Purifying the Leviathan: The Strategic Dilemma of an Anti-corruption Campaign Under One-Party Rule

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Abstract

Despite the popular perception of corruption as "business as usual," leaders in authoritarian regimes often wage massive anti-corruption campaigns. This paper analyzes leaders' strategic dilemma between boosting the economy and maintaining political loyalty in the context of the recent anti-corruption campaign in China. Condoning corruption helps economic rent production, which is necessary for building the ruling coalition; however, corruption gives rise to social grievances and erodes supports for the ruling party. Depending on the severity of institutional loophole and the perceived damage of corruption to popular support, leaders may switch between a permissive model and a punitive model of governance. The theoretical predictions are consistent with the changing patterns of bureaucratic selection, anti-corruption investigations, as well as machine learning-based analysis of the annual work reports of city governments in China.

Research of comparative politics has devoted increasing attention to the strategic use of corruption in authoritarian regimes. In contrast to earlier literature that held weak institutions as an exogenous cause of corruption (Lederman, Loayza and Soares, 2005; Méndez and Sepúlveda, 2006; Treisman, 2000), political scientists suggest that there are venues in which ruler strategically allow a space of corruption in the governing system. This body of literature gravitates toward the instrumental value of corruption in boosting the economy and building the ruling coalition (Bueno De Mesquita et al., 2005; Magaloni, 2008).

Paradoxically, however, the economic value of corruption is likely to be offset by rising political instability when regimes are swamped in corruption. There is also considerable variation among authoritarian regimes in the tolerance of corruption. While some regimes afford systemic corruption (Chang and Golden, 2010; Montinola and Jackman, 2002), in other scenarios, rulers have taken great pains to attack corruption, leading to significant turnovers in the party, bureaucracy, and military (Gillespie and Okruhlik, 1991). Whether the anti-corruption campaigns can have persistent effects on political governance is an intriguing and yet understudied question.

This paper argues that rulers can use anti-corruption campaigns to trigger the transition of governance models. The authoritarian governance models can be institutionalized (Boix and Svolik, 2013; Gandhi and Przeworski, 2007; Meng and Paine, 2022), but they are also adapted to the changing political constraints. To illustrate this logic, we propose a theoretical argument of authoritarian governance, in which rulers choose over different models to manage corruption. We examine the recent anti-corruption campaign and the changing pattern of political selection in the Communist Party of China (CPC) as a case in point. The following questions thus loom large. Why did corruption occur in the first place? How does corruption matter for economic efficiency and the ideological stance of officials? How does corruption interplay with other institutional aspects of the one-party system, such

as political selection? Answering these questions sheds light on the generic logic of governance in one-party authoritarian states.

Our theory, along with a formal presentation of the argument, illustrates the interplay among economic performance, political selection, and corruption control. Following Svolik (2012), we assume that the leader's political survival hinges on maintaining popular support and a stable ruling coalition of political elites. Party-states manage those tasks through controlling personnel management, a power that resides in the party's leadership. The personnel system works ideally if it rewards good economic performance and punishes corruption effectively. However, stringent punishment on corruption may not be feasible when there is a large institutional loophole, due to limited oversight capacity of the party-state. In turn, the system focuses on performance-based promotion to build the ruling coalition, and eases corruption. We define this as the permissive model.

The permissive model poses two threats for the survival of leaders. First, the prevalence of corruption undermines popular support for the regime. Lacking forces of institutional checks, such as an opposition party or free media, authoritarian regimes are constrained in their capacity to maintain transparency and accountability (Hollyer, Rosendorff and Vreeland, 2015). Consequently, corruption often led to severe transgression on individual liberty and rights (Cai, 2008; Lorentzen, 2013; Mattingly, 2016).

The second peril of the permissive model is that it undermines the cohesiveness of the ruling coalition. Local executives enjoy substantial powers under the permissive model. Through exerting personal effort, higher performers may obtain a sense of ownership of the regime and deviate from the party line in this process. When the damage on the ideological integrity is high, the leader may switch to a punitive model with more stringent political control, using an anti-corruption campaign as a trigger. Under this model, economic performance is downplayed to minimize the opportunity of corruption, and loyalty-based selection is elevated to be the main

handler for coalition building.

We use a large data set of political turnovers and economic performance of prefecture-level city leaders to test the theory. The analysis establishes three empirical regularities that are consistent with the theory:

1. Economic performance is positively associated with political promotion of city leaders before the anti-corruption campaign, but not after it.

2. Consistent with the permissive model, higher performers are associated with a higher probability of investigation for corruption.

3. Consistent with the punitive model, city leaders exhibit higher policy congruence with Xi's agenda, as indicated by the shares of topics in the local government work reports.

Scholars associate corruption with various instrumental values for political leaders, including enhancing revenue (Guardado, 2018), manipulating elections (Klašnja, Little and Tucker, 2018), and boosting popular support (Manzetti and Wilson, 2007). Nevertheless, the relationship between corruption and economic development remains controversial. While some research suggests that there is a greasing effect of corruption (Leff, 1964; Li and Wu, 2010; Shi et al., 2021), other studies find corruption to have a detrimental effect of deterring private investment and hampering economic growth (Chen and Kung, 2019; Earle and Gehlbach, 2015; Wang, 2021; Zhu and Shi, 2019). Our paper adds to the literature the investigation on the trade-off between economic gains and political control in corruption management. This approach is in line with a body of recent theoretical works (Hollyer and Wantchekon, 2015; Lu and Lorentzen, 2016), but focuses more on its implications for political selection. Li, Roland and Xie (2022*a*,*b*) share a similar theoretical motivation in a way similar as ours of studying the mechanisms of corruption and anti-corruption through the lens of its effects on regime survival. There are also notable differences between their research and ours. While Li, Roland and Xie (2022*a*,*b*) argue that

the leader's decision on the control of corruption depends on the fat-tailed risk of crisis, our argument focuses on how decreasing popular support and loyalty give rise to the anti-corruption campaign. Another and more important difference is that we study the different forms of coalition building under the two governance model, taking the anti-corruption campaign as a trigger for the transition between the two governance models.

The findings drawn from the Chinese context speak to the general theme that the parties' ideological strength matter for their survival (Bizzarro et al., 2018; Gehlbach and Keefer, 2011). This literature finds that corruption scandals lead to deteriorating supports for elected politicians (Ferraz and Finan, 2008; Klašnja, 2015). The cost can be even more significant for a one-party system, where public faith in the ruling party's ideological line is critical for political order (Desposato, Wang and Wu, 2021; Wang, 2019). Hence, the ruling regime responds by switching to the punitive model, a process filled with massive political turnovers (Li and Manion, 2023). To the extent that leaders rely on political campaigns to pursue institutional reforms further, the China story echoes recent anti-corruption experiences in countries like India (Vadlamannati, 2015), Vietnam (Bai et al., 2019), and Rwanda (Jones, 2022).

This paper also sheds light on political selection in authoritarian regimes (Reuter and Robertson, 2012; Zakharov, 2016). Scholars indicate that there is a hybrid model of political selection in China, which values competence and loyalty differently at different levels (Landry, Lü and Duan, 2018; Shih, Adolph and Liu, 2012; Wang, Yao and Zhang, 2022). In our findings, loyalty becomes more salient after the anti-corruption campaign, as is evident from officials' posture to promote the party line. Together with recent work focusing on the selection of lower level officials (Gans-Morse et al., 2021; Jiang, Shao and Zhang, 2022; Yang, 2021), our paper supports the argument that the preferences for a "clean system" and loyalty may be complementary in political selection.

Two Models of Governance

Authoritarian leaders face two tasks, boosting popular support and fostering a cohesive ruling coalition, to maintain its political survival. Unlike personalist and military regimes, the ruling coalition in one-party states is organized under the party's flag. Personnel management is a key instrument of the party to exert its control over the ruling coalition.

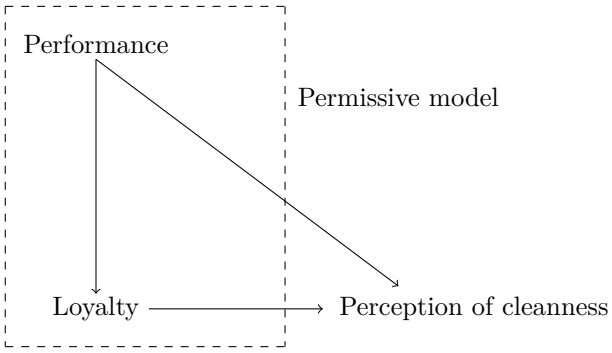
Local executives take important responsibilities of managing the economy and propagating the party line (loyalty). When formal institutions are weak, local executives may play an instrumental role of enhancing private investments (Do, Nguyen and Tran, 2017; Xu, 2011). In doing so, leaders may provide favorable deals with their personally connected firms and receive corruption rents. This model of governance is characterized as a form of "crony capitalism", with both corruption and economic growth (Bai, Hsieh and Song, 2014; Kang, 2002; Li, Roland and Xie, 2022*a*).

Whether the leader seeks to punish corruption depends on its perceived damage to the party's legitimacy among the mass. When the leader deems that the erosion of the party line is moderate and economic growth is crucial for regime survival, the leader will act with more forbearance toward corruption, as in the case of Putin's Russia (Aburamoto, 2019). In the Chinese case, economic performance can be a useful benchmark for political promotion (Li and Zhou, 2005; Yao and Zhang, 2015). We define this model of governance as the permissive model.

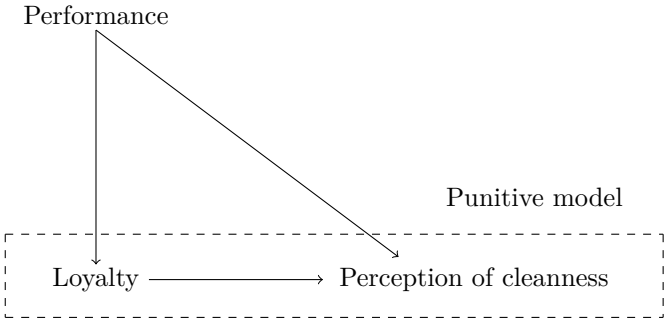
Meanwhile, the permissive model imposes a damage on political legitimacy of the regime. Rising social grievance is inevitable when corruption is unconstrained. Consequently, this renders increasing difficulty for the ruling party to maintain an appealing ideological stance. Thus, the leader has to weigh the economic gain from condoning corruption against its threat for political stability. When the economic gain from the permissive model is outweighed by the erosion of popular support,

the leader may switch to a new model to restore the political legitimacy and the cleanness of the ruling party.

Figure 1: An illustration of the governance models



Priorities of governance under the permissive model



Priorities of governance under the punitive model

The new governance differs from the permissive model in two respects. First, the leader takes corruption seriously and imposes stringent sanctions on corrupted officials. Second, loyalty-based promotion scheme replaces the performance-based promotion as the main strategy of coalition building. The anti-corruption campaign facilitates such a transformation. In the permissive model, some corrupted officials are promoted after delivering good economic performance; however, they are more likely to be prosecuted when the corruption investigation traces back to the past. We define this model as the punitive model.

Figure 1 illustrates the difference between the two models. The diagrams present a strategic trilemma of the leader in managing the three elements that contribute to

authoritarian governance. As the arrows in the diagrams suggest, the weights put on economic performance affect both loyalty and the perception of cleanness of the regime. Valuing loyalty has an additional impact on the perception of cleanness. The dashed line rectangles include the priorities of the leader under the two governance models. The permissive model prioritizes economic performance and loyalty, and the punitive model prioritizes the perception of cleanness as well as loyalty.

It is an intriguing question whether leaders must attack corruption through a campaign. The anti-corruption campaign imposes a tangible economic cost on the regime through increasing uncertainty for investors. So the leader has to weigh the damage of corruption and the cost of the campaign to decide when to start the campaign. In principle, leaders can resort to institutional means to curb corruption. Those institutions include legislative oversight, auditing offices, inspection teams, and administrative tribunals (Avis, Ferraz and Finan, 2018; Golden and Chang, 2001). However, institution-building is also challenging when the party-state is constrained in fiscal resources to coopt its internal factions. The campaign-style anti-corruption measures may be more effective in deterring corruption through stringent sanction. In turn, massive political turnovers suggest a vulnerability of authoritarian regimes to heal internal division, as is evident from historical cases, including Park Chung-hee's massive crackdowns on politicians and businesspeople, Chun Doo-hwan's purification campaign, Chiang Ching-kuo's "Governmental Rejuvenation" to "construct a clean and capable modern government," Paul Kagame's prosecution of senior politicians (Carothers, 2022), and Muhammadu Buhari's anti-corruption war (Ocheje, 2018).

Era of the Permissive Model in China

We argue that the CPC regime under Jiang Zemin can be characterized by the permissive model. The Jiang era (1990-2002) witnessed a fast expansion of the private sectors and economic liberalization. The party line was shaped by ideological

pragmatism, as indicated by Deng Xiaoping's Cat Theory: "No matter if it is a white cat or a black cat; as long as it can catch mice, it is a good cat." Meanwhile, corruption surged on all fronts – from development projects to infrastructure investments. High-profile cases, such as the smuggling case in Xiamen, indicate ubiquitous business-politics collusion (Shieh, 2005).

The priority under the leadership of Hu Jintao, Jiang's immediate successor as the party's General Secretary, did not divert much from economic growth. Several Politburo members in President Hu's second term were involved in scandals and prosecuted for corruption. Political selection during the Hu era was shaped by a combination of faction-based patronage politics and performance-based competition among local executives (Jiang, 2018). Hu's second term was impaired by power fragmentation within the CPC leadership (Shih and Lee, 2020).

The economic interests of the elites and the general public were largely aligned despite rising economic inequality during the Jiang and Hu eras. In light of the model in the appendix, this environment features a relatively large weight of growth. This explains why the "Three Represents" criteria, the CPC's core principle in the Jiang era, depicted the party as a leading force representing "the advanced social productive forces, the progressive course of China's advanced culture, and the fundamental interests of the majority" (Tsai, 2006). Although corruption certainly violates law and the party line, the sanction against corruption was rarely enforced in this political atmosphere. Senior officials, who had taken part in local economic development, obtained a sense of entitlement to political rents.[1]

The permissive model led to two threats to the legitimacy of the CPC regime. The first threat is that corruption incurs social grievances on a number of issues,

[1]An anecdotal evidence comes from a former deputy director of the Reform and Development Commission in Guangxi province, who was investigated and prosecuted for corruption in 2013. During the investigation, the official asserted in the personal manifesto that "I do not think that I am worthless, especially in economic development. I will not despise my own morality. It is no exaggeration that almost every item of expressway, coastal port, river port, airport, subway and countless projects came from me.... You can criticize my life and my morality, but my hard work cannot be obliterated." (Retrieved from *Chinese Bulletin of Discipline and Inspection*, January 15, 2018.)

including human rights violations, workplace disasters, and environmental degradation. Riots emerge out of social grievances (Mattingly, 2016; O'brien and Li, 2006), and the central government rarely intervenes due to limited administrative capacity (Cai, 2008; Lorentzen, 2013). The second threat is severe internal political division (Chen and Hong, 2021). The diluted ideological strength presented an existential danger to the party.

Xi's Anti-Corruption Campaign and the Punitive Model

Xi's anti-corruption campaign is a significant step toward the punitive mode. From the 18th to the 20th National Congress of the CPC, the campaign had investigated 553 province and ministry-level officials, more than 25,000 prefecture and bureau-level officials and 182,000 county department-level officials.[2] Figure 2 shows that the number of prosecuted senior officials reached a historical peak in 2015.

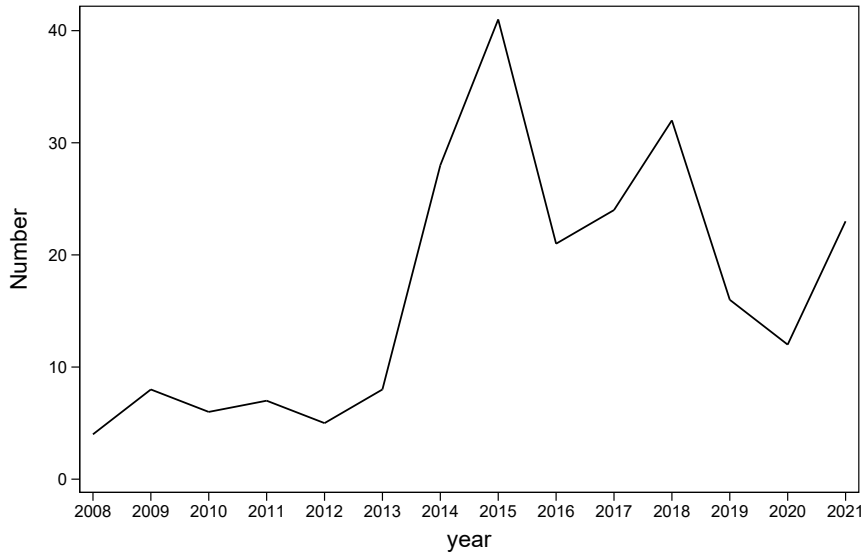
Along with the investigations, the leadership vowed to restore an image of "staying true to the original aspiration and founding mission" to serve the people. To justify the campaign, Xi moved beyond the single dimension of economic growth. He championed for inclusive development, arguing that "making people have a sense of gain" should be the evaluation criterion for the success of any reforms. Consistent with this idea, Xi's administration invested great resources to implement popular policy agendas, such as poverty reduction, environmental oversight, income redistribution, anti-monopoly, and common prosperity. These initiatives were reactive to public opinions to a certain extent. As Figure 3 shows, the public's concern about corruption and social inequality, as indicated by the Baidu Index, had reached a historical peak at some point around Xi's ascendance to office.[3]

While some scholars believe that the anti-corruption campaign has helped Xi

[2]Reported by Jiefang Daily, October 17, 2022. Obtained from `https://export.shobserver.com/baijiahao/html/539798.html`

[3]The Baidu Index is a comprehensive data set on public attention based on the internet search trends on Baidu.com, one of the largest online search tools used by Chinese netizens.

Figure 2: Annual number of senior officials prosecuted for corruption

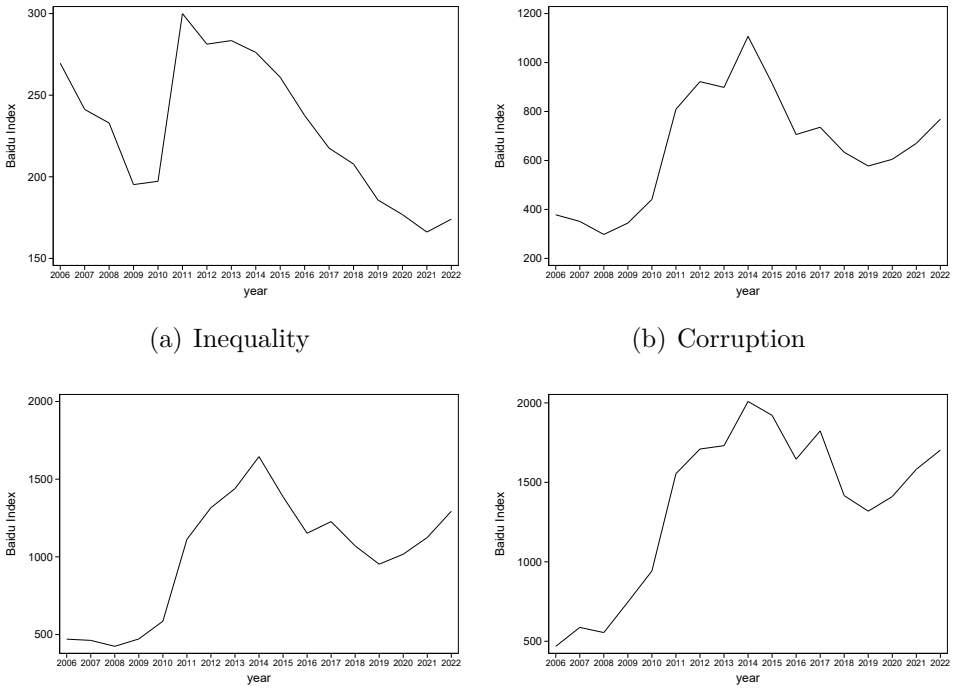


This graph plots the annual total number of corruption prosecutions of senior officials at the province ministry level. The data were obtained from the reports of China's Supreme People's Procuratorate.

establish political authority (Gore, 2016), there was an arguably deeper motive: to pave the way for etsablishing a political order with stronger ideological appealing of the ruling party. In Xi's own remarks, the goal of the campaign is to "explore a successful path to jump out of the historical cycle through the party's self-revolution."[4] This may be a belief shared by many "princelings", a popular name for descendants of the revolutionary Communist leaders (Zhao, 2016). The integrity and legitimacy of the ruling party becomes a priority in the face of rising inequality and deteriorating social cohesion. Xi's agenda aimed to address these concerns. In light of the model presented in the appendix, this feature can be characterized by an increase of punishment parameter p, which prompts the switch to the punitive model. Consequently, the regime bears a larger cost of implementing anti-corruption measures

[4]Xi Jinping, Speech at the Sixth Plenary Session of the Nineteenth Central Commission for Discipline Inspection of the Communist Party of China, reprinted at Qiushi (CPC Central Committee Bimonthly), Chinese edition, No.3, January 31, 2023, obtained from: `http://www.qstheory.cn/dukan/qs/2023-01/31/c_1129323988.htm`

Figure 3: Public Attentions to Corruption and Inequality (Baidu Index)



(a) Inequality

(b) Corruption

(c) Corruption + Mayor

(d) Corruption + City Party Secretary

Notes: The figure shows the annual trends in the public's attention to various social issues, as indicated by the Baidu Index.

when the potential economic growth is high. This induces the leader to set the weight of economic growth π at a lower level and gives loyalty a more central place in the promotion scheme.

Hypotheses Development

Section I in the Appendix presents a parsimonious model of authoritarian governance. In the model, the leader decides the incentive scheme of the agent in such a way that the agent splits the effort to generate economic performance and loyalty. As a result, higher ability is associated with better economic performance. Meanwhile, the agent's intervention in economic affairs exposes him to a set of opportunities of self-enrichment, including bribery taking and collusion with businesspersons. Although those behaviors are generally against law and the party line, they are not punished under the permissive model due to the importance of economic rent. The justification of corruption rent-seeking may stem from an informal bureau-franchising arrangement, as suggested by Ang (2017). This is a plausible scenario when the state is featured with relatively low fiscal capacity and severe institutional distortions (Li, Roland and Xie, 2022*a*,*b*).

Corruption entails a cost to the leader as it arouses resentment among ordinary citizens. But quelling corruption is also costly. Both the cost of corruption and the cost of anti-corruption measures increase with the institutional loophole. So the leader weighs the agent's economic performance and loyalty as well as the costs of corruption and anti-corruption measures to decide which governance model to take. Consequently, there is a point at which the institutional loophole becomes sufficiently large, and the leader switches from the permissible model to the punitive model. This amounts to an anti-corruption campaign.

Under the permissive model, higher performers are in a favorable position in promotion competition, as the leader's priority is the economy. By contrast, high performers lose the advantage of promotion under the punitive model, where loy-

alty, instead of growth, occupies a more central place in the leader's evaluation. Hypotheses 1 follows from Claims 1 and 2 in the model in the appendix.

Hypothesis 1. *Higher performers are more likely to be promoted before the anti-corruption campaign, and not so after the campaign.*

Under the assumption that the opportunity of corruption is proportional to economic performance, high performers will be caught with a high probability in the anti-corruption campaign. This reasoning guides us to the following hypothesis.

Hypothesis 2. *When the opportunity of corruption is proportional to economic performance, higher performers are more likely to be investigated in the anti-corruption campaign.*

Moreover, Claim 3 in the model illustrates the key intuition of the argument that the leader favors the punitive model when the institutional loophole is sufficiently large. This loophole may stem from fiscal decentralization and a lack of oversight capacity. Thanks to the economic decentralization since the 1980s, the subnational governments in China enjoy substantial policy discretion and interact closely with regional firms (Xu, 2011). Jia and Nie (2017) suggest that decentralization may induce business-political collusion and increase coal mine disasters. Chen and Kung (2019) identify land transactions, which are at the discretion of local governments, as a source of corruption.

As loyalty is valued more in the selection for the ruling coalition in the punitive model, local executives may be incentivized to pay more attentions to signalling their stance of loyalty (Wang, 2021). This is consistent with an increasing policy focus by local governments in areas like environmental protection (Zhang, Chen and Guo, 2018), digital surveillance (Xu, 2021), and poverty reduction (Zuo, Zhang and Zuo, 2019). Hypothesis 3 suggests this implication.

Hypothesis 3. *Local executives exhibit an increasing degree of policy congruence with the central leadership after the anti-corruption campaign.*

Data and Methodology

We obtain the officially released reports on the anti-corruption investigations from the website of the Central Commission for Discipline Inspection (CCDI). Combining those reports with the Chinese Official Dataset (COD) from the China Center for Economic Research,[5] we construct a data set that covers 1,708 prefecture city mayors and party secretaries (henceforth, city leaders) who presided over major prefectures in 2013-2021.[6] Among these city leaders, 151 (8.84%) were investigated for corruption during this period.[7]

Capability. Our test requires a measure of officials' long-term economic performance. Annual GDP growth is a common measure, but it may be correlated with unobserved city and year effects. To deal with this problem, we leverage the rich biographic information on city leaders to estimate their capability. Following the approach adopted by Yao and Zhang (2015), we take advantage of the rotation system to disentangle city leaders' personal effects and city-specific effects. City leaders are frequently rotated between different jurisdictions. Over time, the central and provincial leaders may form a belief about city leaders' capability. We estimate the officials' personal effects on GDP growth as follows.

$$\mathrm{y_{i(jt)}} = \mathrm{X_{i(jt)}} + \delta_{\mathrm{i}} + \psi_{\mathrm{j}} + \gamma_{\mathrm{t}} + \epsilon_{\mathrm{i(jt)}} \tag{1}$$

In Equation (1), $y_{i(jt)}$ is city j's growth rate in year t, when official i was a leader of city j. The vector $X_{i(jt)}$ is a set of time-varying control variables. δ_i is official

[5]The data provide detailed personal and career information on mayors and party secretaries in prefecture-level cities for 1994-2021. A detailed description of these data is in Yao et al. (2020).

[6]We focus on city leaders, as opposed to province or higher level leaders, to examine the hypotheses presented in the heuristic model. City leaders include mayors and party secretaries of prefectures, who constitute the major candidate pool for the selection of provincial leaders. The sanction and promotion of city leaders have far-reaching impacts on the ruling coalition of the next generation. Moreover, internal power structures at lower levels resemble those at the top. In turn, changing patterns in political selection and anti-corruption at the subnational level reflect the CPC's highest leadership.

[7]Only five provincial governors or party secretaries were investigated during the period. We do not study vice mayors, vice party secretaries, or departmental heads in the provincial government because it is difficult to measure their performance, which is a key variable in our hypotheses.

i's fixed effect to be estimated. ψ_j represents city fixed effects and γ_t represents year fixed effects. $\epsilon_{i(jt)}$ is an independently and identically distributed error term. δ_i is consistently estimated relative to a common mean when officials were laterally transferred among multiple jurisdictions. We use the point estimate of $\hat{\delta}_i$ based on the growth data in 1994-2021 as a measure of *Capability*.[8] For the investigated officials who exited the sample before 2021, *Capability* is estimated based on their individual effects on growth between the first year they took a leadership position and the year they exited when they were investigated.[9]

Personal connection. The literature has suggested that personal connection of local leaders matter for promotion (Shih, Adolph and Liu, 2012; Jia, Kudamatsu and Seim, 2015). Some recent papers suggest that increasing political control by the party's central leadership undermines the role of factional affiliation in bureaucratic appointments (Li and Manion, 2023; Shih and Lee, 2020). Although personal connections are not a primary focus for our theory, we believe that they are important determinants of promotion in both periods. First, following the one-level-down approach of personnel management, the party's organization at the provincial level is an isomorphism of its central leadership. Provincial party leadership represents the authority of the CPC's central committee, and hence wields significant personnel power over the appointment of city leaders. Second, provincial leaders may prefer officials whom they know better through personal interactions, to reduce the risk of promoting disloyalty officials.

Scholars often define personal connection as sharing hometown or having overlapping college experiences (Fisman et al., 2018; Meyer, Shih and Lee, 2016). An

[8] Yao and Zhang (2015) provide a joint estimation of officials' personal effects on growth and political promotion, which takes into account the error terms of individual effects δ_i in the first stage.

[9] An alternative measure is an index of relative economic growth compared with peers throughout a city leader's tenure. This second measure controls specific time trends but may be biased by unobserved local conditions that shape a city's long-term growth potential. We computed a measure of capability based on a relative growth index. The results are qualitatively similar to those using *Capability* estimated from Equation (1). To save space, we relegated the results to Table A3 in the appendix.

alternative approach identifies connection from colleague experience (Jiang, 2018; Landry, Lü and Duan, 2018). Our theory suggests that personal knowledge about candidates' ideological congruence becomes more important for bureaucratic selection under the punitive model. Hence, our measure relies on colleague experience.

We define a city leader as connected to the incumbent provincial party secretary in the inspection year if the following two conditions are met: (1) the incumbent provincial party secretary was the city leader's superior when they both worked in a province or city-level government,[10] and (2) the official's rank at the time was no more than two levels below the provincial party secretary. In addition to the binary measure, we measure the strength of connection by counting the years of colleague experience. We define the second measure as a continuous measure of connection. We expect the strength of connection to increase along with work experience. We also control for city leaders' personal characteristics, including a set of dummy variables that indicate college education, minority, and female. Table A1 in the appendix summarizes the variables used in the empirical analysis.

Evolving Patterns of Promotion (H1)

We define promotion as an event in which an official i was appointed to a higher-ranking position in year t. Following this definition, a city leader is promoted if the leader is appointed to be a mayor or party secretary of the sub-provincial city, or to be a sub-provincial official in the provincial government or party committee. In the proposed model, the leader's choices of anti-corruption measure and the type of agent are determined by the perceived importance of economic growth (π) and the institutional loophole (θ). In a more general setting where π and θ are randomly distributed, the equilibrium will be featured with a mixture mass of low- and high- capability agents, and corruption is only partially deterred for the low

[10]Our data start from 1994. By that time, many current provincial party secretaries already held positions at the city level. Therefore, we are unable to include colleagueship at the county level. Hence, the estimate on colleagueship-based connections can be considered a lower bound.

types. Consequently, capability will be a strong predictor of promotion under the permissive model, but not under the punitive model.

Following this logic, we estimate a probit model for the probability of promotion, respectively before and after 2013, the year when the anti-corruption campaign started. In Equation (2), $Promotion_{ijt}$ is the probability of the promotion of official i presiding over city j in year t. $Capability_i$ and $Connection_i$ are defined as before. X_{it} is a set of personal variables, including the official's current age and the square term of age, and dummy variables for female, college education, and minority. u_j stands for city fixed effects, and T stands for year fixed effects.

$$\text{Promotion}_{\text{ijt}} = \Phi[\alpha + \beta \cdot \text{Capability}_{\text{i}} + \gamma \cdot \text{Connection}_{\text{i}} + \text{X}_{\text{it}}\text{b} + \text{u}_{\text{j}} + \text{T}]. \qquad (2)$$

Table 1: Changing pattern of promotion (H1)

Dependent variable: Promotion				
	1994-2012		2013-2021	
	(1)	(2)	(3)	(4)
Capability	3.23***	3.09***	-2.09	-2.14
	(0.70)	(0.74)	(1.31)	(1.31)
	[0.86]***	[0.83]***	[-0.57]	[-0.58]
Connection (binary)	0.16***	0.14***	0.18***	0.18***
	(0.03)	(0.03)	(0.04)	(0.04)
	[0.04]***	[0.04]***	[0.05]***	[0.05]***
Other controls	NO	YES	NO	YES
City Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	11,466	11,217	5,652	5,640
R-squared	0.02	0.03	0.26	0.26

Notes: This table presents the estimates for the probability of promotion for prefecture-level mayors and party secretaries. *Capability* is the point estimates for δ_i in Equation (1) using the largest connected 1994-2021 sample. The following variables are controlled but not reported: whether the official has a college degree, whether the official is from an ethnic minority group, whether the official is female, age, and the squared term of age. The results were obtained by a probit model. The robust standard errors of the estimated coefficients are reported in parentheses. The marginal effects evaluated at the sample means are reported in brackets. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Consistent with H1, the estimates presented in Table 1 show that *Capability* has

a significantly positively associated with promotion in 1994-2012. A one-standard-deviation increase in $Capability_i$ translate into 3.86% of one-standard-deviation increase in the probability of promotion. By contrast, the coefficient of *Capability* is insignificant in 2013-2021. The different coefficients of *Capability* in the two periods suggest that higher-performers lost the promotion advantage under the punitive model. Meanwhile, the coefficients of $Connection_i$ are positive in both periods. These results are consistent with an interpretation that economic performance was downplayed as an evaluation criteria under the new governance model.

Capability and Corruption (H2)

We test Hypothesis 2 using the probit model as specified by Equation (3). The dummy variable $investigation_{ij}$ indicates whether official i working in city j was investigated in the specified period.[11] $\Phi[\cdot]$ is the cumulative distribution function of the standard normal distribution. $Capability_i$ is the point estimate for δ_i, the personal effects estimated from Equation (1). Personal connection may also capture an official's unobserved characteristics that potentially correlate with corruption, such as one's governing style and adherence to the party discipline. The interaction term $Capability_i \cdot Connection_i$ addresses the possibility that the effect of $Capability_i$ on investigation is contingent on an official's political connection.[12] X_i is the set of personal variables. ϕ_i is a set of dummy variables indicating whether official i served as a city leader each year between 2013 and 2021.[13] u_j is a set of dummy variables indicating the region of an official's last post. T_j is a set of dummy variables indicating the year when the city was inspected by the CCDI's inspection team.

[11]The sample of officials for analysis includes officials who had been mayors or party secretaries of prefecture cities in 2013-2021. Capability is estimated based on the 1994-2021 sample of cities.

[12]We use the method proposed by Ai and Norton (2003) to compute the marginal effect of the interactive term. The corresponding Stata command is *inteff*.

[13]Some officials were moved to other posts during this period. Often, officials were investigated after they were moved from their posts before inspection. Controlling the year of incumbency alleviates selection bias due to nonrandom exit.

$$\Pr(\text{investigation}_{ij}) = \Phi[a + b \cdot \text{Capability}_i + c \cdot \text{Connection}_i + d \cdot \text{Capability}_i \cdot \text{Connection}_i + X_i b + \phi_i + u_j + T_j]. \quad (3)$$

Table 2 reports the estimates for Equation (3). First, columns 1 and 2 present the estimates based on the short-term observations in 2013-2016. $Capability_i$ is positively associated with the probability of investigation for unconnected officials, but not much for the strongly connected officials. A one-standard-deviation increase in $Capability_i$ explains 9.43% of one standard deviation in the probability of investigation. Connected city leaders were 7 percentage points less likely to be investigated. The pattern of corruption investigation was persistent through Xi's first two terms, as indicated by the results in columns 3 and 4. Meanwhile, personal connections to superiors alleviated the probability of being investigated for high performers. Interestingly, connections appear to have a larger impact on reducing the probability of investigation over the long term. The role of personal connections in shaping corruption investigations and promotions reflects a tendency of strengthening the party line.

Figure 4 plots the varying effects of *Capability* on the probability of investigation, conditional on the strength of personal connection. The figure shows that higher-performers with weak personal ties are more likely to be investigated. By contrast, when city leaders were more strongly connected to superiors (with a colleague experience of three years or more), higher-performers were not more vulnerable. Specifically, *Capability* does not increase the probability of being investigated for corruption for officials with more than 3 years of shared colleague experience with superiors.[14] This finding provides a nuanced picture of the overall impact of

[14] Among city leaders with more than three years of personal connection to provincial superiors, 5.15% of them were investigated for corruption. By contrast, the ratio of investigated officials among unconnected ones is 9.87%.

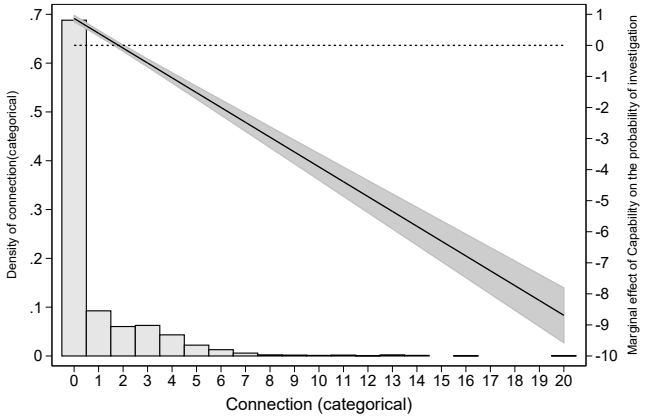
Table 2: Capability and Investigation (H2)

Dependent variable: Being investigated in the Anti-corruption Campaign				
	2013-2016		2013-2021	
	(1)	(2)	(3)	(4)
Capability	12.87***	12.46***	9.03***	7.55***
	(2.69)	(3.11)	(2.29)	(1.30)
	[1.32]***	[1.08]*	[1.21]***	[0.87]***
Connection (binary)	-0.26**		-0.74***	
	(0.11)		(0.16)	
	[-0.07]**		[-0.03]*	
Capability × *Connection (binary)*	-20.18***		-20.12**	
	(4.35)		(9.67)	
	[-0.53]***		[-0.78]**	
Connection (continuous)		-0.07*		-0.15**
		(0.04)		(0.07)
		[-0.01]*		[-0.01]
Capability × *Connection (continuous)*		-3.16***		-4.03**
		(0.81)		(1.98)
		[-0.25]***		[-0.47]**
Other controls	YES	YES	YES	YES
City Fixed Effects	YES	YES	YES	YES
Incumbency-year dummies	YES	YES	YES	YES
Observations	1,056	1,056	1,707	1,707
Pseudo R-squared	0.10	0.10	0.22	0.22

Notes: This table presents the estimates for the probability of being investigated. Columns 1-2 report the estimated results based on whether city leaders were investigated for corruption in 2013-2016. Columns 3-4 report the estimated results based on whether city leaders were investigated for corruption in 2013-2021. *Capability* is the point estimate for δ_i in Equation (1) using the largest connected 1994-2021 sample. The following variables are controlled but not reported: whether the official has a college degree, whether the official is from an ethnic minority group, and whether the official is female, as well as the dummy variables indicating whether the official's city was audited in a specific year. Incumbency-year dummies are a set of dummies indicating whether the official was in office in a specific year in 2013-2021. The results were obtained by a heteroscedasticity-robust probit model. The robust standard errors of the estimated coefficients are reported in parentheses. The marginal effects are reported in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

the anti-corruption campaign: although it was intended to enhance the authority of the CPC's central leadership, it did not undermine patronage politics organized around senior leaders who have survived the test of loyalty.

Figure 4: The marginal effects of capability on the probability of investigation



Notes: The plot is obtained based on the estimation in column (3) in Table 2. The marginal effects are evaluated by setting capability at the sample mean, zero. The distribution of continuous connection is plotted following the method developed by Hainmueller, Mummolo and Xu (2019). The marginal effects are presented with bootstrapping confidence intervals at the 95% level, from 200 repetitions.

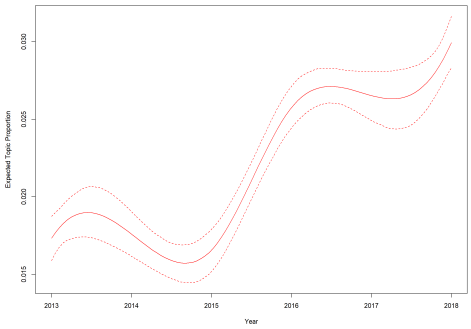
Changing Policy Salience (H3)

To test whether the anti-corruption campaign was synchronized with increasing emphasis on the party line, we analyzed more than 1,200 annual work reports by city governments from 2013 to 2018.[15] The reports were drafted by mayors' offices and jointly approved by the mayor and party secretary of a city government. Thus, the length devoted to a particular topic in a report is an indicator of the attention paid by local administrations. We employ the Structural Topic Model with 50 topics and estimate the share of each topic in each report (Roberts et al., 2014).[16]

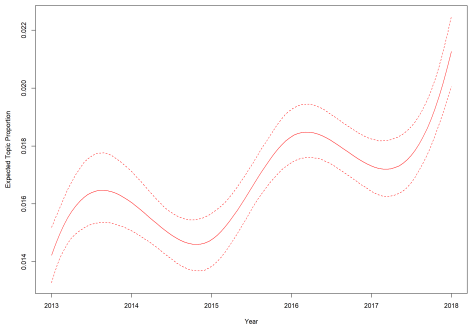
[15]The work reports are downloaded from `http://data.people.com.cn/`.

[16]We divide the work reports by paragraph and treat each paragraph as a unit of analysis. The Chinese work segmentation is implemented through jieba (`https://github.com/jsrpy/Chinese-NLP-Jieba`.) We use the search K function in the

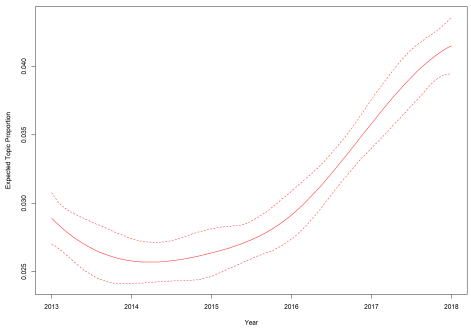
Figure 5: Salience of the "New Era" Agendas in Government Reports



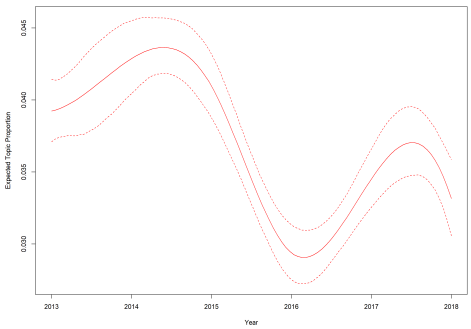
(a) Poverty Reduction



(b) Environmental Protection



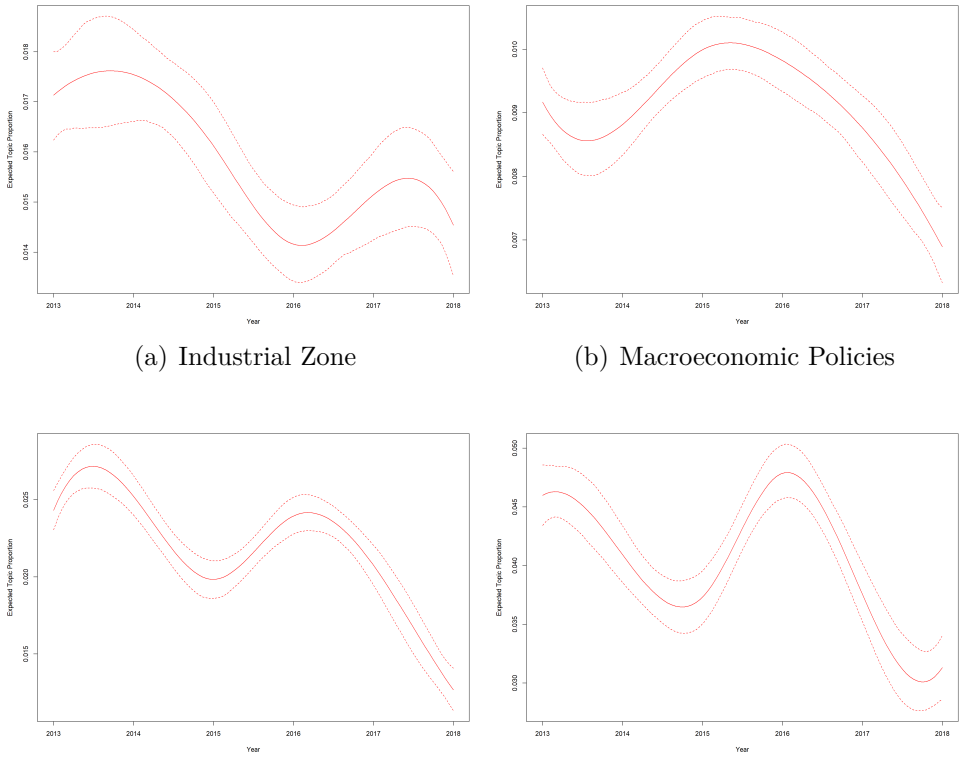
(c) Political Loyalty



(d) Party Discipline and Law

Notes: The figures plot the average topic proportion and the 95% confidence intervals for the following dimensions: poverty reduction, environmental protection, political loyalty, and party discipline and law.

Figure 6: Salience of the "Old Days" Agendas in Government Reports



(a) Industrial Zone

(b) Macroeconomic Policies

(c) Urbanization

(d) Economic Growth

Notes: The figures plot the average topic proportion and the 95% confidence intervals for the following dimensions: industrial zone, macroeconomic policies, urbanization, and economic growth.

Figures 5 and 6 demonstrate notable changes in the salience of various important issues in the local work reports throughout Xi's first political term in 2013-2018.[17] There were significant increases in the proportions of three topics between 2013 and 2018: poverty reduction, environmental protection, and the pledge of political loyalty to Xi. Those topics are well aligned with the priority topics in Xi's policy agenda.

Interestingly, the proportion of the topic on party discipline and law registered significant fluctuation, peaking in 2015 and 2018 but declining in 2016. This result suggests that the campaign may aim at the loyalty of party cadres on a broad range of issues, rather than focusing on corruption investigations exclusively. In turn, the topic proportions for the "good old days" agenda, such as industrial zone, urbanization, and economic growth, had followed a declining trend.

Addressing Provincial Patronage

Although the empirical evidence is consistent with the argument that there was a fundamental change in the governing model of the CPC, there is a legitimate concern that the campaign may have only targeted officials from rival fractions, to serve the strategic purpose of internal power consolidation. To address this concern, we check the robustness of the results when excluding city leaders who were connected to purged provincial leaders. If the punitive model only applies to the provinces whose leaders are considered potential rivals, the baseline results should not extend to other provinces. Therefore, we drop the city leaders who were connected to purged provincial leaders and re-estimate the models for investigation and promotion.[18] Table A4 in the appendix reports qualitatively similar results as

stm package to fix the number of topics at 50. The comparison between different numbers is based on their performance on held-out likelihood, residuals, semantic coherence, and lower bound.

[17]The top words for each topic are reported in the appendix.

[18]Altogether, 11 of 181 provincial leaders were investigated. The purged provincial leaders were Baikeli (Xinjiang), Huang Xingguo (Tianjin), Qin Guangrong (Yunnan), Su Shulin (Fujian), Sun Zhencai (Chongqing), Wang Min (Liaoning), Wang Sanyun (Gansu), Wei Hong (Sichuan), Yang

in Table 2 using the new sample, with *Capability* being positively correlated with the probability of investigation for corruption.

Concluding Remarks

The literature of comparative politics attributes the stability of authoritarian regimes to rent and power-sharing through institutional means (Gandhi and Przeworski, 2007; Wright, Frantz and Geddes, 2015). However, the literature has not provided adequate explanations for what lead to institutional changes in the party-states.

This paper shows that political leaders may attempt to retard the erosion of institutions through changing governance models. The anti-corruption campaign in China served such a role of enforcing a new punitive model, with political loyalty and cleanness as the top priority of the ruling party. The claim is supported by the evidence that higher performers were more likely to be mired in corruption investigations, and economic performance had little impact on promotion after the campaign. Applying structural topic modeling to the annual work reports of city governments suggests that city leaders exhibited increasing policy congruence with the leader's agenda.

The evolving patterns of bureaucratic selection under different leaderships shows that there is a limitation in the institutional commitment of one-party states. This commitment problem stems from a tension between maintaining popular support and securing the ruling coalition. Bureaucratic sanction helped clear the way of transition toward the new governance model. Compromise on economic growth is an inevitable price. Whether the punitive model will be sustained remains an open question. To the extent that the transition hinges on campaign-style strategic maneuvers, this new model is hard to be self-enforcing. This may give rise to a cycle of governance models with periodic anti-corruption campaigns.

Jing (Inner Mongolia),Zhao Zhengyong (Shaanxi), and Zhou Benshun (Hebei).

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Appendix (Not for Publication)

I A Heuristic Model

Consider a static game with a leader (R, she) and an agent (i, he). The agent's ability is $\alpha_i > 0$. The agent is endowed with one unit of time, and allocates it between two tasks: stimulating economic growth (growth), e_g, and strengthening the party line, e_l. The party line may contain multifaceted intrinsic values for the leader, such as political loyalty, cleanness, and congruence with the leader's other policy preferences. The agent's "output" on the two tasks are determined by linear production functions, $Y = e_g$ and $L = e_l$. Moreover, exerting effort on growth incurs a cost $C_i(e_g) = e_g^2/\alpha_i$. A more capable agent bears a lower cost of effort. So he exerts more effort on growth. The effort spent on loyalty stance is costless. For simplicity, we assume that α_i is distributed within a limited range.

Assumption 1.

$$1 < \alpha_i < 2$$

The leader and the agent share a generic common utility, which is a weighted average between economic output and the party line: $\pi Y + (1-\pi)L$, with π be bounded within $[1/2, 1]$. Intuitively, a pro-performance leader assigns a high weight π to economic output Y, and a pro-loyalty and pro-cleanness leader will prefer the opposite. The lower bound of the π is $1/2$ as the ruling regime must rely on basic rents to survive. Y and L are verifiable and contractible.

The leader designs an incentive scheme such that the agent will act as if he maximizes the weighted average of economic output and the party line as intended by the leader. In turn, an intuitive interpretation of π is the leader's subjective evaluation of economic performance. Meanwhile, π reflects the prevalence of economic performance in promotion incentive, which is designed to be aligned with the leader's preference. The incentive scheme of the agent renders more importance

on economic performance when π is higher. As such, in the "ideal" scenario where there is no corruption, the agent's deviation from the leader's preferred actions stems only from his cost of exerting efforts.

$$\text{Incentive}_{\text{a}} = \pi \text{Y} + (1 - \pi)\text{L}.$$

The agent has discretion over economic policies and may be corrupted. I is a binary indicator of whether the agent is corrupted ($I = 1$) or not ($I = 0$). When the agent engages in corruption, he reaps a fixed share θ of the output as personal rent. θ can be understood as a parameter of the institutional loophole in the governing institution. So the total economic rent i grabs from corruption is θY. Corruption also begets social discontent and imposes a cost for the leader. For simplicity, the leader's cost is equivalent to the agent's private gains, θY. The following assumption is without loss of generality and helps simplify the analysis.

Assumption 2.

$$0 < \theta < 2$$

This is a flexible assumption and allows the agent to steal an amount of rent larger than the net delivery to the regime. This is not an extreme assumption in light of the prevalence of corruption in some authoritarian regimes. The leader can implement anti-corruption measures to deter the corruption. The intensity of anti-corruption measures is p, which captures both the probability of being caught and the severity of punishment for corruption. If the agent engages corruption, he expects to pay a punishment cost equivalent to p. The launching and maintenance of the anti-corruption measures is costly for the leader. For simplicity, we assume the cost of the campaign for the leader is p when the intensity of anti-corruption campaigns is p.

In summary, the agent's utility function can be expressed as

$$U_a = \pi Y(e_g) + (1-\pi)L(e_l) - e_g^2/\alpha_i + I(\theta Y - p). \tag{A1}$$

The agent's optimization problem is to choose e_g and e_l, and decides whether to engage in corruption or not (I), to maximize his utility U_a.

$$\begin{aligned} \max_{e_g, e_l, I} \quad & U_a = \pi Y(e_g) + (1-\pi)L(e_l) - e_g^2/\alpha_i + I(\theta Y - p). \\ & = \pi e_g + (1-\pi)e_l - e_g^2/\alpha_i + I(\theta e_g - p) \\ \text{s.t.} \quad & e_g + e_l = 1, \;\; e_g, e_l \in [0,1], \;\; I \in \{0,1\}. \end{aligned} \tag{A2}$$

The leader's utility function is

$$U_R = \pi Y(e_g) + (1-\pi)L(e_l) - I(\theta Y) - p. \tag{A3}$$

This game is a Stackelberg game, in which the leader is the first mover. The nature first draws θ and α_i, which are publicly observable and common knowledge. The leader then chooses π and p. In the final step, the agent decides e_g, e_l, and I. The leader's optimization problem can be written as follows.

$$\begin{aligned} \max_{\pi, p} \quad & U_R = \pi e_g^* + (1-\pi)e_l^* - I^*(\theta e_g^*) - p \\ \text{s.t.} \quad & p \geq 0, \pi \in [1/2, 1], \\ & \{e_g^*(\pi, p), e_l^*(\pi, p), \;\; I^*(\pi, p)\} \in \arg\max U_a. \end{aligned} \tag{A4}$$

In Equation A4, e_g^*, e_l^*, and I^* refer to the agent i's optimal decisions as implied by A2. Since anti-corruption measures is costly, it does not make sense for the leader to spend any resources on the anti-corruption if those measures cannot deter the agent's corruption. Thus, it suffices to consider two scenarios. In the first scenario, the leader sets p sufficiently high and the agent refrains from corruption. We define this circumstance as the "punitive scheme" $(I = 0)$. In the second scenario, the leader sets $p = 0$ and condones corruption. We define such a scenario as the "permissive scheme" $(I = 1)$. Assuming that internal solutions are attainable for

A1, we can obtain the agent's optimal responses $e_g^*(\pi,p)$, $e_l^*(\pi,p)$, and $I^*(\pi,p)$ by backward induction.

$$e_g^* = \begin{cases} e_{g0}^* = \frac{(2\pi-1)\alpha_i}{2}, & \text{if I} = 0 \\ \\ e_{g1}^* = \frac{(2\pi-1+\theta)\alpha_i}{2}, & \text{if I} = 1 \end{cases} \tag{A5}$$

Claim 1. *In both the permissive and punitive schemes, the agent allocates more effort on growth and less effort on the party line when he is endowed with higher capability (larger α_i). Fixing α_i, the agent allocates more effort on growth and less effort on the party line under the permissive scheme than under the punitive scheme ($e_{g1}^* > e_{g0}^*$). Moreover, the agent exerts more effort on growth when performance has a higher prevalence in the incentive scheme (larger π).*

Proof. Inspecting Equation A5 shows that $\frac{\partial e_g^*}{\partial \alpha_i} > 0$, $\frac{\partial e_g^*}{\partial \pi} > 0$, and $e_{g1}^* > e_{g0}^*$. □

To solve the leader's problem, we first derive the condition for p that is necessary to deter corruption, given the value of π. Note that the agent's maximum utility from engaging in corruption is:

$$U_a^*(I=1) = \pi e_{g1}^* + (1-\pi)(1-e_{g1}^*) - (e_{g1}^*)^2/\alpha_i + \theta e_{g1}^* - p. \tag{A6}$$

The agent's maximum utility when refraining from corruption is:

$$U_a^*(I=0) = \pi e_{g0}^* + (1-\pi)(1-e_{g0}^*) - (e_{g0}^*)^2/\alpha_i. \tag{A7}$$

The agent will refrain from engaging in corruption when

$$U_a^*(I=0) \geq U_a^*(I=1). \tag{A8}$$

Using A5-A8, we can get that the punitive model will prevail and the agent will refrain from corruption if

$$p \geq p_{min} = [\frac{\theta^2}{4} + (\pi - 1/2)\theta]\alpha_i \tag{A9}$$

Claim 2. *There exists a threshold value of* p, $p_{min} = p(\theta, \pi, \alpha_i)$, *such that the agent will refrain from corruption* ($I^* = 0$) *if* $p \geq p_{min}$. *Moreover,* $\frac{\partial p_{min}}{\partial \pi} > 0$, $\frac{\partial p_{min}}{\partial \theta} > 0$, *and* $\frac{\partial p_{min}}{\partial \alpha_i} > 0$.

Proof. The results follow from the comparative statics of A9. □

Claim 2 establishes the conditions under which the leader uses the anti-corruption measures to enforce the punitive model. It is quite intuitive that the expected punishment necessary to deter corruption increases is higher for higher performers (higher α_i), when the institutional loophole is larger, and when the leader assigns a larger weight to economic growth in the incentive scheme.

Whether the leader wants to implement the punitive model or not depends on the leader's relative values for economic performance and maintaining the party line. We can compute the leader's utilities under the permissive and the punitive models, respectively.

$$U_R^*(I=1) = \pi e_{g1}^* + (1-\pi)(1-e_{g1}^*) - \theta e_{g1}^* = (2\pi - 1 - \theta) \cdot \frac{(2\pi - 1 + \theta)\alpha_i}{2} + (1-\pi) \tag{A10}$$

$$U_R^*(I=0) = \pi e_{g0}^* + (1-\pi)(1-e_{g0}^*) - p_{min} = (2\pi - 1) \cdot \frac{(2\pi - 1)\alpha_i}{2} - [\frac{\theta^2}{4} + (\pi - 1/2)\theta]\alpha_i + (1-\pi) \tag{A11}$$

It is readily seen from Equations A10 and A11 that $U_R^*(I=1)$ and $U_R^*(I=0)$ are a quadratic form of π and the squared term is positive. The stationary point for $I_R^*(I=1)$, $\hat{\pi} = \frac{1}{2} + \frac{1}{4\alpha_i}$ obtains a local minimum, so does the stationary point for $I_R^*(I=0)$, $\pi' = \frac{1}{2} + \frac{1}{4\alpha_i} + \frac{\theta}{4}$. Hence, the optimal π for the leader must be a corner

solution, $\pi^* \in \{1/2, 1\}$. It is straightforward to derive the leader's optimal choices over π under the scenarios $I = 1$ and $I = 0$. The leader's expected utilities under the punitive and permissive models and when $\pi = 1$ and $\pi = 1/2$ are presented by the following table.

$U_R^*(I, \pi)$	$\pi = 1/2$	$\pi = 1$
$I = 0$	$\frac{1}{2}(1 - \frac{\theta^2}{2}\alpha_i)$	$\frac{1}{2}(1 - \theta - \frac{\theta^2}{2})\alpha_i$
$I = 1$	$\frac{1}{2}(1 - \theta^2\alpha_i)$	$\frac{1}{2}(1 - \theta^2)\alpha_i$

It is easy to check that, for all α_i, $U_R^*(I = 1, \pi = 1/2) < U_R^*(I = 0, \pi = 1/2)$ and $U_R^*(I = 1, \pi = 1/2) < U_R^*(I = 1, \pi = 1)$, so $\{I = 1, \pi = 1/2\}$ will never be chosen.

We can note that $\{\pi = 1/2, I = 0\}$ prevails over $\{\pi = 1, I = 0\}$ if $\theta > 1 - \frac{1}{\alpha_i}$. From Assumption 1, we know that $1 - \frac{1}{\alpha_i}$ is within $(0, 1/2)$. So the leader will always prefer a punitive model with relatively lower growth and higher loyalty when $\theta > 1/2$.

We can also note that $U_R^*(\pi = 1, I = 1) > U_R^*(\pi = 1, I = 0)$ holds since $\theta < 2$. This boils down the leader's long run choice of governance model to two options: $\{\pi = 1, I = 1\}$ and $\{\pi = 1/2, I = 0\}$. Whether the leader prefers the punitive model $(I = 0)$ or the permissive model $(I = 1)$ depends on a straightforward comparison between $U_R^*(I = 1, \pi = 1)$ and $U_R^*(I = 0, \pi = 1/2)$.

Simple calculation shows that $U_R^*(I = 0, \pi = 1/2) > U_R^*(I = 1, \pi = 1)$ if $\theta > \hat{\theta} = \sqrt{2 - \frac{2}{\alpha_i}}$. Moreover, the threshold value $\sqrt{2 - \frac{2}{\alpha_i}}$ is larger than $1 - \frac{1}{\alpha_i}$ since $\alpha_i > 1$. We can summarize the leader's preference ranking as the following.

(1) $\{\pi = 1, I = 1\} \succ_R \{\pi = 1, I = 0\} \succ_R \{\pi = 1/2, I = 0\}$, if $\theta < 1 - \frac{1}{\alpha_i}$.

(2) $\{\pi = 1, I = 1\} \succ_R \{\pi = 1/2, I = 0\} \succ_R \{\pi = 1, I = 0\}$, if $1 - \frac{1}{\alpha_i} < \theta < \sqrt{2 - \frac{2}{\alpha_i}}$.

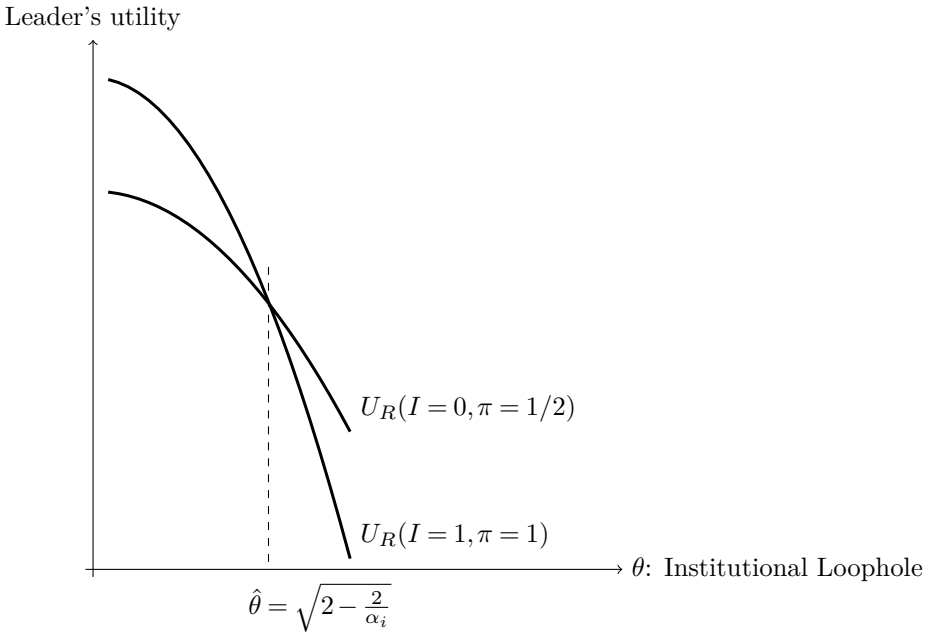
(2) $\{\pi = 1/2, I = 0\} \succ_R \{\pi = 1, I = 1\} \succ_R \{\pi = 1, I = 0\}$, if $\sqrt{2 - \frac{2}{\alpha_i}} < \theta < 2$.

Accounting for the dynamic transitions between different governance models takes a full-fledged dynamic model and is complicated as the choices of I and π may be mutually dependent in reality. Nevertheless, the static model presents useful intuition to rationalize such transitions. For example, we can suppose that the model is a repeated one-shot static game, with changing values of θ and α_i in

each period $t = 1, 2, ...$ In each period there is certain probability for the leader to adjust π and p_{min} (and thus I).

Suppose that in the initial period, θ is not very large, $\theta < \sqrt{2 - \frac{2}{\alpha_i}}$, and a pro-growth leadership sets the growth target high, at some $\pi^1 > \frac{1}{2} + \frac{1}{4\alpha_i}$. Because $U_R^*(I = 1, \pi)$ monotonically increases in π in this domain, the leader will eventually settle on a permissive model with $\{\pi = 1, I = 1\}$. In other words, rent-seeking and a performance-based promotion scheme reinforce each other, so the performance-rent based governance will be the equilibrium. This scenario is consistent with the governance model in the Jiang and Hu eras.

Figure A1: An Illustration of the Leader's Preference for Governance Models



However, deterioration of institutional loophole may induce a shift back to the punitive model. We can obtain the benefit of switching to the punitive model as $\Delta U_R = \frac{1}{2} + (\frac{\theta^2}{4} - \frac{1}{2})\alpha_i$. Recall that $\Delta U_R > 0$ when $\theta > \sqrt{2 - \frac{2}{\alpha_i}}$. Hence, in reaction to an increase in θ from below $\sqrt{2 - \frac{2}{\alpha_i}}$ to above $\sqrt{2 - \frac{2}{\alpha_i}}$, the leader will downplay the importance of economic performance and switches from $\{\pi = 1, I = 1\}$ to $\{\pi = 1/2, I = 0\}$.

Another interesting finding is that ΔU_R increases in α_i when $\theta > \sqrt{2}$. So the leader's resolution of launching anti-corruption measures increases in the ability of bureaucrats when the institutional loophole is sufficiently large. The intense anti-corruption measures and the emphasis of the party line under Xi's leadership are consistent with this equilibrium. Figure A1 illustrates the leader's utilities under the scenarios $\{\pi = 1, I = 1\}$ and $\{\pi = 1/2, I = 0\}$.

Claim 3. *Suppose the initial governance model is the permissive model with* $\{I = 1, \pi = 1\}$*, the deteriorating institutional loophole, as indicated by changing values of* θ *from* $\sqrt{2 - \frac{2}{\alpha_i}} - \sigma_1$ *to* $\sqrt{2 - \frac{2}{\alpha_i}} + \sigma_2$*, where* σ_1 *and* σ_2 *are some small positive numbers, will induce the leader to switch to the punitive model with* $\{I = 0, \pi = 1/2\}$*.*

With Claim 3, we are able to derive the comparative statics with regard to the probabilities of promotion and sanction under different models. For promotion, let $\pi Y(e_g) + (1 - \pi)L(e_l)$ be a proxy of the agent's probability of promotion. The comparative static of this probability with regard to α_i is:

$$\frac{\partial[\pi Y(e_g) + (1 - \pi)L(e_l)]}{\partial \alpha_i} = \frac{(2\pi - 1)^2}{2} > 0 \tag{A12}$$

Under the permissive model, $\pi = 1$, so $\frac{\partial[\pi Y(e_g) + (1-\pi)L(e_l)]}{\partial \alpha_i} > 0$. By contrast, $\pi = 1/2$, so $\frac{\partial[\pi Y(e_g) + (1-\pi)L(e_l)]}{\partial \alpha_i} = 0$. It follows that high-performers are promoted at a higher rate under the permissive model but not the punitive model.

Claim 4. *The agent's probability of promotion increases in ability* (α_i) *under the permissive model. His probability of promotion is unrelated to ability under the punitive model.*

II Appendix Tables

Table A1: Summary statistics

Variable	N	Mean	Standard deviation	Min	Max
Individual-level variables					
Being investigated	1,708	0.09	0.28	0	1
Capability	1,708	0.00	0.02	-0.09	0.07
Binary connections	1,708	0.31	0.46	0	1
Continuous connections	1,708	0.94	1.93	0	20
College	1,708	0.69	0.46	0	1
Minority	1,708	0.14	0.34	0	1
Female	1,708	0.06	0.24	0	1
Inspection_2014	1,708	0.55	0.50	0	1
Inspection_2016	1,708	0.34	0.47	0	1
Inspection_2017	1,708	0.11	0.32	0	1
Inspection_2018	1,708	0.75	0.43	0	1
Inspection_2020	1,708	0.34	0.47	0	1
City-year-level variables					
Promotion	16,874	0.25	0.43	0	1
Capability	16,874	0.00	0.02	-0.15	0.16
Binary connections	16,874	0.28	0.45	0	1
Continuous connections	16,874	0.89	2.03	0	20
College	16,874	0.94	0.23	0	1
Minority	16,874	0.14	0.35	0	1
Female	16,874	0.04	0.21	0	1
Age	16,874	50.95	4.50	21	64

Notes: Capability is normalized to have zero mean.

Table A2: Robustness Check: Promotions in first terms versus second terms

Dependent variable: Promotion				
	First Terms		Second Terms	
	(1)	(2)	(3)	(4)
Capability	2.68***	2.25***	1.26	1.51
	(0.82)	(0.87)	(0.97)	(0.98)
	[0.72]***	[0.60]***	[0.34]	[0.43]
Connection (binary)	0.23***	0.23***	0.12***	0.11***
	(0.04)	(0.04)	(0.03)	(0.04)
	[0.06]***	[0.06]***	[0.03]***	[0.03]***
Other controls	NO	YES	NO	YES
City Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	8,463	8,317	8,655	8,540
R-squared	0.05	0.06	0.20	0.20

Notes: This table presents the estimates for the probability of promotion for prefecture-level mayors and party secretaries. Columns 1-2 report the estimated results using the samples of the CPC leaders' first-term years: 1994-1997, 2003-2007, and 2013-2017. Columns 3-4 report the estimated results using the samples of the CPC leaders' second-term years: 1998-2002, 2008-2012, and 2018-2021. *Capability* is the point estimates for δ_i in Equation (1) using the largest connected 1994-2021 sample. The following variables are controlled but not reported: whether the official has a college degree, whether the official is from an ethnic minority group, whether the official is female, age, and the squared term of age. The results were obtained by a heteroscedasticity-robust probit model. The robust standard errors of the estimated coefficients are reported in parentheses. The marginal effects evaluated at the sample means are reported in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A3: Robustness Check: Capability and investigation (relative growth)

Dependent variable: Being investigated in 2013-2021				
	(1)	(2)	(3)	(4)
Relative growth	2.87*	3.36*	2.92**	3.16
	(1.59)	(1.96)	(1.49)	(2.16)
	[0.37]*	[0.43]*	[0.37]**	[0.41]
Connection (binary)	-0.02	1.78		
	(0.08)	(5.87)		
	[-0.01]	[0.23]		
Relative growth × Connection (binary)		-1.80		
		(5.87)		
		[-0.31]		
Connection (continuous)			0.02	0.32
			(0.03)	(2.24)
			[0.01]	[0.04]
Relative growth × Connection (continuous)				-0.31
				(2.25)
				[-0.06]
Other controls	NO	YES	NO	YES
City Fixed Effects	NO	YES	NO	YES
Incumbency-year dummies	NO	YES	NO	YES
Observations	1,484	1,484	1,484	1,484
Pseudo R-squared	0.32	0.32	0.32	0.32

Notes: This table presents the estimates for the probability of being investigated in 2013-2021 using an alternative measure of relative growth as an indicator of officials' capability. The sample consists of 1708 prefecture-level mayors or party secretaries who were in office in 2013-2021. Relative growth is computed according to Equations A5 and A6 in Section III in this appendix. The following variables are controlled but not reported: whether the official has a college degree, whether the official is from an ethnic minority group, and whether the official is female, as well as the dummy variables indicating whether the official's city was audited in a specific year. Incumbency-year dummies are a set of dummies indicating whether the official was in office in a specific year in 2013-2021. The results were obtained from a heteroscedasticity-robust probit model. The robust standard errors of the estimated coefficients are reported in parentheses. The marginal effects are reported in brackets. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A4: Investigation: Excluding connections to purged provincial leaders

Dependent variable: Investigation				
	(1)	(2)	(3)	(4)
Capability	0.80	5.14*	4.87***	4.36
	(1.84)	(3.06)	(1.67)	(3.79)
	[0.01]	[0.46]*	[0.07]	[0.01]
Connection (binary)	-0.35***	-1.23*		
	(0.12)	(0.64)		
	[-0.05]***	[-0.06]		
Capability × *Connection (binary)*	-0.80	-23.42*		
	(1.84)	(13.82)		
	[-0.06]	[-0.54]		
Connection (continuous)			-0.35***	-0.18***
			(0.11)	(0.05)
			[-0.03]***	[-0.01]**
Capability × *Connection (continuous)*			-4.57*	-4.58*
			(2.76)	(2.44)
			[-0.58]	[-0.52]*
Other controls	NO	YES	NO	YES
City Fixed Effects	NO	YES	NO	YES
Incumbency-year dummies	NO	YES	NO	YES
Observations	1,622	1,621	1,622	1,621
R-squared	0.01	0.22	0.01	0.22

Notes: This table presents the estimates for the probability of being investigated in 2013-2021. The sample consists of 1708 prefecture-level mayors or party secretaries who were in office in 2013-2021, excluding those connected to the provincial leaders who were prosecuted for corruption in this period. *Capability* is the point estimates for δ_i in Equation (1) using the largest connected 1994-2021 sample. The following variables are controlled but not reported: whether the official has a college degree, whether the official is from an ethnic minority group, whether the official is female, the dummies indicating whether the official's city was exposed to an auditing in a specific year. The results were obtained from a heteroscedasticity-robust probit model. The robust standard errors of the estimated coefficients are reported in parentheses. The marginal effects are reported in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A5: Top Words for Topics in the Work Report

Topic	Key Words
Poverty Reduction	Poor Population(贫困人口), Poverty Alleviation and Development (扶贫开发), Poor Village(贫困村), Tough Battle(攻坚战), Labor Force(劳动力), Migrant Worker(农民工), Graduates(毕业生)
Environmental Protection	Ecological Environment(生态环境), Environmental Protection(环境保护), Functional Zone(功能区), Water Resource(水资源), Green Ecology(绿色生态), Clear Waters and Green Mountains(绿水青山), Natural Resource(自然资源)
Loyalty to Xi	Xi Jinping(习近平), General Secretary(总书记), CCP's Central(党中央), the State Council(国务院), Work Hard(努力奋斗), Provincial Government(省政府), Work Hard and Overcome Difficulties(攻坚克难)
Party Discipline and Law	Party Discipline and Clean Government(党风廉政), Strict Enforcement(严格执行), Mass Line(群众路线), Carry Out in a Deep-going Way(深入开展), Accountability(责任制), Administrative Capacity(执行力), Working Style(工作作风)
Industrial Zone	Industrial Zone(产业园), Development Zone(开发区), Economic Development Zone(经开区), Industrial Park(工业园区, 工业园), Concentration Zone(集中区), Technology Development Zone(技术开发区)
Macroeconomic Policy	Total GDP(经济总量), Economic Operation(经济运行), Economic Indicator(经济指标), New Level(新台阶), Mean Level(平均水平), Stable Growth(稳定增长), Pull Out all Stops(全力以赴)
Urbanization	Urbanization(城镇化), Urban Area(建成区), Rate of Urbanization(城镇化率), Small Towns(小城镇), Urban-Rural Development(城乡建设), Public Service(公共服务), Square Kilometers(平方公里)
Economic Growth	GDP(生产总值), Fixed Assets(固定资产), Disposable(可支配), Commodities(消费品), Total Retail Sales(零售总额), Public Finance(公共财政), Urban Residents(城镇居民)

Note: This table presents the top words (words with the highest probabilities) for each topic obtained from the STM estimation (Roberts et al., 2014) on the annual work reports of city governments.

III Relative Growth

We use an alternative indicator of officials' capability based on the relative growth rates in their tenures. Because we only have economic data for cities and provinces, we cannot consider an official's performance when the official served as a leader in the county or smaller jurisdiction. For a prefectural official in our sample, we take the average of the official's performance as a city leader (mayor or party secretary). Let $c = 1, 2, ...$ is the cities that the official had served. Let T_c be the number of years that the official served in city c. $p = 1, 2, ...P$ is the index of provinces where the cities are located, and g_{ct} and g_{pt} are the respective annual growth rates of city c and province p in year t. We first get the relative annual growth rate of a city within its province g_{ct}/g_{pt}. Next, we calculate its average in an official's tenure in that city. It is the official's career average performance if the official only served in that city during the official's career as a city leader. If the official served in multiple cities, we obtain the career average by averaging the average relative performances in those cities. To be exact, a prefectural official's career average of the relative growth rate is defined by:

$$RGR_C = \frac{1}{C}\sum_{c=1}^{C}(\frac{1}{T_c}\sum_{t=1}^{T_c}\frac{g_{ct}}{g_{pt}}) \tag{A13}$$

There are several reasons why relative performance is preferred to absolute performance. First, different provinces have different initial conditions for growth. By rescaling individual cities' growth rates by their provincial average, the relative growth rates g_{ct} and g_{pt} make officials from different provinces comparable. Second, most of the prefectural officials' promotions happen in their own provinces. Therefore, their competition is mostly within their own province. To the extent that economic performance matters for promotion, the relative growth rates g_{ct} and g_{pt} capture this feature of competition. Third, the relative growth rates g_{ct} and g_{pt} control the common time trend of growth in a province, so comparison across time

is possible. Lastly, the relative growth rates g_{ct} and g_{pt} are measures free of the unit of analysis, so we can adopt them to obtain the career averages for provincial officials, which is our next task.

In our sample, 58% of the provincial officials served as mayor or municipal party secretary. Consider a provincial official who had served in C cities and P provinces. To continue using the notation introduced above, let T_p be the number of years the official served in province p. In addition, let g_t be the national average growth rate in year t. Then the official's career average of the relative growth rate is defined by:

$$RGR_P = \frac{1}{C+P}[\sum_{c=1}^{C}(\frac{1}{T_c}\sum_{t=1}^{T_c}\frac{g_{ct}}{g_{pt}}) + \sum_{p=1}^{P}\frac{1}{T_p}(\sum_{t=1}^{T_p}\frac{g_{pt}}{g_t})] \tag{A14}$$

That is, the official's career average is taken over all her tenures as municipal and provincial leader. Of course, if an official did not serve as a leader in any city, C equals zero and the first term in the brackets vanishes. A potential challenge to RGR_P warrants more discussion.

The measure treats prefectural and provincial performances as equally important for an official's career performance. A province is a much larger jurisdiction unit than a city, and managing a province probably requires a different set of abilities than managing a city. In addition, because most economic activities are carried out by the city, there is a question whether it is proper to measure a provincial official's performance by growth rates. We acknowledge the merits of those challenges, but contend that RGR_P may be the best measure so far we can find. More than that, the two components we have used to construct RGR_P, g_{ct}/g_{pt} and g_{pt}/g_t, are relative measures and should have minimized the problem of incomparability. Taking out the provincial average and the national average respectively, g_{ct}/g_{pt} and g_{pt}/g_t measure an official's ability relative to the respective peers, i.e., fellow mayors and prefecture party secretaries, or fellow provincial governors and party secretaries. To the extent that we only care about officials' relative performances, it can be justified to treat prefectural experience and provincial experience equally.