Your Honey, My Poison: Patronage, Promotion and Local Implementation in China

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A Dissertation presented to the Graduate Faculty of the University of Virginia in Candidacy for the Degree of Doctor of Philosophy

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University of Virginia
August, 2023

Contents

Abstract

What explains drastic variation in local implementation in China? Why are a subset of bureaucrats willing to prioritize expensive and difficult policies while others not? This is not only crucial to policy implementation per se, but also crucial to our understanding of policy multitasking as a challenge of authoritarian legitimation. Extant literature has yet provided a compelling explanation due to its oversimplified understanding of bureaucratic incentive structure. To address this flaw, this dissertation situates bureaucrats in a dynamic political selection system built on the coexistence of merit-based and patronage-based tracks and examines how its configurations impact the risk-reward tradeoffs made by promotion-seeking bureaucrats.

To begin with, I emphasize the dynamic within the system, which is overlooked by the literature. I argue that bureaucrats desire to switch to and remain on the patronage-based track for the benefits of accelerated advancement and a predictable future, and the most popular patronage is that provided by the supreme leader. Moreover, because of the central role of policy achievements in the survival of Chinese Communist Party (CCP), policy implementation, especially identification of policy priority, becomes the key to build patronage relations. Then what policies are most advantageous to gain the supreme leader's patronage? I argue that prioritizing policies associated with weak indicators in performance evaluation (soft policies) is the most useful. This is because of bias in resource allocation caused by the merit-based selection. Based on evaluations of observable and quantifiable performance, the merit-based selection compels bureaucrats dependent on it to prioritize hard policies (policies associated with indicators that carry heavy weights). Naturally, soft policies, especially difficult ones like innovation policy, receive less consideration. This bias is exercised not only by bureaucrats whose promotion depends on meritocratic evaluation, but also by those involved in patron-client relations with leaders other than the supreme leader, because they are more susceptible to potential sanctions brought by poor performance evaluation results than those of the supreme leader. As a result, only a minority of bureaucrats would likely implement soft policies carefully, despite their importance to the supreme leader's

survival. By prioritizing soft policies, implementers can distinguish themselves from the competition.

However, I argue that doing that would result in one of two distinct outcomes: either the bureaucrat gains the supreme leader's patronage and avoids punishment for relatively poor performance evaluation results because of the supreme leader's strong political protection, or the bureaucrat fails to build a relationship with the supreme leader and receives punishment for the poor performance evaluation results. While the first outcome is optimal, the second is a bureaucrat's worst nightmare. To successively gain the supreme leader's patronage and place oneself in the first scenario, one needs to be close enough to the leader's network. Such a process of calculation leads to a systematic pattern of priority identification as follows: Proximity to the core network would encourage bureaucrats to take this strategy, because the high likelihood of gaining the supreme leader's patronage would place her in the first outcome. In contrast, bureaucrats located far from the core network are less motivated to pursue this strategy, as failure to join the core network would result in the second outcome. To avoid this, these bureaucrats are more likely to abandon this strategy from the beginning and adhere to the merit-based track.

I provide empirical support to my argument by investigating how city leaders' patronage status, that is, their distance to the supreme leader's network, shape their commitment to implementing (1) tax policy, (2) SO2 emission reduction policy, and (3) innovation policy. I devise a novel strategy to measure patronage status and the quantitative research is conducted on 288 municipal cities in China.

In order to study how bureaucratic incentives impact societal incentives, another important factor to achieve policy objectives, I also investigate how local leaders' patronage status innovation at the firm level. Drawing on data on Chinese listed firms, the findings suggest that, although local leaders' patronage status has no direct effect on firm innovation, the changes in it, both immediate and cumulative, negatively impact business efforts to innovate. and such impacts are mediated by firm ownership.

Acknowledgements

This dissertation can never be written without the support from a number of people. I thank, first and foremost, members of my dissertation committee, who have provided numerous insights and unending encouragement through the various phases of this project. My dissertation committee chair, John Echeverri-Gent, is the best advisor one could ever imagine having as a graduate student. John taught me by example not only how to do rigorous scholarly work but also how to be a professional social scientist. He pushed me to ask large and important questions that are relevant to both China and the discipline of political science as a whole, and provided solid moral and institutional support as I seek the answers. Anne Meng introduced me to the fascinating world of rational calculation, which builds the basis of my argument. More importantly, Anne has provided numerous helpful suggestions that greatly enhanced the clarity and strength of the argument. I am also grateful to Brantly Womack for sharing with me his extensive knowledges as a China scholar and a superb comparativist on developing countries. I very much appreciate Brantly's efforts to draw my attention to the nuances of the Chinese political economy. In addition, I wish to express my deep gratitude to Shirley Lin for lending me her insightful advice as both a political scientist and an outstanding practitioner in the innovation industry. Shirley has always been encouraging and supportive of my intellectual endeavors, for which I am grateful.

I was also lucky enough to have been surrounded by some dear friends, who were all graduate students of UVA politics. Yaping Wang, Chen Wang, Ruixing Cao and Hsuan-yu Lim are crucial sources of friendship and intellectual support for me to survive my PhD study.

Finally, I wish to thank my family. My parents have provided me with solid emotional and financial support for all of my endeavors. My daughter, Chloe, has been my greatest source of inspiration and happiness since her birth, and especially during my time at UVA. My late husband, Qizhao Zou, deserved deepest thank for everything he did for me and our family. He had been the best friend, a wonderful life partner, a caring father, and a source for stimulating conversations and original

ideas. This dissertation is dedicated to him.

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Chapter 1

Introduction

1.1 The Puzzle of Local Implementation

In 2021, declared that it had become one of the cities with the most mega data centers in the world (ChinaNews, 2021), which made one of numerous headlines on China's "indigenous innovation" policy. Launched in 2006, this policy requires local governments to make substantial investments to promote the technological upgrading of Chinese-owned businesses. In contrast, in Jinhua, Zhejiang Province, there are hardly any high-profile technological projects, and only around 40 enterprises are certified as national-level high-tech firms, lagging far behind Guiyang.

Why did Guiyang and Jinhua diverge so drastically in their commitment to innovation policy? Conventional wisdom tends to explain local implementation with preexisting socioeconomic conditions. For instance, extant literature documents how local governments condition their commitment to innovation on local economic development (Uyarra, Flanagan, 2010), institutional characteristics (Nauwelaers et al., 2003), and dynamic of business community (Oughton et al., 2002). However, this approach does not appear applicable in this case. To begin with, the economies of

Guiyang and Jinhua are comparable in size [1]. Moreover, Jinhua possesses highly energized business community and business-friendly institutional environment because of its historically developed commercial tradition (Skinner et al., 2001), whereas Guiyang lacks both.

One possible consideration is that we need to look beyond socioeconomic factors and pay more attention to politics. The extensive literature on developmental states attributes "East Asian Miracles" seen in the second half of the twentieth century to the efficient and professional implementation of industrial policies by bureaucracies with "embedded autonomy" (Evans, 2012). In the case of China, a continent-sized economy in which the central state must rely on a large number of local officials [2] to carry out policies, the assumption of a unitary bureaucracy no longer holds true. Given the importance of "yibashou" (number one man) in Chinese local politics, a growing body of research investigates how incentives of primary local leaders impact policy implementation. The fundamental logic of this approach is that local leaders, assumed to be rational career-seekers, think and act to maximize their political promotion. This body of research diverges in understandings of the configurations of promotion system. The majority of studies claim the prevalence of the merit-based promotion mechanism, which creates the notion that everything politicians do is to earn merits for performance evaluations. Consequently, the variation in implementation is the result of different strategies used by local leaders to maximize their career prospects under the formal evaluation

[1] Source: 2020 Work Report of Guiyang Municipal Government; 2020 Work Report of Jinhua Municipal Government

[2] This dissertation uses officials and bureaucrats interchangeably due to China's party-state system. Please see Section 2.2 for more details about the party-state system.

system. Local leaders, for instance, are more likely to implement central policies whose outcomes are more observable and quantifiable (Bo, 1996; Chen et al., 2005a; Li, Zhou, 2005a; O'brien, Li, 2017). They also tend to implement policies selectively in regions where policy objectives are easier to attain (Habich-Sobiegalla, 2018; Zeng, 2020) or at specific stages of their tenure cycles to maximize outcomes (Guo, 2009; Vortherms, 2019).

This line of work also fails to explain Guiyang's commitment to innovation policy, as innovation policy is not only associated with weak performance evaluation indicators, but is also capital- and talent-intensive and difficult to yield results. More broadly, how could China have made so much progress on these fronts if policies associated with weak indicators such as innovation and social security typically receive unfaithful implementation? This line of research is flawed due to the erroneous assumption that merit-based selection is the only dominant mechanism in political advancement. This disadvantage has been somewhat mitigated by the growing body of research documenting the role of patron-client relationships in shaping political careers (Jia et al., 2015b; Li, Gore, 2018). Built on that, a burgeoning literature supports the independent effect of patronage on local implementation. Jiang (2018a), for instance, argues that patronage relationships encourage local elites to work harder for local development and to be more courageous to resist vested interests. Wang (2015) also argues that provincial leaders with ties to the supreme leader are more willing to reduce outdated industrial capacity despite the negative impact on GDP growth. The development of this line of work contributes to an academic consensus that China's political promotion is embedded in a dual-track system (Pang et al., 2018), in which merit-based selection and patronage-based

selection coexist as independent mechanisms.

The revised understanding of the political selection system facilitates the explanation of local incentives to implement policies that are associated with weak indicators in performance evaluations. However, with two tracks within the system, what is the relationship between them? To what degree do bureaucrats favor one over the other? Can one switch from one track to the other, and if so, how? Answers to these understudied questions are essential for comprehending the system's dynamics. By answering these questions, this dissertation proposes a new perspective for analyzing local implementation.

1.2 Argument

Existing explanations focus on how bureaucrats maximize their promotion opportunities on their current track. In contrast, this dissertation focuses on how they attempt to switch to a faster track and how their calculations and efforts to do so influence the implementation of central policies.

To begin, I underline three characteristics of the political selection system's dynamics. First, I argue that bureaucrats can move between tracks, as opposed to being permanently positioned on one track. Bureaucrats are motivated to move because they want to get on the patronage-based track for the benefits of rapid advancement and a predictable future. And the mobility is achieved through building or losing connections to one's superiors: the presence of such a connection switches one to the patronage-based track, while its absence switches her back to the merit-

based track, the default selection track. Second, despite their preference for the patronage-based track, bureaucrats are willing to remain under meritocratic selection if patronage is unavailable, rather than pursuing patronage regardless of costs and risks, because meritocracy is always a reliable and sustainable promotion path. Thirdly, the Chinese Communist Party (CCP) obtains and maintains its legitimacy as the ruling party through policy and economic accomplishments that improve the public welfare. Such a performance-based legitimacy not only places the criteria of meritocratic evaluation on policy performance, but also focuses the essence of patron-client exchanges on policy efforts. Consequently, adjusting policy implementation becomes the key to changing the selection track. In the context of policy multitasking, in which a certain amount of resources are allocated among multiple policies, identifying policy priority is the key to implementation.

Although more advantageous than the merit-based track, not all patronage relationships offer the same benefits. It is ideal to obtain the patronage of the supreme leader, whose dominance in the domestic power structure is more likely to guarantee stable and premium rewards. Implementing policies that are most valuable to the supreme leader would be the way to gain or maintain her patronage. But what are those policies?

It is in the best interest of the supreme leader that all significant central policies are carried out with diligence. However, not all policies are equally effective at gaining the patronage of the supreme leader, and this is because of bias in resource allocation caused by the merit-based selection. Based on evaluations of observable and quantifiable performance, the merit-based selection compels bureaucrats

dependent on it to prioritize hard policies (policies associated with strong indicators in performance evaluations). Naturally, soft policies (policies associated with weak indicators), such as innovation policy, receive less consideration. This bias is exercised not only by bureaucrats whose promotion depends on meritocratic evaluation, but also by those involved in patron-client relations with leaders other than the supreme leader, because they are more susceptible to potential sanctions brought by poor performance evaluation results than those of the supreme leader. When bureaucrats on the merit-based track and those in the networks of other ruling leaders tend to prioritize hard policies, only a minority of bureaucrats would likely implement soft policies carefully, despite their importance to the supreme leader's survival. By prioritizing soft policies, bureaucrats can distinguish themselves from the competition. First, the deliberate discrimination of soft policies by merit-seeking bureaucrats and clients of other leaders increases the utility of implementing soft policies to the supreme leader. Second, prioritizing soft policies is a strong indication of loyalty because it demonstrates a willingness to assume significant responsibilities despite the costs inflicted by inadequate commitment to hard policies.

However, if prioritizing soft policies creates a shortcut to the supreme leader's patronage, why doesn't everybody do it? This is because this strategy would result in two distinct outcomes: either the bureaucrat gains the supreme leader's patronage and avoids punishment for relatively poor performance evaluation results because of the supreme leader's strong political protection, or the bureaucrat fails to build a relationship with the supreme leader and receives punishment for the poor performance evaluation results. While the first outcome is optimal, the second is a

bureaucrat's worst nightmare.

Therefore, prior to making this move, it is essential to consider the likelihood that a bureaucrat can earn the supreme leader's patronage by implementing soft policies, which is dependent on her current patronage status, that is, her distance to the supreme leader's network. Proximity to the network would encourage bureaucrats to take this strategy, because the high likelihood of gaining the supreme leader's patronage would place her in the first scenario. In contrast, bureaucrats located far from the network are less motivated to pursue this strategy, as failure to enter the network would result in the second scenario. To avoid this, these bureaucrats are more likely to abandon this strategy from the beginning and adhere to the merit-based track.

1.3 Novelty and Contributions

This dissertation is situated within and contributes to multiple strands of literature. It enhances our understanding of political selection by highlighting the dynamics of the selection process. It was a significant advance for extant research to recognize that political selection works through a dual-track system based on meritocracy and patronage as separate mechanisms (Jia et al., 2015b; Jiang, 2018a; Li, Gore, 2018; Pang et al., 2018). However, the current literature fails to capture the system's dynamics because, among other things, it overlooks the differences between the tracks and undervalues the proactive role of bureaucrats. To address these flaws, I point out a well-known fact, that is, the patronage-based track is more popular than the merit-based track, which leads to an obvious but overlooked situation: bureaucrats

would prefer to be placed on the patronage-based track if possible. Such a desire to switch to a better track infuses the system with dynamics, distinguishing it from the static system described by existing literature.

By advancing the scholarship on political selection system, this dissertation also contributes to the literatures on local implementation and bureaucratic behaviors in general. If we assume that bureaucratic behaviors, such as their performance in policy implementation, are motivated by their career aspirations, then new understandings of the political selection system will inevitably generate new knowledge about bureaucratic behaviors. While existing research, which assumes a static selection system, focuses on efforts to maximize career on current selection tracks, this dissertation describes how bureaucrats think and act in order to switch to or remain on a better track. This track-switching story reveals a deeper source of bureaucratic incentives, given that the calculations and actions undertaken to place oneself on a track precede those undertaken to seek rapid advancement while remaining on a specific track.

In addition, this dissertation adds to the literature on patronage by introducing the concept of “patronage status," which refers to a bureaucrat’s distance to the network of the supreme leader. Patronage status is more advantageous a variable than patronage relationship used in existing literature. In existing quantitative research, patronage relations are typically operationalized as a binary variable to indicate whether or not patron-client relationships exist between politicians at adjacent two administrative levels, i.e., between a national leader and a provincial leader or a provincial leader and a prefectural leader. However, patronage status is opera-

tionalized so as to measure the position of prefectural leaders relative to the national leader, which not only provides more empirical nuance but also addresses the issue of unidentified preference raised by the binary indicator of patronage relations.

Examining patronage between national and provincial levels ignores the heterogeneity at the prefectural level, where central policies land. If patronage exists between national and provincial leaders, there are good reasons to assume the same between provincial and prefectural leaders, which has also been demonstrated by the literature (Choi, 2012; Jiang, Zhang, 2015). Investigating the patronage-entailed heterogeneity between cities is by no means simply a repeated modeling of that between provinces. Unlike studies on inter-province comparisons in which the superior, i.e. the national supreme leader is always the sponsor of policies of interest, this study introduces more nuanced comparisons to include those based on interactions between subordinates and their superiors who do not prefer the policy of interest, such as provincial leaders unconnected to the supreme leader.

Concerning studies that only discuss patronage between the provincial and prefectural levels, flaws are more in logic. In studies employing a rational-choice approach, preference must be specified. However, this branch of research falls short due to the failure to identify the preferences of provincial leaders. Most studies in this category assume that provincial leaders care more about broader interests than city leaders (Jiang, 2018a), which may be true in the sense that the preference of leaders at higher levels is less parochial. However, there is no evidence to show that central policies are necessarily less parochial. In addition, the literature on center-province patronage has revealed distinct preferences of provincial leaders

based on their patronage affiliations, which counters the assumption of a uniform preference among provincial leaders. However, using the variable of patronage status enables a clear identification of preference that originates and transits from the national leader.

Furthermore, my research contributes to our knowledge of authoritarian legitimation. The global economic development since the end of the Cold War has produced a complex set of "good life" standards. Many people value a clean environment, social security, and education equally to material wealth, which places policy multitasking at the center of authoritarian legitimacy (Eichengreen et al., 2013; Felipe et al., 2012; Lee, 2013). There are few systematic examinations of this growing challenge, which necessitates knowledge of two topics: first, are bureaucrats willing to implement a varietly of policies, especially difficult and expensive ones? And secondly, is it possible to convert bureaucratic incentives to implement these policies into societal incentives? By demonstrating that the desire to gain the patronage of the supreme leader would motivate some bureaucrats to implement innovation policy, I provide a preliminary answer to the first question. This dissertation's second half is devoted to empirical research addressing the second question.

Last but not least, my research is also related to the expanding body of literature on the political economy of the middle-income trap. As an increasing number of countries fall into and remain in a middle-income trap, economists have suggested that moving from a middle-income to a high-income level requires a shift from factor-driven to innovation-driven growth (Humphrey, Schmitz*, 2001; Nadvi, 2004). Nonetheless, if the correct policies and conditions can assist an economy

in escaping the trap, why do some countries fail to provide them? According to Doner, Schneider (2016), the response is “more political than economic." They claim that the difficulties in implementing upgrading policies, such as vocational training and R&D, are due to the absence of "upgrading coalitions" caused by the catch-up reform-induced fragmentation of society. Existing studies primarily employ a coalitional approach similar to theirs to analyze how the upgrading efforts of a country are impacted by the power of the supporting groups. My research shifts the focus to political elites as the principal policy-makers and implementers, which has greater applicability in non-democracies.

1.4 Outline of the Dissertation

The rest of the dissertation is organized as follows. Chapter 2 presents a theory to explain who will prioritize soft policies and why. I argue that China’s dual-track selection system generates the following dynamics: First, bureaucrats are mobile between the two tracks, as opposed to being stationed permanently on either. Second, it is common knowledge that the patronage-based track is superior to the meritocratic one, and the supreme leader’s patronage is regarded as a premium for career advancement. With these dynamics, prioritizing soft policies becomes a high-risk, high-reward strategy. It is risky because it diverts resources from implementing policies important to performance evaluations (hard policies) and thus harms performance evaluation results, but it also distinguishes the bureaucrats committed to soft policies for their willingness to serve the supreme leader’s interest despite potential costs, thus creating a shortcut to the leader’s patronage as

the most desirable promotion booster. With access to the leader's patronage, the potential damages to performance evaluation are nullified. Therefore, bureaucrats closer to the supreme leader's network are more likely to prioritize soft policies because of the anticipation of successfully entering the network. In contrast, bureaucrats further from the core network are more likely to prioritize hard policies, as the low probability of receiving the leader's patronage motivates them to pursue promotion on the merit-based track as a more reliable route.

Chapter 3 centers on an empirical investigation of the theoretical argument presented in Chapter 2. Prior to conducting the examination, I elaborate the strategy to measure the independent variable, patronage status defined as the distance to the supreme leader's network. This variable, although straightforward in a two-tier hierarchy, requires a more nuanced measurement for city leaders within a three-tier hierarchy consisting of political entities at the national, provincial, and prefectural levels. Based on the "one-level-down management" feature of China's bureaucratic structure and political ecosystem, I devise a novel measurement based on whether a city leader is a client of her superior, the provincial leader, and whether the provincial leader is a client of the supreme leader. I then test the theoretical argument on 288 municipal cities in China. I select tax policy as a case of policies related to strong positive indicators, SO_2 emission reduction policy as one of policies tied to strong negative indicators, and indigenous innovation policy as one tied to weak indicators. I use a series of fixed effects models to estimate the relationship between city leaders' patronage status and their implementation intensity of each policy. The empirical results confirm the expected observations and remain robust across model specifications and samples. I pay special attention to several important al-

ternative explanations, such as manipulated appointments based on pre-existing policy achievements as well as a client's greater propensity to be assigned to locales with more favorable socioeconomic conditions. Although these are plausible explanations for the observed variations, the empirical evidence suggests that they are not the primary channels by which patronage status influences implementation.

Chapter 4 investigate how local leaders' patronage status impact innovation at the firm level. Local leaders' patronage status, perceived as signals of policy preferences, would potentially influence firm innovate in two ways. First, business sectors might adjust their commitment to innovation according to the nature of their local leaders' patronage status. In this case, the empirical implication is that firms are more likely to innovate when their local leaders are closer to the supreme leader's network, and vice versa. The other way in which firms may be influenced is that changes in local leaders' patronage status might be perceived as an indicator of political uncertainty and thus impacts firm innovation. This leads to a different empirical implication that a firm is less motivated to innovate with more changes in the patronage status of its local leader. I tested these two empirical predictions with firm-level panel data of Chinese listed firms. The fingdings suggest that, although the nature of local leaders' patronage status has no impact on firm innovation, the changes in it, both immediate and cumulative, systemically impact innovation, and such impacts are mediated by firm ownership.

Chapter 5 summarizes the findings of the dissertation and discusses the implications of this study for local implementation, both theoretically and practically. The chapter also draws attention to the great difficulty in policy multitasking, which

is suggested by the key findings. Additionally, the chapter discusses the scope conditions and limitaitons of this study.

Chapter 2

Who Prioritizes Soft Policies? And Why?

This dissertation is motivated by the puzzling commitment of some Chinese local officials to its indigenous innovation policy, one of the policies that are insignificant to cadre evaluations and difficult to demonstrate positive results (referred to as “soft policies"). This dissertation seeks to explain this puzzle and answer a broader question: How do multitasking local officials determine their priorities?

Why do some local officials prioritize soft policies? If the assumption that officials are rational career-seeking actors still holds, the answer is simple: Doing so is advantageous for their career. This chapter situates local implementation in a principal-agent framework, with political selection serving as interest-aligning incentive structures to mitigate agency problems. To further explore why prioritizing soft policies does good to some officials but not others, this chapter presents a dual-track selection system, that is, one built on the coexistence of merit-based and patronage-based selection tracks, and then examines how such complex incentive structures impact bureaucratic calculations in the identificaiton of policy priority.

I argue that this system generates the following dynamics: First, officials are mobile

between the two tracks, as opposed to being stationed permanently on either. Second, it is common knowledge that the patronage-based track is superior to the meritocratic one, and the supreme leader's patronage is regarded as a premium for career advancement. With these dynamics, prioritizing soft policies becomes a high-risk, high-reward strategy. It is risky because it diverts resources from implementing policies important to performance evaluations (hard policies) and thus harms performance evaluation results, but it also distinguishes the officials committed to soft policies for their willingness to serve the supreme leader's interest despite potential costs, thus creating a shortcut to the leader's patronage as the most desirable promotion booster. With access to the leader's patronage, the potential damages to performance evaluation are nullified. Therefore, officials closer to the core network under the supreme leader's patronage are more likely to prioritize soft policies because of the anticipation of successfully entering the network. In contrast, officials further from the core network are more likely to prioritize hard policies, as the low probability of receiving the leader's patronage motivates them to pursue promotion on the merit-based track as a more reliable route.

2.1 Local Implementation: A Principal-Agent Problem

It has been well recognized by a large body of political science and economics research that in hierarchical organizations, the objectives of lower-level bureaucrats are not always in line with those of their superiors (Downs, 1967). The same applies to local implementation. Following many rationality-based studies in comparative politics, this study assumes that the supreme leader has an ultimate interest in maintaining survival, whereas local leaders seek promotion. When formulating

and launching policies, the central government has certain expectations for the outcomes, which are oftentimes unsatisfied by local implementation. An important factor that contributes to this "implementation gap" is the absence of incentives on the part of local officials, as it is not in their best interest to implement a particular policy.

2.1.1 Principal-Agent Dynamics in Local Implementation

Misalignment of interests has become a significant obstacle to government performance, and it is difficult to overcome because of an asymmetric relationship in which authority resides on one side and informational advantage resides on the other (Weber, 2013). Principal-agent theory (PAT) is a modeling technique designed to address interest misalignment and information asymmetry. To justify the principal-agent approach to the problem of local implementation, I situate local implementation within the principal-agent framework by linking the fundamentals of central-local dynamics with the defining characteristics of a principal-agent model outlined by Holmström (1979); Shavell (1979) and Miller (2005).

(1) Asymmetry in preferences. The principal-agent problem is originated from the assumption that the agent's preferences are different from the principal's. For instance, there may be a preference for shirking if actions that benefit the principal are costly for the agent. In the case of local implementation, the leader's preference is to maintain survival through gaining societal support, which requires achieving certain policy goals. On the other hand, the preference of local officials is to maximize their career prospect, which might or might not be benefited from im-

plementing a specific central policy. (2) Agent impact. The agent is crucial because her actions determine the payoff to the principal. In local implementation, the degree to which a leader can garner public support through political and policy accomplishments is contingent on to what degree policy targets can be achieved through local implementation. (3) Information asymmetry. The principal can easily observe the outcome, but not the action of the agent. Monitoring agent actions may be theoretically possible, but collecting complete information is considered prohibitively expensive. Similarly, in local implementation, the leader can only observe the short-term results of implementation, but is unable determine whether these results are created by local conditions, shocks, or efforts by local officials. The presence of information asymmetry gives agents the opportunity to pursue actions that maximize their own interests—often at the expense of the principal's (Alchian, Demsetz, 1972; Brehm, Gates, 1994).

2.1.2 Political Selection as Incentive Structures

PAT focuses on "the principal's question", that is, whether the principal can persuade the agent to take the actions that the principal would take if she had access to the same information as the agent (Miller, 2005). A potential way to solve this question is derived from a specific form of the principal's authority, that is, the authority to impose incentives on the agent and the leverage that these incentives provide to mitigate the negativity of information asymmetry. By manipulating the agent's incentives, the principal seeks to minimize the losses imposed on the principal by an inability to align the agent's self-interest with that of the principal, such as shirking and agency costs (Zeckhauser, Spence, 1971).

In the case of local implementation, the central leader can manipulate the incentives of local officials by tying their primary motivation, that is, political advancement, to policy implementation. An ideal selection system would be able to universally strengthen local incentives to implement central policies. In practice, however, we have observed significant differences in commitment when different localities implement the same policy or when officials within the same locality implement different policies. Therefore, it is essential to dissect the selection system in order to examine its configurations and how they lead to varying responses from local officials.

The presence of a political selection system shapes the dynamics in the central-local interactions in policy implementation. First, with the political authority granting her control over the rules, procedures, and outcomes of political selection, the leader can manipulate the system to serve her primary interest, that is, political survival. The selection system, a central-local contract initiated and offered by the leader, specifies either explicitly or implicitly what local officials are required to do in exchange for a promising career path. In addition, the leader and local officials, respectively in the roles of principal and agent, share information regarding the structure, effort costs, probability distribution of outcomes, and other parameters of the game of political selection. Equally important, they share a common understanding of the agent's rationality, that is, the agent will prefer an incentive package with an expected utility slightly greater than the agent's opportunity cost (Shavell, 1979). Therefore, in order to maximize local commitment, political selection mechanisms are designed to provide incremental rewards commensurate with

bureaucratic efforts. Moreover, the combination of shared knowledge and political authority places the leader in a favorable position, allowing her to use backward induction to identify and impose the best possible outcome after deducing the agent's best response function (Holmström, 1979; Shavell, 1979). As a result, the leader has all bargaining power and can make a 'take-it-or-leave-it' offer to officials; and there is no clear line indicating to local officials where to stop in order to obtain specific rewards.

2.2 The Incentive Structures: China's Dual-Track Political Selection System

2.2.1 The Supreme Leader's Preference

In the context of policy implementation in China, the principal is the General Secretary of the CCP, the country's supreme leader, and the agents are local leaders at various administrative levels to whom the supreme leader delegates the authority to implement central policies. It is in the interest of the supreme leader that all significant central policies must be implemented with diligence because of their importance in maintaining survival. From the survival-seeking perspective, most central policies fall into one the three categories required to secure the supreme leader's long-term rule: (1) GDP-growing policies to raise household income as well as finance infrastructures and public goods; (2) fire-extinguishing policies to address immediate crises, quickly quell public discontent and avoid social instability; and (3) long-horizon policies to address issues that, although less visible to the public, would surface in the near future as threats to legitimacy. Some may wonder why this model treats only the supreme leader, rather than the entire ruling

coalition, in China's case the Politburo Standing Committee (PBSC) of the CCP, as the principal. The rationale is that, although members of the ruling coalition share an interest in keeping the Party in power, the interaction between its members is fundamentally defined by their engagement in a zero-sum power struggle, in which each member's survival often comes at the expense of others (Dittmer, Wu, 1995; Nathan, 1973). The conflicts of interest render it inappropriate to place the ruling coalition as a whole in the principal's role. Therefore, China's political selection system serves as the incentive structures to maximize local implementation of the above-mentioned policy package, through which the supreme leader's interest in political survival is aligned with local officials' interest in career promotion.

China's political selection works under a dual-track system, with one track based on meritocracy and the other on patronage. The coexistence of merit-based and patronage-based tracks is neither novel nor unique to specific countries. Rather, it is part of an institutional effort made by survival-seeking leaders. In the absence of a dominant political or religious ideology, the ruling legitimacy of a regime is based on its performance in meeting public demands, which necessitates competent subordinates to achieve policy objectives. Merit-based selection is essential for assessing otherwise imperceptible abilities (Bell, Li, 2013). However, survival of the regime is not a guarantee of personal survival, the ultimate goal of state leaders. A non-violent and covert strategy for achieving personal survival is to place members of their networks in appropriate positions to amass political, economic, and military resources that could be used in power struggles (Dittmer, Wu, 1995), which inevitably results in patronage-based selection. This mechanism also motivates and reinforces loyalty. Therefore, any leader desiring to maintain survival

would require both mechanisms for personnel recruitment.

2.2.2 Merit-based Selection: Target Responsibility System

Merit-based Selection in General

Selection based on merit is frequently perceived to promote economic development. In contrast to politically appointed bureaucrats who are expected to serve the interests of politicians, bureaucrats selected on the basis of merit are believed to enjoy more autonomy, which is assumed to benefit social development and public welfare. The country studies of Japan (Johnson, 1982), Korea (Amsden, 1992), and Taiwan (Wade, 2004) or, more generally, studies of the "Asian Tigers" (Evans, 2012) provide classical evidence in support of this view .

Extant studies have established two mechanisms for the correlation between autonomous bureaucracies and economic development. First, independent bureaucrats serve as a counterbalance to the particularistic objectives of politicians. According to North (1981), the tension between fostering economic growth in a country and the narrower interests of the rulers is the most prevalent conflict in the history of humanity. When politicians are restrained by autonomous bureaucrats who, for instance, dare to speak out against the inefficiency of a public works project, public resources can be redirected to growth-promoting endeavors, such as well-planned public infrastructure. Therefore, an independent bureaucracy prevents politicians from implementing socially ineffective policies. A second mechanism, termed the "epistemic effect" (Nistotskaya, Cingolani, 2016), suggests that an autonomous bureaucracy attracts more qualified individuals than a politi-

cized bureaucracy. In particular, two characteristics of an autonomous bureaucracy, meritocratic recruitment and secure tenure, attract more competent and less short-sighted government employees.

An effective bureaucracy is both autonomous and competent. The literature attributes the benefits of merit-based selection primarily to the bureaucratic autonomy it creates. However, a closer examination of the definition and operation of meritocratic selection would reveal that it serves competence more than autonomy and that autonomy is merely a byproduct in certain political institutions, but not others. In particular, merit-based selection can increase the efficiency of bureaucratic operations when pursuing predetermined policy goals, but its correlation with bureaucratic autonomy is only valid when fundamental political institutions determine that bureaucracy is not structurally subject to political control or influence. A counter-example is the merit-based selection in China, which is aimed to recruit talents capable of serving the legitimation efforts of the CCP

Performance Measurement with Chinese Characteristics

Despite economic decentralization, political authority remains highly centralized in China. Leaders in Beijing use political incentives to achieve local compliance with their ruling strategy and specific policies. The core of political centralization lies in the CCP's monopoly of authority over the management of political and economic elites at all government levels. The personnel system determines the distribution of power in this single-party state and serves as an effective mechanism to align local leaders' incentives with the preferences of top Party leaders (Birney, 2014; Edin,

2003). It is often argued the merit-based bureaucratic selection, particularly in the form of the Target Responsibility System (TRS), which links local officials' career prospects to performance, has contributed to the phenomenal economic growth in China over the past three decades and become a pillar of China's "authoritarian resilience" (Nathan, 2017).

Strictly speaking, the TRS is only a part of China's formal selection system (cadre performance evaluation system), which is claimed to evaluate performance along five dimensions: virtue, competence, diligence, achievements, and absence of venality. To measure achievements, the most emphasized and competitive dimension, the TRS borrows a lot from performance measurement, which has become a cornerstone of government reforms around the world in the past three decades. The literature of organizational behaviors examines performance measurement primarily as a technical instrument for increasing rationality in management, which focuses on problem detection, strategic planning, goal setting, indicator and tool selection, motivation design, and monitoring, analyzing, and reporting performance data (Kravchuk, Schack, 1996). Built on the belief that "what gets measured gets done" (Bevan, Hood, 2006; Gao, 2010), performance measurement aims to rationalize the operation of a system to increase the economy, efficiency and effectiveness (3Es) of public service delivery (M. Lewis, 2015).

Performance measurement has become a key policy instrument in the reform of China's public administration. The TRS is the most influential performance measurement scheme currently being implemented by Chinese local governments. The administrative hierarchy of Chinese mainland has five levels: the Beijing-based cen-

tral government, provinces, municipalities, counties, and townships. The TRS has been gradually adopted by the governments at the levels of county and township since the mid-1980s. Governments at the municipal level and above started implementing the TRS after 2005.

The basic form of the TRS is a performance measurement system based on top-down assigned targets. The central leaders develop general policy objectives according to their overarching goals for China's socioeconomic development, which are then transformed into a variety of performance targets in GDP growth, social stability, environmental protection, among others. These targets, outlined in performance contracts signed by both a higher-level government and its direct subordinate organizations and governments (i.e., between a county government and its agencies, and between the county and its townships), are assigned with different weigths. As performance targets are assigned downwards through the administrative hierarchy, a target pyramid is formed, with the central government at the top and the numerous townships at the base (Burns, Zhiren, 2010). In the end-of-year evaluation, each official receives a weighted total score based on how well she performs in each target (Burns, Zhiren, 2010; Edin, 2003). Table 2.1 provides an example of TRS scheme used in 1991.

Party Controls over the TRS

One fundamental perspective to understand China's political institution is its party–state system. Through its successful transition from a revolutionary to a governing party, the CCP has secured a constitutionally recognized political lead-

Table 2.1: Target Performance Evaluation Matrix for Leaders of City A in 1991

Targets	**Target Values**	**Weights**
National income	5.6 billion yuan	4
National income per capita	1,180 yuan	1
Budgetary revenue	504 million yuan	10
Budgetary revenue per capita	106 yuan	1
Purchasing power of public organizations	96 million yuan	1
Gross value of industrial output	3,544 million yuan	3
Industrial output per capita	738 yuan	1
Loss turned into profit for within-budget industrial firms	8.18 million yuan	4
Product sales revenue	905 million yuan	4
Output rate on high-quality products	20%	4
Decrease rate on resource consumption in industrial products	78%	4
Gross value of agricultural output	5.26 billion yuan	5
Rural per capita output	2,230 yuan	1
Grain output	352 million kg	1
Cooking oil production	3.35 million kg	1
Cotton production	8 million kg	1
Fruit production	43.5 million kg	2
Rural per capita net income	818.8 yuan	4
Gross value of supply for exports	130.67 million yuan	8
Price control	6%	3
Fertility rate	2.27%	10
Incident rate of infectious disease	0.75%	2
Parasite-carrying snail control	3,3335,000 m^2	2
Number of applied technological achievements	15	2
Retention rate of rural junior high school students	96%	1
Retention rate of rural primary school students	98.5%	1
Public security		4
Number of major accidents		6

Source: Zuo 2015

ership over the state, which enables it to control nearly all aspects of state affairs, including the bureaucratic personnel system (Chan, 2004). The CCP controls bureaucracy through the nomenklatura or cadre management system. [1] By directing the distribution of rewards, including political advancement, the personnel institution serves as a political incentive mechanism and communicates top-down priorities (Burns, 1987). By the beginning of the twenty-first century, the CCP had formalized the management of cadres, including the evaluation of cadres, in all Party and government organs at all levels. Party standing committees, comprised of the eleven to thirteen most powerful leaders at each administrative level, hold the ultimate authority over the management of leaders one level below. Departments of party organization are responsible for evaluating party secretaries and government officials.

The direct implications of the Party's control over bureaucratic personnel are as follows: first, party organizations exist to "guide and monitor daily operations" at all levels of government agencies. In addition, the secretary of the party committee ranks above the bureaucratic chief and sits atop the specific hierarchy. In Municipality A, for instance, the mayor is the highest-ranking government official, while the secretary of the municipal party committee is the highest-ranking party official. The secretary is superior to the mayor and the transition of a mayor to the post of a city party secretary is considered an advancement. Secondly, there is no distinction between the party's personnel pools and the bureaucracy's. The vast

[1] The nomenclatura, inherited from the Soviet model and still in use, is a list of leading positions over whose appointments the Party exercises full control. Party committees have authority over the appointment of senior personnel, as well as their promotion, dismissal, and transfer one level down the administrative hierarchy, with the lower level answering to the higher level.

majority of party officials are also government bureaucrats (public servants), and vice versa. Some public servants, although not party members in the early stages of their careers, either choose to join the Party as an effort to advance their careers or are “absorbed" into the Party because the departments of party organization are present in government agencies to recruit talent. Thirdly, it is the duty of both government agencies and party organizations to serve the interests of the Party, i.e., to actively uphold the political legitimacy of the party-state. For example, the fundamental selection criteria for cadres are virtue (actually, loyalty to the Party) and competence, reflecting a intention to simultaneously impose political and administrative responsibilities on all government officials.

Chinese state building got on a different track in the post-Mao era. Giving up ideology-based class struggle, the state redefined development under a marketizing economy as its first priority and claimed that fast economic growth and livelihoods improvements were fundamental evidence of the “supremacy” of a socialist regime (Pieke, 2009). Naturally, CCP’s ruling legitimacy shifted its base from ideology to performance, that is, its capability to provide a “good life” to the public. The TRS, as the formal institution of CCP’s personnel evaluation, is thus expected to adapt to the changing public demands.

2.2.3 Patronage-based Selection: Orietend Towards Legitimacy-Building

Conflicting Perceptions of Patronage

Patronage relationships are typically viewed as detrimental to public well-being and economic growth. Conventional wisdom holds that these relationships are

pathological characteristics of corrupt, patrimonial systems (Bratton, Walle Van de, 1994; Singer, 2009; Walle Van de, 2001, 2007). Numerous studies of African political economy, for instance, have asserted with conviction that these patrimonial institutions are the very reason why Africa has been underdeveloped. Geddes (1994) demonstrates that economic and policy reforms intended to increase the efficiency of the civil service were thwarted when the politicians in charge had competing needs to reward their clientelistic supporters with those positions. Studies of post-Communist states also provide an impressive collection of case studies on how bureaucratic elites in the former Soviet bloc utilized their privileged institutional positions and political networks to seize power and valuable state assets at the expense of the public during the transitional period (Frye, Shleifer, 1996; Shleifer, Vishny, 1993). Recently, Ganev, others (2013) provides a comprehensive analysis of how former Communist cadres utilized their old bureaucratic networks to undermine the institutional capacity of the state and amass substantial personal wealth during Bulgaria's transition.

However, anthropologists have long recognized the economic benefits of government patronage relationships for the growth of particular societies. At certain stages of economic development, appointments based on friendship and kinship may be advantageous because they foster long-term trust among the members of a community (Henrich, 2020). In contrast to bureaucratic development states, therefore, one could also speak of "patrimonial development states" (Jiang, 2018b). Organizational theory points out that the existence of these relational contracts based on the actors' expectations about their future interactions, is typically a solution to organizational problems (Baker et al., 2002). For instance, despite a highly

fragmented public administration consisting of thousands of dispersed agencies, nearly 900 agencies to coordinate those agencies, and approximately 50,000 political appointments, Brazil experienced one of the most successful state-led industrialization of the second half of the twentieth century, as its economy grew at an exceptional rate of 7 percent per year between 1945 and 1980 (Schneider, 1992). Scholars attribute this achievement to patronage as strong personal ties that facilitated communication and coordination as well as developed effective economic policies. Thus, it could be argued that, under certain circumstances, "personalism can actually improve bureaucratic performance," as Schneider (1992) states.

Why does patronage produce different outcomes in various cases? This is because patronage is fundamentally a type of interpersonal relationship without inherent implications. In general, anthropologists view patronage as relationships between patrons and clients based on the principles of reciprocity and kinship. For example, according to (Boissevain, 1966), "by patron, I mean a person who uses his influence to assist and protect another individual, who then becomes his 'client' and in exchange provides certain services to his patron. The relationship is asymmetrical because the nature of the services exchanged may vary substantially ". Similarly, Landé (1973) refers to patron-client relationships as "supportive exchange dyads" in which the two parties exchange services that are beneficial to both. In this dissertation, I follow the mainstream anthropological and political literature (Boissevain, 1966; Gellner et al., 1977; Kaufman, 1974; Landé, 1973; Powell, 1970) to define the patron-client relationship as a special type of dyadic exchange with the following characteristics: a) the relationship is between actors with unequal power and status; b) It is based on the principle of reciprocity, that is, it is a self-regulating

form of interpersonal exchange, the maintenance of which depends on the return that each actor expects to obtain by providing goods and services to the other, and which ceases when the anticipated rewards do not materialize; c) the relationship is particularistic and private, anchored only loosely in public law or community norms.

In an environment where overt ideological differentiation is limited and partisan competition is absent, informal patron-client relationships offer political principals another important tool for aligning the interests of theirs and those of their agents. In essence, cooperation in patron-client relationships is enforced not by a third-party arbitrator but through the shared interest in maintaining a valuable long-term relationship. As a result, these relationships have been widely utilized to organize activities that are neither formally supported nor sanctioned by existing legal or social institutions (Eisenstadt et al., 1984). This also echoes an argument made in the PAT literature that a cooperative equilibrium is more likely to emerge if the principals and agents share similar interests and preferences, a phenomenon commonly referred to as the "ally principle" (Bendor et al., 2001; Epstein, O'halloran, 1999). Such an equilibrium extends the time horizons of all parties, inducing subordinates to exert greater effort and superiors to be trustworthy (Epstein, O'halloran, 1999).

Patronage Oriented towards Positivity

Once established, patron-client relationships tend to be relatively stable and can last for years. As informal, hierarchical networks of mutual benefits (Jiang, 2018), patronage relationships are not able to function without the survival and prosper-

ity of the networks (Arriola, 2009; Weingrod, 1968), which makes survival-oriented coordination the defining feature of patron-client interaction. Furthermore, the survival and success of the leading patron, the prerequisite of a network's survival and prosperity, becomes the primary goal of patron-client coordination. The joint efforts to achieve the goal is based on a shared understanding of mutual obligations, the long-term practice of which strengthens mutual trust and information exchanges between patrons and clients, making the development of patronage a self-reinforcing process. More specifically, patronage relationships increase the stakes of common interests, which strengthens mutual trust so that both parties are convinced that the other is working diligently, even if results are not delivered on time. In addition, the parties gain a greater understanding of each other's intentions, preferences, and behavioral patterns, which are crucial communicative information that is difficult for outsiders to obtain. Increased mutual trust and a deeper understanding of one another enhance future patron-client interactions.

As discussed earlier, the micro-level dynamic between patron-client relationship determines that it is not inherently detrimental to public well-being. Rather, patronage can be utilized as a tool to achieve different goals, and whether it induces positive or negative implications is determined by the patron's goal and how to achieve the goal (Bearfield, 2009). In China's case, the ruling legitimacy is fundamentally based on the regime's capability to garner wide societal support through policy and political achievements, which clearly identifies the goal for patrons at the top, that is, to maximize performance-based legitimation. Such a goal sets the tone for the general implications of political patronage by directing the dynamics in patron-client interaction towards a generally positive direction.

In the contemporary Chinese system, establishing patron-client relations can be initiated on both sides: Junior cadres who desire promotion can actively seek the favor of senior officials. In addition, senior politicians frequently pay special attention to recruiting subordinates as clients as they ascend the hierarchy. Because of the prevalence of performance-based legitimacy, building of patronage relationships is to a significant extent based on and serves policy implementation.

The best way for a client to get and keep the support of a superior is to try to implement the policies that the superior likes. To get the patron's attention, the aspiring official must show her personal loyalty and exclusive dedication to the patron by demonstrating a high level of commitment to the patron's preferred policies. In the meantime, senior leaders who want to get ahead are always looking for talented individuals to join their networks. Throughout a patron's career, they are always on the lookout for talent as they look through personnel files, read work evaluations, and go on inspection tours. No matter what specific characteristics the patrons are looking for or how they recruit, the end goal is to find clients who can effective in implementing desirable policies. In addition, protection can lower the risk of career-related punishments for clients and encourage them to support progressive or ambitious policies, assuming that these clients understand how important these policies are to the legitimacy of their patron. Also, these personal ties help keep policy innovation from being stifled by rigid bureaucratic institutions because they allow for flexibility and protection.

Therefore, the fact that the CCP rules on performance-based legitimacy and its on-

going efforts to maintain it orient patronage in the direction of positivity. Politicians can use these informal ties to create an effective administration that brings together diverse sectoral and regional interests. By providing trusted subordinates with special favors that are not readily available under the impersonal regulations of formal bureaucratic institutions, these personal relationships can serve as credible profit- or risk-sharing mechanisms that align the patron's preferences with those of his clients and strengthen the administration's internal cohesion.

2.3 Calculation of Agents: Soft Policies or Not?

2.3.1 Structural Dynamics

Studies on how political selection impacts policy implementation are predicated on certain understandings of configurations of the political selection system. For instance, a substantial body of literature has documented how political meritocracy affects policy implementation. With the assumed dominance of merit-based selection, the underlying logic is that all bureaucrats do is to earn merits in order to maximize their career prospects (Besley, 2005; Jia et al., 2015a; Landry, 2008). As patronage is recognized as an independent selection mechanism, a growing body of research examines how patronage-based selection influences implementation. The central premise of this line of work is that officials have stronger incentive and capability to vigorously implement patron-preferred policies. The strong incentive is because they recognize the significance of these policies to the interests of their patrons and the patronage network as a whole (Zang, 2004), while the capability is enhanced by exclusive patronage resources, such as financial budgets (Jiang, Zhang, 2015), or protection from the resistance of local vested interests (Jiang, 2018b). By

introducing patronage as an alternative selection mechanism, this line of work has shifted the focus of extant literature from investigating which policy attributes are merit-earning to comparing motivation, preference and strategy between bureaucrats under different mechanisms. However, this line of work neglects the dynamic engendered by the mobility of bureaucrats between the two tracks and their desire to access the track that is more conducive to promotion. To fill this gap, this dissertation conditions the calculations and actions of bureaucrats on the between-track mobility. While extant studies seek to explain how to advance on the current selection track, my dissertation intends to tell a story of how to switch to a better track.

What does it mean for the two selection mechanisms to coexist? Answering this question is essential for comprehending the system's dynamics. As the default selection mechanism, meritocracy is the readily available path for all bureaucrats. In contrast, to approach the patronage-based mechanism, one must establish a patronage relationship with her superior. Moreover, both are independent mechanisms, meaning that merits or patronage alone can be the dominant, if not the only, factor in the promotion of each bureaucrat, and that any bureaucrat with access to either mechanism would have promotion opportunities. In addition, the leader endorses the coexistence of the two mechanisms due to their respective importance to political survival, implying that both are reliable long-term promotion mechanisms.

Instead of remaining on one single track, bureaucrats have mobility between the two tracks. Bureaucrats typically prefer the patronage-based track over meritocracy for the following reasons: first, this track allows for "sprints" that accelerate career advancement (Pang et al., 2018), which cannot be provided by step-by-step promo-

tion under meritocracy; and second, knowledge of the patron's career prospects fosters a higher level of predictability. The benefits of the patronage-based track compel bureaucrats to pursue it, either by passively accepting or actively seeking patronage from their superiors. On the other hand, when a client loses patronage, she reverts automatically to the merit-based track. However, despite their preference over the patronage-based track, bureaucrats are willing to remain under meritocratic promotion if patronage is inaccessible, rather than pursuing patronage regardless of costs and risks, because they can always turn to meritocracy as a reliable and sustainable promotion path.

In a nutshell, the dual-track selection system is a setting in which meritocracy and patronage coexist as two independent selection mechanisms. Such a coexistence enables bureaucrats to move between them, and this mobility is typically prompted by efforts to approach the patronage-based track for its advantages over the other. Nonetheless, the balanced presence of both tracks prevents bureaucrats from pursuing patronage without regard for risks and costs. The configurations of the dual-track selection system and the resulting dynamics influence how the officials consider the following three questions: how to switch to the patronage-based, faster track? What are the risks and rewards? And under what conditions is the reward greater than the risk? The answers to these questions will determine how policy priorities are identifies.

2.3.2 Change of Policy Priority: Key to Track-Switching

The CCP obtains and maintains its legitimacy as a ruling party through policy and economic achievements that enhance public welfare. Such a performance-based

legitimacy not only places the criteria of meritocratic evaluation on policy performance, but also focuses the essence of patron-client exchanges on policy efforts. As a result, change of policy implementation becomes the key to switching selection track.

Multitasking and Complexity of the TRS

Multitasking, commonly demanded in regime legitimation after the Cold War, has become a major challenge to policy implementation. It is challenging because it deteriorates agency problem. Multitasking and setting conflicting goals per se have plenty of critics. The principal-agent literature generally favors single-task assignment over multitasking because single-tasking agents can be given greater autonomy to work within budgets without worrying about trade-offs between multiple tasks (Holmstrom and Milgrom 1991; Dewatripont and Tirole 1999). By contrast, multitasking agents need to be more closely monitored to avoid displacement of budgets in pursuing the more observable task (Dewatripont, Jewitt, and Tirole 1999; Rasul and Rogger 2015). Goal conflict is the more controversial strand of multitasking: if one task is detrimental to the other, then spending resources on both will cancel each other out (Dewatripont and Tirole 1999; Bolton and Dewatripont 2004). Given the infeasibility of equal commitment to each policy, multitasking is actually about resource allocation and priority identification.

China is an excellent example of the rising significance of policy multitasking and its implications for political selection. In the 1980s and 1990s, economic growth was the major task of the regime and thus a central target of cadre evaluation. Local

government performance was mainly measured in economic terms, such as the growth of GDP, industrial outputs, fiscal revenues, and foreign direct investment. Economic performance targets were disaggregated and assigned downward until reaching lowest level governments and, not rarely, to purely service-delivering agencies. Even in the late 1990s some township governments were only assigned economic targets from above (Li, Zhou, 2005b). In 2007, economic targets still accounted for 60% weight of TRS for a majority of township governments (Chan, Gao, 2012).

Nonetheless, the excessive emphasis on economic goals not only ignored essential aspects of economic quality, but also exacerbated government corruption, social inequality, and environmental degradation. The marginal value of continued economic growth to bolster the legitimacy of the regime was gradually offset by its social costs. Upon this background, the TRS matrix began to incorporate new objectives, such as social and environmental objectives. The central government took the initiative to reduce the minimum target for annual national economic growth and to adjust the economic target components to emphasize quality development. More recent studies note the growing significance of noneconomic objectives in TRS and the increasing weight assigned to them (Baehler et al., 2014; Gao, 2010; Rosenbloom, Hahm, 2010). For instance, starting from 2008, the province of Guangdong has established “Level of Scientific Development" objectives for its municipalities and bureau-level officials, with economic objectives accounting for approximately 30% of the total weight [2].

[2]Source: Party Organization Department of Guangdong, 2008

Chen et al. (2018) differentiates the TRS indicators based on two criteria: whether they are positive or negative incentives and how strong the incentives are. Economic growth, population income, investment promotion, and development of education and culture are examples of positive incentive indicators. In contrast, resource consumption, workplace casualties, government debt, and social instability are negative incentive indicators. The strength of an indicator is determined by its weight. Among the positive indicators, those in the category of economic development, carrying more weight than social endeavors and science and technology development, are strong positive indicators (Zeng, Wong, 2021). On the other hand, the strongest negative indicators are the so-called "veto" indicators, oftentimes serving as quantitative thresholds related to environmental quality and social stability (Gao, 2015). Breaking the thresholds has veto power over an official's political advancement, which would negate the merits she has gained via strong performance in other policy areas and result in career-related sanctions in the forms of demotion or, more frequently, same-level rotation or nominal promotion to a powerless post (Whiting, 2017).

Bifurcations of Policy Priority

An ideal scenario of policy multitasking is based on appropriate allocation of resources by each individual agent, which, in the case of China, means that each official is willing to allocate tangible or intangible resources in accordance with the TRS matrix. However, the inherent weaknesses of the TRS as an outcome-based selection system make this scenario highly unlikely. Instead, it initiates bifurcations

of policy priority based on both selection track and patronage network.

Due to the information asymmetry, the TRS is by nature an evaluation of observable, rather than actual, level of commitment, including policy results that can show within the assessment window and measurable resources invested in implementation. Naturally, policies with measurable efforts or immediate results tend to receive more attention. So are policies assigned with greater weights. Therefore, rapid advancement on the merit-based track requires intensive efforts to gain merits in strong-positive indicators, which are related to GDP-growing policies, and to avoid exceeding thresholds for strong-negative indicators, which are tied to fire-extinguishing policies. I place them in the group of hard policies in this study for their hard-core status in performance evaluation. The majority of weak indicators are associated with long-horizon policies such as education, culture, innovation (tagged in this study as soft policies). These indicators, added to the rubrics in recent years to demonstrate the center's commitment to fostering a sustainable and technology-intensive development, are often assigned relatively small weights.

On the other hand, officials on the patronage-based track are playing a different game. As discussed earlier, patron and client pay their respective due to consolidate the survival and properity of the network. In the context of policy implementation, the patron identifies policy objectives, and the client is responsible for the implementation. In addition, trust and communication underlying the patronage ensure that the client is protected and rewarded as long as she makes policy efforts as desired by the patron, even if the efforts would likely undermine her performance evaluation results.

What policies are preferred by patrons? Since this dissertation discusses the implementation of central policies, the patrons in question refer to the members of the top ruling coalition. As discussed at the beginning of this chapter, rather than treating the coalition as a unitary actor, it is appropriate to differentiate the interest and preference between the supreme leader and other members of the coaltion, because most political benefits for achieving these policy objectives will accrue to the supreme leader as the first individual held accountable and take credit for fulfilling public demands. More importantly, for other PBSC members, ensuring that their clients implement policies influential to performance evaluations is an effective means of preserving the survival of their respective networks, because failure to do so could be exploited by political adversaries to undermine power. Hence, it is reasonalbe to argue that bureaucrats connected to other members in the national leadership would also prioritize hard policies.

2.3.3 Prioritizing Soft Policies: A Double-Edged Sword

A Shortcut to the Leader's Patronage

Officials tend to prefer the patronage-based mechanism to the merit-based one, because the former allows for "sprints" that accelerate career advancement (Pang et al., 2018) and provides a more predictable career prospect, which the merit-based mechanism cannot provide due to its reliance on rigid bureaucratic procedures. To approach the patronage-based mechanism, one must establish a patronage relationship with their superior. Moreover, the ability of patronage networks to provide political benefits varies with the influence of the top patron. Hence it is ideal for an official to access the patronage of the supreme leader, whose domi-

nance in domestic power structure makes it more likely to guarantee stable and premium rewards. But how to consolidate or access the patronage of the supreme leader? More specifically, given that appropriate identification of policy priority can facilitate the building of connections with superiors, what policies would a bureaucrat need to prioritize in order to access the patronage of the supreme leader?

Theoretically, all central policies, hard and soft, are imperative to the survival of the supreme leader. However, the combination of priority bifurcations both between selection tracks and between patronage networks determines that policies are not equally valuable for officials to access the premium patronage provided by the supreme leader. When both the bureaucrats on the merit-based track and those in the networks of other ruling leaders tend to prioritize hard policies, soft policies, despite their significance to the supreme leader's suvival, would likely receive careful implementation from only the minority of bureaucrats. Therefore, prioritizing soft policies allows implementers to distinguish themselves in the competition. First, for the leader, the utility of implementing soft policies is increased by the fact that they are deliberately marginalized by merit-seeking officials and clients of other leaders. Second, prioritizing soft policies, with its crowding-out effect on resources spent on hard policies, is a strong signal of loyalty as it demonstrates a willingness to assume significant responsibilities despite the costs.

However, if prioritizing soft policies creates a shortcut to the supreme leader's patronage, why doesn't everybody do it? It is because this strategy is a double-edge sword carrying both high reward and high risk, and it is crucial for bureaucrats to make the risk-reward tradeoffs before deciding whether to take this strategy.

Risk-Reward Tradeoffs and Expected Observations

Prioritizing soft policies is a high-reward, high-risk strategy, with the potential to both create a shortcut to the leader's patronage and harm performance evaluations. In addition, since access to the leader's patronage can nullify poor results of performance evaluation, the most important factor to consider when deciding whether to make this move is the likelihood that an official can earn the leader's patronage by implementing soft policies, which is dependent on how the leader recruits clients.

There are two possible recruitment methods. The first is rooted in the existing political order and patronage structure, which is built on China's "one-level-down management" system. This system defines the bureaucratic procedure of political selection, in which provincial leaders are examined and appointed by the central PBSC and prefectural leaders are appointed by the provincial Party Organization Departments. Because of that, it also shapes a patronage structure where patron-client relations are established only between politicians at adjacent administrative hierarchies. Such a recruitment only introduces minor changes based on officials' current positions in the political ecosystem.

In contrast, another possible method operates as a pure competition that rewards whoever leads in implementation intensity. By placing local officials on the same starting line and designating the leader as the sole arbitrator, this competition disregards and disrupts the existing political ecosystem. For instance, if sub-provincial political selection is directly supervised by the leader, the current management system would be paralyzed. In addition, there is a high likelihood that such a

competition would result in an excessive commitment to certain types of policies across the nation, which is undesirable for the leader given her challenge of meeting complex public demands. Therefore, despite the fact that some city leaders have garnered attention from the highest levels for their aggressive policy efforts, I would argue that these are merely isolated examples and not indicative of a pattern.

Since the first recruitment method is the one in use, the distance to the leader's network is hence the most important factor in determining the likelihood of gaining her patronage. Proximity to the core network would encourage officials to take this strategy, because the high likelihood of gaining the leader's patronage would alleviate their concerns about the risk associated with it. On the other hand, officials located far from the core network are less motivated to pursue this strategy, as failure to join the core network would translate the potential risk into actual costs on performance evaluation. With this anticipation, these officials are more likely to abandon this strategy from the start and adhere to the merit-based mechanism. Consequently, one can expect to observe the following:

1. All else equal, the closer a local official is to the core network, the more committed she is to implementing soft policies, that is, policies associated with weak indicators in performance evaluation.

2. All else equal, the farther a local official is from the core network, the more committed she is to implementing hard policies, that is, policies associated with strong positive and strong negative indicators in performance evaluation.

Chapter 3

How Does Patronage Status Impact Policy Implementation?

Chapter 2 presents a theory that describes how local officials make risk-reward tradeoffs when deciding whether to prioritize soft policies in order to gain the leader's patronage. It also predicts that the patronage status of local leaders, that is, their distance from the core network under the leader's patronage, determines their incentives to implement central policies. Specifically, officials closer to the core network are more likely to prioritize soft policies, or policies tied to weak indicators in the TRS scheme, whereas officials further from the core network are more likely to prioritize hard policies, or policies tied to strong positive or strong negative indicators in the TRS scheme.

This chapter centers on an empirical investigation of the theoretical argument presented in Chapter 2. Prior to conducting the examination, I elaborate the strategy to measure the independent variable, the distance to the core network. This variable, although straightforward in a two-tier hierarchy, requires a more nuanced measurement for city leaders within a three-tier hierarchy consisting of political entities at

the national, provincial, and prefectural levels. Based on the "one-level-down management" feature of China's bureaucratic structure and political ecosystem, I devise a novel measurement based on whether a city leader is a client of her superior, the provincial leader, and whether the provincial leader is a client of the supreme leader.

I then test the theoretical argument on 288 municipal cities in China. For each of the above-mentioned three policy categories, I select one policy as a representative case: with tax policy as a case of policies related to strong positive indicators, SO_2 emission reduction policy as one of policies tied to strong negative indicators, and indigenous innovation policy as one tied to weak indicators. I use a series of fixed effects models to estimate the relationship between city leaders' patronage status and their implementation intensity of each policy. The empirical results confirm the expected observations and remain robust across model specifications and samples. I pay special attention to several important alternative explanations, such as manipulated appointments based on pre-existing policy achievements as well as a client's greater propensity to be assigned to locales with more favorable socioeconomic conditions. Although these are plausible explanations for the observed variations, the empirical evidence suggests that they are not the primary channels by which patronage status influences implementation.

3.1 Research Design

The expected observations are tested in a series of quantitative analysis using data on Chinese domestic politics and economy from 2006, the year in which the TRS was first implemented at the municipal level and above, to 2020. This section

specifies case selection, variables, measurement, data accessibility and estimation strategy for each observation.

3.1.1 Selection of Cities and Policy Domains

The expected observations are tested in the context of policy implementation in 288 prefectural-level cities in mainland China. I exclude prefectural-level districts under the four centrally administered municipalities Beijing, Shanghai, Tianjin, and Chongqing. Compared to provinces, these municipalities are subject to more integrated planning, which usually assigns different roles to each district. For instance, Beijing's Haidian District is envisioned as a hub for advancing high education and technology, while Dongcheng District is responsible for preserving traditional culture. Such a planning stipulates policy priority for each district automatically. Similarly, I exclude provinces and autonomous regions on China's northern and western borders, such as Tibet, Qinghai, Inner Mongolia, Ningxia, and Xinjiang, because social stability is the top priority for officials in these areas.

The expected observations specify how officials' distance to the core network influences their implementation intensity for policies with different roles in performance evaluation, that is, hard policies associated with strong positive or strong negative indicators, and soft policies associated with weak indicators. I identify a specific policy domain to represent each of these three categories. I use tax policy to represent policies tied to strong positive indicators. It is an appropriate representation because tax incentive is the policy instrument most frequently employed by local governments to attract investment (Choi, 2009), and the amount of attracted investment is a strong positive indicator (Ong, 2012). Reduction of SO_2 emissions

is the domain selected to represent policies tied to strong negative indicators. For performance evaluations in the majority of provinces and cities, emissions of SO_2 is a veto indicator that, if certain thresholds are exceeded, result in career-related sanctions despite good performance in other areas.

To represent soft policies tied to weak indicators, I select the indigenous innovation policy. The Chinese government launched this policy in 2006 in response to the looming threat of the "middle income trap" (Ernst, 2011). It is also a result of disappointment with the spillover effect of foreign direct investment (FDI) on technological advancement as well as concerns about the country's over-dependence on FDI since the 1990s (Tang, Hussler, 2011). By definition, this policy aims to promote technological upgrading and innovation among Chinese-owned enterprises. Due to the financial uncertainty and risks associated with technological pioneering, enterprises are often discouraged from upgrading and innovating, making it critical for governments to work to overcome this "market failure" and achieve a broad scope of advancement (Cimoli et al., 2015).

Indigenous innovation policy, based on this logic, requires tremendous support for research and development activities of enterprises from local governments in the form of affordable credits, land and utilities, as well as direct subsidies, among other things. However, implementing this policy is at best ineffective at helping local officials to earn cadre evaluation credentials. Investment in industrial innovation cannot guarantee a bright future, not only because innovation is inherently uncertain, but also because government investment alone is inadequate to incentivize upgrading efforts of enterprises (Fu et al., 2016; Liu et al., 2011). In addition,

since the time required for industrial innovation to reap benefits exceeds local tenures, there is a high probability that officials committed to implementing the policy cannot claim credit. More importantly, the resources invested in innovation are likely to crowd out those in projects that would grow the short-term economy. Therefore, innovation is unpopular among officials running on merit-based promotion track because it not only fails to accelerate promotion, but also likely to slow down the advancement by misallocating "merit-earning" resources.

While officials on the merit-based selection track view the indigenous innovation policy as unfavorable to promotion, officials within the patronage network led by the supreme leader view it as a profitable investment objective. As mentioned previously in this section, this policy is introduced in a context where low-quality economic growth has not only produced severe negative effects, but also impedes sustainable development required to escape the middle-income trap. Because of China's high power concentration level, the supreme leader is typically viewed as the individual with the greatest responsibility for national interest and public welfare. Therefore, promoting indigenous innovation to foster sustainable development is essential to guarantee a stable and secure rule by the supreme leader. The full implementation of innovation policy is thus an identified goal that can strengthen the patronage network.

3.1.2 Data and Measurement

Dependent Variable

The outcome variable of interest is how intense each of the central policies in question is implemented by a city leader. An appropriate measure would be the amount of public resources invested in this particular policy, while a less desirable alternative would be measuring the result of implementation. In this study, investment-indicating measures are used to gauge the implementation intensity of investment attraction and indigenous innovation policies, whereas the implementation intensity of emission reduction is measured in a result-indicating approach.

The implementation intensity of tax policy is measured with the city-level averages of effective tax rates (ETRs) imposed on listed companies. Lower ETRs show more intense efforts. Drawing on the studies of Feng (2012) and Huang (2018), I calculate ETR applied to each listed firm as follows: *ETR = (paid taxes - tax rebates) / operating income*. The average ETR of a city is calculated by averaging the ETRs of all listed companies registered in the city in question.

The implementation intensity of emission reduction is measured by natural logarithm of per capita emissions of SO_2, which is often listed as a veto-indicating target in formal evaluations (Jin et al., 2016). Since investment-indicating measures would be more accurate in quantifying incentives, an ideal measurement would be the amount of public resources spent on reducing SO_2 emissions. But the only data that is relevant and available is city-level fiscal expenditures on environmental protection, which is too general for accurate records of expenditures on reducing

SO_2 emissions. Also, fiscal expenditure alone is insufficient to represent resources spent in this regard, as reducing emissions requires not only investments in cleaning and upgrading, but also efforts such as closing factories or pausing production, which are not reflected by fiscal expenditure alone. Moreover, in this particular context, result-indicating measures are appropriate because with measures such as eliminating coal-based heating, the results of government efforts to SO_2 emission reduction can usually be observed immediately and accurately reflect the level of commitment.

The implementation intensity of indigenous innovation is measured with the ratio of science and technology (S&T) expenditures to total expenditure to show the willingness of local leaders to spend fiscal revenues on innovation. The purpose of S&T expenditures is to provide funding for R&D subsidies and rewards geared toward businesses, as well as the operation of high-tech zones (Fu et al., 2016).

The China Stock Market and Accounting Research Database (CSMAR), a comprehensive research-oriented database focusing on China Finance and Economy, contains data to measure implementation intensity in all three policies.

Independent Variable

Measuring Strategy

The key to comparing city leaders' distance to the core network is to locate each of them in the political ecosystem jointly defined by the country's bureaucratic and patronage structures. China's bureaucracy is structured in a five-tier hier-

archy, with agencies at the central, provincial, prefectural, county, and township levels, among which the prefectural level, equipped with necessary authority and resources to direct implementation, is viewed as the highest level of implementing agency (Huang, 1996; Kostka, Nahm, 2017). To strike a balance between theoretical richness and parsimony, this study focuses on the levels at and above prefectures while leaving out counties and townships as grass-root extensions of prefectures. This three-tier structure serves as both a hierarchy of policy operation and one of political selection. First, it covers a complete cycle of policy formulation and implementation created through coordination among the three levels of government, in which the central government initiates policies and prefectural governments implement them, with provincial governments acting as intermediaries (Chung, 2016). In combination with the dimension of patronage, the political ecosystem is a three-tier bureaucratic hierarchy in which leaders at each level control the promotions of their subordinates and vertical connections exist between leaders and some but not all of their subordinates. As illustrated in Figure 3.1, the General Secretary of the CCP sits atop as the leader, below whom officials are classified as clients or non-clients of their immediate superiors based on whether a patronage relationship exists. Going down the hierarchy, at the prefectural level, there are four patronage types of leaders: Client of Client (prefectural leaders connected to Client provincial leaders), Non-Client of Client (prefectural leaders not connected to Client provincial leaders), Client of Non-Client (prefectural leaders connected to Non-Client provincial leaders), and Non-Client of Non-Client (prefectural leaders not connected to Non-Client provincial leaders).

City leaders' patronage types provide observable foundation for comparing their

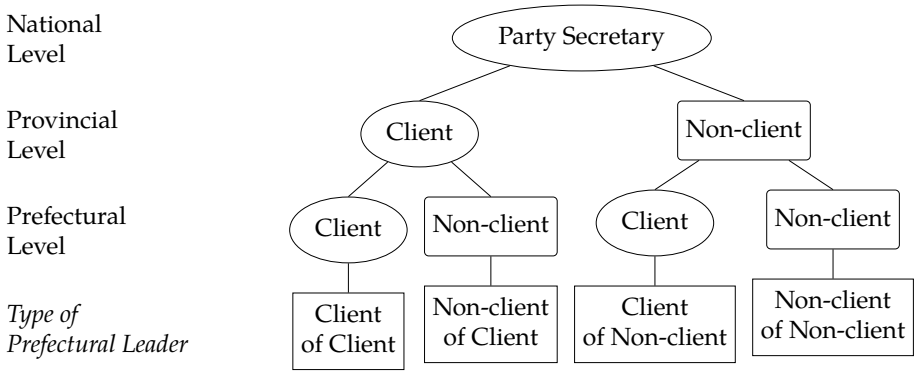


Figure 3.1: Political Ecosystem of China

distance to the core network. As displayed in Figure 3.2, Client of Client (Point A) is within the network of the supreme leader, while Non-client of Non-client (Point D), with deviations at both provincial and prefectural levels, is the most distant. It is more tricky to compare the two types in the middle, Non-client of Client (Point B) and Client of Non-client (Point C). I would argue that C, deviating at the provincial level, is farther away than B, whose deviation is at the prefectural level, because establishing patronage relationships or shifting between patraonge networks at a higher level is more challenging. First, The client recruitment of the supreme leader's network is highly restrictive because of the potential political repercussion.. In addition, attempts to switch networks of national leaders are more likely to be perceived as treachery and elicit severe retaliation from current patrons. Meanwhile, it is relatively easier for a city leader to establish a patron-client relationship with a provincial leader due to the lower stakes and more frequent rotations. Therefore, different types of city leaders are ranked according to their distance to the core network as follows: Client of Client < Non-Client of Client < Client of Non-Client < Non-Client Non-Client.

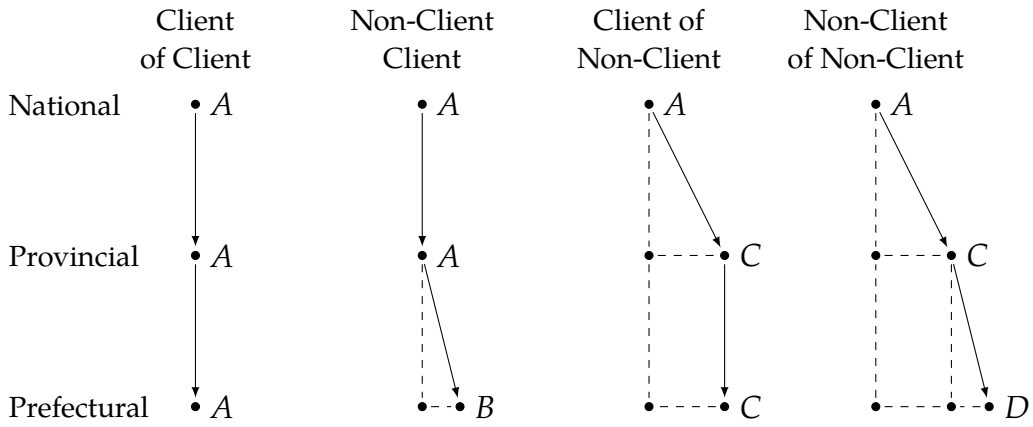


Figure 3.2: Local Leaders' Distance to the Core Network

Optimal Scaling of Distance Indicators

Proxied by city leader's patronage type, the independent variable can easily be treated as an ordinal indicator. Researchers usually use either the nominal or numeric approach to implement ordinal categorical data. In the nominal approach, dummy variables are introduced and the model is fitted in the same way as for nominal data. However, this method ignores the ordering of the ordinal category levels, since it assumes unordered (nominal) category levels. Therefore, it is not guaranteed that the linear predictor increases (or decreases) with each increase of category level (Willem, 2017). To keep the monotonicity, one can analyze the ordinal data using a numeric approach. In this case, each category is given an integer value (e.g. 0, 1, 2, etc.), and the variable is then included in the model as a numeric variable. By using the integer coding, equal distances between consecutive categories are assumed, although the distances are not necessarily equal in the data. Hence, unfortunately, neither of these two approaches respect the ordinal

categorical data characteristics and are therefore not suitable for analyzing this data type. To accurately model the effects of the independent variable while reserving its data characteristics, I use the method of optimal scaling introduced by Nishisato (2014), in which numerical representations (quantifications) are estimated for each category level of the variable. These quantifications can then be used as numerical input for the model. The quantifications produced by R are 0 for Client of Client, 0.0181 for Non-Client of Client, 0.0281 for Client of Non-Client, and 0.054 for Non-Client of Non-Client.

Identifying Patronage Types

With numeric values assigned to each type of city leaders, the crucial step then is to identify type for each city leader, which is proxied by their relationship with provincial leaders and the provincial leaders' relationship with the supreme leader. City leaders are defined in this study as city party secretaries, the officials charged with the primary responsibility of directing public policies at the prefectural level. Provincial leaders refer to provincial party secretaries, who not only have significant influence over public policies, but also have immense impact over the selection of officials within provinces, and are regarded by the higher authority as the "person of first responsibility" when it comes to provincial-level personnel issues.

To ascertain whether a provincial leader is a client of a state leader, i.e. a member of the state leader's faction, the conventional approach is to examine the provincial leader's previous associations with the state leader. The empirical study spans the tenures of two state leaders: Hu Jintao and Xi Jinping. I would employ a method

for gauging factional ties developed by Shih et al. and later used in a number of studies on China's informal politics (Jia et al., 2015a; Keller, 2015; Shih et al., 2012). In essence, this approach considers officials to have factional ties if they were born in the same location, attended the same college, or worked in the same work unit. Although Jiang (2018a) contends that such an overlap-based approach can only indicate acquaintance yet misses the relationship's essential nature, I would argue for its applicability in patronage relations between state and provincial leaders, because acquaintance can be the line between insiders and outsiders when the pool of potential members is small enough. Having said that, Jiang's critique is reasonable when measuring informal connections between provincial leaders and city leaders. Hence I follow procedures developed by Jiang (2018a) to identify relationships at sub-national levels. This measure establishes patron-client relationships by attaching lower-level officials with provincial leaders in power at the time those officials were first promoted to key city leadership positions. More precisely, this measure defines a city leader C as a client of the provincial secretary P, the province's de facto leader, if and only if the following conditions are met: C was first promoted to a position of city leadership (as city party secretary or mayor) from within the province when P served as provincial secretary.

The data necessary to determine an official's patronage type can be accessed through China Political Elite Database, a comprehensive biographical database of Chinese political leaders at multiple levels. It currently contains extensive and systematic career data for all civilian leaders at and above the prefectural level between 2000 and 2015. I hand collected data from 2016 to 2020 to build a more representative sample. Biographical information of officials at and above the pre-

fectural level can be accessed via government websites and Baidu Encyclopedia. The summary statistics is reported in Appendix A.1.

3.1.3 Estimation Strategy

Equations 3.1-3.3 respectively present the model specifications for the policy cases of investment attraction, emission reduction and indigenous innovation. The main estimation framework is a series of two-way fixed effects model.

$$ETR_{i,t} = \beta Distance_{i,t-1} + \delta X_{i,t-1} + \eta_i + \gamma_t + \epsilon_{i,t}, \tag{3.1}$$

$$log(PCSO_2Emissions_{i,t}) = \beta Distance_{i,t-1} + \delta X_{i,t-1} + \eta_i + \gamma_t + \epsilon_{i,t}, \tag{3.2}$$

$$S\&TExpenditure_{i,t} = \beta Distance_{i,t-1} + \delta X_{i,t-1} + \eta_i + \gamma_t + \epsilon_{i,t}, \tag{3.3}$$

where i and t index city and year respectively. The dependent variable is implementation intensity of the specific policy in year t, which is respectively city-level averaged ETRs applied to listed firms, natural logarithm of per capita emissions of SO_2, and the ratio of S&T expenditure. The independent variable, city leaders' distance to the core network, is a numeric variable that takes the value of 0 if the leader is Client of Client, 0.0181 if Non-Client of Client, 0.0281 if Client of Non-Client, and 0.054 if Non-Client of Non-Client. The city fixed effects η_i capture the time-invariant heterogeneity across cities, and the year fixed effects γ_t are included to control for year-specific economic or political tendencies shared by all cities.

X is a vector of time-varying leadership and economic covariates. For leadership covariates, I would include demographic information about the city secretary, in-

cluding age, gender, and level of education. For economic covariates, I would include a standard set of variables to represent the general socioeconomic condition of the city-year, including logged GDP, logged per capita GDP, logged fixed asset investment, and logged population. I also include various economic covariates as policy-specific controls. For tax policy, I control for fiscal independence measured by the ratio of fiscal revenue to expenditures, as tax reduction is influenced not only by governments' willingness, but also by their fiscal capability (Han, Kung, 2015). In addition, I control for the level of marketization, which is measured by an index developed by Fan et al. (2019) to indicate the quality of institutions and government-business relations. Political economists have discovered that locales with a less favorable business environment are more likely to compensate for institutional weakness through tax cuts (Torgler, Schneider, 2009). For emission reduction, I control for urbanization level (measured with the ratio of urban population to total population) and ratio of secondary industry growth to total GDP growth to account for the intensity of urban economy and secondary sectors as major sources of pollution. For innovation policy, I also control for fiscal independence as an indicator of capability to invest in innovation.

Table 3.1: How does patronage status impact policy implementation?

	Dependent variable:								
	Averaged ETR			Log(per capita SO2 emission			Ratio of *S&T* expenditure (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance	−0.277***	−0.247**	−0.308***	−2.268***	−2.368***	−2.402***	−1.467*	−2.263***	−2.247***
	(0.107)	(0.107)	(0.113)	(0.584)	(0.584)	(0.620)	(0.883)	(0.847)	(0.821)
Pop		−0.036	−0.049		−1.425***	−1.406***		2.369***	2.544***
		(0.036)	(0.038)		(0.207)	(0.221)		(0.268)	(0.264)
GDP		−0.050*	−0.057*		0.298**	0.275**		1.749***	1.708***
		(0.028)	(0.029)		(0.132)	(0.137)		(0.171)	(0.161)
PCgdp		0.025	0.028		−0.093	−0.037		−0.788***	−0.735***
		(0.023)	(0.024)		(0.089)	(0.090)		(0.130)	(0.120)
fixasst		0.022***	0.020***		−0.017	−0.047		−0.151***	−0.169***
		(0.006)	(0.006)		(0.030)	(0.032)		(0.043)	(0.041)
fisind		−0.001	−0.004		−0.004	−0.001		−0.121***	−0.120***
		(0.003)	(0.003)		(0.012)	(0.012)		(0.017)	(0.016)
market		0.002	0.002						
		(0.004)	(0.004)						
age			0.001			0.004			0.003
			(0.001)			(0.004)			(0.005)
gender			0.002			0.091*			0.014
			(0.010)			(0.051)			(0.069)
edulevel			−0.004			−0.020			0.027
			(0.003)			(0.016)			(0.021)
urbani					0.052	0.172			
					(0.166)	(0.177)			
2ndgrow					0.003	0.004			
					(0.003)	(0.003)			
Constant	0.174***	0.658**	0.842***	5.286***	11.115***	10.957***	0.332	−34.589***	−35.756***
	(0.025)	(0.291)	(0.308)	(0.149)	(1.689)	(1.798)	(0.233)	(2.122)	(2.077)
Observations	2,884	2,884	2,589	3,462	3,462	3,086	3,920	3,920	3,469
Adjusted R^2	0.634	0.637	0.639	0.817	0.819	0.825	0.641	0.674	0.725

Note: *p<0.1; **p<0.05; ***p<0.01

3.2 Results

3.2.1 Baseline

This section discusses the baseline results regarding the effect of city leaders' distance to the core network on their implementation intensity in three central policies: taxation (Models 1-3), SO_2 emissions reduction (Models 4-6), and indigenous innovation (Models 7-9). For each policy, I begin with the most parsimonious model, which includes only the distance and city-year fixed effects, and then gradually add the local socio-economic and leader controls to the following two models. As Table 3.1 and Figure 3.3 show, the coefficients are negative and statistically significant (except for Model 7), which suggests that greater distance to the core network not only encourages a city leader to cut tax and reduce SO_2 emissions, but also disincentives her to invest in innovation. These results provide substantial support for my argument, which claims that the more distant a local official is to the core network, the more committed she is to implementing hard policies (represented by taxation and emissions reduction), and the less committed she is to implementing soft policies (represented by innovation).

As previously discussed, the independent variable is treated with optimal scaling so that the estimated relationship is linear while the interval between each categorical level is not compelled to be equal. To gain a better understanding of the magnitude of change when a city leader's distance moves to the next level, I focus on Models 3, 6, and 9 to calculate marginal effects as the value of the independent variable increases from 0 to 0.0181, from 0.0181 to 0.0281, and from 0.0281 to 0.054, which is illustrated in Figures 3.4-3.6. Figure 3.4 indicates that, all else equal, com-

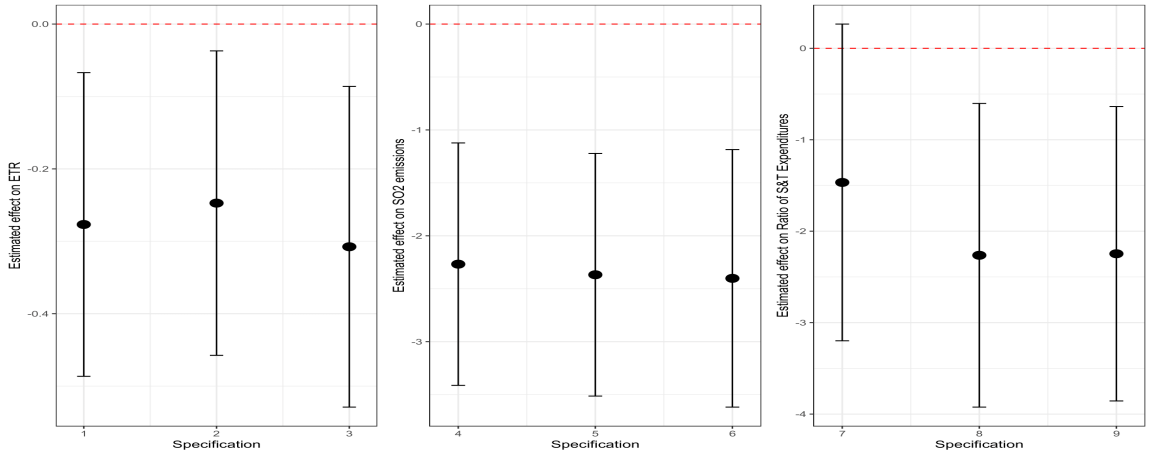


Figure 3.3: Estimated effects of leaders' patronage status on policy implementation

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between patronage status and all dependent variables, therefore significantly negative coefficient values are expected.

pared to a city under Client of Client, the averaged effective tax rate of one under Non-Client of Client drops by 0.56 percentage point; the drop from Non-Client of Client and Client of Non-Client is 0.31 percentage point, and that from Client of Non-Client to Non-Client of Non-Client is 0.80%. Comparing city leaders who are Client of Client to those who are Non-Client of Non-Client, there is a 1.6% cut, which is a significant difference given that the sample mean of city-level averaged ETR is 24% and the median is 18%.

Figure 3.5 indicates that, all else equal, compared to a city under Client of Client, per capita SO_2 emissions of one under Non-Client of Client drop by 4.3 percentage points; the drop from Non-Client of Client and Client of Non-Client is 2.4 percentage points, and that from Client of Non-Client to Non-Client of Non-Client is 6.4 percentage points. Comparing city leaders who are Client of Client to those who

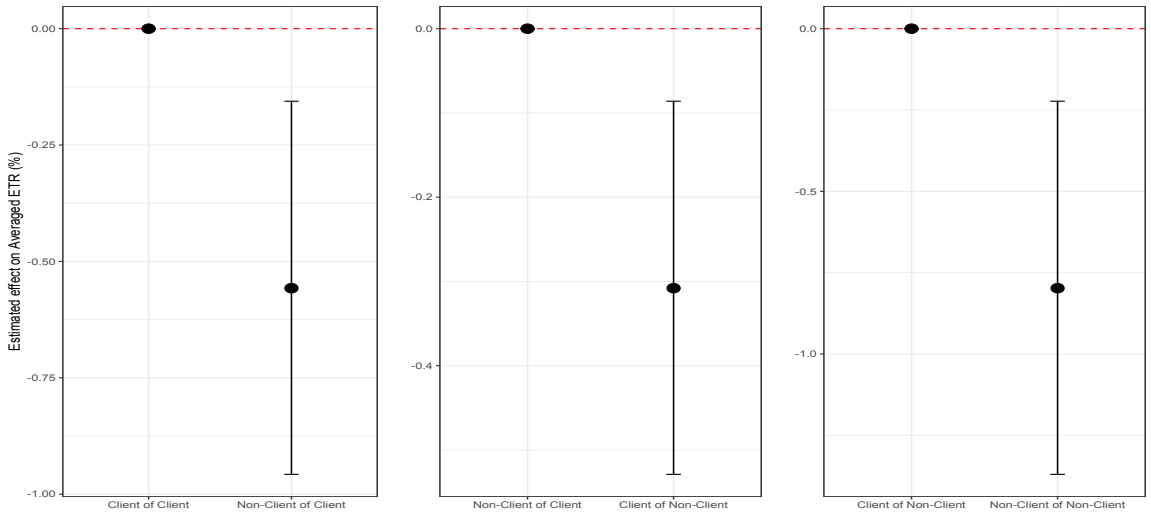


Figure 3.4: Estimated effects of leaders' patronage status on averaged ETR

Note: 95 percent confidence intervals reported.

are Non-Client of Non-Client, the decline is as much as 13.1%

Figure 3.6 indicates that, all else equal, compared to a city under Client of Client, the ratio of S&T expenditures of one under Non-Client of Client drop by 0.04 percentage point; the drop from Non-Client of Client and Client of Non-Client is 0.02 percentage point, and that from Client of Non-Client to Non-Client of Non-Client is 0.06 percentage point. Comparing city leaders who are Client of Client to those who are Non-Client of Non-Client, there is a decrease of 0.12%, which is a remarkable given that the sample mean of the S&T expenditure ratio is 1.6%.

3.2.2 Robustness Checks and Alternative Explanations

I conduct a series of additional analyses to ensure the robustness of the main findings. First, I test the expectations in subsamples with different coverage of

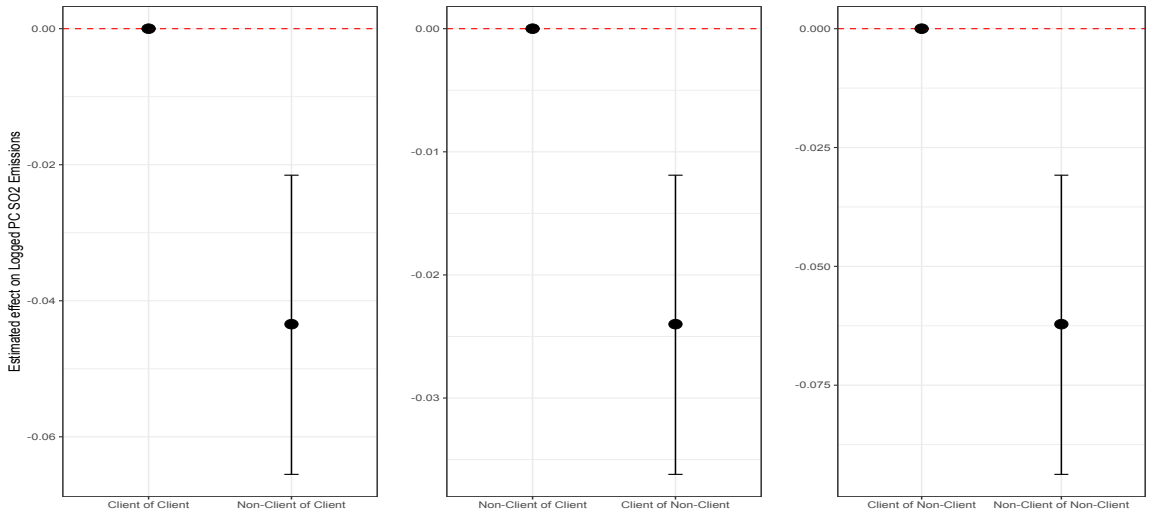


Figure 3.5: Estimated effects of leaders' patronage status on per capita SO_2 emissions

Note: 95 percent confidence intervals reported.

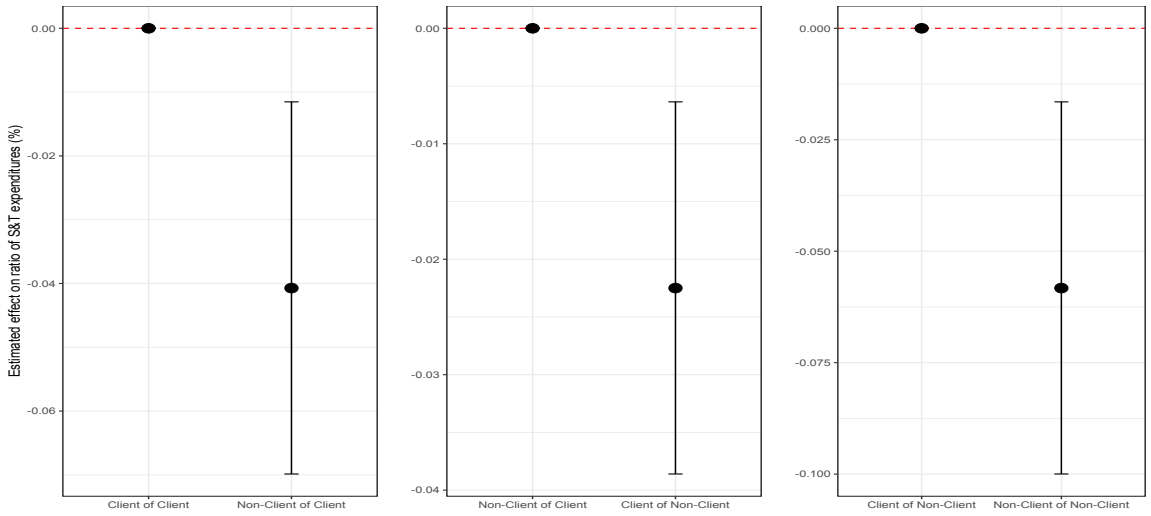


Figure 3.6: Estimated effects of leaders' patronage status on the ratio of S&T expenditures

Note: 95 percent confidence intervals reported.

localities. For the policies of taxation (Appendix A.2.1-Table 2) and indigenous innovation (Appendix A.2.3-Table 6), I exclude observations from Guangzhou and Shenzhen (two of the four first-tier cities in addition to Beijing and Shanghai, which are not included in the sample) in order to eliminate the possibility that the results are driven by the highly dynamic economies of these cities. For the emission reduction policy, observations from the three most polluted provinces of Hebei, Henan, and Shanxi are excluded to ensure that the high baseline emissions do not skew the results (Appendix A.2.2-Table 4). Second, to take into consideration the potential implications of national policy changes, I exclude observations prior to 2008 for the policy of investment attraction. In 2008, the newly issued Corporate Income Tax Law stipulated that tax incentives should be based on industrial typology as opposed to locality, thereby closing the legal channel for tax competition between local governments (Appendix A.2.1-Table 3). Excluding observations prior to 2008 helps establish a stringent test of the government's willingness to provide tax incentive despite the lack of legal basis. To summarize briefly, I find that the main results are robust across various subsample analyses that exclude observations from particular special periods or localities.

I also consider a number of substantial alternative explanations. The first alternative explanation is that city officials are appointed systematically to locales that already exhibit distinct policy implementation trends. Specifically, officials who are closer to the network of the supreme leader are likely to be appointed to cities with greater innovation investment, while those who are further from the network are appointed to cities with low tax rates or low SO_2 emissions. While the first scenario is plausible, the second makes little logical sense. Nonetheless, I proceed to test

the possibility by regressing city leaders' patronage status on the implementation intensity in the final years of their predecessors' terms (Appendix A.3.1-Table 7). The results indicate that there is no correlation between a city leader's patronage status and the intensity of implementation prior to her office.

Similarly, one may be concerned that my findings may be influenced by certain pre-existing socioeconomic trends that are correlated with both the appointment of officials with a particular patronage status and the intensity of implementation. One could argue, for instance, that officials closer to the network of the supreme leader are more likely to be appointed to cities with thriving high-tech industries, which naturally attracts more government investment in science and technology. On the other hand, officials distant from the network of the supreme leader may be appointed to cities with a less developed urban economy that emits less SO_2. It is also likely that these officials are appointed to localities with weaker institutions, forcing local leaders to use tax cuts in lieu of institutional quality to attract investment. I then regress the patronage status of city leaders on a set of socioeconomic variables at the end of their predecessors' terms (Appendix A.3.2-Table 8). I find no evidence of a correlation between patronage positions and these trends.

3.3 Extensional Analysis

The primary theoretical argument is based on local responses to policies with differing importance in the preferred portfolio of the supreme leader and the TRS scheme. In this section, I conduct some extensional analysis to further explore more nuanced empirical implications of the argument.

3.3.1 Career Concern or Environmental Concern?

With the expected implication tested in the reduction of SO2 emissions as a strong negative indicator, it would be interesting to investigate whether local efforts were made to address environmental issues in general or focused solely on the pollutant correlated with strong negative indicators. To this end, I test the argument in reduction of soot emissions. Soot is one of the main pollutants outlined in the 2007 China Pollution Source Census. [1] In addition, I investigate the impact of patronage status on CO_2 emissions and discharge of waste water, neither related to strong negative indicators.

Data for waste water discharge are collected from the annual statistical yearbooks of the Chinese provinces, supplemented by the Chinese City Statistical Yearbooks 2007–2020 and Chinese Environmental Yearbooks 2007–2020. Data on soot are collected from the Chinese City Statistical Yearbooks. Data on CO_2 emissions from 2007 to 2017 are collected from the CSMAR mentioned earlier. Each of the three pollutants is recorded on a per capita basis.

According to Table 3.2 (see Appendix A.4.1 for the full regression table), none of the estimated coefficients is statistically significant, which suggest that local bureaucrats are only concerned with pollution reductions that are advantageous to their careers, as opposed to environmental improvement as a whole.

[1] The four major air pollutants in China, according to the Census, are SO_2, soot, NO_x, and dust. As there are no reliable regional data for the latter two, I will only analyze soot emissions, which is not a strong negative indicator.

Table 3.2: Impact of Patronage Status on Emissions of Other Pollutants

	Dependent variable:		
	Log pcSoot	Log pcCO2	Log pcWater
patronage status	−0.021	−0.036	−0.027
	(0.018)	(0.029)	(0.024)
City controls	✓	✓	✓
Official controls	✓	✓	✓
City-year fixed effects	✓	✓	✓
Observations	3,891	3,891	3,442
Adjusted R^2	0.752	0.779	0.860
Note:			*p<0.1; **p<0.05; ***p<0.01

3.3.2 Does the Leader's Power Matter?

My data spans the two terms of the previous supreme leader, Hu Jintao, and the first two terms of the current leader, Xi Jinping. This allows for a preliminary examination of how the balance of power within the ruling coalition influences the magnitude of the effect of patronage status. It is widely acknowledged that Xi's second term marks a new political landscape in which he has not only consolidated but also concentrated and seized power (Ding, Panda, 2020; Li, 2016). How would a powerful leader affect the relationship between local bureaucrats' patronage status and policy implementation? To investigate this, I add an interaction term between Xi's second term and patronage status to the baseline models. Estimation results are reported in Table 3.3, and the full regression table is presented in Appendix A.4.2.

As shown in Table 3, the coefficients of the interaction term are significantly negative in Columns 2 and 3, indicating that the concentration of power at the top level

Table 3.3: Mediating Effect of Leader's Power

	Dependent variable:		
	etr	log(pcso2)	stratio
	(1)	(2)	(3)
distance	−0.280**	−1.667**	−1.592*
	(0.132)	(0.711)	(0.903)
Xi	0.048	−1.936***	0.552***
	(0.036)	(0.162)	(0.180)
distance:Xi	−0.096	−2.901**	−3.487**
	(0.236)	(1.374)	(2.004)
City controls	✓	✓	✓
Official controls	✓	✓	✓
City-year fixed effects	✓	✓	✓
Observations	2,589	3,086	3,469
Adjusted R^2	0.639	0.825	0.725
Note:			*p<0.1; **p<0.05; ***p<0.01

mediates the effects of patronage status on the implementation of innovation and reduction of SO_2. More straightforwardly, the variations caused by differences in patronage status are less pronounced. A plausible explanation is that power concentration enables the leader to push local efforts more into uniform. Meanwhile, the insignificant coefficient in Column 1 suggests that top-level power concentration has no systematic impact on the effect of patronage status on taxation policy, or more broadly, GDP-growing policies, possibly due to their persistently dominant role.

3.4 Conclusion

This chapter provides empirical evidence of the theoritical argument made in Chapter 2, which claims a systematic relationship between local bureaucrats' patronage status and their incentives to implement a variety of central policies. Using subnational economic data and biographical data of central and local leaders, I tested the theoretical argument in three policies that respectively represent policies associated with strong positive, strong negative and weak indicators in the TRS scheme. The findings show that local officials closer to the supreme leader's network are more incentivized to prioritize policies tied to weak indicators (soft policies), while those farther from the supreme leader's network are more motivated to prioritize policies tied to strong positive and strong negative indicators (hard policies). I also conducted extensional analysis to explore more nuanced empirical implications of the theoretical argument.

Chapter 4

How Does Local Leaders' Patronage Status Impact Firm Innovation?

This chapter will investigate how local leaders' patronage status impacts innovation at the firm level. The patronage status of local leaders would potentially influence firm innovate in two ways. First, business sectors might adjust their commitment to innovation according to local leaders' preference over innovation signaled by their patronage status, especially levels of forthcoming financial and institutional support. In this case, the empirical expectation is that firms are more likely to innovate when their local leaders are closer to the supreme leader's network, and vice versa. The other way in which firms may be influenced is that a change in local leaders' patronage status might be perceived as an indicator of policy change and thus impacts firm innovation. This leads to a different empirical expectation: a firm is less motivated to innovate with more changes in the patronage status of its local leader. I tested these two empirical predictions with firm-level panel data of Chinese listed firms. The findings suggest that, although the nature of local leaders' patronage status has no effect on firm innovation, the changes in it, both immediate and cumulative, systemically impact business efforts to innovate, and

such impacts are mediated by firm ownership.

4.1 How would politics potentially impact firm innovation?

This dissertation has thus far focused primarily on explaining the variation in local incentives to implement central policies, with Chapter 2 developing an argument linking the patronage status of local leaders to their policy implementation intensity, and Chapter 3 focusing on empirical testing of the argument. As discussed in Chapter 1, the CCP's legitimation strategy is centered on meeting public demands through policy multitasking, which is contingent on two major steps: ensuring that each important central policy is implemented faithfully in at least a subset of localities, and achieving policy objectives through local implementation. Chapters 2 and 3 attempt to answer a crucial question raised in the first step: who is willing to implement soft policies such as the indigenous innovation policy, and why? In the meantime, policy multitasking is meaningless without the achievement of intended policy objectives. Take the innovation policy as an instance, alongside the bureaucratic incentives for policy implementation, business incentives to innovate is also essential to the outcome. State efforts are only a portion of the picture when it comes to complex, lengthy processes such as innovation. The building of an innovation-driven economy is contingent upon firms' incentives to innovate.

Innovation at the firm level is generally regarded as the driving force behind productivity, employment, and economic growth (Nelson, 1987). A vast amount of

research has been conducted to determine what makes firms innovate. The majority of this research has focused on how economic factors influence the innovation propensity and intensity of businesses. Some academics are especially interested in the effects of firms' individual characteristics. For instance, firm size, type of ownership and financial structure have been closely examined as key determinants for how much a company invests in R&D activities (Acs, Audretsch, 1987; Knight, 1967; Wan et al., 2005; You et al., 2020). Other research focuses on the economic ecosystem in which a firm operates, such as the role of agglomeration economies and knowledge spillovers in determining firm-level innovation (Barasa et al., 2017; Luong et al., 2017; Molina-Morales, Martínez-Fernández, 2010).

4.1.1 Institutions and Financing

Recent research has paid more attention to how politics, particularly financing policy, institutional environment and politicians, influence corporate incentives to innovate. One important political factor has been quality of local institutions, especially in the context of emerging countries, where government intervention is considered key for firms' decision making (Dunning, Lundan, 2008). Most of these relevant studies have concentrated on corruption and efforts to combat it (Chadee, Roxas, 2013; De Waldemar, 2012; Dong, Torgler, 2013). More recent research also paid attention to the role of government effectiveness, rule of law, and regulatory quality as factors behind the introduction of new products and processes in the firm (Rodríguez-Pose, Di Cataldo, 2015; Tebaldi, Elmslie, 2008; Varsakelis, 2006).

The impact of public financing, including both direct subsidies (Fang et al., 2018; Huang et al., 2019) and investment of public-owned venture capitals (Colombo et al.,

2016; Kenney, 2011), has also caught increasing attention from political economists. Theoretically, public support for business R&D investments is based on market failures associated with negative externality caused by incomplete appropriation of R&D investment returns Arrow (1962); Hall, Lerner (2010). However, extant empirical research fails to reach a consensus on the role of public financing efforts in firm innovation. Some studies find that public financing mitigates the above-mentioned negative externality and propel firms to raise their R&D investments, which support the claim of a crowding-in or additionality effect (Aerts, Schmidt, 2008; Görg, Strobl, 2007). Other studies contend that it is possible that eligible firms will simply substitute R&D investments they had planned to undertake with the public financial resources made available (crowding-out) (Czarnitzki, Fier, 2002; González et al., 2005), thereby undermining the argument for "additionality" effects of public financing.

4.1.2 The Person Behind the Curtain

Political leaders, who are not only responsible for a variety of public policies but also serve as a significant factor of the political environment, exert undeniable influence on firm innovation, particularly in emerging economies where weaker institutions allow for greater disparity and greater prominence for individual politicians. What effect do politicians have on firm innovation? This question is addressed in two ways by a growing body of literature. The first line of inquiry investigates the effect of political connections, i.e., how unique resources acquired through informal connections with politicians influence decision-making at the firm level. For instance, in economies in transition, political resources can assist businesses in lowering their financing costs and achieving rapid growth (Boubakri et al., 2012; Cull et al., 2015).

However, political resources may also have negative effects on the firm, such as requiring connection-seeking firms to pay rent, which could strain R&D budgets and expenses (Li et al., 2008). Additionally, firms with political ties are more likely to be exposed to excessive political manipulation as an exchange of resources, which may distort their investment decisions and behaviors (Wu et al., 2012).

Another line of inquiry examines the role of politicians as decision-makers in the formation of institutions and policies, with the majority of research focusing on the effects of policy preferences and their changes on firm behaviors such as innovation. Existing research documents how politicians' individual characteristics, such as educational and career background, ideological bias, age, and career prospects, influence their policy preferences, which in turn influences firm-level decisions in innovation (Howell, Higgins, 1990; Kurzhals et al., 2020; Ovtchinnikov et al., 2020). Additionally, and relatedly, there has been a rise in interest in leader turnover as an indicator of shifts in policy preference and potential policy inconsistency (Chen et al., 2005b; Chen, 2021).

4.2 Empirical Puzzles and Hypotheses

Inspired by the second line of work, this chapter attempts to investigate how businesses respond to specific local leaders' patronage status as well as its changes. More specifically, my research aims to answer two questions: First, will firms be more likely to innovate when their local leaders are closer to the leader's network and thus more pro-innovation, and vice versa? Second, how will a firm adjust its innovation intensity when its local leader's patronage status changes? These two

questions represent two distinct approaches to the study of political influence on innovation: the effect of government policy in and of itself, and the effect of political and policy uncertainty resulting from policy changes.

4.2.1 Will firms align their innovation intensity with local leaders' patronage status?

The relationship between leaders' patronage status and policy implementation, posited and tested in Chapters 2 and 3, also aligns with a saying acknowledged by various sectors of society — "each serving his own master". Local firms might use the patronage status of leaders as a heuristic indicator to predict the future intensity of innovation-related policy, particularly financial support, such as R&D subsidies and government venture capital funds, and institutional support, such as the approval of innovation projects and the lending policy of local banks. Despite the lack of consensus in the existing literature regarding the effect of public subsidies on firm innovation, I would argue that when firms capture a signal of all-front governmental support, they tend to increase their innovation efforts. Therefore,

H1. All else equal, the closer a city's leader is to the core network, firms in that city are more incentivized to innovate.

4.2.2 How do businesses react to changes in local leaders' patronage status?

Undoubtedly, the innovation intensity of businesses fluctuates constantly. However, when there is a change in local leaders' patronage status, a proxy for shifts in their policy preference, we expect to see even more changes in firms' commitment to innovation. Therefore,

H2a. All else equal, when leader's patronage status changes in a city, firm-level innovation in that city is likely to undergo more changes than at other times.

What would the changes be like? Will changes in leaders' patronage status increase or decrease the innovation intensity of local businesses? As discussed earlier, change in a leader's patronage status implies a change in the key policy-maker's propensity to support innovation. As documented by a rich literature on the impact of political or policy uncertainty on firm behaviors, firms tend to delay investments if they see the possibility that near-future policies will be detrimental to their business. For instance, Bernanke (1983); McDonald, Siegel (1986) established this relationship by emphasizing how capital irreversibility and uncertainty result in a positive option value for deferring investments. Corporate investment may be discouraged by political uncertainty, especially when it comes to innovation, an activity that requires a substantial amount of irreversible investment in intangible assets (Khan et al., 2020; Wang et al., 2017).

Different from a growing body of research that investigates the relationship between leadership turnover as a proxy of political uncertainty and firm innovation (Jiang et al., 2022; Lerner, 2000; Luo, Zhang, 2022), this chapter examines the effect of change in leader's patronage status. In reality, a change in a city leader's patronage status may or may not involves a change of the city leader per se. A city leader's patronage status may change if any of the following three events occur: a. the end of his or her own tenure in the city, b. the turnover of provincial leadership, or c. the turnover of state leadership. For example, a Client of Client could become a

Non-client of Client if the city leader remains the same but the provincial leader is replaced by a different client of the supreme leader. Similarly, a change in city leader may or may not result in a shift in patronage status. As the business sectors perceive political and policy uncertainty as negative externality, I would argue that

H2b: All else equal, when there is a change in city leader's patronage status, firms are less incentivized to innovate than other times.

This chapter is also interested in studying firms' reactions to cumulative changes in leaders' patronage status over a certain period, which has been severely understudied to date. For cumulative changes in leaders' patronage status to take effect, local businesses need to be sensitive enough to both the frequency and magnitude of changes within a given time period. Given the knowledge local businesses have about "who is whose guy," I would argue that they are capable of recognizing nuanced distinctions between patronage status, i.e., they can distinguish between a Client of Client and a Non-Client of Client, or a Client of Non-Client and a Non-Client of Non-Client. With such sensitivity, I would anticipate observing that

H2c. During a certain time period, the greater the cumulative changes in leader's patronage status in a city, the less local businesses in that city are incentivized to innovate.

4.3 Research Design

The hypotheses are tested in a series of quantitative analysis using data of Chinese listed firms from 2006 to 2020. This section specifies variables, measurement, data accessibility and estimation strategy.

4.3.1 Data and Measurement

Dependent Variable

Following the mainstream approach of extant research (Fang et al., 2014; Hitt et al., 1996; Wan et al., 2005), I evaluate firm-level innovation efforts, the dependent variable, with the intensity of both input and output of innovation in a given year. R&D input intensity is measured with the ratio of R&D input to firm revenue, and innovation output is measured with the number of invention patent applications. [1] In the empirical tests, I transform the original number to the logarithm of the number plus one ($log(applicationnumber + 1)$) to mitigate the skewness of the data distribution.

Independent Variable

The primary independent variables in this research are three variations of patronage status. For Hypothesis 1, the independent variable is city leader's patronage

[1] China's patent law allows inventors and companies to file for one of three types of patents: utility, invention, and design. Utility patents are granted to new solutions or improvements to items such as a new shape or structural features added. Design patents relate specifically to the external features of a product. Invention patent applies to both physical products as well as processes and are widely regarded as more original and creative than the other two types.

status itself, that is, her distance to the supreme leader's network. As detailed in Chapter 3, based on whether a city leader is connected to her provincial leader and whether the provincial leader is connected to the supreme leader, each city leader falls into one of the four types: Client of Client, Non-Client of Client, Client of Non-Client, and Non-Client of Non-Client, with their distances to the core network respectively quantified as 0, 0.0181, 0.0281 and 0.054.

For Hypotheses 2a and 2b, the independent variable is immediate change in local leaders' patronage status, which is a binary variable that takes on the value 1 when there is any change of leader's patronage status in city k between year t-1 and year t, and 0 if there is no change.

For Hypothesis 2c, the independent variable is cumulative changes in patronage status, defined as the summation of change magnitude over the past few years (I set a 4-year window in baseline regression, and then include 3-year and 5-year windows in robustness check). I calculate cumulative changes in city k till year t over the past 4 years using the formula below to account for both the frequency and magnitude of changes.

$$change4_{k,t} = \sum_{n=0}^{4} |distance_{t-n} - distance_{t-n-1}| \tag{4.1}$$

Control Variables

As indicated in the literature review section, firm-level innovation can also be influenced by both firm-level variables and local socioeconomic indicators. I include

both types of indicators as controls in the analysis.

Following the literature on economic determinants for corporate innovation, I control for the following firm-level variables: return on total assets (total profits/total assets), leverage ratio (total debt/total assets), firm size (logarithm of total assets), Tobin's Q (market capitalization/total assets), firm age, sales growth and fixed asset ratio (fixed assets/total assets).

For city-level variables, I control for both a standard set of socioeconomic variables including logged GDP, logged per capita GDP, logged fixed asset investment, logged population, as well as innovation-related indicators including patent applications per capita, number of universities, student enrolment in universities.

Sample and Data Accessiblity

The sample consists of A-share listed firms in Shanghai and Shenzhen Stock Exchanges from 2006 to 2020. I exclude financial firms and the firms with the status of "special treatment" (ST) or "particular transfer" (PT) to ensure that all observations are industrial companies under normal operation. All firm-level and city-level data is gathered from CSMAR. The definitions of all variables and descriptive data summary can be found respectively in Appendices B.5 and B.6.

4.3.2 Estimation Strategy

H1. All else equal, the closer a city's leader is to the core network, firms in that city are more incentivized to innovate.

$$Innovation_{i,t+1} = \beta distance_{k,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1}, \quad (4.2)$$

For all models, i indexes firm, k city and t year. In Equation 1, the dependent variable $Innovation_{i,t+1}$ stands for firm i's innovation intensity in year t+1, which is measured respectively in the ratio of R&D investment to total revenue and log(patent application number +1). The independent variable $distance_{k,t}$ is a numeric variable that takes the value of 0 if the party secretary of city k in year t is Client of Client, 0.0181 if Non-Client of Client, 0.0281 if Client of Non-Client, and 0.054 if Non-Client of Non-Client. X is a vector of time-varying company covariates, and Y a vector of time-varying city covariates. I leaped the dependent variable for one year to capture the delay of corporate responses. The industry fixed effects η_{ind} capture the time-invariant heterogeneity across industries [2], and the year fixed effects γ_{t+1} are included to control for year-specific economic or political tendencies shared by all firms. As presented below, all other model specifications include these control variables and fixed effects.

H2a. All else equal, when a city leader's patronage status changes, firm-level innovation in that city is likely to undergo more changes than at other times.

$$|Innovation_{i,t+1} - Innovation_{i,t}| = \beta changebi_{k,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1}, \quad (4.3)$$

The independent variable $changebi_{k,t}$ is a binary variable that takes on the value

[2]The industry classification conforms to the "Industry Classification Guidelines for Listed Companies" drafted by the Securities and Futures Commission in 2001.

1 when there is any change of leader's patronage status in city k between year t-1 and year t, and 0 if there is no change. The dependent variable is measured with the absolute value of year-to-year change of firm i's innovation intensity, that is, the difference in R&D ratio or number of patent applications between years t and t+1.

H2b. All else equal, when there is a change in city leader's patronage status, firms are less incentivized to innovate.

$$Innovation_{i,t+1} = \beta changebi_{k,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1}, \tag{4.4}$$

In Equation 3, the independent variable is the same as Equation 2, but dependent variable is the innovation intensity as included in Equation 1.

H2c. During a certain time period, the greater the cumulative changes in a city's leader's patronage status, the less its local businesses are incentivized to innovate.

$$Innovation_{i,t+1} = \beta change4_{k,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1}, \tag{4.5}$$

In Equation 4, the independent variable, $change4_{k,t}$, is defined as the summation of change magnitude in the patronage status of leaders in city k till year t over the past 4 years. I calculate it using the formula below to account for both the frequency and magnitude of changes.

$$change4_{k,t} = \sum_{n=0}^{4} |distance_{t-n} - distance_{t-n-1}| \tag{4.6}$$

4.4 Empirical Analysis and Findings

I will present the results of the empirical tests conducted on the previously introduced hypotheses. This section contains only visual representations of key findings. Each coefficient plot includes the coefficient values of the primary independent variable and firm controls for the convenience of comparing the effects of primary explanatory variables to those of firm attributes, which are believed to be key predictors of firm behavior. As described in Section 3.2, I evaluate innovation intensity at the firm level using both R&D input and invention patent applications; therefore, each figure depicts results using both measuring strategies. The full regression results of all tests and robustness checks can be found in the appendix [3].

4.4.1 Baseline results

4.4.2 How does leaders' patronage status impact firm-level innovation?

As predicted in Section 4.2.1 (Hypothesis 1), firms should align their innovation intensity with the patronage status of their local leaders, i.e., when a city leader is closer to the network of the supreme leader, firms in that city are more likely to increase innovation, and vice versa. We should therefore anticipate the coefficient value of "distance" to be significantly negative. Figure 4.1 depicts the results, and Tables 13-14 of Appendix B.7 contain the complete regression results. The results

[3]Each full regression table consists of results of four models. I begin with the most parsimonious model, which includes only the primary independent variable and industry-year fixed effects (or firm-year fixed effects in some robustness checks), and then gradually add the firm-level controls and city-level socioeconomic controls to the following two models. The fourth model adds the interaction term between the primary independent variable and firm ownership to the third model.

indicate that the null hypothesis cannot be rejected, suggesting that the patronage status of city leaders has little or no effect on the innovation intensity of firms. To rule out the possibility that the null results are due to the inability of firms to differentiate patronage status among city leaders, I also examined the effect of provincial leaders' patronage status, a binary variable named "Distance" with clients of the supreme leader valued as 1 and non-clients as 0. Figure 4.2 depicts the results, and Tables 15 and 66 of Appendix B.7 detail the complete regression results, which imply that there is no effect. Nonetheless, both figures demonstrate that certain firm characteristics, including age, size, sales growth, and leverage, are reliable predictors of innovation intensity.

The results suggest that firms do NOT directly follow policy preferences of their local leaders when deciding how committed they are to innovation. This echos the lack of consensus in the literature on the impact of innovation-related public policy like government-provided R&D subsidies.

How does changes in leaders' patronage status impact firm innovation?

This section presents the results of testing the three hypotheses listed in Section 4.2.2, which focus on the effect of changes in the patronage status of leaders, a heuristic indicator of policy shifts. The first hypothesis (Hypothesis 2a) is an intuitive prediction stating that a change in the patronage status of city leaders will increase the volatility of firms' innovation intensity, as measured by a greater year-to-year difference in both the ratio of R&D input and patent applications. As depicted in Figure 4.3 (please refer to Appendix B.7 Tables 17-18 for complete re-

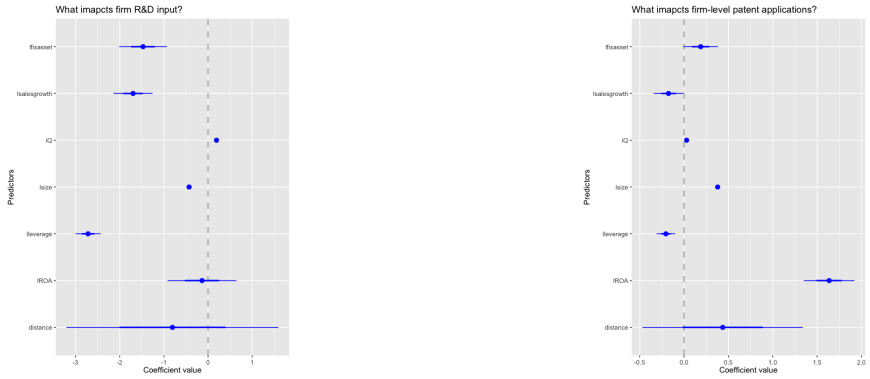


Figure 4.1: Effect of city leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between distance and firms' innvoation intensity, therefore a significantly negative coefficient value for "distance" is expected.

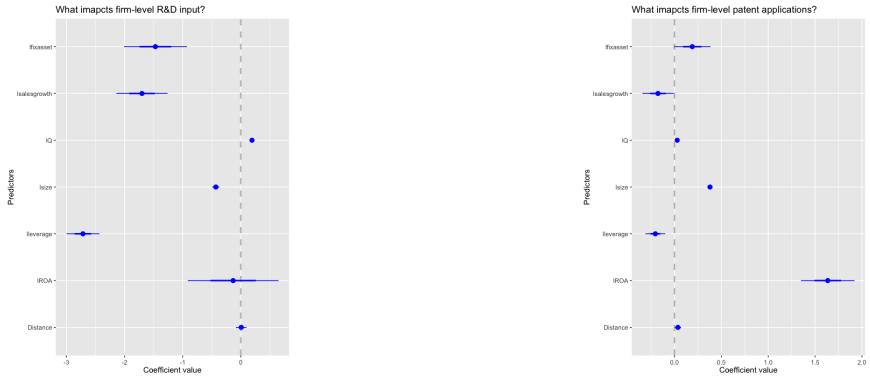


Figure 4.2: Effect of provincial leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between distance and firms' innvoation intensity, therefore a significantly negative coefficient value for "Distance" is expected.

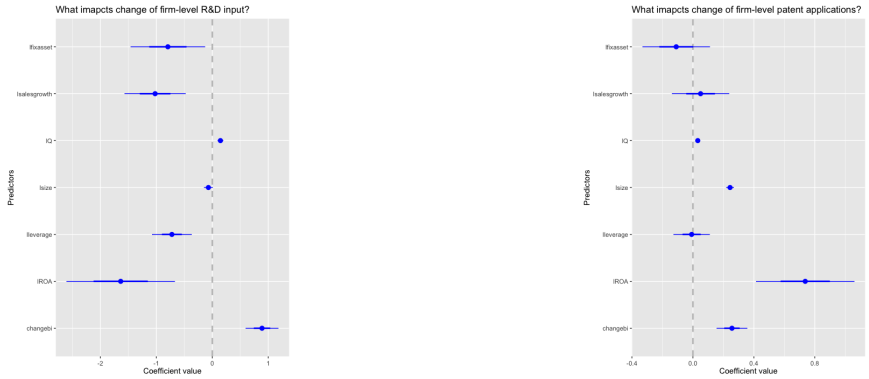


Figure 4.3: Effect of immediate change of city leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a positive relationship between change of patronage status and volatility of firms' innvoation intensity, therefore a significantly positive coefficient value for "changebi" is expected.

gression results), the coefficient values of "changebi", a binary variable representing whether leaders' patronage status changes or not, are both significantly positive as predicted.

The other two hypotheses predict that changes in the patronage status of local leaders result in a decrease in innovation commitment rather than an increase. The focus of Hypothesis 2b is on firms' response to an immediate change in the patronage status of city leaders, which argues that firms are likely to reduce their innovation intensity in the year following a change in the patronage status of their city leaders. As shown in Figure 4.4 (and reported in Tables 19 and 20 of Appendix B.7), when the patronage status of city leaders changes, the ratio of R&D input and patent applications are likely to decrease, which is consistent with the hypothesis.

The focus of Hypothesis 2c is on firms' responses to cumulative changes in the patronage status of local leaders over a period of time. This hypothesis asserts that

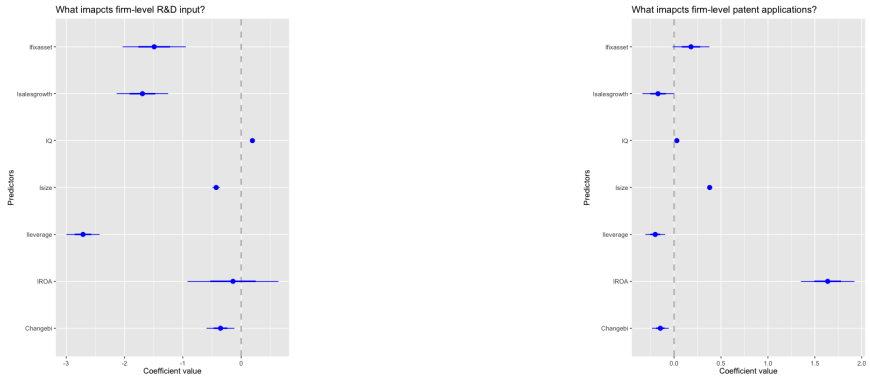


Figure 4.4: Effect of immediate change of city leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between change of patronage status and firms' innvoation intensity, therefore a significantly negative coefficient value for "changebi" is expected.

greater cumulative change leads to less innovation. Figure 4.5 indicates that cumulative change over the past four years discourages firm innovation systemically (please refer to Appendix B.7 Tables 21 and 22 for complete regression results), confirming the hypothesis. Figures 4.6 and 4.7 display similar effects of 3-year and 5-year cumulative change, respectively. As described in Section 3.2, the measurement of cumulative change takes both the frequency and magnitude of changes into account. This finding suggests that businesses are sensitive enough to respond to nuances in patronage status. In addition, the magnitude of cumulative change's effect is significantly greater than that of firm characteristics, indicating the importance of political and policy coherence in determining business decisions.

4.4.3 Extentional Analysis: Does Firm Ownership Matter?

The empirical findings suggest that changes in the patronage status of local leaders discourage firm-level innovation, and I assume this is due to concerns over polit-

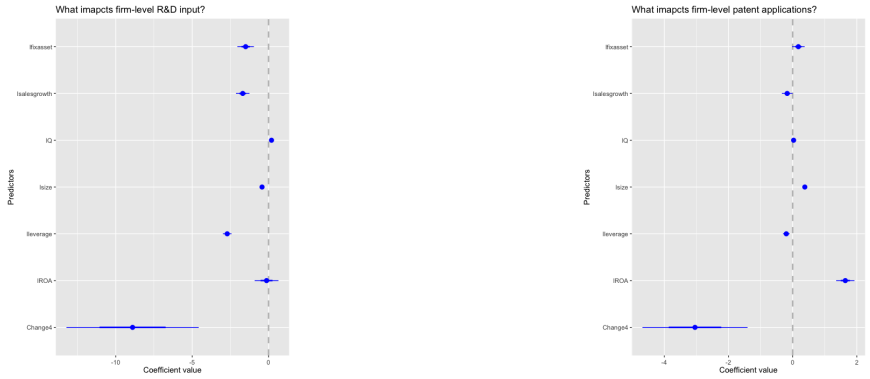


Figure 4.5: Effect of 4-year cumulative change of city leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between 4-year change of patronage status and firms' innvoation intensity, therefore a significantly negative coefficient value for "change4" is expected.

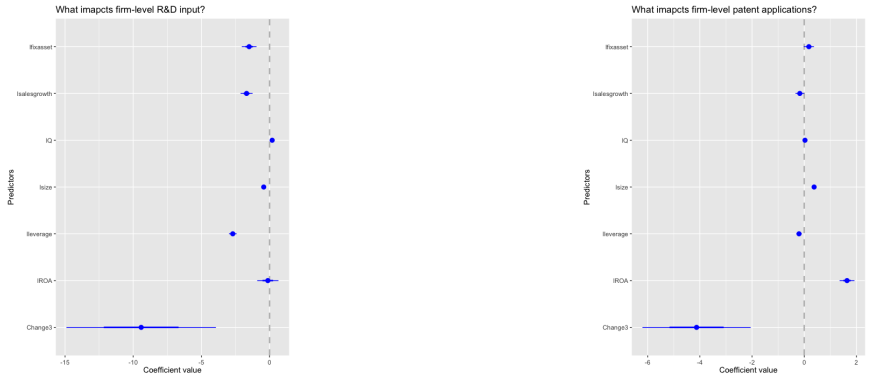


Figure 4.6: Effect of 3-year cumulative change of city leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between 3-year change of patronage status and firms' innvoation intensity, therefore a significantly negative coefficient value for "change3" is expected.

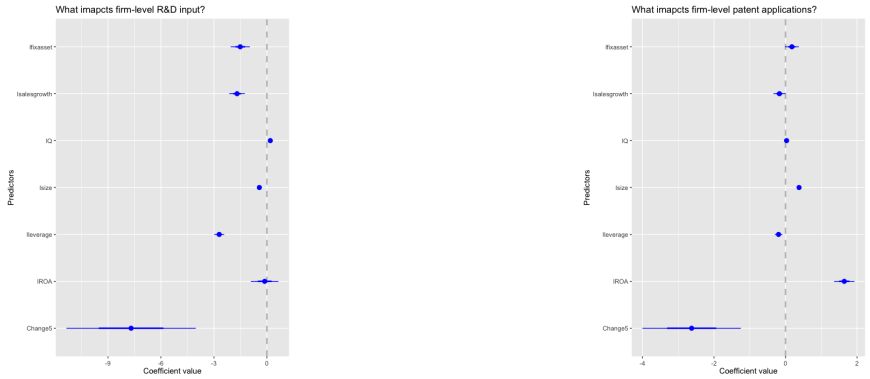


Figure 4.7: Effect of 5-year cumulative change of city leaders' patronage status

Note: 95 percent confidence intervals reported. My hypothesis predicts a negative relationship between 5-year change of patronage status and firms' innvoation intensity, therefore a significantly negative coefficient value for "change5" is expected.

ical and policy uncertainty, which are thought to be significantly detrimental to long-cycle and capital-intensive business activities such as technological innovation. However, not all businesses are as sensitive to policy inconsistency as others. Specifically, scholars of Chinese political economy have discovered that state-owned enterprises (SOE) not only enjoy long-term relationships with local banks and government agencies (Lin et al., 2020; Wang et al., 2004), but also take advantage of connections with higher-level bureaucrats built through the government-SOE involving door (Hay et al., 1994), which enables them to press local leaders for desired resource and expedient procedures (Szamosszegi, Kyle, 2011), receive stable inflows of public funds and cheap bank credits (Hay et al., 1994). Therefore, I anticipate weaker effects of changes in the patronage status of city leaders on SOEs.

$$|Innovation_{i,t+1} - Innovation_{i,t}| = \beta_1 changebi_{k,t} + \beta_2 SOE_{i,t} + \beta_3 changebi_{k,t} \times SOE_{i,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1} \quad (4.7)$$

$$Innovation_{i,t+1} = \beta_1 changebi_{k,t} + \beta_2 SOE_{i,t} + \beta_3 changebi_{k,t} \times SOE_{i,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1} \quad (4.8)$$

$$Innovation_{i,t+1} = \beta_1 change4_{k,t} + \beta_2 SOE_{i,t} + \beta_3 change4_{k,t} \times SOE_{i,t} + \delta X_{i,t} + \theta Y_{k,t} + \eta_{ind} + \gamma_{t+1} + \epsilon_{i,t+1} \quad (4.9)$$

As Equations 4.6-4.8 show, to test this expectation, I include in each model an interaction term between the primary independent variables of each hypothesis and SOE, a binary variable with a value of 1 when a firm is an SOE and 0 otherwise. If the mediating effect of firm ownership is present, we should see: one, the coefficient sign of the primary independent variable (β_1) and that of the interaction term (β_3) is different, and two, β_3 is statistically significant. The regression results (please see Model (4) in Appendix C Tables 7-16 for full results) show that none of the coefficients of interaction term is statistically significant when firm-level innovation intensity is measured with patent applicaitons. However, the main results reported in Table 1 suggest that, when it comes to firm-level R&D input,

firm ownership does mediate the effect of changes in city leaders' patronage status, regardless of whether the changes are immediate or cumulative. For instance, the results of Model (1) show that, while a change in leader's patronage status does increase the volatility of firm-level R&D input ratio (suggested by the significantly positive coefficient of "changebi"), being an SOE weakens such an effect (implied by the significantly negative coefficient of "changebi:SOE"). Similarly, the results of Models (2) and (3) suggest that being an SOE weakens the discouraging effect of either immediate or cumulative change in leaders' patronage status on firm-level R&D investment.

Table 4.1: Mediating Effect of firm ownership

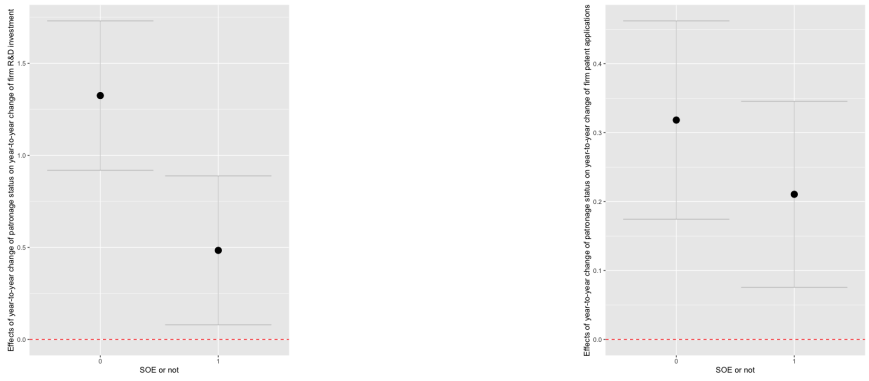
	Dependent variable:		
	change in R&D ratio	R&D ratio	R&D ratio
	(1)	(2)	(3)
changebi	1.324^{***}	-0.590^{***}	
change4			-14.173^{***}
SOE	0.940^{***}	-0.084	-0.107^{*}
changebi:SOE	-0.841^{***}	0.475^{***}	
change4:SOE			12.848^{***}
Note:			*p<0.1; **p<0.05; ***p<0.01

Figures 4.8-4.10 compare the effect of changes in the patronage status of city leaders on the innovation intensity of SOEs and non-SOEs in the sample. These marginal effect plots provide more precise and nuanced results than regression tables, as

they can display results from averages of subsets of the sample, whereas regression tables only provide results from sample averages. This is especially useful for my sample, where non-SOE observations account for approximately 64% and could easily dominate the regression results.

In Figure 4.8, the left plot depicts two 95% confidence intervals that do not overlap, indicating that the effect of a change in leaders' patronage status on the change in R&D investment intensity of SOEs is statistically distinct from the effect on the change in R&D investment intensity of non-SOEs. Moreover, both intervals are above the zero line, and the averaged effect for the SOEs is smaller, indicating that the volatility of R&D investment intensity is increased for both groups, but the SOEs are generally less sensitive. Meanwhile, in the right plot, although both positioned above the zero line, the two 95% confidence intervals substantially overlap. This means that patent application numbers change more in both SOEs and non-SOEs, and there is no systematic difference in the marginal effect of change in leaders' patronage status.

Figure 4.8: Effect of change in city leaders' patronage status



In Figure 4.9, we can see that a change in leaders' patronage status reduces patent applications in both SOEs and non-SOEs, and the effect remains consistent between two groups. The left plot depicts some overlapping between two confidence intervals, which suggests that we cannot reject the hypothesis that the effects of a change in leaders' patronage status on R&D investment intensity remain the same no matter the firms are SOEs or not. This null result is missed by the regression. indicating that the effect of a change in leaders' patronage status on the change in R&D investment intensity of SOEs is statistically distinct from the effect on the change in R&D investment intensity of non-SOEs. Moreover, this plot implies that, despite a negative impact on R&D investment intensity of non-SOEs, a change in leaders' patronage status has no systematic effect on R&D investment intensity of SOEs.

Figure 4.9: Effect of change in city leaders' patronage status

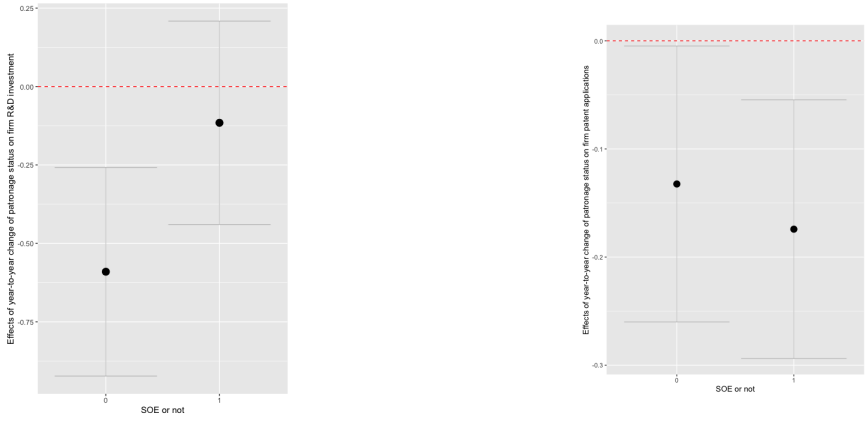
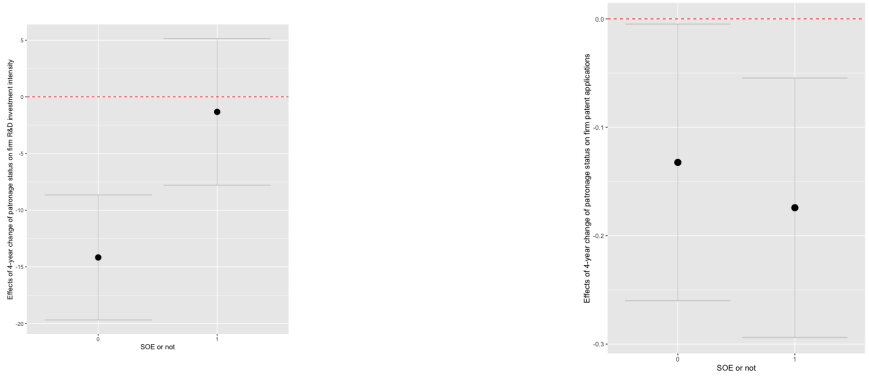


Figure 4.10 similarly suggests that the 4-year cumulative change in leaders' patronage status discourages patent applications in both SOEs and non-SOEs, and the effect remains consistent between two groups. Meanwhile, the left plot displays

Figure 4.10: Effect of 4-year change in city leaders' patronage status



two non-overlapped confidence intervals, suggesting a statistically significant difference in the effect between the R&D investment intensity of the two groups. Moreover, this plot implies that, despite a negative impact on R&D investment intensity of non-SOEs, 4-year cumulative change in leaders' patronage status has no systematic effect on R&D investment intensity of SOEs.

4.4.4 Robustness Check

I conduct a series of additional analyses to ensure the robustness of the main findings. First, leader turnovers are found to impact firm behavior including innovation. Given the correlation between leader turnover and change in leaders' patronage status, I add leader turnover as a control variable to the baseline models to ensure that my findings are not derived from leader turnover. Second, instead of industry fixed effects, I include firm fixed effects to control for the effect of unobservable firm characteristics. The regression results (please see Appendices B.8-B.9) are similar to the baseline results.

4.5 Conclusion

This chapter conducts empirical research to examine how local leaders' patronage status and the changes in it would likely impact firm innovation, and whether such impacts are conditioned on firm ownership. I demonstrate that there is no systematic effect of leaders' patronage status on innovation intensity of local firms. However, changes in leaders' patronage status, signaling policy shifts, have substantial effect on firm innovation. Specifically, in years when there is a change in leaders' patronage status, the intensity of firm innovation, as evaluated by both R&D investment intensity and patent applications, tends to change more than other years. Moreoever, firms are discouraged by both immediate and cumulative changes in local leaders' patronage status for fear of policy inconsistency. Being SOEs weakens the above-mentioned effects when it comes to R&D investment intensity. But in the case of patent applications, firm ownership does not moderate these effects.

Chapter 5
Conclusion

This dissertation is motivated by the puzzle of drastic variation in local implementation in China. Why would some local leaders be deeply committed in implementing difficult and expensive central policies such as innovation while others not? Is there a systematic pattern that can explain and predict which bureaucrats are more likely to make such a counterintuitive commitment?

Extant studies of local implementation have yet provided a compelling explanation for this puzzle. The failure is due to an oversimplified understanding of incentive structure, which assumes the dominance of outcome-based incentives and disregard the impacts of alternative incentive mechanisms such as patronage-based incentives. To address this flaw, this study brings the focus back to a complex bureaucratic incentive structure built on the coexistence of merit-based and patronage-based mechanisms, and explains how bureaucrats' patronage status, that is, their distance to the supreme leader's network, determines whether they would prioritize these policies as a strategy to gain the supreme leader's patronage.

I argue that bureaucrats make the decision based on their patronage status, that

is, their distance to the supreme leader's network. More specifically, the promotion structure makes prioritizing soft policies a high-risk, high-reward strategy. It is risky because it diverts resources from implementing hard policies and harms performance evaluation, but it also distinguishes implementers for their willingness to serve the leader's interest despite potential costs, creating a shortcut to the leader's patronage, which is the most desired promotion booster. With access to the leader's patronage, the potential repercussions of this action on performance evaluation are nullified. Officials closer to the core network are more likely to adopt it because of the anticipation of successively entering the core network. In contrast, officials further from the core network are more likely to prioritize hard policies, as the anticipated low likelihood of receiving the leader's patronage compels them to pursue the merit-based promotion as a more reliable route. This argument is evaluated in the context of China. Focusing on prefectural-level implementation of three policy categories that play different roles in performance evaluations, my empirical analysis provides strong evidence for my argument.

Existing research on local implementation has progressed substantially, but two key challenges remain. First, the existing literature has oversimplified the configurations of political selection system. Given the interest misalignment between politician at different levels, a majority of extant studies frame this topic with the logic of the principal-agent theory (PAT), either explicitly or implicitly (Holmström, 1979; Miller, 2005). The application of PAT places the understanding of the incentive structures in the center to explain and predict agent behaviors, or in the case of local implementation, the behaviors of local bureaucrats. Misunderstanding of incentive structures unavoidably leads to insufficient arguments. Extant literature

has fall short in that regard by oversimplifying the configurations, which not only leads to insufficient theoretical argument about implementation patterns but also results in weak power to explain variations in implementation.

Second, although the existing literature has well recognized the significance of policy implementation to authoritarian legitimacy and survival, policy multitasking as a rising legitimation challenge has yet received deserving attention. After the Cold War, the rapid growth of emerging economies has raised the bar for a "good life", encouraging people in these regions to demand not only material affluence but also clean environment and social security, among others. One can only imagine that, as time passes, the list of items in this "good-life" package would grow longer and the required policy efforts would become more diverse or even contradictory. Existing studies on performance-based legitimacy tend to focus on one specific policy or policies with similar characteristics (Eichengreen et al., 2013; Lee, 2013), rather than placing them in a complex policy landscape. To what degree is policy multitasking feasible? Academic efforts to answer this question are still scant.

This research produces the following key findings. I will discuss how they address these two challenges and their academic and policy implications.

1. Only bureaucrats who are close enough to the supreme leader's network are incentivized to prioritize soft policies, that is, policies associated with weak indicators in performance evaluations.

2. Other bureaucrats are more likely to prioritize hard policies, that is, policies associated with strong indicators in performance evaluations.

3. Firms treat local leaders' patronage status as heuristic signal of their policy

preference.

4. When making innovation decisions, firms typically do not care about the nature of local leaders' patronage status. Put it differently, firms would not increase innovation intensity just because their local leaders' patronage status signals preference for innovation, or vice versa.

5. However, firms' innovation intensity would be discouraged by more changes in patronage status of their local leaders. But state-owned enterprises (SOEs) are less sensitive to the changes.

5.1 Implications for Local Implimentation

It was a significant advance for extant research to recognize that political selection works through a dual-track system based on meritocracy and patronage as separate mechanisms (Jia et al., 2015b; Jiang, 2018a; Li, Gore, 2018; Pang et al., 2018). However, the current literature fails to capture the system's dynamics because, among other things, it overlooks the differences between the tracks and undervalues the proactive role of bureaucrats. To address these flaws, I point out a well-known fact, that is, the patronage-based track is more popular than the merit-based track, which leads to an obvious but overlooked situation: bureaucrats would prefer to be placed on the patronage-based track if possible. Such a desire to switch to a better track infuses the system with dynamics, distinguishing it from the static system described by existing literature. The new understandings of the political selection system will inevitably generate new knowledge about bureaucratic behaviors. While existing research, which assumes a static selection system, focuses on efforts to maximize career on current selection tracks, this dissertation describes

how bureaucrats think and act in order to switch to or remain on a better track. This track-switching story reveals deeper bureaucratic rationales, given that the calculations and actions undertaken to place oneself on a track precede those undertaken to seek rapid advancement while remaining on a specific track.

The calculation process mapped by my theory introduces two key parameters that directly influences the utility of prioritizing soft policies. The first is the level of power concentration within the national ruling coalition. My theory argues that, because of the zero-sum power struggle within the coalition, it is well recognized that the supreme leader tends to claim most credits for policy achievements and that clients of other ruling leaders are more vulnerable to sanctions for failure to meet performance standards. Such a landscape compels clients of other leaders to secure decent results of performance evaluations, which then discourages them from prioritizing soft policies. On the contrary, if the ruling power is more evenly distributed among the leaders, other leaders would claim more benefits from overall policy achievements and be less concerned over being purged. In this case, the bureaucrats connected to other leaders would likely be more incentivized to prioritize soft policies. In addition, a more balanced ruling coalition is in itself a more sanguine power structure for authoritarian survival (Bardhan, Mookherjee, 2012; Geddes, 1994; Li et al., 2019).

The second key parameter is the moderate difference between merit-based and patronage-based tracks. More specifically, although the supreme leader's patronage is more advantageous than other leaders' patronage, which enjoys advantages over the merit-based track, the differences are not substantial enough to push bu-

reaucrats towards the supreme leader's network regardless of risks. However, if the patronage-based track enjoys remarkable advantages over the merit-based track, bureaucrats are likely to become more risk-prone, which would likely raise the ratio of bureaucrats who prioritize soft policies. However, the rising inferiority of merit-based track indicates a weakened role of formal institutions. Although formal and informal institutions can be mutually complimentary, decreased effectiveness of formal institutions lowers the level of institutionalization (Acemoglu et al., 2008; Ang, 2018), which is not only generally detrimental to public well-being but also particularly harmful to certain issues that are highly dependent on institutional quality, such as technological innovation (Chen et al., 2005a; Rodríguez-Pose, Di Cataldo, 2015). Therefore, although a rising status of patronage-based track in political selection is likely to encourage more bureaucrats to implement soft policies, such an increase is contignet upon fundamental damages to overall institutional quality.

In a nutshell, two scenarios would potentially encourage more bureaucrats to prioritize soft policies. The first scenario is based on a more balanced distribution of power within the ruling coalition, which would not only motivate clients of other leaders to implement soft policies, but also contribute to a more sustainable regime. The second scenario involves disrupted meritocratic selection, which would motivate implementation of soft policies at the cost of overall institutional quality. Therefore, only the first scenario is better than the status quo.

5.2 Implications for Policy Multitasking and Authoritarian Legitimation

As discussed earlier, policy multitasking has become a challenge for regimes relying on performance-based legitimacy, including the CCP. As it enters a post-reform era marked by a combination of slowing economic growth and rising public demands, the Party has made substantial efforts to multitask, which is reflected in the CCP's changing policy slogans. For example, from 1990 to the beginning of the 21st century, "economic construction is at the forefront." The quote "building a harmonious society" was frequently used in the 2010s. In recent years, people are still familiar with phrases like "a mountain of gold and silver is not as valuable as a green mountain" and "science and technology revitalize our nation."

Legitimation through policy multitasking necessitates two-stage achievements. First, bureaucratic incentives exist to implement multiple policies, especially difficult and costly policies. Second, bureaucratic incentives can be transferred to societal or business incentives. However, systematic studies on both topics are still scant. This dissertation makes some preliminary efforts in this regard. In terms of bureaucratic incentives, given the low likelihood that each bureaucrat would implement multiple policies in a balanced way (Chapter 2), this dissertation attempts to examine whether each important central policy is carefully implemented by at least some bureaucrats. I find that only a small subset of bureaucrats are willing to prioritize soft policies, which are mostly crucial for achieving sustainable and high-quality growth. Also, as previously analyzed, only when the ruling coalition reaches a balance of power would there be a moderate increase of implementation.

In a word, it is highly difficult to secure sufficient bureaucratic incentives for policy multitasking.

This dissertation's second half is devoted to empirical research addressing the second question, that is, how bureaucratic incentives impact societal incentives. I do so by investigating how local leaders' patronage status, treated as heuristic signal of government incentives, affects firm innovation. The main findings suggest that, although firms do not really care about the nature of local leaders' patronage status, they do pay close attention to changes in it and would likely hesitate to invest in innovation when there are more changes. This implies that firms are deeply concerned over potential political uncertainty caused by changes in politicians' preference, knowing that individual leaders have substantial gravity in business environment.

A fundamental way to mitigate such a discouraging effect would be to strengthen institutional quality and stability so as to reduce the weight imposed by individual leaders. This would demand deep transformations in politics and institutions, which can by no means happen overnight. Another quicker way would be to reduce changes in local leaders' patronage status, which can be realized either through extending tenures or through assigning bureaucrats of the same patronage status to the same localities. However, both methods have flaws. It is argued that extended term is likely to reduce policy effectiveness (Chung, 2016) or even increase corruption and nepotism (Ang, 2018). Meanwhile, the capability to keep assigning clients to certain localities indicates that bureaucratic system is subject to free manipulation of the supreme leader, which is by no means a healthy institutional

characteristic.

5.3 Scope Conditions, Limitations and Future Work

Although this dissertation is focused on China, the underlying logic can travel to authoritarian regimes with the following two characteristics: First, regime legitimacy is substantially contingent on gaining broad societal support through economic or policy achievements, which not only necessitates efforts to deliver a good-life package to the public but also directs political patronage to play a more constructive role in enhancing public welfare. Second, meritocracy is an independent mechanism in political selection, as opposed to a secondary factor that moderates the influence of patronage. As economic and technological development have increased the importance of performance-based legitimation to authoritarian survival, the number of authoritarian regimes with the first characteristic is substantial and continues to increase. Correspondingly, the role of meritocracy in political selection would be emphasized more, as performance-based legitimacy necessitates competent bureaucrats. Hence, the external validity of my study is bolstered by its emphasis on long-term dynamics in the presence and future of authoritarian survival.

This dissertation is subject to several limitations. First, the main novelty of this dissertation is a description of a dual-track selection system with dynamics, which leads to bureaucrats' desire to switch promotion tracks. My theory maps a multi-step process of calculation made by bureaucrats before they decide whether to make efforts to switch to the track based on the supreme leader's patronage. However, my empirical research only conducts statistical tests of the observable expectations as a

result of such a process without providing qualitative evidence to corroborate the existence of those mind steps. To address this limitation, it is important to conduct fieldwork, including semi-structured interviews, surveys, and focus group, among others, to seek answers to the following questions: how do bureaucrats perceive the difference between merit-based selection and patronage-based selection? To what degree is the connection to the supreme leader advantageous to other connections? How important is policy implementation to build informal connections? How do they perceive the consequence of poor results of performance evaluations?

The second limitation is also caused by lack of fieldwork about firm decision making. Although the extensional analysis on mediating effect of form ownership provide some evidence that firms are disincentivized by concerns over political uncertainty, stronger and more direct corroboration is still necessary, which can only be done through firm answers to the following questions: to what degree do they pay attention to and identify local leaders' patronage status? What does it mean to them? How does it impact their innovation arrangements?

The third limitation is due to oversimplified measurement of some primary variables in this study. To begin with, the intensity of implementation in each policy area is measured with single-dimension metric, while policy implementation in reality always involves multiple aspects of bureaucratic efforts. Take innovation policy for an example. Governmental efforts to promote innovation oftentimes include financial, infrastructural, and institutional support (Görg, Strobl, 2007). Even financial support, the most quantifiable factor, cannot be measured in comprehensive way due to data inaccessibility. In addition to the regular S&T expenditures

(the measurement used in this dissertation), local governments also support firm innovation through investment made by Government Guidance Funds (GGFs), fee reduction and returns, and cheap credits (Fan et al., 2019). Data on GGFs is accessible but falls short in accuracy, while data on innovation-related fee reduction and preferential loans is totally unavailable. Moreover, institutional support, in addition to data inaccessibility, is in itself a concept hard to break down. One of the very few studies on how local institutions impact firm innovation in China is done by Rodríguez-Pose, Di Cataldo (2015), who break down institutional quality into eight factors and measure each with a survey on firms located in three Chinese cities. Given the budget and time limits, it was infeasible for me to do something similar. In general, this limitation is one that many scholars on innovation are subject to. Looking ahead, more work needs to be conducted to formulate a widely-accepted metric for implementation intensity of innovation policy, and intensive efforts need to be made to collect relevant data.

Last but not least, this study provides a robust agenda for future research. For example, it would be interesting to investigate how rotations at each administrative level, which result in frequent changes in patronage type of local leaders, affect policy consistency. Although this article finds no evidence of systematic manipulation of local appointments, its occurrence in the future cannot be ruled out, particularly when autocrats recognize the significance of policy multitasking and attempt to increase its efficiency through careful design. Also, systematic research can be conducted to examine the potential effect of state propaganda on reshaping the public's definition of a "good life" and the implications this has for policy formulation and implementation.

Appendix A

.1 Chapter 3: Summary Statistics

Table 1: Summary Statistics

Variable	N	Mean	St. Dev.	Min	Max
patronage status	3,920	2.998	1.035	1	4
age	3,819	53.264	3.428	37	61
gender	3,819	1.043	0.203	1	2
education	3,707	4.979	0.765	1	6
loggdp	3,920	16.432	0.937	13.461	19.411
logpcgdp	3,920	10.487	0.676	8.253	13.056
logfixinvst	3,920	16.050	1.061	11.767	18.738
logpopulation	3,920	5.949	0.638	2.868	7.313
fisc independence	3,920	2.492	1.502	0.649	18.399
urbanization	3,920	0.398	0.227	0.080	1.819
marketization	3,920	10.811	2.764	3.037	19.694
etr	3,153	0.240	0.142	0.003	0.538
logpcso2	3,462	4.322	1.185	−2.957	7.981
stratio	3,920	1.603	1.529	0.0003	20.683

.2 Robustness Checks

.2.1 Tax policy

Excluding observations of Guangzhou & Shenzhen

Table 2: Impact on Averaged ETR: excluding GZ & SZ

	Dependent variable:		
	Averaged ETR		
	(1)	(2)	(3)
patronage status	-0.005^{***}	-0.004^{**}	-0.006^{***}
	(0.002)	(0.002)	(0.002)
log(population)		−0.037	−0.054
		(0.040)	(0.042)
log(GDP)		-0.052^{*}	-0.058^{*}
		(0.030)	(0.031)
log(pcGDP)		0.026	0.029
		(0.025)	(0.026)
log(fixassetinvt)		0.022^{***}	0.020^{***}
		(0.006)	(0.006)
fisc independence		−0.001	−0.004
		(0.003)	(0.003)
marketization		0.002	0.002
		(0.004)	(0.004)
age			0.001
			(0.001)
gender			0.002
			(0.010)
education			−0.004
			(0.003)
Constant	0.183^{***}	0.682^{**}	0.895^{***}
	(0.024)	(0.301)	(0.320)
City-year fixed effects	✓	✓	✓
Observations	3,124	2,857	2,564
Adjusted R^2	0.630	0.637	0.639
Note:			*p<0.1; **p<0.05; ***p<0.01

Excluding observations before 2008

Table 3: Impact on Averaged ETR: excluding pre-2008

	Dependent variable:		
	Averaged ETR		
	(1)	(2)	(3)
patronage status	−0.005**	−0.004**	−0.006***
	(0.002)	(0.002)	(0.002)
log(population)		−0.048	−0.062
		(0.039)	(0.041)
log(GDP)		−0.052*	−0.063**
		(0.030)	(0.031)
log(pcGDP)		0.011	0.014
		(0.024)	(0.025)
log(fixassetinvt)		0.021***	0.023***
		(0.006)	(0.006)
fisc independence		−0.003	−0.004
		(0.003)	(0.003)
marketization		0.005	0.005
		(0.004)	(0.004)
age			0.001*
			(0.001)
gender			0.004
			(0.010)
education			−0.003
			(0.003)
Constant	0.256***	0.959***	1.133***
	(0.025)	(0.317)	(0.335)
City-year fixed effects	✓	✓	✓
Observations	2,763	2,500	2,266
Adjusted R^2	0.653	0.662	0.663
Note:			*p<0.1; **p<0.05; ***p<0.01

.2.2 Emission reduction policy

Excluding observations of Henan, Hebei & Shanxi

Table 4: Impact on SO_2 emissions: excl. 3 cities

	Dependent variable:		
	Log(per capita $SO2$ emission)		
	(1)	(2)	(3)
patronage status	-0.038^{***}	-0.038^{***}	-0.037^{***}
	(0.012)	(0.012)	(0.013)
log(GDP)		0.302^{**}	0.288^{*}
		(0.143)	(0.149)
log(pcGDP)		−0.081	−0.022
		(0.093)	(0.094)
log(population)		-1.492^{***}	-1.486^{***}
		(0.222)	(0.238)
log(fixassetinvt)		0.007	−0.021
		(0.032)	(0.034)
fisc independence		−0.017	−0.012
		(0.012)	(0.012)
urbanization		−0.056	0.059
		(0.183)	(0.195)
secondgrowthingdp		−0.0001	−0.00002
		(0.003)	(0.003)
age			0.003
			(0.004)
gender			0.090
			(0.056)
education			−0.027
			(0.018)
Constant	5.069^{***}	10.504^{***}	10.068^{***}
	(0.160)	(1.785)	(1.918)
City-year fixed effects	✓	✓	✓
Observations	2,949	2,949	2,629
Adjusted R^2	0.801	0.805	0.810
Note:			*p<0.1; **p<0.05; ***p<0.01

Excluding observations before 2008

Table 5: Impact on SO_2 emissions: excl. pre-2008

	Dependent variable:		
	Log(per capita $SO2$ emission)		
	(1)	(2)	(3)
patronage status	-0.051^{***}	-0.050^{***}	-0.049^{***}
	(0.012)	(0.012)	(0.013)
log(GDP)		0.231	0.211
		(0.162)	(0.168)
log(pcGDP)		−0.146	−0.107
		(0.096)	(0.097)
log(population)		-1.526^{***}	-1.426^{***}
		(0.252)	(0.264)
log(fixassetinvt)		−0.022	−0.037
		(0.035)	(0.038)
fisc independence		−0.002	−0.001
		(0.014)	(0.014)
urbanization		0.018	0.036
		(0.222)	(0.241)
secondgrowthingdp		0.006	0.006
		(0.004)	(0.004)
age			−0.001
			(0.004)
gender			0.074
			(0.058)
education			−0.010
			(0.019)
Constant	5.246^{***}	13.380^{***}	12.914^{***}
	(0.172)	(2.163)	(2.288)
City-year fixed effects	✓	✓	✓
Observations	2,682	2,682	2,434
Adjusted R^2	0.818	0.821	0.823
Note:			*p<0.1; **p<0.05; ***p<0.01

.2.3 Indigenous innovation policy

Excluding observations of Guangzhou & Shenzhen

Table 6: Impact on S&T expenditures: excl.GZ & SZ

	Dependent variable:		
	Ratio of *S&T* expenditure		
	(1)	(2)	(3)
patronage status	−0.011	−0.026**	−0.025**
	(0.016)	(0.015)	(0.015)
log(GDP)		1.839***	1.816***
		(0.169)	(0.157)
log(pcGDP)		−0.866***	−0.819***
		(0.130)	(0.119)
log(population)		1.555***	1.532***
		(0.278)	(0.273)
log(fixassetinvt)		−0.123***	−0.136***
		(0.042)	(0.040)
fisc independence		−0.116***	−0.114***
		(0.017)	(0.016)
age			0.003
			(0.005)
gender			0.009
			(0.066)
education			0.007
			(0.020)
Constant	0.342	−30.201***	−30.221***
	(0.229)	(2.128)	(2.075)
City-year fixed effects	✓	✓	✓
Observations	3,891	3,891	3,442
Adjusted R^2	0.629	0.659	0.716
Note:			*p<0.1; **p<0.05; ***p<0.01

.3 Test of Alternative Explanations

.3.1 Correlation between patronage status and pre-existing implementation

Table 7: Correlation with preexisting implementation

	Dependent variable:		
	Patronage Status		
	(1)	(2)	(3)
etr	−0.184		
	(0.159)		
log(pcso2)		0.025	
		(0.017)	
stratio			−0.014
			(0.012)
Constant	1.075***	0.935***	1.056***
	(0.043)	(0.077)	(0.025)
Observations	792	942	1,045
Log Likelihood	-1,308.708	-1,561.764	-1,726.065
Akaike Inf. Crit.	2,621.417	3,127.529	3,456.130
Note:			*p<0.1; **p<0.05; ***p<0.01

.3.2 Correlation between patronage status and pre-existing socio-economic conditions

Table 8: Correlation with socioeconomic conditions

	Dependent variable:
	Patronage Status
log(gdp)	−0.218
	(0.147)
log(popttl)	0.255*
	(0.145)
log(pcgdp)	0.119
	(0.169)
gdpgrowth	0.001
	(0.006)
fisind	−0.032*
	(0.019)
qualityindex	−0.007
	(0.010)
Constant	1.994***
	(0.596)
Observations	783
Log Likelihood	-1,284.690
Akaike Inf. Crit.	2,583.380
Note:	*p<0.1; **p<0.05; ***p<0.01

.4 Extensional Analysis

.4.1 Relationship between Patronage Status and Emission Reduction of Other Pollutants

Table 9: How about other pollutants?

	Dependent variable:		
	Log pcSoot	Log pcCO2	Log pcWater
patronage status	−0.021	−0.036	−0.027
	(0.018)	(0.029)	(0.024)
log(GDP)	1.735***	1.819***	1.916***
	(0.123)	(0.169)	(0.157)
log(pcGDP)	−0.769**	−0.866***	−0.819***
	(0.121)	(0.130)	(0.119)
log(population)	1.495	1.555	1.532
	(0.294)	(0.278)	(0.273)
log(fixassetinvt)	−0.128	−0.114*	−0.136**
	(0.053)	(0.065)	(0.040)
fisc independence	−0.126*	−0.116*	−0.114**
	(0.020)	(0.017)	(0.016)
age	0.002	0.026	0.003
	(0.004)	(0.003)	(0.005)
gender	0.007	0.008	0.009
	(0.043)	(0.058)	(0.066)
education	0.005	0.008	0.007
	(0.030)	(0.030)	(0.020)
Constant	0.342	−30.201**	−30.221*
	(0.229)	(2.128)	(2.075)
City-year fixed effects	✓	✓	✓
Observations	3,891	3,891	3,442
Adjusted R^2	0.752	0.779	0.860
Note:			*p<0.1; **p<0.05; ***p<0.01

.4.2 Mediating Effect of Leader's Power

Table 10: Mediating effect of leader's power?

	Dependent variable:		
	etr	log(pcso2)	stratio
	(1)	(2)	(3)
distance	−0.280**	−1.667**	−1.592*
	(0.132)	(0.711)	(0.903)
Xi	0.048	−1.936***	0.552***
	(0.036)	(0.162)	(0.180)
log(popttl)	−0.048	−1.400***	2.563***
	(0.038)	(0.221)	(0.264)
log(gdp)	−0.057*	0.290**	1.715***
	(0.029)	(0.137)	(0.161)
log(pcgdp)	0.028	−0.034	−0.733***
	(0.024)	(0.090)	(0.120)
log(fixassetinvt)	0.020***	−0.050	−0.177***
	(0.006)	(0.032)	(0.042)
fisind	−0.004	−0.004	−0.122***
	(0.003)	(0.012)	(0.016)
urbanization		0.132	
		(0.178)	
secondgrowthingdp		0.003	
		(0.003)	
age	0.001	0.004	0.003
	(0.001)	(0.004)	(0.005)
gender	0.002	0.090*	0.012
	(0.010)	(0.051)	(0.069)
edulevelsec	−0.004	−0.020	0.027
	(0.003)	(0.016)	(0.021)
distance:Xi	−0.096	−2.901**	−3.487**
	(0.236)	(1.374)	(2.004)
Constant	0.842***	10.737***	−35.911***
	(0.308)	(1.800)	(2.079)
Observations	2,589	3,086	3,469
Adjusted R^2	0.639	0.825	0.725
Note:			*p<0.1; **p<0.05; ***p<0.01

Appendix B

.5 Variable Definition

Table 11: Variable Definition: Chapter 4

Variables	Name	Dimension	Definition
Dependent variable			
R&D Investment Intensity	rdpercent	Firm-level	The ratio of R&D investment to total revenue, %
Invention Patent Applications	patent	Firm-level	Logarithm of the sum of invention patent application number and one
Independent variable			
Patronage status	distance	City-level	A city leader's distance to the supreme leader's network
Firm control variables			
Firm size	size	Firm-level	Logarithm of total assets
Firm age	age	Firm-level	Firm age
ROA	ROA	Firm-level	The ratio of total profits to total assets
Tobin's Q	Q	Firm-level	The ratio of market capitalization to total assets
Leverage	leverage	Firm-level	The ratio of total debt to total assets
Sales growth	salesgrowth	Firm-level	The year-to-year growth rate of sales
Fixed assets ratio	fixedassets	Firm-level	The ratio of fixed assets to total assets
Ownership	SOE	Firm-level	Whether the firm is state-owned enterprises or not, 1=Yes, 0=No
City control variables			
GDP	GDP	City-level	Gross domestic production, Yuan
GDP per capita	GDPpc	City-level	Gross domestic production per capita, Yuan per person
Investment in fixed assets	fixed assets	City-level	Logarithm of investment in fixed assets
Population	pop	City-level	City population at year end
University	university	City-level	Number of regular institutions of higher education
University enrollment	unienrol	City-level	Number of student enrollment in regular institutions of higher education, 100,000 person
Innovation	patentno	City-level	Number of patent applications per 1,000 inhabitants

.6 Descriptive Statistics

Table 12: Descriptive Statistics: Chapter 4

Statistic	N	Mean	St. Dev.	Min	Max
Distance	25,818	0.032	0.019	0.000	0.054
RD ratio	16,312	3.773	3.192	0.029	19.394
Patent applications	25,359	13.006	24.800	0	190
Size	25,867	21.937	1.237	17.122	28.257
Age	25,867	16.040	6.177	0	62
ROA	25,865	0.041	0.081	−1.872	0.880
Tobin' Q	25,401	2.067	2.401	0.153	122.189
Leverage	21,580	0.454	0.218	0.007	9.699
Sales growth	25,867	0.203	0.146	-0.330	3.888
Fixed assets	25,867	0.223	0.169	0.001	0.738
GDP	25,687	16.432	0.937	13.461	19.411
GDPpc	25,867	10.487	0.676	8.253	13.056
Fixedassets	25,687	16.050	1.061	11.767	18.738
Population	25,687	5.949	0.638	2.868	7.313
Patent number	25,687	1.953	2.639	0.125	11.570
University	25,687	33.305	26.757	3	89
Uni enrollment	25,687	3.508	2.793	0.446	9.204

.7 Regression Results: Baseline and with Interactive Term

Table 13: How does city leaders' patronage status impact firm-level R&D investment?

	Dependent variable:			
	rdpercent			
	(1)	(2)	(3)	(4)
distance	−0.839	−1.892	−0.805	−1.794
	(1.132)	(1.201)	(1.200)	(1.431)
SOE				−0.178*
				(0.098)
lROA		1.028***	−0.135	−0.191
		(0.383)	(0.390)	(0.392)
lleverage		−2.773***	−2.715***	−2.704***
		(0.140)	(0.142)	(0.142)
lsize		−0.160***	−0.429***	−0.422***
		(0.025)	(0.031)	(0.032)
lQ		0.061***	0.192***	0.193***
		(0.012)	(0.020)	(0.020)
lsalesgrowth		−1.310***	−1.697***	−1.669***
		(0.220)	(0.221)	(0.222)
lfixasset		−0.620**	−1.471***	−1.414***
		(0.262)	(0.271)	(0.273)
age		−0.048***	−0.041***	−0.040***
		(0.004)	(0.004)	(0.005)
distance:SOE				3.153
				(2.425)
City controls	No	No	Yes	Yes
Constant	0.147	5.950***	6.897***	6.780***
	(0.352)	(0.673)	(1.373)	(1.376)
Observations	16,283	12,932	12,285	12,272
Adjusted R^2	0.348	0.419	0.444	0.444

Note: *p<0.1; **p<0.05; ***p<0.01

Table 14: How does city leaders' patronage status impact firm-level invention patent applications

	Dependent variable:			
	patent			
	(1)	(2)	(3)	(4)
distance	0.218	0.354**	0.436	0.941*
	(0.407)	(0.415)	(0.452)	(0.555)
SOE				0.187***
				(0.035)
lROA		1.751***	1.636***	1.705***
		(0.129)	(0.142)	(0.143)
lleverage		−0.110**	−0.204***	−0.221***
		(0.044)	(0.053)	(0.053)
lsize		0.451***	0.379***	0.367***
		(0.009)	(0.011)	(0.011)
lQ		0.007*	0.029***	0.029***
		(0.004)	(0.006)	(0.006)
lsalesgrowth		−0.162**	−0.175**	−0.227***
		(0.074)	(0.083)	(0.083)
lfixasset		0.158*	0.188*	0.113
		(0.087)	(0.098)	(0.098)
age		−0.001	0.001	−0.001
		(0.002)	(0.002)	(0.002)
distance:SOE				−1.457*
				(0.882)
City controls	No	No	Yes	Yes
Constant	−0.196*	−9.874***	−10.539***	−10.363***
	(0.109)	(0.221)	(0.324)	(0.324)
Observations	25,310	20,732	17,590	17,590
Adjusted R^2	0.330	0.455	0.441	0.443

Note: *p<0.1; **p<0.05; ***p<0.01

Table 15: How does provincial leaders' patronage status impact firm-level R&D investment?

	Dependent variable:			
	rdpercent			
	(1)	(2)	(3)	(4)
Distance	−0.011	−0.032	0.007	−0.025
	(0.043)	(0.046)	(0.046)	(0.054)
SOE				−0.134*
				(0.078)
lROA		1.036***	−0.132	−0.191
		(0.383)	(0.390)	(0.392)
lleverage		−2.776***		
		(0.140)		
Leverage			−2.716***	−2.703***
			(0.142)	(0.142)
lsize		−0.160***	−0.429***	−0.423***
		(0.025)	(0.031)	(0.032)
lQ		0.061***	0.192***	0.194***
		(0.012)	(0.020)	(0.020)
lsalesgrowth		−1.316***	−1.701***	−1.672***
		(0.220)	(0.221)	(0.222)
lfixasset		−0.617**	−1.469***	−1.413***
		(0.262)	(0.271)	(0.273)
age		−0.048***	−0.041***	−0.040***
		(0.004)	(0.004)	(0.005)
Distance:SOE				0.104
				(0.094)
City controls	No	No	Yes	Yes
Constant	0.078	5.915***	6.865***	6.750***
	(0.351)	(0.672)	(1.372)	(1.376)
Observations	16,283	12,932	12,285	12,272
Adjusted R^2	0.348	0.419	0.444	0.444

Note: *p<0.1; **p<0.05; ***p<0.01

Table 16: How does provincial leaders' patronage status impact firm-level invention patent applications?

	Dependent variable:			
	patent			
	(1)	(2)	(3)	(4)
Distance	0.029*	0.020*	0.021*	0.023*
	(0.016)	(0.016)	(0.017)	(0.021)
SOE				0.159***
				(0.028)
lROA		1.750***	1.635***	1.704***
		(0.129)	(0.142)	(0.143)
lleverage		−0.110**		
		(0.044)		
Leverage			−0.204***	−0.223***
			(0.053)	(0.053)
lsize		0.451***	0.379***	0.368***
		(0.009)	(0.011)	(0.011)
lQ		0.007*	0.029***	0.029***
		(0.004)	(0.006)	(0.006)
lsalesgrowth		−0.163**	−0.176**	−0.228***
		(0.074)	(0.083)	(0.083)
lfixasset		0.161*	0.190*	0.116
		(0.087)	(0.098)	(0.098)
age		−0.001	0.001	−0.001
		(0.002)	(0.002)	(0.002)
Distance:SOE				−0.034
				(0.034)
City controls	No	No	Yes	Yes
Constant	−0.184*	−9.874***	−10.541***	−10.365***
	(0.109)	(0.221)	(0.323)	(0.324)
Observations	25,310	20,732	17,590	17,590
Adjusted R^2	0.330	0.455	0.441	0.443

Note: *p<0.1; **p<0.05; ***p<0.01

Table 17: How does change of patronage status impact change of R&D investment intensity?

	Dependent variable:			
	rdchange			
	(1)	(2)	(3)	(4)
changebi	0.898***	0.858***	0.889***	1.324***
	(0.138)	(0.145)	(0.147)	(0.207)
soe1				0.940***
				(0.285)
lROA		−0.859*	−1.637***	−1.575***
		(0.471)	(0.485)	(0.488)
lleverage		−0.870***	−0.722***	−0.750***
		(0.174)	(0.178)	(0.178)
lsize		0.040	−0.070*	−0.078*
		(0.032)	(0.040)	(0.040)
lQ		0.042***	0.146***	0.144***
		(0.014)	(0.026)	(0.026)
lsalesgrowth		−0.665**	−1.022***	−1.076***
		(0.270)	(0.274)	(0.275)
lfixasset		−0.048	−0.794**	−0.884***
		(0.317)	(0.333)	(0.336)
age		−0.013**	−0.009*	−0.011**
		(0.006)	(0.006)	(0.006)
changebi:soe1				−0.841***
				(0.290)
City controls	No	No	Yes	Yes
Constant	1.357**	1.466	1.159	0.918
	(0.657)	(1.011)	(0.928)	(0.947)
Observations	13,210	10,346	10,025	10,022
Adjusted R^2	0.085	0.096	0.108	0.109

Note: *p<0.1; **p<0.05; ***p<0.01

Table 18: How does change of patronage status impact change of invention patent applications?

	Dependent variable:			
	patentchange			
	(1)	(2)	(3)	(4)
changebi	0.048	0.058	0.256***	0.318***
	(0.041)	(0.043)	(0.051)	(0.073)
soe1				0.186*
				(0.099)
lROA		0.812***	0.737***	0.774***
		(0.146)	(0.162)	(0.162)
lleverage		0.025	−0.008	−0.020
		(0.049)	(0.060)	(0.060)
lsize		0.280***	0.244***	0.237***
		(0.010)	(0.013)	(0.013)
lQ		0.018***	0.032***	0.031***
		(0.004)	(0.007)	(0.007)
lsalesgrowth		0.092	0.050	0.019
		(0.085)	(0.094)	(0.094)
lfixasset		−0.190*	−0.110	−0.151
		(0.099)	(0.111)	(0.111)
age		0.0002	0.0005	−0.001
		(0.002)	(0.002)	(0.002)
changebi:soe1				−0.108
				(0.100)
City controls	No	No	Yes	Yes
Constant	0.723***	−5.172***	−5.898***	−5.858***
	(0.120)	(0.253)	(0.368)	(0.374)
Observations	24,799	20,276	17,166	17,166
Adjusted R^2	0.206	0.262	0.217	0.218

Note: *p<0.1; **p<0.05; ***p<0.01

Table 19: How does immediate change of patronage status impact R&D investment intensity?

	Dependent variable:			
	rdpercent			
	(1)	(2)	(3)	(4)
Changebi	−0.614***	−0.340***	−0.354***	−0.590***
	(0.116)	(0.118)	(0.119)	(0.170)
soe1				−0.084
				(0.056)
lROA		1.028***	−0.140	−0.218
		(0.383)	(0.390)	(0.392)
lleverage		−2.771***	−2.711***	−2.699***
		(0.140)	(0.142)	(0.142)
lsize		−0.159***	−0.428***	−0.421***
		(0.025)	(0.031)	(0.032)
lQ		0.062***	0.193***	0.194***
		(0.012)	(0.020)	(0.020)
lsalesgrowth		−1.307***	−1.692***	−1.665***
		(0.220)	(0.221)	(0.222)
lfixasset		−0.633**	−1.490***	−1.447***
		(0.262)	(0.271)	(0.274)
age		−0.048***	−0.040***	−0.040***
		(0.004)	(0.004)	(0.005)
Changebi:soe1				0.475**
				(0.235)
City controls	No	No	Yes	Yes
Constant	0.010	5.889***	6.834***	6.713***
	(0.349)	(0.672)	(1.372)	(1.375)
Observations	16,280	12,929	12,282	12,269
Adjusted R^2	0.349	0.419	0.445	0.444

Note: *p<0.1; **p<0.05; ***p<0.01

Table 20: How does immediate change of patronage status impact invention patent applications

	Dependent variable:			
	patent			
	(1)	(2)	(3)	(4)
Changebi	−0.163***	−0.137***	−0.146***	−0.132**
	(0.039)	(0.038)	(0.045)	(0.065)
soe1				0.144***
				(0.021)
lROA		1.749***	1.637***	1.710***
		(0.129)	(0.142)	(0.143)
lleverage		−0.107**	−0.200***	−0.221***
		(0.044)	(0.053)	(0.053)
lsize		0.451***	0.379***	0.368***
		(0.009)	(0.011)	(0.011)
lQ		0.007*	0.029***	0.029***
		(0.004)	(0.006)	(0.006)
lsalesgrowth		−0.158**	−0.171**	−0.225***
		(0.074)	(0.083)	(0.083)
lfixasset		0.144*	0.181*	0.107
		(0.087)	(0.098)	(0.098)
age		−0.0005	0.001	−0.001
		(0.002)	(0.002)	(0.002)
Changebi:soe1				−0.042
				(0.089)
City controls	No	No	Yes	Yes
Constant	−0.131	−9.820***	−10.508***	−10.324***
	(0.109)	(0.221)	(0.323)	(0.324)
Observations	25,303	20,725	17,584	17,584
Adjusted R^2	0.330	0.455	0.441	0.443

Note: *p<0.1; **p<0.05; ***p<0.01

Table 21: How does 4-year change of patronage status impact R&D investment?

	Dependent variable:			
	rdpercent			
	(1)	(2)	(3)	(4)
Change4	−13.202***	−9.007***	−8.899***	−14.173***
	(2.072)	(2.148)	(2.164)	(2.815)
soe1				−0.107*
				(0.057)
lROA		1.032***	−0.131	−0.201
		(0.382)	(0.390)	(0.392)
lleverage		−2.766***	−2.705***	−2.698***
		(0.140)	(0.142)	(0.142)
lsize		−0.161***	−0.427***	−0.419***
		(0.025)	(0.031)	(0.031)
lQ		0.061***	0.193***	0.193***
		(0.012)	(0.020)	(0.020)
lsalesgrowth		−1.305***	−1.690***	−1.659***
		(0.219)	(0.220)	(0.222)
lfixasset		−0.643**	−1.500***	−1.461***
		(0.262)	(0.271)	(0.273)
age		−0.048***	−0.040***	−0.039***
		(0.004)	(0.004)	(0.005)
Change4:soe1				12.848***
				(4.291)
City controls	No	No	Yes	Yes
Constant	0.027	5.934***	6.833***	6.692***
	(0.349)	(0.671)	(1.371)	(1.373)
Observations	16,276	13,925	12,278	12,265
Adjusted R^2	0.350	0.420	0.445	0.445
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 22: How does 4-year change of patronage status impact invention patent applications?

	Dependent variable:			
	patent			
	(1)	(2)	(3)	(4)
Change4	−3.699***	−2.643***	−3.042***	−3.031***
	(0.710)	(0.709)	(0.819)	(1.133)
soe1				0.144***
				(0.021)
lROA		1.751***	1.640***	1.713***
		(0.129)	(0.143)	(0.143)
lleverage		−0.104**	−0.198***	−0.218***
		(0.044)	(0.053)	(0.053)
lsize		0.450***	0.379***	0.367***
		(0.009)	(0.011)	(0.011)
lQ		0.007*	0.030***	0.029***
		(0.004)	(0.006)	(0.006)
lsalesgrowth		−0.155**	−0.170**	−0.225***
		(0.074)	(0.083)	(0.083)
lfixasset		0.144	0.178*	0.104
		(0.087)	(0.098)	(0.098)
age		−0.0005	0.001	−0.001
		(0.002)	(0.002)	(0.002)
Change4:soe1				−0.328
				(1.602)
City controls	No	No	Yes	Yes
Constant	−0.117	−9.794***	−10.498***	−10.313***
	(0.109)	(0.221)	(0.326)	(0.327)
Observations	25,289	20,712	17,573	17,573
Adjusted R^2	0.331	0.455	0.441	0.443

Note: *p<0.1; **p<0.05; ***p<0.01

Table 23: How does 3-year change of patronage status impact R&D investment?

	Dependent variable:			
	rdpercent			
	(1)	(2)	(3)	(4)
Change3	−15.799***	−9.586***	−9.415***	−15.731***
	(2.612)	(2.735)	(2.741)	(3.657)
soe1				−0.096*
				(0.057)
lROA		1.040***	−0.126	−0.196
		(0.382)	(0.390)	(0.392)
lleverage		−2.757***	−2.697***	−2.689***
		(0.140)	(0.142)	(0.142)
lsize		−0.161***	−0.427***	−0.420***
		(0.025)	(0.031)	(0.032)
lQ		0.061***	0.192***	0.194***
		(0.012)	(0.020)	(0.020)
lsalesgrowth		−1.300***	−1.685***	−1.654***
		(0.220)	(0.220)	(0.222)
lfixasset		−0.641**	−1.497***	−1.454***
		(0.262)	(0.271)	(0.274)
age		−0.048***	−0.040***	−0.040***
		(0.004)	(0.004)	(0.005)
Change3:soe1				14.473***
				(5.411)
City controls	No	No	Yes	Yes
Constant	0.028	5.930***	6.850***	6.707***
	(0.349)	(0.672)	(1.371)	(1.374)
Observations	16,278	13,927	12,280	12,267
Adjusted R^2	0.350	0.420	0.445	0.445

Note: *p<0.1; **p<0.05; ***p<0.01

Table 24: How does 3-year change of patronage status impact invention patent applications?

	Dependent variable:			
	patent			
	(1)	(2)	(3)	(4)
Change3	−4.870***	−3.479***	−4.126***	−3.602**
	(0.886)	(0.891)	(1.037)	(1.466)
soe1				0.146***
				(0.021)
lROA		1.753***	1.641***	1.715***
		(0.129)	(0.142)	(0.143)
lleverage		−0.105**	−0.199***	−0.219***
		(0.044)	(0.053)	(0.053)
lsize		0.450***	0.379***	0.367***
		(0.009)	(0.011)	(0.011)
lQ		0.007*	0.030***	0.029***
		(0.004)	(0.006)	(0.006)
lsalesgrowth		−0.157**	−0.170**	−0.224***
		(0.074)	(0.083)	(0.083)
lfixasset		0.144	0.179*	0.104
		(0.087)	(0.098)	(0.098)
age		−0.0004	0.001	−0.001
		(0.002)	(0.002)	(0.002)
Change3:soe1				−1.456
				(2.034)
City controls	No	No	Yes	Yes
Constant	−0.115	−9.795***	−10.488***	−10.297***
	(0.109)	(0.221)	(0.323)	(0.324)
Observations	25,296	20,719	17,579	17,579
Adjusted R^2	0.331	0.455	0.441	0.443

Note: *p<0.1; **p<0.05; ***p<0.01

Table 25: How does 5-year change of patronage status impact R&D investment?

	Dependent variable:			
	rdpercent			
	(1)	(2)	(3)	(4)
Change5	−11.279***	−8.046***	−7.690***	−12.330***
	(1.731)	(1.820)	(1.830)	(2.380)
soe1				−0.112*
				(0.058)
lROA		1.037***	−0.124	−0.190
		(0.382)	(0.390)	(0.392)
lleverage		−2.761***	−2.701***	−2.695***
		(0.140)	(0.142)	(0.142)
lsize		−0.161***	−0.427***	−0.420***
		(0.025)	(0.031)	(0.031)
lQ		0.061***	0.193***	0.193***
		(0.012)	(0.020)	(0.020)
lsalesgrowth		−1.304***	−1.690***	−1.657***
		(0.220)	(0.220)	(0.222)
lfixasset		−0.651**	−1.509***	−1.469***
		(0.262)	(0.271)	(0.274)
age		−0.048***	−0.040***	−0.040***
		(0.004)	(0.004)	(0.005)
Change5:soe1				11.290***
				(3.619)
City controls	No	No	Yes	Yes
Constant	0.068	5.985***	6.859***	6.738***
	(0.349)	(0.672)	(1.371)	(1.374)
Observations	16,273	13,922	12,275	12,262
Adjusted R^2	0.350	0.420	0.445	0.445
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 26: How does 5-year change of patronage status impact invention patent applications

	Dependent variable:			
	patent			
	(1)	(2)	(3)	(4)
Change5	−3.483***	−2.249***	−2.625***	−2.914***
	(0.598)	(0.602)	(0.688)	(0.957)
soe1				0.142***
				(0.021)
lROA		1.753***	1.643***	1.714***
		(0.129)	(0.143)	(0.143)
lleverage		−0.102**	−0.195***	−0.215***
		(0.044)	(0.053)	(0.053)
lsize		0.450***	0.378***	0.367***
		(0.009)	(0.011)	(0.011)
lQ		0.007*	0.029***	0.029***
		(0.004)	(0.006)	(0.006)
lsalesgrowth		−0.156**	−0.171**	−0.225***
		(0.075)	(0.083)	(0.083)
lfixasset		0.144*	0.178*	0.103
		(0.087)	(0.098)	(0.098)
age		−0.001	0.001	−0.001
		(0.002)	(0.002)	(0.002)
Change5:soe1				0.280
				(1.342)
City controls	No	No	Yes	Yes
Constant	−0.104	−9.785***	−10.490***	−10.306***
	(0.109)	(0.221)	(0.326)	(0.327)
Observations	25,282	20,705	17,568	17,568
Adjusted R^2	0.331	0.455	0.441	0.443

Note: *p<0.1; **p<0.05; ***p<0.01

.8 Robustness Check: Controlling for Leader Turnover

Table 27: Effect of Patronage Status on Innovation Intensity

	Dependent variable:			
	rdpercent		patent	
	(1)	(2)	(3)	(4)
distance	−0.805	−1.794	0.436	0.941*
	(1.200)	(1.431)	(0.452)	(0.555)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		−0.178*		0.187***
		(0.098)		(0.035)
lROA	−0.135	−0.191	1.636***	1.705***
	(0.390)	(0.392)	(0.142)	(0.143)
lleverage	−2.715***	−2.704***	−0.204***	−0.221***
	(0.142)	(0.142)	(0.053)	(0.053)
lsize	−0.429***	−0.422***	0.379***	0.367***
	(0.031)	(0.032)	(0.011)	(0.011)
lQ	0.192***	0.193***	0.029***	0.029***
	(0.020)	(0.020)	(0.006)	(0.006)
lsalesgrowth	−1.697***	−1.669***	−0.175**	−0.227***
	(0.221)	(0.222)	(0.083)	(0.083)
lfixasset	−1.471***	−1.414***	0.188*	0.113
	(0.271)	(0.273)	(0.098)	(0.098)
age	−0.041***	−0.040***	0.001	−0.001
	(0.004)	(0.005)	(0.002)	(0.002)
distance:SOE		3.153		−1.457*
		(2.425)		(0.882)
City controls	Yes	Yes	Yes	Yes
Constant	6.897***	6.780***	−10.539***	−10.363***
	(1.373)	(1.376)	(0.324)	(0.324)
Observations	12,285	12,272	17,590	17,590
Adjusted R^2	0.444	0.444	0.441	0.443
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 28: Effect of Change of Patronage Status on Change of Innovation Intensity

	Dependent variable:			
	rdchange		patentchange	
	(1)	(2)	(3)	(4)
changebi	0.889***	1.324***	0.256***	0.318***
	(0.147)	(0.207)	(0.051)	(0.073)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		0.940***		0.186*
		(0.285)		(0.099)
lROA	−1.637***	−1.575***	0.737***	0.774***
	(0.485)	(0.488)	(0.162)	(0.162)
Leverage	−0.722***	−0.750***	−0.008	−0.020
	(0.178)	(0.178)	(0.060)	(0.060)
lsize	−0.070*	−0.078*	0.244***	0.237***
	(0.040)	(0.040)	(0.013)	(0.013)
lQ	0.146***	0.144***	0.032***	0.031***
	(0.026)	(0.026)	(0.007)	(0.007)
lsalesgrowth	−1.022***	−1.076***	0.050	0.019
	(0.274)	(0.275)	(0.094)	(0.094)
lfixassets	−0.794**	−0.884***	−0.110	−0.151
	(0.333)	(0.336)	(0.111)	(0.111)
age	−0.009*	−0.011**	0.0005	−0.001
	(0.006)	(0.006)	(0.002)	(0.002)
changebi:SOE		−0.841***		−0.108
		(0.290)		(0.100)
City controls	Yes	Yes	Yes	Yes
Constant	1.159	0.918	−5.898***	−5.858***
	(0.928)	(0.947)	(0.368)	(0.374)
Observations	10,025	10,022	17,166	17,166
Adjusted R^2	0.108	0.109	0.217	0.218
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 29: Effect of Immediate Change of Patronage Status on Innovation Intensity

	Dependent variable:			
	rdpercent		patent	
	(1)	(2)	(3)	(4)
changebi	−0.354***	−0.590***	−0.146***	−0.132**
	(0.119)	(0.170)	(0.045)	(0.065)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		0.391*		0.103
		(0.232)		(0.087)
lROA	−0.140	−0.218	1.637***	1.710***
	(0.390)	(0.392)	(0.142)	(0.143)
lleverage	−2.711***	−2.699***	−0.200***	−0.221***
	(0.142)	(0.142)	(0.053)	(0.053)
lsize	−0.428***	−0.421***	0.379***	0.368***
	(0.031)	(0.032)	(0.011)	(0.011)
lQ	0.193***	0.194***	0.029***	0.029***
	(0.020)	(0.020)	(0.006)	(0.006)
lsalesgrowth	−1.692***	−1.665***	−0.171**	−0.225***
	(0.221)	(0.222)	(0.083)	(0.083)
lfixassets	−1.490***	−1.447***	0.181*	0.107
	(0.271)	(0.274)	(0.098)	(0.098)
age	−0.040***	−0.040***	0.001	−0.001
	(0.004)	(0.005)	(0.002)	(0.002)
changebi:SOE		0.475**		0.042
		(0.235)		(0.089)
City controls	Yes	Yes	Yes	Yes
Constant	6.481***	6.123***	−10.655***	−10.456***
	(1.377)	(1.386)	(0.326)	(0.331)
Observations	12,282	12,269	17,584	17,584
Adjusted R^2	0.445	0.444	0.441	0.443
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 30: Effect of 4-Year Change of Patronage Status on Innovation Intensity

	Dependent variable:			
	rdpercent		patent	
	(1)	(2)	(3)	(4)
Change4	−8.899***	−14.173***	−3.042***	−3.031***
	(2.164)	(2.815)	(0.819)	(1.133)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		−0.107*		0.144***
		(0.057)		(0.021)
lROA	−0.131	−0.201	1.640***	1.713***
	(0.390)	(0.392)	(0.143)	(0.143)
lleverage	−2.705***	−2.698***	−0.198***	−0.218***
	(0.142)	(0.142)	(0.053)	(0.053)
lsize	−0.427***	−0.419***	0.379***	0.367***
	(0.031)	(0.031)	(0.011)	(0.011)
lQ	0.193***	0.193***	0.030***	0.029***
	(0.020)	(0.020)	(0.006)	(0.006)
lsalesgrowth	−1.690***	−1.659***	−0.170**	−0.225***
	(0.220)	(0.222)	(0.083)	(0.083)
lfixassets	−1.500***	−1.461***	0.178*	0.104
	(0.271)	(0.273)	(0.098)	(0.098)
age	−0.040***	−0.039***	0.001	−0.001
	(0.004)	(0.005)	(0.002)	(0.002)
Change4:SOE		12.848***		−0.328
		(4.291)		(1.602)
City controls	Yes	Yes	Yes	Yes
Constant	6.833***	6.692***	−10.498***	−10.313***
	(1.371)	(1.373)	(0.326)	(0.327)
Observations	12,278	12,265	17,573	17,573
Adjusted R^2	0.445	0.445	0.441	0.443
Note:				*p<0.1; **p<0.05; ***p<0.01

.9 Robustness Check: Firm Fixed Effects

Table 31: Effect of Patronage Status on Innovation Intensity

	Dependent variable:			
	rdpercent		patent	
	(1)	(2)	(3)	(4)
distance	−0.805	−1.794	0.436	0.941*
	(1.200)	(1.431)	(0.452)	(0.555)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		−0.178*		0.187***
		(0.098)		(0.035)
lROA	−0.135	−0.191	1.636***	1.705***
	(0.390)	(0.392)	(0.142)	(0.143)
lleverage	−2.715***	−2.704***	−0.204***	−0.221***
	(0.142)	(0.142)	(0.053)	(0.053)
lsize	−0.429***	−0.422***	0.379***	0.367***
	(0.031)	(0.032)	(0.011)	(0.011)
lQ	0.192***	0.193***	0.029***	0.029***
	(0.020)	(0.020)	(0.006)	(0.006)
lsalesgrowth	−1.697***	−1.669***	−0.175**	−0.227***
	(0.221)	(0.222)	(0.083)	(0.083)
lfixassets	−1.471***	−1.414***	0.188*	0.113
	(0.271)	(0.273)	(0.098)	(0.098)
age	−0.041***	−0.040***	0.001	−0.001
	(0.004)	(0.005)	(0.002)	(0.002)
distance:SOE		3.153		−1.457*
		(2.425)		(0.882)
Constant	6.897***	6.780***	−10.539***	−10.363***
	(1.373)	(1.376)	(0.324)	(0.324)
Observations	12,285	12,272	17,590	17,590
Adjusted R^2	0.444	0.444	0.441	0.443
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 32: Effect of Change of Patronage Status on Change of Innovation Intensity

	Dependent variable:			
	rdchange		patentchange	
	(1)	(2)	(3)	(4)
changebi	0.889***	1.324***	0.256***	0.318***
	(0.147)	(0.207)	(0.051)	(0.073)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		0.940***		0.186*
		(0.285)		(0.099)
lROA	−1.637***	−1.575***	0.737***	0.774***
	(0.485)	(0.488)	(0.162)	(0.162)
lleverage	−0.722***	−0.750***	−0.008	−0.020
	(0.178)	(0.178)	(0.060)	(0.060)
lsize	−0.070*	−0.078*	0.244***	0.237***
	(0.040)	(0.040)	(0.013)	(0.013)
lQ	0.146***	0.144***	0.032***	0.031***
	(0.026)	(0.026)	(0.007)	(0.007)
lsalesgrowth	−1.022***	−1.076***	0.050	0.019
	(0.274)	(0.275)	(0.094)	(0.094)
lfixassets	−0.794**	−0.884***	−0.110	−0.151
	(0.333)	(0.336)	(0.111)	(0.111)
age	−0.009*	−0.011**	0.0005	−0.001
	(0.006)	(0.006)	(0.002)	(0.002)
changebi:SOE		−0.841***		−0.108
		(0.290)		(0.100)
City controls	Yes	Yes	Yes	Yes
Constant	1.159	0.918	−5.898***	−5.858***
	(0.928)	(0.947)	(0.368)	(0.374)
Observations	10,025	10,022	17,166	17,166
Adjusted R^2	0.108	0.109	0.217	0.218
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 33: Effect of Immediate Change of Patronage Status on Innovation Intensity

	Dependent variable:			
	rdpercent		patent	
	(1)	(2)	(3)	(4)
changebi	−0.354***	−0.590***	−0.146***	−0.132**
	(0.119)	(0.170)	(0.045)	(0.065)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		0.391*		0.103
		(0.232)		(0.087)
lROA	−0.140	−0.218	1.637***	1.710***
	(0.390)	(0.392)	(0.142)	(0.143)
lleverage	−2.711***	−2.699***	−0.200***	−0.221***
	(0.142)	(0.142)	(0.053)	(0.053)
lsize	−0.428***	−0.421***	0.379***	0.368***
	(0.031)	(0.032)	(0.011)	(0.011)
lQ	0.193***	0.194***	0.029***	0.029***
	(0.020)	(0.020)	(0.006)	(0.006)
lsalesgrowth	−1.692***	−1.665***	−0.171**	−0.225***
	(0.221)	(0.222)	(0.083)	(0.083)
lfixedassets	−1.490***	−1.447***	0.181*	0.107
	(0.271)	(0.274)	(0.098)	(0.098)
age	−0.040***	−0.040***	0.001	−0.001
	(0.004)	(0.005)	(0.002)	(0.002)
changebi:SOE		0.475**		0.042
		(0.235)		(0.089)
City controls	Yes	Yes	Yes	Yes
Constant	6.481***	6.123***	−10.655***	−10.456***
	(1.377)	(1.386)	(0.326)	(0.331)
Observations	12,282	12,269	17,584	17,584
Adjusted R^2	0.445	0.444	0.441	0.443
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 34: Effect of 4-Year Change of Patronage Status on Innovation Intensity

	Dependent variable:			
	rdpercent		patent	
	(1)	(2)	(3)	(4)
Change4	−8.899***	−14.173***	−3.042***	−3.031***
	(2.164)	(2.815)	(0.819)	(1.133)
leader turnover		−0.0780		0.107*
		(0.098)		(0.035)
SOE		−0.107*		0.144***
		(0.057)		(0.021)
lROA	−0.131	−0.201	1.640***	1.713***
	(0.390)	(0.392)	(0.143)	(0.143)
llLeverage	−2.705***	−2.698***	−0.198***	−0.218***
	(0.142)	(0.142)	(0.053)	(0.053)
lsize	−0.427***	−0.419***	0.379***	0.367***
	(0.031)	(0.031)	(0.011)	(0.011)
lQ	0.193***	0.193***	0.030***	0.029***
	(0.020)	(0.020)	(0.006)	(0.006)
lsalesgrowth	−1.690***	−1.659***	−0.170**	−0.225***
	(0.220)	(0.222)	(0.083)	(0.083)
lfixedassets	−1.500***	−1.461***	0.178*	0.104
	(0.271)	(0.273)	(0.098)	(0.098)
age	−0.040***	−0.039***	0.001	−0.001
	(0.004)	(0.005)	(0.002)	(0.002)
Change4:SOE		12.848***		−0.328
		(4.291)		(1.602)
City controls	Yes	Yes	Yes	Yes
Constant	6.833***	6.692***	−10.498***	−10.313***
	(1.371)	(1.373)	(0.326)	(0.327)
Observations	12,278	12,265	17,573	17,573
Adjusted R^2	0.445	0.445	0.441	0.443
Note:				*p<0.1; **p<0.05; ***p<0.01

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