Crony Capitalism, the Party-State, and the Political Boundaries of Corruption

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Abstract

How do crony capitalism, corruption, and the state apparatus connect in an autocracy? We investigate this question by building a model of the link between various positions in the hierarchy of an autocratic state. Inspired by the party-state in China where crony capitalism is central in the economy, we show how the state’s economically distortionary role encourages corruption between local officials and businesses, which finances vertical corruption chains in the party-state hierarchy, threatening the Center’s control over the hierarchy. The trade-off between the incentive effect on the economy and the erosive effect on control thus leads to define boundaries of corruption. The Center’s response to too high corruption and other defying behaviors of officials depends on the power distribution and corruption within the Center and the reliance of central leaders on the support by provincial officials. Our results are consistent with recent developments in China.

Keywords: autocracy, corruption control, state apparatus, reciprocal accountability, Communist Party of China

JEL codes: D73, P30, H12, H77.

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1 Introduction

The coexistence of inefficient economic institutions and very high economic growth in China in recent decades has been a puzzle to economists (e.g., Brandt and Rawski, 2008; Xu, 2011; Qian, 2017). Bai et al. (2014, 2020) argue that corruption between officials and businesses has been an important part of China’s growth miracle, as corruption protects cronies’ business firms from the inefficiency of economic institutions, while damages of classic crony capitalism are alleviated by certain “Chinese characteristics,” such as competition between local governments. This model of crony capitalism with Chinese characteristics has been considered one of the benchmarks in understanding the political economy of China’s growth (as in, e.g., An et al., 2016; Francois et al., 2016; Lorentzen, 2017; Lei, 2018; Chen and Kung, 2019; He et al., 2020).

Questions on this model of Chinese crony capitalism have been raised in light of the anti-corruption campaign launched by Xi Jinping since 2012. The scale of the campaign has shown the resolution of CPC leaders, and empirical evidence suggests that this campaign, whatever its motives are, represents indeed a serious effort to crackdown on corruption (e.g., Central Commission for Discipline Inspection of the Party, CCDI, 2017; Francois et al., 2016; Lu and Lorentzen, 2018; Chen and Kung, 2019). If we take seriously the model of crony capitalism with Chinese characteristics, this crackdown must have been imposing great economic costs, and recent empirical evidence does support this prediction (e.g., Araral et al., 2018; Chen and Zhong, 2018; Qu et al., 2018; Xi et al., 2018). Given all this, what are the reasons for the crackdown on corruption,

1China’s economic development has been impressive since the market economy was introduced 40 years ago, but economic institutions in China are still widely considered to be inefficient. For example, barriers to entry and mobility abound, protection of private property rights is weak, and commitment to policies is fragile at best – the World Bank’s “starting a business” indicator measuring institutional friendliness to the private economy ranks China barely above Iraq and Ethiopia. Brandt and Rawski (2008) summarize the puzzle as “China’s remarkable mixture of high-speed growth and deeply flawed institutions.”

2The CCDI reported that, by 2017, more than 1.5 million officials had been disciplined under the Party rules and 58 thousands officials had been charged with crimes (CCDI, 2017). Besides the scale of the campaign, Francois et al. (2016) estimate that the share of each faction among the indicted high-ranking officials generally corresponds to the faction’s overall representation in the CPC leadership; Lu and Lorentzen (2018) document that corrupt officials’ personal ties to top leaders have not provided much protection, apart from those close to Xi, and that areas where firms complained about corruption more were more likely to be investigated; Chen and Kung (2019) document a more than 30% reduction in corruption “in the provinces either targeted by the central inspection teams or whose party secretary was replaced by one appointed by Xi,” where corruption is measured by the price discount enjoyed by “firms linked to members of . . . the Politburo” in the primary land market.

3Araral et al. (2018), Chen and Zhong (2018), and Qu et al. (2018) find that the campaign has caused significant drops in GDP growth rates, new business entries, and investment, respectively; Xi et al. (2018)
Despite the significant economic cost, especially given that the legitimacy of the CPC’s rule crucially relies on economic growth (e.g., Zhao, 2009)? Why did the campaign start in 2012 and not in earlier years? More generally, under what conditions would the Center crack down on corruption? How can we grasp the relationship between crony capitalism, the state, and corruption in an authoritarian regime, not just in China?

These questions become even more intriguing when we examine empirical evidence on the anti-corruption campaign. On the one hand, the campaign has exposed widespread vertical collusive corruption among officials along the personnel hierarchy of the party-state, including buying and selling of positions. Investigations have targeted large patronage networks among officials and have highlighted deviations from meritocracy in promotion practices (e.g., Lu and Lorentzen, 2013; Goh et al., 2019). On the other hand, however, personal connection has crowded out performance, and has become the primary factor in determining cadre promotions since the campaign began (e.g., Xi et al., 2018). Furthermore, power consolidation at the Center has coincided with the anti-corruption campaign (e.g., Li, 2016; Fewsmith, 2018; Shirk, 2018; Tsai and Zhou, 2019; Chen and Kung, 2019). These facts raise further fundamental questions about China’s political economy: what are the institutional reasons behind the pervasive corruption, both between firms and officials and along the party-state hierarchy? What are the roles of each level of the hierarchy and of the Center’s corruption in the big picture? What is the relationship between crackdown on corruption inside the party-state and power consolidation within the Center?

To answer these questions, we build in this paper the first model of corruption and its political-economic implications within China’s crony capitalism and the hierarchy of the Chinese party-state system. This highly stylized model has three modules, each of them capturing important elements of China’s political economy. The first module focuses on crony capitalism in the spirit of Bai et al. (2014, 2020), where distortionary regulation drives businesses and local officials to collude to circumvent regulations and seek rents, given a level of corruption tolerated by the Party Center. We show that a

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4 The CCDI report (2017) also stated that eliminating the “systematic, landslide-like” collusive corruption among officials in Shanxi Province exemplifies the spirit of the anti-corruption campaign. Using data on corruption indictments collected by Lu and Lorentzen (2018), we show, in Table II in Appendix A, a vertical correlation between corruption indictments at higher levels (provincial party secretary and governors) and lower ranks across provinces.
higher tolerance of corruption leads to higher economic output but also higher rents for local officials. The second module focuses on the party-state hierarchy, where superior officials capitalize on their political power by selling positions to their subordinates, as documented in Pei (2016). As a result, the rents from crony capitalism are largely diverted by the provincial level along the CPC hierarchy. The third module focuses on the Center’s choice of corruption tolerance within crony capitalism. In the spirit of Li et al. (2019), the rents accumulated at the provincial level pose a threat to the crisis response ability of the Center, so the Center has to make a trade-off between this ability and economic growth.

Mechanisms and insights in all three modules are well founded in the literature on Chinese political economy across various disciplines. By linking these three modules together, our model combines in a comprehensive way crony capitalism, the party-state hierarchy, crisis control, and the setting of the political boundaries of corruption in China’s political economy.

Our model shows that, under general conditions, the Center’s optimal corruption tolerance is to fully secure crisis management ability while promoting the economy as much as possible. Any perceived looming crisis risk would thus push the Center to crack down on corruption, which is in line with the narrative of Xi’s anti-corruption campaign (e.g., Xi, 2017; People’s Daily, 2019). Besides this interpretation, our model also helps us reconcile some observations about the campaign. First, the campaign must be serious, since corruption poses an existential threat to the Center. Second, the complementarity between corruption and growth means that, without significant institutional reform, the economic cost of the campaign is inevitable. Third, the flow of rents along the party-state hierarchy, their concentration at the provincial level, and the Center’s intention to resolve the risk of losing control suggest that the campaign

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5Mechanisms in the first module correspond to a large body of empirical literature in sociological, statistical, and anthropological approaches (e.g., Lin, 2001; Sheng et al., 2011; Osburg, 2013; Fisman and Wang, 2018; Chen et al. 2017; Li, 2017; Araral et al., 2018; Chen and Zhong, 2018; Chen et al., 2018; Kung and Ma, 2018; Lin et al., 2018; Qu et al., 2018; Xu et al., 2018; Ang, 2020; Ying and Lu, Forthcoming). Results in the second module resonate with the scholarly consensus in sociology and political science (e.g., Zhu, 2003; Zhou, 2012; Pei, 2016). About the third module, Veg (2019) discusses the influence of Schmitt (1921, 1922) in China in recent decades, which emphasizes the ability of the state to respond to crises. The importance of this ability has also been well recognized by the highest leaders of the Party, who realize that the Center’s crisis management ability depends crucially on its ability to mobilize provincial resources and to be able to come up with a well coordinated response (e.g., Xi Jinping, 2014, 2017a, 2018). The trade-off between growth and control (and more generally between routine performance and discretionary power) is consistent with the views of China scholars (e.g., Will, 1980; Huang, 1981; Kuhn, 1990; Zhou, 2003, 2012, 2017; Sung, 2014; Walder, 2015; Zhang, 2018).
should crack down on the patronage networks along the vertical corruption chains. Further analysis also shows why power centralization within the Center complements anti-corruption campaigns. Speaking to Xi’s anti-corruption campaign, these results explain the co-movement between the campaign and the power dynamics within the Center, and eventually the timing of the campaign.

To better understand the role of the party-state hierarchy, in particular the key role of the provincial level in the accumulation of rents from corruption, we then analyze the relationship between members of the Politburo Standing Committee (PSC) and their provincial protégés. We show that it is the combination of 1) the reciprocal accountability between the Center and provincial officials, first analyzed by Shirk (1993), and 2) the lack of it between the provincial and local officials, facilitated by the 1984–1995 cadre management reform (People’s Daily, 1984; Burns, 1987, 1994; Central Committee of the Party, 1993; Pei, 2012, p. 35), that leads to substantial rents being captured at the provincial level, threatening the power of the Center. We also show that given this institutional context, corruption within the Center can further damage its disciplining ability upon the provincial leaders.

Although our analysis is largely motivated by Xi’s anti-corruption campaign, it is not normative but purely positive. We contribute to the literature from at least three aspects. First, in the recent literature, a few empirical studies have examined Xi’s anti-corruption campaign (e.g., Francois et al., 2016; Ding et al., 2017; Araral et al., 2018; Chen and Zhong, 2018; Lin et al., 2018; Lu and Lorentzen, 2018; Qu et al., 2018; Xi et al., 2018; Goh et al., 2019; Ying and Liu, Forthcoming), but to our knowledge, we are the first to reconcile all the empirical findings by theoretically examining corruption within the party state and its interaction with the economy.

Second, in the recent literature on China’s political economy, Bai et al. (2014, 2020) investigate the functioning of crony capitalism in China; Wang and Zheng (2019) analyze how the lack of safety of corruption rents at lower levels in the state hierarchy incentivizes officials to actively participate in the meritocratic promotion scheme. These works focus on the economic or efficiency implications of corruption in the Chinese context. On the political side, Francois et al. (2018) theorize how the factional balance is achieved within the leadership of the Party; Che et al. (2019) explore the cost of removing leaders’ criminal immunity given the current Chinese political institution; related but not limited to China, Li et al. (2019) model the corrosive impact of corruption on the power relationship inside a state apparatus. Our paper looks at the economic and political (party-state) spheres simultaneously, and we show the pivotal role of reciprocal
accountability, a prominent institutional arrangement, in corruption inside the Chinese party-state hierarchy.

Third, our analysis in this paper suggests that corruption can prevail in a country where there is crony capitalism and the state has great economic power. This can in turn lead to regular anti-corruption campaigns in anticipation of a looming crisis. At the same time with these campaigns, power consolidation within the head of the state may help to prepare future crisis responses. These implications contribute further to the emerging literature on the political economy of autocracy (e.g., Acemoglu et al., 2008; Egorov and Sonin, 2011; Lorentzen, 2014; surveys by Sonin, 2008; Gehlbach et al., 2016) by linking the economic institution, governance initiatives, and elite politics together.

Section 2 presents the three modules of the model and analyzes the effects of power distribution within the Center. Section 3 looks at an extension where we analyze collective decision-making inside the Center under reciprocal accountability. Section 4 concludes.

2 The Model

We analyze the interaction between business firms and the party-state. When examining interactions inside the party-state, we model the behavior of three levels of players: local officials (e.g., the municipality and county levels), provincial officials (e.g., officials in the Central Committee), and the Party’s Center (the Politburo Standing Committee, PSC). As shown in Figure 1, the model involves three modules: Module 1 models the interaction between local firms and a local official; Module 2 models the interaction between the local official and her provincial supervisor, taking her interaction with the firms in Module 1 as given; Module 3 models the Center’s choice of corruption tolerance, taking all the interactions in Modules 1 and 2 as given. We now introduce and analyze the three modules one by one.

2.1 Module 1: Crony Capitalism

Assume a continuum of firms with a mass of 1 in a local official’s jurisdiction, each with a potential productivity of 1. Given the persistent appearance of barriers to firm mobility and the prevalence of local protectionism in China (e.g., Wedeman, 2003; Bai et al., 2004, 2013, 2020; Zhou, 2004; Barwick et al., 2017), we assume that these firms are immobile. Because of existing economic distortions (e.g., red tape, institutional
weaknesses, and lack of access to credit), assume that only an exogenously given share \( \alpha \in (0, 1) \) of potential productivity can be realized. Each firm has an opportunity to give an exogenously given bribe \( b \) to the local official, in which case the full productivity potential will be realized, i.e. the realized productivity will be lifted from \( \alpha \) to 1 \textit{ad hoc} through privileges that non-crony firms would not enjoy (e.g., barriers to entry for other firms, privileged access to government contracts, discounts on utility prices, and tax breaks). A lower \( \alpha \) then denotes more distortionary regulation and a greater power that the local official can have over the local economy. A reason why \( b \) can be seen as exogenous to the firm is that it can be interpreted as the highest level of bribes tolerated by the Center, and, since there is an infinite number of firms, they can bid up the price of bribes up to its maximum tolerated level \( b \).
This setting highlights the institutional origin of crony capitalism:

**Lemma 1.** Firms will bribe the local official only when the existing regulation is sufficiently distortionary, i.e., \( \alpha \leq 1 - b \).

This lemma suggests that crony capitalism is institutionally founded on distortionary regulations, and on the government’s economic power cultivated by those distortions. As crony capitalism is prevalent in China, we assume hereafter that \( \alpha \leq 1 - b \) so that all firms want to pay the bribe. Given this assumption, the local official is assumed to choose the share of businesses, \( \theta \in (0, 1] \), from which to accept the bribe so as to maximize his bribe earnings, \( \theta b \), net of the total cost of breaking rules and closing deals:

\[
\max_{\theta \in (0,1]} U_L(\theta; b, c) = \theta b - c\theta^2 / 2, \tag{1}
\]

where \( c > 0 \) is an exogenous parameter, and the total cost is assumed to be convex in \( \theta \), because the local officials’ time, energy, and other resources that can be devoted to crony capitalism are limited.

The first-order condition is

\[
b - c\theta = 0 \tag{2}
\]

and the second-order condition, \(-c < 0\), holds trivially. Since in reality not all firms are cronies, we assume that the cost intensity of the local official to close deals is so high \((c > b)\) that an interior solution is reached in equilibrium. The equilibrium share of firms that become cronies is thus

\[
\theta = b/c, \tag{3}
\]

which is increasing in \( b \) and decreasing in \( c \). Local economic output is then the total output from all the firms,

\[
y = (1 - \theta) \alpha + \theta = \alpha + \theta(1 - \alpha), \tag{4}
\]

\footnote{For example, sociologist \cite{лин} (2001, p. 6) argues that “in the reform era, effective manipulation of state action – i.e., making gains from ad hoc favorable treatment by the state – constitutes a necessary condition for the success of firms.” On the ubiquity of firms trying to bribe local officials in China, anthropologist \cite{осбюрг} (2013, p. 52) quotes a Chinese government contractor: “even if you’re just a county head (xianzhang), there are literally thousands of businessmen lining up at your door to give you money.”}
which is increasing in $\alpha$ and $\theta$. It can be rewritten as

$$y = \alpha + (1 - \alpha) \cdot b/c = \alpha (1 - b/c) + b/c,$$

which is increasing in $\alpha$ and $b$ and decreasing in $c$. In equilibrium, the local official’s net earning is then

$$I_L(b, c) \equiv U_L^* = (b/c) \cdot b - c \cdot (b/c)^2 / 2 = b^2 / 2c,$$

which is increasing in $b$ and decreasing in $c$, too. We can thus formulate the following proposition:

**Proposition 1.** The prevalence of crony capitalism $\theta$, economic output $y$, and rents of local officials $I_L$ increase with corruption tolerance $b$.

Proposition 1 is in line with Bai et al. (2014, 2020) on the complementarity between corruption and economic growth under crony capitalism in China. It is also consistent with Xi et al. (2015)’s evidence that in the recent anti-corruption campaign in China “officials with better economic performance were more likely to be investigated.” Since the existing distortion is severe, crony firms and local officials are willing to engage in corruption, because they benefit both from the output increases gained from the privileged relationship and from the rents from bribery. As corruption exempts the crony firms from inefficient regulations, it reduces the economic distortion, thereby enhancing economic performance. In other words, following the tradition of Le (1964) and Huntington (1968), corruption “greases the wheels” of the economy.

Several features of this complementarity deserve attention. First, this complementarity does not mean that more distortionary regulations would promote economic growth. On the contrary, as Equation (5) shows, economic output ($y$) increases with regulatory efficiency ($\alpha$).

Second, this complementarity exists only when the existing regulation is sufficiently distortionary ($\alpha \leq 1 - b$). Otherwise, by Lemma 1, paying the bribe would not be beneficial to firms, and any corruption between the local official and the firms would be detrimental to the economy. Consistent with this point, Lin et al. (2018) document that the recent anti-corruption campaign in China raised the share values of private firms in provinces where market institutions were more developed, i.e., the corruption–economy complementarity disappears when $\alpha$ is high, while those in provinces where
market institutions remained weak suffered a hit, i.e., the complementarity exists when \( \alpha \) is low; Ying and Liu (Forthcoming) also have similar findings.

Third, it might be tempting to argue, on the basis of Equations (3) and (6) that, in equilibrium, the prevalence of corruption (\( \theta \)) and the rents of local officials (\( I_L \)) do not depend on the efficiency of the existing regulations (\( \alpha \)). This is not true, however, since Equations (3) and (6) describe only the equilibrium when the existing regulation is sufficiently distortionary. By Lemma 1, there will be no corruption or rent creation if the existing regulation is sufficiently efficient.

Finally, the complementarity between corruption and economic growth would not be affected if heterogeneity in firm productivity were assumed, as in Bai et al. (2014, 2020). In that case, the model would only lead to predictions about which firms the local official would choose as his cronies.

This module of the model illustrates how crony capitalism creates official–business corruption. To understand the full effects of corruption, we need to consider the interactions inside the party-state. The bribes received by local officials can be used to bribe provincial officials, e.g., to stay unremoved or even obtain promotion, and thus create a vertical chain of corruption that may eventually lead to loss of control of the Center over the party-state.

### 2.2 Module 2: Vertical Corruption Chain

We now consider the relation between the local official and the provincial official, who is his direct superior in the party-state hierarchy, and has the power to remove him from his post. We assume that if the local official is removed, he will lose his opportunity to extract bribes from business firms and receive instead a reservation payoff \( r_L \), which is assumed to be exogenous. The latter can be related to possibilities of getting jobs in the private sector. This means that the higher the development of the private sector, the higher the reservation payoff. The local official is assumed to have a chance to give a political gift, \( g \), to the provincial official, in the hope of not being removed. If he is not removed, he will be able to use bribes received from business firms to finance this gift, and enjoy the residual amount for his own private consumption. We assume that there is no commitment problem in the local–provincial interaction, since both sides can expose anyone who did not fulfill the transaction.

Because the provincial official has the power to remove the local official, he can demand a gift up to \( g = b^2 / 2c - r_L \). If kept in office, the local official enjoys \( I_L(b,c) - g = \)
$b^2/2c - g$. If $g = b^2/2c - r_L$, the provincial official will enjoy $R_P = b^2/2c - r_L$ and the local official $R_L = r_L$. In that case, if $I_L(b, c) = b^2/2c \geq r_L$, the rents of the local official and the provincial official and their sum are, respectively,

$$
R_L = r_L, \quad R_P = b^2/2c - r_L, \quad R_L + R_P = b^2/2c; \quad (7)
$$

if on the other hand, $b^2/2c < r_L$, the local official will prefer to quit his position and gets $r_L$, while the provincial official will get $0$.

Therefore, to keep the local official in the party-state system, the level of bribes needs to be above a lower bound, i.e.,

$$
b \geq \sqrt{2cr_L} \equiv b. \quad (8)
$$

We then have the following proposition:

**Proposition 2.** To keep local officials in the party-system, the corruption tolerance $b$ must be above $b$. This lower bound increases with $c$ and $r_L$.

Higher outside options that arise with the introduction of the market economy increase the lower bound on corruption. Some minimum corruption between business firms and local officials is thus necessary to maintain the party-state alive. If $r_L$ is correlated with the general economic situation, then the Center’s tolerance for corruption would be procyclical, consistent with the view of political scientists that market reforms, rapid economic growth, and rising overall corruption in China have generally been correlated since the 1980s (e.g., Gong, 1994; Sun, 2004; Wedeman, 2012).

In equilibrium, officials at a lower rank are living a relatively modest life, at least in comparison to higher level officials, since most of their rents would be reaped by their supervisors via political rent seeking. This is consistent with observations from China: personnel power of the direct supervisor in the party-state hierarchy generates huge rents, as discussed by sociologists and political scientists, such as Zhou (2013) and Pei (2016). In line with these observations, we have the following corollary:

**Corollary 1.** Rents of provincial officials $R_p$ increase with the corruption tolerance $b$.

The intuition is as follows: corruption rents of local officials are captured by provincial officials because of their power to remove local officials; rents go up through the vertical corruption chain along the personnel hierarchy; therefore, higher tolerance of
corruption, i.e., higher $b$, feeds the provincial official, leading to a higher $R_P$. This corollary will be instrumental later when we examine the Center’s decisions.

2.3 Module 3: Choice of Corruption Tolerance

In contrast to provincial officials, the Center has the ultimate responsibility over actions at the national level. In particular, the Center must react to crises that may occur unexpectedly, and corruption inside the party-state may prevent the Center from responding appropriately to crises. We assume that the Center cares for economic growth, i.e. wants to maximize output, but also wants to be able to respond to unexpected crises that may occur, such as earthquakes or natural catastrophes, a large-scale epidemic, a war, internal revolts, economic crisis, etc. Both objectives stem from the same goal, which is to stay in power and perpetuate the power of incumbent communist leaders. Higher growth leads to more popularity and therefore stronger incumbent power, whereas bad responses to crises may jeopardize the incumbent’s position.

Assume that crises that challenge the survival of the party-state can occur randomly. Denote a random variable $\gamma \in [0, \tilde{\gamma}]$, the severity of occurring crises, where the Center will need to mobilize resources and expropriate share $\gamma$ of the rents from provincial and local officials to respond to the crisis or implement an urgent reform. The highest possible severity is denoted by $\tilde{\gamma} \leq 1$. We also denote the cumulative distributive and probability density functions of $\gamma$ as $F(\cdot)$ and $f(\cdot)$, respectively.

Call $L_L$ and $L_P$ the losses for respectively the local and the provincial official if the officials refuse to submit the required rents and, therefore, Center cannot successfully manage the crisis. In this case, the payoff to the officials would then be $R_i - L_i$, where $i = L, P$. If instead they decide to submit the resources, the crisis will be successfully managed, and their payoff will be $R_i - \gamma R_i$. With this setting assumed, given $\gamma$, each official at level $i = L, P$, would like to resist orders of resource mobilization from the Center, if and only if

$$R_i - L_i > R_i - \gamma R_i, \quad \text{i.e.,} \quad \gamma > L_i/R_i. \quad (9)$$

For simplicity, assume $L_L = 0$, so that local officials always want to resist, as long

\footnote{This setting of a relative severity of crisis $\gamma$ provides tractability. One can, however, verify that, given any crisis, the absolute amount of rents that the Center would need to appropriate in response to a crisis increases with economic output and, equivalently, with the total amount of the rents captured by the provincial and local officials.}
as $\gamma > 0$. Then, there will be joint resistance of local and provincial officials if and only if the provincial official wants to resist, i.e.,

$$\gamma > L_P / R_P = \frac{L_P}{b^2 / 2c - r_L} \equiv \hat{\gamma}, \quad (10)$$

where $\hat{\gamma}$ denotes the critical level of $\gamma$ above which the officials will resist resource mobilization by the Center. Corruption can thus threaten the ability of the Center to respond to a crisis due to resistance from the corrupt party-state machine, because a higher tolerance of corruption (higher $b$) will increase the provincial officials’ rents ($R_P$), as stated in Corollary 1, lowering the critical level $\hat{\gamma}$ and making crisis management more likely to fail. In other words, corruption creates incentive misalignment between the Center and the provincial official when a crisis happens. This incentive misalignment is widely considered as one of the primary problems that corruption can cause (e.g., Pei, 2016) and has been recognized by the highest leaders of the Party (e.g., Xi, 2015, 2016). \(^8\)

Now consider the Center’s decision to regulate corruption by choosing $b$, leaving $c$ exogenous. Assume that the Center is risk-neutral and benefits from economic output when crises are successfully managed ($\gamma \in [0, \hat{\gamma}]$) and gets a “downfall payoff,” $D$, if a crisis leads the Center to lose control. As before, we also assume that the existing regulation is so distortionary that there will be crony capitalism ($\alpha \leq 1 - b$) and that the local official’s cost to close deals is so high that not all firms will be selected as cronies ($c > 2(L_P/\hat{\gamma} + r_L)$). The Center’s program is then

$$\max_b F(\hat{\gamma}) \cdot y + (1 - F(\hat{\gamma})) \cdot D, \quad \text{i.e.,} \quad \max_b F(\hat{\gamma}) \cdot (y - D), \quad \text{s.t.} \quad (11)$$

$$b \geq \sqrt{2cr_L}, \quad \hat{\gamma} = \frac{L_P}{b^2 / 2c - r_L}, \quad y = \alpha + (1 - \alpha) \cdot b / c. \quad (12)$$

As we can see, as long as surviving a crisis is better than losing power ($y > D$), which will always be the case when the downfall payoff is lower than the lowest possible economic output ($D < \alpha$), the Center always faces a fundamental trade-off between regime stability and economic performance: a higher $b$ will lead to a higher output level $y$ but also with a higher probability of loss of control when challenged by a large crisis ($1 - F(\hat{\gamma})$). We can then formulate the following proposition:

\(^8\)For example, Xi (2013, 2016) warned repeatedly that high-level officials in the Party must not violate the central directives, cultivate “independent kingdoms,” or act independently.
Proposition 3. Given a sufficiently low downfall payoff \( D < \alpha \), a sufficient condition for the Center’s optimal choice of corruption tolerance to involve zero loss of control, i.e. \( \tilde{\gamma}^* = \tilde{\gamma} \) and \( F(\tilde{\gamma}^*) = 1 \), is that the elasticity of \( F(\gamma) \), \( \gamma \cdot f(\gamma) / F(\gamma) > 1/2 \), for any \( \gamma \in (0, \tilde{\gamma}) \). The optimal choice of corruption tolerance is then \( b^* = \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \).

Proof. Note first that if \( \tilde{\gamma} \geq \tilde{\gamma} \), i.e., if \( b \in \left( \frac{\sqrt{2c r_L}}{b^2 / 2c - r_L}, \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \right) \), regime stability is never compromised and \( b \) reaches a local maximum at \( b = \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \). If, however, \( \tilde{\gamma} \in (0, \tilde{\gamma}) \), i.e., \( b > \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \), then there is a non-zero probability of regime breakdown. If the objective function is decreasing in \( b \) when \( b > \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \), then we can conclude that \( b^* = \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \).

Now consider the first-order derivative of the objective function with respect to \( b \) when \( b > \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \), which, after some algebra, is

\[
\frac{1 - \alpha}{c} \cdot F(\tilde{\gamma}) - \frac{L_P}{(b^2 / 2c - r_L)^2} \cdot \frac{b}{c} \cdot f(\tilde{\gamma}) \cdot (y - D). \quad (13)
\]

It will be negative, given \( \tilde{\gamma} = \frac{L_P}{b^2 / 2c - r_L} \) and \( y = \alpha + (1 - \alpha) \cdot b / c \), if

\[
\tilde{\gamma} \cdot \frac{f(\tilde{\gamma})}{F(\tilde{\gamma})} \cdot \left( \frac{(1 - \alpha)b}{c} + \alpha - D \right) > \frac{(1 - \alpha)b}{2c} - \frac{1 - \alpha}{b} \cdot r_L, \quad (14)
\]

which, when \( D < \alpha \), is equivalent to

\[
\tilde{\gamma} \cdot \frac{f(\tilde{\gamma})}{F(\tilde{\gamma})} > \frac{1}{2} \cdot \left( 1 - \alpha \right) b - 2cr_L(1 - \alpha) / b \\
\frac{(1 - \alpha)b + c(\alpha - D)}{b} . \quad (15)
\]

Note that, when \( D < \alpha \),

\[
\frac{1}{2} \cdot \frac{(1 - \alpha)b - 2cr_L(1 - \alpha) / b}{(1 - \alpha)b + c(\alpha - D)} < \frac{1}{2} . \quad (16)
\]

Therefore, we can conclude that given \( D < \alpha \), if \( \gamma \cdot f(\gamma) / F(\gamma) > 1/2 \) for any \( \gamma \in (0, \tilde{\gamma}) \), then the government’s objective function is decreasing in \( b \) when \( b > \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \).

Then \( b^* = \sqrt{2c \left( \frac{L_P}{\tilde{\gamma}} + r_L \right)} \) and the rest of the results follow. 

The intuition for Proposition 3 is illustrated in Figure 4. A higher corruption tol-
Figure 2: Optimal choice of corruption tolerance given fat-tailed crisis risk

Corruption tolerance raises economic output, while lower tolerance increases the Center’s control in crises until the Center never loses control in any crisis. Therefore, on the one hand, when the tolerance is so low that full security is reached, the Center can always raise the tolerance to gain more economic output without sacrificing any security. On the other hand, the elasticity condition means that the right tail of the crisis risk distribution is fat, which is consistent with empirical evidence on crises and the general approach in risk management modeling of crises (e.g., Taleb, 2007; Ackerman, 2017). It is also notable that Xi has been using “black swans,” a term commonly associated with fat-tailed risk, when addressing the “major risks” that the Party faces in a wide spectrum of realms (People’s Daily, 2019). This condition suggests that, when corruption tolerance is still too high to secure control in all possible crises, a lower tolerance would lead to a smaller output loss compared to the larger gain in regime stability. Therefore, the optimal solution for the Center is to set the corruption tolerance at such a level that crisis management ability always remains fully secured while output is maximized as much as possible.

9 The probability distribution of a random variable, \( X \), is often considered to be fat-tailed if \( P[X > x] \sim x^{-\eta} \) when \( x \) is large, where \( \eta > 0 \) is the tail index (e.g., Cooke et al., 2014, p. 2). The elasticity, \( \frac{xf(x)}{F(x)} \), would then converge to \( \eta \). If we followed this convention, Proposition 3 would require \( \eta > \frac{1}{2} \).
The solution in Proposition 3 then follows a lexicographic order: stability comes first, and output is maximized under the condition that full stability be secured. It is important to note that this lexicographic preference is _endogenous_ in our model, rather than _exogenous_. Proposition 3 thus provides a micro-foundation of the CPC’s “repeatedly emphasized” principle in developing the Chinese economy – “[social and political] stability overrides everything, and we must not relax the People’s democratic dictatorship,” as stated by Deng Xiaoping (1993, originally 1990, p. 364). It also explains Xi (2014)’s obsession for “security” – “[we] must insist on a holistic view on national security, acknowledging the people’s security as our mission, political security the fundamental, economic security the basic, military, cultural, and social security the safeguard, and international security the support, paving a path to national security with Chinese characteristics.”

A corollary of Proposition 3 suggests that a higher crisis risk will push the Center to crack down on corruption:

**Corollary 2.** _Corruption tolerance $b^*$ is decreasing in the crisis risk, represented by the greatest possible crisis severity $\bar{\gamma}$. _

This corollary is consistent with the Party narratives since 2012. For example, in his report to the 19th National Congress of the Party, Xi (2017b) stated: “confronting the crucial tests of enormous risks faced by the Party . . . we cracked down on corruption, wiping out significant hidden hazards from the inside of the party-state.” In particular, framing corruption as “hidden hazards” matches to our theory: the threats of corruption to the control of the Center is “hidden” and matters only when control is urgently needed, i.e., in a crisis. Again, in a later important speech to the provincial and ministerial leaders, Xi stated that cracking down on corruption is critical to “preventing and solving major risks in the political, ideological, economic, scientific and technological, social, international-relation, and party-building realms” (People’s Daily, 2019, p. 1). Taken at face value, these quotes suggest that the risk faced by the Party was a primary motivation behind Xi’s anti-corruption campaign.

We conclude this subsection with another two remarks. First, if the Center could choose the efficiency of existing regulations (modeled by $\alpha$), then the optimal decision would be to raise $\alpha$ to 1. In that case, there would be no corruption and the Center would be able to realize the full potential of the economy without any loss of control during crises. In the analysis above, however, we have assumed that, when choosing the corruption tolerance $b$, the Center takes $\alpha$ as given. This assumption is consistent with
the observation that the Center often finds it extremely difficult to improve institutional efficiency without first reducing corruption. For example, Premier Li Keqiang has openly complained that many directives that the State Council had issued to cut red tape (raising $\alpha$ in our model) were “obstructed in transmission” and could not be implemented at the local level (State Council of China, 2014). In another State Council report, not only did he emphasize the severity of the “systemic, institutional . . . problems” in the economy (low $\alpha$ in our model), he also drew an analogy between these problems and “tigers in the road,” admitting the enormous difficulty in overcoming them (Li, 2015).

This difficulty is also consistent with our theory, where a coordinated crisis response will fail if provincial and local officials have a substantial vested interest in keeping inefficient institutions and corruption. Correspondingly, as Li Keqiang warned in the State Council report, “deepening reform” to tackle the “systemic, institutional . . . problems” (raising $\alpha$ in our model) is exactly the urgent response required by the alarming risk that the state “will have a difficult time sustaining steady and sound development” (Li, 2015). He has also likened the reform to “assaulting a fortified position,” because it “must touch vested interests,” which, in his words, “is even more difficult than to touch a soul” (Xinhua News Agency, 2013).

Second, we have also assumed that, when the Center chooses a corruption tolerance, it is able to enforce it. In Appendix B, we explore the possibility of cover-up by local and particularly provincial officials, and explicitly model corruption detection by the Center. We recognize that the Center can use a plea bargain to motivate any official who is caught being corrupt in order to expose all other officials in the same corruption case. Therefore, a dilemma of corruption detection emerges: to limit corruption, the detection intensity has to be sufficiently high to discipline officials; a too high detection intensity, however, will encourage officials to cover each other up, making corruption detection extremely difficult. Realizing this dilemma, the Center has to carefully choose the detection intensity when enforcing its optimal corruption tolerance.

### 2.4 Power Distribution within the Center

The preceding analysis assumes that the Center acts like a unitary agent. We now drop this assumption and see how the analysis may change if we take into account the power distribution inside the Center. As we see below, this will be affected by the distribution of power among its members.
Besides the anti-corruption campaign, the most prominent development in Chinese politics since 2012 has been the streamlining of the Center in two directions. First, the number of members of the Politburo Standing Committee has decreased from nine under Hu Jintao (2002–2012) to seven in Xi’s era (since 2012). Second, as Shirk (2018, p. 32) observes, “[u]nder Hu, the general secretary was only first among equals,” while Xi has successfully carried out a series of institutional reforms within the Center to consolidate his own power (Li, 2016; Tsai and Zhou, 2019). Due to this streamlining, the Center’s power has become less fragmented, and personalistic rule has almost been achieved (Shirk, 2018). How would the power distribution within the Center shape the boundaries of corruption, and why did Xi carry out the two major projects – one to streamline the Center, the other to crack down on corruption – at the same time?

The answer lies in how the power distribution within the Center would affect its ability to respond to crises. Notably, for a crisis response to succeed, not only must the mobilization of local resources succeed, but the central leaders must in the first place agree on an urgent response plan. If the Center is too fragmented, it could be paralyzed without any response plan, losing its crisis response ability. This risk created by central fragmentation was evident during the two most challenging political crises that the CPC has faced since the end of the Cultural Revolution – the political unrest in 1989 and the Bo Xilai scandal in 2012. Therefore, any effort to limit corruption, which helps resource mobilization during crises, will be meaningful only when the Center is sufficiently streamlined.

We can formalize this answer in the following setting: facing a crisis of severity $\gamma$, the Center has a short time window to decide whether to expropriate the $\gamma$-share of the rents from all provincial and local officials, to manage the crisis. The crisis response will succeed 1) if every central leader agrees and 2) if provincial and local officials cooperate. When the response succeeds, the rent to be shared within the Center is $R(b)$, which is increasing in economic output and thus corruption tolerance, $b$. When the response fails, each leader will receive a downfall payoff, $D$. Call $p_i \in (0,1]$ the share of member $i$’s power, corresponding to that member’s share of the rents, where $\sum_{i=1}^{N} p_i = 1$ and $N$ is the number of central leaders. Given that important decision-

\footnote{As Shirk (2018, p. 30 and 33) states, in the spring and summer of 1989, the Party leaders “split on how to respond” to “the widespread unrest,” and “open divisions at the top drove the political system to the brink of collapse:” “on the eve of Xi’s 2012 ascension to power,” “[t]he leadership split . . . under collective leadership,” and “[n]either Hu nor the Standing Committee as a whole had the gumption to stop Bo’s open campaigning for power,” which eventually failed only thanks to the dramatic turn around the murder of Neil Heywood (Gracie, 2017).}
making in the Party Center usually requires consensus (at least before Xi’s reign, e.g., Shirk (1993; Huang, 2000, Vogel, 2005; Xie and Xie, 2017), we assume that decisions must be taken by consensus. Therefore, the crisis response will succeed if \( p_i R(b) \geq D \) for all \( i \), which will be the case if \( \min_i p_i \cdot R(b) \geq D \) or \( \min_i p_i \geq D/R(b) \), i.e., the Center is so streamlined that even the weakest central leader has a sufficient stake in the status quo. Therefore, this setting imposes another constraint about power distribution on successful responses to crises:

**Lemma 2.** A crisis will be successfully managed if and only if it is not so severe and the Center is sufficiently streamlined, i.e., \( \gamma \leq \hat{\gamma} \) and \( \min_i p_i \geq D/R(b) \).

Given this constraint, how would a paramount leader, whose power is \( \max_i p_i \), set the corruption tolerance and the Center’s size and distribution of power at the same time if he has the ability to do so? The paramount leader’s program is

\[
\max_{b, N, p_1, \ldots, p_N} \left( F(0) + \left( F(\hat{\gamma}(b)) - F(0) \right) \cdot 1_{\min_i p_i \geq D/R(b)} \right) \cdot \left( \max_i p_i \cdot R(b) - D \right), \quad \text{s.t. (17)}
\]

\[
b \geq \sqrt{2 c r_L}, \quad N \geq 1, \quad \sum_{i=1}^{N} p_i = 1, \quad p_i > 0, \quad i = 1, \ldots, N,
\]

\[
\hat{\gamma}(b) \equiv \frac{L_P}{b^2/2c - r_L}, \quad R(b) \equiv M y(b) \equiv M \left( \alpha + (1 - \alpha) \cdot b/c \right), \quad (18)
\]

where the objective function is the expected additional payoff from survival, \( 1 \) is an indicator function, and \( M \) is the number of provinces. The following proposition describes the solution:

**Proposition 4.** Assume that the crisis risk is sufficiently fat-tailed, i.e., \( \gamma f(\gamma)/F(\gamma) > 1/2M \) for any \( \gamma \in [0, \gamma) \). If the downfall payoff is sufficiently low, i.e., \( D < R(b^*) \), then the paramount leader should choose dictatorship, i.e., \( N = 1 \) and \( p_1 = 1 \), and then crack down on corruption, i.e., \( b = b^* \), guaranteeing perfect control in crises, where \( b^* = \sqrt{2 c (L_P/\hat{\gamma} + r_L)} \).

**Proof.** Note that, given any corruption tolerance \( b \geq \sqrt{2 c r_L} \), the paramount leader would like to maximize the survival payoff, i.e., to maximize \( \max_i p_i \), and, at the same
time, maximize the likelihood of successful response to a crisis, i.e., to maximize \( \min p_i \).

Adopting a dictatorship by setting \( N = 1 \) and \( \max_i p_i = \min_i p_i = p_1 = 1 \) is then always optimal.

Given that a dictatorship is established, and also given the sufficiently low downfall payoff, we can then examine three ranges of \( b \): a high tolerance range in which \( D \leq R(b^*) < R(b) \), a moderate range in which \( D < R(b) \leq R(b^*) \), and a low range in which \( R(b) \leq D < R(b^*) \). Similar to the proof of Proposition 3, given the fat-tail property, the optimal choice of corruption tolerance is then the full-security solution \( b = b^* \).

Proposition 4 implies that the paramount leader will try to consolidate power within the Center, and if he can do so, he will then crack down on corruption at the same time. In particular, without power consolidation, only cracking down on corruption might not be enough to guarantee a successful crisis response; without cracking down on corruption, only consolidating power might still leave too much rents to prevent the provincial and local officials from resisting resource mobilization in the crisis.

This implication lends an explanation/interpretation to the timing of the recent anti-corruption campaign and the general political development in China since 2012. As Shirk (2018, p. 30) observes, in Xi’s first General Secretary term, “Jiang Zemin [was] ... hobbled politically by age,” while “Hu Jintao, a far more self-effacing figure than Jiang, [stayed] out of Xi Jinping’s way,” symbolized by his stepping down from the Central Military Commission of the Party right when Xi took the General Secretary position, and “there [was] no pre-appointed successor with whom Xi must share the elite’s loyalty.” These conditions created a rare window for Xi to consolidate his power, which he has been doing consistently, up to the point that recent developments have clearly suggested he will break the post-1989 norm that one should not serve as the paramount leader for more than ten years (Fewsmith, 2018; McGregor et al., 2018). Starting from the initial window, the recent anti-corruption campaign and this operation of power consolidation have been closely complementing each other.

3 Reciprocal Accountability

Our model suggests that provincial officials are especially powerful in the party-state system and can threaten the control of the Center if they are too corrupt. In this sec-

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12 The 19th Politburo Standing Committee does not include any apparent successor to Xi, and the 2018 Amendment to the Constitution of the People’s Republic of China has abolished the term limit for the Presidency of China.
tion, we go deeper by investigating why this is the case, i.e., analyzing why members of the Center may resist a collective decision to crack down on provincial officials because of corruption, non-cooperation in resource mobilization, or other non-compliance behaviors. This is related to an important feature of the Chinese communist party-state: reciprocal accountability between the central leaders and provincial officials.

3.1 Reciprocal accountability and the power of provincial officials

As documented by Shirk (1993), not only do the central leaders hold provincial officials accountable through the party hierarchy, but provincial officials also hold the central leaders accountable because, in political struggles inside the Center, each central leader counts on his support base among provincial leaders. This is not surprising, given that 1) provincial officials occupy about half of the Central Committee of the Party, which elects the Politburo and its Standing Committee, 2) central leaders are at the very top of the party hierarchy so they have no higher authority to appeal to, other than their direct subordinates, i.e., the provincial officials. As Shirk (2018, p. 32) states, “under reciprocal accountability, these [provincial] officials [in the Central Committee] are not mere agents of the Party center,” so the Center would not be able to discipline non-compliant provincial officials whenever it wants.

To make this point clear, we start from the hypothetical case in which provincial officials do not hold central leaders accountable, and then compare it with the more realistic case in which they do hold them accountable.

We assume, as in the previous section, that each central leader has his de jure power, $p_i > 0$. To better understand the politics within the Center, we assume that $p_i$ is determined by the official ranking in the Party, and we denote $P \equiv \sum_i p_i$. We assume that the Center enjoys an exogenous rent, $R$, and that each leader’s share of the rent is determined, hypothetically, only by $p_i/P$. Under what condition would each leader inside the Center be willing to purge a non-compliant provincial official, claiming he is too corrupt and bringing in his rent, $b^2/2c - r_L$, to share among the leaders?

The answer is that each central leader would support the removal, if and only if the

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1. Shirk (1993) documents how provincial officials can wield power over central leaders. For example, Deng Xiaoping withdrew his proposal to promote Zhu Rongji to the PSC after he met strong resistance from the Central Committee.
payoff from doing so is not lower than the status quo payoff, i.e.,

$$\frac{p_i}{P} \left( \frac{b^2}{2c} - r_L + R \right) > \frac{p_i}{P} \cdot R. \quad (19)$$

This condition will always hold, given that local officials are staying in the hierarchy, i.e., $b \geq \frac{b}{2c}$ or $b^2/2c - r_L \geq 0$. Therefore, all leaders in the Center would always support disciplining any non-compliant provincial official, and most rents created by crony capitalism would eventually flow to the Center. In this case, the Center can always discipline any non-compliant provincial officials.

Assume now reciprocal accountability between provincial officials and central leaders. We assume that each central leader $i$ has $m_i > 0$ provincial officials as his protégés, where we denote the total number of provinces as $M \equiv \sum_i m_i$, as before. His de facto power in the Center is then $p_i + m_i$, and his share of the central rent is then $(p_i + m_i)/(P + M)$. This central leader will then block disciplining one of his own protégés, if and only if

$$\frac{p_i + m_i - 1}{M + P} \left( \frac{b^2}{2c} - r_L + R \right) < \frac{p_i + m_i}{M + P} \cdot R. \quad (20)$$

Comparing this condition with Condition (19), without reciprocal accountability, each central leader cares only about his de jure power, and disciplining provincial officials will not affect that power, i.e., $p_i/P$ appears on both sides of (19); when reciprocal accountability does exist, each leader depends additionally on his provincial support, so removing one of his protégés will weaken his de facto power, decreasing his share of the Center’s rents from $(p_i + m_i)/(M + P)$, which appears on the right-hand side of Condition (20), to $(p_i + m_i - 1)/(M + P)$, which appears on the left-hand side. Therefore, with reciprocal accountability, the leader has an incentive to protect his protégés.

To see this point even more clearly, Condition (20) is equivalent to

$$R > (p_i + m_i - 1) \left( \frac{b^2}{2c} - r_L \right) \equiv \bar{R}. \quad (21)$$

This inequality is still possible to hold even given local officials are staying in the hierarchy, i.e., $b \geq \frac{b}{2c}$ or $b^2/2c - r_L \geq 0$, a condition under which the purge would have always happened if reciprocal accountability did not exist. We then have the following result:
Proposition 5. Without reciprocal accountability, central leaders can always discipline non-compliant provincial officials, as long as local officials are staying in the hierarchy, i.e., $b^2/2c - r_L \geq 0$. Given this condition, with reciprocal accountability, instead, each central leader will protect his protégés, if the Center’s rent is sufficiently large, i.e., $R \geq \bar{R}$, where $\bar{R}$ is increasing in the leader’s de jure power $p_i$.

This proposition implies that the weaker the leader is inside the Center de jure (lower $p_i$), the more actively he would protect his own protégés (lower $\bar{R}$). This implication is consistent with the fact that Zhou Yongkang, who was the lowest in the official ranking of the Politburo Standing Committee, actively protected Bo Xilai, who had gained enormous popularity across the country as the Party secretary of Chongqing.

The analysis above explains how reciprocal accountability between the Center and provincial officials can prevent the Center from using personnel power to reap rents from provincial officials and disciplining them. It also illustrates why provincial officials can reap rents from local officials. Announced in People’s Daily (1984), the 1984 cadre management reform “replaced the two-level down principle with one-level down,” granting provincial and local officials personnel authority over their immediate subordinate (Burns, 1987, p. 49). As observed by Pei (2016, p. 35), after some back-and-forth between 1985 and 1994 (e.g., Burns, 1994 on the 1990 adjustment), “the full institutionalization of this far-reaching reform” was eventually settled by the Central Committee of the Party (1995). Each level of the party organization along the hierarchy then behaved like the hypothetical case we discussed where the subordinates cannot hold their supervisors accountable, so the supervisors can force the subordinates to surrender their rents, and the rents are eventually reaped along the party hierarchy up to the provincial level. The combination of 1) reciprocal accountability between the Center and provincial officials and 2) the lack of it below the provincial level in the hierarchy then causes most rents created by crony capitalism to be captured at the provincial level, threatening the Center’s power.

3.2 A Corrupt Center

So far we have analyzed corruption below the top of the hierarchy, assuming that central leaders are clean. This assumption can be challenged, especially in light of the indictment of Zhou Yongkang, a member of the Politburo Standing Committee

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14 Zhou Qiang (2015), the Chief Justice and President of the Supreme People’s Court, wrote publicly that Zhou Yongkang and Bo Xilai engaged in “political activities beyond the Party organization.”
between 2007 and 2012, who protected corrupt officials in exchange for a great amount of wealth. Chen and Kung (2019) also document that, in the primary land market, provincial officials gifted massive price discounts to firms linked to central leaders in exchange for promotion to the national leadership. How would corruption in the Center affect the disciplining ability of the Center, and its interaction with provincial officials?

Assume that the central leader \( i \) receives a bribe, \( e > 0 \), from each of his protégés. Each protégé finances this bribe from his corruption rents \( R_P = b^2/2c - r_L \), and the central leader does not share this bribe with the other leaders. Disciplining one of his protégés will, however, force the central leader to submit this protégé’s bribe, together with all the rest of this protégé’s rents, and share them within the Center given the pressure from other central leaders. The leader will then protect the protégé if and only if

\[
\frac{p_i + m_i - 1}{M + P} \cdot \left( \frac{b^2}{2c} - r_L + R \right) + (m_i - 1)e < \frac{p_i + m_i}{M + P} \cdot R + m_ie.
\]

This condition differs from Condition (20) only in that it features the added bribes, i.e., \( (m_i - 1)e \) and \( m_ie \), respectively, on each side.

This condition can be rewritten in the following way:

\[
R > (p_i + m_i - 1) \left( \frac{b^2}{2c} - r_L \right) - (M + P)e \equiv \bar{R}_{\text{Corrupt Center}}.
\]

Comparing Condition (23) with the condition without corruption, i.e., Condition (21),

\[
R > (p_i + m_i - 1) \left( \frac{b^2}{2c} - r_L \right) \equiv \bar{R}_{\text{Uncorrupt Center}},
\]

we can formulate the following proposition.

**Proposition 6.** \( \bar{R}_{\text{Corrupt Center}} < \bar{R}_{\text{Uncorrupt Center}}, \) i.e., corruption in the Center makes it more difficult for the Center to discipline non-compliant provincial officials.

The intuition for this result is that the central leader has to sacrifice his private gain of bribes when his protégés are removed, which makes the removal less attractive to him. This result suggests that corruption in the Center can greatly damage the disciplining ability of the Center, especially given the consensus requirement for important decision-making in the Party Center (Shirk, 1993; Huang, 2000; Vogel, 2005; Xie and Xie, 2017), since one corrupt leader can almost on his own block disciplining measures towards his protégés. This is consistent with the observation that only one
corrupt Zhou Yongkang sufficed to paralyze the Politburo Standing Committee from taking any serious disciplining measures against his corrupt protégés.

A corollary of the proposition concerns the case an extremely corrupt Center, i.e., when $e$ is sufficiently large:

**Corollary 3.** If $e > \bar{e}$ where $\bar{e} \equiv \frac{(\max_i (p_i + m_i) - 1)(\mu^2/2c - r_L)}{M + P}$, then $R > \bar{R}_{\text{Corrupt Center}}$ always hold and the central leaders will always protect their own protégés.

This result comes from the fact that the extreme corruption at the Center implies $\bar{R}_{\text{Corrupt Center}} \leq 0$ for any central leader. In this case, given the consensus requirement for personnel disciplining, the Center will lose all of its de facto personnel power. To summarize, absolute corruption in the Center corrupts its power absolutely.

To summarize the results from this section, it is because of reciprocal accountability inside the Party leadership, where top leaders depend on the support of their protégés among provincial party leaders, that provincial officials in the party-state system emerge as powerful players that can threaten the control of the Center. This is especially true if corruption has reached the top levels of the Party Center.

# 4 Conclusion

Crony capitalism and corruption in China’s party-state system have played a key role in the promotion of economic growth. Crony business firms benefited from their privileged relations with local officials, which helped them expand, thereby fostering economic growth in their region, simultaneously feeding corruption inside the party-state system. We built in this paper the first model analyzing the interactions between cronyism and corruption and the roles of different ladders of the hierarchy in the party-state system.

Leaders of the CPC face a fundamental trade-off in relation to cronyism and corruption. On one hand, some tolerance of corruption helps to foster growth at the local level, which helps stabilize the political power of the incumbents. On the other hand, a too high level of corruption tolerance will undermine the power of the Center to mobilize resources to face crises that occur regularly, as too greedy local and provincial officials will resist such resource mobilization.

Provincial officials play a key role in this corruption process. On one hand, they are able to use their hierarchical power to extract rents from local officials. On the other hand, they also have power over members of the Politburo Standing Committee (PSC) via a system of reciprocal accountability where PSC members, though hierarchically
above provincial officials, need their active support to get elected and to push their agenda inside the PSC. Reciprocal accountability can thus undermine the Center’s power to discipline provincial officials. We find that this is especially the case if there is corruption inside the PSC.

Our analysis shows that corruption is a key ingredient of officials’ incentives to help generate economic growth. Because of its corrosive power, regular anti-corruption campaigns are inevitable. Our model has shown that consolidation of power inside the PSC may work to prevent paralysis of decision-making in crisis response and, therefore, that both the consolidation of power and anti-corruption campaign are necessary for the Party to secure control in looming crises.

Our research also highlights the need to better understand cronyism and corruption in autocracies. Their economic and political effects certainly vary according to the type of autocratic institutions that prevail. Our analysis of the Chinese case is only a first step in that direction.

Appendices

A Vertical Correlation of Indictments

Table I shows a vertical correlation between corruption indictments at higher levels (provincial party secretary and governors) and lower ranks across provinces.

B Cover-up and Corruption Investigations

Consider the following timing:

1. The Center announces its optimal level of corruption tolerance $b^*$.

2. The provincial official chooses to implement a level of corruption $\hat{b} \in \{b^*, B\}$ within the province, where $B$ can be large. The Center is assumed not to observe $\hat{b}$.

3. The Center chooses an investigation density $d$ searching in the province for evidence of $\hat{b} = B$. If evidence is found, the Center indicts and replaces the official and reruns steps 1 and 2 with the new official and $b = b^*$. The punished official
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<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank 3–4 (provincial secretary or governor) indictments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rank 5–6 indictments</td>
<td>0.078***</td>
<td>0.071***</td>
<td>0.050***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.021)</td>
<td>(0.024)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rank 7–8 indictments</td>
<td>0.191***</td>
<td></td>
<td></td>
<td>0.096</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.054)</td>
<td></td>
<td></td>
<td>(0.060)</td>
<td></td>
</tr>
<tr>
<td>Rank 5–8 indictments</td>
<td></td>
<td>0.067***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.013)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of cities</td>
<td></td>
<td>−0.001</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.031)</td>
<td>(0.030)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of counties</td>
<td></td>
<td>0.004</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.007)</td>
<td>(0.007)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.925*</td>
<td>1.923***</td>
<td>0.874*</td>
<td>0.809</td>
<td>0.668</td>
</tr>
<tr>
<td></td>
<td>(0.478)</td>
<td>(0.395)</td>
<td>(0.453)</td>
<td>(0.627)</td>
<td>(0.615)</td>
</tr>
</tbody>
</table>

A larger rank number denotes a lower level in the hierarchy; cross-province regression; data from *Lu and Lorentzen (2018)*; standard errors in parentheses; *, p < 0.1; **, p < 0.05; ***, p < 0.01.
gets a payoff of 0 payoff as punishment. If the investigation finds no evidence of \( \hat{b} = B \), the level \( \hat{b} \) chosen by the provincial official is implemented.

One may argue that the Center may have some information about the level of corruption given all the information gathered by the Center on the economy and what is going on in the provinces. There is, however, a difference between having soft information and hard evidence about corruption, which is what this appendix is about.

The investigation goes as follows. The Center first investigates the two officials (the local official and the provincial official) independently. If \( \hat{b} = b^* \), no evidence of \( \hat{b} = B \) can of course be found. If \( \hat{b} = B \), the provincial official can a) choose to cover himself and the local official up, at a cost, \( C \), so that neither of the officials will be caught, and no evidence of \( \hat{b} = B \) is assumed to be found; b) choose no cover-up. In the latter case each official will be caught independently with probability \( 1 - \sqrt{1 - d} \). Once one of them is caught, we assume that evidence will be found of \( \hat{b} = B \), because the Center can offer an infinitesimal level of leniency to make one official testify against the other, thereby getting evidence of \( \hat{b} = B \). This is a minimalistic way of modeling the information-sharing feature of corruption between officials. Detection of \( \hat{b} = B \) then happens with probability \( d \in [0, 1] \), where \( d \) measures the detection intensity. If neither of them is caught, the investigation will not find any evidence of \( \hat{b} = B \). This happens with probability \( 1 - d \).

After steps 1–3, the crisis severity \( \gamma \), realizes. For simplicity, we assume \( F(0) = 0 \), i.e., some crisis, big or small, always happens. If \( \hat{b} = B \), the Center will have no chance to respond because of the loss of control due to too much corruption, thus getting the downfall payoff \( D \). The provincial official will then get \( \frac{B^2}{2c} - r_L - L_P \). If, however, \( \hat{b} = b^* \), then the Center can try to respond, and the officials can try to resist, just as in the previous section. In this case, the provincial official will get

\[
\max \left\{ \frac{b^2}{2c} - r_L - L_P, (1 - \gamma) \left( \frac{b^2}{2c} - r_L \right) \right\}.
\]

We now analyze this setting. Given the optimal corruption tolerance derived in Proposition 3, i.e., \( b^* \equiv \sqrt{2c \left( \frac{L_P}{\gamma} + r_L \right)} \), how should the Center set the detection intensity to induce either \( \hat{b} = b^* \), or no cover-up when \( \hat{b} = B \), so that it will never lose control during crises? The answer is given in Proposition 7.

**Proposition 7.** Under the condition of Proposition 3, if the cover-up is sufficiently costly, i.e., \( C \geq \frac{B^2}{2c} - r_L - L_P - (1 - \mu_\gamma) \left( \frac{b^2}{2c} - r_L \right) \equiv \tilde{C} \), where \( \mu_\gamma \) is the mean of \( \gamma \), then the Center can induce the provincial official to choose \( \hat{b} = b^* \equiv \sqrt{2c \left( \frac{L_P}{\gamma} + r_L \right)} \) via
a sufficiently high detection rate, i.e., \( d \geq \frac{\bar{C}}{\frac{B^2}{2c} - r_L - L_P} \). Otherwise, if \( C < \bar{C} \), to guarantee control during crises, the Center should not detect too intensively, i.e., \( d \leq \frac{C}{\frac{B^2}{2c} - r_L - L_P} \).

Proof. If \( \hat{b} = b^* \equiv \sqrt{2c\left(\frac{L_L^2}{\gamma} + r_L\right)} \), the crisis response will always succeed, and the provincial official can expect to get

\[
\int_0^{\hat{b}} (1 - \gamma) \left(\frac{b^*}{2c} - r_L\right) dF(\gamma) = (1 - \mu_\gamma) \left(\frac{b^*}{2c} - r_L\right) ;
\]

(25)

if \( \hat{b} = B \), without cover-up, he can expect to get \( (1-d) \left(\frac{B^2}{2c} - r_L - L_P\right) \); if \( \hat{b} = B \), with cover-up, he can expect to get \( \left(\frac{B^2}{2c} - r_L - L_P\right) - C \).

Therefore, he will choose \( \hat{b} = b \) if and only if

\[
(1 - \mu_\gamma) \left(\frac{b^*}{2c} - r_L\right) \geq \max\left\{ (1-d) \left(\frac{B^2}{2c} - r_L - L_P\right) , \left(\frac{B^2}{2c} - r_L - L_P\right) - C \right\} ,
\]

(26)

i.e.,

\[
d \geq 1 - \frac{(1 - \mu_\gamma) \left(\frac{b^*}{2c} - r_L\right)}{\frac{B^2}{2c} - r_L - L_P} \quad \text{and} \quad C \geq \frac{B^2}{2c} - r_L - L_P - (1 - \mu_\gamma) \left(\frac{b^*}{2c} - r_L\right) .
\]

(27)

If these two conditions cannot be satisfied, the provincial official will choose \( \hat{b} = B \), and then he will choose not to cover up, if and only if \( \left(\frac{B^2}{2c} - r_L - L_P\right) - C \leq (1 - d) \left(\frac{B^2}{2c} - r_L - L_P\right) \), i.e., \( d \leq \frac{C}{\frac{B^2}{2c} - r_L - L_P} \). The result then follows.

Proposition 7 highlights the dilemma of corruption detection. On the one hand, when corruption is already high, the detection intensity chosen by the Center cannot be too large, since this would encourage the provincial official to cover up the corruption, in which case the Center would not be able to detect the true level of corruption and respond to crises. On the other hand, to induce a limited level of corruption by officials, the detection intensity needs to be sufficiently high.

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