demonstrates that the successor dilemma may be relieved when a retired but still influential predecessor co-exists with a successor who is in power. On the contrary, the dilemma of political succession tends to be irresolvable when (1) the predecessor passes away and then successor takes control of power, or (2) the predecessor takes control of full power while the successor has to listen to the boss.

The "inside-party" democracy is an unstoppable trend, which is actually a by-product of the institutional design to curb the "successor's dilemma". China's elite politics is evolving into an oligarchic authoritarian government, where the political process is out of the control of any single elite politician. The democratization can only be incremental rather than a dramatic process because of the inertia of status quo. The current democratization has been the product of endogenous interactions within the political system. It has basically nothing to do with the economic factors.

After all, the pursuit of economic growth is compatible with the existence of an oligarchic authoritarian government. As I illustrate through models in Chapter 6, the pursuit of economic growth serves both the encompassing interest of the stationary bandit and the competition for power among elite politicians. In addition, with the oligarchic competition at the top level, no top leader could maximize power as Mao did, nor could s/he maximize consumption as Marcos did in Philippines.

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CHAPTER 3: The Evolving Nature of China's Economy

– An Analytical History

1. Hypothesis

The evolving nature of China's economy features the continuous expansion of the domestic private firms and foreign direct investment (FDI), and the corresponding institutional changes that facilitate the trend. Major institutional changes have taken place in the pro-competition policy reform. The evolutionary path to institution reform has been proceeding towards the protection of private property rights; however, no substantial reform has been adopted to execute the rule of law. Finally, after gaining the market access to China, foreign investors attempt to take advantage of China's institutional loopholes.

2. Introduction

Thirty years ago few people would have predicted China's market reform today. For instance, in May 1982, the Chinese Communist Party (CCP, hereafter) committee of Zhejiang Province arrested 8 elite private businessmen for the crime of "playing the market". At the 16th Congress of CCP held in November 2001, in sharp contrast, a new clause that private businessmen can joint the Party was written into Party Constitution. The inclusion of capitalists into the Party runs counter to the fundamental principle of the

establishment of the CCP. Lots of other similar cases are evident in Chinese politico-economic life. China being a one-party state, all changes in the market economy would not last long without the permission and support of the Party. From this perspective, Chinese market reform is never a pure economic issue, but a nexus of political and economic endeavors.

In this chapter, I first review the growing contribution of the domestic private sector towards economic growth in contrast to the declining status of the public sector. Then I identify the controversial status of the domestic private sector. Finally, I discuss the evolving nature of different types of foreign direct investments (FDI, hereafter) during China's open-market reforms. Throughout this dissertation, I refer to "domestic private firms in China" as "private firms", and "foreign direct investment in China" as "FDI" in order to differentiate the two terms. The comparison between private firms and FDI is mainly discussed at the end of this chapter.

3. The Declining Public Sector and the Encroachment of the Private Sector

The public sector has been gradually downsized and marginalized since the beginning of the open-market reforms. In the traditional planned-economy era, state-owned enterprises (SOEs hereafter) were built up and operated by a distorted development strategy, which strongly favored heavy industries at the expense of light industries and agriculture. The X-inefficiency (Leibenstein, 1966) and soft-budget constraints (Kornai, 1979, 1980, 1986) have been widely criticized as inherent flaws of SOEs. In China, except for large-size SOEs in national monopolies, more than two thirds of other SOEs were in the red in the

late 1990's. This failure of SOEs was largely attributed to supernumeraries and "insider controls (Aoki and Kim, 1995)".

To find a way out, the government has started selling SOEs since 1994. The statistical data by National Statistical Bureau shows that the total number of SOEs increased by 11% in 1994 and only 4% in 1995, and since then the growth rate has been negative. Evident in the same data, the total number of SOEs fell from 300,000 in 1994 to 150,000 in 2004. At present, more than 80% of middle- and small-size SOEs have been privatized (Zhang, 2008). The majority of existing SOEs belong to the category of natural monopoly industries, such as telecommunication, petrol, railway, and airlines. These industries have widely been condemned as hotbeds of special interest groups within SOEs[5]. SOEs have gone downhill and lost their central status in the Chinese economy.

Interestingly enough, another unique feature in China's market reform is the birth of Township-villageship enterprises (TVEs hereafter). As a major type of public enterprises, TVEs hold the collective ownership under the control of town or village level governments. Lin, Li and Cai (1993, 2003) argue that TVEs became a phenomenal success from the early 1980's to the mid 1990's, mainly because they focused on light industries and occurred at a opportune time: (1) Light industries met the comparative advantage of endowment in China – cheap labor; (2) Light industries were much needed in daily life but largely neglected by traditional development strategy in favor of heavy industries; and (3) SOEs were strictly limited by national planning and unable to switch

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[5] For example, petrol SOEs are nicknamed "petrol gang" by public. Similar nicknames are given to SOEs in other natural monopoly industries.

to light industries at will. Furthermore, since private firms were illegal before 1988, talented businessmen had to work in TVEs as managers, or alternatively wore "red hats"[6].

The economic landscape totally changed after private firms became legal in 1988. Since the thriving TVEs were suffering from over-interventions of local governments, talented managers (especially those in "red hat" enterprises) started to break away from TVEs, and fewer and fewer entrepreneurs chose to wear "red hats". The trend of TVEs faded away, and the so-called "The TVEs Model of Southern Jiangshu" [7] collapsed as well. As a result, the local governments in Southern Jiangsu have begun to sell TVEs to their managers since 1997, and more than 90% of the TVEs are privately owned now[8].

4. The Controversial Status of the Growing Private Sector

China embraced a reform strategy that neoclassical economists and the "Washington Consensus" deem problematic (i.e., a slow incremental reform) rather than optimal (i.e., a rapid, comprehensive reform) (Wedeman, 2003). The gradual expansion of private sector has become the highlight of China's success owing to its contribution to national GDP[9]. The expansion has been accompanied by the favorable evolutions of key market and legal institutions, such as pro-competition policies, the protection of private property rights,

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[6] "Red hat" enterprises were privately run indeed, but nominally operated by collective ownership. Private entrepreneurs optioned to wear "red hats" in order to become legitimate factories. Local government were willing to offer "red hats" because they may collect administrative fees, and local leaders might gain even more benefits (i.e., their own promotions) through improved economic performance.

[7] Southern Jiangsu was the cradle land of TVEs. Owing to the booming TVE economy, Southern Jiangsu became the richest area in China in the 1980s. Thus, scholars invested the term: "The TVEs Model of Southern Jiangsu".

[8] Please refer to Section 7 of Chapter 7 for additional discussions on the collapse of TVEs.

[9] Please refer to Chapter 1.

and minimally as yet the rule of law. As I have explained in Chapter 2, an authoritarian government counts on economic growth as a crucial instrument to earn and maintain loyalty from citizens. By the invisible and unparalleled force of the free market economy (especially when compared to rigid planned economy), the private sector in China has played a critical role in time to create and to extend China's "market miracle". Therefore, a rational ruler will support the development of private sector if only he could maintain sufficient economic growth for the sake of cultivating loyalty.

Lin, Li and Cai (1993, 2003)'s theory of China's market miracle sang high praise for TVEs, but their conclusion is not flawless. On one hand, their data included numerous "red hat" TVEs that were actually privately run. On the other hand, since the collapse of TVEs in the middle 1990s, China's economy has still managed to grow double-digit annually on average. In view of the wide privatization of SOEs and TVEs, I believe the private sector should be given credit for China's market miracle.

The status of the private sector has always been a controversial issue due to political reasons. For instance, the conventional wisdom of CCP holds that a socialist country should not tolerate the existence of capitalist private firms since they are the very source of evils to exploit the working class. There are also those who claim that the private sector is inferior to the public sector with respect to economic efficiency.

Tables 2 and 3 show clearly the changing constitutional status of the private sector: "Restriction→Prohibition→Restriction→Equal status (with public sector)". Furthermore, as I lay out in the following sections, the removal of price controls and the execution of deregulations have improved a pro-competition institution that benefits the private sector.

**Table 2: Constitutional Amendments and
the Discrimination against the Private Sector**

Time	Institutional Setting	Effects
1954 Constitution-1956	Restricted acceptance of private enterprises	Temporarily allowed the existence of the private sector
1956-1982	Prohibition of private firms	All industries were run by the public sector
1982 Amendment	The legitimacy of individual business (with no more than 8 employees)	Renascence of the private sector and the popularity of "red hat" TVEs
1988 Amendment	The legitimacy of private firms (with a minimum of 8 employees) as an important supplement to the public sector	Quick expansion of the private sector
1999 Amendment	Affirmation of the contribution and the legal status of private firms as a part of the socialist market economy	Prosperity of the private sector
2004 Amendment	Equal status of the private and public sectors	New era of the private sector

Table 3: The Constitutional Protection of Private Property Rights

Time	Contents
1954 Constitution	Protection of *lawful* income, saving and houses of citizens
1975 Constitution	Protection of *labor* income, saving and houses of citizens
1978 and 1982 Constitution	Protection of *lawful* income, saving and houses of citizens
2004 Constitution	Protection of *lawful private* property
2007 "Property Rights Law"	Detailed rules of protection of private property rights

Table 4: The Long March towards the Rule of Law

Time	Contents
1997, 15th CCP Party Congress	CCP proposed that the rule of law is the fundamental principle that the Party follows in leading people to rule the country.
1999, 2nd Session of the 9th People's Congress	People's Congress passed a constitutional amendment that declared to build a socialist country based on the rule of law.
2002, 16th CCP Part Congress	CCP Party Constitution added an amendment that declared to build a socialist country on the basis of the rule of law.
2007, 17th CCP Party Congress	CCP stated that it would carry out the rule of law more thoroughly as a fundamental principle.

In other words, the private sector is well situated in a market economy. The reform steps on property rights protection have lagged behind those on pro-competition policies, but the adoption of 2007 Property Rights Law has shed light on the practical implementation of the protection of private property rights. A good case in time happened in Chongqing when a private businesswoman refused to relocate during the reconstruction of the inner cities that the local government was enforcing (*New York Times*, Mach 27, 2007). Her building was not demolished until a compensation agreement was signed to protect her property right. No such an agreement was initiated in previous relocation cases in China.

In contrast, Table 4 suggests that the legal reform towards the rule of law has seized up at the paperwork stage. Pei (2005)'s testimony at U.S. Senate points out that "the Chinese government have been trying to address them (problems in the legal system) for a long time, but so far, judging by the facts on the ground, it appears that China remains far away from its own declared goal of ruling the country according to law." Even Hu Jintao admitted it in his report at 17th CCP Party Congress that "…in implementing the rule of law… efforts to improve…the legal system fall somewhat short of the need to…promote economic and social development (CCP Central Committee, 2007)." Therefore, it appears that China has undergone limited legal reform in terms of *de jure* standards, whereas the *de facto* quality of legal structure is in a poor condition.

In conclusion, the increasing contribution of private firms towards economic growth is coupled with the downsizing of SOEs and the collapse of TVEs. Meanwhile, by and large, China has gone beyond the stage where people have any controversy about the lawful status of the private sector. As Becker (2007) suggests, China's central

government has overcome the ideological controversy so as to enshrine private property rights. Most recently, the *de facto* quality of protection of private property rights has been reinforced with the implementation of Property Rights Law. Nevertheless, China still confronts the absence of a rule of law

5. Towards Pro-Competition Conditions: Deregulations and the Removal of Price Controls

Private firms were prohibited in the traditional planned economy. During thirty years of market reform, however, China has made substantial steps in developing pro-competition conditions that facilitate the growth of private sector: (1) as aforementioned, private business has received its lawful status equivalent to that of public enterprises; (2) most of pre-existing price controls have been eliminated; and (3) deregulations that relax market access have benefited a considerable number of industries, especially after China's entry into WTO.

First, the evolutionary path of price controls in China can be divided into five stages. Currently, prices of most products and services are decided by the market.[10]

(i) 1985-1988: China gradually unleashed the price controls of general merchandises, and applied a dual-track price system on essential agricultural and manufacturing products.

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[10] Historical facts were collected from various news reports and government documents in Chinese. For example, the documentation of "Pricing Law" was available at the website of China's central government (www.gov.cn).

(ii) 1989-1991: China established a price monitoring system to deal with inflation. Some agricultural and manufacturing productions were released to market pricing.

(iii) 1992-1997: the so-called "socialist market pricing system" was established. A large number of product and labor pricings were marketized. For instance, the number of government-pricing heavy-industry and transportation products decreased from 737 in 1991 to 89 types in 1997.

(iv) 1998-2000: the "Pricing Law" was passed by People's Congress in 1997, indicating that the pricing system has been widely administered in Chinese economy. In 1999, 5.2% of the total quantity consumed was still subject to centrally controlled pricing, while 94.8% was priced by market.

(v) After 2001: most products have been market priced. 107 categories of products were removed from the "regulated pricing catalog" in 2001, after which only the prices of 13 categories of products have been determined by central government, including textbooks, tobacco, natural gas, munitions, telecommunication, electricity, postal service, essential war reserve stock, salt and explosives, some fertilizers, some pharmaceuticals, water supply from federal and cross-provincial hydraulic facilities, essential transportation and essential specialized services.

Second, the deregulation of market access has achieved steady and substantial advances. Since the 1990s, a *de facto* standard has been widely applied to the deregulation of market access (Wu, 2006) – "market access should be granted unless it is officially prohibited." This *de facto* criterion was officially acknowledged by the central

government in 2005 when State Council announced the so-called "36 rules[11]" that aims to promote private sector. Under the guidance of "36 rules", private firms are granted access to almost every corner of the market, including monopoly industries, defense industries and financial services with unlawful business as the only exception.

Indeed, the major obstacle for the expansion of private firms has been less likely the regulation of market access than another two factors: (1) economies of scale and (2) government's special protections for interest groups in SOEs. On one hand, small-scale private firms are incapable to invest in industries where the fixed costs are large (i.e., high-entry barriers). In the 1990s, private firms invested in industries with low fixed costs, such as textiles, transportation, construction and grocery stores; in recent years, however, private firms have extended to those industries with economies of scale, including chemicals, infrastructure, automobiles, and steel (Chen, 2005). On the other hand, "although we have followed the (*de facto*) standard for many years, private firms still find it difficult to enter those areas occupied by administrative and natural monopolies. This is because government intends to protect special interests residing in those monopolies (Wu, 2006)."

Most relevant studies have only investigated specific industries of China that used to be highly regulated. In this study, I review several case studies that previous scholars have conducted on some of those specific industries. All these industrial case studies support the idea that China is evolving towards pro-competition conditions.

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[11] The official title of "36 rules" is "State Council's Views upon Encouraging, Supporting and Guiding the Development of Individual, Private and Other Non-Public Business".

Bao et al. (2008) examines the regulation of labor immigration[12] and concludes that "since the late 1970s, China's government has gradually eased restrictions on internal migration." According Bao et al. (2008), "based on the 1% population sample survey of 1987, it is estimated that over 30 million Chinese relocated either within or between provinces. The level of migration during 2000-05 is estimated to have risen… to nearly 161 million persons."

Chen (2007) and Chen and Peerlings (2007) study the regulation of grain market in China. Chen and Peerlings (2007) argue that "agricultural market liberalization and market deregulation have been implemented over the last two decades" and "results indicate that rice producers benefit from market liberalization and deregulation."

Chen (2007) provides a detailed description of the deregulation process. By the end of 1993, almost all the provinces in China had eliminated fixed quota prices on rice, but a grain market did not come into being afterwards. The deregulation process did make a U-turn from 1994 to 2000, during which central government reintroduced compulsory grain quotas and above-quota procurement in rural areas. The deregulation went back to the original track again in 2000, when "grain procurement was no longer mentioned in state policy documents, which implied it was no longer compulsory," and "legally licensed individuals and private companies were allowed to purchase the low-quality grain at market prices and compete with the SGTCs (State Grain Trading Companies)." The deregulation proceeded, "(As of 2004) restrictions on private traders entering the high-quality rice purchase markets were removed, protective prices were no

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[12] Especially account for hundreds of millions of peasant workers (*Nong Ming Gong*), who immigrate from inland provinces to coastal provinces.

longer mentioned." Finally, Chen (2007) summarizes that "overall there has been a movement towards market liberalization and deregulation."

The deregulation of the banking system has been a critical concession of China's central government in its attempt to regain WTO (World Trade Organization) membership. Zhao et al. (2002) find that "the central government has, to some extent, already carried out or is considering some deregulations such as the relaxation or elimination of various forms of administrative controls, including credit plan, interest rate control, and restrictions over cross-bank competition." A press release by Hang Seng Bank (2005) reports that "the number of cities in which foreign banks are allowed to conduct renminbi (RMB, Chinese currency) businesses rose from two before the WTO entry in 2001 to 18 in 2004," and that "new renminbi loans granted by banks totaled RMB 6,500 billion during 2002-2004, 150% higher than the preceding three years."

Fang (2004) analyzes the deregulation of telecommunications industry in China. The author argues that "behind the unprecedented growth of China's telecommunications industry is the far-reaching liberalization of Chinese telecommunications industry and the reform of Chinese telecommunications administrative system," and that "the government … carries out structure reform by promoting efficiency-enhancing competition and separating enterprise and business functions." Remarkable events include (1) the establishment of "China Unicom (cell phone carrier)" in 1994; (2) the establishment of "China Telecom (registered name of the Bureau of Telecommunications)" in 1998, which means the Bureau was changed from a functional

department of the central government to a business enterprise; (3) "China Telecom" was further broken down into two (Southern and Northern) branches, and so on.

The most interesting deregulation case may be China's airline deregulation since 1997, because it strongly features a *de facto* rather than *de jure* deregulation. Zhang and Round (2008) point out three stages of China's civil aviation history. Stage 1 (before the mid-1980s) was imprinted with strict central planning, during which new air routes were launched primarily to meet the demand of political activities. Stage 2 (1987-1997) witnessed the emergence of six trunk airlines based in the regional capital cities, and "the regional and trunk airlines were tightly regulated by the CAAC (Civil Aviation Administration of China) in every aspect of air services provision, market entry, route entry, frequency and pricing." Stage 3 (after 1997) presents a landmark of deregulation, privatization and consolidation, including loosen criteria for entry and exit in the domestic market, the permission of direct investment in core aviation businesses, etc. In particular, the deregulation in airfares has been a *de facto* rather than *de jure* deregulation. Although CAAC attempted to deter destructive competition among airlines by setting the benchmark price and launching the "revenue pooling", the airlines did not comply with those regulations without clearly stated and effectively executed punishment measures.

After all, previous studies have indicated the wide range of deregulations in China. Especially, Zhang and Round's (2008) study on China's airline deregulation implies that the progress of deregulation might have gone beyond what the government documents recorded. On one hand, scholars have captured the scenes of real *de facto* rather than *de*

jure pro-competition reforms[13]. On the other hand, they found that China has experienced several legal reforms in terms of *de jure* standards, whereas the *de facto* quality of legal structure is still very undesirable. In my positive study, of course, I will elaborate more on actual experiences of China than its governmental paperwork.

6. The Evolving Nature of Foreign Direct Investment (FDI)

The contribution of FDI on China's market miracle is often exaggerated in news reports, since China has received a vast amount of FDI in absolute dollars[14]. However, China is still an underperformer regarding FDI once we take into account her mammoth size in terms of both population and the country's territory. Although FDI is certainly interested in cheap labors and gigantic domestic market in China, foreign investors are discouraged by China's government regulations. To make the situation even worse, even if they choose to invest in China, profit-maximizing foreign investors tend to seek abnormal profits by taking advantage of institutional loopholes within the host country.

"China is huge, and large countries normally receive a large amount of foreign investment (Wei, 1995)." Therefore, we should measure FDI's contribution on relative terms rather than absolute dollars. One relative term is the ratio of the volume of extant FDI to national GDP, which suggests China's dependence on FDI. This ratio in China

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[13] This refers to not only the airline regulation, but also induced institutional changes as studied in Chapter 4.

[14] Since the early 1990's, China has been the largest recipient of foreign direct investment (FDI, hereafter) among developing countries. From early 1980s to late 1990s, the committed FDI inflow to China has grown from about US$ 1.5 billion a year to more than US$ 189 billion a year in 2005. During the same period, China's actual use of FDI grows from about US$ 0.5 billion to more than US$ 72.4 billion a year.

was 11.4% in 2005, whereas the global average was 22.9% and the average in developed countries was 20.7% in the same year (Pei, 2008). Another relative term is the contribution of FDI on China's economic growth. The calculation finds that this contribution is only 1.4% per year on average from 1978 to 2006 (He, 2007).

Furthermore, "recent theoretical and empirical literature suggests that FDI exerted positive impact on economic growth through the process of technological diffusion (Khan, 2007)." The technological diffusion is particularly important for China as a post-takeoff huge country (Zhang, 2000): she owns an enormous size of cheap labors and of the domestic market, whereas she lacks advanced technologies and managerial skills. That is say, what China has needed most are quality FDI projects that carry advanced technologies and managerial skills rather than those FDI projects from labor-intensive industries. Nevertheless, in the early years in China's market reform (before 1996), FDI in China came disproportionately from labor-intensive business run by overseas Chinese (Wei, 1996); in contrast, China appeared to host too little quality FDI from all the major source countries (the United States, Germany, France, and the United Kingdom) except for Japan (Wei, 1996). The movement of quality FDI did not take place until after China expedited deregulation on FDI in 1996. A typical example is Walmart's investment in China: after opening its first China-based store in 1996, Walmart quickly expanded its China business to 47 stores nationwide within 8 years. Interestingly, given that hundreds of Forbes 500 enterprises entered into Chinese market in recent years, the ratio of new FDI to all types of investment has trended downwards: this ratio reduced from 17.1% in 1994 to 5% in 2006 (Pei, 2008).

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All in all, it seems that FDI has not made a large contribution to China's market miracle. Wei, among other scholars, has taken efforts in exploring why China benefited so little from FDI (Wei, 1995, 1996, 2000; Wei and Shelfier, 2000). He attributes the low level of quality FDI to the local corruption and the government's regulations on FDI. In my view, however, it is government regulation rather than local corruption that scares FDI away. In other words, FDI cares about market access much more than local corruption. As I will show below, on one hand, the evolving interactions between FDI and government regulations has generated a gradual deregulation on FDI that in turn induces to the movement of quality FDI; on the other hand, while China still holds an infamous record of corruption[15], quality FDI itself has became a newly formed source of rent seeking who collude with corrupt officials.

Table 5 summaries the evolutionary history of the interactions between FDI and government regulation. The analytical focus is the evolutionary path on which how the central government has regulated FDI and then how FDI has reacted in return. China's FDI history can be divided into four periods of institutional changes corresponding to distinct FDI inflows. The interactions between foreign investors and Chinese government decide the composition and volume of FDI that China has received. This evolutionary path of the interactions has demonstrated a trend of deregulation, which is similar to the evolutionary path of China's private firms.

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[15] Please refer to Table 1 in Chapter 5.

Table 5: The Evolving Interactions between FDI and Government Regulation

Period	Institutional changes	Key features of government regulation	FDI from developing Asian areas that focus on cheap labor and export markets	FDI from other sources that focus more on the domestic market
1979-1985 (Strict restriction)	a. 1979: new regulations to permit joint ventures using foreign capitals and setting 4 Special Economic Zones and open cities. b.1984: Opening policies extended to another 14 coastal cities and Hainan Island.	a. FDI was permitted only in big and foreigner accessible cities and Special Economic Zones. b. All kinds of strict regulations.	a. Slow progress in attracting FDI. Total FDI from 1979-1985 was only $16 billion. b. About 60% FDI came from Hong Kong. Projects in Guangdong (neighbor province of Hong Kong) took up 70% of total FDI inflow.	Very little.
1986-1995 (Procative policy, but no selection)	a. On October 11, 1986, the State Council promulgated the *Provisions of the State Council of the People's Republic of China for the Encouragement of Foreign Investment*. b. After Deng's Southern Tour (1992), open-up policies have been gradually extended to more nation-wide.	a. The 1986 Provisions provided incentive for FDI. b. Volume of FDI inflow has become one of major criteria to measure local economic performance. c. Loosen regulation, the co-existence of favorable super-national treatments and discrimination against FDI.	a. The growth in FDI peaked after from 1986. But the average size of FDI project went down to .9 million. A large number of small firms from Hong Kong &Taiwan were mainly encouraged by promotion policies. b. At lest 30% of FDI projects took "round-trips", i.e. belonging to the return of the Chinese capital, seeking promotion policies & property rights protection.	Still little. Two reasons: a. The domestic market was underdeveloped. b. Discouraged by discrimination policies, especially the local content requirement and export proportion requirement.
1996-2001 (Pro-FDI, but selective acceptance)	The *Provisional Guidelines for Foreign Investment Projects* took effect on June 27, 1995.	The Guidelines reflected China's new emphasis on capital intensive, high-tech and infrastructure investments.	a. FDI from Asian areas still dominated in total FDI flows, but since 1996 a growing portion of these flows has come from other sources. b. "Round-Trip" FDI were still high.	The movement of large-scale Western multinational enterprises (MNE) into China.
2002-Present (WTO Standard)	In December 2001, China acquired a formal membership of the World Trade Organization (WTO).	China's promise to abide by the WTO's basic principles of non-discrimination, pro-trade, etc., e.g., Openness of distribution activities.	The share of FDI from Asian areas in total FDI inflow has continued to decrease. In particular, Hong Kong is still the largest source of China's FDI inflow, but its share has reduced from 68% (1992) to 30% (2007).	Extension from manufacturing industries to service industries.

Data & Information Sources: China Statistical Yearbook, Fung et al. (2002), OECD (2000), Xiao (2004)

By the very nature of entrepreneurship, all private enterprises are concerned about such institutional instruments as pro-competition policies, the rule of law, and the protection of private property rights. Few foreign investors would be seriously interested in participating in the market when they do not see any of institutional instruments that would serve or protect their own interests in profit-maximization. This was what we observed in the first period (1979-1985).

In the second period (1986-1995), although it much preferred joint ventures to solely foreign-owned enterprises, China's central government offered favorable super-national treatments to FDI projects. Especially there was a notorious tax treatment called "Three Exemption and Two Reduction" , which means "tax exemption for the first 3 years and tax reduction for an additional 2 years." Such a tax treatment was extremely attractive to those labor-intensive industries that feature low existing barriers, which means that FDI investors may close the local factories at low cost whenever their properties were infringed or the tax treatment expired. To attract FDI among jurisdictional competitions, local officials must provide property rights protections to local FDI projects (Qian and Roland, 1998). Meanwhile, although the central government asked for "local content requirement" and "export portion requirement", these regulations did not conflict with the export-oriented labor-intensive investors.

By contrast, Multi-National Enterprises (MNEs, hereafter) usually encounter high exiting-barriers while they take the fancy on the Chinese domestic market no less than the cheap labors. That is to say, once MNEs have carelessly invested in China, they must pay a sizeable amount of closing costs if they eventually realize that the domestic market is

inaccessible (i.e. highly regulated) or nonexistent. Of course, MNEs who run mature businesses are not dumb. As a consequence, during the second period most FDI inflow came from developing Asian areas and focused on labor-incentive industries, while MNEs aiming at the Chinese domestic market did not really enter at this period.

"Round-trip" FDI became popular in the second period, too. This indicates that Chinese capitalists set up their firms overseas and then their returns from the investment came back to China as FDI projects. Xiao (2004)'s calculation suggests that the round-tripping FDI in China was estimated in the range of 30-50% during the 1990's. Those round-tripping FDI in the guise of "joint ventures" take advantage of tax treatments and obtain extra property rights protections from local governments. Surely, this phenomenon is a type of waste of rent seeking.

During the second period, the major objective of Chinese government was to "trade market for technology". Unfortunately, the mission was not accomplished – FDI gained access to the labor-intensive industries where domestic enterprises used to dominate, however, those domestic industries failed to benefit from advanced technologies that FDI supplied (the failure of "spillover effect (Caves, 1974"). More seriously, numerous domestic private firms were suffocated by the unfair competitions with FDI who were equipped with all kinds of super-national tax treatments. I call this phenomenon as the "suffocating effect of FDI on domestic firms (Zhang, 1997)" owning to China's institutional imperfections.

The China's central government adapted its policies to favor high-tech industries in the third period (1996-2001), in addition to the improved pro-competition conditions.

In particular, it was for the first time in China's market reform that solely foreign-owned enterprises were officially acknowledged, though still highly regulated, by the central government[16]. Consequently, the number of solely foreign-owned enterprises has been exceeded that of joint ventures since 1998. More and more MNEs joined the team of investors in China (as shown above), while FDI inflows from developing Asian areas became less important.

The improvement of pro-competition conditions has been further strengthened since China earned its WTO membership in 2001. The years after 2001 could be regarded as the fourth period, particularly for the openness of service industries. Most recently several foreign banks and insurance companies have acquired licenses to operate in China. As of 2008, about 480 out of Forbes 500 MNEs have invested in China (*Xinhua News Agency*, May 07, 2008).

However, after they own the access to the gigantic domestic market and cheap labors in China, MNEs appear to enjoy the loopholes in China's institutions rather than attempting to correct them. First, a number of MNEs have adopted business bribes in dealing with Chinese government. *Asia Pacific Economic Times* (July 23, 2004) reports that international businessmen and foreign investors were engaged with 64% of 500,000 corruption cases that China had investigated from 1995 to 2004 (cited from Xinhuanet, 2004). The blacklist includes IBM, MSD, Lucent, and many other giant MNEs. Second, MNEs exploit China's labors, as reported by *Wall Street Journal* (cited from *People's Daily*, 02-05-2004). For example, made in China for the Logitech company, a Wanda

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[16] The *Provisional Guidelines for Foreign Investment Projects* that took effect on June 27, 1995.

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wireless mouse was sold at around $40 in the United States; in contrast, China only earned $3 out of it, and the money must be used to cover labor costs, energy and local logistic expenses. Third, MNEs undertake tax evasion via transfer pricing. According to an investigation by National Statistical Bureau (cited from Qiu, 2007), although 55% of FDI firms reported capital losses in China before 2005, two-thirds of losing FDI firms committed transfer pricing in order to avoid taxation to Chinese government. Qiu (2007) further criticizes that MNEs say one thing (reporting deficits) and do another (investing more in China).

Also in the fourth period, FDI inflows from developing Asian areas have been declining. Domestic private enterprises have won a higher status since recent Constitutional Amendments. In particular, the offering of "Three Exemption and Two Reduction" as super-national tax treatment to FDI was eventually abolished on January 1, 2008. This institutional change partially reflects the fact on the ground that the China's central government has downgraded the previously overestimated contributions of FDI, especially those FDI projects in labor-intensive industries, upon Chinese economy[17]. As a consequence, "round-trip" FDI are not as profitable as before.

In a nutshell, I have presented a scenario of how FDI interact with government regulations. At first, FDI will deal with government to gain the market access with no strings attached. When the market access is granted, FDI are not stopped by the shaky rule of law and the unsecure protection of property rights. While they do not get enough

[17] The so-called "36 rules", which was announced by State Council of China in 2005, makes another institutional change that favors the domestic private sector to the disadvantage of FDI. It states that all areas accessible to FDI must be open for the domestic private sector as well.

legal and property protections, FDI will go for the "round-trip" investment, the tax evasions via transfer pricing, or rent-seeking with Chinese officials.

Finally, there are two distinctions between FDI and domestic private firms, although both types of businessmen are profit-maximizers. On one hand, foreign enterprises are usually well established businesses, whereas domestic enterprises have to start from scratch. On the other hand, foreign enterprises can "vote by the feet (i.e., invest in China or any another country)", whereas domestic enterprises could have only two options: "to be or not to be".

These two distinctions deserve attention in Chinese political economy. In particular, foreign investors cannot miss China, but they can be very choosy about which local areas in China they invest. For one thing, few successful foreign investors can simply ignore China's domestic market that simultaneously possesses one-fifth consumers of the world as well as the world's largest pool of cheap labors. Therefore, when dealing with China's central government, FDI firms share the same strategy with that of private firms: to increase the investment in China or to stop the investment. Obviously, both FDI and domestic private firms are immobile businesses regarding the China market and cheap labors.

For the other thing, Chinese local governments over-compete for FDI projects (Qian and Roland, 1998). Under the Chinese hierarchic bureaucracy, the chance for promotion of a local leader (who has not reached the top-level in the hierarchy) is significantly and positively correlated with the GDP growth rate of his jurisdiction (Li and Zhou, 2005). Holding substantial power in his jurisdiction, a promotion-oriented

local leader is not a "stationary bandit (Olson, 2000)", because he would be quickly promoted to a higher-ranked position if he could significantly increase the local GDP growth rate by whatever means necessary. He is not a "roving bandit (Olson, 2000)," either, because he does not tend to exploit those sources with which he can churn out a "local economic miracle". Such a local leader is particularly interested in FDI projects that are established businesses, because a respectable FDI project would immediately level up the local GDP and thus make him stand out from his peers. As a result, local leaders over-compete for FDI projects (Qian and Roland, 1998; Zhang, 2000). In contrast, local leaders do not compete for burgeoning domestic private firms, because it takes time for a private firm to grow and then significantly contribute to the local GDP.

In sum, when playing the "predator-prey" games[18] against provincial and local officials in China, successful foreign firms have the upper hand over burgeoning domestic private firms. Otherwise, both FDI in China and China's private firms can be regarded similar in dealing with Chinese officials at different levels. On the positive side, they both induce institutional changes to be adopted by the central government[19]. On the negative side, they both form interest groups to collude with provincial and local officials to take advantage of the public interest[20]. Of course, it may take time for burgeoning domestic private firms to mature and form interest groups with other firms.

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[18] Please refer to Chapter 6.
[19] Please refer to Chapter 4.
[20] Please refer to Chapter 7.

7. Conclusions

This chapter provides both historical and theoretical support for the upcoming chapters, in which I shall develop both evolutionary game-theoretical models and behavioral political economy models that trace the evolving nature of China's institutional changes. The post-1978 era has featured (1) the decline of the public sector, (2) the expansion of the private sector, (3) the quality inflow of foreign direct investment (FDI), and (4) the gradual institutional changes that usually favor domestic private enterprises and/or FDI.

The central government used to exclusively rely on state-owned and township-village enterprises. In order to maintain sufficient economic growth, the central government has had to privilege the private sector as its backbone in the process of market reform. Consequently, institutional changes have gradually taken place in favor of private firms.

Pro-competition (i.e. anti-discrimination) polices, the protection of private property rights, and the rule of law are three major components of these institutional changes. In particular, the practical experience of pro-competition policy reform has been much more encouraging than that of property rights and the rule of law reform policies. Both the domestic private sector and quality FDI have pushed the central government to deregulate the market for more pro-competition conditions. Nevertheless, as more mature and more mobile businesses than the burgeoning private sector of China, FDI firms are more ready to take advantage of institutional loopholes within the host country.

China's private sector has survived the discrimination policies from the authoritarian government. It has also come through the suffocation effect of FDI. It

appears that a surging private sector has become the backbone of the sustainable economic growth of China. However, it remains an interesting subject whether Chinese private firms, as they mature businesses, will follow FDI's tracks and generate destructive power to China's market miracle.

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CHAPTER 4: The Forces behind the Institutional Changes under China's Central Government – A Behavioral Political Economy Framework

1. Hypothesis

The evolutionary path of China's institutional changes corresponds to the fundamental argument of behavioral political economy. With respect to prospect theory, how rulers interpret their choices -- in the prospects of gains or losses – influences how much risk they will take. In the prospects of deep losses, China's central government is inclined to make dramatic and risk-seeking institutional changes. In the prospects of economic gains, China's central government is prone to adopt gradual and risk-averse institutional changes. Although induced institutional changes by the private sector are linked with certain political losses, they are still accepted by China's central government in an incremental reform because their certain economic gains exceed their negative political values. As a result, China's market reform appears to be an incremental reform because its evolutionary path has been largely framed in the domain of economic gains. China's central government makes a self-interested choice, that is, a growth-oriented incremental reform.

2. Introduction

In this chapter, I will explore the forces underlying the institutional changes that China's central government has undertaken. The analysis is based on a behavioral political

economy framework that integrates behavioral economics with political economy. First and foremost, I open the black box with respect to institutional changes in China and distinguish between two types of institutional change: induced or imposed. The topic of institutional change in developing countries has been widely covered in the economics literature. However, "more often these institutions are treated as a black box, and there is little effort to understand why these institutions vary across countries (Acemoglu, 2005)." By and large, peoples pay little attention to the forces behind the institutional changes. In particular, when they discuss the market reforms in China, most studies (Lin, Li and Cai, 1993, 2003; Fewsmith, 2001; etc.) simply begin with the assumption that China's central government is *the* decision maker of institutional changes, and that it chooses the institutions that maximize the total surplus of the society. This approach is appropriate to explain the consequences of an institutional change, but it leaves no scope to analyze whether this institutional change is (1) simply imposed by the central government, or (2) initially induced by an individual or a group of individuals and finally adopted by the central government. Empirical evidence from China's market reforms suggests that there are some imposed institutional changes (e.g., open trade zones), and also some induced institutional changes (e.g., the surge of private business). I am most interested in the induced institutional changes, because they originate from individuals and groups of individuals that are actually the driving force of the market economy.

Second, this chapter reviews China's institutional changes from a political economy perspective, a topic largely ignored in the extant literature. From a political economy perspective, the state is neither a non-actor in Adam Smith's world nor a

Lockeian nexus of cooperation; instead, the state is the grabbing hand (Buchanan and Tullock, 1962; Shleifer, 1998). Economic and political institutions are not independent with each other, because political institutions affect and allocate political power, while political power interacts with economic institutions (Acemoglu, 2005). In an authoritarian regime like China, an induced institutional change from the private sector certainly helps improve economic performance that benefits the central government, but it also results in negative political values challenging the traditional socialist dogmas that favor public enterprises. Therefore, a political economy perspective examines the integrated effect of economic and political institutions, rather than treating them separately.

The last significant feature of this chapter is that it applies behavioral economics to examine institutional changes of China. The literature of institutional change has basically followed the neoclassical tradition that relies on expected utility theory (EUT, hereafter). EUT states that a decision maker of institutional changes chooses among risky or uncertain prospects by comparing their expected utility values, i.e., the weighted sums are obtained by adding the utility values of outcomes multiplied by their respective probabilities (Mongin, 1997). In other words, how we frame information should not affect our judgment, and a rational agent has a consistent risk preference. However, the real question is "*what if the agent does not follow what EUT predicts?*" Shown in history, since 1978 (the year when the open-market reform started), China's central government has appeared mostly risk-averse during market reforms, but occasionally it has exhibited risk-seeking behaviors (1978, 1989 and 1992). Hence, EUT cannot best delineate the story of China's market reform.

Some recent studies (Weyland, 1996, 1998; Vis and van Kersbergen, 2007; etc.) draw upon behavioral economics to explore institutional changes. They argue that decision makers systematically violate the axioms of expected utility theory (Kahneman et al. 1982). According to behavioral economics on the basis of prospect theory (PT, hereafter) (Kahneman and Tversky, 1979), how we frame information may influence our judgment, that is, whether information is framed in the prospects of gains or those of losses and whether the prospects are certain or uncertain. People lean towards risk-seeking choices when facing prospects of losses, but opt for risk-aversion when anticipating gains. Therefore, it seems that PT, in contrast to EUT, provides a different, maybe better explanation of the evolutionary path of China's institutional changes.

In short, scholars have adopted two approaches (*prospect theory* or *expected utility* theory), categorized two types of institutional changes (*induced* or *imposed*), and classified two kinds of institutional structures (*economic* or *political*). These theories, institutional changes and structures yield eight possibilities in the cross-product of models:

{Prospect}   *{Induced}*   *{Economic}*
      Theory X   *Institutional Changes* X   *Institutions*
{Expect Utility}   *{Imposed}*   *{Political}*

Lin and his colleagues (Lin, 1989; Lin, Li and Cai, 1993, 2003; etc.) have contributed a series of studies on institutional changes of China, which is arguably the prevailing theory on the subject. The specification of their model is

{Expected Utility Theory} X {Imposed Institutional Changes} X {Economic Institutions}.

In addition, most existing studies that apply prospect theory to institutional changes are scholarship that examines either comparative politics or international relations. These studies do not take into account the combined effects of economic and political institutions on institutional changes. The specification of their model is

$$
\{Prospect\ Theory\}\ X \quad Institutional\ Changes\ X \quad Institutions
$$

$$
\begin{Bmatrix} Induced \\ Imposed \end{Bmatrix} \quad\quad \begin{Bmatrix} Economic \\ Political \end{Bmatrix}
$$

During the past 30 years of market reform, China's central government has been placed on the domain of economic gains by and large, but for occasions it has slipped into the domain of deep economic or political losses. In addition, China's market miracle is characterized with induced institutional changes from the private sector. In this behavioral political economy framework, I argue that (1) induced institutional changes are associated with *more certain* economic gains: individuals or groups of individuals induce institutional changes in order to maximize profits (Lin, 1989); and the central government only adopts those induced institutional changes that have stood the test of the market and caused only limited political losses to the central government; (2) imposed institution changes are linked with *more uncertain* economic gains: when the central government initiates an institutional change that is politically acceptable, it is hard to tell whether it works in the market. (3) deep losses may originate from either economic values (after Tiananmen Incident in 1989) or political values (the initiation of the market reform in 1978 and Deng Xiaoping's "Southern Tour" in 1992). In brief, the authoritarian regime may clash with the induced institutional changes from market economy, i.e. a

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positive economic value may come with a negative political value. The central government has chosen incremental or radical reform steps that are conditional on (1) the combined effect of economic and political values, (2) the prospects of gains or losses, and (3) the certainty or uncertainty of the prospects.

Subsequently, there are two basic hypotheses: (1) in the prospects of deep losses, the central government tends to impose risk-seeking, dramatic reforms; (2) in the prospects of economic gains, the central government accepts induced institutional changes that bring in certain economic gains with only limited political losses. The basic specifications of the model are

(1) given prospects of deep losses:
{Prospect Theory} X {Imposed Institutional Changes} X {Economic*Political Institutions}

(2) given prospects of economic gains:
{Prospect Theory} X {Induced Institutional Changes} X {Economic*Political Institutions}

The rest of this chapter will be unfolded as follows: Section 3 compares expected utility theory with prospect theory, thereby demonstrating that prospect theory provides a potential explanation of China's market reform. Section 4 turns to the comparison between induced and imposed institutional changes, proving that induced institutional changes generate more certain outcomes; Section 5 discusses the integration between prospect theory and political economy of institutional changes; On the basis of the discussion developed in Section 5, Section 6 presents a graphical analysis of induced institutional changes under Chinese authoritarian regime. Sections 7 and 8 further exam the hypotheses with empirical evidence that comes from China's market reform: section 7

examines the situations in the domain of deep losses, while section 8 explores the situations in the domain of gains. I will draw conclusions in section 9.

3. Expected Utility Theory (EUT) versus Prospect Theory (PT)

Expected utility theory (EUT) predicts that if we consider a gamble with two outcomes: *X* with probability *p*, and *Y* with probability *1-p* where $X \geq 0 \geq Y$, and the original asset is set as W, then the expected utility (EU) is *V=p U(W+X)+(1-p)U(W+Y),* and a prospect is acceptable if the asset position *W* iff. *V>U(W).* Thus, the domain of the utility function is the final state of wealth rather than gains or losses (Kahneman and Tversky, 1979), probabilities are weighted linearly, and indifference curves are drawn without reference to current holdings (Tversky and Kahneman, 1991).

In contrast, prospect theory (PT) posits that reference levels rather than the final assets play a large role in determining choices. This theory was originally proposed by Kahneman and Tversky (1979). The utility function of PT is *V= f(p) U(X-r)+f(1-p) U(Y-r),* where *p* denotes the probability, *f(p)* is a function that weights probabilities nonlinearly, *X* and *Y* are the different levels of wealth, *r* is the reference point to measure the change in wealth, *X-r* or *Y-r* measure the change in perceived value within the domain of gains or that of losses, and the value function *U(X-r)* measures the utility level as a result of the deviation (*X-r* or *Y-r*)_from the reference point *r* (Camerer, 2000). In other words, PT consists of two major components: (1) a probability weighting function *f(p)*: the curvature in *f(p)* captures how sensitive people are to differences in probabilities. In EUT, in contrast, the probability function *p* does not measure such a sensitivity; and (2) a

value function *U(X-r)* derives the utility from gain or loss of value *X* compared to the reference point *r*, whereas in EUT the value relies on the final asset *U(W+X)* (Camerer and Loewenstein, 2003).

Furthermore, Tversky and Kahneman (1991) summarize three essential characteristics of PT:

"[1] *Reference dependence*: the carriers of value are gains and losses defined relative to a reference point. [2] *Loss aversion*: the function is steeper in the negative than the positive domain; losses loom larger than corresponding gains. [3] *Diminishing sensitivity*: the marginal value of both gains and losses decreases with their size (Tversky and Kahneman, 1991)."

The distinctions between EUT and PT can be best demonstrated by the following experiments, which are reported in Kahneman and Tversky (1979). The results are demonstrated as

Option A: (payoff A, probability A) or option B (payoff B, probability B)
N= subject size; [percentage to choose A]; [percentage to choose B]

(i) Pair 1 with all positive payoffs:
Question 1: A: (4,000, 0.80) or B: (3,000, 1)
N=95   [20%]   [80%]
Question 2: C: (4,000, 0.20) or D: (3,000, 0.25)
N=95   [65%]   [35%]
The results violate the EUT, because
B better than A: U(3,000) > 0.8 U(4,000)
C better than D: 0.2 U(4,000)>0.25 U(3,000)

This result is regarded as the "Certainty Effect" (Kahneman and Tversky, 1979): When there is some certain result, the subjects may be prone to risk aversion; in contrast, if there is no certain result, EUT may still works.

(ii) Pair 2 considering negative payoffs:
Question 3: E: (-4,000, 0.80) or F: (-3,000, 1)
N=95   [92%]   [8%]
The results violate the EUT, because
B better than A: U(3,000) > 0.8 U(4,000)
E better than F: 0.8 U(-4,000)> U(-3,000)

The comparison between the result of question 3 and that of question 1 indicates that people tend to be risk averse for certain gains whereas risk seeking in order to avoid certain losses. In other words, if the prospect is framed as a *gain* as the reference point, people are prone to choose a risk-averse option; by contrast, if the prospect is framed as a *loss*, people are more likely to be risk-seeking. PT (Kahneman and Tversky, 1979) argues that "the same psychological principle-the overweighting of certainty-favors risk aversion in the domain of gains and risk seeking in the domain of losses." To put it differently, people underweight intermediate probabilities (for example, 80% in questions 1 and 3). As a result, the subjective value of (-4000, 0.80) is higher than that of (-3000).

(iii) Pair 3 with losses looming larger than gains:
Question 4: J: (6,000, 0.25) or K: (4, 000, 0.25; 2,000, 0.25)
N=68   [18%]   [82%]
Question 5: L: (-6,000, 0.25) or M: (-4,000, 0.25; -2,000, 0.25)
N=68   [70%]   [30%]

Since $v(6,000)<v(4,000)+v(2,000)$ and $v(-6,000)>v(-4,000)+v(-2,000)$, these results comply with the value function that is concave for gains and convex for losses. Indeed, losses "loom larger" than gains.

(iv) Pair 3 with very low probabilities:
Question 6: G: (5,000, 0.001) or H: (5, 1)
N=72   [72%]   [28%]

Question 7: I: (-5,000, 0.001) or I: (-5, 1)
N=72   [17%]   [83%]

Although they underweight intermediate probabilities, people tend to overvalue very low probabilities. In question 6 people prefer a lottery ticket over the expected value of that ticket. In contrast, in question 7 people is willing to pay the insurance premium higher than the expected value of the loss. It appears that people overweight very small probabilities, i.e. $f(0.001)>.001$ and $f(-0.001)<-.001$.

After all, Kahneman and Tversky (1979) and their followers demonstrate through numerous experiments that the utility curve of prospect theory can be described as a "*S*" curve in Figure 2. A "S" Curve mirrors the crucial argument of PT that "certainty increases the aversiveness of losses as well as the desirability of gains (Kahneman and Tversky, 1979)": (1) concave in the domain of gains, i.e., risk aversion; (2) convex in the domain of losses, i.e., risk seeking; (3) overweighting of the very low probabilities; (4) loss curve is steeper than gain curve, i.e., losses "loom larger" than gains.
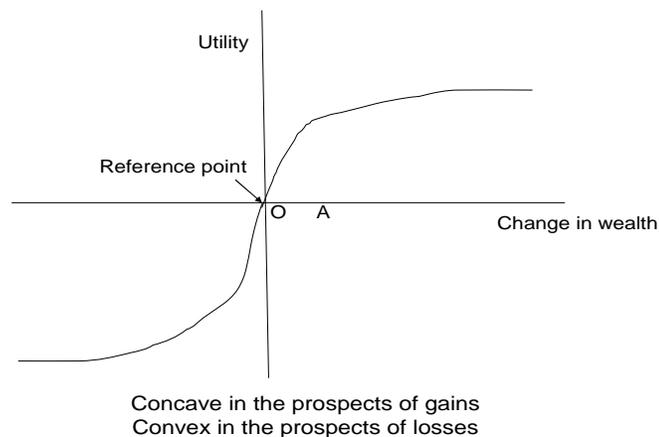
Concave in the prospects of gains
Convex in the prospects of losses
Figure 2: Utility Curve of Prospect Theory

The first two situations (in gains) in Pair (i) are similar to an earlier theory – the Friedman-Savage Subjective Expected Utility function (SEU)- by Friedman and Savage (1948) and Savage (1954), which solved a seemingly mystery why people buy lottery tickets (risk seeking) and purchase insurance against losses (risk averse) at the same time. However, SEU is restricted to gambles with known outcome probabilities (Camerer and Loewenstein, 2003). As Ellsberg (1961) points out, SEU provides no scope for situations involving lots of "ambiguity" (i.e., no expressions of likelihood). In contrast, not only does PT incorporate the domain of losses, but also generalize SEU to accommodate ambiguity situations. Note that PT only requires probabilities to be *sets*, such as likely or unlikely prospects.

Based on the aforementioned discussions, PT may provide an alternative framework to that of EUT to explain China's institutional changes for three reasons: (1) *There are successful applications of PT in the wild*: Kahneman and Tversky's (1979, 1981) findings have been confirmed by repeated case studies in the field. According to Camerer (2000) and Mercer (2005), there is mounting evidence indicating that different features of prospect theory may be used in various fields, such as macroeconomics, labor economics, political choices, etc. Recently, scholars in international relations and comparative politics (Levy, 1992, 1997; Taliaferro, 2004; Elms, 2004; etc.) have applied prospect theory to some empirical studies of cross-national policy makings. In particular, Weyland (1996, 1998) studies the political fate of market reform in Latin America, Africa, and Eastern Europe, in which he demonstrates the importance of prospect theory

for both leaders and citizens in those democracies. Hence, it is projected that PT may also apply to the political fate of market reform in China.

(2) *EUT does not match with the inborn ambiguity of China's market reform.* EUT is limited to gambles with known outcome probabilities, but a more common situation in the world is "uncertainty" or unknown probabilities (Camerer and Loewenstein, 2003). China's incremental reform has been widely recognized as a reform of "wading the stream by feeling the way", that is, the decision makers of the reform do not usually face a gamble with known outcome probabilities. Indeed, the social planners (i.e. the decision makers of the reform) have no way to make full use of knowledge in society (Hayek, 1945). Accordingly, when it chooses an incremental reform, China's central government may not run a precise calculation based on specific expressions of likelihood, but make a "rational choice in an uncertain world (Simon, 1955; Dawes, 1988; Hastie and Dawes, 2001, etc.)." More or less the information set of the rulers consists of "likely or unlikely" prospects of "gains or losses" rather than outcomes with known probabilities.

(3)*The characteristic of reference dependence matches with the incremental steps of China's market reform.* Samuelson and Zeckhauser (1988) introduce the term "status quo bias" for the effect of reference position, in that people tend to adjust their reference position along with the evolutionary path of status quo. Governmental documents[21] that periodically change platforms have shown us that China's central government does not have a consistent preference over time.

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[21] Such as annual reports of China's central government to People's Congress.

In the tables of institutional changes in Chapter 3, I show that China's central government has periodically adjusted its preferences with respect to the private sector. After a desirable institutional change took place, China's central government usually cried down the previous institutional setting and praised the new one. This kind of self-depreciation has been recurring during China's incremental institutional reform. Hence, the rulers seem to align the reference point of institutional change with the status quo of the institution. Once the institutional change is in the prospects of gains, the rulers applaud the new institution and despise the status quo, though they acclaimed the status quo not long ago. Obviously, it is PT rather than EUT that accounts for this phenomenon: EUT assumes reference-independent preferences that are invariant with respect to an agent's current endowment, whereas PT assumes the dependence of preferences on one's reference point, typically the status quo. In sum, it is justifiable to conclude that PT can be utilized to expound the institutional changes of China.

4. **Induced Institutional changes versus Imposed Institutional Changes**

Institutional changes result from the adjustments of political and economic institutions in a country where the existing institutional arrangement is confronted with pressures for changes. The pressures may come from either the economic or the political side. According to Lin (1989),

"There are two types of institutional changes: induced and imposed. An *induced* institutional change refers to a modification or replacement of an existing institutional arrangement or the emergence of a new institutional arrangement that is voluntarily initiated, organized, and executed by an individual or a group of individuals in response

to profitable opportunities. An *imposed* change, in contrast, is introduced and executed by governmental orders or laws (Lin, 1989: P. 13)."

Both induced and imposed institutional changes serve as the *means* for the central government to reach its goal that is to sustain power via economic growth. But there is a significant difference between two types of institutional changes: for induced changes, the driving force is the private sector, in contrast to the central government who is a more passive player; for imposed changes, the driving force is the central government who plays a more active role. In China's authoritarian market economy, as discussed in previous chapters, a typical induced institutional change would be initiated by individuals and groups of individuals in the private sector as an informal institution. If it turns out to be economically successful and politically acceptable, the informal institution would be consented by the central government as a formal institution. In contrast, an example of imposed institutional change could be government -initiated reforms on State Owned Enterprises (SOEs, hereafter). An imposed institutional change is of course politically acceptable, but it is not necessarily economically successful because government as a social planner may not be able to efficiently use the knowledge in the society (Hayek, 1945).

When the authoritarian decision makers apply the cost-benefit calculations, according to EUT, the induced and imposed institutional changes are identical if they reach the same amount of utility at the end. Nevertheless, two types of institutional changes are considered different with respect to PT, because induced institutional changes are more likely to create certain gains. As aforementioned, a major distinction

between PT and EUT occurs when a certain or likely outcome is available: if such an outcome is available, PT will overweight the certainty but EUT will not; otherwise, PT may offer the same prediction as EUT does.

The inherent nature of induced institutional changes decides that it is more likely to generate certain outcomes. Induced institutional changes are voluntarily generated by individuals or individual groups, and different institutions are competing to maximize profits through the market of institutions (Schultz, 1968; Lin, 1989). For example, during the evolutionary path of rural industrialization in China, there used to be a number of competing induced institutional changes, such as the "Sunan Model (Township-Villageship-Enterprises Oriented)", the "Wenzhou Model (Private-Firms Oriented)" among others, but only the "Wenzhou Model" won the competition eventually in the 1990s. In this case, induced institutional changes are purely the "by-products" of competition for profits. To put it differently, the private firms were not competing for the institutional changes that ultimately benefit the society as a whole, but for their own profit opportunities. The central government did not adopt the "Wenzhou Model" to be a formal economic institution until the late 1990s, when the "Wenzhou Model" had clearly demonstrated its advantages over the "Sunan Model" and other competing induced institutions.

The similar mechanism does not necessarily apply to imposed institutional changes. According to Hayek (1945), no ruler could possess all the information so as to produce socially efficient institutional outcomes. In other words, once the ruler initiates an imposed institutional change, he is uncertain about the reactions from market

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participants. To impose an institutional change, the ruler would have to rely on reports of statistics that can prove the feasibility of the change. However, rapid changes in space and time decide that statistics-oriented decisions may have been outdated and incorrect when they are made. Ironically, as shown in Chapter 1, China's statistics reports are more or less untrustworthy because self-interested bureaucrats and local officials tend to fake the numbers. I thus argue that imposed institutional changes are associated with uncertain rather than certain outcomes.

I also maintain that induced institutional changes are market equilibrium outcomes despite the fact that Lin (1989) regards them as market failures. In Lin's logic, all induced institutional changes are public goods leading to an Olsonian (1965) free-rider dilemma, so "they cannot be established by the induced institutional innovation process. Without the whole-hearted support of the government, such institutional arrangements will not exist in a society (Lin, 1989)." Similarly, in his account of China's market miracle (Lin et al., 1993, 2003), Lin gives all credit to the central government. However, Lin's line of thought is partly flawed in that he overlooks a fact on the ground: induced institutional changes are fundamentally "by-products" of profit maximization.

A typical free-rider problem happens to voluntary contributions of public goods (Laffont, 1988). Suppose each consumer has a wealth (w^i), and she is asked to voluntarily contribute an amount z^i of the private good (x^i) for production of the public good (y). Then the output of the public good is given by $y = g(\sum_{i=1}^{I} z^i)$, and consumer i calculates her own contribution by solving the problem:

$$\text{Max } U^i(x^i, y)$$

Subject to $x^i = w^i - z^i$

$$y = g(z^i + \sum_{j \neq i} z^j)$$

$$z^i \geq 0, \ x^i \geq 0$$

The solution is $\dfrac{\partial u^i / \partial y}{\partial u^i / \partial x^i} = \dfrac{1}{g'}$, which is different from socially Pareto-optimal allocations

where $\displaystyle\sum_{i=1}^{I} \dfrac{\partial u^i / \partial y}{\partial u^i / \partial x^i} = \dfrac{1}{g'}$. Thus, it is a market disequilibrium.

Nevertheless, in the case of induced institutional changes, in Lin (1989)'s own words, different institutions are competing in the institutional markets to maximize profits. Consumers of institutions are not voluntary contributors of a single institution that is a *common* public good. Instead, trying to maximize personal utilities by allocating resources on different products, individuals and individual groups initiate institutional changes to improve the efficiency of resource allocations. An agent will solve the problem:

$$\text{Max } U \ (x_1(g_1), \ x_2(g_2))$$

Subject to $p_1 x_1 + p_2 x_2 \leq w$

Where x_1: good 1; x_2: all other goods;

g_i: institutional change i that is used to maximize the profit out of good i.

The solution of the problem is $\dfrac{\partial u(x) / \partial x_1}{\partial u(x) / \partial x_2} \bullet \dfrac{\partial x_1 / \partial g_1}{\partial x_2 / \partial g_2} = \dfrac{p_1}{p_2}$, an efficient consumer choice.

We may argue that one individual may mimic the institutional changes of other individuals, but it is analogous to say that a consumer may mimic the consumption patterns of his neighbors. Of course, this was not what Olson (1965) implies when he discussed the free rider problem.

Given Lin's theory that clearly lacks convincing micro-foundations, I propose a different argument of induced institutional changes: (1) There are market equilibria in the partial markets where individuals compete for profit opportunities; (2) Induced institutional changes are "by-products" of individual competitions in the partial markets, but promoting institutional changes does not generate profits to individuals, i.e., institutional changes are under-produced from the society's view; (3) it leaves for the central government to recognize the success of a particular institution in a market and to determine whether to promote it to nationwide. After all, by watching the voluntary competitions within the partial markets, the central government collects information about which institutional change is going to be a certain success.

5. Towards a Behavioral Political Economy Approach to Institutional Changes

A behavioral political economy approach studies institutional changes from a perspective that integrates political economy with behavioral economics based on prospect theory. Political economy has been widely applied to topics regarding institutional changes (e.g., Olson, 1982, 1984)[22], while some scholars have connected prospect theory (PT) to the practice of institutional changes. Nevertheless, as Mercer (2005) states in his recent review, "most surprising, political economists have shown no interest in prospect theory." As a consequence, institutional changes have not been investigated from a behavioral political economy approach, though this approach enables us to better understand how China's central government may adopt institutional changes induced by the private sector.

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[22] Please refer to Chapter 5 for more extensive discussions.

There have been few, if any, political economy studies that consider the frames of gains and losses in examining institutional changes. Focusing on the schemes of single-person decision makings, PT leaves no space to some popular research topics of political economy that rely on the join-dependence of strategies, such as conflict resolutions and special interest activities. For example, Quattrone and Tversky (1988), the most influential study that applies prospect theory to political science, focuses on the political choices of decision-makers rather than their strategic behaviors. This theoretical weakness of PT may partially explain why PT has been absent in political economy research (Mercer, 2005).

However, there is still plenty of space for behavioral political economy studies on the basis of PT, especially when the joint-dependence of strategies is not a major concern. The Chinese political economy of institutional changes is an appropriate topic area for the application of PT, because it is the "stationary-bandit (Olson, 2000)" central government that dictates institutional changes. The Central government may impose institutional changes by orders. Alternatively, it makes decisions about whether to adopt institutional changes induced by the private sector.

Before further exploring the institutional changes undertaken in China's authoritarianism market economy, I would like to briefly review how PT is applied to institutional changes in democracies. Weyland (1996, 1998) are two comparative politics studies that apply PT to examine the market reforms in Latin America, Africa, and Eastern Europe democracies. He recognizes an implication of PT that leaders enact drastic reforms only when they face deep crises, otherwise they will choose gradual

reforms. Furthermore, as a rule rather than exception, the incumbents tend to suffer "status quo biases" (Samuelson and Zeckhauser, 1988). They are reluctant to admit their policy failures and thus unwilling to adopt radical reforms. Instead, they prefer cautious and gradual adjustments. Weyland (1998) summarizes cross-national evidence that two conditions are necessary for a radical economic reform to occur:

"(1) The public must be risk acceptant, which means they must be in a domain of loss (i.e. deep crises such as hyperinflation, political crisis); (2) new leaders must emerge as they are free from past failed policies and who view themselves in a domain of loss. These leaders will reject the established political constraints and embrace radical economic reform (cited from Mercer, 2005: P. 12)."

Weyland's studies (1996, 1998) also suggest that the prospects of gains and losses could happen to both economic and political institutional changes. Weyland (1998) writes that "where neoliberal reforms produce an economic recovery, all for new social programs, and thus put many people in the domain of gains, the new development model finds solid acceptance."

Weyland's findings shed light on the study of the institutional changes in China's authoritarian market economy. Especially, he finds the necessary conditions for a radical economic reform to take place. However, Weyland's theories and findings based on democracies could not be directly applied to China as a dictatorship. Furthermore, he does not distinguish induced from imposed institutional changes.

Economic recovery would be very likely appreciated in a democracy because voters are beneficiaries of a better economy. In contrast, in a dictatorship economic recovery might be disregarded if it conflicts with political dogmas. For example,

accumulations of wealth in the private sector do not square with the traditional socialism doctrines.

The followers of Downs (1957) would suggest that a rational politician seeks political ends through economic means. Accordingly, an authoritarian ruler will not be willing to accept a policy that results in economic gains but political losses. In China's market reform, the authoritarian central government had counted on public enterprises (SOEs and TVEs) whose economic success was in line with the political ends of the authoritarian government. However, both SOEs and TVEs did not live up to the government's expectation. As a result, China's central government could not help but rely on the private sector that certainly drives China's market miracle but undermines the traditional socialism doctrines.

6. A Graphical Analysis on the Induced Institutional Changes with Certain Economic Gains

When an institutional change takes place, China's central government assesses its economic as well as political impacts. Hence, the original utility function of PT can be revised with a new value function that considers the integrated effects of economic and political values. I propose this revised utility function of PT as below:

V = f(p) U[X(Economic*Political)-r] + f(1-p) U[Y(Economic*Political)-r],

Where *f(p)* is a function that weights probabilities nonlinearly, the *"Economic*Political"* denotes to the net value of economic and political values that an institutional change

creates (i.e. economic value minus political value), and the value functions *U(X-r)* and

U(Y-r) calculates the utility drawn from the net value when the net value deviates from

the reference point *r* that is the status quo.

In the cases of imposed institutional changes, the revised utility function of PT

has the same form as the original version. When it imposes an institutional change,

China's central government must ensure that this institutional change is politically

acceptable. At least, it could make use of its propaganda machinery to "beautify" the

institutional change it imposes. Therefore, an imposed institutional change always has a

positive political value, whereas its economic value is uncertain. An uncertain economic

value fits in the scope of the original utility function of PT.

In the cases of induced institutional changes, the revised utility function of PT has

a different form from the original version. As a by-product of market competition, an

induced institutional change, which usually originates in the private sector, guarantees a

positive economic value, but it also inflicts a certainly negative political value for the

authoritarian central government. To address the combined effect of economic and

political values, a figure of revised utility function of PT is presented below:
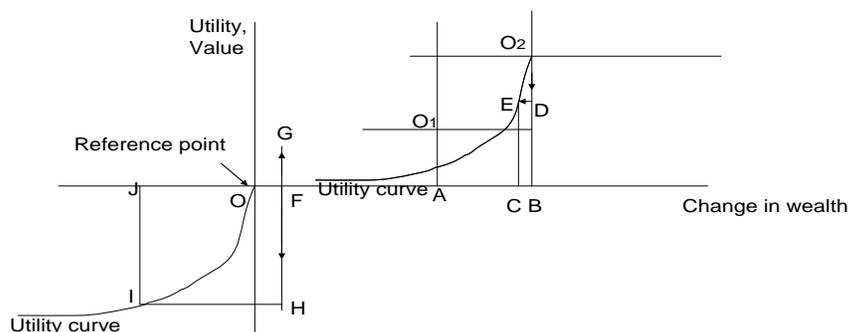
Figure 3: Behavioral Political Economy of Induced Institutional Changes

As shown in Chapter 2, the growth-oriented central government has an "encompassing interest" in private wealth. Figure 3 denotes such an "encompassing interest (Olson, 2000)" that China's authoritarian central government receives both economic and political value from "change in wealth" of the private sector. But this "encompassing interest is incomplete (Mueller, 2003)", because the authoritarian rulers will not tolerate an economic reform that maximizes economic growth but jeopardizes their power.

First of all, the private sector, if rational, does not ask for a radical economic reform. On one hand, as "Rome was not built in a day", a perfect competitive market cannot guarantee that the private sector creates an enormous amount of wealth within a short period of time. Therefore, the change in wealth is limited at F, resulting in a positive economic value (G) to the authoritarian government. On the other hand, a radical economic reform generates an innumerable amount of negative political value to the authoritarian government. As a result, its net value reduces to a big negative level (H),

corresponding to I on the loss curve that is compared to the status quo O. I use the status quo O rather than the economic value (G) as the reference point, because the economy does not actually operate at G. This situation is similar to question 3 in Section 3: given a choice between a big loss for sure and a gamble that has an intermediate probability to lose nothing, people tend to take the gamble. For an authoritarian regime like China, it possesses a fairly good chance to succeed in a suddenly brutal repression that eradicates all negative political values. A typical case is the Tiananmen Incident in 1989: In the late 1980's, a number of reformists were fighting for a more radical economic and political reform. However, the Tiananmen Incident wiped out all their efforts overnight.

Furthermore, the private sector could hardly benefit from a radical economic reform in China. If the central government takes the gamble, the best situation the private sector can expect is the status quo (O). Even if it accepts the sure loss, the central government will be hostile to the private sector: Drawing a negative utility (I), the central government actually regards the radical economic reform as a large-size negative change in its wealth. Consequently, to avoid living under a high danger of confiscation, the private sector does not tend to ask for a radical economic reform.

Second, China's central government makes a rational choice to adopt induced institutional changes in an incremental reform. Voluntarily generated by individuals or individual groups in order to maximize profits, an induced institutional change actually exists before it is adopted by China's central government. More or less, it sets up a *de facto* standard in the market operation before it becomes a *de jure* standard.

All successfully induced institutional changes create certain economic gains, whereas the majority of them bring certain political losses to the authoritarian government. In the incremental reform, China's central government will accept the sure political losses and thus adopt the induced institutional changes. The situation herein is similar to question 7 in Section 3: given a choice between a sure loss of 5 and a gamble with 0.1% chance to lose 5000, people tend to choose the sure loss. If the central government accepts the induced institutional change, it loses 5 in the political value; if it makes a rejection, there is a very small possibility that this rejection may choke the economic growth that follows this induced institutional change. According to prospect theory, the central government that overweighs the very small possibilities will adopt this induced institutional change.

Further analysis can be made based on Figure 3. Suppose the wealth has accumulated from the status quo O to A that indicates a new reference point O_1, followed by an induced institutional change that increases wealth from A to B. Consequently, the enlarged economic value drives up the utility from the O_1 level to the O_2 level, for which O_2 becomes the new reference point. As this induced institutional change gradually stands out with certain economic gains, it will receive attention from the central government. As implied in Chapter 3, China's central government has chosen to be a "rationally ignorant voter (Downs, 1957)" who does not bother to "vote" until a winning "candidate (induced institutional change)" has emerged from the competing institutional changes. Consequently, the central government needs to make a decision if it adopts this induced institutional change that brings in a certain economic gain but a certain political

loss. The negative political value drives down the value of institutional change from O_2 to D, whereby D corresponds to E on the utility curve in the prospects of losses. As aforementioned, the authoritarian central government will accept the sure political loss, i.e., the induced institutional change is now politically acceptable.

In addition, it seems that a typical induced institutional change is endorsed under a mild economic recession. Once the sure political loss is accepted, the new reference point relocates at E on the utility curve in the prospects of losses. The mapping of E on the axis of wealth (C) indicates a lower wealth than the wealth (B), where B is the wealth level before the induced institutional change is recognized. Because a typical induced institutional change does not generate a high political loss in terms of the expected value, the choice facing the central government will not slide into the range of intermediate probabilities (i.e. question 3 in Section 3). Therefore, a large amount of welfare loss (i.e. the distance between B and C) is unlikely[23].

So far I have focused on the major scheme in China's institutional reform – induced institutional changes that feature certain economic gains but certain economic losses. During the rest of this chapter, I compare this scheme with other schemes of institutional changes in China's institutional reform. None of those schemes are linked with certain economic gains, so the approach underlying Figure 3 is not necessary.

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[23] Please refer to Chapters 5-7 for further discussions on the interactions between institutional changes and economic downturn. These interactions are jointly determined with the behaviors of politicians and the investment decisions of economic agents. Prospect theory plays a limited role in the topic.

7. Empirical Evidence: China's Radical Reform in the Domain of Deep Losses

China's open-market reforms started in 1978. The major trend has been the domains of gains, and incremental reforms have taken place primarily on economic institutions but little on political institutions. However, there have been three distinct and abnormal variations during the course, all of which satisfied the two necessary conditions (Weyland, 1998) for radical reforms more or less: (1) deep crises; (2) new leaders.

The first radical reform in ideology politics in 1978: The catastrophic Cultural Revolution (1966-1976) left China's national economy on the verge of bankruptcy. Specifically, China's economy was almost stagnating for a ten year period, during which the average economic growth rate was as low as around 2%. A deeper crisis also came from the political arena as a consequence of political purges in the Cultural Revolution. Hence, China was in the domain of losses indeed. Deng Xiaoping became the *de facto* leader in 1978, and he immediately presided over a radical reform in ideological politics aiming to eradicate the leftist influence. The traditional Maoism propaganda held that "class conflicts are the first priorities", and Mao's loyal successor Hua Guofeng declared that "whatever Chairman Mao said is the truth". In contrast, Deng and his followers provoked a nationwide debate that "practice is the sole criterion for testing the truth." When Deng abandoned Mao's dogmas, it was actually a risk-seeking action, because most Chinese were still worshiping Mao as a Messiah. Deng's ideological preference was labeled as a "Cat Theory", which said that "no matter whether it is a white cat or a black cat, a cat that can catch rats is a good cat!" Obviously, "cat" denotes an institutional change, and "rat" implies "economic success". The "Cat Theory" immediately served as

a new reference point in a domain of gains, which led to incremental reforms in the economic institutions. The first reform step started from the countryside, where the household contract responsibility system was introduced; and the second reform step was the special zones for open-market reform in Guangdong Province.

The second radical reform in political and economic institutions in 1989, and the third in 1992: during the second half of 1980s, economically China suffered from a double-digital rate of hyperinflation for years, while the Tiananmen Incident in 1989 was undoubtedly a deep political crisis. As a new group of national leaders came on stage after the Tiananmen Incident, a radical setback occurred as the open-market reform came to a halt and the Maoism rigid economy came back alive. However, this risk-seeking institutional change was a pure failure. For example, in 1991 the total volume of profits in the private sector shrinked by 67% from the previous year. Within a short time span, China's national economy switched from one type of economic crisis that was hyperinflation to another type that was recession. In order to solve the crisis, Deng Xiaoping re-emerged in the political stage from his official retirement. In his 1992 "Southern Tour", he warned that "whoever does not support market reform must step down". His public warning re-directed China's economy from the left side (pro-planned economy) to the right side (pro-market economy), which rejuvenated energies of China's economy immediately. Since Deng's tour, China has not suffered any major economic or political crisis. In general, the reform processes have been incremental.

8. Empirical Evidence: China's Incremental reform in the Economic Domain of Gains -- Certain Gains versus Uncertain Gains

China's experience in the domain of gains was more complicated than in the domain of losses. When China faced prospects of deep crises three times in the past, they were all nationwide and likely losses. When China faced prospects of gains, in contrast, there coexisted both certain gains and uncertain gains. Induced institutional changes were closer to *certain* outcomes, while imposed institutional changes are more likely associated with *uncertain* outcomes.

The general trend of incremental reform of China has coincided with what prospect theory predicts in a domain of economic gains. Chapter 3 has clearly demonstrated the incremental institutional changes. Most of existing studies have stopped at this point. Nevertheless, I would like to further the exploration for variations of incremental reforms: besides the conflicts between certain economic grains and certain political losses, there are the contrasting outcomes of certain versus uncertain economics gains.

The induced institutional changes lead to certain economic gains. In theory the situation is similar to question 1 in Section 3: although it may take more risks that will bring to 80% of the regions 4,000 units of benefits, the central government prefers a certain 3000 units of benefits that apply to all regions. That is to say, once an induced institutional change is accepted by the central government, it is likely to become a national policy in no time. The household contract responsibility system in rural areas is a good case in point. The system spouted out at a small village of Anhui Province in 1978,

which introduced market incentives to the agricultural produce. Some areas voluntarily adopted the system in 1979 and all enjoyed the harvest. The system became a national policy in September 1980, when 15% of rural population were covered by the system, while 90% of Chinese peasants had become beneficiaries of the system by the end of 1982. Another good case is the evolutionary path of the private property rights protection, which has been slow but steady. The political concerns have restricted improvements of the private property rights, but the economic imperatives push the central government to ameliorate property rights protection continually[24]. It is worthy noting that every time when a reform step in the property rights was adopted, it became a national policy immediately. There has been no exception.

The imposed institutional changes confront uncertain gains. This situation appears to be similar to question 2 in Section 2: The central government prefers to try a reform that may offer 4000-unit benefits per se at 20% of areas, rather than another reform that may offer 3000-unit benefit per se at 25% of areas. This kind of reform may take bold steps in limited areas, but its spreads slowly to more areas. A typical example is the special open-trade zones. There could be two options: more trade liberalizations for 4000-unit benefits per se in 20% of areas, or less trade liberalizations for 3000-unit benefits per se in 25% of areas. China selected the first option. China's open-trade reform started from two cities, then expanded to 4 special zones, 14 coastal cities, a few coastal provinces, move provinces, and to nationwide eventually. It took more than 20 years for

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[24] Please refer to Chapter 3.

China to accomplish the open-trade reform. Other similar imposed institutional changes include SOEs reforms, medical insurance reforms, etc.

9. Conclusions

This chapter is a behavioral political economy study of institutional change in China. It attempts to distinguish between two theories (prospect theory vs. expected utility theory), between two kinds of institutions (economic vs. political), and between two types of institutional changes (induced vs. imposed). It argues for an application of behavioral economics which is based on the prospect theory.

This chapter particularly explores the integrated effect of economic and political values of induced institutional changes, not only because the economic value of institutional changes is adopted as means to improve the political ends of the central government, but also because induced institutional changes from the private sector has characterized China's institutional reform. Using graphical analysis, this chapter argues that a radical economic reform is unlikely within an authoritarian regime, and that induced institutional changes, driven by the individuals and individual groups, find the right niche in an incremental reform. Most importantly, a growth-oriented incremental reform agrees with the self-interest of China's central government.

This chapter also establishes a behavioral political economy approach that explores both induced and imposed institutional changes. Induced institutional changes lead to certain gains, for which the individuals and individual groups are the driving force of changes. Imposed institutional changes are associated with uncertain gains, for which the

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central government is the driving force. In addition, in the deep crises, the central government might impose radical reforms to avoid certain losses. After all, since the central government overweighs certain gains, the private sector, not the central government, becomes the major force behind the institutional changes of China.

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Chapter 5: Unravelling the Puzzle of China's Market Miracle

- The Relevance of Economic and Political Freedom

1. Hypothesis

Neither the rule of law nor the protection of property rights has significantly contributed to China's economic growth. In contrast, the authoritarian nature of China's central government does not necessarily conflict with economic growth. China's periodical institutional reforms appear to match the "crisis hypothesis," i.e. a mild economic downturn is a pre-condition for initiated market-oriented reforms. Most importantly, pro-competition policy reforms appear to drive economic growth in China.

2. Introduction

This chapter surveys the "achievements" of the central government as the intelligent designer of institutional reforms. That is to say, I focus on the impact (rather than the driving forces or the process) of institutional reforms on China's so-called "market miracle". On the basis of a comparison between the prevailing literature and the historical facts of China's institutional reforms, I identify which type(s) of institutional reforms explain its market-based economic miracle.

At first sight, China seems to have harvested its market miracle despite widespread and well-identified institutional imperfections. Yet, within the past three

decades, China has dramatically expanded its national economy through a double-digit average annual rate of growth.

Douglass North (1990) has forcefully explained that institutions matter for economic growth. Nevertheless, a number of fundamental institutional components have been largely missing in the case of China: the protection of property rights, the establishment and the maintenance of the rule of law, the provision of political rights and of civil liberties. The puzzle of China's market miracle has been raised in numerous academic papers and news reports. For example, a recent article in the *Economist* (March 15-21, 2008) states that "China appears to be a standing contradiction to the argument that the rule of law is needed for growth."

It is even more puzzling when we compare the economic performance of contemporary China with that of the four Asian Tigers in the 1970s, because these latter countries (or regions) shared a similar cultural background, confronted similar natural resource limitations, and similar degrees of abject poverty before generating their respective market miracles.

As Peerenboom (2002b) points out, "advocates of rule of law and neo-classical economists alike have argued that sustainable economic development requires the rule of law and clear and enforceable property rights." In sharp contrast with China, the legal systems of those Asian Tigers "have achieved highest economic growth measure up favorably with the requirements of rule of law, particularly with respect to commercial matters (Peerenboom (2002b)." Surely an unsecured protection of property rights and a shaky rule of law cannot be the explanation of China's market miracle.

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Nor is an authoritarian Stalinist central government necessarily the answer, despite Paul Samuelson's ludicrous assertions From the 1st edition of "*Economics*" in 1948 till 1987, Samuelson consistently praised Stalin-style central planning dictatorship as the ideal basis for generating rapid economic growth. He abandoned this position only in 1989 when the collapse of communism in Eastern Europe unambiguously exposed the abject poverty of all the Soviet satellite countries.

The People's Republic of China was a Stalin-style dictatorship throughout the period 1949 to 1978. However, as Lin, Li and Cai (1993, 2003) indicate, China remained abjectly poor until its post-Mao Tse-Tung central government gradually abandoned Stalin-style central planning and introduced private market reforms.

It is empirically correct that authoritarian states, like Singapore and contemporary China, may experience economic miracles. But this phenomenon may well be generated as an outlier effect, because Singapore and contemporary China are two of only a small number of countries that have better rankings in terms of economic freedom than in terms of political freedom.

Numerous empirical studies (e.g. Barro, 1996; Wu and Davis, 1999; de Haan, Lundstrom and Strum, 2006) have demonstrated that economic freedom is highly positively correlated with economic growth, whereas political freedom exerts ambiguous impacts. The rule of law and, in particular, the protection of property rights constitute the backbone of economic freedom, yet they are not the answer to the puzzle of China's market miracle. Rather the answer is to be found in other attributes.

In this study, I shall refer to two economic freedom indices (the Fraser Index and the Heritage Foundation Index) and one political freedom index (the Freedom House index), in order to demonstrate the above arguments. I shall also explore Chinese institutional data and hypothesize that incremental reforms upon pro-competition policies (i.e. the reduction of discrimination policies) may be the primary institutional sources of China's market miracle..

Another hypothesis will deal with the direction of causality between economic freedom and economic growth. Gwartney, Holcombe, and Lawson (1999) argue that "if a country's economy became freer during a given time period and it experienced a better growth performance during that time, this may facilitate further economic liberalization. If growth performance is, however, not satisfactory, this can obviously lead to a reversal or a reduced speed of liberalization efforts." In contrast, Williamson and Haggard (1994) propose an opposite "crisis hypothesis", in that "a worsening of circumstances speeds up the insight of politicians that something must be done to avoid a collapse of the economy (cited from Pitlik and Wirth, 2003)." The experience of China seems to comply with the "crisis hypothesis", and this hypothesis is evaluated against a range of institutional data.

3. Literature Review – How critical legal, market and political institutions are important for economic growth

The legal and market institutions that are considered by different classical scholars as the backbone for the prosperity of market economy are the rule of law (Hayek, 1973), the protection of property rights (Coase 1960), and pro-competition policies (Friedman 1962).

Each of these institutions contributes to the concept of economic freedom that is in general a significant determinant of economic freedom (Gwartney and Lawson, 2004a). In the absence of externalities, a competitive market system will automatically coordinate the efficient allocation of resources. The market order is maintained on the basis of the rule of law and the protection of property rights: Without the rule of law, efficient market transactions are eroded by the threat of predation; without the protection of property rights, productive investments will be foregone as capitalists are denied the rewards of their success.

The rule of law and the protection of private property rights play a mutual promoting role in the improvement of the market order. First, although private property rights may be alternatively protected via informal arrangements such as social norms and precedents, the rule of law plays a significant role that it energizes a binding and stable enforcement of the protection of private property rights (Hayek, 1944). Second, the rule of law will not be effective without a fair and well defined property right system, i.e., the substance of the property rights matters. The rule of law does not assure that laws are just and wise (Cass, 2003). But if private property rights are protected with the rule of law, the weak are shielded from the predatory strong (Hillman, 2003). Consequently, all resources are used productively and the efficient outcomes for the society would be achieved. This possibly helps explain why "a critical aspect of the commitment of the rule of law is the definition and protection of property rights (Cass, 2003)." Finally, in a society that has a secure protection of private property rights but a shaky rule of law in general, public properties in which any individual has a small share could be seriously

jeopardized. In Hillman (2003)'s word, "private property rights make people greedy rather than magnanimous and pleasant." Therefore, if the legal enforcement is not forbidding, greedy people may endeavor to accumulate even more private assets at the cost of public interest.

On the other hand, political freedom, if measured in terms of civil liberty and political rights, apparently exert ambiguous impacts on economic growth (Wu and Davis, 1999). Singapore and contemporary China are widely cited examples of authoritarian regimes that have experienced sustained economic growth.

3a. Why the Rule of Law is Important

The rule of law is commonly understood as a contradiction to the arbitrary execution of power, but no formal definition has been generated. When discussing the concept of the rule of law, scholars usually refer to the core elements that the concept entails. With respect to the vast literature regarding the rule of law, we may summarize that an ideal rule of law embodies such features as (1) generality (Dicey, 1885); (2) longevity (Hayek, 1973); (3) abstraction (Hart, 1961; Hayek, 1973); (4) positivism (Hart, 1961), and (5) constitutionalism and the separation of powers (Hayek, 1973). All these features are different but complement each other, and the essence of the rule of law is the integration of all these features.

The rule of law is important for three reasons. First of all, it protects individual liberty, which lies at the root of the spontaneous market order. Second, it has a horizontal function in facilitating interactions and cooperation among citizens. Finally, it serves a

vertical function – helping individuals to defend themselves against the arbitrary abuse of governmental authority.

(1)*The protection of individual liberty*: According to Hayek (1960), the term of "liberty" is exchangeable with that of "freedom". Negative freedom is the freedom enjoyed by an individual who is not coerced by the actions or interventions of other individuals. Its opposite is positive freedom which describes the interventionist behavior of government when coercing some individuals in order to redistribute resources to other individuals. In a spontaneous order, a free individual pursues his own goals constrained by his own economic resources, utilizing the market process to interact with fellow individuals, relying on the price mechanism to economize on the use of scarce knowledge (Hayek, 1945). In contrast, if private markets are replaced by central planning, and Nomos replaced by Thesis (Hayek 1973) the spontaneous market process is aborted, economic liberties are lost and market efficiency is replaced by bureaucratic stagnation.

(2)*Horizontal function*: The rule of law provides citizens with security and predictability in their dealings with other citizens. According to Hayek (1973), the rule of law is a basis for legitimate expectations, without which the cooperation and assistance of great multitudes will necessarily be more chancy affairs. In the absence of the rule of law, social norms may emerge to coordinate interactions among citizens. However, when social norms are breached no formal penalties apply. Once formal legal rules exist, in contrast, citizens can "reasonably have faith that the law will constrain other citizens and state officials in ways that they can predict (Allan, 1998)".

(3)*Vertical function*: This reflects the difference between the rule *of* law and the rule *by* law (Krygier, 2001). Under the rule *by* law, which exists in all authoritarian political systems, law is an instrument of the government, in that the central authorities utilize largely arbitrary rules to monitor and control the behavior of their subjects and in which the government itself is above the laws so administered. In contrast, under the rule *of* law, the government itself is subject to all the laws that apply to ordinary citizens. There are no exceptions to this rule.

3b. The Feasibility of a Non-Democratic Ideal of the Rule of Law

A non-democratic ideal of the rule of law is feasible in theory, but difficult to attain in reality. On one hand, what matters is individual liberty, rather than collective liberty. Hayek (1973) regards individual freedom as essential, but gives fewer credits to political freedom as a kind of collective freedom. He writes that "a free people in 'political freedom' is not necessarily a people of free men; not need one share in this collective freedom to be free as an individual," e.g. inhabitants in Washington D.C., and that "perhaps the fact that we have seen millions voting themselves into complete dependence on a tyrant has made our generation understand that to choose one's government is not necessarily to secure freedom." Thus, Hayek concludes that "though the concept of national freedom is analogous to that of individual freedom, it is not the same," and that what is essential to the rule of law is the individual liberty rather than political freedom. In this sense, the judicial dependence could be used as a proxy in measuring the rule of law.

Later, Orts (2000) suggests that the rule of law and democracy talk about different aspects, though they both seek to limit the power of absolute government: the rule of law requires an independent judiciary and legal system that possess the constitutional authority and power to apply the legal rules of the state to its own officials. Democracy refers to the constitutional structure of the legislative and executive powers to the state. In sum, I infer from the separation of the rule of law and democracy that there might be a non-democratic ideal of the rule of law. Singapore has been a good case in point.

On the other hand, the rule of law in a non-democratic state is hard to implement, because "the growth of the purpose-independent rules of conduct which can produce a spontaneous order will [thus] often have taken place in conflict with the aims of the rulers who tended to try to turn their domain into an organization proper (Hayek, 1973)." No rational ruler will be willing to give up his discretionary power voluntarily. Only under some particular pressure will the ruler concede his power towards the rule of law. Such pressure may come from public opinion (Hayek, 1973), bargains with economic interests in order to govern effectively (Cooter, 1996), or openness (Rigobon and Rodrik, 2005). What's more, once special interest groups have formed coalitions with officials, they will benefit from rent-seeking activities (Tullock, 1967). Subsequently, the members of coalitions will try their best to reject the rule of law, because harsher law enforcement leads to more severe punishment on rent-seeking cases.

3c. Why Protect Private Property Rights?

Property is a "bundle of rights" that describes what an individual may and may not do with the things he owns: the extent to which he may possess, use, transform, transfer, or exclude others from his property. Clearly defined property rights typically comprises three fundamental elements (Demsetz, 1967; Furubotn and Pejovich, 1972):

"First, every property is assigned to a well-defined owner, or owners, with exclusive rights of ownership. Second, the owner of the property receives the residual income accruing from the asset. Third, the owner has the right to control or determine the use of the existing assets, to restructure the property, and to sell or lease it. If any of these three conditions is not satisfied, property rights are said to be ambiguously or vaguely defined" (Tian, 2000: P. 250-251).

The definition of "private property rights", widely adopted by economists, comes from Cheung (1969), who holds that a private property right is composed of three basic rights: private possessory right, private right of residual claim, and private freely alienable right. This economic definition is different from what law scholars usually define the term as. What law needs is the justification of rights so as to assist the judges, so the ownership right is essential. From the perspective of certain, but by no means all economists, ownership rights are now viewed as less important than the right to control use (Grossman and Hart, 1986; Hart and Moore, 1990).

Numerous studies of property rights have endorsed the protection of private property rights. Some of these go back to John Locke's *Two Treatises of Government (1690)*. Prior to Locke, property had been viewed as bestowed by God upon Divine Right monarchs to be deployed at their will. In contrast, Locke points out that property is owned by individuals who mix their labor with the land. Because their imprescriptible

rights to property nevertheless are uneasily maintained in the state of anarchy, property-holders enter into a social contract to create the minimal state as a referee and enforcer of their rights. In this sense property owners exercise ownership rights over their governments and can declare a state of war against those members of government who betray the social contract.

Locke (1690) writes that "The great and chief end … of men's uniting into common-wealths, and putting themselves under government, is the preservation of their property (Para. 124, Ch.IX)." In Locke's view, initially God gave the earth to men in common, and then "whatsoever ... he removes out of the state that nature nath provided, and left it in, he hath mixed his *labor* with, and thereby makes it his *property* (Para. 27, Ch. V)." Thereafter, men may enter into society with their own consents – the reason is the preservation of their property. "And herein we have original of the *legislative* and *executive power* of civil society (Para 88, Ch. VII)," where "there wants a known and indifferent judge, with authority to determine all differences according to the established law (Para 125, Ch. VII)." In brief, John Locke's nature rights system of thought and his conviction that private property exists prior to government suggest that government must protect private property rights, for it is the reason why government exists.

In his famous essay "*The Law*", Bastiat(1998) also recognizes the importance of securing private-property rights, limited government, and economic freedom for personal and economic development: " it is under the law of justice, under the rule of right, under the influence of liberty, security, stability, and responsibility, that every man will attain to the full worth and dignity of his being, and that mankind will achieve, in a calm and

orderly way – slowly, no doubt, but surely – the progress to which it is destined." Bastiat regards progress as an evolutionary process in which individuals learn by trial and error, while the process is enhanced by a free-market system resting on private property rights.

The modern economics of property rights supports the protection of private property rights mainly from the perspective of securing economic efficiency than from that of protecting individual liberty. According to Alchian (1967), economics itself is the study of the role of property rights in securing economic exchange and thus in ensuring that economic resources are efficiently utilized. Alchian and Demsetz (1972) point out that only when a capitalist is able to securely claim the profit surplus of his firm for himself will he has a sufficient incentive to monitor the work-force in order to police out shirking behavior. In their review of economics of property rights, Furubotn and Pejovich (1972) suggest that the protection of private property rights allocates resources to the highest value uses, and diminishes uncertainty in making allocation decisions.

Finally, some law and economics scholars, starting from the Coase Theorem (Coase, 1960), also support the protection of private property rights, because it helps to internalize externalities. The Coase Theorem refers to the argument that "if transaction costs are zero, if, in other words, any agreement that is in the mutual benefit of the parties concerned gets made, then any initial definition of property rights leads to an efficient outcome (Stigler 1966)." If bargaining incurs little cost, then all we need is to clearly define the property rights, protect them, and the market will take care of the externality problem.

3d. Why Pro-competition Policies are Welfare and Growth Enhancing

Pro-competition policies are usually introduced as welfare-enhancing reforms to deal with the harmful consequences of government and private monopoly. Although perfectly competitive markets and monopoly markets are stylized as two extremes most markets fall between in the form of oligopolistic and monopolistically competitive. Almost every popular microeconomics textbook, no matter at an introductory (e.g. Gwartney et al., 2005), intermediate (e.g. Nicholson and Synder, 2006) or advanced (e.g. Mas-Colell, Whinston and Green, 1995), provides formal comparisons of the welfare economics implications of these four market forms.

Although perfect competition is often depicted as the most effective market form from the perspective of maximizing static consumers' surplus, it is generally recognized that the presence of product differentiation and economies of scale imply that real-world markets will take the form of monopolistic competition or oligopoly once pure monopoly is dismembered. By driving prices more closely into conformity with marginal cost, such market reforms reduce the deadweight costs characterized as "Harberger triangles (Harberger, 1954, 1959)" and place downward pressure on marginal and average cost, thus increasing the overall social surplus of benefits over costs and stimulating dynamic investment-led economic growth.

Of course, from the perspective of dismantling a country-wide monopoly, such as that characterized by the Peoples Republic of China in 1978, it is inappropriate to deploy a public interest model of pro-competition reform. Instead, one has to probe more deeply into the dynamics that shift a formidable rent-seeking and rent-extraction stagnating

economic equilibrium into a more growth-oriented direction. To this end, a public choice perspective is essential, and this will be systematically developed in Chapters 6 and 7 of this dissertation. Suffice it to say, at this stage, that an authoritarian central government, somehow imbued with a desire to increase the overall rate of economic growth, inevitably must resort to pro-competitive reform policies in order to reduce the deadweight losses and the cost-inefficiencies imposed by public and private monopoly and to re-energize the long-dormant dynamic entrepreneurial forces upon which economic growth essentially depends.

3e. Why Political Freedom may be Irrelevant for Economic Growth

To address this issue, let us start with a simple stylized comparison between democracy and dictatorship. By democracy let us depict a model in which individuals in society elect a government through the mechanism of simple majority vote registered through a non-manipulated secret ballot. By dictatorship let us depict a model in which one supreme leader imposes his will over his subjects without any overt concern for their individual preferences. Even in such stark form, there is no evident reason why the democracy should out-perform the dictatorship in terms of overall economic performance.

Public choice clearly indicates how a simple majority rule democracy system may lead to vote cycles that destabilize long term investment, how self-seeking interest groups may invade the political process through rent-seeking activities, how self-seeking public officials may extract rents by threatening to harm the economic interests of those who fail to provide them with campaign contributions, and how self-seeking bureaucrats

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may dampen or completely choke off entrepreneurial initiatives and growth-enhancing investments through the imposition of costly, budget-enhancing regulations. The economic theory of democracy, viewed from the public choice perspective, does not give cause for optimism, not does historical experience unambiguously support the view that free elections provide any guarantee for maintaining sustained high rates of economic growth.

Of course, a supreme dictator is capable of mirroring, or even out-performing a simple majority democracy in terms of wealth-destructive self-seeking. Much depends on the nature of his incumbency. In the case of the "roving bandit" dictator (for example Genghis Khan or the Sub-Saharan African Big-Men) where the dictator has no long-term interest in the terrain over which he holds temporary sovereignty, wealth-destructive rent extractions are inevitable and the subjects of his rule will be exploited to subsistence levels or below.

However, where the dictator is a stationery bandit, with a more-encompassing interest in his domain (Olson, 1993, 2000), he may well pursue growth-maximizing economic policies designed to swell his personal coffers with tax proceeds. Certainly he will avoid the costly cycling consequences of majority voting (Tullock, 1959) and he will counter for the most part, the costly rent-seeking activities that characterize all democratic polities. Hence, a stationary all-encompassing dictatorship may significantly out-perform a simple democracy in terms of achieving sustainable high rates of economic growth.

Of course, dictatorships are always more complex in form than the simple paramount leader model outlined above. Recent public choice studies (e.g., Tullock 1987; Olson, 1993, 2000; Wintrobe, 1998, 2005) have found that different types of dictatorship lead to dissimilar economic performances. As noted above, Olson (1993, 2000) points out the distinction between "roving-bandit" and "stationary-bandit" dictators. A roving bandit has no interest in economic growth, because he will not be able to collect the residuals of investment in the next period. Therefore, he will extract all but the subsistence wealth that his subjects manage to accumulate. In contrast, a stationary bandit has an "encompassing interest" in economic growth, since his regime will last long enough to claim through taxation the longer-term surpluses derived from pro-growth investment policies.

Wintrobe (1998, 2005) has distinguished four types of dictatorships: tinpots (characterized by low rates of repression and low rates of loyalty), tyrants (characterized by high rates of repression and low rates of loyalty), totalitarians (chactacterized by high levels of both repression and loyalty), and timocrats (characterized by low rates of repression and high rates of loyalty). Wintrobe (2005) further links economic growth to different types of dictatorship: "there is an increase in economic growth which raises the dictator's popularity. Tinpots and timocrats both respond to an increase in popularity by lowering the level of repression; tyrants and totalitarians, by raising it." Accordingly, a timocrat (who maximizes the welfare of the citizenry) will value economic growth entirely differently from a totalitarian (who attempts to maximize his personal power).

In sum, the degree of political freedom, when abstracted from the detailed institutional framework of a society, must be viewed as exerting an ambiguous directional impact on the growth rate of an economy. In such circumstances, we have no alternative but to defer to empirical evidence when evaluating the China's market miracle.

4. Empirical Evidence and the Puzzle of China's Market Miracle

A number of recent empirical studies (for instance, Barro, 1996; Wu and Davis, 1999; Heckelman and Stroup, 2000; Ali and Crain, 2001, 2002) have found that economic freedom is a significant determinant of economic growth, but that political freedom is not. de Haan, Lundstrom and Sturm (2005) survey 34 empirical studies that tested the impact of economic freedom on economic growth. Scholars do not reach the consensus whether it is the level of economic freedom (e.g. Easton and Walker, 1997) or/and the change in economic freedom (e.g. de Hann and Strum, 2000) that is robustly related to growth, but all 34 empirical studies have confirmed the significant positive influence of economic freedom on the rate of economic growth. Carlsson and Lundstrom (2002) also summarize that most studies confirm a positive relationship between economic freedom and economic growth.

The rule of law and the protection of property rights are widely considered to be two crucial sub-components of economic freedom (e.g. de Haan, 2003). A number of cross-national studies have also shown these two legal institutions are positively correlated with economic growth. Barro (1996) analyzes data for period 1965 -1990 from 85 countries, testing the impact of a number of independent variables on economic

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growth. A significant finding of his study is that the condition of political freedom has little relevance for economic growth. He also finds that the rule of law has a significant impact on economic growth, and that an improvement in one rank from 0 to 6 on the rule of law index[25] will raise growth rate by 0.5%. Knack and Keefer (1995) is another widely cited study that examines the impacts of institutions on economic growth. This cross-national study concluded that the protection of property rights is crucial to economic growth. The vital importance of legal structure and security of property are supported in Carlsson and Lundstrom (2002), Gwartney and Lawson (2003b), and de Haan, Lundstrom and Sturm (2006) among many empirical studies. After all, a survey study titled "*Benefits of Economic Freedom: A Survey*" by Berggren (2003) concludes that "an impartial and strong judicial system that protects private property rights and upholds contracts and agreements is central for strong economic development. This factor is particularly problematic for many developing nations."

Barro (1996) is one of many empirical studies that confirms the irrelevance of political freedom to growth. Some scholars drew the argument from direct observations upon cross-national data, such as Williams (2000), Peerenboom (2002b) and a recent discussion between Acemoglu and Glaeser for *Wall Street Journal* (March 13, 2007). These studies usually raise sharp comparisons between those less-than-democratic nations that enjoyed economic miracles (such as China and Singapore) and those democratic nations that had awful economic performance (such as much of Sub-Saharan Africa). Some other scholars applied OLS and more advanced econometric methods to

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[25] His rule of law index was based on International Country Risk Guide' s (ICRG) survey data that is complied from the subjective responses of business persons regarding the law and order.

test the relevance of political freedom. Democratic countries tend to be economically free as well. When we examine the impacts of political freedom on growth, therefore, we must control the effects of economic freedom. With such an effort, Wu and Davis (1999) find that after the effects of economic freedom are controlled for, democracy makes only trivial contributions to economic growth. Treisman (2000) suggests that a democracy will not make a difference unless it has been stabilized for 45 years.

The most interesting institutional variable appears to be pro-competition policies. There is no objective measurement how a market is competitive. Cross-national differences in the quality of pro-competition policies are particularly difficulty to measure. Since competition can sometimes serve as a substitute for deregulation (Lundstrom, undated) and in view of the fact that the Fraser index has started providing subjective index for the regulation of capital, labor and business markets, I regard the quality of deregulation as a proxy for pro-competition policies.

Numerous theoretical studies have upheld that lower regulation promotes economic growth, as have direct empirical observations. Bhagwati (1999) observes that "those countries that turned inward and had extensive regulations of all kinds on domestic economic decision-making in production, investment and innovation, are the countries that have really not done too well." However, "only a few of the many cross-country panel studies of economic growth consider the effect of the level of regulation (Gorgens, Paldam and Wurtz, 2005. GPW, hereafter)."

This missing insight may be caused by two reasons: first, the Fraser index did not even provide an index of deregulation until 2002; second, scholars typically do not

report empirical results that reject their preferred hypotheses (Doucouliagos, 2005). Indeed, the nature of the relationship between deregulation and economic growth may well be complex and non-linear. As GPW (2005) implied, there is a three-fold effect.

First, deregulation allows free markets to allocate resources efficiently, thereby boosting the rate of economic growth. Second, it removes inefficient firms from the market, temporarily reducing economic growth. Third, it tempers government failure, consequently, *increa*sing long-term economic growth. Since the positive effects of market liberalization dominate the negative effects deregulation exerts a positive impact on long-term economic growth, albeit in a non-linear fashion.

Most importantly, from the perspective of China, *highly regulated middle-income countries benefit from deregulation more than other types of countries*. This derives from diminishing returns. A high degree regulation implies a high marginal net benefit from deregulation. Most high-income countries already maintain only relatively necessary regulations (e.g. environmental regulation), so further deregulation (e.g. lower environmental standards) may even be detrimental to economy. Meanwhile, most poor countries (e.g. China and Japan in the 1950s, Asian Tigers in the 1970s) may be desperate for industrialization but their market resources are highly limited. All kinds of infrastructure (e.g. public roads) are necessary for industrialization. But if the market is deregulated, infrastructure will not receive enough resources owing to market failure. Indeed, my theory has received strong empirical support in GPW (2005). This cross-national study finds that there is no simple, linear relationship between regulation and

income, and that highly regulated middle-income countries are much more likely to benefit from deregulation than other types of countries.

The aforementioned empirical evidence could be summarized that (1) political freedom is irrelevant to growth; (2) economic freedom exerts a significantly positive impact on economic growth, for which property rights and rule of law are characteristically vital; (3) the impact of deregulation upon growth is complicated, but highly regulated middle-income countries are especially benefited.

Regarding China's authoritarian market economy, the authoritarian regime is not a puzzle, but China appears to be a standing contradiction to the conventional wisdom that the rule of law and the protection of private property rights is needed for growth   As Peerenboom (2002b) indicates, "of the Asian countries that have experienced sustained growth (including such authoritarian regimes as Singapore and South Korea), most have enjoyed legal systems that comply with the standards of the rule of law in their handling of commercial matters." The only exception is China.

In my judgment, pro-competition policies (i.e. deregulation) may well be the solution to the puzzle of China's market miracle. Deregulation in China has received only limited attention in previous scholarly studies. As discussed above, however, deregulation may well have played a significant role. There is no doubt that Chinese economic reforms started from the basis of a strictly planned, highly regulated economy. With respect to the criterion for "middle-income countries"[26] established by GPW in

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[26] Three levels of income are considered, namely the 10th, 50th and 90th percentiles. The authors refer to these three income levels as low-income, middle-income and high-income countries. The corresponding values of income are $1022, $4915 and $18398.

2005, the per capita income level[27] of China moved beyond lower income in 1987 and is now well within the middle income range.[28,29] More importantly, this income level is a nationwide average. In the more advanced coastal provinces that are the major forces of Chinese national economy[30], income levels are much higher than the nationwide average [31]. In sum, we may define China as a highly regulated middle-income country, and thus deregulation does strongly predict economic growth.

5. Institutional Measures: A Summary of the Relevant Data

In this Section, I outline relevant data on China's political and economics institutions. These data have been complied from a range of widely utilized sources and embrace the period 1985 to 2005. Although some measures are objective indicators, the majority of the data is obtained through subjective measurements. Table 6 records institutional measures of China's market reform from 1985 to 2005. Since the primary data source (the Fraser Index) reports historical data (prior to 2000) in a 5-year span, I add and organize the data collected from other sources accordingly: When I report a measurement done in a year before 2000, the entries in Table 1 are averaged data of 5 years around the

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[27] Measured in GDP Per Capita adjusted by Purchasing Power Parity (PPP).
[28] Data sources: Human Development Report by United Nations Development Programme.
[29] Year of 1988: $2450; year of 1994: $2605; year of 2000: $4020; year of 2003: $5003.
[30] There are 34 provinces in China. As of 2007, 6 coastal provinces (Guangdong, Fujian, Zhejiang, Shanghai, Jiangsu, Shandong) contributed to 60% of national fiscal revenues. Data source: China Statistical Yearbook.
[31] As of 2000, the average GDP Per capita of eastern (coastal) provinces was 2.57 times of that of western (inland) provinces, and the absolute difference was 7544 RMB (roughly $1000). As of 2006, this ratio was 2.52:1, and the absolute difference was 12318 RMB (roughly $1800). Data source: Renmin Net.

Table 6: Governance Quality and Growth of China: 1985-2005

Year	GDP Growth Rate	Political Rights	Civil Liberties	Econ. Freedom (Fraser)	Econ. Freedom (Heritage)	Legal & Property (Fraser)	Property (Heritage)	Property (Fraser)	Judi_Ind (Fraser)
1985	12%	6	6	5		6.8			
1990	8.52%	6.8	6.8	4.8		5.8			
1995	11.46%	7	7	5.2	52	5.5	30	4.2	3.8
2000	8.40%	7	6	5.7	56.4	4.9	30	3.2	3.3
2001	8.30%	7	6	5.8	52.6	5.1	30	4.4	5.6
2002	9.10%	7	6	6	52.8	5.2	30	4	4
2003	10%	7	6	6	52.6	5.3	30	4.3	4.5
2004	10.10%	7	6	5.7	52.5	4.9	30	3.7	3.9
2005	9.90%	7	6	6.3	53.5	5.8	30	4.9	3.9

Year	Corruption (CPI)	Trade (Fraser)	Trade (Heritage)	Regulation (Fraser)	Credit_R (Fraser)	Labor_R (Fraser)	Business_R (Fraser)	Business_F (Heritage)	Price_C (Fraser)	Monetary (Heritage)	Investment (Heritage)
1985		5.4		3	0						
1990		4.8		3.3	0	3.2					
1995	2.2	6.4	20	4.3	4.3	4.5	4.4	55	4	68.4	50
2000	3.1	7.2	42.5	5	5	4.7	5.6	55	3	84	50
2001	3.5	7.5	46	4.7	4.7	4.6	4.8	55	3	84.1	30
2002	3.5	7.4	48.5	4.4	4.4	4.5	4.2	55	3	87.6	30
2003	3.4	7.4	50.6	4.6	4.6	4.4	4.8	55	2	85.8	30
2004	3.4	7.4	51.4	4.3	4.3	4.7	3.7	55	2	86.4	30
2005	3.2	7.6	54.4	5	5	4.5	3.8	55	2	84.8	30

Data Sources: 1. "Economic Freedom of the World: 2007 Annual Report" by Fraser Institute.
   2. "Index of Economic Freedom" by Heritage Foundation.
   3. "Freedom in the World" by Freedom House.
   4. "Corruption Perception Index" by Transparency International.
   5. "China Statistical Data" by National Bureau of Statistics of China

reporting year, e.g., the entry of 1995 GDP growth rate is calculated by averaging five years' annual data from 1993 to 1997.

5a. Data descriptions

(1) *GDP growth rate*[32]: The growth rate is computed by the formula: "(GDP of current year – GDP of previous year) / GDP of previous year." Data source is "China Statistical Data" by National Bureau of Statistics of China.

(2) *Political rights* and *civil liberties*: They are two units of measurement of political freedom. Survey data are collected from *Freedom in the World* index by Freedom House[33]. The score ranges from 1 (most free) to 7 (least free).

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[32] Alternatively, I may apply GDP per capita data adjusted by PPP (Purchasing Power Parity) from Human Development Report by UNDP (United Nations Development Programme). There are three reasons why I prefer to use GDP growth rate data: (1) this data is more frequently drawn upon in the discussions of China's market miracle; (2) the PPP of Chinese currency can be hardly accurately measured; (3) if I apply GDP per capita data adjusted by PPP, it suggests a similar result that indicates an economic miracle: this figure has continuously climbed from $2124 in 1987 to $6757 in 2005.

[33] The survey findings are reached after a multi-layered process of analysis and evaluation by a team of regional experts and scholars (Freedom House, 2007).

(3) *Economic freedom (Fraser)[34]* and *economic freedom (Heritage)[35]*: They are two popular indices of overall economic freedom: Fraser Index by Fraser Institute and Heritage Index by Heritage Foundation. Both indices summarize data from other data sources[36]. The Fraser index reports historical data back to 1975[37], while the Heritage index does not examine those years prior to 1995. The Fraser index utilizes a scale of 0 (totally unfree) to 10 (perfectly free) that applies to both the overall index (i.e., the Fraser Index) and its sub-measurements. Similarly, the scale that Heritage index uses covers a range between 0% (totally unfree) and 100% (perfectly free) that gauges economic freedom. The same scale is also used in the Heritage Index's sub-measures. All the following indices, except the "*Corruption (CPI)*" data, are sub-categorical measurements of either the Fraser index or the Heritage index.

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[34] The Fraser index (2007) considers five categories of economic freedom: (1) the size of government; (2) legal structure and security of property rights; (3) access to sound money; (4) freedom to trade internationally; (5) regulation of credit, labor, and business. In this study, the data set does not include categories (1) and (3). A number of studies (e.g. Carlsson and Lundstrom, 2002; Abdelkafi and Derbel, 2008) suggest that the relative size of government is negatively related to growth. However, this prevailing finding may not apply to China because Chinese government expenditures are far underreported. Government branches usually own all kinds of off-budget accounts called "*Xiao Jinku (private treasury)*". Official Xinhua News agency (2005) criticized the wide use of "*Xiao Jin Ku*" as loopholes leading to corruption. Therefore, I do not trust the public data of the size of Chinese government. In addition, I exclude monetary policy (category 3) because monetary policy growth does not seem to be closely relevant to economic growth (Carlsson and Lundstrom, 2002; Berggren, 2003).

[35] The Heritage index (2008) assesses 10 types of economic freedom, all of which (except for "freedom from corruption") are parallel to the 5 categories of the Fraser index (2007). Heritage's measurement of corruption comes from Transparency International's Corruption Perception Index, which is also covered elsewhere in this study.

[36] The Editorial Introduction by de Haan (2003) to the Special Issue of European Journal of Political Economy on economic freedom writes that "the most successful measure of economic freedom has been developed by the Fraser Institute. The index of the Heritage Foundation and the Wall Street Journal is, in many respects, similar to the Fraser index, but is available for a shorter period of time, which probably explains why most empirical studies employ."

[37] Only back to 1985 for China data.

(3) *Legal & Property (Fraser)*: It is labeled as "Area 2 (Legal Structure and Security of Property Rights)" data from the Fraser index, which measures the overall legal quality of a country.

(4) *Property (Heritage)*: It is labeled as "Freedom #8: Property Rights" in the Heritage index. China has consistently scored as 30% at the scale which means "Property ownership is weakly protected. The court system is highly inefficient. Corruption is extensive, and the judiciary is strongly influenced by other branches of government. Expropriation is possible (Heritage, 2007)."

(5) *Property (Fraser)*: The property sub-scale of Fraser ranges from 0 (totally unfree) to 10 (perfectly free) which was converted from a 7-point scale respondents used in answering the *Global Competitiveness Report*'s question: "Property rights, including over financial assets are poorly defined and not protected by law (= 1) or are clearly defined and well protected by law (= 7)." This data is similar to *Property (Heritage)*.

(6) *Judi_Ind (Fraser)*: This sub-measure of Fraser Index measures judicial independence. The data is considered an appropriate proxy of the rule of law. The original data were recorded through the use of a 7-point scale for *Global Competitiveness Report*'s question: "The legal framework in your country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is inefficient and subject to manipulation (= 1) or is efficient and follows a clear, neutral process (= 7) (Fraser Institute, 2007)." The data is later recoded by using a 10-point range with 0 indicating totally unfree to 10 suggesting perfectly free.

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(7) *Corruption (CPI)*: It is collected from various years of Corruption Perception Index (CPI) by Transparency International (TI). CPI Score relates to the degree of corruption as perceived by business people and country analysts and ranges between 10 (highly clean) and 0 (highly corrupt) (TI, 2007).

(8) *Trade (Fraser)*: It is labeled as "Area 4 (Freedom to Trade Internationally)" in the Fraser index. The majority of indicators of this trade openness measure are composed of objective data, such as tariff rates and black-market exchange rates.

(9) *Trade (Heritage)*: It is labeled as "Freedom #2: Trade Freedom" in the Heritage index. This index reports the trade-weighted average tariff rate adjusted by non-tariff barriers. It is basically an objective measurement.

(10) *Regulation (Fraser)*: It is labeled as "Area 5 (Regulation of Credit, Labor, and Business)" in the Fraser index. This measure indicates the overall regulation of credit, labor, and business markets in a country.

11) *Credit_R (Fraser)*: It is a measure of credit market regulations from the Fraser index. It is a purely objective measurement.

(12) *Labor_R (Fraser)*: It assesses labor market regulations in the Fraser index. Four out of six indicators of this variable are objective measurements.

(13) *Business_R (Fraser)*: It gauges business market regulations in the Fraser index. The score ranges between 10 (highly free) to 0 (highly unfree). This is basically a subjective measurement based on various surveys.

(14) *Business_F (Heritage)*: It is labeled as "Freedom #1: Business Freedom" in the Heritage index. Parallel to *Business_R (Fraser)*, this measurement highly relies on the World Bank's "*Doing Business*" survey data.

(15) *Price_C (Fraser)*: It is an indicator of business regulation[38]. The survey data comes from the International Institute for Management Development's (IMD) *World Competitiveness Yearbook.*

(16) *Monetary (Heritage)*: It is labeled as "Freedom #5: Monetary Freedom" data in the Heritage index. The measurement consists of two indicators: weighted average inflation rate for the most recent three years, which is an objective data, and a perception of price controls.

(17) *Investment (Heritage)*: It is labeled as "Freedom #6: Investment Freedom" data in the Heritage index.

5b. Discussions

Both Fraser and Heritage indices encompass data from other data sources, such as Global Competitive Report, World Competitive Yearbook, World Bank's Do Business, World Development Indicators, International Country Risk Guide (ICRG), Economic Intelligence Unit (EIU) Data, and etc. These measurements are either objective or subjective survey data. I will further discuss the ramifications of data reported in Table 1.

Finding 1: *China market miracle exists.*

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[38] The more widespread the use of price controls, the lower the rating (closer to 0).

China is an outlier with respect to the significant correlation between the level of economic freedom and the rate of economic growth. In particular, China has a consistently poor record of the secure property rights. While China is plagued with the widespread corruption, its judicial system is highly incompetent to fight off such corruption because of lack of independence. According to a simple mapping by Gwartney and Lawson (2003a, 2003b), the one-fifth of countries with highest economic freedom have grown faster than any other countries. China ranked the 86th in 123 countries in Fraser index of economic freedom in 2005, and its ranking has been continuously close to the low end. However, China's economic growth with two decades (1985-2005) outperformed any country in the top one-fifth in Fraser index.

Finding 2: *The rule of law and protection of property rights did not significantly contribute to China's market miracle.*

In Table 1, the indicators of legal quality remain quite low in values since 1995, including "Legal & Property (Fraser)," "Property (Heritage)," "Property_(Fraser)," "Judicial_Ind (Fraser)," and "Corruption". In other words, China's market miracle is not based on a sound legal system and secured property rights. Interestingly, China has launched several constitutional amendments regarding the property rights and the rule of law; yet, the legal quality does not appear to be improved[39]. For example, Property Rights Law, as a practical guide in legal enforcement, was not passed until 2007. This perfectly confirms the prediction of a cross-national study by Feld and Voigt (2003) that "while *de*

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[39] Further theoretical supports will be provided through Predator-Prey models in the next chapter.

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jure (i.e. legal foundations) judicial independence does not have any impact on economic growth, *de facto* (i.e. actual experiences) judicial independence positively influences GDP growth."

Finding 3: *Political freedom is irrelevant.*

China was a politically unfree country throughout the period (1985-2005). In contrast, economic freedom in China has overall been improving since 1985. Although China is undoubtedly an authoritarian regime, China's economy has rocketed with an average annual increase rate of double digits since 1985. This finding is consistent with Wu and Davis (1999)'s argument that political freedom is not a significant determinant of economic growth, but economic freedom is. This finding also supports Olson (2000)'s theory that a "stationary bandit" dictatorship has an "encompassing interest" in the well-being of the society.

Finding 4: *The "crisis hypothesis" is verified.*

The improvement on institutions is mainly manifested by the implementation of pro-competition policies, including "Trade freedom (Trade (Fraser) and Trade (Heritage))" and "Regulation of Credit, Labor and Business" (Regulation (Fraser)). The data suggests that major institutional change takes place only if relative recessions occur,: (1) the first relative recession (around 1990): the GDP growth rate dropped from 12% in 1985 to 8.52% in 1990; trade freedom significantly improved from 4.8 to 6.4 in Fraser index; and the quality of deregulation in Fraser index improved from 3.3 to 4.3; (2) the second

relative recession (around 2000): the GDP growth rate reduced from 11.46% in 1995 to 8.4% in 2000 and 8.3% in 2001, international trade was further expanded (from 6.4 in 1995 to 7.2 in 2000 in Fraser index, and from 20% in 1995 to 42.5% in 2000 in Heritage index), and there was a notable improvement in deregulation (from 4.3 in 1995 to 5 in 2000 in Fraser index). Hence, the "crisis hypothesis (i.e. liberalization led by mild recession)" has been verified.

Finding 5: *Validity issues of subjective measurements of deregulations.*

It seems to me that the validity of the two economic freedom indices, i.e., *Fraser* and *Heritage*, is questionable as they rely on a large amount of subjective survey data. Some indicators of economic freedom indices are directly calculated from objective statistical data (e.g. trade freedom) while other indicators (including monetary freedom and credit regulation) incorporate objective measurements extensively. The scores of all these indicators have improved or remained unchanged since 2001.

In contrast, the rest of indicators are subjective measurements, including the property rights protection, judicial independence, labor regulation, price controls, and investment freedom. The scores of some subjective indicators have unchanged since 2001, including the property rights protection and labor regulation, whereas other indicators have "deteriorated" during the course.

Compared to the objective measurements of actual institutional changes that I have analyzed in Chapter 3, subjective measurements are undermined by threats to validity that underestimates the quality of deregulations. The objective measurements are

in accordance with data in economic freedom indices indicating China has a poor record of legal quality. Nevertheless, economic freedom indices underreport the improvement of pro-competition conditions in China, especially in the case of "price controls". As two major authors of the Fraser index, Gwartney and Lawson (2004b) define "price controls" as a measurement of the "extent to which businesses are free to set their own prices." Their measurement of price controls was done by drawing upon the survey data in *World Competitiveness Yearbook*. The Fraser index reports that price controls in China have consistently deteriorated since 1995, with the rating reduced from 4 in 1995 to 3 in 2000 then to 2 in 2004. However, price controls could be measured objectively by a ratio of the number of products with controlled prices to the total number of products. When the ratio increases (or decreases), price controls are weakened (or improved). The evolutionary path of price controls in China, as discussed in Chapter 3, shows that China has been gradually relaxing price controls since the 1980s. In addition, the industrial study of labor immigration (Bao et al., 2008) implies a general trend of labor deregulation. Finally, China's entrance into World Trade Organization (WTO) in 2001 clearly marked the beginning of a more free investment environment and a more accessible market.

Finding 6: *Pro-competition polices make a difference.*

Finding 5 suggests that if the authors of economic freedom indices utilized more objective measurements of business regulations or if they double checked the survey data with the objective measurements, China would have certainly been entitled to a higher rating on the category of "business regulations". The authors correctly report that China

had significantly meliorated a pro-competition economy since 1985, but the *de facto* experience of China was better than what the measures reported. In short, I argue that China has gradually improved pro-competition conditions in all aspects: price mechanism, labor market, credit market, and trade access. Scholars have arrived at a consensus that institution matters for economic growth. If only there is an institutional factor that is meaningful to China's market miracle, it must be pro-competition policies rather than the rule of law and the protection of property rights.

6. Conclusions

This chapter reviews the previous literature and provides empirical evidences for the nature of the puzzle of China's market miracle. The possible solutions to the puzzle are discussed and revealed. Both classical theories and cross-national studies strongly suggest that the protection of private property rights and the rule of law are significantly linked to economic growth. However, China's market miracle has little to do with the secure private property rights and the strong rule of law. It is widely believed that economic freedom is a significant determinant of economic growth, and thus the market liberalization should be accomplished as quickly as possible. However, contrary to the conventional wisdom, China's market miracle has occurred in spite of a low level of economic freedom, and the market liberalization has been on an incremental base. Some scholars posit that a democracy is more likely to enjoy economic prosperity than a dictatorship. Once again, China's market miracle has proved it wrong as it occurred in an authoritarian regime. Few previous studies have found empirical evidences to support

that pro-competition policies significantly accelerate economic growth. However, China's market miracle is a successful case for this theory. In brief, the China's market miracle does not square with a number of prevailing theories and of cross-national evidence.

To solve the puzzle of China's market miracle, I call for more studies to directly observe institutional factors in China. With the use of economic freedom and political freedom indices, I construct a table of China data that examines the governance quality and growth in China from 1985 to 2005. Evident in the China data is the irrelevance of political freedom as well as the trivial effects of secure property rights and the rule of law. Instead, the China data indicates that pro-competition policies (i.e. deregulation) may have been the major institutional factor that drives China's market miracle, and that institutional reforms are adopted by the central government as an intelligent designer only when economic crises emerge.

In sum, this chapter provides a rationale for the theoretical models for the next two chapters. Modeling in Chapter 6 will demonstrate the importance of pro-competition policies in a transitional reform. The "crisis hypothesis" will be further explored in Chapter 6. Modeling in Chapter 7 will help explain why secure private property rights and the rule of law would become even more vital to economic growth of China in the future. It is suggested that different institutional factors may exert significant influences on economic growth at different periods.

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CHAPTER 6: China's Evolution towards an Authoritarian Market Economy

─ A Predator-Prey Evolutionary Model with Intelligent Design

1. Hypothesis

This chapter provides an interdisciplinary approach to explore China's evolution towards an authoritarian market economy. To solve the puzzle of the so-called China's market miracle this chapter integrates public choice theory and evolutionary game theory into a predator-prey evolutionary model with intelligent design. In this model, growth-oriented central government leaders are intelligent designers of institutional change, provincial and local officials are potential predators, and private firms are potential prey. The predator-prey interactions exert cycling effects on economic growth, which in turn, induce strategically important institutional changes from the central government. The model finds that reductions in discrimination policies are the major institutional contributors to China's market miracle, whereas improvements in the rule of law and in the protection of private property rights are not needed for short-run growth. In China's market economy, where private business gradually improves its market capacity, furthermore, an optimal reform strategy is incremental in nature rather than shock therapy.

2. Introduction

China's market miracle has been characterized by a smooth and generally successful institutional transition towards a market economy under conditions of authoritarian political control. Institutions clearly matter for economic growth (Acemoglu, Johnson and Robinson, 2001, 2002). However, economic growth is not decided exclusively by political institutions, but is dependent primarily on economic institutions.

Empirical studies by Barro (1996), Wu and Davis, (1999), and Zhang and Davis (2003) suggest that the overall effect of democracy on economic growth is weakly negative, while free-economy institutions are significant determinants of growth. The existence of democracy in itself is not centrally important because stationary-bandit dictators may be invested with encompassing interests in their overall economies similar in reach to those of term-limited democratic leaders (Olson, 1993, 2000).

The above-mentioned empirical studies further suggest that critical weaknesses in market institutions may significantly impede economic growth, most notably weak property rights, an absence of the rule of law, and extensive government interference based on invasive discretionary powers. Such empirical evidence supports free market hypotheses. McGuire and Olson (1996) argues that developing economies lose most of the gains from capital-intensive production when property rights are not secured; Hayek (1945, 1960) argues that the rule of law is vital to the protection of individual liberty, which lies at the heart of a properly functioning price mechanism that is the fulcrum for increasing economic wealth and Rose-Ackerman (1975, 1998) suggests that political discrimination policies are highly connected with government corruption. Accordingly,

any growth-oriented regime, like that of the People's Republic of China, must pay particular attention to such institutional weaknesses.

China's transitional reform from traditional socialism towards a primarily authoritarian market economy has been characterized by a sequence of significant policy reforms designed by the central government to eradicate institutional weaknesses coupled with a minimalist loosening of autocratic political governance. Numerous studies have attempted to investigate the causes and consequences of key steps in institutional reform, but none of them has correctly identified the intelligent design by the central government that has guided the evolutionary process into favorable channels. This is the central insight of this chapter.

In this chapter, I integrate evolutionary game theory with public choice theory in order to explore the evolution of discrete and incremental institutional reforms under conditions of authoritarian governance. I apply a rational choice, methodologically individualistic model to analyze the authoritarian government, defining central government leaders as *intelligent designers* of institutional changes, and provincial and local officials as self-seeking potential *predators* upon the private sector. I recognize that the private sector has made an increasing contribution towards Chinese growth, but assert that it is always subject to predation from provincial and local government officials, i.e. that private firms are potential *prey*. Growth-oriented central government leaders have limited information about these predator-prey interactions, but they launch appropriate institutional reforms when predations significantly reduce the density of productive prey. With the help of relevant predator-prey models, I suggest that discrete and incremental

reforms are the optimal reactions of authoritarian government to the predator-prey economic problem. I test this hypothesis against empirical evidence drawn from China's experience during its transition from socialism to a market economy under continuing conditions of autocracy.

The rest of this chapter is organized as follows: Section 3 reviews alternative research approaches to the topic. Section 4 introduces the nature of China's political economy in an evolutionary perspective. Section 5 studies various predator-prey modeling and Section 6 provides the empirical evidence. I shall draw conclusions in Section 7.

2. Literature Review – Alternative Approaches and Unresolved Problems

The political economy of transitional reform has been a hot topic for more than two decades. There are two competing views: some scholars hold the "Washington consensus view" promoting "big bang" reforms (e.g., Sachs, 1990), which proved to be complete failures in the transitional processes of Central and Eastern Europe; in contrast, other scholars hold the "evolutionary-institutionalist perspective" advocating gradualist or incrementalist reforms (e.g., Roland, 2001), which have been vindicated so far by the Chinese experience, i.e. the so-called China's market miracle. In Roland's (2003) summary, the latter perspective thinks about institutions not in a static, but rather in a dynamic way, insisting both on the institutional environment of agents at any moment in time and also on its evolution over time. By emphasizing the aggregate uncertainty of

transition outcomes, this perspective emphasizes a gradual evolution from less to more effective institutions.

Cross-national evidence has generally supported the "evolutionary-institutionalist perspective", because China's market miracle has consistently dominated the much more sluggish economic growth of Central and East Europe over a period of 20 years. Roland (2003) thus concludes that

"…The evolutionary-institutionalist perspective is more complete and adequate than the Washington consensus view. There is an increasing consensus among professional economists that the 'Washington consensus' (liberalization, stabilization, privatization) is a misguided recipe for a successful transition (Roland, 2003: p. 23)."

Nevertheless, the current literature on the "evolutionary-institutionalist perspective" has not yet provided any convincing formal modeling to explain this empirical triumph. In my view, this is because scholars have not resolved two conundrums which have emerged during the Chinese transition.

The first conundrum is the co-existence of authoritarian governance with the evolution of institutional changes. Scholars have noticed that "the relevance of the Chinese gradualist experience is often dismissed because of the dictatorial character of its regime (Roland, 2003)." To argue for the relevance of Chinese reform, Roland (2003) holds that "despite the political regime…both the sequencing and the design of reforms have been tailored so as to benefit a majority and hurt only a minority." Unfortunately, this argument is weak because it fails to explain how such institutions are tailored. A more complete theory must first define the rationale of the authoritarian government, and

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then discuss how this rational authoritarian government deals with its subordinates and other economic agents.

The second conundrum concerns the weakness of prevailing research methods, which have basically focused on utility maximization by all decision makers. However, the existing literature cannot answer a fundamental question concerning how institutions evolve, specifically why the evolutionary path of Chinese institutional reforms have been discrete and incremental, rather than continuous in nature. At the end of his literature survey, Roland (2003) concedes that:

"An obvious route of investigation that has not been used in formal analysis of transition process so far, at least to my knowledge, is the use of evolutionary game models. Within the evolutionary-institutionalist perspective, this seems a natural route to take given the usefulness of evolutionary game theory in selecting equilibria (P. 24)".

An appropriate approach, he suggests, may be to integrate evolutionary game theory with the evolutionary-institutionalist perspective in order to resolve this second conundrum. I further suggest in this chapter that a complete framework must be able successfully to address both conundrums simultaneously.

There are two alternative approaches that also touch on the political economy of transitional reform. However neither of these remotely fulfills this joint mission. The first alternative emanates from the new political economy school epitomized by the contributions of Grossman (1991), Dewartripont and Roland (1995), Drazen (2000) and Acemoglu and Robinson (2005), etc. This approach develops advanced formal modeling to address the political constraints of dictators, the transition from non-democracy to

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democracy, privatization of state-owned enterprises (SOEs, hereafter), and many other related subjects.

However, the new political economy approach has not provided clear answers to the Chinese conundrums. This approach simply abstracts from the collective action problem (Acemoglu and Robinson, 2005; P. 114), although "solving the collective action problem is difficult to begin with and very hard to sustain (Acemoglu and Robinson, 2005; P. 110)". Acemoglu and Robinson (2005 simplistically write that "developing a deeper understanding of collective action is a fascinating area for future research, both theoretical and empirical (p. 114)". The authors ignore the logic of collective action (Olson 1965) that explains why larger groups find it difficult to resolve collective action problems. This problem cannot be swept under the carpet in a huge country like China. 60-million Chinese government officials cannot conceivably unite as an effective coalition, nor can innumerable private firms.

Furthermore, when dealing with aggregate uncertainty the new political economy approach prefers to use dynamic programming methods, such as infinite-horizon models and overlapping generation models. For example, Dewartripont and Roland (1995) and Drazen (2001) develop an infinite-horizon, discrete-time model for a representative individual with a discount factor, which is used to examine the optimal spending and sequencing of reform. This methodology is based on the computing of expected values with known probabilities. In the case of Chinese reforms where the "representative individual" "*wades the stream by feeling the way*," however, expected payoffs of uncertain outcomes are hardly predictable across time-periods. Modern behavioral

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economics (Fox and Tversky, 1991) has tested the "ambiguity aversion" idea of Ellsberg (1961) through experiments, finding that individuals prefer to bet on known rather than unknown probabilities. Accordingly, dynamic programming may not be applicable to incremental reforms with unknown probabilities.

This judgment is also implicitly suggested in Roland's textbook *Transition and Economics* (2000). In much of his book, Roland applies neoclassical methods, including dynamic programming, to various topics in the political economy of transitional reform. When he discusses the evolution of institutions, in contrast, he does not build up any simple model to analyze evolutionary-institutionalist views.

The second alternative approach is public choice theory, which provides a complete answer to the first conundrum, but which provides only a limited solution to the second. Both public choice theory and new political economy adopt the rational choice approach, but the former theory takes much greater account of the collective action problem than does the latter. For this reason, public choice theory is much more relevant than the new political economy in dealing with the behavior of the Chinese autocracy.

Wintrobe (1990, 1998, 2005) categorizes four types of dictators by reference to their goals and analyzes how dictators manage to reach their goals. He argues that political authoritarianism may be good for the economy, echoing the insights of Olson (1993, 2000) and McGuire and Olson (1996). These studies explain why dictators, when they act as stationary bandits with encompassing interests in the economy, may undertake wealth-enhancing actions designed to improve the economic-infrastructure in order to raise the level of sustainable tax revenues. Wu and Davis (1999) offer cross-national

evidence that political freedom is largely irrelevant to economic growth. Niskanen (2003) provides empirical evidence that an average autocrat levies $45-55\%$ tax rates, rather than 100%. Therefore, public choice theory provides both theoretical and empirical support that the evolution toward a well-functioning market economy is entirely possible under authoritarian governance.

To my knowledge, no public choice study has introduced evolutionary game theory into the study of political economy, so no answer is provided for the second conundrum. No doubt this lacuna arises from the implicit assumption of anarchy in evolutionary game theory. Historically, "evolutionary game theory originated as an application of the mathematical theory of games to biological contexts, arising from the realization that frequency dependent fitness introduces a strategic aspect to evolution (Alexander, 2003)." In the biological world of natural selection, of course, there is no such a thing as government. In recent years, evolutionary game theory has become a field of interest to many economists (e.g., Gintis, 2001; Weibull, 1999), but none of them has attempted to introduce government as a moderating actor into non-cooperative games between economic agents.

In summary, each of the alternative approaches has offered a partial answer to understanding the evolutionary path of institutions in China. Studies of transitional economics have demonstrated the empirical relevance of the "evolutionary-institutionalist perspective", but they cannot furnish their argument with formal modeling because their analytical approach has no answer to two crucial controversies – (1) the role of authoritarian government and (2) the adoption of evolutionary game theory. The new

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political economy is basically ineffective in dealing with either controversy; public choice theory can deal with the first controversy but not the second; evolutionary game theory can deal with second controversy but not the first.

4. The Nature of China's Political Economy in an Evolutionary Perspective

I will outline the nature of Chinese political economy before I set up the evolutionary – institutionalist framework. There are in general six types of agents: central leaders, provincial and local officials, China's private firms, foreign direct investment (FDI), SOEs, and Township-Villageship enterprises (TVEs). To save space, I will ignore the roles of FDI, SOEs and TVEs, because them all have only made minor contributions to economic growth of China[40]. During the rest of this chapter, therefore, I will examine the roles of the three remaining agent-types that characterize China's market miracle as well as the evolution of institutions.

First, and importantly, I assume that, the current central government of China is not predatory because the central leaders possess a sufficiently encompassing interest in the wealth of the country as a whole. Wintrobe (1998) categorizes dictatorships into four types: (1) totalitarian: high repression, high loyalty, with the dictator as "power-maximizer"; (2) tinpot: low on repression, low loyalty, with the dictator as "consumption-maximizer"; (3) tyranny: high repression, low loyalty, and (4) timocracy: high loyalty, low repression. Interestingly, Wintrobe judges that contemporary China fails to not fit into any of these four categories. He simply calls China "free market communism

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[40] Please refer to Chapter 3 for extensive discussions.

(1998）" or a "communist-capitalist regime (2005)," which denotes free market reform with seriously lagged political reform.

Contemporary China is not the totalitarian regime that it clearly was in the time of Mao Tse Tung. Yet, it is not a tinpot regime in the sense of Wintrobe (1998), because, when economic performance improves, the central leaders do not squander the extra resources by maximizing their personal consumptions. It is also clear that China is not a tyranny in the sense of Zaire under the dictatorship of Mobutu. Finally, I am reluctant to identify contemporary China as a "timocracy" regime. According to Wintrobe's definition, timocracy means that "all you need is love" and the timocrat is altruistic. In contrast, Olson's "stationary bandit" theory (Olson, 1993, 2000) suggests that an "invisible hand" may push a self-interested dictator to perform like an altruist. Hence, an Olsonian assertion is possibly safer than the "timocracy" alternative.

In my view, contemporary China is a unique authoritarian regime that is growth-oriented. There is an elite group (or oligarchy) at the top, rather than a single dictator. The paramount leaders who wish to remain in office face a trade-off between two policy alternatives – loyalty or repression. "The main complication is that whereas loyalty and repression both use up resources, their levels are not independent of one another. The level of repression affects the supply of loyalty (Wintrobe, 1998)." However, economic growth as an exogenous shock may increase loyalty without reducing repression. Wintrobe (1998) thus find that "modern autocrats typically attempt to earn the loyalty of their subjects through the pursuit of economic growth." Since central leaders control

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institutional changes, they moderate the institutions for the purpose of growth maximization.

Following Wintrobe's (2005) analytical approach towards dictatorship, I develop a simple rational choice model of Chinese central leadership to demonstrate why it is growth-oriented. To pursue a solution to the "successor's dilemma (Tullock, 1987)", I suggest that the central autocracy in China has naturally evolved from a single person dictatorship into an oligarchy in which a small number of elite politicians share paramount power.

Currently, the elite group is composed of 9 standing committee members of the political bureau of the Chinese Communist Party, plus their senior supporters. The elite politicians compete to become members of this decision-making oligarchy. A general statement per Wintrobe (2005) would assume that all such central leaders have the same utility function as follows:

$$U = U(\pi, C)$$

Subject to $B(\pi) = P_\pi \pi (B - C) + C$

where, C is consumption,

π is power,

B is the dictator's total budget

$\pi(B-C)$ shows how the dictator can convert money into power. The efficiency of this function depends on how the dictator allocate money between repression and loyalty, thereby minimizing the costs of accumulating power.

P_π is the "price" of power in terms of money.

$B(\pi)$ shows how the power into concerted into money, whose efficiency relies on P_π.

In an elite political system, there are obvious constraints on the dictator's power, loyalty, and level of repression. His resources ($B(\pi)$) are subject not only to the

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sustainable tax base, but also to the competition for power. The pursuit of economic growth is a safe and effective mechanism to enlarge the dictators' resources. On the one hand, economic growth generates new tax bases, and also increase the "price" of power in terms of money(P_π); on the other hand, the competition for powers depends on the conversion efficiency of the money-to-power function $\pi(B-C)$. If an oligarchy uses income (B-C) to improve economic growth, then it could raise loyalty without reducing the level of repression. Otherwise, it engages in some specific trade-off between more loyalty and more repression.

Essentially, the nature of China's elite governance is reflective of an oligopoly market similar to a Bertrand competitive game. In this political market, the product is power, and the price of power is personal consumption. Elite politicians compete for power by lowering the prices they ask until the marginal utility of consumption is equal to marginal utility of power. To pursue economic profit, an elite politician will attempt to reduce the product cost of power, i.e. to increase loyalty without decreasing repression. According to Wintrobe's (1998)'s argument (cited above) the pursuit of economic growth helps self-seeking politicians to improve the loyalty of their subjects.

In brief, the unique political institutions of China's authoritarian central government determine that authoritarian governance is compatible with the maintenance of an efficient market economy. The pursuit of economic growth serves both the encompassing interest of the stationary bandit and the competition for power among elite politicians. Since the institutional changes apply to the entire economy, it helps relieve the over-competition dilemma of Bertrand games.

Of course a specific member of the oligarchy may provide special privileges to his political allies at the provincial and local levels. Such special privileges must be sporadic and small-sized. If not, they encourage others within the central elite to encroach on his position within the oligarchy, as recent corruption cases in Shanghai Municipality clearly evidence.

In addition, in the short history of China's modern private economy, few private firms have gained sufficient economic power to draw special privileges from the central oligarchy. In contrast to South Korea, where the government used to provide special privileges to 30 large private firms in the 1980s (including Hyundai and Daewoo), few private firms in China have ever received privileges from the central oligarchy (and those few who have done so are primarily multi-national corporations). In general, the Chinese central oligarchy is an exogenous intelligent designer influencing the evolution of the institutions of fiscal federalism in order to promote high rates of overall economic growth.

On the other hand, the provincial and local officials in China are potential predators on private market prey. Such officials treat the institutions designed by the central administration as political constraints upon their own wealth and power-seeking objectives. Cross-national evidence (Anvig, 2002) suggests that the degree of such predation is significantly determined by the amount of discretionary power allowed by the central government and the magnitude of expected punishments. China has transformed itself from a regime of fiscal centralization to one of fiscal decentralization since the 1980s. Provincial and local leaders not only hold considerable amounts of

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discretionary power, but also enjoy information advantages over the central leaders. Every provincial and local government official has his/her own attitude towards predation. As the central government increases or decreases its grip, however, at the margin, the aggregate volume of predation decreases or increases accordingly. For any degree of central government control, moreover, an increase in the value of the prey is expected to raise the amount of predations.

Third, private firms are potential prey. The status of the private sector has been always a controversy in China due to political reasons, which intermingle the traditional view that a socialist country should not tolerate the existence of capitalist private enterprises, with another revised view that the private sector is naturally inferior to the public sector. The flourishing private sector emerges to be the major source of China's market miracle, but this accomplishment has been achieved under a highly questionable rule of law, unsecured protection of property rights, and all kinds of discrimination policies. Unfortunately, all these weak institutions make private firms vulnerable to predations.

Interestingly, the increasing importance of private sector has been supported by gradual evolution of institutions that provides better protection against predation. Under the planned economy before the 1980s there were all kinds of discrimination policies against private sector and individuals, but now those discrimination policies have been gradually removed.

From 1992 to 1998, the central government gradually abandoned the dual-track pricing system in all types of markets, thereby broadening the space for a marketing

pricing system. After 1998, China launched another round of incremental market liberalization that met the requirement of World Trade Organization (WTO). In brief, this evolutionary path of market liberalization clearly echoes the arguments of the evolutionary-institutionalist perspective.

Over the same time-period, the, central government initiated several constitutional amendments designed to improve the rule of law and to protect private property rights. The 1982 Amendments approved the legitimacy of individual business with fewer than 8 employees, and also declared the protection of *lawful* income, saving and houses of citizens. The 1988 Amendments conceded the legitimacy of private businesses with at least 8 employees. The 1999 Amendments affirmed the legal status of private enterprises. The 2004 Amendments endorsed the equal legal status of the private and State-owned enterprises, as well as the protection of *lawful private* property. However, although we have witnessed an improved legal support for a market order, China still maintains an undesirable record as a predator state[41].

The fundamental nature of China's political economy from an evolutionary perspective appears to be a "predator-prey" scenario, in which (1) provincial and local officials are potential predators; (2) private firms are potential prey; (3) growth-oriented central leaders are intelligent designers of institutions that moderate the predator-prey relationship; and (4) discrete and gradual adjustments to the evolution of institutions facilitate the growth of private firms. Most interestingly, improvements in the rule of law

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[41] For example, according to the Corruption Perception Indices by Transparency International, China remains a corrupt country. The indices rank countries with 0-10 points, where a country receiving 10 points is a least corrupt country. From 1998 to 2007 China consistently received low scores between 3.1 and 3.5.

and the protection of property rights do not seem to be the major institutional determinants of China's economic growth. A recent article in the *Economist Magazine* (March 13, 2008) indeed concludes that "China appears to be a standing contradiction to the argument that the rule of law is needed for growth." In other words, as Chapter 5 suggests, there must be other institutional factors that effectively back up economic growth in China.

5. Insights from Predator-Prey Modeling

In my view, insights from predator-prey modeling provide powerful tools to solve the puzzle that is raised at the end of the previous section. Evolutionary game theory has developed a rich literature concerning the predator-prey relationship. This is an endogenous relationship with a cycle of flows: "an increase in the prey population→more predation→lower density of prey→less predation→an increase in the prey population." The relevant literature began with the Lotka -Volterra Predator-Prey Model (L-V model, hereafter) by Lotka (1925) and Volterra (1926), which assumes that the prey population has an exponential growth rate in the absence of predators. Later studies (e.g. Rosenzweig and MacArthur, 1963; R-M model, hereafter) have corrected this unreasonable assumption, and replaced it with more reasonable assumptions concerning the prey population and other variables.

To formalize a predator-prey evolutionary model with intelligent design, first I shall place "provincial &local officials" and "private firms" into both original L-V and modified R-M models. Evolutionary game theory argues that the phase diagrams of

predators and prey rely on their respective rates of changes due to interactions with each other. In an anarchy world of population ecology, these rates of changes are exogenously determined by random natural contexts. After the introduction of central leaders as moderators of predator-prey interactions, however, these rates of changes are exogenously affected by institutional contexts (i.e. intelligent design). Furthermore, the evolution of institutions is not randomly drawn, but dependent on the growth in the number, size and profitability of private firms (prey). That is to say, because central leaders are growth-oriented, an unsatisfactory performance by private firms will call forth central government intervention to tilt the evolutionary change toward better institutions, which in turn affect the phase diagrams of predation-prey relationships. If the empirical evidence can verify the following three hypotheses, then the predator-prey modeling is a valid formal analysis in terms of the "evolutionary - institutionalist perspective":

Hypothesis 1: The phase diagram of prey population (the number of private firms) appears to be a cycle unless it is interrupted the intelligent designers (the central leaders).

Hypothesis 2: Central leaders continually adjust the institutional contexts to maintain the growth of the prey population. The institutional changes are adopted when the performance of private sector is unsatisfying. In contrast, there are no major institutional changes when the private sector is performing well.

Hypothesis 3: Institutional changes to improve the rule of law and the protection of property rights do not secure economic growth. Institutional changes to constrain the use of discriminatory powers by provincial and local governments do secure continuing high rates of economic growth..

5a. A Classic Lotka-Volterra Model

My exploration starts with the L-V model. It is originally a pair of first order, nonlinear, differential equations. It is frequently used to describe the dynamics of biological systems in which two species interact, one a predator and one its prey. In general it belongs to a model in the evolutionary game theory (Gintis, 2000; Vincent and Browns, 2005). This model usually makes two basic assumptions about the situation (Olinick, 2006):

Assumption 1: Each species experiences exponential growth or decay in the absence of the other.
Assumption 2: The number of kills of prey by predators is proportional to the frequency of encounters between the two species. This, in turn, is proportional to the product of the populations of predators and prey.

With a standard setting of L-V predator-prey model, I define provincial and local officials as "Predators" and private firms as "Prey". The only exception in my model is that the central ruler becomes a corrupt official by himself, which leads to an anarchy world as the original L-V model describes. As I have introduced in the previous section, however, contemporary Chinese authoritarians are more likely "moderators" of predator-prey interactions.

This L-V model also abstracts from the special-interest politics between predators and prey. In other words, the predator-prey interactions are purely bloody killings. It is hard to imagine that a prey cuts its legs to feed a predator and then asks for special protections. Furthermore, the easier the predation is the more intervention from an official will be and thus, more corruption will occur. Nevertheless, more corruption will discourage private investment, which increases the mortal rate of prey (private firms). The predator population is expected to decline exponentially with insufficient food

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resources (profits of private firms). When the predator population drops, the prey population will bounce up, which in turn will stimulate predations once again. Therefore, the predator and prey populations seem to cycle endlessly without stable equilibrium points.

My political economy framework of the L-V model assumes that the rulers play a less passive role than under a standard L-V framework. The standard L-V framework holds a *ceteris paribus* assumption, for which the external "biological" context is exogenously preset by the nature. Nevertheless, the official-private interaction occurs under a human-ecological context, where it is the central rulers rather than the nature that is the external moderator. Suffering from an information disadvantage, central leaders could not scrutinize every predation case, but they could adjust the institutional settings that determine the "biological" context of the official-private interaction.

On the basis of these assumptions, a political economy framework of the L-V Predator-Prey model is developed as follows:

$$\dot{X} = gX - \mu XY$$
$$\dot{Y} = \delta XY - \gamma Y$$

In these equations,

(i) X: the number of firms that are privately owned.

Y: the number of provincial and local officials who become predators.

XY: interaction term, which indicates the encounter rate of a random prey with a random predator.

(ii) The number of private firms grow at a natural rate $g>0$, where g depends on how private properties are protected and also on their intrinsic growth rate. That is to say, unsecured property rights discourage investment decisions, which in turn dampens the economic growth rate. A better protection of private property rights drives to a higher g.

(iii) μ is the coefficient of predation rate. When an official and a private firm encounter, the expected punishment will largely decide whether a prey is caught and a predation is executed. μ measures the rule of law, where a higher μ means a worse rule of law.

(iv) δ is the amount of resources a predator gains when the predator executes the predation. It measures the political rents owning to discrimination policies. An official could not materialize their political rents until he encounters a private firm which is subject to discrimination policy. A higher δXY term means a higher reward to exploit private firms.

(v) γ is the predator mortality rate. Suppose officials could depredate either private firms or SOEs. When private firms are extinguished, the growth of predator population will entirely rely on the SOEs. Therefore, γ measures the dying rate of SOEs, where a lower dying rate indicates a lower predator mortality rate.

(vi) Central leaders moderate the predator-prey game by adjusting the values of parameters g, μ, δ and γ.

With two differential equations, I solve two unknowns (X and Y). The solution is a dynamic system with closed loops of orbits around the fixed point. Figure 4 is the phase

diagram for the predator-prey model as depicted below. The horizontal dotted line

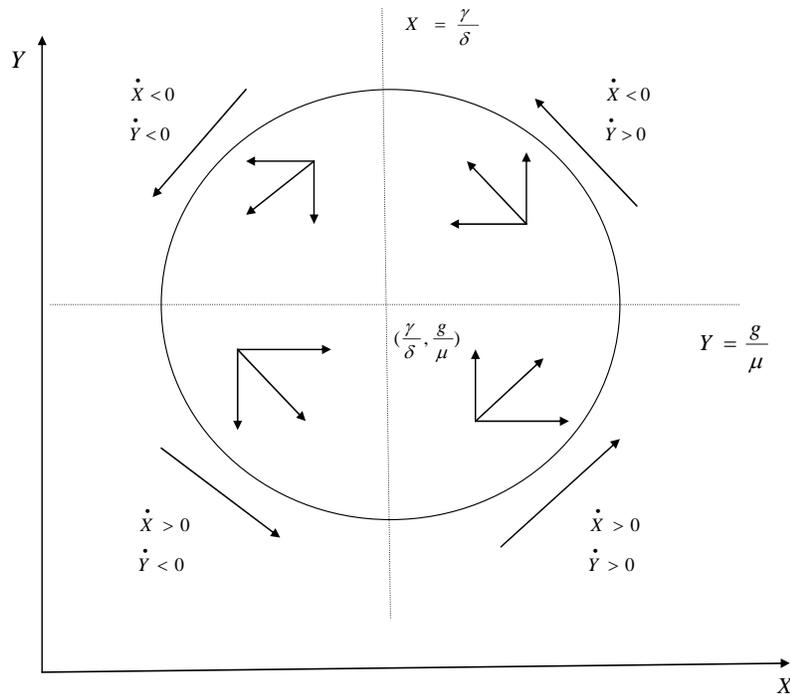denotes the condition $\dfrac{dX}{dt} = 0$, and the vertical dotted line indicates the condition $\dfrac{dY}{dt} = 0$.

Figure 4: The Phase Diagram of the Lotka-Volterra Predator-Prey Model

Thus, the fixed point is $(\dfrac{\gamma}{\delta}, \dfrac{g}{\mu})$, where the two dotted lines intercept. The oscillation

around the fixed point has a frequency that is given by the square root of the growth and

death terms $S = \sqrt{gr}$. This fixed point is important, because all three factors (β, g, μ) are

exogenously determined by the institutional contexts.

The arrows point northward when $\dfrac{dY}{dt} > 0$, while southward when $\dfrac{dY}{dt} < 0$;

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The arrows point eastward when $\dfrac{dX}{dt} > 0$, while westward when $\dfrac{dX}{dt} < 0$.

Therefore, to the south-east of the fixed-point, the flow is north-east; to the north-east of the fixed-point, the flow is north-west; and so on. After all, the flow circles counterclockwise about the fixed point.

This classical model provides some implications for our understanding of Chinese political economy. Eliminating t from two equations, we get

$$\frac{dY}{dX} = \frac{\delta XY - \gamma Y}{gX - \mu XY}.$$

That is to say, given a certain institutional arrangement, (1) it is unsure whether a higher fraction of the private sector (X) would combine with a higher level of predation; (2) a more secure system of private property rights (higher g) as well as a higher dying rate of SOEs drive down the value of $\dfrac{dY}{dX}$, so as to help private firms to be less fragile against predations; and (3) both higher discrimination (higher δ) and worse rule of law (higher μ) render private firms more vulnerable to misconduct by provincial and local officials. At any point in this evolutionary process, the, central oligarchy may effectively protect private firms by reforming economic institutions.

Evolutionally, the expansion of the private sector will push the central government to adjust the institutional arrangements, which in turn ameliorates the further growth of the private sector. Suppose the institutional arrangement is fixed and we start from a point at the south-east dimension, then the increase of X will be combined with increased predation. However, the flow circle will eventually drive the economy into the

north-east dimension, where the growth rate of the private firms will be negative. If the private firms cease to grow, then the level of unemployment increases and thus social disorder results, both of which are detrimental to the survivability of the ruling oligarchy.

In order to maintain political power by maintaining the size and profitability of the private sector, the rulers have to move the fixed point. In other words, there must be a sequence of discrete shifts in the nature of institutional settings. It could be (1) moving the $X = \frac{\gamma}{\delta}$ locus to the right by reducing the discrimination rules, or/and increasing the dying rate of SOES in red, and/or (2) driving up the $Y = \frac{g}{\mu}$ locus for better protection of private property rights or/and improving the rules of law. The most desirable situation is the south-west dimension, where the consistent expansion of the private sector is not traded off by the expansion of governmental interventions.

A stronger rule of law and/or a better protection of property rights will accelerate economic growth, while not leading to a reduction in overall predation. Thus the L-V model implies that an authoritarian country with a high economic growth may still be highly corrupt. If the central leaders are growth-oriented, they may achieve the goal by moving either the $X = \frac{\gamma}{\delta}$ (i.e. $\frac{dY}{dt} = 0$) locus or the $Y = \frac{g}{\mu}$ (i.e. $\frac{dX}{dt} = 0$) locus. Suppose they choose to move the $Y = \frac{g}{\mu}$ locus, a more strict rule of law or/and better protection of private property rights will not only stimulate economic growth, but also increase the level of predation that is tolerable for the central leaders. For example, a better rule of

law means less vulnerability of a single private firm, so the number of private firms will increase. Subsequently, there will a higher possibility that a predator (official) hunts a prey (private firm). Under a growth-oriented regime, after all, a higher economic growth rate co-exists with a higher number of predations. This finding complies with another evolutionary model of crime (Cressman et al, 1998) which finds that "increased public policing raises average crime rate until a threshold level of policy is reached."

Suppose the central leaders choose to move the $X = \dfrac{\gamma}{\delta}$ locus, in contrast, the reduction in discrimination policies boosts economic growth without raising predation to levels that are intolerable for the central leaders. Therefore, the optimal choice for institutional reform is to initiate institutional changes designed to limit the discriminatory powers of provincial and local governments.

5b. The Rosenzweig-MacArthur Model and the Paradox of Enrichment

As Beals, Gross and Harrell (1999) point out, "a good model must be simple enough to be mathematically tractable, but complex enough to represent a system realistically. Realism is often sacrificed for simplicity, and one of the shortcomings of the Lotka-Volterra model is its reliance on unrealistic assumptions." For example, prey population can not grow exponentially in the absence of predators, predators may be saturated with the food uptake, and no predator can eat infinite quantities of prey. A growing literature has been developed in the field of theoretical ecology to overcome these shortcomings (e.g., Rosenzweig and MacArthur, 1963, 1969, 1971; Berryman, 1981; Luck, 1990), as scholars have modified predator-prey models in a pursuit to improve realism and

predictive power. The Rosenzweig-MarArthur model (RosenZweig and MarArthur, 1963) is a successful predator-prey model that overcomes the unrealistic assumptions of the L-V model. The R-M model is simple enough to be mathematically tractable, and more importantly, a political economy of the R-M model fits the reality of Chinese experience. For example, this model helps to understand a *paradox of enrichment* (Rosenzweig, 1971): if a market economy produces more private firms (i.e. the availability of market resources increases), community dynamics moves from a stable equilibrium to overexploitation by predatory provincial and local governments.

I begin with the general formation of the R-M model *a la* Blasius and Tonjes (undated) as follows:

$$\dot{X} = g(X) - \mu f(X)Y$$
$$\dot{Y} = \delta f(X)Y - \gamma Y$$

These equations contain two functional relationships that introduce a more realistic prey curve. The interpretations of letters g, μ, δ, γ remain the same as in the original L-V model. The first functional term *g(X)* describes the density dependence of prey growth through intraspecific competition. The prey growth cannot continue indefinitely. It slows as the prey population approaches the saturation value for the habitat (i.e. the carrying capacity). Volterra (1928) suggests a logistic growth function for prey $g(X) = gX(1 - \dfrac{X}{K})$, where *K* is the maximum just-maintainable density of prey. Beyond *K*, the prey population will be overcrowded. In addition, Rosenzweig and MacArthur (1963) suggest another minimum maintainable density of prey, which is required for successful one-for-

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one reproduction. The second function term $f(X)$ models the saturation of the food

uptake with the density of prey. This term is expressed as $f(X) = \dfrac{X}{S+X}$, where S

measures the saturation rate.

At first I only consider the logistic growth for the prey $g(X) = gX(1-\dfrac{X}{K})$, where

the food-uptake function remains linear as μX . The $\dfrac{dX}{dt} = 0$ locus has a negative slope,

whereas the $\dfrac{dY}{dt} = 0$ locus is still a vertical line. As a sequence, the rotating trajectory is

squeezed in the phase diagram for any given carrying capacity K. It has a stabilization

effect.

Alternatively, I keep the prey growth rate $g(X)$ linear but use a non-linear food-

uptake function $f(X) = \dfrac{X}{S+X}$. The $\dfrac{dX}{dt} = 0$ locus has a positive slope, whereas the

$\dfrac{dY}{dt} = 0$ locus is still a vertical line. Consequently, the rotating trajectory expands in

amplitude. It has a destabilizing effect.

A complete R-M model will take into account of both the logistic growth for the

prey and the non-linear food-uptake, which leads to the following equations:

$$\dot{X} = gX(1-\frac{X}{K}) - \mu\frac{X}{S+X}Y$$
$$\dot{Y} = \delta\frac{X}{S+X}Y - \gamma Y$$

$$X = \frac{\gamma}{\delta}$$

$$Y = \frac{g(K-X)}{K\mu}$$
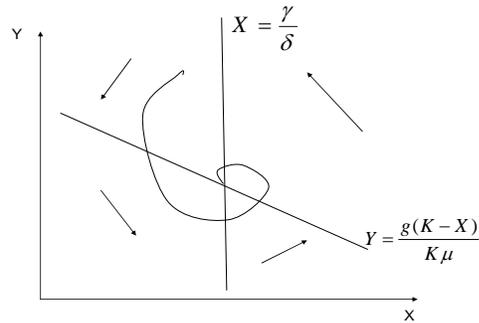
Figure 5: Logistic growth for the Prey

$$X = \frac{\gamma S}{\delta - \gamma}$$

$$Y = \frac{gS}{\mu} + \frac{g}{\mu} X$$

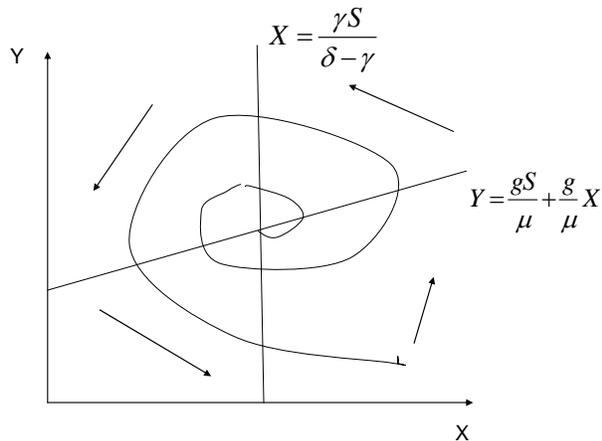**Figure 6: Saturation of Food-Uptake with Prey**

These equations simultaneously include both stabilizing and destabilizing forces. Intuitively, we can now compare the relative effects of inherent growth rate of prey against the saturation of food-uptake. On one hand, the inherent growth rate of prey begins positive, ends negative (i.e. overcrowding) and always decreasing (Rosenzweig, 1969). On the other hand, the killing rate is never negative, and it begins low because in a low density of prey, there are low encounters between predators and prey. Therefore, in order to prevent the prey from increasing at low density, the number of predators must be

increasing, so the prey isocline (i.e. $\frac{dX}{dt} = 0$) has a positive slope. In contrast, when the

prey becomes more and more crowded, the ecosystem will need a decreasing number of

killings to maintain the original prey population, so the prey isocline has a negative slope.

Essentially, the prey isocline will be formed like a hump.

Mathematically, the $\frac{dX}{dt} = 0$ locus satisfies the equation $Y = \frac{gK - gX}{K} \bullet \frac{S + X}{\mu}$. The

slope of this locus is the partial derivative of Y with respect to X: $\frac{dY}{dX} = \frac{g(K - S)}{K\mu} - 2gX$,

for which the critical point is $X = \frac{K - S}{2K\mu}$. To the left of the point, the locus may have a

positive slope and thus a destabilizing effect. To the right of the point, the locus may have

a negative slope and thus a stabilizing effect. Thus, the prey curve is usually a hump

between the minimum and maximum just-maintainable densities of prey.

The stability of the ecosystem depends on whether the intersection between the two

isoclines in the phase diagram occurs in the up-sloping or down-sloping branch of the

hump, as shown in Figure 7. It depends on the location of the vertical predator isocline.

That is to say, if the intersection locates to the left of X^*, there will be a destabilized

system. If it locates to the right of X^*, there will be a stabilized system. If it happens to

locate at the critical point X^*, it will be a classic L-V model with oscillatory cycles.
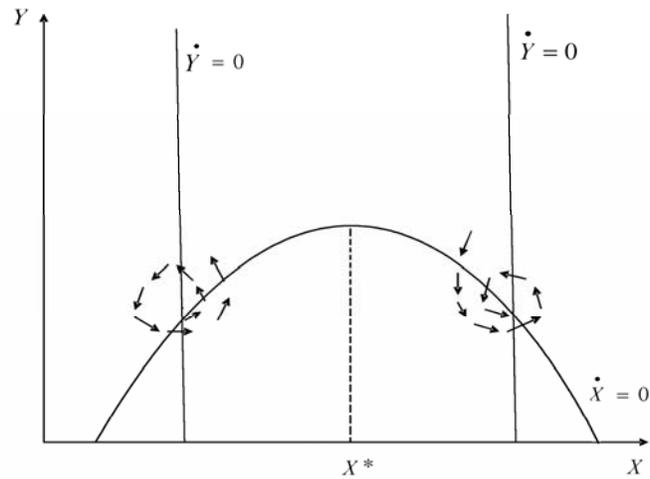
Figure 7: The Rosenzweig - MacArthur (R-M) Mpdel

A destabilized system leads to extinction of prey, because when the slope of the prey isocline is larger than zero, "the predator is too proficient and the system will ordinarily not persist (Rosenzweig, 1971)." Since an enrichment of carrying capacity of prey will move the peak of the hump to the right[42], then the enrichment will lead to overexploitation of predators. This is the so-called "paradox of enrichment", as shown in Figure 8.

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[42] The peak of the hump locates at $X* = \dfrac{K-S}{2K\mu}$, so $\dfrac{dX}{dK} = \dfrac{S}{2\mu K^2} > 0$.
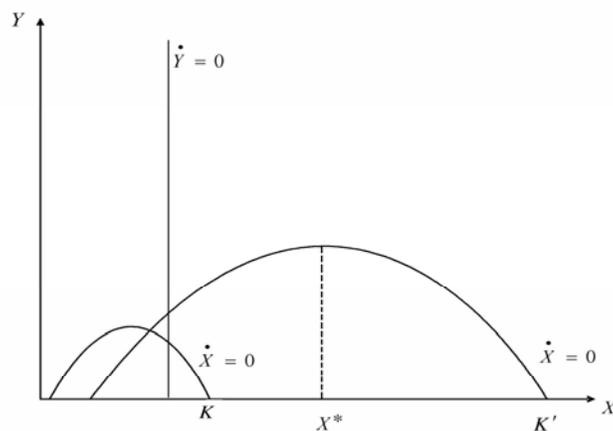
Figure 8: Paradox of Enrichment

When the carrying capacity is *K*, the intersection locates at the downslope side of the hump, leading to a stabilized system. When the carrying capacity is enriched to *K'*, the intersection locates at the upslope side of the hump, so prey are in danger of extinction.

The R-M model has various political economy implications. Since the central authority leaders are the moderators of institutional parameters in the R-M model, we may explore the evolutionary path of those institutional parameters, thereby checking how the institutional evolution occurs under authoritarian governance.

(i) The fundamental economic institutions are privatization (γ) and minimization of political rents (δ), i.e. a limited government. Of course it does not go to another extreme – anarchy, because the $\frac{dY}{dt} = 0$ locus has a right boundary set by *K'*. These two parameters (δ and γ) will largely decide the position of the vertical predator isocline. The

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movement of this isocline has to be incremental rather than radical, because it is limited by the carrying capacity. In Figure 8, if central leaders manually move the predator isocline to the right of *K'*, it will be a policy failure. The growth of private firms does not require such an over-limited government. For example, if central leaders cancel some public road projects for the purpose of minimizing provincial and local government, the growth of private firms will be retarded due to transportation difficulties.

(ii)The market liberalization and economic growth opens a larger market for private firms and thus increases the carrying capacity (*K*). A higher carrying capacity will thus appeal for the privatization and the reduction of political rents. Since the carrying capacity (i.e. the size of market) expands continuously, the moving of the predator isocline responds with the similar trend – as we observe in China.

(iii) The protection of private property rights (*g*) and the rule of law (μ) do not change the direction (upsloping or downsloping) of the prey isocline, but they are important determinants of the sizes of rotation trajectories. For example, only considering the logistic growth of prey, the slope of the prey curve is $-\dfrac{g}{K\mu}$. Therefore, better institutions of property rights and the rule of law will increase the absolute slope of the prey curve, and thus squeeze the rotating trajectory with a faster speed.

(iv) The saturation of food uptake (*S*) affects the numbers of predators at the peak of the hump. If the saturation rate is higher, then the hump can move leftwards, leading to a stabilized system. Political culture could be a significant determinant of the saturation

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rate. For instance, it is more difficult to saturate in a rent-seeking society than in a system acclimated to relatively clean government.

6. Empirical Evidence

It is notoriously difficult to conduct empirical research on the working of the Chinese economy for two reasons.

First, China's public statistics are suspicious owing to the promotion mechanism built into China's hierarchic bureaucracy. Under this promotion mechanism the chance of promotion of a local leader is significantly and positively correlated with the GDP growth rate of his jurisdiction (Li and Zhou, 2005). Consequently, self-interested and promotion-oriented local leaders tend to over-report their local GDP growth rates, taking advantage of asymmetric information over the central leaders. To make the situation more severe, private firms have an incentive to conceal the real data of economic profits. Therefore, I shall emphasize on those empirical evidence that I can trust, such as the historical paths of institutional changes and the numerical change of the number of private firms.

Second, the history of China's market economy is not long enough for me to test the movement of oscillatory cycles. Especially, private firms did not receive legal status until around 1990, and thus no relevant data is available before that time. Unfortunately, the cycling of predator-prey interactions takes many years, whether in the natural world or in the political economy ecosystem. The most famous example in the natural world is cycling of Canadian lynx and snow-shoe hares. Elton and Nicholson (1942)'s research find that hare populations cycle with peak abundance for every 10 years. The cycling in

the political economy ecosystem might well need a longer period. Treisman (2000) holds that it takes 45 years for a democracy to be effective in curbing corruption, and Zhang and Davis (2003) found that the endogenous cycle between corruption and the rule of law may take as long as 10-15 years. Accordingly, it is very possible that a 15-year history of private firms may be barely sufficient to complete one cycle of predator-prey interactions.

My empirical investigation relies on objective data only, including the major institutional changes and the growth rate of the number of endogenous private firms. The data comes from All-China Federation of Industry & Commerce (ACFIC) that is a semi-official organization rather than a government branch. Thus, this data is more trustable than public statistics. The 14-year data is sufficient to verify the two basic hypotheses: (1) The number of private firms (i.e. prey population) grows in cycling; (2) Central leaders launch major institutional changes when and only when the private sector is in trouble.
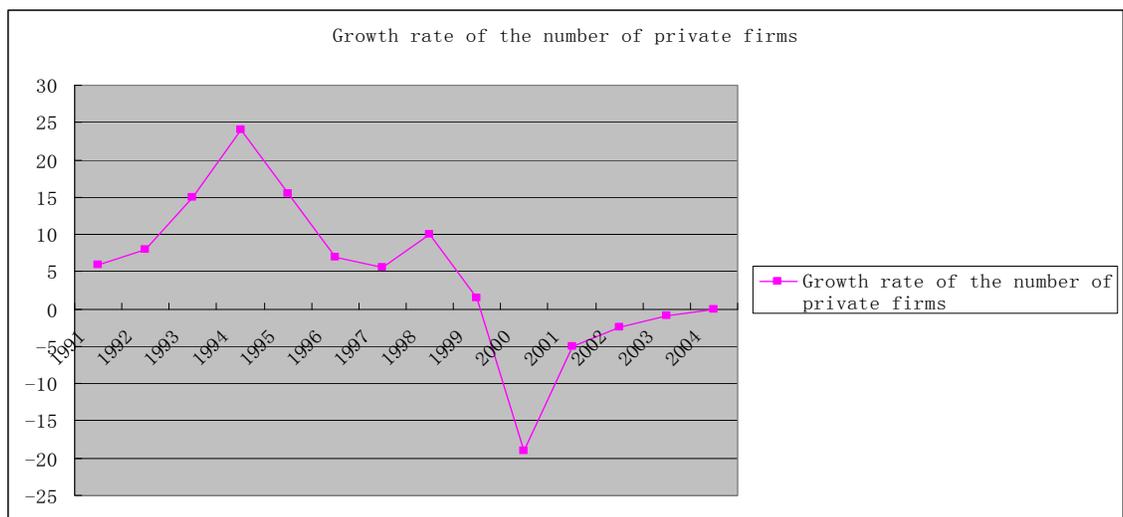
Data Source: All-China Federation of Industry & Commerce.

Figure 9: Growth Rate of the Number of Private Firms

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In the first period (*1991-1994*): After the Tiananmen Incident failed uprising in 1989, Chinese private business was heavily shocked. Deng Xiaoping, as the central leader, announced the famous "Southern Tour Talk" in early 1992, which urged for reduction of discrimination policies against the private sector. As a consequence, the growth rate of the number of private firms surged in 1993 and 1994.

In the second period (*1994-2000*): Discrimination policies were continuously relieved at the marginal base, there was no remarkable institutional change on the property rights protection, and a major reform on the rule of law was not adopted until the growth rate of the number of private firms had fallen into hopeless straits in the late 1990s . During this period, the growth rate of the number of private firms plunged from 24% (in 1994) to a negative -19% (in 2000)[43].

In the third period (*2001-2004*): The 1999 reform of the rule of law became effective after 2000, and China made significant efforts on market liberalization after it entered into WTO on 2001. The number of private firms bounced back. However, the growth rate of the number of private firms remained negative throughout this period, and the recovery pace was rather slow from 2001 to 2004. Eventually, at the 2004 convention of the National Congress, the central leaders announced a number of constitutional amendments on both the rule of law and the property rights protections.

Summing up the institutional facts over three periods, it is a clear path that the number of private firms grew in a cycle, and that central leaders moderated major institutional changes when the growth of private sector was unsatisfying. Therefore, these

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[43] A miserable rate of -19% reflected an exaggeration by the 1998 Asian financial crisis as an external shock.

empirical evidences generally support the results of the moderated predator-prey framework.

Interestingly, despite the decreasing in the number of private firms, the total volume of the private sector has been increasing in recent years according to ACFIC: China's private sector accounted for 42.8 % in national GDP in 2000 while 50% in 2005. Supplementing the above analysis, this contrasting situation could be caused by three reasons: (1) There is a survivor contest among private firms, and "great trees keep down the little ones." ACFIC's data also reports that the minimum level of annual business incomes to enter "Too 500 Private Firms" had increased from RMB 29.7 million in 2000 to RMB 133.6 million in 2005; (2) Middle and large-size private firms are stronger than small-size ones to survive the predations of provincial and local officials. A predation of RMB 100 thousand means little to a large-size private firm, but equals to the entire business to a small-size one; and (3) As I will analyze in the next chapter, some middle and large-size private firms have begun to form interest groups and collude with provincial and local officials.

Finally, the current historical data is too short to show us the stability of oscillations. The market capacity of the private section has been ever increasing in China's open-market reform, along with the continual reductions of discrimination policies. Therefore, it is uncertain whether there is a "paradox of enrichment". It leaves to the future to tell whether China's authoritarian market economy will end in a stabilized or a destabilized oscillation.

6. Conclusions

This chapter is a study that introduces evolutionary game theory into political economy. It also provides the first evolutionary dynamics model of transitional economics with respect to the "evolutionary-institutionalist perspective". A predator-prey evolutionary model with intelligent design has been built on the basis of the Lotka–Volterra Predator–Prey model and its extensions, in which provincial and local officials are potential predators, the private firms are prey, and they interact in an evolutionary process under the intelligent interventions of the central government oligarchy. This framework recognizes the unique autocratic political regime in China where authoritarian rulers are growth-oriented, and thus incorporates the moderating role of authoritarian governance into the evolutions of institutional changes. It demonstrates that major institutional changes derive from the dynamic interactions between provincial and local officials on the one hand and private firms on the other.

The periodic curtailment of discrimination policies is pivotal for two reasons: on the one hand, it promotes the growth of private business without incurring an increase of predation; on the other hand, it determines whether the predator-prey interactions result in a stabilized equilibrium or in a destabilized disequilibrium.

Both the rule of law and the protection of private property rights protection are also important, because they protect private firms from abuse of discretionary powers by provincial and local governments.. To pursue a stable and prosperous market economy into the long-term future, therefore, China must develop a limited government equipped with the rule of law and property rights protection.

This study fills serious gaps in the theoretical literature of political economy under conditions of authoritarian government. It also provides solutions to a number of real puzzles concerning the experience of China. For example, some scholars (*Economist*, March 15-21, 2008) are confused that "China appears to be a standing contradiction to the argument that the rule of law is needed for growth." This study addresses this seeming contradiction with two answers: on one hand, the classic L-V model suggests that after strengthening the rule of law, the growth-oriented central leaders will actually tolerate a higher level of predation. Hence, when the market economy grows faster, there are more violations of the rule of law. On the other hand, the R-M model shows that the movement of $\frac{dY}{dt} = 0$ locus to the right may considerably increase the frequency of prey population, no matter what happens to the $\frac{dX}{dt} = 0$ locus. That is to say, if central leaders consistently constrain discrimination policies economic growth may be sustainable in the short-run even if the rule of law remains terrible.

Of course, the models utilized in this study still contain a number of simplifications. In particular, provincial and local government officials and private firms are assumed to be matched randomly in repeated games. It would be interesting to expand the predator-prey framework to include opportunistic rent-seeking behavior where a specific government official protects specific privileges for favored private firms against the predations of other government officials. More empirical testing could be conducted if (1) we can find reliable proxies for predations and (2) there are a sufficient

number of observations. But these are matters for future research on this important field of political economy.

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CHAPTER 7:

An Interest-group Framework for Modeling China's Authoritarian Market Miracle

1. **Hypothesis**

In this chapter, I outline a theoretical framework that defines a "two-stage evolutionary path for China's authoritarian, market-based economic miracle". This framework is grounded on two historical facts, namely (1) that old special-interest groups are located in State-owned enterprises (SOEs), and that (2) new interest groups originate in the newly-formed private sector.

In the first evolutionary stage, China's incremental market reforms began with a dual-track approach, which largely avoided the costs of political conflict that might well have been generated by old interest groups among the SOEs. In the emerging second stage, however, new interest groups have formed among private firms whose conspiracies and conflicts with self-interested provincial and local government officials, in the absence of intelligent design interventions by the central government oligarchy, might prove very harmful to China's market economy. Hence, China's market miracle does not nullify the Mancur Olson's hypothesis that only those societies that have "destroyed organizations for collective actions can be expected to enjoy 'economic miracle' (Olson, 1987)."

Furthermore, as I argue in this chapter, as additional interest groups form and as existing interest groups consolidate their power among private firms, the rule of law and

protection of private property rights now become critical for sustaining high rates of economic growth through the private market-place.

2. Introduction

China' market miracle refers to the continuously high rates of economic growth in China over the past three decades. China doubled its GDP within 9 years (1978-1987), doubled it again within the following 9 years (1987-1996), and still enjoys an impressive growth rate. In this chapter, I outline an interest-group framework that helps to explain the China's market miracle and further to predict its development. Within this framework, I analyze how existing and newly-formed interest groups among private firms may collude and fight with self-interested provincial and local government officials and how these collusions and conflicts may lower the rate of economic growth in China in the absence of intelligent interventions by members of the central government oligarchy. An extended question worthy of investigation is whether and how improvements in the rule of law and the protection of private property rights might impact on the future of China's market performance.

In Chapter 6, I developed a predator-prey model with intelligent design in which provincial and local officials, China's private firms, and central leaders play the role of potential predators, potential prey, and intelligent designers respectively. I also argued that in a random match-up, what the Predator gains is what the Prey loses: a "zero-sum game" as Riker (1962) called it. Therefore, a peaceful settlement between predator and prey is infeasible, as indicated in the phase diagrams of the Predator-Prey model.

Nevertheless, an unresolved problem in Chapter 6 is that "*although the self-interests of predators always conflict with those of prey, can they reach peaceful settlements under other conditions than random match-ups?*" Virginian political economy would argue that politics may take the form of a "gains-from-trade" game (Buchanan and Tullock, 1962; Rowley and Webb, 2007), in that politicians and special interest groups may collude to take advantage of both the central government and the consuming public. In the case of China, the predators (provincial and local officials) may not only exploit the prey (private firms) but also exploit the authoritarian central government to expropriate taxation for their own purposes. As I have argued in Chapter 6, furthermore, the intelligent designer suffers from asymmetric information about specific predation cases. Hence, it is possible that the Predator and the Prey may enter into mutually beneficial settlements at the cost of the intelligent designer.

Many scholars have examined China's market miracle but few have adopted an interest-group approach. For example, Lin, Li and Cai (1993, 2003) attributes economic growth in China to central government because it switched the heavy-industry-oriented development strategy to an endowment-oriented one successfully. In addition, Lau et al. (2000) praises China's market miracle as a successful reform, "achieving efficiency without creating losers." Lau et al.'s argument rests upon the belief that central government has executed lump-sum transfers from the potential winners to losers of the reform through enforcing existing plans and liberalizing market simultaneously, namely, the dual-track reform.

In studies of this kind, scholars pay little attention to the fact that *reforms are of an incremental rather than a radical nature, made in considerable part the reformers' desire to minimize political resistance.* Some studies realize that the dual-track reform maintains both planning and market in order to mitigate the damage of political conflicts (Fan, undated; Qian, 2002). They even admit that the dual-track approach is more or less a compromise to opposition from various interest groups within SOEs (Fan, undated). Nevertheless, few politico-economical studies have attended to the issue of ideological concerns of government and interests groups in SOEs during China's market reform. Furthermore, no study has tuned in to a latest trend in China's society: A large number of private firms benefited from economic reform in the past but some of them have organized into new interest groups and started to impede further economic reforms[1]. Finally, the extant literature has not established the connection between the economic impact of special-interest activities and the nature of China's legal structure.

To illustrate the interest-group framework, I will define the "interest group–official" collusions as peaceful settlements under the shadow of conflict (Hirshleifer, 2001). The framework will be built up by integrating the Olsonian (Olson, 1982) theory of collective action with Denzau and Munger's (1986) model of legislators and interest groups. Old interest groups reside in SOEs that contribute to the non-economic interests of government but not to those of economic growth. New interest groups grow from private firms that are the driving forces of economic growth. Central government balances between non-economic interests and economic growth.

In the first stage, private firms are small-sized and their interests are unorganized; but they march in at the cost of sweeping out old interest groups. In the second stage, it becomes more and more difficult at the margin to destroy old interest groups within SOEs, while there are an increasing number of new interest groups arising from private firms. Consequently, I hypothesize that without further interventions by the central government, China's market miracle may be jeopardized in the second stage.

To further explore whether and how the rule of law and the protection of private property rights can significantly impact China's market miracle, this study develops an iterated Hawk-Dove game between private firms and government officials. In the first stage, the pro-competition policies liberalize market forces that promote the expansion of the private sector, while the burgeoning private sector does not exert a strong pressure for legal reforms. In the second stage, as they accumulate more capital assets, private firms exert greater demand for the property right protection and for a rule of law to enforce such protections. In the iterated Hawk-Dove game between private firms and government officials, however, the evolutionarily stable Nash equilibrium is an interest-group-politician collusion, rather than a legal reform. Moreover, the collusion will be more invulnerable when private firms possess more capital assets at stake, and thus it will be more difficult for central government to launch an institutional reform consistent with the rule of law and the property rights protection. Again, the interest -group-politician collusions will endanger the sustained economic growth in China.

The rest of this chapter is divided into seven sections. Section 3 reviews previous research and finds that positive political economy of transition reform has been largely

ignored by researchers. Section 4 accounts for how private firms collude with government officials at the cost of public interest with the help of Hirshleifer's (2001) model. Section 5 combines the Olsonian growth theory and the Denzau-Munger model to theoretically support an interest-group framework of "China market miracle", The theory developed in Section 5 is visualized in the models of Section 6. Section 7 builds an iterated Hawk-Dove game to discuss how new interest groups in private firms will obstruct China's institutional reforms in the long run. Section 8 briefly predicts whether the unorganized interests of peasants get represented in the second stage. Conclusions are summarized in Section 9.

3. Literature Review

For the most part, the existing literature on China's economic transition is *normative in nature,* focusing on the constrained decision-making of social planners, whereas few studies have taken a *positive* approach that emphasizes the effects of interest group activities. The majority of positive political economy scholarship has focused exclusively on democratic regimes, not on dictatorships. My study intends to fill the theoretical gap between interest-group theories and political economy of autocratic Chinese reforms.

3a. Transition Economics

A number of economists have investigated Chinese reforms as a gradual transition from a centrally planned economy towards a market-oriented one. The extant literature in transition economics has taken into consideration political economy arguments

concerning the interaction between politics markets during the reforming process. This latter literature has identified two broad trends regarding the political economy of transitional reforms (Roland, 2000): a *normative* approach that focuses on the decision-making of reformers (not necessarily welfare-maximizing ones) subject to political constraints, and a *positive* approach that seeks to explain differences in the extent of rent-seeking and how special interests may effectively capture regulatory bodies. As Roland's surveys (2000, 2003) indicate, the positive analysis of transitional reforms is less well developed than the normative analysis. A small number of positive studies (Bolton and Roland, 1992; Sonin, 1999; etc.) have examined transitional economies in East European countries and argued that under low security of property rights and massive privatization, rent seekers have found it both feasible and profitable to pursue collusions with government decision makers.

Few, if any, theoretical studies have dissected China's political economy through an interest-group lens, though the mass media has widely regarded the "special interest groups" phenomenon as a serious social problem in China. In addition, since the late 1980s (Fan, 1989; etc.), a number of scholars have delineated the rent seeking activities in China's dual-track market reform (Liew, 1993; Zhang, 1997, etc.) and suggest that the dual-track economy gives rise to the discretionary power that government officials appropriate as a source of rents. However, scholars have neglected the role of organized interest group activities in China.

"Interest groups" and "rent seeking" are related terms because both of them define wasteful wealth transfers through the aegis of government. However, they differ in terms

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of whether policies are influenced at the group or the individual level. An interest group engaged in collective action can affect federal or local policies through money, information or political loyalty; in contrast, a rent seeking deal only takes place between a single firm and an individual official. Hence, how organized special interests operate to impact the transition reform in China is a topic of great research value.

3b. The New Political Economy

New political economy scholars (e.g., Dixit, Grossman and Helpman, 1997; Grossman and Helpman, 1994, 2001; Persson and Tabellini, 2002; Acemoglu and Robinson, 2005) are interested in studying special interest politics. They have developed various theoretical models to describe how interest groups purchase and compete for influence, educate and exploit voters, and penetrate their interests into electoral and legislature outcomes.

In particular, Grossman and Helpman (1994) and their followers develop the common-agency model of Bernheim and Whinston (1986) into a lobbying model where a politician attends to both unorganized interests and groups of agents. A lobbying group aims to maximize its members' net welfare, while the politician's utility functions has two components: contributions received from the interest groups, and the aggregate welfare (including the unorganized interests) that is weighted by a fixed parameter measuring how much the politician cares about the aggregate welfare. At the equilibrium level of lobbying contribution, the marginal change in the contribution of the interest group is equal to the marginal effect of the policy on the interest group's welfare. In this

model, the welfare of organized interests is partially counter-balanced by that of unorganized interests. However, this model is targeted at a stable democratic regime, i.e., it is not applicable to a transforming and non-democratic institution like China. The authors assume that when an interest group adjusts its strategy, the social welfare of unorganized interests does not change at the margin. Obviously China's economic transformation contradicts this assumption given that the growing unorganized interests (within private firms) has accompanied the sinking of old interest groups (among SOEs).

Some other studies (Drazen, 2000; Acemoglu and Johnson, 2005) have generated two major theoretical models on economic reform and transition: infinite-horizon, discrete-time models and overlapping generation models. The frequently studied topics include the selection between the "big bang" and the gradual reforms, the optimal sequencing of reform, etc. As I have discussed in Chapter 6, these normative models make an assumption incompatible with China's gradual reform: reform outcomes with specific probabilities. Chinese reforms that "wade the stream by feeling the way" make it impossible to identify those probabilities *ex ante*.

3c. Public Choice

The public choice approach to analyzing economic growth highlights the importance of analyzing economic and political institutions in the process of establishing growth-friendly environments (Holcombe, 2001). This approach also focuses attention on the role of special-interests groups (Olson, 1982). In 1982, Olson published *The Rise and Decline of Nations*, which consists of some aggregated implications of his 1965 book—

The Logic of Collective Action. Olson (1982) argues that given the formidable difficulties of collective action, it takes time for special-interest groups to form and grow. It follows that

"It is only in long-stable societies that many extra-governmental organizations for collective action will exist," and "organizations for collective action have extraordinarily anti-social incentives; they engage in distributional struggles, even when the excess burden of such struggles is very great. They also tend to make decisions slowly and thereby retard technological shocks. It follows that societies that have been through catastrophes that have destroyed organizations for collective actions, can be expected to enjoy 'economic miracle' (Olson, 1987; p. 355)".

As Mitchell and Munger (1991) point out, Olson (1982) fails to consider the powerful role of the government on the supply side in his treatment of interest groups. North (1979) argues that the state is accorded a preeminent role, especially in the formation and administration of property rules and rights. Due to its lack of attention towards state power, the Olsonian framework itself does not apply directly to Chinese political economy: Any authoritarian government must play a powerful role in the society.

3d. Summary

Normative analysis has dominated in the current literature on the political economy of reform. which means that more studies are needed to examine the positive analysis of interest groups. Both new political economy and public choice have extensively studied interest group activities; unfortunately, neither of them has attempted to analyze interest group activities within the specific framework of China's market miracle.

4. Peaceful Settlements under the Shadow of Conflict

Provincial and local officials are potential predators, while private firms are potential prey. Since there are natural conflicts of interests between predators and prey, a predator (an official) does not tend to achieve a peaceful settlement with a prey (a private firm) under a one-to-one matchup because this is "zero-sum" game between two parties. However, provincial and local officials are dealing with private firms in an authoritarian market economy where officials are actually agents rather than principals. Representative officials are tax collectors in charge of taxes that private firms pay. Officials may help private firms avoid paying taxes. To trade for that, private firms offer part of tax savings to officials for the sake of special protection. If the special protection is credible, officials and private firms can reach peaceful settlements at the cost of an authoritarian central government that has an "encompassing interest (Olson, 2000)" in the public interest.

These peaceful settlements depend on the dark side of the force (Hirshleifer, 2001): The force referred to here is the pressure of an official's self-interest. He is employed by the central government and given discretionary power to serve the public interest, whereas his self-interest has a dark side, that is, to steal from his employer. After all, the official seeks a peaceful settlement with private firms because he cannot convert his discretionary power into money by himself. He also prefers a peaceful settlement to bloody predation because his collusion with private firms provides a place of concealment against the auditing of the central government.

Furthermore, a private firm may share "selective incentives (Olson, 1965)" with some other similar firms. Consequently, private firms form into interest groups and

accomplish peaceful settlements with government officials more efficiently. In an iterated Hawk-Dove game between private firms and government officials, which I fully develop in Section 7, being a member of an interest group makes it easier for a private firm to work out peaceful settlements.

All predator-prey peaceful settlements are negotiated under the shadow of conflict. That is to say, they are not cozy coalitions. A number of political economy studies have indicated that superficial stability (or peace) sometimes lies under the shadow of conflict (or war). When he tried to solve the puzzle "why so much stability (in Congress)," Tullock (1981) proposes that the stability merely reflects a balance of conflicts at Capital Hill. Hirshleifer (2001) argues that contending parties will not finalize peaceful arrangements unless there is a potential settlement region that provides moderate complementarity between contending parties. Finally, Rowley and Webb (2007) summarize that "from the perspective of war and peace, if cooperation occurs between nations, it does so always under the shadow of conflict," and it is basically "bargaining under the shadow of the dark side of the force." In such confronting situations as the Israel-Palestine game in Rowley and Webb (2007), the potential settlement region is usually narrow and thus is difficult to achieve.

More importantly, even if cooperation occurs between individual officials (predators) and private businessmen (prey), it takes place under the shadow of conflict, not only between officials and private businessmen, but also between the self-interests of individual officials and the public interest they represent. To demonstrate how these two types of conflicts may result in policy outcome, I draw the diagram as follows:
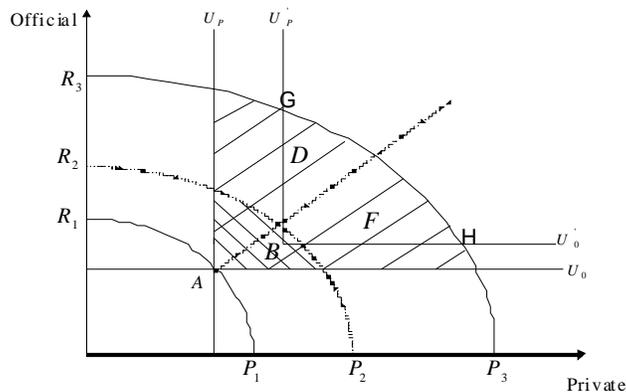
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Figure 10: Official – Private Bargaining

In Figure 10, the Official's preference is scaled along the vertical axis (indifference curves U_O are horizontal lines), and the Private's preference is scaled along the horizontal axis (indifference curves U_P are vertical lines). The P-R curves are the outer-bounds of the settlement opportunity set under different circumstances: (a) P_1-R_1: original condition, before reform; (b) P_3-R_3: after reform, before tax; and (c) P_2-R_2: after reform, after tax.

Assuming agreed perceptions at the original condition, in period 1 the economy starts from a unique perception point A. In period 2, the private sector would have expanded to P_3, and the outer-bound moves to P_3-R_3. Nevertheless, taxation plus discrimination charges will shrink the size of the private sector to P_2 as the direct effect. Governmental intervention will also distort the resource allocations of the private sector, which in turn will finalize the size of the private sector at somewhere between P_1 and P_2. The official will receive legitimate income for his participation in levying taxes.

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Therefore, if this official honestly pursues the public interest, then the agreed perception may locate at point B, where lies between P_1-R_1 and P_2-R_2.

Furthermore, since there is a conflict between the self-interest of the official and the public interest he represents, he may prefer not to tax (or offer tax-exemption) if an attractive side-payment from the private businessman can be arranged. If the threat to expropriate is politically credible, the private businessman will be willing to accept any settlement that locates to the northeast of point B. In other words, the private businessman accepts the rent extraction of the official so as to avoid taxes or discrimination policies. It is "money for not doing something" in terms of McChesney (1997)'s rent extraction theory. This settlement benefits both the official and the private businessman.

The heterogeneities among officials and private businessmen may be taken into account as well. On one hand, officials differ from each other in terms of political credibility with respect to expropriation. For example, since it is usually an iterated game between officials and private businessmen, a senior official might be deemed more trustworthy than a junior official. On the other hand, private firms might exercise different levels of bargaining power against the official. For example, foreign direct investments (FDI, hereafter) are usually more mobile than domestic firms. Following Epple and Zelentinz (1981), I infer that FDIs have advantages over officials (point F), and officials have advantages over domestic firms (Point D) in bargaining. Qian and Roland (1998), among other studies, have offered empirical evidence for this inference.

They suggest that under the China-style fiscal federalism, local governments over-compete for FDIs by offering all kinds of tax treatments.

Any settlement to the northeast of Point B may be a second-best optimum to the local economy. When the central government takes away taxation (measured by the distance P_3-P_2), the local government can only keep a portion of taxation revenues. However, if a local official accepts side-payment and ceases to expropriate, the redistribution of welfare through taxation will be realized within the jurisdiction. Therefore, this logic can possibly explain why local protectionism has been so popular in China – both local officials and private businessmen prefer local protectionism (even after rent extraction) to taxation by the central government.

Last but not least, it is interesting to examine the role of central government in breaking down the collusions between officials and private firms. Short of information sources at provincial and local levels, the central government primarily fulfills its authorities through institutional adjustments as described in Chapter 5. If the central government chooses a more liberal economy (i.e., less discretionary power delegated to provincial and local officials), private firms will certainly support its decision because the P_3-P_2 distance is reduced. Alternatively, if central government chooses a legal reform that penalizes the "stealing" of officials, private firms will disregard the government's stance because an official in "dark side" may bring them higher assets (i.e. somewhere within the area BGH) than another official in "bright side" (i.e. the point B).

In China, where economic freedom ranks relatively low, provincial and local officials assume sizable discretionary power. Therefore, they may enjoy the fruits of the

"power to money" business. Furthermore, China is characterized by a pathetic record of law enforcement, so the "power to money" business operates in an open field. I thus draw a conclusion from the Hirshleifer model that special interest activities in China deserve more attention from scholars.

5. Towards an Interest-group Framework of China Market Miracle
-- Connecting the Olsonian Framework with the Denzau-Munger Model

The Olsonian framework of interest group suggests that on one hand, the social costs of existing interest groups are detrimental to the economic growth of the nation; on the other hand, currently unorganized private firms may take time to form new interest groups, which will then generate a new wave of socially wasteful effects. The historical facts of China[44] indicate that old interest groups reside within the SOEs[45], whereas the new interest groups emerge from private firms. In addition, old interest groups within major SOEs have established liaisons with the central government, whereas new interest groups residing in private firms have not been influential at the national level[46]. Hence, it appears

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[44] Referring a survey conducted by Guangdong College of Business (Wu, 2007). Subjects are residents of Guanzhou municipality.

[45] Prior to massive privatization in the second half of 1990s, two thirds of SOEs were in the red, and the rest one third barely made the balance even (Kong, 2007). Nevertheless, under the socialism "soft budget constraints (Kornai, Maskin and Roland, 2004), numerous loss-making SOEs still received bailouts from government with complex motives, such as paternalism, political influences and more importantly corruption influences.

[46] In the United State, when an interest group gets directly involved in lobbying process, a PAC (Political Action Committee) is created. The China-counterpart of PACs is called "Beijing Liaison Offices (BLO)". Outlook Weekly of Xinhua News Agency (2007) reported that as of 2006, there were a few thousand BLOs of major SOEs. The same report also pointed out that a very small number of private firms had started to establish their BLOs around 2005. However, more new interest groups within private firms have been formed at the provincial and local levels in recent years, e.g., the recent Shanghai corruption case.

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that the Olsonian framework coincides with the reform process of China's market miracle.

To develop a complete theoretical framework, however, we must overcome a critical drawback of the Olsonian framework – no consideration is given to government at the supply side. In other words, an ideal interest-group framework will incorporate at least three active agents: a powerful government, organized interest groups, and unorganized interests. Denazu and Munger (1986) provide a base-line model of interest group that meets this criterion: A powerful legislator balances the comparative advantages between campaign contributions from interest groups and votes from unorganized interests. Therefore, the goal of this section is to integrate the Olsonian Framework with the Denzau-Munger model in order better to describe China's economic reform process.

If we compare the case of the 1970s' airline regulations in Olson (1984) with that of "state-owned enterprises vs. private firms" in China, it is safe to argue that an Olsonian framework helps to portray the economic growth in China.

My prediction about China is analogous to Olson's argument regarding the airline regulation in the United States (US). The answer would be a "*two-stage evolutionary path of the China Miracle*: In the first stage, private firms are the driving force of China's economic growth and remain as unorganized interests; in the second stage, more and more interest groups organize out of private firms. Under China's fiscal federalism system, these new interest groups tend to collude with officials at the provincial and local levels of government, which in turn neutralizes the contributions of private firms towards economic growth.

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Table 7: Olsonian Framework on US-China Comparison

Items	Airlines regulations in US	SOEs vs. Private firms
Old firms	Most of old airlines were doing very badly.	2/3 of SOEs were in red
Problems with old firms (How was it created by governmental policies?)	Regulation made it easier for management to become lax and for employees to get wages much above competitive levels.	Soft Budget Constraints made SOE managers be lax and workers were less efficient.
How new firms came in?	Deregulations	Pareto Improvement: private-owned firms were allowed without hurting SOEs.
How new firms lead to reform?	They have much lower costs. They have not had time to accumulate the distributional coalitions and management overhead that burden the older airlines.	Private firms bear lower social burdens, represent free market forces, and act independently.
The future being predicted	Olson's prediction would be that the number of interest groups grows with time, and there is a negative relationship between growth and the nation's age.	*How about China?*

Second, Denzau and Munger (1986) derive a supply price for public policy using a constrained maximization approach. There are three sets of agents - legislators, voters, and interest groups:

(1) *Legislators*: maximize the number of votes they receive, subject to the constraint of total effort they can allocate.
(2) *Voters*: a heterogeneous and unorganized group; they respond to the activities of legislator by their ballots.
(3) *Interest groups*: each interest group is interested in only one policy. They do not vote.

The supply prices, or the amount interest groups must offer to a powerful legislator for his services, are dependent on the legislator's productivity and the preferences of his unorganized constituency in his home district. The basic logic of the supply model is as

follows: policy outcomes rely on the comparative advantages of the participants. In the context of representative democracy, this hinges on the value that each set of agents in the model has to offer to the rest. The authors' comparative static analysis finds that the more productive a legislator's effort (or the less hostile that voters are to a given policy), the lower the minimum supply price an interest group must pay in exchange. After all, unorganized, non-contributing voters may be effectively represented even in situations where interest groups are well organized and active.

Both the Olsonian framework and the Denzau-Munger model have their own strengths and weaknesses. They share a critical feature that the representation of unorganized interests at the policy decision making table helps improve social welfare, while interest groups seek welfare transfers at the social cost of economic efficiency. The Olsonian framework differs from the Denzau-Munger model in two aspects: (1) the former suggests a dynamic process of interest group formations, whereas the latter overlooks the formations of unorganized interests into new interest groups; (2) the former fails to analyze the role of policy supplier that any government official can possibly play, while the latter emphasizes both supply and demand in the market of policy. In conclusion, based on the Olsonian framework and the Denzau-Munger model, I propose a framework that considers three sets of agents (the supplier of policy, interest groups, unorganized interests) and discusses the organization of unorganized interests into new interest groups.

6. Modeling the Olsonian Framework with the Denzau-Munger Model

6a. Assumptions

(1) Three agents: The central government as the *single legislator*; private firms as *voters*; state-owned enterprises (SOEs) as pre-existing *interest groups*.

(2) Single legislator: China's market reform has been growth-oriented, which is the indispensable, survival goal of the central government oligarchy. The continuous expansion of the private sector has been shown to be the major source of economic growth[47]. Both the overall size of the public sector and the number of SOEs have been shrinking, but they contribute to other social aspects than economic growth – alleviate unemployment, carry out social security, and safeguard ideologies.

(3) Voters: Private firms choose how much residual rewards they allocate to investments that expedite economic growth. In other words, investment decisions are actually "votes by the feet" (Tiebout, 1956). Though unorganized and dispersed, voters may form new interest groups. However, none of the new groups has been sufficiently influential to central government policy making.

(4) Pre-existing interest groups: Existing within SOEs, they care more about subsidies than investments. Subsides encompass soft-budget constraints, government licensing, etc. This simple assumption is compatible with Chinese experience.

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[47] Please refer to Chapter 3.

6b. Model

Let $\bar{E}$ be the central government's total available efforts (say, government policies). $\bar{E}$ can be divided into efforts to support unorganized private firms, E_U, and efforts to serve organized SOEs, E_I (which is composed of E_i, $i=1,2,...n$). The central government's utility maximization is to allocate its total efforts between E_U and E_I, so as to maximize its utility. Private firms care about not only E_U but E_I because governmental subsidies to SOEs create discriminations against private firms. In contrast, SOEs care only about E_I, but their existence also contributes resources, R_I, which is composed of E_i, $i=1,2,...n$. These resources strengthen the non-economic interests of the central government, which results in the stability of society and a better macro environment for economic growth.

To be consistent with the Denzau-Munger framework, I name the central government as "the legislator", private firms as the "voters", and SOEs as the "interest groups". In the first stage, private firms have not formed into new interest groups. The legislator's utility maximization V is thus a function of efforts and resources.

$V= V(E_U, E_I, R(E_I))$ subject to $E_U + E_I = \bar{E}$ (5.1)

where

$\dfrac{\partial R}{\partial E_I} > 0$, increased efforts to favor the interest groups raise resources.

$\dfrac{\partial V}{\partial E_U} > 0$, increased efforts to support the unorganized increase investment (votes).

$\dfrac{\partial V}{\partial R} > 0$, resources that serve social stability increase investment (votes).

$\frac{\partial V}{\partial E_I} < 0$, increased efforts to favor the interest groups discourage investment (votes) because private firms (voters) consider discrimination policies offensive. In other words, unfavorable policies reduce the private firms' incentives to invest.

The first-order conditions imply that efforts should be divided so that

$$\frac{\partial V}{\partial E_U} = \frac{\partial V}{\partial E_I} + \frac{\partial V}{\partial R} \frac{\partial R}{\partial E_I}$$

i.e., the legislator's objective is to equal the marginal revenue from serving private firms (MR_{PE}) with that from serving SOEs (MR_{SOE}).

For the legislator, the supply price for service to SOEs is

$$\frac{\partial R}{\partial E_I} = \frac{\dfrac{\partial V}{\partial E_U} - \dfrac{\partial V}{\partial E_I}}{\dfrac{\partial V}{\partial R}}$$

Since $\frac{\partial V}{\partial E_U} > 0$, $\frac{\partial V}{\partial R} > 0$, and $\frac{\partial V}{\partial E_I} < 0$, the supply price remains positive. The higher the pro-growth effect of private firms, the higher the supply price; the less effective the contributions of SOEs to social stability, the higher the supply price. What is more, if private firms are more responsive to a subsidy that serves pre-existing interest groups, this subsidy has a higher supply price. As Denzau and Munger (1986) write, "the more productive a legislator's effort, or the less hostile that voters are to a given policy, the lower the minimum price an interest group must pay in exchange."

Considering the heterogeneity among interest groups, we may rank the priorities of the legislator by comparing the supply prices as a Supply Price Equation:

$$\frac{\partial R_i}{\partial E_i} = \frac{\dfrac{\partial V}{\partial E_U} - \dfrac{\partial V}{\partial E_i}}{\dfrac{\partial V}{\partial R_i}}$$

The legislator will behave at the margin with the cutting point where MR_{PE} equals MR_{SOE}: those interest groups whose marginal benefits are larger than the cutting point will be favored by the legislator, in contrast, those interest groups whose marginal benefits are smaller than the cutting point will lose support

6c. The Mechanism of the First Stage of China's Market Miracle

China's incremental reform has proceeded at the margin, which is in accordance with the marginal approach of the Denzau-Munger model. The long-term slogan of China's SOE reform – "to invigorate large enterprises while relaxing control over small ones (*Zhua Da Fang Xiao*)" – shows that the government gradually privatizes small SOEs that usually have higher supply prices, whereas it firmly buttresses up large SOEs that generally have lower supply prices.

As aforementioned, three criteria decide whether the central government will be in favor of private firms: (1) the industry/region upon which private firms exert the largest pro-growth effect, (2) the industry/region in which SOEs contribute least significantly to non-economic interests, and (3) the industry/region in which the subsidy to SOEs most offensive to private firms. The central government makes its judgment by considering the criteria as a whole because all of them affect the supply price of an organized interest.

At the beginning of the market reform, as the model implies, the central government will give up those SOEs with the highest supply prices, then those with the second highest, and so on. Such a sequence has been demonstrated by the evolutionary path of China's market reform, which is shown below.

The economic growth will be optimized if the reform is always implemented in an industry /region with the highest supply price. This industry/region must satisfy the aforementioned three criteria. China's market miracle fortunately began with light industries in coastal provinces that met the criteria very well. First of all, in the late 1970s and early 1980s, the international industry chain withdrew large-scale light industries from the Asian Tigers owing to increasing labor costs and relocated them in China then supplying a great amount of cheap labor. The access to the global market generated a significant pro-growth effect. Second, traditional socialism legitimized the predominance of heavy industries over light industries. Consequently, light industries bore limited non-economic interests. Finally, private firms in light industries were little responsive to regulations and subsidies in heavy industries.

During the past thirty years of the market reform, private sector has continuously boosted its national GDP share. In other words, MR_{PE} exhibits an upward trend. In the early years of China's market reform, there was a dual-track economy in which the number of private firms was increasing but that of SOEs remained invariant. This is basically a corner solution of the Denzau-Munger model, as the value of the right side of the Supply Price Equation is close to zero: On one hand, the contribution of private firms

was almost negligible, so $\frac{\partial V}{\partial E_U} \approx 0$; on the other hand, $\frac{\partial V}{\partial E_I} \approx 0$, which means that the wasteful effect of old interest groups did not greatly obstruct the uprise of private sector..

In a dual-track price system, private firms entered these new markets with price mechanism, and SOEs still operated in the original planned economy. However, to expand the new markets is equal to demand more resources. As the pro-growth effect of private firms has become increasingly significant (i.e. a higher $\frac{\partial V}{\partial E_U}$), private firms attempt to seek more resources that have not been put to advantage in the planned economy (i.e. a higher absolute value of $\frac{\partial V}{\partial E_I}$). As a result, the rising supply prices of government subsidies/bailouts eventually pushed the central government to abolish the dual-track economy in the mid 1990s, when the privatization of SOEs kicked off as well.

Since then numerous SOEs have been gradually privatized or put on bankruptcy. As of 2008, more than 80% of middle- and small-size SOEs have been privatized. The majority of existing SOEs fall into the category of natural monopoly industries, such as telecommunication, petrol, railway, and airlines[48]. Old interest groups in these SOEs are the beneficiaries of monopoly profits and predominant contributors of non-economic interests to the central government. Furthermore, because burgeoning private firms are unable economically to invest in natural monopolies, old interest groups in these SOEs deserve low supply prices.

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[48] Please refer to Chapters 2 and 3 for detailed discussions.

6d. The Transition from the First to the Second Stage on the Evolutionary Path

The China's market miracle is proceeding from the first stage to the second one. On one hand, the central government is reluctant to privatize all SOEs. As Tan (2008) suggests, the remaining SOEs that have not been privatized are either major "backbone" enterprises or key bearers of special interests. On the other hand, new interest groups have emerged within private firms. It appears that the evolutionary path of Chinese interest groups has clearly supported what the Olsonian theory predicts (See Table 1).

Old interest groups within SOEs have waned in influence since the first stage of the evolutionary path. As a result, more market resources have been released to strengthen the private sector. When the first stage is drawing to an end, as I have mentioned, the remaining natural monopoly industry SOEs reflect low supply prices. If these monopoly SOEs are let drift, the central government's utility maximization will lead to a corner solution that is extremely costly. Furthermore, new interest groups have come into being within private firms (Bao, 2007). The collusions between new interest groups and provincial and local government officials may retard economic growth. That is to say, in the second stage on the evolutionary path, China's market miracle may not be sustainable: while no more market resources can be made available to breed private firms, the desirable growth trend of private sector will fade away if activities of the new interest groups are not curtailed.

The majority of pre-existing interest groups within SOEs have been destroyed, but it is not a wise decision for the central government to eliminate all of them. Rose-Ackerman (1975) discusses a similar logic that applies to anti-corruption. On one hand,

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government spends resources in curbing corruption. If there is no corruption, the marginal benefit of anti-corruption will become zero, which is lower than the marginal cost. When anti-corruption efforts cease, corruption tends to revive. Hence, a government must maintain an anti-corruption system that aims to control rather than to eliminate corruption. On the other hand, given the information asymmetry of corruption, if it wants to extinguish the last unit of corruption, government will incur an extremely high marginal information cost. Consistent with the logic, China's central government, if rational, will always maintain an optimal balance between interest groups and unorganized interests and never attempt to exterminate the remaining old interest groups that are associated with highly preferred non-economic interests at the margin.

In recent years, new interest groups have been growing within the private sector, especially in real estate industry at the local level. Critics have ascribed the astounding rise in real estate price to the collusions between real estate developers and local government officials (*Xinhua News Agency* reported in 2007). For example, according to *Sina News* (January 25, 2007), a coalition of 42 major real estate developers in Shanghai reached a consensus in January 2007 regarding a monthly 2% to 4% rise in house price until December 1, 2008.

Local interest groups are easier than nationwide interest groups to form because "the larger a group is, the farther it will fall short of obtaining an optimal supply of any collective good, and the less likely that it will act to obtain even a minimal amount of such a good (Olson, 1965)". A fact on the ground is that new interest groups formed within private firms are not active at the national level. However, under a fiscal

federalism system, local governments in China have an advantage over the central government in information necessary for the collusions between local government officials and new interest groups. Consequently, a three-level principal-agent problem emerges: central government (principal) is challenged by the collusions between local governments (supervisor) and firms. This three-level principal-agent relationship has been introduced in Section 4 and will be further discussed in the following section.

7. Iterated Hawk-Dove Game with Rent Extraction

In the previous sections, I discussed the formation and function of collusions between government officials and private firms. Two critical issues have been emphasized: (1) How government officials and private firms reach peaceful settlements under the shadow of conflict; and (2) how small-sized private firms with unorganized interests contributed to the first stage of China's market miracle. In this section, I explore the potential effects of new interest groups within private firms upon the future economy, specifically, (1) the causes of the formation of new interest groups within private firms and (2) the influence of official-private collusions on institutional reforms in China.

These two features characterizing the second stage of China's market miracle will be analyzed by utilizing an iterated Hawk-Dove game with rent extraction, a second evident integration of evolutionary game theory and public choice that I develop in this dissertation. The first theoretical attempt appears in Chapter 6, in which I develop a predator-prey model with intelligent design. It is worthy to note that predator-prey

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models and Hawk-dove games are two major branches of evolutionary game theory (Alexander, 2003).

7a. Theories and the Structure of the Game

In the reality of politics, politicians sometimes play iterated games with private businessmen. As McChesney (1997) mentions, the iterated Hawk-Dove game with rent extraction is common in American politics. For example, a number of Congressmen and Senators might stay incumbents for decades. Similarly, under China-style fiscal federalism, a local leader can usually sit in his/her position for a few years. Consequently, a local businessman or a FDI investor has to deal with him/her in an iterated Hawk-Dove game. Such a game is illustrated in Table 8.

Table 8:   Iterated Hawk-Dove Game with Rent Extraction

	Private	
	Hawk (No payment)	Dove (Payment)
Official Dove (No expropriation)	0, 0	JN-P, -JN-P
Hawk (Expropriation)	S, -KN	JN+S, -(K+J)N

N: Size of private economy
K: Discriminatory tax rate,
   where K=K(D), D being "discrimination policy"
J: Side-payment per unit of private economy,
  where J<K, J=J(R), R being "property rights protection".
S: Salary of the Official, where S<JN<KN.
P: Penalty if the rent seeking/extraction is caught.

Suppose taxation is the only method through which the government intervenes with the private economy, and the Official is the agent to expropriate it. This game has

taken into account three key steps on the path to institutional reform: (1) The discriminatory tax rate (K) relies on the discriminatory policy against the private sector (D). The higher is the discriminatory policy, the higher the discriminatory tax rate is. Since tax revenues are collected for government, $K(D)$ appears in the payoff cells only if the Official chooses the expropriation; (2) side-payment per unit of private economy (J) is a partial function of property rights protection (R). The better is the property rights protection, the lower side-payment per unit of private economy is required. $J(R)$ appears in the payoff cells only if the Private chooses the side-payment; (3) the term "Penalty if the rent seeking/extraction is caught (P)" appears in the payoff cells only if the Official and the Private make the rent seeking/extraction deal.

The Official can credibly imperil KN of the Private's assets by the legal taxation; all tax revenues will go to the government treasury; and he will collect only S out of KN as his salary. But the Official in fact would prefer not to tax, if an attractive side-payment from the Private is settled. I label this side-payment as JN, where $S<JN<KN$. If $S>JN$, the Official would prefer to take the legal salary rather than the non-legal side-payment. Similarly, if $JN>KN$, the Private would pay tax rather than the side-payment. Since the side-payment is undoubtedly illegal, it is subject to penalty P if this underground agreement is exposed.

The Official has two options: to accept the JN side-payment out of his self-interest, or expropriate KN for the public interest. The Private has to choose whether or not to provide the side-payment. The four possible outcomes are presented in Table 2: (1) *(No expropriation, No payment)*, where there is a *laissez faire* government; (2) *(No*

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expropriation, payment), where the Official accepts the side-payment and keeps his promise, i.e., a finalized deal of rent extraction; (3) *(Expropriation, No Payment)*, where the Official serves the public interest and the Private honestly pays the tax, a situation that normative public finance focuses on; and (4) *(Expropriation, Payment)*, where the Official earns not only the side-payment *JN* but also the salary *S* but the Private does not receive what he pays for.

If it is a one-shot game, both parties will end in *(Hawk, Hawk)*, i.e. *(Expropriation, No Payment)*, although both of them prefer to be in *(Dove, Dove)*, i.e. *(No expropriation, payment)*. Given that the threat of expropriation is credible, the Official might take money from the Private, and then deviate to *(Expropriation, Payment)*. However, the Private is not dumb either. The Private may refuse to make the side-payment if he predicts the Official to break his word. Consequently, both parties will be left at *(Expropriation, No Payment)*, which neither of them prefers to be in *(No expropriation, Payment)*. In other words, what the Official could expect most is the second-best choice *(No expropriation, Payment)*, rather than the best option *(Expropriation, Payment)*.

To avoid *(Expropriation, No Payment)* in the iterated game, the Official needs the cooperation of the Private. With reciprocity as such, therefore, both parties may land in *(No expropriation, Payment)*, i.e. both play "*Dove*". The strategy of "*Dove*" is actually the focal point of this game. How soon both players learn to cooperate with each other depends on the following exogenous factors; cultural intimacy, educational background, etc (Dawes, 1980; Fehr, 2004). For example, more than 70% of FDI projects from Hong Kong landed in Guangdong Province with an identical cultural and dialectal background.

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(Dove, Dove) is the evolutionary stable strategy (ESS). If one party deviates to Hawk, the other party will practice the "Tit-for-Tat Strategy" (Axelrod, 1984) to revenge, which will ultimately drive both parties back to the *(Hawk, Hawk)* dilemma. Alternatively, FDI may choose to "exit" the locality, whence the local leader plays "*Hawk*"—this is the "Exit for Tat Strategy" that Vanberg and Congleton (1992) introduce. In contrast with domestic private firms, FDI are more mobile cross-national investments. More importantly, the amount of FDI a local leader has drawn to his respective locality has become a track record important for his promotion. To attract more FDIs, local leaders must make more credible agreements, *ceteris paribus*. To some extent, this explains why Chinese local officials have over-competed for FDIs for over two decades.

7b. The Priority Ranking of Three crucial Institutional Reforms

In Chapter 5, I discussed three crucial components of institutional reform: anti-discrimination policies (i.e. pro-competition policies), the protection of private property rights, and the rule of law. In so far as I know, no research has studied the priority ranking of the three key steps in Chinese institutional reform (i.e., why one step of reform has priority over another to be implemented), though scholars [e.g. Lau et. al (2000) on the anti-discrimination policy; Li (1996) on the property rights; Peerenbom (2002) on the rule of law] have investigated the impact of each step of the institutional reform. Historical evidence in China has shown that the reform on discrimination policies has taken place as the initial step, whereas the protection of private property rights and lawful enforcement as an integral part of the rule of law will take a substantial amount of time to

be put into full play. With the help of the iterated Hawk-Dove game, I can disclose the rationale underlying the sequence of three crucial institutional reform step. I propose that (a) the central government is the rational final decision maker; (b) it always selects the step that yields the highest expected utility; (c) it's goal is to collect taxation, i.e., the Official should choose "Hawk".

First Priority: the discrimination policies (i.e. pro-competition policies). In Table 8, the discrimination policies ($K(D)$) only relate to the "*Hawk*" strategy of the Official. *JN* must be lower than *KN*, but the actual size of *JN* is not decided by that of *KN*. For instance, the relation between local government officials and the communities where Township-Villageship Enterprises (TVEs, hereafter) locate determines the actual amount of side-payment. *KN* always comes in a negative term for both options of the Private, so he expects a lower *KN* value (fewer discrimination policies). Meanwhile, the payoffs of the Official have little to do with the *KN* value. Hence, when central government reduces discrimination at the call of private firms, the resistance from officials is relatively trivial.

Second priority: protection of property rights. *J* appears in a negative term for the options of the Private, but in a positive term for those of the Official. *J* determines the size of side-payment. There is a principal – agent relationship between the central government and the Official. A rational official has the natural tendency to shirk when the central government's assignments conflict with his own interests. In contrast, the more assets private firms accumulate, the more assets are at stake. With the expansion of the private sector, the Private puts more assets on stake. Thus, there is in greater need of

better protection of property rights. Such conflicts of interests could explain why it took more than eight years for China's Property Rights Law to pass since initially proposed.

Last priority: lawful enforcement. P appears as a negative term for both the Private and the Official, only under the *(Dove, Dove)* situation. The logic herein is similar to that of Stigler (1971): the regulated does not prefer deregulation. To deregulate is analogous to set the Private free from side-payment, which means that the Private can end up with the best option *(Dove, Hawk)* temporarily. However, *(Dove, Hawk)* is not an evolutionarily stable strategy. If the Private plays "*Hawk*", the Official plays "*Hawk*" too, which will result in an inferior position to *(Dove, Dove)*. Thus, the deregulation is not welcome. The Private and the Official who are paired up in cooperation will abide by lawful enforcement only if the value of penalty (P) is greater than the difference between KN and JN (i.e. $P>KN-JN$).

In conclusion, the reform of lawful enforcement is the most challenging part of China's institutional reform. Such a reform will become even more difficult when the private economy continues to grow (i.e. a larger N). That is to say, to make *(Hawk, Hawk)* more attractive than *(Dove, Dove)*, P must be larger than KN-JN. However, the increase of N will make the task even harder if not impossible.

7c. Destructive Effects of Evolutionary Dynamics

7c(i). Olsonian Interest-Groups and ESS

In "*The Rise and Decline of Nations* (1982)", Olson identifies the harmful effects of special interest groups upon the wellbeing of the state. In takes time for special interest

groups to come into being and consolidate due to the difficulty of overcoming the free riding and consensus on a special interest. A special interest group, once formed, will lobby politicians to protect the exclusive interests of the group regardless of social damages of the protection. The intimacy between politicians and interest groups gets strengthened over time. Therefore, overwhelming interest group activities within a stable society (e.g., the United States) may decelerate social progress, a downward trend in social-economic conditions. In contrast, countries that have just experienced catastrophes (i.e., Japan after the World War II) will be more likely to enjoy economic miracles, that is to say, a rising trend for the nation.

Based on Olson's theory, it takes time for the evolutionary stable strategy (ESS) to stabilize. Once ESS is established, it will be detrimental to social welfare. "Local protectionism" under China's fiscal federalism has substantiated the speculation that the ESS between the Official and the Private may imperil the economic security of China.

Although Sandler (1992) questions whether Olson's theory of growth can be applied to developing countries, this study has illustrated its potential application to China. In addition, a formal model is absent in Olson's original book. To fill the gap, I have built up an evolutionary game-theoretical model based on the assumption of rational politicians.

7c(ii). Interest Groups and Legal Reforms

Olson (1965) analyzes the possibilities of suboptimal voluntary provisions of public goods in large groups. The larger the group, the smaller the fraction of the total group

benefit a group member can receive, the higher incentive a rational group member has to choose "free riding". Furthermore, the larger the number of group members, the greater the organizational costs. Therefore, in the absence of collective incentives, the possibility of collective actions will decrease as the group size increases. In other words, smaller groups will fulfill their common interests better than larger groups do. Olson further argued that if members of a small group share selective incentives and if the exclusive membership is accompanied by disproportionate power to reward contributors, rational self-interested individuals will act to achieve their group interest. After all, the business lobbies of special interest groups are the by-products of organizations that have the capacity to "mobilize" the group members with selective incentives.

The common interest of the society is certainly a flawless institutional framework. However, since this common interest is shared among over one billion Chinese people, rational individuals should prefer to free ride. In contrast, a private business community may only have a small number of firms within each of a variety of industries located in diverse regions. As the ESS (*Dove, Dove*) of the iterated Hawk-Dove game suggests, a new interest group within the private business community will endorse pro-competition policies as well as the protection of private property rights, but oppose to a legal reform that penalizes rent seeking. More importantly, as the size of private economy (*N*) increases, the difference between tax payment (*KN*) and side-payment (*JN*) will be enlarged as well. That is to say, there will be a higher private incentive to reward the group members. Consequently, more private firms will form new interest groups or join

existing interest groups. Their selective incentive is to collude with government officials and fight against legal reforms.

7c(iii). The Collapse of TVEs

Many scholars have examined the success of Township-Villageship enterprises (TVEs) whose property rights were unclear, the so-called "TVEs miracle". They (e.g., Tian, 2000) suggest that unclear property rights is a second-best choice in an immature market economy. Since the mid 1990s, TVEs underwent a rigorous down-sizing, mainly as an outcome of controversies over property rights. Few studies have successfully explained the collapse of TVEs from the evolutionary-institutionalist perspective.

In contrast, a simple calculation on the basis of the iterated Hawk-Dove game may tell the story better.

Table 9: The Collapse of TVEs

		Private	
		Hawk (No payment)	Dove (Payment)
Official	Dove (No expropriation)	0, 0	1,000N, 1,000N
	Hawk (Expropriation)	200N, 3,000N	1,200N, 4,000N

In Table 9, I input digits to each cell of Table 8 without changing the game structure. Suppose N=1 at a early stage of TVEs. In small communities where TVEs emerged, the Official almost always had blood and/or family connections with the Private. Both parties can easily reach the *(Dove, Dove)* agreement. As a result, the Private agrees to become a

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"Red Hat" firm under the protection of the Official. The Officials hold nominal shares in "Red Hat" firms, though failing to make real contribution. If the protection fee was 1,000, the Private's revenue increase could be tripled.

Suppose *N=3* at a later stage of TVEs. On one hand, the amount of corporate taxes that large-scale TVEs are obligated to pay became too large to be "exempted" by a protecting official. Under this circumstance, the protection depreciates. On the other hand, in "Red Hat" firms the Official demands benefits proportional to their nominal shares in TVEs. Therefore, there is an impasse: the Private complains that the "money for doing nothing" should not be as high as 3,000, while the Official insists on their entitlement of the assets proportional to the shares that the initial verbal and unlawful agreement guarantees. This impasse is similar to what McChesney (1997) calls "the incredibility of expropriation", in which officials do not possess the credibility that will totally shield TVEs from national taxation. For example, in Table 3, the value of the protection for TVEs is greater than 1,000 but lower than 3,000.

8. Prediction: Unorganized Interests of Peasants will Get Represented in the Second Stage

An interest-group framework of China's market miracle helps to explain China's rural policy reform as well. China has a 900 million-strong rural population that as yet is highly unorganized. As shown in Chapter 4, China's market reform began with the household contract responsibility system of farm produce in 1978. Nevertheless, issues concerning agriculture, countryside and peasants (the so-called "three rural issues") were largely neglected by the central government until 2002. Since 2003 the central

government has resumed various rural reform policies, such as the abolishment of agriculture taxation (2006), the household registry reform that aims to equalize the social status of city and rural residents (2007), etc. The aforementioned historical facts indicate that unorganized interests of peasants did not get represented until the second stage of China's market miracle. In my view, the evolutionary path of rural policy reform clearly fits in the interest-group framework of China's market miracle.

Based on a research report from State Development Research Center of China (Zhang, 2008), I summarize the three periods of the evolutionary path of China' rural policy reform:

1947-1977: The central government completely sacrificed the interests of peasants in order to foster industrial sectors.

1978-2002: The rural policy reform began and ended up with the household contract responsibility system of farm produce. Peasants served as cheap labors in the wave of China's industrialization characterized by TVEs and private firms. Hundreds of millions of peasants flew from inland to coastal provinces as off-farm workers. Consequently, farm labor force and investment in agriculture were greatly impaired. Overall, the advances of industrialization glossed over the predicament of "three rural issues".

2003-present: The central government initiated the agricultural tax reform in 2003 and decided to expedite rural policy reform. The agricultural taxation was abandoned on January 1, 2006. State Council launched the rural social security system on 2007. The household registry reform has been put on the agenda. However, there has been no sign for any land reform to be administered. Currently, all rural lands are collective properties, i.e. private land ownership is forbidden.

The Olsonian framework with the Denzau-Munger model suggests that the "two-stage evolutionary path for the China miracle" could explain China's rural policy reform that has taken place during the past 30 years.

In the first stage of China's market miracle, that roughly overlap the second period (1978-2002) of China's rural policy reform, the pro-growth effect of peasants lagged behind that of private firms. According to the Supply Price Equation of the Denzau-Munger model, the growth-oriented central government deserted the unorganized interests of peasants because of their lower pro-growth effect.

During the transition between the first and second stages of China's market miracle that coincides with the third stage (2003-present) of China's rural policy reform, the central government has devoted more attention on unorganized interests of peasants. When China's private industalization has exhausted the market resources released from pre-existing interest groups amongSOEs, "three rural issues" have become the bottleneck of China's market reform. As a result, unorganized interests of peasants will be better represented.

Furthermore, the iterated Hawk-Dove game with rent extraction explains why the land reform in China has not been adopted yet. This game predicts a priority ranking of institutional reform: from the anti-discrimination reform to the property rights reform followed by the legal reform. The rural reform has stressed anti-discrimination policies, although property rights and legal reforms are equally if not more important.

9. Conclusions

This chapter aims to explain China's market miracle adopting an interest-group framework. I first illustrate a Hirshleifer's (2001) model to discuss how provincial & local officials and private firms may reach peaceful agreements. Then I draw the framework upon the Olsonian (1982) growth theory, which focuses on the demand side of interest group activities, and the Denzau-Munger (1986) model, which emphasizes the supply price of services that the central government provides to interest groups. Based on the two theories, I propose a "two-stage evolutionary path for the China miracle". In the first stage, as the Denzau-Munger model explains, the China's central government that has an encompassing interest (Olson, 2000), maximizes its utility by allocating its efforts between old interest groups within SOEs and unorganized interests in private firms. To meet the increasing demand of private firms, the central government has gradually reduced its support to old interest groups. Subsequently, the downfall of SOEs has, to some extent, boosted China's market miracle.

Nevertheless, the second stage tells a more pessimistic story about the central government. On one hand, the central government, at the supply side, tends to maintain a certain number of old interest groups in order not to deprive them of necessary market resources. On the other hand, the central government, at the supply side, suffers from an information disadvantage due to the collusions between new interest groups in private firms and provincial and local government officials. The interest-group framework I have proposed implies that China's market miracle may not be sustainable if the central government is incapable of managing interest group activities. I also demonstrate that the

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recently upgraded status of peasants reflects the central government's efforts to extend China's market miracle by further expanding the productivity of the private sector so as to generate tax surpluses the can be used to subsidize rural peasants. .

Another contribution that this study makes is the sequence of three key steps on the evolutionary path to China's institutional reform. Numerous studies have examined the causes and/or consequences of separate steps. Unfortunately, no study has uncovered the intrinsic logic explaining the precise sequence of these steps. In this study, I design "an iterated Hawk-Dove game with rent extraction", which reveals that in an incremental reform, the sequence of key steps must start with anti-discrimination (i.e. pro-competition) policies, followed by the protection of private property rights and only later the lawful enforcement of those rights. The rule of law will be the most demanding final step to accomplish in an incremental reform: First, this step is not dearly needed at the beginning of the reform; second, in the process of enforcing the rule of law, those well-consolidated special interest coalitions may hinder lawful enforcement for the sake of their own interests. Obviously, China's market miracle only now is confronting this most challenging final step in its sequence of policy reforms.

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CHAPTER 8: Conclusions

This dissertation provides a public choice view of modern China's political economy. It attempts to explore the evolution of China towards an authoritarian market economy. In particular, my research focuses on the evolutionary path of institutional changes underlying the so-called China's market miracle.

The analysis begins with a fundamental assumption of public choice – "methodological individualism", but it also develops the public choice literature by linking it to various fields. China's authoritarian market economy and China's market miracle cannot be fully understood without taking into account public choice theories, such as the political economy of dictatorship, collective action, interest groups, and bureaucracy.

The findings in Chapters 2 through 7 have supported all the basic hypotheses outlined in Chapter 1. On the political side, China's politics has evolved from totalitarianism towards soft oligarchic authoritarianism, during which the emergence of intra-oligarchic competition is an attempt to alleviate the "successor's dilemma" that must be confronted by all autocracies (Chapter 2). This oligarchic competition provides a central government that is growth-oriented (Chapters 2 and 6). On the economic side, the continuous expansion of the private sector and its advancement in status has become a defining feature of the evolvement of China's economy (Chapter 3). China's market

reform during the past three decades has accorded the vital contribution of private firms to China's market miracle. China's private firms, not public enterprises or foreign direct investment, have served as the driving force of China's economy. Accordingly, institutional changes have been gradually made in recognition of private firms' critical contributions.

Institutional changes have taken place in two ways: (1) those *imposed* by the central government, and (2) those *induced* by individuals or by a group of individuals and then adopted by the central government (Chapter 4). The distinction between the two institutional changes has been addressed within a behavioral political economy framework that integrates behavioral economics and public choice. This framework suggests that China's market miracle has benefited from institutional changes that private firms have induced.

The private sector as a whole derives economic advantage from three major components of institutional changes: pro-competition policies, the protection of private property rights, and the rule of law (Chapter 5). As *the* decision maker of institutional changes, the central authoritarian government may choose to take a sequence of institutional changes (i.e. a gradual reform) or a complete overhaul within a short period of time (i.e. a radical reform). If it chooses a gradual reform, authoritarian government must decide the priority ranking among different policy objectives. In addition, once the private sector pushes for an institutional change, the authoritarian government may either accept the request unconditionally or accept it depending on whether private firms clamor for reform (i.e., the crisis hypothesis in Chapter 5).

The evolutionary path of China's market reform demonstrates an incremental process that began with pro-competition policies, followed by the protection of private property rights, and further followed by slight reforms to the rule of law (Chapter 5). The historical evidence reveals that the implementation of pro-competition policies has propelled economic growth in China.

Furthermore, China's periodical institutional reforms appear to match the "crisis hypothesis", i.e. a mild economic downturn is a pre-condition for initiated market-oriented reforms. Such findings offer empirical support for a Predator-Prey model with intelligent design that combines evolutionary game theory with public choice (Chapter 6). The model finds that reductions in discrimination policies are the major institutional contributors to China's market miracle, whereas improvements in the rule of law and in the protection of private property rights are not needed for short-run growth. In China's market economy where private business gradually improves its market capacity, furthermore, an optimal reform strategy is incremental in nature rather than shock therapy.

Contemporary China has undergone a marketization that deprives old interest groups within State-owned enterprises (SOEs) of their privileges. The authoritarian government has released the market resources to support unorganized interests of private firms in order to sustain economic growth (Denzau - Munger model in Chapter 7). Consequently, China's market miracle gets enhanced. However, at the next stage when new interest groups spring up among private firms, China's market miracle is threatened by the activities of new interest groups (Olsonian theory in Chapter 7). Private firms may achieve peaceful agreements with provincial and local government officials through

bargains at the cost of public interest (Hirshleifer model in Chapter 7). When a number of private firms share the same "selective incentive" to collude with government officials, new interest groups come into being within the private sector.

In an iterated Hawk-Dove game with rent extraction between interest groups comprising private firms and provincial and local officials (Chapter 7), both parties will stabilize at an evolutionary Nash equilibrium that signals the formation of special interest coalitions. The activities of these coalitions may impede the legal reforms that are an integral part of the rule of law. More seriously, the larger the private economy, the more assets at stake they possess, and the more influential the coalitions. In the end, China's market miracle is jeopardized unless the authoritarian central government oligarchy moves effectively to improve the rule of law.

Finally, as the 900 million rural peasants begin to organize in order to pressure the central government to redistribute wealth in its direction, the central government oligarchy, fearful of political unrest, must further energize the private sector productivity in order to generate yet larger tax surpluses in order to placate such emergent interests. This additional squeeze must take the form of improvements in the rule of law that, if successful, will extend China's market miracle into the foreseeable future.

CURRICULUM VITAE

Yongjing Zhang was born in November 6, 1975, in Jiangsu Province of People's Republic of China. He received a Bachelor of Arts in Investment Economics in 1997 and a Master of Arts in International Trade in 2000, both from Nanjing University, Nanjing, China. He also received a Master of Science in Political Economy from Carnegie Mellon University, Pittsburgh, PA, in 2003.