The Downside of Tournament-Style Political Competition: Evidence from China*

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June 29, 2022

Abstract

We argue that inter-jurisdictional competition in a regionally decentralized authoritarian regime distorts local politicians' incentives in resource allocation among firms from their own city and a competing city. We develop a tournament model of project selection that captures the driving forces of local protectionism. The model robustly predicts that the joint presence of regional spillover and the incentive for political competition leads to a downward biased resource allocation towards the competing regions. Combining several unique data sets, we test our model predictions in the context of government procurement allocation and firms' equity investment across Chinese cities. We find strong evidence that when local politicians are in more intensive political competition, they allocate less government procurement contracts to firms in the competing city. Firms, especially SOEs, endogenize the politicians' political concern and invest less in the competing cities. Our paper provides a political economy explanation for inefficient local protectionism in an autocracy.

Keywords: Political competition, Local protectionism, Government procurement, Firm investment

*We would like to thank participants in the reading groups in the University of Pennsylvania, the Chinese University of Hong Kong, Shenzhen, and Wharton Applied Economics Summer Workshop for useful comments. Wu thanks the National Natural Science Foundation of China (No. 71803003 and No. 72173002), the Wu Jiapei Foundation of the China Information Economics Society (No. E21100383), and the seed fund of the School of Economics, Peking University, for financial support. Any errors are our own.

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1 Introduction

Competition is a central and ubiquitous concept of economic analysis. While market competition between firms typically raises the welfare of consumers, whether competition between political parties has similarly virtuous consequences remains largely underexplored, especially on the effect of political competition in an autocracy regime.[1] In electoral contexts, voters often compare the performance in their own jurisdictions with those in neighboring districts to assess the ability of incumbent politicians, forcing them into a de facto yardstick competition (Besley and Case, 1995). In their seminal theoretical paper, Besley et al. (2010) show that the lack of political competition may lead to policies that hinder economic growth, because swing voters—whose voting decision is based on parties' economic policy choices—only start to gain electoral influence when political competition exceeds a critical threshold. This argument is supported by Padovano and Ricciuti (2009) using data from Italian regions.

Our paper follows this line of inquiry, but with special attention paid to the *economic* consequences of politicians' policy choices in an *autocracy* regime, with China as the leading example. In an influential paper, Xu (2011) argues that the institutional foundation underlying the successful Chinese economic reform can be referred to as regionally decentralized authoritarianism (RDA), which is characterized by a high centralization of in political powers and a high decentralization of administrative and economic powers, with the incentives of the local politicians provided via promotion tournaments (Li and Zhou, 2005). Though the mechanism by which agents engage in the tournament may be very different, politicians in an autocratic regime also intensively compete with each other for career incentives. In order to maximize their chances of political promotion, local government leaders compete against one another in spurring total investment and boosting the growth of the local economy (Yu et al., 2016; Xu, 2011). Under RDA, local politicians are incentivized by inter-jurisdictional competition. The key difference between RDA and democracy lies in the objective of the tournament. While local politicians in a democracy regime mainly respond to voters' welfare, politicians in an autocracy regime only need to respond to the upper level governments' objective. In an autocracy regime where local leaders do not need to be accountable to voters, how political competition affects local policies can be more complicated. On the positive side, the powerful career concerns of politicians are considered one of the key drivers of China's economic growth over the last 30 years, and have led many to consider China a model of how a central government can provide officials with efficient career incentives (Li and Zhou, 2005; Maskin et al., 2000; Blanchard and Shleifer, 2001). On the negative side, Kung and Chen (2011), in an analysis of grain distribution during the Great Famine, shows how such promotional concerns drove China into the abyss of the world's worst famine.

[1] See Besley et al. (2010) for a detailed literature review on studies of political competition in democratic regime.

Moreover, existing literature mostly focuses on the effect of political competition on *local* policies. However, much less is known about how, in the presence of regional spillovers and externalities, the competition affect the *interactions* among different regions, whose local politicians engage in a *tournament-style* political competition for promotion. Policy choices of local leaders may be governed by strategic concerns depending on the level of competition with their peer leaders in other regions. Economic development of each region is not isolated and can be easily affected by the policies of other regions. The economic consequences from such competition was not fully accounted for in the previous literature. In this paper, we set out to fill this gap.

In this paper, we take into account the *strategic* career incentives of local leaders, and consider the effect of political competition on *total* social welfare instead of on just local welfare. We ask: How does political competition affect local politicians' incentives in their economic policies regarding firms from competing regions, and furthermore, how does this effect pass on to the firms' decisions and shape the landscape of internal economic integration in a country?

As the largest emerging economy, China is a particularly important country to study. We argue that, relative to the first best, political competition may hinder economic growth and harm social welfare by distorting governments' and firms' investment decisions. An analysis of the strategic behavior of local politicians sheds light on at least two prominent features of the Chinese economy. First, we highlight a key mechanism through which political competition affects local policies towards firms in other regions: local governments are assessed by the upper level government on their *relative* GDP performance in the tournament of political promotion (Li and Zhou, 2005), thus they have little incentive to support the growth of firms from a competitor region. There is a trade-off for city leaders. City leaders care about the welfare and long-run benefit of their citizens (just as typical social planners would), but they also care about their own political careers. Without regional spillover and the promotion incentive, each city should treat firms from everywhere equally and conduct business with the ones of the highest quality. However, doing business with firms from other regions generates short-run economic benefits of that region, and thus increasing the promotion probability of politicians from the competing region. Thus, career-concerned local leaders may distort resource allocation against firms from the competing city, and this will result in local protectionism in which local firms gains favorable treatment at the cost of efficiency. Lacking of formal market-supporting institutions, firms, who often seek protection from the government, take into account the local governments' utility in their investment decisions. Thus, we may expect that the competition between politicians would also distort firms' investment. Furthermore, firms, knowing that they will be discriminated against in the competing city governments' economic policies, tend to invest less in cities whose local leaders are in more

intense political competition with local leaders of their home city. Overall, politicians' career concerns may result in serious distortions in governments' resource allocation as well as firms' decisions.

We first develop a tournament model of project selection that captures the driving forces of local protectionism. We build a theoretical model in which local politicians compete with each other for promotion in a hierarchical structure. The model robustly predicts that the joint presence of regional spillover and the incentive for political competition leads to resource allocations biased against the competing regions. Our model also yields testable predictions of the impact of political network and the politicians' expected change-of-office on the inter-jurisdictional resource allocations. It shows that, for each pair of competing cities, the inter-city allocation of projects or resources are higher when politicians of the city pairs share political connection, and are lower when politicians are closer to their expected change of terms. Moreover, our model has a sharp prediction that the effect of political competition on resource allocation should be affected by tenure and political connection in the opposite directions.

We then empirically test the model's predictions regarding the relationship between city leaders' competition and the inter-jurisdictional allocation of resources.[2] In the empirical part of our study, we combine several unique data sets and test our model predictions in the context of government procurement allocation and firms' equity investment across cities. Because government procurement is often used by local governments to support firms' development, firms from another city whose local leader is in fierce competition with the procuring city will have lower probability of winning the procurement contract, everything else equal. We find that when the mayors in a city pair are closer in their promotion probability, which indicates that they are in more intense political competition, they allocate less government procurement contracts to firms in the competing city. More interestingly, firms, especially SOEs, endogenize the politicians' political concern and invest less in the competing cities. These lead to inefficient local protectionism. These findings are robust to a set of alternative specifications. Our empirical findings also corroborate the model predictions that political network based on factional ties, working experience, or personal connections reduces the distortionary bias in the resource allocation, and the distortion is more severe when the local politicians approach the end of their terms and thus have more imminent career concerns. This analysis highlights the inefficient bias of inter-jurisdictional resource allocation and economic linkage as an unintended consequence of the tournament-style political competition under autocracy.

Our paper contributes to the political economy literature in several dimensions. First,

[2]In China, there are four hierarchical city levels: provincial, deputy provincial, prefectural, and county. Our sample excludes all county-level cities.

we contribute to the literature on the political competition and promotion incentives of local officials in China. There is a vast empirical literature documenting the link between promotion of a local government official (cadre) and the economic performance of the city under his/her administration, examples include Li and Zhou (2005), Chen et al. (2005), Xu (2011), Choi (2012), Maskin et al. (2000). Thus local leaders are likely to engage in regional tournament competition in which relative performance is a critical determinant of their promotions. We build on this strand of literature by studying the *consequences* of such relative performance competition for political promotion. More broadly, we shed light on welfare implications of competition in bureaucracies (political and otherwise). It is worthwhile to compare the tournament competition among local leaders in China with Western style yardstick competition as studied in Besley and Case (1995) and the ensuing literature. In both cases, competition involves assessment of relative performance, though in very different ways. In this sense, our paper extends our understanding of the effect of competition in more generalized settings.

The existing evidence on the role of factional ties in China's political system is mixed. Jia et al. (2015), for example, reports a complementary effect of connections and performance in determining provincial leaders' promotions, while Fisman et al. (2020) document a novel "connection punishment" phenomena: personal connections with higher level leaders result in lower promotion probability. In this paper, instead of looking at the role of factional ties in the promotion process, we study its effect on the competition among local leaders. Given the extant evidence that social network may promote cooperation (Apicella et al., 2012; Rand et al., 2011; Hanaki et al., 2007), it is reasonable to expect that common factional ties may facilitate cooperation between local leaders from the same factions. Our model and empirical findings confirms the intuition. In addition, we empirically corroborate our theoretical prediction that the effect of political competition on resource allocation should be affected by tenure and political connection in the opposite directions.

This paper is also related to the literature in government-market interactions. Grossman and Helpman (1994) yields clear predictions for trade protection provided by the government to special-interest groups who make political contributions to the government. Politicians make trade-offs between advantages in political competition and social welfare. Goldberg and Maggi (1999) estimate the model and find that government's valuation of welfare relative to contributions is surprisingly high. In this paper, we extend the literature on the government-firm interactions in two directions. First, we also find that, local governments have the incentive to provide preferential treatment to local firms for political competition incentives at the cost of social welfare, though by a completely different mechanism. Local politicians' career concerns leads to local protectionism because they are reluctant to do business with firms from competing regions for fear of boosting political competitor's

promotion prospects. Second, because the Chinese local leaders have a larger capacity to influence the local economy and react strategically to their political rivals than their counterparts in a democratic regime (Zhou, 2019; Shi et al., 2018; Shi, 2021), thus Chinese firms are more likely to incorporate local politicians' preferences in their own investment decisions. Indeed, we find evidence that politicians' career incentives in a tournament-style political competition can also distort firms' decisions.

Our study is related to but differs from the vast literature that uses spatial econometric models to study the strategic interactions.[3] Spatial models studies *local* policy response to policy choices of spatial or economic neighborhoods, while we focus on policies and resource allocations towards firms in competing cities. Thus, our unit of analysis is city pair, and, for each pair of cities, we study how economic linkages between them (measured by allocation of procurement contracts or firm equity investment) are affected by the level of competition between the local leaders of the two cities.

Lastly, our paper is related to the study of local protectionism and internal barrier in China. It is well known that various forms of non-tariff barriers may exist within a country. Local governments' influence over the local regulatory apparatus can allow them to impose significant non-tariff barriers to discourage non-local firms, goods, or investment from entering the local markets. Young (2000) gives many examples of such non-tariff barriers in the Chinese context. Despite its prevalence and high social costs, empirical evidence on local protectionism has been mixed. In the early 2000s, China had substantial policy-induced migration costs (Poncet, 2006; Cai et al., 2008) and internal trade costs (Young, 2000; Poncet, 2005). Tombe and Zhu (2019) quantify the magnitude and consequences of trade and migration costs with a general equilibrium model of trade and migration, and find that the costs were high in 2000, but declined afterward. Bai and Liu (2019), on the contrary, documents rising local protectionism and study the impact on exports and exporting firms. Barwick et al. (2021) quantifies the local protectionism in automobile market. All the papers focused on cross-provincial protectionism; moreover, they take local protectionism as the starting point and study its magnitude and effect on market outcomes. Our paper provides a political economy explanation for local protectionism within the provincial border.[4] In this paper, we provide systematic empirical evidence for China's wide local protectionism in resource allocation initiated by both governments and firms, from a unique angle of government procurement contract allocation and firms' equity investment. More importantly, we provide a political economy explanation for the prevalent and persistent local protectionism in China:

[3]Examples include Case et al. (1993), Brueckner (1998), Bordignon et al. (2003), Fredriksson et al. (2004), Baicker (2005), Devereux et al. (2007), Devereux et al. (2007), Caldeira (2012), Revelli and Tovmo (2007), Zheng et al. (2013), Yu et al. (2016), etc.

[4]Of course, applying the same political economic mechanism one level up to the promotion tournament of provincial governors and party secretaries aiming to be promoted to the central government, we would be able to explain the cross-province protectionism that the literature has so far focused on.

political competition among local leaders creates *policy* barriers for firms from competing cities, and thus discouraging investment flows between cities.

The remainder of the paper is organized as follows. Section 2 describes the institutional background of local leaders' career incentives in China, as well as of the government-business relationship which motivates our model and empirical design. Section 3 presents a theoretical model of tournament competition that demonstrates city leaders' decision-making processes with regard to inter-jurisdiction resource allocation, and derives testable hypothesis to guide our empirical analysis. Section 4 discusses the data and the main variables. Section 5 presents our primary empirical results regarding the consequences of tournament-style political competition. Section 6 concludes.

2 Institutional Background

In this section, we discuss three institutional features of China's political system and the political-business relationship which motivate our theoretical model and enables our empirical analysis.

2.1 Political Competition and Career Incentives of Local Leaders

The first feature is China's centralized personnel control system characterized by a hierarchical structure and intense political tournament among local politicians. China adopted a one-level-down appointment system in 1984. Prefectural city leaders are under the supervision and control of provincial governments, and provincial or higher-ranking officials are subject to the evaluation and appointment of the central government. The appointment of a city leader can be a deliberative process, and many factors may come into play, for example, political loyalty, educational qualifications, age, expertise, and the economic performance of their regions, etc. Among all these factors, regional economic performance measures (such as total output and capital investment) have been key performance indicators for the career advancement of local leaders, as documented in the literature (Li and Zhou, 2005; Yao and Zhang, 2015; Xu, 2011; Tsai, 2016).

In the hierarchical structure, there are limited positions in the higher ranked positions. Thus, local officials need to compete against their political peers for better economic growth. On one hand, this incentive for economic tournament serves as a powerful mechanism to drive China's economic growth, as highlighted by the literature on the Chinese economy (Li and Zhou, 2005). On the other hand, the powerful incentives induced by the tournament may also lead local governments to engage in short-termist behaviors, which help to explain various challenges that currently confront the Chinese economy. In the absence of additional

pressure, local officials typically have poor incentives for local welfare, and would sacrifice long run benefit and shift resources to projects that could quickly boost *local* economic growth to improve their chances of promotion. Even worse, motivated by the strong incentives under the relative performance evaluation, local officials may even have the incentive to harm economic growth of competing regions. The lack of political incentives for local leaders in promoting long run benefit and regional coordination would be the key driving force for the biased resource allocation towards local firms, and naturally lead to local protectionism.

2.2 Government-business Dynamics

The second feature that motivates our empirical analysis is that the interaction between local government officials and the business plays an important role in investment facilitation and resource allocation. Lacking formal market-supporting institutions, firms seeks protection from the government, and the government seeks the informal relational contract with the private enterprises. On one hand, due to a high level of state control over the market and severe institutional frictions, it is a commonplace for private firms to invest in political connections (*Guanxi*) with powerful officials in exchange for the security of investment and other preferential treatments. While the central government maintains strict control over the political and personnel governance structure, regional governments have overall responsibility for economic activities such as initiating and coordinating reforms, providing public services, and making and enforcing laws within their jurisdictions (Xu, 2011). This fundamental institutional feature of China suggests that firms have strong incentives to build relations with local governments and to follow government policies and instructions in their investment decisions (Fang et al., 2018). For example, Shi et al. (2018) finds that transfer of a local leader between prefecture cities is associated with an increase in inter-regional investment along the direction of transfer; while Shi (2021) reports local government officials will bring more investments from their hometown to their workplace. On the other hand, government officials rely on private firms to finance development projects, boost local economy, and provide rents for their private consumption. Zhou (2019) argues that China's high rate of economic growth has been driven by a mutual embeddedness of bureaucratic markets and economic markets.

This intertwined relationship between the government and the market renders a salient role of local leaders to guide the directions of private investments. We may expect that the competition between politicians would affect the way governments interact with firms from different regions differently. In particular, in the empirical analysis, we examine the allocation of government procurement contracts, in which local governments have lots of discretion in the format and rules of bidding, as a measure of local governments' support for the firms. We may also expect that firms' interest are highly aligned with the local

governments, and thus we look at firms' equity investment decisions to test whether the politicians' incentives are passed on to firms' investment decisions.

2.3 A Quid-pro-quo Relationship from Political Ties

The third feature is the informal political network formed by the politicians' personal connections. Factions are an informal social contract that enforces a quid-pro-quo relationship among members of that social group. Unlike party partisanship in the democratic system, factional ties in China's political system are informally formed. The informal factional ties facilitates the formation of a intertwined political network in China's political system. Politicians are connected to each other and to the upper level government through this political network. While the definition for faction varies and may be opaque, the literature has reached a consensus that this unique network intertwined with the politicians promotion incentive formed the foundation of the dynamic landscape of the Chinese political system (Pye, 1992; Dittmer, 1995; Shih*, 2004; Li, 2012, 2013; Meyer et al., 2016; Francois et al., 2016). On one hand, politicians from the same faction share similar background and ideologies in local policies. For example, Membership of the Communist Youth League of China (CYL), an ancillary organization to the CCP responsible for the youth, has traditionally operated as an entry point in the CCP. Individuals with a background in the CYL are often referred to as members of the *Tuanpai*. Li (2012) associates with the CYL "populist" policies close to the rural poor and recent migrants to cities, as opposed to the policies preferred by more "elitist" groups comprised of CCP cadres connected to the Shanghai municipal administration (*Shanghai Bang*). On the other hand, factional ties affect local politicians' promotion probability and thus shaping their career incentives. Jia et al. (2015), for example, reports a complementary effect of connections and performance in determining provincial leaders' promotions. Persson and Zhuravskaya (2016) explores the role of promotions and thus career concerns in governing the policy choices of provincial leaders. Kung and Chen (2011) and Kung (2014), in an analysis of grain distribution during the Great Famine, shows in particular how such promotional concerns can misfire. Fisman et al. (2020), on the contrary, studies the intra-faction competition in the competition for China's Politburo positions and finds that sharing a hometown or college connection reduces the probability of success. We thus take into account the heterogeneity in politicians' preferences induced by the informal factional ties in our theoretical model and empirical analysis as detailed in section section 3.1.

3 A Model of Political Competition

In this section, we first build a simple tournament model in the spirit of Lazear and Rosen (1981) that incorporates project selection and economic spillover, then establish comparative statics and derive hypotheses that can be empirically tested.

3.1 Model Setup

A politician $i \in \{1, 2\}$ selects and executes a unit mass of projects from his own city i and/or the competing city j to catalyze growth and development. Each city has a unit mass of projects for the politician to choose from. All projects generate the same short-term economic benefit to a city, which we normalize to unity. However, projects differ in their intrinsic quality, which affect the city's long-run benefit. The two cities have the same quality distribution $H(\cdot)$, with support $[\underline{q}, \overline{q}]$, where $H(\cdot)$ admits a positive and continuous density. Selecting a competing city's project generates positive economic spillover: If a project in city i is selected by a politician in city $j \neq i$, then city i's short-run economic performance would increase by $\tau > 0$.

Long-run Economic Performance of Selected Projects Let $x_i \in [0, 1]$ denote the amount of projects that politician i selects from the competing city. Fixing x_i, politician i selects the highest quality projects from each city.[5] The long-run economic performance of the politician's selected projects, measured by the aggregate intrinsic quality of the selected projects in city i, amounts to

$$Q(x_i) := \underbrace{\int_{H^{-1}(1-x_i)}^{\overline{q}} q dH(q)}_{\text{projects selected from home city } i} + \underbrace{\int_{H^{-1}(x_i)}^{\overline{q}} q dH(q)}_{\text{projects selected from competing city } j}.$$

It is straightforward to verify that $Q(x_i)$ is strictly concave in x_i and $Q(x_i) = Q(1 - x_i)$. Therefore, $Q(x_i)$ strictly increases with x_i for $x_i \in [0, \frac{1}{2}]$ and decreases with x_i for $x_i \in [\frac{1}{2}, 1]$. In other words, to maximize the aggregate intrinsic quality of the selected projects, politician i would equalize the lowest-quality project from each city and choose $x_i = \frac{1}{2}$.

Short-run Economic Performance and Political Competition Fixing politicians' strategy profile (x_1, x_2), politician i's performance before promotion takes place, which we

[5] It can be verified that this is indeed optimal to the politician if he values the aggregate intrinsic quality, as specified in the politician's utility (2) later.

denote by y_i, is

$$\begin{aligned} y_i := & \underbrace{x_i + (1 - x_i) + \tau x_j}_{\text{city } i\text{'s short-run economic performance}} + \underbrace{a_i}_{\text{politician } i\text{'s ability}} + \underbrace{\epsilon_i}_{\text{noise term}} \\ & = 1 + \tau x_j + a_i + \epsilon_i, \end{aligned} \tag{1}$$

and politician i is promoted if he outperforms his opponent, i.e., if $y_i > y_j$. In the above expression, x_i and $1 - x_i$ are the short-run economic performance generated by projects from the competing city and the home city, respectively; τx_j gives the economic spillover from the competing city; $a_i > 0$ is politician i's ability; and ϵ_i is a noise term that is drawn independently from a common distribution function. We follow Lazear and Rosen (1981) and assume that the PDF of $\epsilon_1 - \epsilon_2$, which we denote by $g(\cdot)$, is unimodal and symmetric around zero. Denote the CDF of $\epsilon_1 - \epsilon_2$ by $G(\cdot)$.

It is noteworthy that y_i is independent of x_i—i.e., the composition of city i's projects $(x_i, 1 - x_i)$ has no impact on its short-run performance but varies the competing city j's performance due to the existence of positive economic spillover.

Politician's Preference Politician i's derives utility from his own promotion and the promotion of his competitor. Ascending one step up the promotion ladder gives rise to a utility gain of V, and the promotion of his opponent gives a utility gain of αV, with $\alpha \in [0, 1)$. The parameter α measures the degree of intimacy between the two politicians. The politician also benefits from the city's long-run economic performance.

More formally, fixing the strategy profile (x_1, x_2), politician i's expected payoff is

$$u_i(x_i, x_j) := \delta \left[\Pr(y_i \geq y_j) V + \Pr(y_i < y_j) \alpha V \right] + (1 - \delta) Q(x_i), \tag{2}$$

where $\delta \in (0, 1)$ is the weight that the politician attaches to promotion. Typically, δ increases as the politician is closer to the change of term.

3.2 Equilibrium Analysis

A closer look at the politician' expected payoff (2) unveils the tradeoff he faces when deciding on the investment strategy. Specifically, the politician faces the tradeoff between promotion probability and the benefit he receives from his home city's long-run economic performance. Recall that x_i has no impact on y_i but increases y_j. To maximize his promotion probability, politician i would not select projects from the competing city j and choose $x_i = 0$ accordingly. On the other hand, to maximize the private benefit derived from the city's long-term economic performance, he has an incentive to choose $x_i = \frac{1}{2}$. The politician's optimal

strategy is thus shaped by these two forces.[6]

Denote the equilibrium strategy profile by (x_1^*, x_2^*). For notational convenience, let $\Delta_a := |a_1 - a_2|$. The following result can be obtained.

Proposition 1 ***(Equilibrium Characterization)*** *Consider two competing politicians with ability pair (a_1, a_2) and suppose that $g(\Delta_a) < \frac{\bar{q}-\underline{q}}{(1-\alpha)V\tau} \times \frac{1-\delta}{\delta}$. Then there exists a unique pure-strategy equilibrium in the political tournament, in which*

$$x_1^* = x_2^* = Q'^{-1}\left(\tau \frac{\delta}{1-\delta}(1-\alpha)Vg(\Delta_a)\right) < \frac{1}{2}.$$

The condition $g(\Delta_a) < \frac{\bar{q}-\underline{q}}{(1-\alpha)V\tau} \times \frac{1-\delta}{\delta}$ guarantees that the distribution of noise is sufficiently dispersed such that there exists a pure-strategy equilibrium. The assumption of large noise is commonly assumed in the literature (e.g., Nalebuff and Stiglitz, 1983; Drugov and Ryvkin, 2020; Ryvkin and Drugov, 2020), and a pure-strategy equilibrium may cease to exist if there is too little noise in the tournament.

Two remarks are in order. First, both politicians adopt the same strategy in the equilibrium despite the heterogeneity in their ability. This is indeed a general property in asymmetric two-player contests.[7] Second and importantly, the amount of projects that a politician selects from the competing city in the equilibrium is below the optimally optimum, i.e., $x_i^* < \frac{1}{2}$. Put differently, a politician tends to select projects from his own city in the equilibrium, which leads to *local protectionism*. Such a distortion is due to both political competition and the existence of inter-city spillover. To see this, note that the distortion dissolves if politicians do not value promotion (i.e., $\delta = 0$ or $V = 0$) or if there is no economic spillover between the two cities (i.e., $\tau = 0$).

The following comparative statics can then be established based on the equilibrium characterization established in Proposition 1.

Proposition 2 ***(Comparative Statics)*** *Consider two competing politicians with ability pair (a_1, a_2) and suppose that $g(\Delta_a) < \frac{\bar{q}-\underline{q}}{(1-\alpha)V\tau} \times \frac{1-\delta}{\delta}$. The following statements hold in the unique symmetric pure-strategy equilibrium:*

(i) The equilibrium amount of projects that politician i selects from a competing city x_i^* is U-shaped in his opponent's ability a_j and reaches the peak at $a_j = a_i$.

[6] Note that x_i resembles "effort" in a stylized tournament model (e.g., Lazear and Rosen, 1981; Dixit, 1987). In the typical setting, a contest organizer values effort (e.g., R&D investment) or wants to reduce it (e.g., rent-seeking activity), depending on the research context. In our framework under the context of project selection, a larger x_i benefits the society if $x_i < \frac{1}{2}$, whereas it reduces social welfare otherwise.

[7] See Bastani et al. (2022) for a thorough investigation on how symmetric equilibria emerge in general asymmetric two-player contests in which ability and effort are combined to produce output according to a general production technology.

(ii) The equilibrium amount of projects that politician i selects from a competing city x_i^* increases when α increases—i.e., when politicians have similar background.

(iii) The equilibrium amount of projects that politician i selects from a competing city x_i^* decreases with δ, or equivalently, when the politician is closer to change of term.

(iv) The signs of the cross-partial derivatives $\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}$ and $\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}$ depend on the distribution of the noise term and that of the project quality and thus are indeterminate. However, we have $sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}\right) = -sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}\right)$.

3.3 Model Interpretations: From Model to Data

In this section, we briefly discuss the empirical implications of our model and derive hypotheses that will be tested in our subsequent empirical investigation.

Model Interpretations Recall that the decision maker in our model is the politician. As such, our model can be easily interpreted under the context of government procurement where the government is the decision maker. The key variables can be interpreted as follows: (i) x_i refers to the number of procurement contracts between city i's government and firms in city j (e.g., infrastructure construction); (ii) τ refers to the short-run profit each project generates (e.g., tax revenue collected from the firm that executes the project); and (iii) q refers to the long-run quality of the project.

Alternatively, our model can be easily adapted to the scenario where firms are the decision makers and decide on their investment across cities. The key variables can be interpreted as follows: (i) x_i refers to the equity investment from a representative firm in city i to firms in city j; (ii) τ refers to the short-run benefit from investment such as liquidity, employment, etc; and (iii) q refers to future return to equity investment. Further, a firm in city i concerns the its value as well as the payoff of the politician in its home city. More formally, the firm's utility is given by

$$\pi(x_i, x_j) := \lambda u_i(x_i, x_j) + (1 - \lambda) Q(x_i),$$

where $\lambda \in [0, 1)$ is the weight the firm attaches to its long-run value. Define $\hat{\delta} := \lambda\delta$. The above expression can then be written as

$$\pi(x_i, x_j) = \hat{\delta}\left[\Pr(y_i \geq y_j)V + \Pr(y_i < y_j)\alpha V\right] + (1 - \hat{\delta})Q(x_i),$$

which restores the payoff function (2) and the original game considered in Section 3.1. It is worth noting that SOEs are typically considered more aligned with the local politician and

have a higher λ than POEs, which translates into a higher $\hat{\delta}$ in our setting.

Testable Hypotheses The above discussions regarding the model interpretations, together with Proposition 2, generate the following testable hypotheses:

Hypothesis 1 ***(Proposition 2(i))*** *For each pair of competing cities, the inter-city allocation of procurement contracts and firms' investment decrease as politicians in the two cities become more similar to each other.*

Hypothesis 2 ***(Proposition 2(ii))*** *For each pair of competing cities, the inter-city allocation of procurement contracts and firms' investment are higher when politicians from both cities are similar in political connection.*

Hypothesis 3 ***(Proposition 2(iii))*** *For each pair of competing cities, city i reduces its procurement to city j's firms, and firms in city i reduces their investments in city j when city i's politician is closer to the change of term, and vice versa.*

Hypothesis 4 ***(Proposition 2(iv))*** *The effect of political competition (as measured by $\Delta_a \equiv |a_1 - a_2|$) on resource allocation should be affected by tenure and political connection in the opposite directions.*

4 Data Sets and Descriptive Statistics

4.1 Data Sets

We combine several unique datasets to investigate the effect of political competition and political network on the allocation of government resources as well as on firms' decisions. The first is the full sample micro-level data of government procurement contracts in all prefectural level cities in mainland China from January 2013 to December 2020. To increase transparency of government procurement, from 2013 the Ministry of Finance started to publicly release the detailed information of each government procurement contract across the country on its official website (http://www.ccgp.gov.cn/) from which we collected our first data set. For each contract, we observe the government procurer's identity, contract date, the format of the procurement, the winning contractor, the object of procurement, the winning bid, and other detailed requirements in the contract, etc. Overall, we have more than 3.8 million contracts in our data set. We measure the allocation of government procurement contracts by the number of procurement contracts signed between local government or its affiliated organizations and offices in city i and firms in a city j and vice versa.

Our second dataset is the firm registration database released by the Chinese State Administration for Market Regulation, which covers over 200 million registered firms and provides thus far the most comprehensive information of firm registration and investment in China. This database contains detailed information about the firms' location, the year of establishment and exit, the value of registered capital, investment history, the firms' initial shareholder and its changing records, etc. The use of the data set is twofold. First, we merge the data set with the government procurement data in order to obtain more information about the winners of the contracts in our first data set, especially their registration city and its ownership type. Second, we construct our second key dependent variable to measure investment flows and economic linkages between cities: Based on the firms' registered location and investment history, we calculate the intercity investment flows between each pair of city i and j in each year t. Specifically, we add up the total investment made by firms in city i to firms in city j, in the form of establishing a new firm or equity investment in an existing firm, and vice versa.

Third, we combine the two datasets with manually collected data on provincial and prefectural level politicians. The sample includes all provincial and prefectural city chiefs, including both party secretaries and governors/mayors of all Chinese provinces and cities who were in the position between January 2003 and December 2020. For each official, we have information on his/her key personal attributes such as age, gender, place of birth, educational background, work experience, factional ties, etc. In Section 5.2, we explain in details how we use this data set to measure local officials' ex-ante promotion probability. In short, we measure ones' promotion probability based on their personal characteristics and the cities' characteristics, and we then use the estimated probability to construct the measure for the intensity of political competition. This is the key independent variable for our empirical analysis. Secondly, we construct the measures for political network with this data set. We use information on the local politicians' work experience to measure the strong factional ties of each local leader as: Chinese Youth League (CYL), Secretary Gang (*Mishu Bang*), and Party School (*Zhongqingban*).[8] We also measure the weak factional ties as: central government working experience, and provincial government working experience. While these shared working experience may not indicate any commonly acknowledged factional ties as the previous ones, they are useful in measuring loose political affiliations. Lastly, we measure prefectural level leaders' local factional ties by their personal connections to the provincial level governors and party secretaries. Following the common practice in the literature (Shih et al., 2012; Fisman et al., 2020), personal connection is defined as shared hometown, shared

[8]Note that our definition here is slightly different from the literature in studying the factional ties of provincial or higher-level leaders, which would also include Shanghai Clique (*Shanghai Bang*) and Princelings (*Taizi Dang*. The reason that we do not include these two factions is that at the prefecture city level, there is almost no members associated with Shanghai Clique or Princelings.

work experience, or shared college education background. Because mayors are mainly in charge of economic issues and party secretaries are mainly in charge of political issues, we mainly focus on the competition among city mayors in our empirical analysis. This yields a sample of 1,695 individuals with 5,660 city-year observations for the sample period 2003-2020.

Lastly, we combine our data sets with the Chinese Prefecture City Yearbooks, from which we obtain information on the cities' population, GDP and its growth rate, etc. These information are important factors that affect the local politicians' promotion probabilities and thus their career incentives (Jia et al., 2015). We also use these variables as controls in our empirical analysis.

4.2 Descriptive Statistics

In Table 1 we report the descriptive statistics for city mayors for the city-year cells. We see from the table that the average rate of promotion is 20%, with an average tenure of 2.6 years. The mayors have an average age of 50 years old, with a minimum of 37, and a maximum of 61. 93.7% of the mayors are male. 16.7% of the city mayors have doctor degree at the time of service and 57.3% have master degree. As for the measure for political connection, 21.1% are characterized as "CYL", 15.4% are characterized as "Secretary Gang", and 22.3% are characterized as "Party school". Based on working experience, 46.0% of the city mayors have worked in the provincial government bureaus, and 4.8% have working experience in the central government departments. Based on personal connections, 29.5% are connected to the provincial governor, and 12.4% are connected to the provincial party secretary.

[Table 1 about here]

In Tables 2 we report the descriptive statistics for prefectural cities in our data sample. In Panel A, we report the summary statistics for the control variables at city level. Panel B reports the statistics for city-pair-year level observations within the same province, which is the main data sample for our empirical analysis. We first report the summary statistics for our dependent variables of interest. The average yearly inter-city equity investment flow between different cities within the same province is 937.5 million CNY, with about 62% from SOEs, and 38% from POEs. Among the investment from SOEs, less than 6% are from central SOEs, and the other 94% is from local SOEs. For the period 2013-2020, the average yearly number of government procurement contracts signed between a city government and a firm registered in a different city is 69.4, with a maximum of 8401. We then report the three measures for political network measured at city-pair level. 12.9% of the city pairs in the same province belong to the same political faction; 23.9% of the city mayor pairs shared the same kind of, albeit not necessarily overlapping, working experience; and 3.2% of

them belong to the same personal political network of the provincial governor or provincial party secretary. Panel C reports the statistics for city pairs from different provinces. The average yearly inter-city equity investment flow between cities from different provinces is 139.0 million CNY, which is only about 15% as the size of inter-city equity investment flow between cities from the same province; and the average number of procurement contracts signed is just slightly larger than 1.

[Table 2 about here]

5 Empirical Results

Propositions 1 and 2 in Section 3 show that the presence of political competition and regional spillover jointly lead to local protectionism and distortions in resource allocation. In this section, we empirically test the model predictions in the context of governments' allocation of procurement contracts and firms' equity investment decisions as discussed in Section 3.3. In Section 5.1, we construct the empirical measure for the local politicians' career incentive and use it to construct the measure for political competition. In Section 5.2 to 5.5, we test the four model hypotheses.

5.1 Estimating the Career Incentive of Local Politicians

The theoretical framework in Section 3 shows that the distortion in resource allocation is the most severe when the two politicians have the same "ability", and the distortion gets smaller as the distance between their abilities $|a_i - a_j|$ gets larger. In order to test our model hypothesis, we first need to construct the empirical measure for the politicians' "ability", which we proxy by the ex ante (and exogenous) promotion probability.[9]

The ruling Chinese Communist Party (CCP)'s cadre evaluation system and promotion decisions crucially depend on the personal characteristics including local officials' factional ties with various top leaders, educational qualifications, age, work experience, and economic performance, etc. (see, e.g., Li and Zhou, 2005; Shih et al., 2012; Jia et al., 2015; Fisman et al., 2020). Motivated by this arguably objective and rigid evaluation system, we construct measures of the incentive for political competition based on the similarities between local officials' personal characteristics and working experience. We follow the literature to construct a single index summarizing all factors that may potentially affect one's promotion probability, such as age, gender, education level, tenure, factional ties, and the cities' economic performance, etc. Our method of constructing the measurement for career incentive

[9] As can be seen from Eq. 1, a_i indeed represents the ex ante probability of i's promotion probability in tournament competition against j, in the absence of the short-term economic performance considerations.

is very similar to that of Wang et al. (2020), but we include a full set of variables to take into account all relevant factors documented in the literature.[10] We construct the single index by estimating their likelihood of promotion based on these personal characteristics. We first define a promotion dummy variable for each city-year cell to be equal to 1 if the mayor in the city was promoted to a higher-level position by the end of the year.[11] We then regress the promotion dummy on the set of personal and city characteristics, and we then use the estimated coefficients to predict the *ex ante* promotion likelihood for each of the city leaders in each year. The predicted promotion likelihood serves as the index that captures all important personal characteristics that may affect one's promotion probability, exactly as a_i does in the theoretical model. We assume that the leaders' career incentives increase with the predicted ex ante promotion likelihood. As such, we measure the city leaders' career incentives by their predicted promotion likelihood, which is based on their personal characteristics and the cities' characteristics. We then use the absolute difference between each pair of city mayors' predicted probability as the measure for the intensity of political competition between the two because the model predicts that politicians compete with each other when they become more similar to each other. Lastly, we need to note that we focus on city mayors only as they are the ones in charging of economic issues mainly, and the ones who closely work with firms in economic policies.

To be specific, we first run the following logit regression, and use the predicted probability $\hat{p}_{it}$ as an empirical measure for a_i, the politician's ability.[12] The shift of the central power in 2013 and the subsequent anti-corruption campaign witnessed a great change in the local politicians as well as the party' promotion rules Lu and Lorentzen (2016). Thus we run the regressions separately for the two periods 2003-2012 and 2013-2020.

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \gamma_0 + \gamma_1 X_{it} + \mu_i + \xi_t + \epsilon_{it}, \tag{3}$$

where p_{it} is the probability that the mayor of city i at year t is promoted, X_{it} is a vector of city-level covariates, including its Population and GDP growth rate, and the mayor's characteristics such as age, gender, education, tenure, experience, etc., and μ_i and ξ_t are respectively the city and year fixed effects.

In Table 3, we report the regression results for estimating Eq. (3). Column (1) reports the results for the period 2003-2012, and column (2) reports the results for the period 2013-2019. In both columns, we control for year and city fixed effect. It shows that the

[10] We have tried to test the robustness of our results by using the vector of variables, such as age, education, tenure, etc., as the empirical measure for "ability" instead of using a single index, and all our results remain robust.

[11] We not only define promoting to a higher-ranked position as promotion, but also moving to a more important and powerful position as being promoted. See **xxx** for a detailed description.

[12] Alternatively, we can also use the linear probability model and all our results remain robust.

years of education have a significant positive effect on ones' promotion probability in both periods. Age and tenure has positive but statistically not significant effect on ones' promotion probability in the first period, and the effect becomes statistically significant in the second period - the politicians that are older and more experienced are more likely to be promoted. The effect of political connections on promotion probability confirms that there is indeed a change in the promotion rationale after 2013. While the "party school" has statistically significant positive effect on promotion likelihood in both periods, CYL and Mishu Gang have contradicting effects: they have positive effect on one's promotion probability before 2013, but negative effect afterwards. This is consistent with the political literature that the central government is trying to "clean up" local politicians from these two factions after Xi took place. Having central government working experience has positive effect on ones' promotion likelihood before 2013, but negative though statistically not significant effect afterwards, and having provincial government working experience has a statistically significant effect on ones' likelihood of being promoted and the magnitude is the largest. Interestingly, being personally connected to either the provincial governor or the provincial party secretary do not have any statistically significant effect on ones' promotion probability. Lastly, the cities' size measured by population and GDP growth rate have no statistically significant effect.

[Table 3 about here]

5.2 Political Competition and Distortion in Resource Allocation

We then use the measure constructed in Section 5.1 to test our model predictions. Hypothesis 1 predicts that for each pair of competing cities, the inter-city allocation of procurement contracts and firms' investment decrease as politicians in the two cities become more similar to each other in a, representing their *ex ante* promotion probabilities. As the competition for promotion of politicians at city level is mostly within a province and rarely crosses provincial boundaries,[13] we test the hypothesis using city pairs from the same province in our main specification, and we use city pairs from different provinces as falsification test later on. The basic estimation equation is

$$Y_{ijt} = \beta_0 + \beta_1 |a_{it} - a_{jt}| + \beta_2 a_{it} + \beta_3 a_{jt} + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \delta_t + \rho_k + \epsilon_{ijt}, \tag{4}$$

where Y_{ijt} is the outcome variable. As detailed in Section 3.3, we examine two sets of outcome variables: the first outcome variable measures the number of procurement contracts signed between government departments in city i and firms in city j in year t; the second outcome

[13] Only about 5% of the promotions of city mayors in our data sample were cross-province promotions while the remaining 95% were within-province promotions

variable measures equity investment flows from city i to city j in year t which is explained in more details in Section 4. a_{it} represents the promotion propensity score predicted from the first stage logit regression (3) for city i's mayor in year t; $|a_{it} - a_{jt}|$ measure the similarities in the local politicians' career incentive and thus the intensity of competition as detailed in the theoretical model; X_{it} is a set of city characteristics for city i in year t; ι_{ij} is the city-pair fixed effect; δ_t is the year fixed effect; ρ_k is the fixed effect of city i's mayor in year t;[14] and ϵ_{ijt} is the error term.

It is worthwhile to note that sub-national leaders are rotated by their superiors among different regions (Xi, 2019; Yao and Zhang, 2015). The rotation of local officials creates an arguably exogenous shock to the level of political competition and local factional ties. Empirically, we examine how the *change* in the competition measures affect the allocation of government procurement contracts, and furthermore, the firms' equity investment flows between cities. By controlling for city-pair fixed effects, the identification of β_k essentially comes from the *change* of local officials, which we believe subject less to endogeneity concerns.

Allocation of Government Procurement Contract First, we examine the effect of political competition on the allocation of government procurement contracts. Table 4 reports the baseline estimation results of the regression as specified in Equation (4), with the number of cross-city government procurement contracts being the dependent variable. The data sample include city pairs from the *same* province. We present the regression results separately for a different set of control variables, first controlling for city-pair and year fixed effects only, and then add a set of covariates progressively as discussed in the text following Eq.(4). The results show that the number of cross-city government procurement contracts increases as the *difference* between the career incentive of local politicians becomes larger, suggesting that politicians compete with the ones with similar promotion probabilities by supporting *less* firms from their competitors' regions. In Column (1), we find that increasing the difference between a_i and a_j by 0.1 (which is about 1 standard deviation) will result in an increase in the number of cross-city allocation of procurement contracts by 5.7%. In Column (2), after controlling for city mayors' career incentive measure in the city pair separately, a 10% increase in the competition measure $|a_i - a_j|$ still leads to an 3.7% increase in the cross-city allocation of procurement contracts. In Column (3) we further control for the city pair's GDP and population, and the results remain robust in magnitude and statistical significance. This finding provides evidence that the incentive for political competition distorts the allocation of government procurement contracts.

Among other factors that may affect local governments' decisions in procurement allocation, we find that the size of the city, measured by total population, do not have a

[14]Note that this is not a city fixed effect, instead it is a mayor fixed effect.

statistically significant effect on the allocation of procurement contracts, while economic development, measured by total GDP, in both the procuring city and the supply city are positively correlated with the amount of procurement contracts between the two cities.

[Table 4 about here]

One may be concerned that the assignment of local politicians are endogenous, and politicians with more intense competition were assigned to cities with less economic linkages to foster competition. To address this concern, we further control for the city mayor fixed effects. In column (4), we control for the procuring city's mayor fixed effect; that is, we assign one dummy for each specific city leader in our data, regardless of the city where he/she served. The results are almost unchanged, which indicates that the competition effect occurred for the same city chief no matter where he/she served. Thus, the distortion of resource allocation is not driven by the turnovers of city chiefs who may have different preferences regarding which city to interact with. This corroborates our interpretation that the incentive for political competition indeed distorts the allocation of government resources and fosters local protectionism.

Firms' Equity Investment Flow Second, we test whether the politicians' incentives are passed on to firms' investment decision. Table 5 reports the results of estimating Equations 4, with the log of inter-city investment flows being the dependent variable. As with allocation of procurement contracts, we present the regression results separately for a different set of control variables, first controlling only the city-pair and year fixed effects, and then add a set of covariates progressively. The results show that the volume of firms' cross-city equity investment also increases as the *difference* between the career incentive of local politicians becomes larger. Firms, in making their investment decisions, indeed takes into account the politicians' competition incentives. In Column (1), we find that increasing the difference between a_i and a_j by 0.1 will result in an increase in inter-city equity investment by 3.6%. In Column (2), after controlling for city mayors' career incentive measure in the city pair separately, a 10% increase in the competition measure $|a_i - a_j|$ still leads to an 4.2% increase in inter-city equity investment. In Column (3) we further control for the city pair's GDP and population, and in Column (4) we further control for the investing city's mayor fixed effect, and the results remain robust in magnitude and statistical significance. This finding can be driven by firms directly put weight on the politicians' utility. Alternatively, it may also because that firms, knowing that they will be discriminated against in the competing city governments' economic policies, tend to invest less in cities whose local leaders are in more intense political competition with local leaders of their home city.

[Table 5 about here]

Heterogeneous Analysis of Firm Investment As for firms' investment decisions, the theoretical model predicts that firms whose utility are more aligned with the local government are less likely to invest in a political competitor city. In reality, we may expect that the state-owned enterprises (SOEs) are more aligned with local politicians compared to private-owned enterprises (POEs) as they are owned by the government agencies. Thus, we further investigate whether the results on inter-city equity investment are driven by SOEs or POEs. More specifically, for each investing firm, we identify its ultimate shareholder through the circulated tracing process (which is also known as the depth search algorithm). Allen et al. (2019). The investing firm is identified as a SOE if a government bureau is one of the firm's ultimate owners, or a POE if otherwise.

We replicate the main regression based on this ownership type data, with the results shown in Table 6. Column (1) and (2) report the regression results for investment made by SOEs, and Column (3) and (4) report the regression results for investment made by POEs. In Column (1) and (3), we only control for the competition measure and the career incentives of the city mayors on both sides, and the city-pair and year fixed effects, and in Column (2) and (4), we further control for the cities' characteristics and the investing cities' mayor fixed effects. The results show that the results of the effect of political competition on firm investment are mainly driven by SOEs instead of POEs. Column (2) indicates that increasing the difference between a_i and a_j by 0.1 will result in an increase in the SOE's inter-city equity investment by 20.1%. In contrast, column (4) shows that the effect on POE investment is only 5%. This finding corroborates our model prediction that firms whose interest are more aligned with the local government respond more to the politicians' political incentive in their investment decisions.

[Table 6 about here]

We further investigate the heterogeneity of our results on the SOE dimension. We separate the SOE land buyers into central SOEs, i.e., SOEs controlled by the State-Owned Assets Supervision and Administration Commission (SASAC) of the State Council or other ministries of the central government, and local SOEs, i.e., SOEs controlled by different levels of the local governments. As shown in Table 7, where the independent variables are respective the log of inter-city investment made central SOE or local SOE, our key result in Table 6 is mainly driven by the local SOEs rather than the central SOEs. Columns (1) and (2) of Table 7 show that the investment made by central SOEs decreases with local politicians' political competition $|a_i - a_j|$, but the result is not statistically significant. In contrast, columns (3) and (4) of Table 7 show that the investment made by local SOEs increase by over 20% if local politicians' political competition measure $|a_i - a_j|$ increase by one standard deviation.

[Table 7 about here]

Adjacent Cities The theoretical model implies that the joint presence of regional spillover and the incentive for political competition leads to a downward biased resource allocation towards the competing regions. In another word, the allocation of government procurement contracts and firm investment should be optimal if there is no regional spillover between the two cities ($\tau = 0$) *or* no incentive for competition ($\delta = 0$). By testing model predictions using city pairs from the same province, we set the two parameters to be non-zero at the same time. Cities in the same province enjoy higher economic spillover from each other as the transaction cost, trade barriers, migration barriers, etc. are lower within the same province. At the same time their politicians engage in more intense political competition with each other – cross-province promotions are rare, and more than 95% of the promotions of city level politicians happens within the province. In order to separately identify the role of the two parameters in distorting resource allocation, we compare cities that are adjacent but not in the same province to the adjacent cities in the same province. Adjacent cities have stronger regional spillover ($\tau > 0$), while the ones that are in the same province compete with each other ($\delta > 0$) in promotion and the ones that are no do not compete ($\delta = 0$). The comparison of the two helps us identify the role of political competition, i.e. δ.

We replicate the main regression based on this adjacent city sample, with the results shown in Table 8 and Table 9. Table 9 reports the results with the log of number of government procurement contracts as the dependent variable. Column (1) and (2) report the regression results for the adjacent cities within the same province, and Column (3) and (4) report the regression results for the adjacent cities in different provinces. In Column (1) and (3), we only control for the competition measure and the career incentives of the city mayors on both sides, and the city-pair and year fixed effects, and in Column (2) and (4), we further control for the cities' characteristics and the investing cities' mayor fixed effects. The results show that the effect of political competition on the allocation of government procurement contracts is statistically significant for adjacent cities within the same province, and the magnitude is slightly larger than that of the average effect of city pairs within the same province. Column (1) indicates that increasing the difference between a_i and a_j by 0.1 will result in an statistically significant increase in the number of government procurement contracts acquired by firms in city j by 4.3%, which is slightly larger than the 3.6% found in the baseline model shown in Table 4. In contrast, the effect is negative and statistically insignificant for city pairs that are cross the province borders as shown in column (3) and (4).

[Table 9 about here]

We then repeat the same exercise with the firms' equity investment being the dependent variable, and the results remain consistent and robust. Column (1) indicates that increasing

the difference between a_i and a_j by 0.1 will result in an statistically significant increase in the city i's firms' equity investment to city j by 7.4%, which is twice larger in magnitude than the 3.7% found in the baseline model shown in Table 5. In contrast, the effect is negative and statistically insignificant for city pairs that are cross the province borders as shown in column (3) and (4).

[Table 8 about here]

To summarize, these findings confirm the role of δ, i.e. the incentive for promotion in the political competition, as the main driving force for the distortion of government resource allocation. Moreover, the larger effect found in the *adjacent* within-province city pairs sample compared to the average effect found for within-province city pairs indicates that the parameter τ, i.e. regional spillover, is also playing an important role in distorting the governments' allocation of procurement contracts and firms' investment decisions. Overall, the presence of political competition and regional spillover jointly lead to local protectionism and distortions in resource allocation.

Falsification Test As the competition for promotion of politicians at city level is mostly within province and rarely goes beyond, one would expect that the allocation of government procurement contract and firm investment should not be affected by the competition measure $|a_i - a_j|$. Thus, we conduct a falsification test and run the regression as specified in Equations (4) using city pairs from different provinces as the data sample for analysis. The results are reported in Table 10. Columns (1) - (3) report the results for inter-city firm investment. In column (1), we only control for the competition measure and the career incentives of the city mayors on both sides, and the city-pair and year fixed effects, in column (2) we further control for the cities' characteristics, and in column (3) we add the investing cities' mayor fixed effects. As shown in the table, the effect is much smaller in magnitude among cities in different provinces than among the ones in the same province and is never statistically significant. In columns (4) - (6) we repeat the exercise for government procurement. There is no significant effect of political competition on the allocation of contracts neither, confirming that the distortion caused by the incentive for political promotion only takes place within the province. As we have shown that the effect of political competition only affect resource allocation within the same province, we use city pairs from the *same* province as the data sample for our empirical analysis below.

[Table 10 about here]

5.3 Political Connection and Competition

Hypothesis 2 predicts that for each pair of competing cities, the inter-city allocation of procurement contracts and firms' investment increase when α increases, i.e., when politicians are more similar in political connections. Intuitively, politicians with similar political connections are personally connected to each other and thus may have stronger incentive to cooperate in economic activities. For example, politicians who are both from the CYL belong to the same faction, and therefore may help each other in the political competition. We first test the hypothesis using city pairs from the same province. The regression equation is

$$Y_{ijt} = \beta_0 + \beta_1 \mathbb{1}(f_i = f_j) + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \iota_t + \epsilon_{ijt},$$

where f_i is a categorical variable measuring the type of political connection for city i's mayor, $\mathbb{1}(f_i = f_j)$ equals 1 if both sides have the *same type* of political connection. More specifically, in the empirical results, we define three types of political connection:

- $Faction = 1$ if both sides are from the CYL, or the Secretary Gang, or the Party School
- $Work = 1$ if both sides have working experience in the center, or in the provincial government
- $Connection = 1$ if both sides are personally connected to governor or provincial party secretary

Other variables are defined as in Equation (4). The coefficient of main interest is β_1, i.e. how investment changes when mayors from both sides have the same type of political connections.

Allocation of Government Procurement Contract We first examine the effect of political connection on the allocation of government procurement contracts. Table 11 reports the estimation results of regression as specified in Equations (5.3), with the log of number of cross-city government procurement contracts being the dependent variable. We present the regression results separately for different type of political connections and a different set of control variables, first controlling only the political faction measure, and the city-pair and year fixed effects, and then add a set of covariates and the procuring cities' mayor fixed effect. In general, the results show that the number of cross-city government procurement contracts is higher between cities whose mayors are similar in their political connections, suggesting that politicians who have personal connections help each other as they derive utility from each others' promotion. In columns (1) and (2), we find that the number of cross-city allocation of procurement contracts increases by about 5% when mayors in the city pair are from the

same political faction. Columns (3) and (4) show that the number of cross-city allocation of procurement contracts increases by about 1-2% when the mayors in the city pair both have central or provincial working experience, though the result is not statistically significant. This finding is consistent with our conjecture that connections based on common (but may not overlapped) working experience only create weak political ties between two politicians. Columns (5) and (6) show that the number of cross-city allocation of procurement contracts increases by about 10% when mayors in the city pair are both personally connected with the provincial governor or secretary. This finding suggest that personal connection to the provincial leaders has the largest effect in distorting government resource allocation. City mayors who are personally connected to provincial level leaders form an informal "faction" within the province and have the strongest ties with each other. In the Appendix Tables C1-C6, we provide a further breakdown of the results with detailed measures of each kind of political connection. Table C1 shows that the three kinds of political faction have similar effect in distorting the allocation of government resources. Table C2 shows that provincial working experience, instead of central working experience, is driving the result in Table 11 columns (3) and (4); and Table C3 shows that personal connection to the provincial party secretary, instead of to the provincial governor is driving the result in Table 11 columns (5) and (6). This is because that party secretary is the one who has the strongest voice in determining political promotion, and thus connecting to the one in power matters the most in forming the within-province political faction. These findings provide consistent evidence that political connections reinforce the quid-pro-quo relationship among members of the same informal social group, and these political connections indeed provide their members the incentive for cooperation in the tournament for promotion.

[Table 11 about here]

Firms' Equity Investment Flow Second, we repeat the exercise with the log of inter-city investment flows being the dependent variable to see whether the politicians' incentives are passed on to firms' investment decisions. Table 12 report the regression results. The results show the same pattern as for government procurement contract – firm invest more in cities whose mayors are similar in their political connections as with its own mayor, suggesting that the quid-pro-quo relationship among politicians are passed on to firms' decisions and incentivizes firms to form stronger equity network. In columns (1) and (2), we find that firms invest by about 10% more in cities whose mayors are from the same political faction as their own city mayors. Columns (3) and (4) show that firms invest by 13% more in cities whose mayors have the same provincial or central working experience as their own city mayors. Columns (5) and (6) show that the inter-city equity investment increases by about 18% when mayors in the city pair are both personally connected with the provincial governor

or secretary. As with government procurement, this finding also suggest that personal connection to the provincial leaders has the largest effect in distorting the firms' decisions. In the Appendix, Table C5 and Table C6 confirm that provincial working experience, instead of central working experience, and personal connection to the provincial party secretary, instead of to the provincial governor are driving the results in Table 12.

[Table 12 about here]

5.4 Promotion Incentive and Political Competition

Hypothesis 3 predicts that for each pair of competing cities, the inter-city allocation of procurement contracts and firms' investment decreases with δ, i.e. when politicians put higher weight on political promotion. Empirically, we measure δ with the number of years before the politicians' change of term. The closer one is to the change of term, the stronger is his/her concern for political tournament and the less he/she cares about the long-run welfare of local residents. Alternatively, the longer one is away from the change of term, the more years he/she needs to serve the local residents, and thus the more he/she cares about the quality of the projects or the welfare of local people.[15] The basic estimation equation is

$$Y_{ijt} = \beta_0 + \beta_1 BC_{it} + \beta_2 BC_{jt} + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \iota_t + \epsilon_{ijt}, \tag{5}$$

where BC_{it} is the number of years before the change of office for mayor of city i in year t, measured as $-5, -4, -3, -2, -1, 0$. Other variables are defined as in Equation (4). The coefficient of main interest is β_1, i.e. how equilibrium allocation of government procurement contract and firm investment change as city i's mayor are closer to the change of term.

Allocation of Government Procurement Contract We test the hypothesis following the routine by first examining the effect of tenure years on the allocation of government procurement contracts. Table 13 reports the estimation results of regression as specified in Equations (5), with the log of number of cross-city government procurement contracts being the dependent variable. In column (1), we only control for the key variable of interest BC_i and BC_j, i.e. the number of Years before the change of office for mayors in the city pair and the city pair and year fixed effects, and in column (2) we further control for the city pair's career incentives (measured by a_i and a_j), the cities' characteristics and the procuring city's mayor fixed effect. The results show that one year closer to the change of term of the

[15] One may believe that the relationship between promotion incentive and the politicians' years of tenure is nonlinear because the ones who stay too long in the current position have very low probability of being promoted. We conduct a robustness check by restricting to the sample of politicians within three years before promotion and the results remain robust.

mayor of the procuring city on average leads to 1.5% decrease in the number of government procurement contracts from government in city i to firms in city j. By controlling for city-pair fixed effects, the identification mainly comes from the within city-pair across year variation. In column (3) we use an alternative specification by controlling for the procuring city times year fixed effect, and therefore the identification mainly comes from the cross-sectional cross-city variation. We use this different empirical specification because the main variable of interest BC_i is at city level instead of at city-pair level as is $|a_i - a_j$ and $\mathbb{1}(f_i = f_j)$ in the previous sections. The result suggest that, for the project winning firms' city, it on average receive 8.6% less procurement contracts from cities whose mayor are one more year approaching their change of term compared to that from an average city. These findings provide consistent evidence that local protectionism are stronger when politicians have more imminent career concerns.

[Table 13 about here]

Firms' Equity Investment Flow Table 12 report the regression results with the log of inter-city investment flows being the dependent variable. The results show the same pattern as for government procurement contract – firms also exhibit home-bias and invest less in other cities when their city mayors are approaching the change of term. In column (1), we only control for the key variable of interest BC_i and BC_j, and the city pair and year fixed effects, and in column (2) we further control for the city pair's career incentives (measured by a_i and a_j), the cities' characteristics and the procuring city's mayor fixed effect. The results show that one year closer to the change of term of the mayor of the investing firm's city on average leads to 1.9% decrease in the volume of equity investment from firms in city i to firms in city j. In column (3) we control for the investing city times year fixed effect, and the result suggest that, for the invested firms' city, it on average receive 3.1% less investment from firms whose city mayors are one more year approaching their change of term. Again, the findings corroborate that firms behave in an aligned way as with the government in selecting which city to invest in.

[Table 14 about here]

5.5 Competition Intensity

We have tested model predictions on the comparative statics regarding first order derivatives. Last but not least, we test model predictions regarding the cross-partial derivatives. Hypothesis 4 states that while the signs of the cross-partial derivatives $\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}$ and $\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}$ depend on the distribution of the noise term and that of the project quality and thus are

indeterminate, however, we have $sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}\right) = -sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}\right)$, i.e. the effect of political competition (as measured by $|a_i - a_j|$) on resource allocation should be affected by tenure and political connection in the opposite directions. The regression equations are

$$Y_{ijt} = \alpha + \beta_1 |a_{it} - a_{jt}| + \beta_2 \mathbb{1}(f_i = f_j) * |a_{it} - a_{jt}| + \beta_3 a_{it} + \beta_4 a_{jt} + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \iota_t + \epsilon_{ijt}, \quad (6)$$

and

$$Y_{ijt} = \alpha + \beta_1 |a_{it} - a_{jt}| + \beta_2 BC_i * |a_{it} - a_{jt}| + \beta_3 a_{it} + \beta_4 a_{jt} + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \iota_t + \epsilon_{ijt}, \quad (7)$$

where all variables are as previously defined. The coefficient of interest is β_2: How competition intensity change as city i's mayor are closer to the change of term or when city mayors on both sides have the same kind of political connection.

Remark 1 Hypothesis 4 may sound less intuitive compared to the previous three hypothesis. One may be concerned that are our theoretical model is curvatured by our empirical results, and thus not general enough in a broader context. Hypothesis 4 serves as an external validation of our model as it derives predictions that are purely model based, and we have no priors on the predictions at all.

Remark 2 It is worthwhile to note that Hypothesis 4 is not a natural result of Hypothesis 2 and 3. xxx in Appendix X presents an example where Hypothesis 2 and 3 hold but Hypothesis 4 does not. Therefore, testing hypothesis 4 is meaningful in validating our theoretical model.

Allocation of Government Procurement Contract We first examine the effect of the interaction terms on the allocation of government procurement contracts. Table 15 columns (1) - (3) report the estimation results of regression as specified in Equations (6), and columns (4) - (6) report the estimation results of regression as specified in Equations (7), with the log of number of cross-city government procurement contracts being the dependent variable. In column (1), we only control for the key variable of interest $BC_i * |a_{it} - a_{jt}|$, i.e. the number of years before the change of office for mayors in the procuring city interacting with the competition measure, and the competition measure, the city pairs career incentive measure, and the city pair and year fixed effects. In column (2) we further control for the cities' characteristics, and the procuring city mayor fixed effect. In column (3) we use an alternative specification by controlling for the procuring cities' characteristics and the procuring city times year fixed effect. The coefficients of the interaction terms are consistently negative and statistically significant. Column (1) suggests that in the year of the change of office, increasing the difference between a_i and a_j by 0.1 will result in an

increase in the number of government procurement contracts acquired by firms in city j from city i's government by 3.4%. Compared to that, one additional year before the change of the office increases the effect of political competition on procurement contract allocation by 0.96%. Thus, for the procuring city, when the mayor is one year before the change of the office, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 4.3% (3.38%+0.96%=4.34%).

On the contrary, columns (4)-(6) show that the coefficients of the interactions of political connection and the competition measure are positive. This is consistent with our model prediction that The effect of political competition on resource allocation should be affected by tenure and political connection in the opposite directions. Column (4) shows that when the mayors of the city pair are not in the same political network defined by political faction, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 1.7%. In contrast, when the mayors of the city pair are in the same political faction, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 10.9% (1.71%+9.23%=10.94%). In column (5), the interaction of the competition measure and the common working experience measure is not significant, which is consistent with our conjecture that political ties based on common working experience is not robust. Column (6) shows that when the mayors of the city pair are not in the same political network defined by personal connection to provincial leaders, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 2.9%. In contrast, when the mayors of the city pair are in the same political faction, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 13.1% (2.88%+10.18%=13.06%).

[Table 15 about here]

Remark 3 To understand the economic meaning of the results, it is worthwhile to note that Hypothesis 1-3 suggest that there are three factors distorting resource allocation: the tournament for promotion among local politicians, the politicians' political network formed through different kinds of political connection, and the politicians' change of the term. The first two bias inter-city resource allocation downwards and foster local protectionism, while the latter biases inter-city resource allocation upwards. Hypothesis 4 focuses on the interactions among the three factors. The negative cross-derivative of $\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}$ suggests that, while both factors are biasing investment downwards, the interaction effect is negative, i.e., when

the local politicians are closer to the change of term, the bias caused by political tournament is less severe. On the contrary, the positive cross-derivative of $\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}$ suggests that within the same political faction, politicians compete more intensively with each other as their promotion probabilities get closer. In another word, when political connection is biasing investment upwards, political competition may correct for it by downward biasing the resource allocation.

Remark 4 Columns (4)-(6) suggests that, within the same faction, the effect of political competition is stronger, i.e. politicians compete more intensively with each other as their promotion probabilities get closer. This finding is consistent with findings in the literature that members within the political faction compete more intensively with each other compared to politicians that are not in the faction. (Jia et al., 2015; Fisman et al., 2020) Interestingly, for our results to reconcile with the literature, we do not need to assume in our theoretical model that politicians' promotion probability depend on their political connection or factional ties in any form. The results that intra-faction tournament for promotion is more intense than the inter-faction one can be supported even if politicians derive positive utility from the promotion of its faction members.

Firms' Equity Investment Flow We then repeat the exercise with the log of inter-city investment flows being the dependent variable. Table 16 report the regression results. The results show the same pattern as for government procurement contract – the competition measure interacting with the number of years before the change of the office have opposite effect to the competition measure interacting with the common political connection measure on inter-city firms' equity investment flow. Table 16 columns (1) - (3) report the estimation results of regression as specified in Equations (6), and columns (4)-(6) report the estimation results of regression as specified in Equations (7). Column (1) suggests that in the year of the change of the office, increasing the difference between a_i and a_j by 0.1 will result in an increase in the volume of equity investment from firms in city i to firms in city j by 2.6%. Compared to that, one additional year before the change of the office increases the effect of political competition on investment by 1.85%. Thus, for the investing firms' city, when the mayor is one year before the change of the office, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 4.4% (2.57%+1.85%=4.42%).

On the contrary, columns (4)-(6) show that the coefficients of the interaction of political connection and the competition measure are positive. Column (4) shows that when the mayors of the city pair are not in the same political network defined by political faction, increasing the difference between a_i and a_j by 0.1 will result in an increase in the volume

of equity investment from firms in city i to firms in city j by 4.6%. In contrast, when the mayors of the city pair are in the same political faction, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 11.3% (4.62%+6.66%=11.28%). Column (5) shows that, when the mayors of the city pair have the same working experience, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 10.2% (4.29%+5.91%=10.20%). Column (6) shows that when the mayors of the city pair are both personally connected to the provincial leaders, increasing the difference between a_i and a_j by 0.1 will result in an increase in the number of government procurement contracts acquired by firms in city j from city i's government by 15.1% (5.43%+9.63%=15.06%).

[Table 16 about here]

6 Concluding Remarks

Tournament-style political competition is often considered a foundation for institution of Regionally Decentralized Authoritarianism (RDA) underlying the Chinese economics success of the last forty years. In this paper, we examine its potential downside in driving local protectionism and in inefficient resource allocations.

We develop a theoretical model in which local politicians compete with each other in a promotion tournament based on short-term local economic performance, by allocating government contracts to firms in their own city or to firms in competing cities. The model robustly predicts that the *joint presence* of regional spillover and the promotion incentive of the local politicians leads to inefficient resource allocations biased in favor of the local firms, thus explaining local protectionism. Our model also yields testable predictions of the impact of political network and the politicians' change of office on the inter-jurisdictional resource allocation.

In the empirical part of our study, we combine several unique data sets and test four model predictions in the contexts of government procurement contract allocation and firms' equity investment across cities. We find that when the mayors in a city pair are more similar in their *ex ante* promotion prospects, which indicates that they are in more intense political competition, they allocate less government procurement contracts to firms in the competing city. More interestingly, we find that firms, especially SOEs, who internalizes more of the local politicians' political concern, tend to invest less in the competing cities. These lead to inefficient local protectionism. These findings are robust to a set of alternative specifications. Our empirical findings also corroborate the model predictions that political network based on factional ties, working experience, or personal connections, tend to alleviate the distortion

in the resource allocation, but the distortion is more severe as the local politicians approach the change of the office thus have more imminent career concerns. This analysis highlights the inefficiency in the inter-jurisdictional resource allocation and weakening of the vital economic linkages across competing cities as the downside of the tournament-style political competition under an autocracy regime. Our study provides the first systematic empirical evidence and theoretical foundation for local protectionism in China, and thus contributes to our understanding of the potential adverse consequences of political tournament. While our empirical analysis is conducted in the context of competition among prefecture city mayors and party secretaries, and thus explains the within-province protectionism, applying the same mechanism one level up to the promotion tournament of provincial governors and party secretaries aiming to be promoted to the central government, we can explain the cross-province protectionism that the literature has so far focused on.

References

Allen, F., J. Cai, X. Gu, J. Qian, L. Zhao, and W. Zhu (2019). Ownership network and firm growth: What do five million companies tell about chinese economy. *Available at SSRN 3465126*.

Apicella, C. L., F. W. Marlowe, J. H. Fowler, and N. A. Christakis (2012). Social networks and cooperation in hunter-gatherers. *Nature 481*(7382), 497–501.

Bai, J. and J. Liu (2019). The impact of intranational trade barriers on exports: Evidence from a nationwide vat rebate reform in china. Technical report, National Bureau of Economic Research.

Baicker, K. (2005). The spillover effects of state spending. *Journal of public economics 89*(2-3), 529–544.

Barwick, P. J., S. Cao, and S. Li (2021). Local protectionism, market structure, and social welfare: China's automobile market. *American Economic Journal: Economic Policy 13*(4), 112–51.

Bastani, S., T. Giebe, and O. Gürtler (2022). Simple equilibria in general contests. *Games and Economic Behavior*, forthcoming.

Besley, T. and A. Case (1995). Does electoral accountability affect economic policy choices? evidence from gubernatorial term limits. *The Quarterly Journal of Economics 110*(3), 769–798.

Besley, T., T. Persson, and D. M. Sturm (2010). Political competition, policy and growth: Theory and evidence from the us. *Review of Economic Studies 77*(4), 1329–1352.

Blanchard, O. and A. Shleifer (2001). Federalism with and without political centralization: China versus russia. *IMF Staff Papers 48*(1), 171–179.

Bordignon, M., F. Cerniglia, and F. Revelli (2003). In search of yardstick competition: a spatial analysis of italian municipality property tax setting. *Journal of Urban Economics 54*(2), 199–217.

Brueckner, J. K. (1998). Testing for strategic interaction among local governments: The case of growth controls. *Journal of urban economics 44*(3), 438–467.

Cai, F., A. Park, and Y. Zhao (2008). The chinese labor market in the reform era. *China's Great Economic Transformation*, 167–214.

Caldeira, E. (2012). Yardstick competition in a federation: Theory and evidence from china. *China Economic Review 23*(4), 878–897.

Case, A. C., H. S. Rosen, and J. R. Hines Jr (1993). Budget spillovers and fiscal policy interdependence: Evidence from the states. *Journal of public economics 52*(3), 285–307.

Chen, Y., H. Li, and L.-A. Zhou (2005). Relative performance evaluation and the turnover of provincial leaders in china. *Economics Letters 88*(3), 421–425.

Choi, E. K. (2012). Patronage and performance: factors in the political mobility of provincial leaders in post-deng china. *The China Quarterly 212*, 965–981.

Devereux, M. P., B. Lockwood, and M. Redoano (2007). Horizontal and vertical indirect tax competition: Theory and some evidence from the usa. *Journal of Public Economics 91*(3-4), 451–479.

Dittmer, L. (1995). Chinese informal politics. *The China Journal* (34), 1–34.

Dixit, A. (1987). Strategic behavior in contests. *American Economic Review 77*(5), 891–898.

Drugov, M. and D. Ryvkin (2020). How noise affects effort in tournaments. *Journal of Economic Theory 188*, 105065.

Fang, H., Z. Li, N. Xu, and H. Yan (2018). In the shadows of the government: Relationship building during political turnovers. Technical report, National Bureau of Economic Research.

Fisman, R., J. Shi, Y. Wang, and W. Wu (2020). Social ties and the selection of china's political elite. *American Economic Review 110*(6), 1752–81.

Francois, P., F. Trebbi, and K. Xiao (2016). Factions in nondemocracies: Theory and evidence from the chinese communist party. Technical report, National Bureau of Economic Research.

Fredriksson, P. G., J. A. List, and D. L. Millimet (2004). Chasing the smokestack: strategic policymaking with multiple instruments. *Regional Science and Urban Economics 34*(4), 387–410.

Goldberg, P. K. and G. Maggi (1999). Protection for sale: An empirical investigation. *American Economic Review 89*(5), 1135–1155.

Grossman, G. M. and E. Helpman (1994). Protection for sale. *American Economic Review*, 833–850.

Hanaki, N., A. Peterhansl, P. S. Dodds, and D. J. Watts (2007). Cooperation in evolving social networks. *Management Science 53*(7), 1036–1050.

Jia, R., M. Kudamatsu, and D. Seim (2015). Political selection in china: The complementary roles of connections and performance. *Journal of the European Economic Association 13*(4), 631–668.

Kung, J. K.-s. (2014). The emperor strikes back: Political status, career incentives and grain procurement during china's great leap famine. *Political Science Research and Methods 2*(2), 179–211.

Kung, J. K.-S. and S. Chen (2011). The tragedy of the nomenklatura: Career incentives and political radicalism during china's great leap famine. *American Political Science Review 105*(1), 27–45.

Lazear, E. P. and S. Rosen (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy 89*(5), 841–864.

Li, C. (2012). The battle for china's top nine leadership posts. *The Washington Quarterly 35*(1), 131–145.

Li, C. (2013). A biographical and factional analysis of the post-2012 politburo. *China Leadership Monitor 41*, 1–17.

Li, H. and L.-A. Zhou (2005). Political turnover and economic performance: the incentive role of personnel control in china. *Journal of Public Economics 89*(9-10), 1743–1762.

Lu, X. and P. L. Lorentzen (2016). Rescuing autocracy from itself: China's anti-corruption campaign. *SSRN Electronic Journal 6*.

Maskin, E., Y. Qian, and C. Xu (2000). Incentives, information, and organizational form. *Review of Economic Studies 67*(2), 359–378.

Meyer, D., V. C. Shih, and J. Lee (2016). Factions of different stripes: gauging the recruitment logics of factions in the reform period. *Journal of East Asian Studies 16*(1), 43–60.

Nalebuff, B. J. and J. E. Stiglitz (1983). Prizes and incentives: towards a general theory of compensation and competition. *The Bell Journal of Economics*, 21–43.

Padovano, F. and R. Ricciuti (2009). Political competition and economic performance: evidence from the italian regions. *Public Choice 138*(3-4), 263–277.

Persson, P. and E. Zhuravskaya (2016). The limits of career concerns in federalism: Evidence from china. *Journal of the European Economic Association 14*(2), 338–374.

Poncet, S. (2005). A fragmented china: Measure and determinants of chinese domestic market disintegration. *Review of International Economics 13*(3), 409–430.

Poncet, S. (2006). Provincial migration dynamics in china: Borders, costs and economic motivations. *Regional Science and Urban Economics 36*(3), 385–398.

Pye, L. W. (1992). *The spirit of Chinese politics*. Harvard University Press.

Rand, D. G., S. Arbesman, and N. A. Christakis (2011). Dynamic social networks promote cooperation in experiments with humans. *Proceedings of the National Academy of Sciences 108*(48), 19193–19198.

Revelli, F. and P. Tovmo (2007). Revealed yardstick competition: Local government efficiency patterns in norway. *Journal of Urban Economics 62*(1), 121–134.

Ryvkin, D. and M. Drugov (2020). The shape of luck and competition in winner-take-all tournaments. *Theoretical Economics 15*(4), 1587–1626.

Shi, X. (2021). Hometown favoritism and intercity investment networks in china. *Available at SSRN 3745064*.

Shi, X., T. Xi, X. Zhang, and Y. Zhang (2018). Moving "umbrella": Bureaucratic transfers, collusion, and rent-seeking in china. Technical report, Working Paper Series of the China Center for Economic Research.

Shih*, V. (2004). Factions matter: personal networks and the distribution of bank loans in china. *Journal of Contemporary China 13*(38), 3–19.

Shih, V., C. Adolph, and M. Liu (2012). Getting ahead in the communist party: explaining the advancement of central committee members in china. *American Political Science Review 106*(1), 166–187.

Tombe, T. and X. Zhu (2019). Trade, migration, and productivity: A quantitative analysis of china. *American Economic Review 109*(5), 1843–72.

Tsai, P.-H. (2016). Fiscal incentives and political budget cycles in china. *International Tax and Public Finance 23*(6), 1030–1073.

Wang, Z., Q. Zhang, and L.-A. Zhou (2020). Career incentives of city leaders and urban spatial expansion in china. *Review of Economics and Statistics 102*(5), 897–911.

Xi, T. (2019). All the emperor's men? conflicts and power-sharing in imperial china. *Comparative Political Studies 52*(8), 1099–1130.

Xu, C. (2011). The fundamental institutions of china's reforms and development. *Journal of economic literature 49*(4), 1076–1151.

Yao, Y. and M. Zhang (2015). Subnational leaders and economic growth: evidence from chinese cities. *Journal of Economic Growth 20*(4), 405–436.

Young, A. (2000). The razor's edge: Distortions and incremental reform in the people's republic of china. *Quarterly Journal of Economics 115*(4), 1091–1135.

Yu, J., L.-A. Zhou, and G. Zhu (2016). Strategic interaction in political competition: Evidence from spatial effects across chinese cities. *Regional Science and Urban Economics 57*, 23–37.

Zheng, X., F. Li, S. Song, and Y. Yu (2013). Central government's infrastructure investment across chinese regions: A dynamic spatial panel data approach. *China Economic Review 27*, 264–276.

Zhou, L.-A. (2019). Understanding china: a dialogue with philip huang. *Modern China 45*(4), 392–432.

Table 1: Summary Statistics for Prefectural Mayors

Variable	Obs	Mean	Std. Dev.	Min	Max
Promotion	5,652	0.202	0.401	0	1
Age	5,641	50.634	3.866	37	61
Gender (1=Male, 0=Female)	5,647	0.937	0.243	0	1
Tenure	5,660	2.583	1.559	1	12
Education					
College	5,627	0.048	0.214	0	1
Bachelor	5,627	0.206	0.405	0	1
Master	5,627	0.573	0.495	0	1
Doctor	5,627	0.167	0.373	0	1
Political Ties					
Party school	5,647	0.223	0.416	0	1
Secretary gang	5,647	0.154	0.361	0	1
Central work experience	5,647	0.048	0.215	0	1
Provincial work experience	5,647	0.460	0.498	0	1
CYL	5,647	0.211	0.408	0	1
Connection to governor	5,660	0.295	0.456	0	1
Connection to Secretary	5,660	0.124	0.330	0	1

Table 2: Descriptive Statistics for Cities

	Obs	Mean	Std. Dev.	Min	Max
Panel A: City level observation, same province					
GDP	4,590	160388.400	259380.200	3177.31	3267987
GDP growth rate	4,211	11.746	4.280	-19.38	37.69
Population	4,602	438.532	390.164	16.37	11098.4
Panel B: City-pair level observation, same Province					
Investment	53,774	937.461	12144.310	0	1139267
Investment from SOE	53,710	589.485	7001.299	0	626374.1
Investment from POE	53,710	349.005	5748.366	0	618120.8
Investment from central SOE	53,774	34.722	649.439	0	60004.98
Investment from local SOE	53,710	554.802	6808.408	0	626346.1
Number of procurement contracts	17,625	69.428	302.727	0	8401
Same faction	53,774	0.129	0.335	0	1
Same working experience	53,774	0.239	0.427	0	1
Same connection	53,774	0.032	0.175	0	1
Panel C: City-pair level observation, different province					
Investment	1,357,748	138.996	12395.930	0	1.00E+07
Number of procurement contracts	451,978	1.158	8.896	0	2540

Table 3: Mayor Promotion Probability

	03-12	13-19
Age	0.0103	0.210***
	(0.0202)	(0.0409)
Male	0.0502	-0.692
	(0.280)	(0.514)
Education	0.301***	0.321*
	(0.0973)	(0.190)
Tenure	0.159	0.552**
	(0.166)	(0.263)
Party school	0.421**	0.561*
	(0.198)	(0.303)
Mishu	0.830**	-0.0123
	(0.331)	(0.431)
CYL	0.291**	-0.472*
	(0.144)	(0.253)
Central exp	0.306*	-0.243
	(0.172)	(0.280)
Province exp	0.751***	0.948***
	(0.0478)	(0.0813)
Governor con	-0.0565	-0.0827
	(0.143)	(0.265)
Secretary con	-0.250	-0.255
	(0.187)	(0.320)
ln(Population)	0.195	-0.350
	(0.276)	(2.146)
GDP growth rate	0.594	0.00882
	(0.731)	(0.105)
Year FE	Yes	Yes
City FE	Yes	Yes
Observations	2,620	1,157

Table 4: Political Competition and Allocation of Procurement Contract

	(1)	(2)	(3)	(4)
$\lvert a_i - a_j \rvert$	0.568***	0.373*	0.495**	0.557**
	(0.123)	(0.206)	(0.235)	(0.228)
a_i		0.390*	0.294	-0.227
		(0.223)	(0.257)	(0.308)
a_j		-0.0311	-0.152	-0.299
		(0.170)	(0.196)	(0.189)
ln(Population$_i$)			-0.0114	-0.119
			(0.120)	(0.128)
ln(Population$_j$)			0.0688	-0.0506
			(0.0833)	(0.0735)
ln(per capital GDP$_i$))			0.461***	0.207**
			(0.161)	(0.0894)
ln(per capital GDP$_j$))			0.421***	0.272***
			(0.117)	(0.103)
Constant	6.183***	6.174***	-3.237	2.222
	(0.00929)	(0.0136)	(2.150)	(1.552)
Citypair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	No	No	Yes
Observations	53,774	53,774	50,346	50,341
R-squared	0.639	0.639	0.634	0.666

Table 5: Political Competition and Firm Investment

	(1)	(2)	(3)	(4)
$\lvert a_i - a_j \rvert$	0.363***	0.418***	0.320**	0.297**
	(0.0723)	(0.0944)	(0.127)	(0.119)
a_i		0.0665	0.0759	0.287
		(0.115)	(0.141)	(0.226)
a_j		-0.176**	-0.110	-0.107
		(0.0789)	(0.103)	(0.106)
$\ln(\text{Population}_i)$			0.782	1.080
			(0.585)	(0.753)
$\ln(\text{Population}_j)$			0.894***	0.616**
			(0.310)	(0.267)
$\ln(\text{per capital GDP}_i))$			0.0919	0.154
			(0.117)	(0.101)
$\ln(\text{per capital GDP}_j))$			-0.384***	-0.304***
			(0.0878)	(0.0791)
Constant	1.794***	1.797***	-5.063	-6.730
	(0.00784)	(0.00981)	(3.945)	(4.860)
Citypair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	No	No	Yes
Observations	17,582	17,582	14,967	14,963
R-squared	0.891	0.891	0.897	0.922

Table 6: Political Competition and Firm Investment

	SOE		POE	
	(1)	(2)	(3)	(4)
$\|a_i - a_j\|$	1.729***	2.014***	0.312*	0.506**
	(0.217)	(0.249)	(0.188)	(0.208)
a_i	0.863***	-0.0252	0.262	-0.435
	(0.221)	(0.345)	(0.208)	(0.282)
a_j	-0.150	-0.381*	0.00504	-0.267
	(0.181)	(0.200)	(0.154)	(0.172)
ln(Population$_i$)		-0.0385		-0.116
		(0.144)		(0.114)
ln(Population$_j$)		-0.0455		-0.0599
		(0.0858)		(0.0692)
ln(per capital GDP$_i$))		0.0244		0.199**
		(0.100)		(0.0845)
ln(per capital GDP$_j$))		0.236**		0.221**
		(0.105)		(0.0954)
Constant	4.563***	2.336	5.707***	2.393*
	(0.0143)	(1.646)	(0.0127)	(1.436)
City-pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	53,710	50,277	53,710	50,277
R-squared	0.624	0.650	0.641	0.669

Table 7: Political Competition and Firm Investment - SOE

	Central SOE		Local SOE	
	(1)	(2)	(3)	(4)
$\|a_i - a_j\|$	0.393**	0.152	2.170***	2.445***
	(0.171)	(0.194)	(0.211)	(0.243)
a_i	-0.362**	-0.136	0.872***	-0.145
	(0.156)	(0.263)	(0.214)	(0.344)
a_j	-0.168	0.0336	-0.159	-0.397**
	(0.136)	(0.154)	(0.178)	(0.196)
ln(Population$_i$)		-0.0435		-0.00199
		(0.0701)		(0.143)
ln(Population$_j$)		0.0760		-0.0389
		(0.0675)		(0.0840)
ln(per capita GDP$_i$))		0.0701		0.0524
		(0.0892)		(0.104)
ln(per capita GDP$_j$))		-0.338***		0.262**
		(0.0860)		(0.109)
Constant	0.909***	3.362**	4.569***	1.550
	(0.00947)	(1.367)	(0.0141)	(1.677)
City-pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	53,774	50,341	53,774	50,341
R-squared	0.405	0.425	0.623	0.649

Table 8: Political Competition and Procurement-Adjacent Cities

	Same Province		Different Province	
	(1)	(2)	(3)	(4)
$\lvert a_i - a_j \rvert$	0.739*	0.759*	-0.373	-0.403
	(0.389)	(0.399)	(0.733)	(0.776)
a_i	-0.0431	-0.716	0.912	0.434
	(0.388)	(0.510)	(0.665)	(0.877)
a_j	-0.221	-0.426	0.402	0.628
	(0.351)	(0.355)	(0.615)	(0.684)
ln(Population$_i$)	-0.985***	-1.074***	-0.703**	-0.907**
	(0.203)	(0.225)	(0.354)	(0.426)
ln(Population$_j$)	0.0767	-0.117	0.199	0.195
	(0.148)	(0.141)	(0.336)	(0.437)
ln(per capita GDP$_i$))	0.596***	0.408**	0.342	-0.0198
	(0.212)	(0.195)	(0.314)	(0.223)
ln(per capita GDP$_j$))	0.719***	0.337*	-0.435	-0.523*
	(0.203)	(0.196)	(0.361)	(0.298)
Constant	-6.829**	0.648	2.815	8.517
	(3.022)	(3.074)	(5.317)	(5.434)
City-pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	14,852	14,824	6,360	6,271
R-squared	0.608	0.671	0.561	0.658

Table 9: Political Competition and Firm Investment-Adjacent Cities

	Same Province		Different Province	
	(1)	(2)	(3)	(4)
$\|a_i - a_j\|$	0.433**	0.0896	-0.157	-0.0864
	(0.187)	(0.276)	(0.157)	(0.133)
a_i	-0.0271	0.464	0.179	0.0353
	(0.177)	(0.373)	(0.157)	(0.182)
a_j	-0.283*	-0.0344	-0.0267	-0.0635
	(0.167)	(0.242)	(0.111)	(0.110)
ln(Population$_i$)		1.630		0.0390
		(1.039)		(0.0512)
ln(Population$_j$)		0.457		0.0615*
		(0.474)		(0.0316)
ln(per capita GDP$_i$))		0.00658		0.0167
		(0.208)		(0.0428)
ln(per capita GDP$_j$))		-0.206		-0.0125
		(0.176)		(0.0604)
Constant	2.283***	-8.181	0.266***	-0.404
	(0.0145)	(7.051)	(0.0112)	(0.870)
City-pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	4,933	4,166	2050	1999
R-squared	0.888	0.925	0.457	0.725

Table 10: Placebo: Political Competition and Inter-province Allocation

	Investment			Procurement		
	(1)	(2)	(3)	(4)	(5)	(6)
$\|a_i - a_j\|$	0.0114	0.0336	0.0759	0.00745	-0.00175	0.0104
	(0.0679)	(0.0720)	(0.0529)	(0.0129)	(0.0151)	(0.0144)
a_i	0.0769	-0.0697	-0.445***	0.0112	0.00661	-0.0141
	(0.107)	(0.128)	(0.125)	(0.0208)	(0.0245)	(0.0435)
a_j	-0.178***	-0.153***	-0.175***	-0.0246**	-0.00341	-0.0109
	(0.0471)	(0.0487)	(0.0391)	(0.00975)	(0.0111)	(0.0107)
ln(Population$_i$)		0.258***	0.0475*		0.180	0.136
		(0.0656)	(0.0269)		(0.123)	(0.122)
ln(Population$_j$)		-0.0716***	-0.0642***		0.519***	0.524***
		(0.0166)	(0.0163)		(0.0360)	(0.0360)
ln(per capita GDP$_i$))		0.554***	0.153**		0.0228	0.0223
		(0.160)	(0.0658)		(0.0298)	(0.0273)
ln(per capita GDP$_j$))		-0.0788***	-0.0762***		-0.0217**	-0.0225***
		(0.0246)	(0.0244)		(0.00850)	(0.00848)
Constant		-1.246	3.994***	0.251***	-3.872***	-3.625***
		(1.721)	(0.752)	(0.00178)	(0.806)	(0.832)
Citypair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	No	No	Yes	No	No	Yes
Observations	1,194,626	1,116,614	1,116,614	451,978	377,156	377,156
R-squared	0.646	0.639	0.662	0.718	0.716	0.732

Table 11: Political Faction and Procurement Contract Allocation

	(1)	(2)	(3)	(4)	(5)	(6)
Faction	0.0504**	0.0542**				
	(0.0205)	(0.0228)				
Work			0.0180	0.0115		
			(0.0182)	(0.0203)		
Connection					0.0942**	0.104**
					(0.0426)	(0.0491)
ln(Population$_i$)		1.021		1.020		1.019
		(0.751)		(0.750)		(0.750)
ln(Population$_j$)		0.601**		0.606**		0.608**
		(0.266)		(0.267)		(0.267)
ln(per capita GDP$_i$))		0.151		0.152		0.151
		(0.103)		(0.103)		(0.103)
ln(per capita GDP$_j$))		-0.308***		-0.305***		-0.304***
		(0.0799)		(0.0800)		(0.0800)
Constant	1.825***	-6.177	1.828***	-6.237	1.831***	-6.237
	(0.00327)	(4.832)	(0.00516)	(4.826)	(0.000938)	(4.828)
Citypair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes	No	Yes
Observations	17,578	14,963	17,578	14,963	17,578	14,963
R-squared	0.918	0.921	0.918	0.921	0.918	0.921

Table 12: Political Faction and Firm Investment

	(1)	(2)	(3)	(4)	(5)	(6)
Faction	0.187***	0.105**				
	(0.0487)	(0.0498)				
Work			0.120**	0.133***		
			(0.0486)	(0.0458)		
Connection					0.148*	0.188*
					(0.0884)	(0.0974)
ln(Population$_i$)		-0.00169		-0.00327		-0.115
		(0.122)		(0.122)		(0.129)
ln(Population$_j$)		0.0761		0.0744		-0.0429
		(0.0829)		(0.0826)		(0.0734)
ln(per capital GDP$_i$))		0.505***		0.505***		0.215**
		(0.167)		(0.168)		(0.0904)
ln(per capital GDP$_j$))		0.445***		0.445***		0.280***
		(0.118)		(0.118)		(0.104)
Constant	4.551***	-4.018*	4.548***	-4.012*	4.884***	1.961
	(0.00508)	(2.201)	(0.00939)	(2.208)	(0.00181)	(1.575)
Citypair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes	No	Yes
Observations	75,956	50,616	75,956	50,616	70,169	50,593
R-squared	0.697	0.635	0.697	0.635	0.724	0.667

Table 13: Career Incentive and Procurement Contract Allocation

	(1)	(2)	(3)
BC_i	-0.00933	-0.0151**	-0.0862***
	(0.00772)	(0.00753)	(0.00924)
BC_j	0.0417**	0.0305*	
	(0.0173)	(0.0163)	
a_i		0.127**	-0.281***
		(0.0508)	(0.0734)
a_j		0.269**	
		(0.118)	
ln(Population$_i$)		0.862***	1.198***
		(0.317)	(0.0425)
ln(Population$_j$)		1.093	
		(0.709)	
ln(per capital GDP$_i$))		-0.415***	1.466***
		(0.0856)	(0.0545)
ln(per capital GDP$_j$))		0.102	
		(0.117)	
Constant	1.834***	-6.507	-21.13***
	(0.0237)	(4.540)	(0.732)
Citypair FE	Yes	Yes	No
Year FE	Yes	Yes	No
City-Year FE	No	No	Yes
Observations	15,974	13,872	13,926
R-squared	0.890	0.898	0.727

Table 14: Career Incentive and Firm Investment

	(1)	(2)	(3)
BC_i	-0.0188*	-0.0188*	-0.0309**
	(0.00976)	(0.0111)	(0.0122)
BC_j	0.0123	0.00157	
	(0.0108)	(0.0126)	
a_i		0.0787	-0.194
		(0.121)	(0.120)
a_j		0.519***	
		(0.191)	
ln(Population$_i$)		-0.203***	-0.181***
		(0.0658)	(0.0586)
ln(Population$_j$)		0.0230	
		(0.0720)	
ln(per capita GDP$_i$))		0.210***	2.624***
		(0.0736)	(0.0615)
ln(per capita GDP$_j$))		-0.262***	
		(0.0979)	
Constant	5.481***	7.995***	-34.69***
	(0.0202)	(2.398)	(0.843)
Citypair FE	Yes	Yes	No
Year FE	Yes	Yes	No
City-Year FE	No	No	Yes
Observations	54,911	48,903	50,906
R-squared	0.719	0.653	0.603

Table 15: Competition Intensity and Procurement Contract Allocation

	(1)	(2)	(3)	(4)	(5)	(6)
$\lvert a_i - a_j \rvert$	0.338***	0.152	-0.239	0.171	0.300**	0.288**
	(0.0900)	(0.119)	(0.167)	(0.118)	(0.126)	(0.119)
$\lvert a_i - a_j \rvert$*BC_j	-0.0956*	-0.132**	-0.487***			
	(0.0544)	(0.0510)	(0.0945)			
$\lvert a_i - a_j \rvert$*Faction				0.923***		
				(0.0885)		
$\lvert a_i - a_j \rvert$*Work					-0.0125	
					(0.127)	
$\lvert a_i - a_j \rvert$*Connection						1.018***
						(0.267)
a_i	-0.172**	-0.0747	-0.479***	-0.142	-0.107	-0.107
	(0.0802)	(0.105)	(0.132)	(0.106)	(0.106)	(0.106)
a_j	0.0686	0.0866		0.260	0.286	0.290
	(0.120)	(0.148)		(0.223)	(0.227)	(0.226)
ln(Population$_i$)		0.872***	1.209***	0.617**	0.616**	0.619**
		(0.315)	(0.0426)	(0.264)	(0.267)	(0.267)
ln(Population$_j$)		1.079		1.116	1.079	1.080
		(0.719)		(0.760)	(0.753)	(0.753)
ln(per capita GDP$_i$))		-0.410***	1.474***	-0.318***	-0.303***	-0.303***
		(0.0868)	(0.0543)	(0.0788)	(0.0791)	(0.0790)
ln(per capita GDP$_j$))		0.102		0.146	0.154	0.153
		(0.117)		(0.101)	(0.101)	(0.100)
Constant	1.756***	-6.559	-21.19***	-6.704	-6.729	-6.739
	(0.0102)	(4.583)	(0.734)	(4.889)	(4.860)	(4.857)
Citypair FE	Yes	Yes	No	Yes	Yes	Yes
Year FE	Yes	Yes	No	Yes	Yes	Yes
City-Year FE	No	No	Yes	No	No	No
Observations	15,974	13,872	13,926	14,963	14,963	14,963
R-squared	0.890	0.898	0.726	0.922	0.922	0.922

Table 16: Competition Intensity and Firm Investment

	(1)	(2)	(3)	(4)	(5)	(6)
$\|a_i - a_j\|$	0.257	0.310	0.411*	0.462*	0.429*	0.543**
	(0.240)	(0.240)	(0.245)	(0.235)	(0.231)	(0.228)
$\|a_i - a_j\|$*BC_j	-0.185*	-0.120	-0.365***			
	(0.111)	(0.109)	(0.117)			
$\|a_i - a_j\|$*Faction				0.666**		
				(0.268)		
$\|a_i - a_j\|$*Work					0.591**	
					(0.274)	
$\|a_i - a_j\|$*Connection						0.963
						(0.833)
a_i	-0.264	-0.211	-0.681***	-0.314*	-0.298	-0.296
	(0.176)	(0.174)	(0.182)	(0.188)	(0.189)	(0.189)
a_j	0.443*	0.359		-0.247	-0.225	-0.221
	(0.230)	(0.228)		(0.306)	(0.308)	(0.309)
ln(Population$_i$)		-0.235***	-0.180***	-0.0491	-0.0492	-0.0506
		(0.0732)	(0.0586)	(0.0734)	(0.0737)	(0.0735)
ln(Population$_j$)		0.0958		-0.116	-0.116	-0.119
		(0.0804)		(0.128)	(0.129)	(0.128)
ln(per capita GDP$_i$))		0.582***	2.626***	0.272***	0.272***	0.272***
		(0.0816)	(0.0613)	(0.103)	(0.103)	(0.103)
ln(per capita GDP$_j$))		-0.0433		0.207**	0.206**	0.206**
		(0.0816)		(0.0893)	(0.0895)	(0.0894)
Constant	6.143***	-1.636	-34.70***	2.196	2.205	2.220
	(0.0302)	(2.584)	(0.842)	(1.551)	(1.553)	(1.552)
Citypair FE	Yes	Yes	No	Yes	Yes	Yes
Year FE	Yes	Yes	No	Yes	Yes	Yes
City-Year FE	No	No	Yes	No	No	No
Observations	50,872	50,872	50,800	50,341	50,341	50,341
R-squared	0.613	0.617	0.601	0.666	0.666	0.666

Appendix A: Proofs

Proof of Proposition 1

Proof. Politician i's expected payoff (2) can be simplified as

$$\begin{aligned} u_i(x_i, x_j) &= \delta\,(1-\alpha)\,V \Pr\left(\epsilon_i - \epsilon_j \geq \tau(x_i - x_j) - (a_i - a_j)\right) + (1-\delta)Q(x_i) \\ &= \delta\,(1-\alpha)\,V\left[1 - G\left(\tau(x_i - x_j) - (a_i - a_j)\right)\right] + (1-\delta)Q(x_i),. \end{aligned}$$

where the first equality follows from (1).

Recall that $Q(x_i) = Q(1-x_i)$ and $Q(x_i)$ is strictly increasing in x_i for $x_i \in [0, \frac{1}{2}]$ and is strictly decreasing in x_i for $x_i \in [\frac{1}{2}, 1]$. It follows immediately that $x_i^* \leq \frac{1}{2}$ for $i \in \{1, 2\}$. Moreover, it can be verified that

$$Q'(x_i) = H^{-1}(1-x_i) - H^{-1}(x_i),$$

which strictly decreases with x_i. Therefore, $Q(x_i)$ is strictly concave in x_i.

The first-order condition of $u_i(x_i, x_j)$ with respect to x_i, with $i \in \{1, 2\}$, gives

$$\tau\delta\,(1-\alpha)\,Vg\left(\tau(x_1^* - x_2^*) - (a_1 - a_2)\right) = (1-\delta)Q'(x_1^*),$$

and

$$\tau\delta\,(1-\alpha)\,Vg\left(\tau(x_2^* - x_1^*) - (a_2 - a_1)\right) = (1-\delta)Q'(x_2^*),$$

Note that the density function $g(\cdot)$ is symmetric around zero by assumption. Therefore, $g\left(\tau(x_1^* - x_2^*) - (a_1 - a_2)\right) = g\left(\tau(x_2^* - x_1^*) - (a_2 - a_1)\right)$, which in turn implies that $(1-\delta)Q'(x_1^*) = (1-\delta)Q'(x_2^*)$ and hence $x_1^* = x_2^*$.

Substituting $x_1^* = x_2^*$ into the above first-order conditions yields that

$$x_1^* = x_2^* = Q'^{-1}\left(\tau\frac{\delta}{1-\delta}(1-\alpha)Vg(a_1 - a_2)\right) < \frac{1}{2}.$$

Note that the term $Q'^{-1}\left(\tau\frac{\delta}{1-\delta}(1-\alpha)Vg(a_1-a_2)\right)$ is well defined if $\tau\frac{\delta}{1-\delta}(1-\alpha)Vg(a_1-a_2) < Q'(0) = \overline{q} - \underline{q}$, or equivalently, $g(\Delta_a) < \frac{\overline{q}-\underline{q}}{(1-\alpha)V\tau} \times \frac{1-\delta}{\delta}$. This concludes the proof. □

Proof of Proposition 2

Proof. Parts (i), (ii), and (iii) of the proposition is obvious and it remains to prove part (iv). For notational convenience, let $z := g(\Delta_a)$, $w := \tau\frac{\delta}{1-\delta}(1-\alpha)V$, and $t := wz$. Carrying out

the algebra, we can obtain that

$$\frac{\partial x_i^*}{\partial \Delta_a} = \frac{dQ'^{-1}(t)}{dt} \times g'(\Delta_a) \times w.$$

Therefore, we have that

$$\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha} = -g'(\Delta_a) \times \frac{\tau \delta V}{1-\delta} \times \left[\frac{dQ'^{-1}(t)}{dt} + \frac{d^2 Q'^{-1}(t)}{dt^2} \times w \times g(\Delta_a) \right],$$

and

$$\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha} = g'(\Delta_a) \times \frac{\tau (1-\alpha) V}{(1-\delta)^2} \times \left[\frac{dQ'^{-1}(t)}{dt} + \frac{d^2 Q'^{-1}(t)}{dt^2} \times w \times g(\Delta_a) \right],$$

from which we can obtain that $sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}\right) = -sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}\right)$. This concludes the proof. □

Appendix B: Tables

Table C1: Political Faction and Procurement Contract Allocation - CYL

	(1)	(2)	(3)	(4)	(5)	(6)
Party school	0.0479	0.0426				
	(0.0325)	(0.0361)				
Secretary gan			0.0205	0.0656		
			(0.0386)	(0.0403)		
CYL					0.0561*	0.0461
					(0.0309)	(0.0336)
ln(population_i)		1.019		1.021		1.020
		(0.750)		(0.750)		(0.750)
ln(population_j)		0.604**		0.608**		0.602**
		(0.266)		(0.267)		(0.267)
ln(per capita GDP_i))		0.151		0.152		0.152
		(0.103)		(0.103)		(0.103)
ln(per capita GDP_j))		-0.306***		-0.305***		-0.307***
		(0.0799)		(0.0801)		(0.0799)
Constant	1.830***	-6.192	1.833***	-6.253	1.830***	-6.189
	(0.00264)	(4.826)	(0.00154)	(4.832)	(0.00163)	(4.830)
Citypair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes	No	Yes
Observations	17,578	14,963	17,578	14,963	17,578	14,963
R-squared	0.918	0.921	0.918	0.921	0.918	0.921

Table C2: Political Faction and Procurement Contract Allocation - Work Experience

	(1)	(2)	(3)	(4)
Central work	-0.0759	-0.0828		
	(0.0609)	(0.0711)		
Provincial work			0.0203	0.0127
			(0.0184)	(0.0205)
ln(population_i)		1.019		1.020
		(0.750)		(0.750)
ln(population_j)		0.606**		0.606**
		(0.267)		(0.267)
ln(per capita GDP_i))		0.152		0.152
		(0.103)		(0.103)
ln(per capita GDP_j))		-0.305***		-0.304***
		(0.0799)		(0.0800)
Constant	1.834***	-6.220	1.828***	-6.237
	(0.000513)	(4.827)	(0.00509)	(4.826)
Citypair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	17,578	14,963	17,578	14,963
R-squared	0.918	0.921	0.918	0.921

Table C3: Political Faction and Procurement Contract Allocation - Provincial Government

	(1)	(2)	(3)	(4)
Governor connection	0.0365	0.0208		
	(0.0594)	(0.0610)		
Secretary connection			0.120*	0.173**
			(0.0613)	(0.0821)
ln(population_i)		1.019		1.019
		(0.750)		(0.750)
ln(population_j)		0.607**		0.609**
		(0.267)		(0.267)
ln(per capita GDP_i))		0.152		0.152
		(0.103)		(0.103)
ln(per capita GDP_j))		-0.305***		-0.305***
		(0.0800)		(0.0800)
Constant	1.833***	-6.223	1.833***	-6.247
	(0.000970)	(4.828)	(0.000436)	(4.826)
Citypair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	17,578	14,963	17,578	14,963
R-squared	0.918	0.921	0.918	0.921

Table C4: Political Faction and Firm Investment - CYL

	(1)	(2)	(3)	(4)	(5)	(6)
Party school	0.231***	0.199***				
	(0.0675)	(0.0748)				
Secretary gan			0.341***	0.208**		
			(0.0910)	(0.0941)		
CYL					-0.0222	-0.119
					(0.0792)	(0.0779)
ln(population_i)		-0.00327		-0.00341		-0.00426
		(0.123)		(0.122)		(0.122)
ln(population_j)		0.0745		0.0743		0.0735
		(0.0828)		(0.0827)		(0.0828)
ln(per capita GDP_i))		0.505***		0.503***		0.504***
		(0.167)		(0.168)		(0.168)
ln(per capita GDP_j))		0.445***		0.442***		0.444***
		(0.118)		(0.118)		(0.118)
Constant	4.560***	-4.007*	4.563***	-3.942*	4.572***	-3.949*
	(0.00330)	(2.197)	(0.00209)	(2.204)	(0.00319)	(2.203)
Citypair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes	No	Yes
Observations	75,956	50,616	75,956	50,616	75,956	50,616
R-squared	0.697	0.635	0.697	0.635	0.697	0.635

Table C5: Political Faction and Procurement Contract Allocation - Work Experience

	(1)	(2)	(3)	(4)
Central work	0.309*	0.190		
	(0.175)	(0.179)		
Provincial work			0.114**	0.129***
			(0.0493)	(0.0464)
ln(population_i)		-0.00221		-0.00326
		(0.122)		(0.122)
ln(population_j)		0.0755		0.0744
		(0.0830)		(0.0826)
ln(per capita GDP_i))		0.505***		0.505***
		(0.168)		(0.168)
ln(per capita GDP_j))		0.445***		0.445***
		(0.118)		(0.118)
Constant	4.570***	-3.993*	4.549***	-4.017*
	(0.000656)	(2.206)	(0.00936)	(2.208)
Citypair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	75,956	50,616	75,956	50,616
R-squared	0.697	0.635	0.697	0.635

Table C6: Political Faction and Procurement Contract Allocation - Provincial Government

	(1)	(2)	(3)	(4)
Governor connection	0.000122	-0.00150		
	(0.113)	(0.0983)		
Secretary connection			0.653***	0.275
			(0.186)	(0.210)
ln(population_i)		-0.00213		-0.00217
		(0.122)		(0.122)
ln(population_j)		0.0756		0.0756
		(0.0829)		(0.0830)
ln(per capita GDP_i))		0.505***		0.505***
		(0.168)		(0.168)
ln(per capita GDP_j))		0.445***		0.445***
		(0.118)		(0.118)
Constant	4.571***	-4.008*	4.568***	-4.001*
	(0.00170)	(2.208)	(0.000817)	(2.208)
Citypair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	75,956	50,616	75,956	50,616
R-squared	0.697	0.635	0.697	0.635