Tournament-Style Political Competition and Local Protectionism: Theory and Evidence from China*

Hanming Fang† Ming Li‡ Zenan Wu§

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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 biased resource allocations against the competing regions. Combining unique data sets, we test our model predictions in the context of government procurement allocation and firms' equity investment across Chinese cities. We find that, first, when local politicians are in more intensive political competition, they allocate less government procurement contracts to firms in the competing city; second, local firms, especially local state-owned enterprises (SOEs), internalize the local politicians' career concerns and invest less in the competing cities. Our paper provides a political economy explanation for inefficient local protectionism in an autocracy incentivized by tournament-style political competition.

Keywords: Political Competition; Local Protectionism; Government Procurement; Firm Investment.

JEL Codes: H11; H70; P30.

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†Department of Economics, University of Pennsylvania, Ronald O. Perelman Center for Political Science and Economics, 133 S. 36th Street, Philadelphia, PA, 19104, USA; and the NBER. Email: hanming.fang@econ.upenn.edu.

‡Chinese University of Hong Kong, Shenzhen, China, 518172. Email: liming2020@cuhk.edu.cn.

§School of Economics, Sustainability Research Institute, Peking University, Beijing, China, 100871. Email: zenan@pku.edu.cn.

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 autocratic regime.[1] In electoral contexts, voters often compare the performance in their jurisdictions with those in neighboring districts to assess the "capabilities" of incumbent politicians, forcing them into a de facto yardstick competition (Besley and Case, 1995). The seminal work of Besley, Persson, and Sturm (2010) demonstrates both theoretically and empirically that political competition may induce pro-growth economic policies, because swing voters—who are not committed to one party and whose voting decision is based on parties' economic policy choices—only start to gain electoral influence when political competition is sufficiently intense.

Our paper follows this line of inquiry and examines the *economic* consequences of politicians' policy choices under *autocracy*, with China as the leading example. Xu (2011) identifies the foundation of China's successful economic reform as *"regionally decentralized authoritarianism"* (RDA). RDA features highly centralized political power alongside decentralized administrative and economic powers, with local politicians motivated by promotion tournaments (Li and Zhou, 2005; Song and Xiong, 2023). This system incentivizes local leaders to compete in boosting investment and economic growth to enhance their career prospects (Yu, Zhou, and Zhu, 2016; Xu, 2011). Unlike local politicians in a democratic regime who mainly respond to local voters' welfare, politicians in an autocratic regime respond to the upper-level governments' objective. On the positive side, the central government can provide local leaders with strong career incentives, which are considered a key driver of China's economic growth over the last thirty years (Li and Zhou, 2005; Maskin, Qian, and Xu, 2000; Blanchard and Shleifer, 2001). On the negative side, because the economic development of each region is connected due to regional spillovers and externalities, tournament-style political competition may lead to socially inefficient resource allocation. The existing literature focuses on the effect of political competition on *local* policies and economic performance and has yet accounted for the impact of *tournament-style* political competition on *interactions* among different regions. This paper aims to fill this gap.

Specifically, we address the following questions. First, how does tournament-style political competition affect local politicians' incentives in their economic policies regarding firms from competing regions? Second, to the extent that firms internalize local politicians' career incentives, how would political competition influence their investment decisions and shape the landscape of internal economic integration in a country?

[1] See Besley, Persson, and Sturm (2010) for a detailed review of studies of political competition in democratic regimes.

We first develop a model in which local politicians compete with each other for promotion in a tournament by selecting projects of varying returns. The model captures the driving forces of tournament-style political competition that can result in *local protectionism*, and predicts that the *joint* presence of regional spillover and political competition leads to resource allocations inefficiently biased against the competing regions. Our model also yields testable predictions regarding how the politicians' career incentives and their political network impact inter-jurisdictional resource allocations. We show that, for each pair of competing cities, the inter-city allocation of projects or resources are lower when the politicians are engaged in more fierce political competition, are higher when politicians of the city pairs share political connections, and are lower when the politicians are closer to the end of their term. Moreover, our model generates a sharp prediction that the effect of political competition on resource allocation should be affected in opposite directions by the local politicians' political connections and by how close they are to the end of their term.

We then empirically test the model's predictions in the context of Chinese cities, focusing on city governments' procurement allocations and firms' equity investment across cities within the same province.[2] 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 that of the procuring city will have, *ceteris paribus*, a lower probability of winning the procurement contract. We find that when mayors in a city pair are closer in their ex ante promotion probabilities—which indicates that they are engaged in more intense political competition—they allocate less government procurement contracts to firms in the competing city and the average quality of the winning firms from the competing city increases. Interestingly, we find that local firms, especially local state-owned enterprises (SOEs), would internalize the local politicians' career concerns and invest less in the competing cities. Both findings are consistent with local protectionism and are robust to a set of alternative specifications. Our empirical findings also corroborate other model predictions on the effects of political network and the politicians' change of office on the inter-jurisdictional resource allocation.

Our findings accentuate the potential downside of the tournament-style political competition in an autocracy. We underline a key mechanism through which political competition affects local policies towards firms in other regions: Local officials are disincentivized to support the growth of firms from a competitor's region because they are assessed by the upper level government on their *relative* economic performance in a promotion tournament. In the absence of regional spillover *or* promotion incentive, each city should treat firms from everywhere equally and conduct business with those of the highest quality. However, doing

[2]In China, there are four hierarchical levels of cities: provincial, deputy provincial, prefectural, and county. Our sample excludes all county-level cities. The promotion tournament among the prefectural city leaders tend to occur within the same province.

business with firms from other regions generates short-run economic benefits to that region and increases the promotion probability of the competing politician. Career-concerned local leaders may distort resource allocation against firms from the competing city, which results in local protectionism. Furthermore, local firms—who may seek protection from the local government due to the lack of adequate formal market-supporting institutions—will take into account the local officials' preferences in their investment decisions; as a result, they tend to invest less in cities whose local leaders are in more intense political competition against leaders of their home city.

Related Literature. Our paper contributes to the political economy literature on China in several dimensions. First, we contribute to the literature on the political competition and promotion incentives of local officials in China. There is a vast empirical literature—e.g., Li and Zhou (2005); Chen, Li, and Zhou (2005); Xu (2011); Choi (2012); Maskin, Qian, and Xu (2000), among others—that document the link between promotions of local government officials and the economic performance of the cities under their administration. We build on this strand of literature by investigating the hitherto understudied *negative* consequences of regional tournament competition for political promotion.

This paper is also naturally linked to the study of local protectionism and internal barrier in China. Various forms of non-tariff barriers may exist within a country and local governments may impose significant non-tariff barriers to discourage non-local firms, goods, and/or investment from entering the local markets (e.g., Young, 2000). Empirical evidence on local protectionism has been mixed. In the early 2000s, China had substantial policy-induced migration costs (Poncet, 2006; Cai, Park, and Zhao, 2008) and internal trade costs (Young, 2000; Poncet, 2005). Tombe and Zhu (2019) quantify the magnitude and consequences of trade and migration costs and find that the costs were high in 2000 but declined afterwards. Bai and Liu (2023), on the contrary, document rising local protectionism and study its impact on exports and exporting firms. Barwick, Cao, and Li (2021) quantify the local protectionism in the automobile market. All of the papers take local protectionism as the starting point and focus on cross-provincial protectionism, while we provide a political economy explanation for local protectionism within the provincial border: Political competition among local leaders creates *policy* barriers for firms from competing cities, which discourage investment flows between cities.

This paper is also related to the literature on government-market interactions in China. Politicians make trade-offs between advantages in political competition and social welfare (e.g., Grossman and Helpman, 1994; Goldberg and Maggi, 1999). Bai, Hsieh, and Song (2014) show with empirical evidence from the automobile industry that local governments actively engaging in political competitions support the businesses connected to them, while

blocking entry by new firms that may threaten the cronies. Existing literature documents that firms significantly increase their "perk spending" after political turnovers (Fang, Li, Xu, and Yan, 2023), and that firms co-move with connected political leaders across cities (Shi, Xi, Zhang, and Zhang, 2021). Our study enriches the understanding of how political factors affect firm dynamics in China and provides evidence that politicians' career incentives in a tournament-style political competition also distort firms' decisions.

The existing evidence on the role of factional ties in China's political system is mixed. Jia, Kudamatsu, and Seim (2015) report a complementary effect of connections and performance in determining provincial leaders' promotions; in contrast, Fisman, Shi, Wang, and Wu (2020) document "connection punishment" that personal connections with higher-level leaders result in a lower promotion probability. Instead of looking at the role of factional ties in the promotion process, our paper investigates the effect of factional affinities between local leaders on their choices. Based on the extant evidence that social network may promote cooperation (Apicella, Marlowe, Fowler, and Christakis, 2012; Rand, Arbesman, and Christakis, 2011; Hanaki, Peterhansl, Dodds, and Watts, 2007), it is expected that factional ties may mitigate political competition and facilitate cooperation between local leaders from the same faction. Our model and empirical findings confirm the intuition.

The remainder of the paper is organized as follows. Section 2 describes the institutional background of local leaders' career incentives and the government-business relationship in China. Section 3 presents a simple tournament model to delineate city leaders' decision-making processes with regard to inter-jurisdiction resource allocation, and derives testable hypotheses. Section 4 describes the data and the main variables. Section 5 presents our primary empirical results regarding the consequences of tournament-style political competition. Section 6 concludes. Appendix A collects the proofs of propositions. Appendix B considers two model extensions. Additional empirical results are relegated to an online appendix.

2 Institutional Background

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

2.1 Political Competition and Career Incentives of Local Leaders

China's centralized personnel control system is characterized by a hierarchical structure and intense tournament-style promotion competition among local politicians. China adopted a "one-level-down" appointment system in 1995, under which the evaluation and appoint-

ment of the provincial-or-higher ranked officials are conducted by the central government, and the provincial government is in charge of the supervision, evaluation, and appointment of the prefectural city leaders (Li, Roland, and Xie, 2022). The appointment of a city leader is a deliberative process, and many factors—e.g., political loyalty, educational qualifications, age, expertise, and the economic performance of their regions—may come into play. Among these factors, regional economic performance measures—e.g., total output and capital investment—have been key performance indicators for the career advancement of local leaders (Li and Zhou, 2005; Yao and Zhang, 2015; Xu, 2011; Tsai, 2016).

In the hierarchical structure, there are fewer higher-ranked positions than suitable candidates from lower-level governments. Thus, local officials need to compete against their political peers for promotion. On the one hand, this incentive from the promotion tournament serves as a powerful mechanism to drive China's economic growth (Li and Zhou, 2005). On the other hand, the powerful incentives induced by the promotion tournament may lead local governments to engage in short-termism behavior, which sacrifices long run benefits and shifts resources to projects that could quickly boost *local* economic growth to improve their chances of promotion; moreover, due to the strong incentives under the relative performance evaluation, local officials are reluctant to choose policies that benefit the economic growth of competing regions. The lack of political incentives for local leaders in promoting long-run economic growth and regional coordination may lead to biased resource allocation towards local firms and thus local protectionism.

2.2 Government-Business Dynamics

The interaction between local government officials and the business plays an important role in investment facilitation and resource allocation in China. Lacking adequate formal market-supporting institutions, Chinese firms seek protection from the local government, and the local government seeks the informal relational contract with the private enterprises. On the one hand, due to a high level of state control over the market and severe institutional frictions, it is commonplace for private firms to invest in political connections (known as *Guanxi* in Chinese) 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 enforcing laws and making regulations 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, Li, Xu, and Yan, 2023). For example, Shi, Xi, Zhang, and Zhang (2021) find that transfer of a local leader between prefectural cities is associated

with an increase in inter-regional investment along the direction of transfer. On the other hand, government officials rely on private firms to finance development projects, boost the local economy, and provide rents for their private consumption. Zhou (2019) argues that China's high rate of economic growth is 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 thus expect that the competition between politicians would affect the way governments interact with firms from different regions. In particular, in the empirical analysis, we examine the allocation of government procurement contracts, in which local governments have discretion in the format and rules of bidding, as a measure of local governments' support for the firms. We also expect local firms' interests to be aligned, at least partially, with the local governments. As such, we also examine firms' equity investment decisions to test whether the politicians' incentives are also reflected in firms' investment decisions.

2.3 Factional Ties

The informal political network formed by the politicians' personal connections plays an important role in politicians' career advancement. 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 facilitate the formation of a political network in China's political system. Politicians are connected to each other and to the upper level government through this political network, which, 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, Shih, and Lee, 2016; Francois, Trebbi, and Xiao, 2023). On the 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 auxiliary organization to the Chinese Communist Party (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) argues that the CYL faction is associated with "populist" policies that benefit 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 Gang*). On the other hand, factional ties affect local politicians' promotion chances and shape their career incentives. Jia, Kudamatsu, and Seim (2015), for example, report a complementary effect of connections and performance in determining provincial leaders' promotions. Persson and Zhuravskaya (2016) explore the role of promotions and

career concerns in governing the policy choices of provincial leaders. Fisman, Shi, Wang, and Wu (2020), on the contrary, study the intra-faction competition in the competition for China's Politburo positions and find that sharing a hometown or college connection reduces the probability of success. We take into account the heterogeneity in politicians' preferences induced by the informal factional ties in our theoretical model and subsequent empirical analysis.

3 A Model of Political Competition

In this section, we build a simple tournament model in the spirit of Lazear and Rosen (1981) that incorporates ingredients of economic spillover, political factions, and promotion incentives. The model yields rich testable implications that allow us to empirically examine the potential downsides of tournament-style political competition.

3.1 The Setup

The mayor in city $i \in \{1, 2\}$, whom we refer to as politician i, allocates a fixed budget amount—which we normalize to 1 without loss—by selecting projects from his home city i and/or the competing city $j(\neq i)$ to catalyze growth and development. Each city has a unit mass of projects for the politician to choose from. Each project costs 1, and generates the *same short-term* economic benefit to the home city, which we normalize to unity.

However, projects differ in their intrinsic *quality*, which affects the city's *long-run* development. The quality of the projects in cities i and j are independently drawn from the same cumulative distribution function (CDF) $H(\cdot)$, with support $[\underline{q}, \overline{q}]$, where $H(\cdot)$ admits a positive and continuous probability density function (PDF).

Spillover. Selecting a competing city's project generates positive economic spillover: City i's short-run economic performance would increase by $\tau > 0$ if a project in city i is selected by a politician in city $j \neq i$.

Short-run Economic Performance and Political Competition. Let $x_i \in [0, 1]$ denote the measure of projects that politician i selects from the *competing* city, and the remaining $1 - x_i$ be the measure of projects politician i selects from the home city. Fixing politicians' strategy profile (x_1, x_2), politician i's performance before promotion takes place, which we

denote by y_i, is

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

where x_i and $1 - x_i$ are the short-run economic performance generated by projects from the competing city and the home city, respectively (recall that the short-term benefits are the same for all projects); τx_j denotes the economic spillover from the projects in city i chosen by the competing city j; $a_i > 0$ measures politician's ex ante strength, which in our empirical analysis will be proxied by the ex ante predicted probability of politician i being promoted, and as such it captures how far ahead i is in the promotion tournament based on—e.g., his previous experience, performance and connections; 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 affects the competing city j's short-term performance due to the existence of positive economic spillover.

In the promotion tournament between politicians i and j, the winner is determined by the comparison between the short-term performances of the two politicians, namely y_i and y_j: politician i wins the tournament if and only if $y_i > y_j$.

From (1), it is obvious that if the politicians only care about the probability of winning the promotion tournament, then politician i would not select projects from the competing city j—i.e., he will choose $x_i = 0$. However, we will assume that politicians also put some weight on the long-term development of their city.

Long-run Economic Performance of Selected Projects. Fixing x_i, politician i selects the highest quality projects from each city.[3] 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

$$Q(x_i) := \underbrace{\int_{H^{-1}(1-x_i)}^{\overline{q}} q dH(q)}_{\text{projects selected from competing city } j} + \underbrace{\int_{H^{-1}(x_i)}^{\overline{q}} q dH(q)}_{\text{projects selected from home city } i}. \tag{2}$$

It can be verified that $Q(x_i)$ is strictly concave in x_i, and that $Q(x_i) = Q(1 - x_i)$.

[3]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 (3) later.

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, if politician i were only interested in maximizing the aggregate intrinsic quality of the selected projects, which we use to proxy the city's long-term development, he would choose $x_i = \frac{1}{2}$ so as to equalize the quality of the marginal project from the home city and that from the competing city.

Politician's Preference. We assume that a politician's preference consists of two components. First, politician i derives utility from his own promotion and possibly the promotion of his competitor; second, the politician cares about his city's long-run economic performance. Specifically, we assume that the politician receives a utility gain of $V > 0$ if he himself wins the tournament and ascends the promotion ladder; however, he also potentially receives some utility gains from the promotion of his opponent represented by αV, where the parameter $\alpha \in [0, 1)$ measures the degree of *affinity* between the two politicians. In our empirical analysis, we use the factional ties between two competing politicians as a proxy for the strength of this affinity; indeed, it is plausible that two politicians from the same faction may benefit each other when one of them is promoted.

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

$$u_i(x_i, x_j) := \delta \left[\Pr(y_i \geq y_j) V + \Pr(y_i < y_j) \alpha V \right] + (1 - \delta) Q(x_i), \tag{3}$$

where $\delta \in (0, 1)$ is the weight that the politician attaches to promotion. We hypothesize in our empirical section that δ increases as the politician gets closer to the change of his term.

Two remarks are in order before we proceed. First, the distributions of project quality in the two cities are assumed to be identical. This assumption enables us to focus on the heterogeneity of politicians' strength and simplifies our analysis. Second, a politician in our framework selects either from his home city or the opponent's city, and his decision is essentially unidimensional as the total mass of selected projects is equal to one. In reality, a politician may also select projects from cities beyond his immediate competitor, in which case his project selection decision is multidimensional. We extend the model to account for these scenarios in Appendix B and demonstrate the robustness of our model predictions.[4]

3.2 Equilibrium Analysis

A closer look at the politician's expected payoff (3) unveils the tradeoff he faces when deciding on the project allocation strategy. Specifically, the politician faces the tradeoff between the 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. On the

[4]We thank an anonymous referee for motivating the discussion and suggesting these extensions.

one hand, to maximize his promotion probability $\Pr(y_i \geq y_j)$, politician i would not select projects from the competing city j and choose $x_i = 0$; on the other hand, to maximize the city's long-term economic performance $Q(x_i)$, he has an incentive to choose $x_i = \frac{1}{2}$. The politician's optimal strategy is thus shaped by these two countervailing forces.[5]

Denote the equilibrium strategy profile of the two politicians by (x_1^*, x_2^*). For notational convenience, let $\Delta_a := |a_1 - a_2|$.

Assumption 1 $g(\Delta_a) < \frac{\overline{q}-\underline{q}}{(1-\alpha)V\tau} \times \frac{1-\delta}{\delta}$ and $(1-\alpha)V\tau^2 \times \frac{\delta}{1-\delta} \max_{t\in\mathbb{R}} |g'(t)| \leq \min_{x\in[0,1]} |Q''(x)|$.

The first condition in Assumption 1 guarantees that the distribution of noise is sufficiently dispersed such that there exists a pure-strategy equilibrium. The literature commonly assumes large noise (e.g., Nalebuff and Stiglitz, 1983; Drugov and Ryvkin, 2020; Ryvkin and Drugov, 2020), and it is well-known that a pure-strategy equilibrium may cease to exist if there is too little noise in the tournament. The second condition is imposed to ensure that politician i's expected payoff $u_i(x_i, x_j)$ is concave in x_i and thus the equilibrium strategy profile can be pinned down by the first-order conditions. The following result ensues.

Proposition 1 ***(Equilibrium Characterization)*** *Consider two competing politicians with ex ante strength pair (a_1, a_2) and suppose that Assumption 1 holds. Then there exists a unique pure-strategy equilibrium in the political tournament, in which*

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

Two remarks are in order. First, both politicians adopt the same strategy in the equilibrium despite the heterogeneity in their ex ante strength. This is indeed a general property in asymmetric *two*-player contests.[6] Second, the measure of projects that a politician selects from the competing city in the equilibrium is below the social optimum—i.e., $x_i^* < \frac{1}{2}$. Put differently, a politician tends to select more projects from his own city in equilibrium than that is socially optimal, which is an indication of local protectionism. Notably, the distortion is driven by the *joint* presence of political competition and inter-city spillover. To see this, note that $Q'^{-1}(0) = \frac{1}{2}$ and the distortion disappears 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., $\tau = 0$).

[5]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.

[6]See Bastani, Giebe, and Gürtler (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.

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

Proposition 2 ***(Comparative Statics)*** *Consider two competing politicians with ex ante strength pair* (a_1, a_2) *and suppose that Assumption 1 holds. The following statements hold in the unique symmetric pure-strategy equilibrium:*

(i) The equilibrium measure of projects that politician i selects from the competing city, x_i^**, is U-shaped in his opponent's ex ante strength* a_j *and reaches its minimum at* $a_j = a_i$ *(equivalently, at* $\Delta_a = 0$*—i.e., when the politicians are ex ante equally likely to be promoted.*

(ii) The equilibrium measure of projects that politician i selects from the competing city, x_i^**, increases in* α*—i.e., when politicians have stronger affinity.*

(iii) The equilibrium measure of projects that politician i selects from the competing city, x_i^**, decreases with* δ*—i.e., when the politician is closer to change of his 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 distributions of the noise term, g, and the project quality H, and are indeterminate. However, the two partials must be of opposite signs—i.e.,* $sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}\right) = -sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}\right)$.

3.3 Model Interpretations: From Model to Data

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

Model Interpretations. In our model, the decision maker is a local politician, say the mayor. In this context, the project selection can be interpreted as allocations of procurement contracts by local governments. The key variables can be interpreted as follows: (i) x_i refers to the total number of procurement contracts awarded by city i's government to 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.

An alternative interpretation of our model is that the decision makers are the firms in a city i, who decide on where to make their equity investment—within the home city or 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 such investment on receiving city, such as employment and taxes; and (iii) q refers to future returns from the equity investment. In this context, a firm in city i may care about

its value as well as the payoff of its home-city politician (because, e.g., the firms operate under the "shadows" of the home city governments, see Fang, Li, Xu, and Yan, 2023). More formally, suppose that the firm's payoff is

$$\pi(x_i, x_j) := \lambda u_i(x_i, x_j) + (1 - \lambda)Q(x_i), \tag{4}$$

where $\lambda \in [0, 1)$ is the weight the firm attaches to the payoff of its home-city politician, and $1 - \lambda$ the weight on its long-run value. The above expression (4) can then be rewritten, by defining $\hat{\delta} := \lambda\delta$, as

$$\pi(x_i, x_j) = \hat{\delta}\left[\Pr(y_i \geq y_j)V + \Pr(y_i < y_j)\alpha V\right] + (1 - \hat{\delta})Q(x_i), \tag{5}$$

which restores the payoff function (3) and the original game considered in Section 3.1. When we take the interpretation of the firms being the decision makers, it is worth pointing out that SOEs, especially the local SOEs, are typically considered more aligned with the local politician and thus have a higher λ and thus a higher $\hat{\delta}$ than private-owned enterprises (POEs).

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' equity investment decrease as politicians in the two cities become more similar in their strength as proxied by ex ante promotion probabilities. As a result, the average quality of the winning firms from the competing city increases as the political tournament becomes more intense.*

Hypothesis 2 ***(Proposition 2(ii))*** *For each pair of competing cities, the inter-city allocation of procurement contracts and firms' equity investment are higher when politicians in the two cities have higher affinity toward each other as proxied by stronger political connection.*

Hypothesis 3 ***(Proposition 2(iii))*** *For each pair of competing cities, city i reduces its procurement contracts allocated to city j's firms, and firms in city i reduce their equity 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 ex ante political competition (as measured by $\Delta_a \equiv |a_1 - a_2|$) on resource allocation should be affected by politicians' tenure and*

by their political connections in the opposite directions.

4 Data Sets and Descriptive Statistics

4.1 Data Sets

We combine several unique data sets to investigate the effect of political competition and political connections on the allocation of local government procurement contracts and on firms' equity investment decisions.

The first data set is the universe of government procurement contracts in all prefectural-level cities in mainland China from January 2013 to December 2019. Government procurement is a substantial facet of fiscal disbursement within local administrations, representing a significant portion of their public expenditure. We collect this data set from the official website (http://www.ccgp.gov.cn/), where the detailed information, including the procurement notifications and outcomes, of *all* government procurement contracts in China are publicly released, as required by the Ministry of Finance from 2013 in an effort to increase the transparency of government procurement. For each contract, we observe the government procurer's identity, the 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.[7] In total, we have more than 3.8 million contracts in our data set. Based on this data set, we calculate the allocation of local government procurement contracts by the total number of the contracts signed between city i's local government (or its affiliated organizations and offices) and firms in a city j, and vice versa.

Our second data set is the firm registration database released by the Chinese State Administration for Market Regulation. This data set covers the universe of all registered firms—over 200 million in total—ever registered in China. It contains detailed information about a firm's location, the year of its establishment and exit (if any), the value of its registered capital, its investment history, its initial main shareholders, and the records of any subsequent changes in the main shareholders, etc. We use the firm registration data set in two ways. First, we merge it with the government procurement data described previously to obtain more information about the awardees of the contracts, especially their registration city and their ownership type. Second, based on the firms' registered location and investment

[7]Government procurement can be broadly classified into three categories: commodities, services, and construction projects. Commodities include acquisitions of equipment, office supplies, and devices, etc. by the local governments; services include consultation services, legal aid, management provisions, maintenance activities, and other consumables engaged by the local government; and construction projects include infrastructure ventures, public housing initiatives, road development, government facility construction, etc. In our data set, the shares for commodities, services and construction projects are 55%, 25%, and 20% respectively in terms of the number of contracts, and 45%, 26%, and 28% respectively in terms of the contract amounts.

history, we calculate the intercity equity investment flows between any city pair i and j in each year t, which is our second key outcome variable.

Our third data set is the firms' annual report data which can be merged to the firm registration database. According to the Chinese government regulation, local State Administration for Industry and Commerce (SAIC) offices require all firms to report their financial information annually for the purposes of an inspection procedure to ensure that firms are operating normally and running businesses legally. Failure to report the information to SAIC for two consecutive years would result in the cancellation of the firm's license to operate. SAIC collected this information manually in the early years of the system, and the government began to collect the data digitally after 2010. The annual report data contains information on the firm's assets, liabilities, total sales, total profit, net profit, and total taxes.

Our fourth data set is the 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, who were in their position between January 2003 and December 2019. Given that city mayors are typically in charge of daily economic policies (Chen and Zhang, 2021) and have the direct control in the appointment of city-level bureaucrats in charge of economic affairs (Lei and Zhou, 2022) and that economic record is crucial for their promotion (Chen and Kung, 2019), we focus on city mayors in our empirical analysis.[8] This yields a sample of 1,695 individuals with 5,660 city-year observations during the sample period 2003-2019.

For each city mayor, we have information on their key personal attributes such as age, gender, place of birth, educational background, work experience, and factional ties. In Section 4.3, we explain in details how we use this data set to measure a city mayor's ex-ante promotion probability, which we will use as a proxy for a_i in the model. This is a key independent variable for our empirical analysis. We also use this data set to construct the measures for political connections among politicians, which we will use as a proxy for α in the model.[9] Specifically, we use information on city mayors' work experience to measure their individual strong factional ties as: Communist Youth League of China (CYL)—those who have worked in city level or above Chinese Youth League departments; Secretary Gang (*Mishu Bang*)—those who have worked as the secretary of higher level leaders; and Party School (*Zhongqingban*)—those who have attended the central party school.[10] We also measure a

[8] We provided additional empirical evidence that is consistent with this argument in Section 4.3.

[9] We follow the literature on Chinese local politicians' political connections (e.g., Fisman, Shi, Wang, and Wu, 2020; Francois, Trebbi, and Xiao, 2023; Jia, Kudamatsu, and Seim, 2015; Shih, Adolph, and Liu, 2012) and construct political connection measures at the city level.

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

city mayor's weak factional ties as: central government working experience and provincial government working experience. While these shared working experience may not indicate 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 Shih, Adolph, and Liu (2012) and Fisman, Shi, Wang, and Wu (2020), personal connection is defined as shared hometown, shared work experience, or shared college education background.

Our final data set is compiled from the Chinese Prefecture City Yearbooks, from which we obtain information on the cities' population, GDP and growth rate, etc. We use this information in Section 4.3 as factors that predict local politicians' promotion probabilities (Jia, Kudamatsu, and Seim, 2015). We also use these variables as controls in our empirical analysis.

4.2 Descriptive Statistics

Table 1 reports the descriptive statistics for city mayors at the city-year and individual level. It shows that at any given year, 20% of the city mayors are promoted, and mayors have an average tenure of 2.6 years. The mayors' ages range from 37 to 61 with an average of 50. At individual mayor level, 94% of the mayors are male (for this reason, we have been referring to mayors as "he" in the text). In terms of education, 21% of the city mayors have doctoral degrees at the time of service, 58% have master degrees, and 17% have bachelor degrees. As for the measure of political connection, 20% are characterized as CYL, 17% as Secretary Gang, and 22% as Party School. Based on working experience, 48% of the city mayors have worked in the provincial government bureaus, and 5% have working experience in the central government departments. Based on personal connections, 13% are connected to the provincial governor, and 11% are connected to the provincial party secretary.

[Table 1 about here]

Table 2 reports the descriptive statistics for the prefectural cities in our data sample. Panel A reports 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, about 62% of which are from SOEs, and 38% from POEs. Among the investment from SOEs, less than 6% are from central SOEs, and 94% from local SOEs. For the period 2013-2019, the average

yearly number of government procurement contracts signed between a city government and a firm registered in a different city is 59.8, with a maximum of 8,401. We then report the three measures of political network at city-pair level. 12.9% of the city mayor pairs in the same province belong to the same political faction, 23.9% of them shared the same, albeit not necessarily overlapping, working experiences, 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 38.86 million CNY, which is only about 4% of the size of inter-city equity investment flow between cities from the same province, and the average number of procurement contracts signed is slightly above 1.

[Table 2 about here]

4.3 Predicting Local Politicians' ex ante Promotion Probabilities

The theoretical framework in Section 3 predicts that the distortion in resource allocation is driven by politician's *relative* ex ante strength measured by the differential $|a_i - a_j|$ rather than their absolute strengths (a_i, a_j), and becomes less severe as $|a_i - a_j|$ increases. In order to test our model hypothesis, we construct an empirical proxy measure for the politicians' strength in the promotion tournament by their ex ante promotion probability.[11]

The ruling Chinese Communist Party (CCP)'s cadre evaluation system and promotion decisions crucially depend on the personal characteristics, political connections, and economic performance (e.g., Li and Zhou, 2005; Shih, Adolph, and Liu, 2012; Jia, Kudamatsu, and Seim, 2015; Fisman, Shi, Wang, and Wu, 2020). We follow the literature to construct a single index summarizing all factors that may potentially affect one's promotion probability. In particular, we include three sets of factors in the estimation of the ex ante promotion probability measure: (i) personal characteristics, including age, gender, education, and tenure (e.g., Jia, Kudamatsu, and Seim, 2015; Jiang and Zhang, 2020; Wang, Zhang, and Zhou, 2020; Shih, Adolph, and Liu, 2012); (ii) political connections (e.g., Fisman, Shi, Wang, and Wu, 2020; Francois, Trebbi, and Xiao, 2023; Jia, Kudamatsu, and Seim, 2015; Shih, Adolph, and Liu, 2012); and (iii) city-level economic performance measures (e.g., Li and Zhou, 2005; Yao and Zhang, 2015; Jia, Kudamatsu, and Seim, 2015). Our method of constructing the measurement for career incentive is similar to that of Wang, Zhang, and Zhou (2020), but we include a full set of variables to factor in all of the relevant factors documented in the literature.

[11] As can be seen from Equation (1), a_i indeed represents i's ex ante promotion probability in a tournament competition against j, in the absence of the short-term economic performance consideration.

We construct the single index by estimating local officials' likelihood of promotion based on their personal characteristics. We first define a promotion dummy variable for each city-year cell to be equal to one if the city mayor was promoted to a higher-level position by the end of the year. We next regress the promotion dummy on the set of personal and city characteristics, then use the estimated coefficients to predict the ex ante promotion likelihood for each of the city mayors 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 first run the following Logit regression, and use the predicted probability $\hat{p}_{it}$ as an empirical measure for a_i—the politician's ex ante strength:[12]

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \gamma_0 + \gamma_1 X_{it} + \mu_i + \xi_t + \epsilon_{it}, \tag{6}$$

where p_{it} is the probability of city i's mayor being promoted in year t; X_{it} is a vector of the city-level and mayor-level covariates as discussed above, including city i's economic performance, and the mayor's characteristics such as age, gender, education, tenure, working experience and political connection; and μ_i and ξ_t are respectively the city and year fixed effects.

Two remarks on the choice of variables included in X_i are in order.[13] First, given that a consensus has not yet been reached regarding how to deal with the age factor in the local politician's career incentive and promotion probability, we adopt a data-driven approach to establish the connection between promotion and the mayor's age as well as tenure.[14] We note that age and probability of mayoral promotion exhibit a hump-shaped pattern, with the highest frequency of promotions occurring at age 52. Similar hump-shaped pattern between tenure and probability of mayoral promotion can be observed.[15] We thus include the quadratic terms of age and tenure in our estimation equation.

Second, as for measures of economic performance, we include two variables to capture a politician's ability in promoting economic growth: (i) GDP per capita and (ii) the within-province percentile ranking of GDP growth rate (GDP growth rate ranking, henceforth).[16]

[12] We also estimated a linear probability model, and all of our results remain robust.

[13] We thank an anonymous referee for motivating this discussion on the choices of variables and functional form in the estimation of the ex ante ability measure.

[14] Shi and Xi (2018) construct a dummy variable to indicate whether a city party secretary is between ages 54 and 58; Zuo (2015) controls for quadratic term of age; Yao and Zhang (2015) and Jiang and Zhang (2020) control for different thresholds of age; Wang, Zhang, and Zhou (2020) and Jia, Kudamatsu, and Seim (2015) control for linear term.

[15] Figure A1 in the online appendix plots the distribution of the mayor's promotion age and promotion tenure.

[16] Our results are robust when GDP growth rate ranking is replaced with GDP growth rate in the first-stage estimation of a_i. It turns out that including the former variable improves the first-stage model fit.

The latter variable is calculated as one minus the ratio between the city's ranking of GDP growth rate and the number of cities in the province. The percentile normalization in this variable captures the fact that it is harder to rank ahead in provinces with more intense competition (Lü and Landry, 2014).

[Table 3 about here]

It has been noted that the shift of the central power in 2013 and the subsequent anti-corruption campaign witnessed a significant change in the local politicians as well as the party's promotion rules (Lu and Lorentzen, 2016). We thus run the regressions separately for the two periods 2003-2012 and 2013-2019. Table 3 shows that some factors are common in contributing to officials' promotion in both periods, while other factors show significant differences. For example, both age and tenure exhibit hump shape in affecting one's promotion probability. Education level significantly increases one's promotion probability in 2003-2012, while the effect becomes insignificant in 2013-2019. Regarding political connections, Secretary Gang and CYL connections were both significant positive contributors to promotion in the period of 2003-2012, but turned into negative factors in 2013-2019. This aligns with the findings of Lu and Lorentzen (2016). Notably, the city's GDP per capita is a positive but insignificant contributor to promotion, while the positive impact of GDP growth rate ranking on the promotion probability is significant.

We conduct a similar analysis for city party secretaries, with results presented in Table A1 in the online appendix. Neither GDP growth rate ranking nor GDP per capita positively affects the promotion probability of party secretaries. This supports our sample selection and the argument that the promotion tournament based on economic growth is more pertinent to city mayors in China.

5 Empirical Results

Propositions 1 and 2 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 four model predictions in the context of city governments' allocation of procurement contracts and firms' equity investment decisions, as discussed in Section 3.3.

5.1 Political Competition and Distortion in Resource Allocation

We use the measure constructed in Section 4.3 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 mayors in the two cities become more similar

to each other in their strength, proxied by their ex ante promotion probabilities. As the competition for promotion of city mayors is mostly within a province and rarely crosses provincial boundaries, we test the hypothesis using city pairs from the same province in our main specification; we also use city pairs from different provinces as a falsification test (see Table 11).[17] The estimation equation is

$$Y_{ijt} = \beta_0 + \beta_1|a_{it} - a_{jt}| + \beta_2 a_{it} + \beta_3 a_{jt} + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \delta_t + \rho_{k(j)} + \epsilon_{ijt}, \qquad (7)$$

where Y_{ijt} is the outcome variable. As detailed in Section 3.3, we examine two sets of outcome variables that correspond to x_{ij} in the model: The first outcome variable measures the total *number* of procurement contracts (in logs) signed between firms in city i and government departments in city j in year t; and the second measures equity investment flows (in logs) from city j to city i in year t. Recall that a_{it} represents the promotion propensity score predicted from the first-stage Logit regression (6) for city i's mayor in year t; $|a_{it} - a_{jt}|$ measures the strength differential between city i's mayor and city j's as detailed in the theoretical model;[18] X_{it} is a set of city characteristics for city i in year t; ι_{ij} is the city-pair fixed effect; $\rho_{k(j)}$ is the fixed effect of city j's mayor in year t;[19] and ϵ_{ijt} is the error term. The city-pair fixed effect controls for the time invariant city-specific and the bilateral-specific unobserved characteristics.

It is worth noting 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 affects the allocation of government procurement contracts and the firms' equity investment flows between city pairs. By controlling for city-pair fixed effect, the identification of β_1 stems from the *change* of local officials, which we believe is less subject to endogeneity concerns, as any time-invariant correlation between the cities' economic conditions and the provincial leaders' appointment decisions is absorbed by the city-pair fixed effects. To further address the potential endogeneity concerns, we control for the city mayor fixed effect, which absorbs any time-invariant correlation between the mayors' personal preferences and the cities' investment decisions.

Remark 1 For our main results on procurement contracts allocations, we choose to use the *number*, instead of the *value* of procurement contracts, between city pairs. The main reason for this choice is that the value of procurement contract may be manipulated by

[17] About 95% of the promotions of city mayors in our data sample were within-province promotions.

[18] In our analysis sample, $|a_{it} - a_{jt}|$ ranges from 0 to 0.99, with a mean of 0.08 and a standard deviation of about 0.1.

[19] Note that it is a mayor fixed effect rather than a city fixed effect.

local governments. In order to combat the potential corruption in the market, the central government requires that contracts with a total value of over 2 million RMB go through public bidding procedure to select the contractor with the lowest bid, while contracts with a lower value can be signed by negotiation with a pre-designated contractor. This gives local governments a strong incentive to reduce the budget value of a contract such that they can select the preferred contractor. The problem becomes more severe in the presence of local protectionism. As such, we use the number of contracts instead of the total value of procurement contracts as the dependent variable in our baseline empirical analysis. However, in Tables A9 to A11 in the online appendix, we also report the regression results with the total value of procurement contracts as the dependent variable. Our results remain qualitatively unchanged to a large extent.

We also use the share of procurement contracts in the total number of contracts from one city to all other cities as the outcome variable. The results are robust and presented in Table A2 in the online appendix.[20]

Remark 2 Because our empirical tests are motivated by the theoretical model characterizing the equilibrium resource allocation among competing cities in the same province, this may lead to within-province correlation of the outcome variables. Thus, in all our regression analysis, the reported standard errors are estimated using cluster-bootstrap at the province-year level (Cameron, Gelbach, and Miller, 2008).

5.1.1 Allocation of Government Procurement Contract

We first 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 (7), with the log of total number of cross-city government procurement contracts (plus one due to existence of zeros) being the dependent variable. The data sample includes city pairs from the *same* province. We present the regression results separately for a different set of control variables, first controlling for city pair fixed effect only, then adding a set of covariates progressively as discussed in the text following Equation (7). The results show that the total number of cross-city government procurement contracts increases as the *difference* between the promotion probability of city mayors ascends. This suggests that local leaders support *less* firms from regions of their competitors with similar promotion probability. In column (1), we find that increasing the difference between a_i and a_j by 0.1 (which is about one standard deviation, see footnote 18) results in an increase in the total number of cross-city allocations of procurement contracts by 3.63%. In column (2), after controlling for the city mayors' promotion probability measure in the city pair separately,

[20] We thank an anonymous referee for suggesting this alternative choice of outcome variable.

increasing the strength differential $|a_i - a_j|$ by 0.1 still leads to a 3.76% increase in the cross-city allocation of procurement contracts. In column (3), we further control for the city pair's GDP and population, and all of the results remain robust in magnitude and statistical significance. These findings provide evidence that political competition distorts the allocation of government procurement contracts.

One may be concerned that the assignment of local leaders is endogenous, and those with similar abilities were assigned to cities with less economic linkages to foster competition. To address this concern, we further control for the city mayor fixed effect. In column (4), we control for the procuring city's mayor fixed effect; specifically, we assign one dummy for each city mayor in our data, regardless of the city where he served. The results remain largely unchanged. Therefore, the distortion of resource allocation is not driven by the turnovers of city mayors who may have different preferences regarding which city to interact with. This corroborates our interpretation that it is the incentive for political competition that distorts the allocation of government resources and fosters local protectionism.

Among other factors that may affect local governments' decisions in procurement allocation, we find that the sizes of both the procuring city and the supply city, measured by a city total population, are positively correlated with the total number of procurement contracts between the two cities. Economic development of the supply firm's city, measured by its GDP, does not have a statistically significant effect on the allocation of procurement contracts, while the economic development of the procuring city is positively correlated with the number of procurement contracts between the two cities.

[Table 4 about here]

Heterogeneous Analysis of Procurement Contract. We conduct several heterogeneous analysis to examine the robustness of our results. First, note that our analysis is based on the presumption that being awarded the procurement contracts are beneficial for the selected firms; one may be concerned that this may not be the case if the local government may delay, or worse renege on, the payment of the contract amount. For example, Hu, Liu, Yao, and Zong (2022) find that local government may delay the payment when facing financial pressure. In light of this, we re-examine our results for the SOEs and the POEs separately, under the premise that SOEs enjoy funding privileges in China's financial system and are less exposed to the payment risk (Hu et al., 2022). We expect our results to be unaffected for the SOEs. Specifically, for each contract-winning firm, we identify its ultimate shareholder through the circulated tracing process (also known as the depth search algorithm; see Allen, Cai, Gu, Qian, Zhao, and Zhu, 2019). The firm is identified as an SOE if a government bureau is one of the firm's ultimate owners, and a POE otherwise.

In Table 5 columns (1) and (2), we replicate the main regression based on this ownership type data. Columns (1) and (2) report the regression results for contracts won by the SOEs and by the POEs, respectively. Both regressions control for the estimated promotion probabilities of the city mayors, the city-pair and the year fixed effects, as well as the procuring cities' mayor fixed effect. The results show that the impact of political competition on the allocation of government procurement contract is robust for both the SOEs and the POEs, and is more salient for the SOEs. Column (1) shows that increasing the strength differential $|a_i - a_j|$ by 0.1 will increase the POE's inter-city procurement contract by 1.99%. In contrast, column (2) shows that the effect on SOE contract is 3.23%. These findings corroborate our narrative that the SOEs are less likely to be affected by the negative payment risks.

[Table 5 about here]

Second, we replicate the main regression for different procurement formats. Columns (3) and (4) report the regression results for contracts awarded by public auctions and by non-public formats (including negotiation, single-source procurement, and invited bidding), respectively.[21] The results show that the impact of political competition on the allocation of government procurement contract is robust for both public and nonpublic methods, and is more salient for the non-public ones. Column (3) shows that increasing the strength differential $|a_i - a_j|$ by 0.1 will increase the procurement contract sold by public auctions by 1.88%. In contrast, column (4) shows that the effect on contracts by non-public methods is 4.66%.

Third, in Table 5 columns (5) and (6), we replicate the main regression based on the content of the contract. Given that service and construction projects may be more suitable for local firms and products are more easily traded across regions, we expect the allocation of products to be more sensitive to political concerns. Column (5) shows that increasing the strength differential $|a_i - a_j|$ by 0.1 will increase the inter-city service and construction procurement contract by 2.26%, and the result is marginally significant at 10% level. In contrast, column (6) shows that the effect on product contract is 3.48% with a statistical significance level at 1%.

Efficiency of Procurement Contract Allocation. Proposition 1 predicts that, absent the local politician's promotion incentive, local government applies the same *socially efficient* threshold of firm quality to the home city and the competing city when allocating the procurement contracts. Promotion incentive distorts the efficient contract allocation and

[21] Chen (2021) documents that city officials possess considerable authority in pre-selecting the recipients of government procurement contracts even with public auction methods.

Proposition 2 predicts that, as the political tournament becomes more intense, the distortion becomes more severe and that the local government applies a higher quality threshold for firms in the competing city. This generates an additional testable hypothesis: For each pair of competing cities, the average *quality* of firms——as proxied by their performance—that acquired inter-city government procurement contract increases as the ex ante promotion probabilities of the politicians in the two cities get closer.

We employ the firm annual report data—which contains detailed information on the firms' performance—to test the above hypothesis. Specifically, we test the hypothesis using *within-province* cross-city allocation of procurement contracts at the firm level, and the basic estimation equation is:

$$Y_{fijt} = \beta_0 + \beta_1|a_{it} - a_{jt}| + \beta_2 a_{it} + \beta_3 a_{jt} + \gamma X_{ft} + \iota_{ij} + \delta_t + \rho_{k(j)} + \epsilon_{fijt}, \tag{8}$$

where Y_{fijt} is the outcome variable, measuring the quality of the winning firm in contract f between firms in city i and government departments in city j in year t. We measure firm quality with the firms' registration capital, asset, and profit. Recall that a_{it} represents the promotion propensity score predicted from the first-stage Logit regression (6) for city i's mayor in year t; X_{ft} is a set of contract characteristics for procurement contract f in year t, including contract value, contract content, and auction mode; ι_{ij} is the city-pair fixed effect; $\rho_{k(j)}$ is the fixed effect of city j's mayor in year t; and ϵ_{fijt} is the error term.

Table 6 presents the regression estimation results. The findings indicate that the average quality of firms winning inter-city government procurement contracts increases as the difference in the promotion probability of city mayors decreases, i.e. as the promotion competition becomes more intense. As previously mentioned, for contract allocation to be socially optimal, local governments should have set the same quality threshold for all firms. Nevertheless, our findings imply that local leaders who compete against those with similar promotion probabilities indeed impose a higher quality threshold on firms from rival cities in the procurement contract allocation.

[Table 6 about here]

5.1.2 Firms' Equity Investment Flow

Next, we test whether the politicians' incentives are passed on to local firms' investment decisions. Table 7 reports the results of estimating Equation (7), with the log of inter-city investment flows being the dependent variable. As with the allocation of procurement contracts, we present the regression results separately for a different set of control variables, first controlling only for the city pair fixed effect, then adding a set of covariates progressively. The results show that the volume of firms' cross-city equity investment also increases as

the *difference* between the promotion probability of city mayors becomes larger. Firms, in making their investment decisions, indeed take into account the politicians' career concerns. In column (1), we find that increasing the difference between a_i and a_j by 0.1 results in an increase in inter-city equity investment by 5.94%. In column (2), after controlling for the city mayors' promotion probability measure in the city pair separately, increasing the strength differential $|a_i - a_j|$ by 0.1 leads to a 4.27% increase in inter-city equity investment. We further control for the city pair's GDP and population in column (3) and the mayor fixed effect in column (4), and the results remain robust in magnitude and statistical significance. These findings suggest that firms internalize the local politicians' career concerns.

[Table 7 about here]

Heterogeneous Analysis of Firm Investment. As for firms' investment decisions, our theoretical model predicts that firms whose objectives are more aligned with the local government are less likely to invest in a city whose mayor is a political competitor to the mayor in their home city. As previously noted, SOEs are in general more aligned with local politicians compared with POEs. Thus, we further investigate whether the results on inter-city equity investment are driven by the SOEs or the POEs. Table 8 shows the results. Columns (1) and (2) report the regression results for inter-city investment made by the SOEs and by the POEs, respectively. Both regressions control for the estimated promotion probabilities of the city mayors, the city-pair and the year fixed effects, and the investing cities' mayor fixed effect. The results show that the impact of political competition on firm investment is mainly driven by the SOEs. Column (1) shows that increasing the strength differential $|a_i - a_j|$ by 0.1 will increase the SOE's inter-city equity investment by 16.0%. In contrast, column (2) shows that the effect on the POE investment is only 3.1%. These findings corroborate our model prediction that firms whose interests are more aligned with the local government would respond more to the politicians' incentives in their investment decisions.

[Table 8 about here]

We further divide the SOE sample into two groups: (i) central SOEs controlled by the State-Owned Assets Supervision and Administration Commission of the State Council or other ministries of the central government; and (ii) local SOEs controlled by different levels of the local governments. The independent variables in columns (3) and (4) of Table 8 are respectively the log of inter-city investment made by the central SOEs and that by the local SOEs. Columns (3) and (4) show that the investment made by the central SOEs and that by local SOEs increase by about 1.4% and 16.1% if city mayors' strength differential $|a_i - a_j|$ increases by one standard deviation. This suggests that our key result in column (1) of Table 8 is mainly driven by the local SOEs rather than the central SOEs.

5.1.3 Local Protectionism

Note that in our theoretical model with two cities, allocating less contracts to firms in a mayor's competing city is equivalent to allocating more contracts to firms in the mayor's home city. Consistent with the model, our baseline empirical specifications focus on city pairs, and in our empirical analysis we examine how a city's allocation of resources to firms in the competing cities depends on the promotion competition between the two cities' mayors. However, in reality, a city mayor competes against mayors in multiple cities in the same province in the promotion tournament; as such, a city's allocation of resources to firms in the home city may be related to political competition between the city mayor and all his potential competitors. To interpret the findings reported in Tables 4 and 7, namely the number of procurement contracts awarded, and the investment flows, to firms located in competitors' cities decrease when the promotion competition between the city's mayor and his competitors is more intense, as "*local protectionism*," we need to ensure that the firms in the home city, i.e. the home firms, are indeed receiving more procurement contracts and more investment flows. To this end we now examine the effect of political competition faced by a city's mayor on the city's allocation of resources to the *home* firms with the following estimating equation:

$$Y_{it} = \beta_0 + \beta_1 \min_{j \neq i} |a_{jt} - a_{it}| + \beta_2 a_{it} + \gamma X_{it} + \iota_i + \delta_t + \epsilon_{it}, \tag{9}$$

where Y_{it} is the total number of procurement contracts (in logs) awarded by government departments in city i to firms in city i (i.e., home firms) in year t, or the equity investment (in logs) from firms in city i in the city itself in year t;[22] X_{it} is a set of city characteristics for city i in year t; ι_i and δ_t are the city and year fixed effects and ϵ_{it} is the error term. Recall that $|a_{jt} - a_{it}|$ measures strength differential between city i's mayor and city j's, as proxied by the differences in their ex ante promotion probabilities. Therefore, $\min_{i \neq j} |a_{jt} - a_{it}|$ measures *the most fierce* political competition faced by city i's mayor within the same province.

[Table 9 about here]

Table 9 reports the estimation results for Equation (9). It shows that, after controlling for the city mayor's promotion probability measure and the city and year fixed effects, increasing the intensity of the ex ante competition between city i's mayor and his closest competitor in the same province, as proxied by the strength differential $\min_{j \neq i} |a_{jt} - a_{it}|$, by 0.1 leads to a 16% increase in the allocation of procurement contracts to the home firms, and an

[22] As a robustness test we also use the share of contracts awarded to home firms (in logs) or the share of equity investment from firms to home cities (in logs) as the dependent variables. The results are largely robust and are reported in Table A3 the online Appendix.

18% increase in the equity investment in the home city. Note that the magnitudes of the effects are larger than that of the baseline results. This is because we focus on *the most intense* political competition faced by each city mayor in their respective province in this specification while the baseline regression examines the *average effect*. The results in Table 9 thus indeed support the interpretation of our findings reported in Tables 4 and 7 as local protectionism.

5.1.4 Additional Results

Adjacent Cities. The theoretical model implies that it is the *joint* presence of regional spillover and the incentive for political competition that leads to resource allocations biased against firms in the competing cities. Put differently, the allocation of government procurement contracts and firm investment would be maximized in the absence of regional spillover between the two cities ($\tau = 0$) *or* political 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 leaders take place 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 ($\tau > 0$); moreover, city leaders in the same province compete against each other ($\delta > 0$) for promotion while those in different provinces do not ($\delta = 0$). The comparison of the two enables us to identify the role of political competition—i.e., δ.

We run the main regression based on this adjacent cities sample; the results are shown in Table 10. Columns (1)-(2) report the results with the log of total number of government procurement contracts as the dependent variable, for adjacent city pairs within the same province and those in different provinces, respectively. Both regressions control for the estimated promotion probabilities of the city mayors, the city pair and the year fixed effects, and the investing cities' mayor fixed effect. Column (1) indicates that increasing the strength differential $|a_i - a_j|$ by 0.1 will result in a statistically significant increase in the number of government procurement contracts acquired by firms in city i by 3%, a magnitude that is similar to the average effect of city pairs within the same province as reported in Table 4. In contrast, the effect is negative and statistically insignificant for city pairs that cross the province borders, as shown in column (2).[23]

[23]The economic spillover may be stronger within province than across province, as transactions in different provinces often incur higher costs than those within the same province. Comparing the coefficients may not

[Table 10 about here]

In columns (3) and (4) of Table 10, we repeat the exercise for firms' inter-city equity investment. Column (3) shows that increasing the strength differential $|a_i - a_j|$ by 0.1 results in a statistically significant increase in city j's firms' equity investment to city i by 10.6%, which is larger in magnitude than the 3.6% found in the baseline model, as reported in Table 7. In contrast, column (4) shows that the effect turns negative and statistically insignificant for city pairs that cross the province borders.

To summarize, these findings confirm the role of δ—i.e., the promotion incentive in the political competition—as a key driving force for government resource allocation. Moreover, the larger effect found in the *adjacent* within-province city pairs sample compared to the average effect found for all within-province city pairs, for investment flows at least, indicates that the parameter τ—i.e., regional spillover—also plays an important role in local governments' decision on the allocation of procurement contracts and firms' investment decisions. In summary, the presence of political competition and regional spillover jointly lead to local protectionism and distortions in resource allocation.

Falsification Test. As politicians' competition for promotion at city level is mostly within province and rarely goes beyond, one would expect that the allocation of government procurement contracts and firm investment flows would not be affected by the strength differential $|a_i - a_j|$ if the city pair i and j are in different provinces. We thus conduct a falsification test and run the regression as specified in Equations (7) using city pairs from *different* provinces. The results are presented in Table 11. Columns (1)-(3) report the results for the number (in logs) of government procurement contracts. Column (1) controls for the career incentives of the city mayors on both sides, the cities' characteristics, and the city pair fixed effect; column (2) further controls for the mayor fixed effect and the mayors' tenure fixed effect; and column (3) controls for city-by-year fixed effect. As shown in the table, the effect is much smaller in magnitude among cities in different provinces than among those in the same province and is statistically insignificant. Columns (4)-(6) repeat the exercise for inter-city firm investment flows. Again, there is no significant effect of political competition on the inter-city investment flow, reaffirming the role of politicians' promotion incentives in shaping their and firms' decisions.

[Table 11 about here]

fully reveal the sole effect of political competition. We thank an anonymous referee for raising this caveat.

5.2 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 as α increases—i.e., when politicians have stronger affinity. We first test the hypothesis using city pairs from the same province. The regression equation is

$$Y_{ijt} = \beta_0 + \beta_1 \mathbb{1}(f_i = f_j) + \beta_2 a_{it} + \beta_3 a_{jt} + \beta_3 X_{it} + \beta_4 X_{jt} + \iota_{ij} + \delta_t + \rho_{k(j)} + \epsilon_{ijt}, \qquad (10)$$

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. We define three types of political connections:

(i) $Faction = 1$ if both sides are from the CYL, the Secretary Gang, or the Party School;

(ii) $Work = 1$ if both sides have working experience in the center or in the provincial government;

(iii) $Connection = 1$ if both sides are personally connected to the governor or the provincial party secretary.

Other variables are defined as in Equation (7). The coefficient of main interest is β_1—i.e., how government procurement contract and firm investment vary when mayors from both sides have the same type of political connection.

Allocation of Government Procurement Contract. Table 12 columns (1)-(3) report the estimation results as specified in Equation (10), with the log of total number of cross-city government procurement contracts being the dependent variable. We present the regression results separately for different types of political connections, controlling for a set of covariates, the city-pair fixed effect, the year fixed effect, and the procuring cities' mayor fixed effect. The results show that the number of cross-city government procurement contracts between cities whose mayors are similar in their political connections is higher than those whose mayors have different connections. This suggests that politicians with stronger political connections are less biased against firms in competing cities.

In column (1), the number of cross-city allocation of procurement contracts increases by about 11.5% when mayors in the city pair are from the same political faction. Similarly, column (2) shows that the number of cross-city allocation of procurement contracts increases by about 1.1% when the mayors in the city pair both have central or provincial working experience, though the effect is statistically insignificant. Column (3) shows that the number of cross-city allocation of procurement contracts increases by about 11.4% when mayors in the

city pair are both personally connected with the provincial governor or secretary, suggesting that city mayors who are personally connected to provincial level leaders form an informal faction within the province and have strong ties with each other.[24]

[Table 12 about here]

Firms' Equity Investment Flow. Table 12 columns (4)-(6) report the regression results with the log of inter-city investment flows being the dependent variable. The results show a similar pattern as for government procurement contracts: firms invest more in cities whose mayors are similar in their political connections as with their mayor. This indicates that the potential quid-pro-quo relationship among politicians would be passed on to firms, which incentivizes firms to form stronger inter-city equity network. Columns (1) shows that firms invest about 8.3% more in cities whose mayors are from the same political faction as their city mayor. By columns (2), firms invest by 4.7% more in cities whose mayors have the same provincial or central working experience as their city mayors. Column (3) shows that the inter-city equity investment increases by about 16.9% when mayors in the city pair are both personally connected with the provincial governor or secretary. As with government procurement, this finding also suggests that personal connection to the provincial leaders has the largest effect in influencing firms' decisions.

5.3 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 decrease with δ—i.e., when politicians place more weight on promotion. Empirically, we measure δ with the number of years before the politicians' change of term. As a politician is closer to the change of his term, he is more concerned about promotion and less concerned about the long-run welfare of local residents.[25] The estimation equation is

$$Y_{ijt} = \beta_0 + \beta_1 BC_{it} + \beta_2 BC_{jt} + \beta_3 a_{it} + \beta_4 a_{jt} + \beta_5 X_{it} + \beta_6 X_{jt} + \iota_{ij} + \delta_t + \rho_{k(j)} + \epsilon_{ijt}, \quad (11)$$

[24] In Tables A4-A6 in the online appendix, we provide a further breakdown of the results with detailed measures of each type of political connection. Table A4 shows that being a member of the Party School, the Secretary Gang, or the CYL has similar effects in affecting the allocation of government resources and firm investment flows.. Table A5 shows that provincial working experience, instead of central working experience, is driving the result in Table 12 column (2) and (4). Table A6 shows that personal connection to the provincial party secretary and the provincial governor have similar effect in affecting the allocation of resources.

[25] One may postulate that the relationship between politicians' promotion incentive and their years of tenure is non-monotone because those who stay too long in the current position have a 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.

where BC_{it} (and BC_{jt}, respectively) is the number of years *before* the change of office for city i's (city j's, respectively) mayor in year t, measured by -5, -4, -3, -2, -1, or 0, and other variables are defined as in Equation (7). The coefficient of main interest is β_2—i.e., how equilibrium allocation of government procurement contract and firm investment vary as the procuring or investing city j's mayor is closer to the change of term.

Allocation of Government Procurement Contract. Table 13 columns (1) and (2) report the estimation results as specified in Equation (11), with the log of total number of cross-city government procurement contracts being the dependent variable. In column (1), we control for BC_i and BC_j—i.e., the number of years before the change of office for mayors in the city pair, the city pair's promotion probability (measured by a_i and a_j), and the city pair and year fixed effects. In column (2) we further control for 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 procuring city on average leads to a 4.5% decrease in the number of government procurement contracts from government in city j to firms in city i. These findings provide consistent evidence that local protectionism is stronger when politicians have more imminent career concerns.

[Table 13 about here]

Remark 3 Table A7 in the online appendix reports regression results based on an alternative specification allowing for non-monotone effect of the mayors' tenure on inter-city resource allocation. The results show that procurement contract allocation as well as firms' investment exhibit a U-shape with respect to the city mayors' tenure, with the minimum taking place around three years as the mayors resume office. This is consistent with the finding in the literature that local officials have the highest promotion probability in the third year and the likelihood drops if they are not promoted after three years (Wu, 2021).

Firms' Equity Investment Flow. Table 13 columns (3) and (4) report the regression results with the log of inter-city investment flows being the dependent variable. The results show the same pattern as those for government procurement contract: Firms exhibit home bias and invest less in other cities when their city mayors are approaching the change of term. In column (1), we control for BC_i and BC_j, the city pair's promotion probability (measured by a_i and a_j), and the city pair and year fixed effects. In column (2), we further control for 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 about a 2.8% decrease in the volume of equity investment from firms in city i to firms in city j, though the coefficient becomes statistically less significant as we add

more control variables. These findings corroborate that a firm's decision on which cities to invest in is aligned with the interest of its local government.

5.4 Competition Intensity

Thus far, we have tested the model predictions on the comparative statics regarding the first-order derivatives. In what follows, we test the prediction regarding the cross-partial derivatives. Although 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 are indeterminate, Hypothesis 4 predicts that $sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \alpha}\right) = -sign\left(\frac{\partial^2 x_i^*}{\partial \Delta_a \partial \delta}\right)$—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. We use the following two regression equations to test this prediction:

$$\begin{aligned} Y_{ijt} =& \alpha + \beta_0 |a_{it} - a_{jt}| + \beta_1 \mathbb{1}(f_i = f_j) + \beta_2 \mathbb{1}(f_i = f_j) \times |a_{it} - a_{jt}| \\ &+ \beta_3 a_{it} + \beta_4 a_{jt} + \gamma_1 X_{it} + \gamma_2 X_{jt} + \iota_{ij} + \delta_t + \rho_{k(j)} + \epsilon_{ijt}, \end{aligned} \tag{12}$$

and

$$\begin{aligned} Y_{ijt} =& \tilde{\alpha} + \tilde{\beta}_0 |a_{it} - a_{jt}| + \beta_1 BC_j + \tilde{\beta}_2 BC_j \times |a_{it} - a_{jt}| \\ &+ \tilde{\beta}_3 a_{it} + \tilde{\beta}_4 a_{jt} + \tilde{\gamma}_1 X_{it} + \tilde{\gamma}_2 X_{jt} + \tilde{\iota}_{ij} + \tilde{\delta}_t + \tilde{\rho}_{k(j)} + \tilde{\epsilon}_{ijt}, \end{aligned} \tag{13}$$

where all variables are as previously defined. The coefficients of interest are β_2 and $\tilde{\beta}_2$—i.e., how competition intensity varies as city j's mayor is closer to the change of term or when city mayors on both sides possess the same political connection. Our model predicts that β_2 and $\tilde{\beta}_2$ have different signs.

Remark 4 It is noteworthy that Hypothesis 4 is not a natural extension of Hypotheses 2 and 3. To the extent that a reader may be concerned that our theoretical model is guided by our empirical results, evidence supporting Hypothesis 4 can serve as an external validation of our model as this prediction is purely model-based without obvious priors.

Allocation of Government Procurement Contract. Table 14 reports the effect of the interaction terms on the allocation of government procurement contracts. Columns (1)-(3) report the estimation results as specified in Equations (12), and column (4) reports the estimation result as specified in Equations (13), with the log of total number of cross-city government procurement contracts being the dependent variable. In all regressions, we control for the competition measure, the city mayors' promotion probability, cities' characteristics,

and the city pair fixed effect. Columns (1)-(3) show that the coefficients of the interactions of political connection and the competition measure are *positive* and mostly statistically significant. Column (1) 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 total number of government procurement contracts acquired by firms in city j from city i's government by 3.5%. The competition measure has a *larger* effect on procurement contract allocation 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 total number of government procurement contracts acquired by firms in city j from city i's government by 7.0% ($= 3.5\% + 3.5\%$). Columns (2) and (3) show a similar pattern for the other two political connection measures: Having common working experience and having common connections to the provincial government *increase* the effect of a one standard deviation change in political competition on procurement contract allocation by 1.4 percentage points and 1.7 percentage points, respectively. This is consistent with our previous finding that personal connections with provincial leaders have the largest effect in shaping local officials' behavior.

Notably, column (4) shows that the coefficient of the interactions of career concern measure BC_j and the competition measure is *negative* and statistically significant, suggesting that the effect of political competition on procurement contract allocation is *smaller* when one is approaching the change of the term. Specifically, 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 total value of government procurement contracts acquired by firms in city j from city i's government by 3.2%. One additional year before the change of office increases the effect of political competition on procurement contract allocation by 1.7%. Thus, for the procuring city, when the mayor is one year before the change of office, increasing the difference between a_i and a_j by 0.1 will result in an increase in the total value of government procurement contracts acquired by firms in city j from city i's government by 4.9% ($= 3.2\% + 1.7\%$).

A comparison between columns (1)-(3) and column (4) collaborates our model prediction that the effect of political competition on resource allocation should be affected by tenure and political connections in the opposite directions.

[Table 14 about here]

Firms' Equity Investment Flow. Table 14 columns (5)-(8) report the regression results with the log of inter-city investment flows being the dependent variable. Columns (5)-(7) report the estimation results as specified in Equations (12), and column (8) reports the estimation results as specified in Equations (13). Column (5) 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 j to firms in city i by 4.1%. The competition measure has a *larger* effect on firm investment 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 volume of equity investment from firms in city j to firms in city i by 10.3% ($= 4.1\% + 6.2\%$). Columns (2) and (3) show a similar pattern for the other two political connection measures: Having common working experience and having common connections to the provincial government *increase* the effect of a one standard deviation change in political competition on firm investment by 6.5 percentage points and 10.2 percentage points, respectively.

Column (8) shows that the coefficient of the interactions of career concern measure BC_j and the competition measure is again *negative* and statistically significant. 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 volume of equity investment from firms in city i to firms in city j by 3.7%. One additional year before the change of office increases the effect of political competition on investment by 1.9 percentage points. Thus, for the investing firms' city, when the mayor is one year before the change of 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 j to firms in city i by 5.6% ($= 3.7\% + 1.9\%$). Similar to the allocation of procurement contracts, the effect of political competition on firm investment is *smaller* when one approaches the change of the term.

6 Concluding Remarks

Tournament-style political competition is often considered a foundation for the institution of Regionally Decentralized Authoritarianism (RDA) underlying the Chinese economic success in the last thirty years. In this paper, we examine its potential downside in driving local protectionism that can distort inter-city resource allocations.

We develop a theoretical model in which local politicians compete against 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 our 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 fewer government procurement contracts to firms in the competing city. Importantly, we find that firms, especially local SOEs, who internalize more of the local politicians' political concerns, tend to invest less in the competing cities. 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 resource allocation, but the distortion is more severe as the city mayors approach the change of office and thus have more imminent career concerns.

Our results suggest that political tournament may generate efficiency loss and highlight the local protectionism as the downside of the tournament-style political competition under an autocratic regime. In particular, we find that the average quality of the winning firms from the competing city increases as the city mayors engage in more intense political competition. A comprehensive analysis that quantifies the welfare and efficiency loss due to political competition requires a structural model and is definitely worthwhile, and we leave this for future research.

To the best of our knowledge, this paper provides the first systematic empirical evidence and theoretical foundation for local protectionism in China, and 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 helps explain 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 can also help explain the *cross*-province protectionism.

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Table 1: Summary Statistics for Prefectural Mayors

Variable	Obs	Mean	Std. Dev.	Min	Max
Panel A: City-Year Level Observation					
Promotion	5,652	0.202	0.401	0	1
Age	5,641	50.634	3.866	37	61
Tenure	5,660	2.583	1.559	1	12
Panel B: Individual Level Observation					
Gender (1=Male, 0=Female)	1,690	0.94	0.24	0	1
Education					
College	1,682	0.04	0.21	0	1
Bachelor	1,682	0.17	0.38	0	1
Master	1,682	0.58	0.49	0	1
Doctor	1,682	0.21	0.40	0	1
Political Ties					
Chinese Youth League	1,690	0.20	0.40	0	1
Party School	1,690	0.22	0.41	0	1
Secretary Gang	1,690	0.17	0.37	0	1
Central work experience	1,690	0.05	0.23	0	1
Provincial work experience	1,690	0.48	0.50	0	1
Connection to governor	1,695	0.13	0.34	0	1
Connection to secretary	1,695	0.11	0.31	0	1

Note: This table presents the descriptive statistics of the city mayors' characteristics. The unit of observation for Panel A is city-year, and the unit of observation for Panel B is mayor. The sample covers the period between 2003 and 2019.

Table 2: Descriptive Statistics for Cities

	Obs	Mean	Std. Dev.	Min	Max
Panel A: City level observation					
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	33,586	59.77	286.06	0	8,401
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	1,194,626	38.863	6579.998	0	5,001,633
Number of procurement contracts	451,978	1.45	163.30	0	2,864

Note: This table presents the descriptive statistics of the city-level and city-pair level variables used in this study. Panel A corresponds to the city-year level variables, and Panel B and Panel C correspond to the city-pair-year level variables for city pairs within the same province and from different provinces separately. The sample covers the period between 2003 and 2019.

Table 3: Estimating Mayors' Ex Ante Promotion Probability

	2003-2012	2013-2019
Age	1.112***	1.365**
	(0.357)	(0.585)
Age^2	-0.0111***	-0.0121**
	(0.00359)	(0.00571)
Male	0.203	-0.00841
	(0.274)	(0.380)
Bachelor	0.845**	0.523
	(0.342)	(1.316)
Ph.D.	1.126***	0.469
	(0.341)	(1.293)
Tenure	1.357***	0.824***
	(0.134)	(0.182)
$Tenure^2$	-0.0830***	-0.0228
	(0.0183)	(0.0286)
Party School	0.148	0.598***
	(0.166)	(0.214)
Secretary Gang	0.374*	0.0154
	(0.205)	(0.255)
Central experience	0.956***	0.271
	(0.341)	(0.335)
Provincial experience	0.166	-0.281
	(0.146)	(0.195)
Chinese Youth League	0.321*	-0.540**
	(0.168)	(0.232)
Governor connection	0.147	0.408
	(0.211)	(0.311)
Secretary connection	-0.371	-0.339
	(0.299)	(0.343)
GDP per capita	0.0134	0.0624
	(0.0395)	(0.0577)
GDP growth ranking	0.0444***	0.0659***
	(0.0159)	(0.0211)
City FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,886	1,800

Note: This table reports the results of estimating Equation (6) for the sample of city mayors, separately for the time period 2003-2012 and 2013-2019. Standard errors are clustered at city level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 4: Political Competition and Allocation of Procurement Contract

	(1)	(2)	(3)	(4)
$\lvert a_i - a_j \rvert$	0.363***	0.376***	0.382***	0.386***
	(0.0979)	(0.117)	(0.117)	(0.0791)
a_i		-0.0470	-0.0409	0.0739
		(0.0885)	(0.0893)	(0.161)
a_j		0.0237	0.0281	0.0483
		(0.0947)	(0.0953)	(0.0839)
$\log(\text{Population}_i)$			0.00663	0.0481
			(0.182)	(0.210)
$\log(\text{Population}_j)$			0.172	0.170
			(0.147)	(0.185)
$\log(\text{GDP}_i)$			-0.0254	-0.237
			(0.166)	(0.217)
$\log(\text{GDP}_j)$			-0.256	-0.00398
			(0.170)	(0.121)
Constant	1.158***	1.158***	2.131	1.635
	(0.119)	(0.118)	(1.698)	(1.800)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	No	No	Yes
Observations	27,502	27,502	27,502	27,228
R-squared	0.883	0.883	0.884	0.909

Note: This table reports the results of estimating Equation (7) with log(Number of procurement contracts + 1) being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 5: Political Competition and Allocation of Procurement Contract–Heterogeneity

	By Ownership		By Procurement Method		By Object Type	
	POE	SOE	Public	Non-public	S&C	Product
$\lvert a_i - a_j \rvert$	0.199**	0.323***	0.188**	0.466***	0.226*	0.348***
	(0.0768)	(0.0640)	(0.0751)	(0.0696)	(0.115)	(0.0800)
a_i	-0.00902	0.134	0.148	-0.0384	-0.0710	0.0798
	(0.149)	(0.131)	(0.157)	(0.139)	(0.143)	(0.166)
a_j	-0.00211	0.0656	0.127*	-0.0480	0.00408	0.0488
	(0.0730)	(0.0730)	(0.0735)	(0.0741)	(0.0955)	(0.0774)
$\log(\text{Population}_i)$	-0.0877	-0.0954	0.0976	-0.248	-0.0358	0.0281
	(0.172)	(0.242)	(0.165)	(0.254)	(0.181)	(0.217)
$\log(\text{Population}_j)$	0.361**	0.242	0.181	0.385	0.330*	0.205
	(0.173)	(0.218)	(0.145)	(0.233)	(0.189)	(0.179)
$\log(\text{GDP}_i)$	-0.213	-0.233	-0.208	-0.291	-0.126	-0.188
	(0.172)	(0.185)	(0.168)	(0.211)	(0.173)	(0.238)
$\log(\text{GDP}_j)$	0.0586	0.0949	0.0240	0.158	-0.00342	0.0215
	(0.103)	(0.108)	(0.107)	(0.109)	(0.111)	(0.109)
Constant	0.264	0.994	0.564	1.042	-0.109	0.825
	(1.510)	(1.326)	(1.439)	(1.824)	(1.427)	(1.985)
City pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,228	27,228	27,228	27,228	27,228	27,228
R-squared	0.894	0.865	0.900	0.887	0.829	0.901

Note: This table reports the results of estimating Equation (7) with log(Number of procurement contracts+1) being the dependent variable. The data sample includes city pairs from the same province. Columns (1) and (2) report the regression results for contract allocation by winning firms' ownership type, columns (3) and (4) report the regression results for contract allocation by procurement method, and columns (5) and (6) report the regression results for contract allocation by object type. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 6: Allocation of Procurement Contract and Efficiency

	log(Reg. Capital) (1)	log(Asset) (2)	log(Profit) (3)
$\|a_i - a_j\|$	-0.0347**	-0.0343	-0.0381**
	(0.0164)	(0.0232)	(0.0174)
a_i	-0.00241	0.0529***	0.0325
	(0.0131)	(0.0186)	(0.0212)
a_j	0.0378***	0.0389**	-0.0291
	(0.0132)	(0.0187)	(0.0213)
log(Contract value)	0.0412***	0.0483***	0.0386***
	(0.000262)	(0.000371)	(0.000421)
Constant	6.628***	6.876***	3.275***
	(0.00364)	(0.00516)	(0.00587)
Contract characteristics	Yes	Yes	Yes
City pair FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	2,587,490	2,586,439	2,091,382
R-squared	0.122	0.078	0.097

Note: This table reports the results of estimating Equation (7) with measures of firm performance being the dependent variable. The data sample includes all firms that have acquired procurement contracts from other cities' governments in the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 7: Political Competition and Firm Investment

	(1)	(2)	(3)	(4)
$\lvert a_i - a_j \rvert$	0.594***	0.427*	0.387*	0.485**
	(0.184)	(0.225)	(0.220)	(0.200)
a_i		0.231	0.196	0.0316
		(0.220)	(0.216)	(0.290)
a_j		0.0795	0.0378	-0.114
		(0.180)	(0.176)	(0.169)
$\log(\text{Population}_i)$			-0.0398	0.190
			(0.173)	(0.270)
$\log(\text{Population}_j)$			-0.219	-0.251
			(0.176)	(0.226)
$\log(\text{GDP}_i)$			0.890***	0.904**
			(0.235)	(0.357)
$\log(\text{GDP}_j)$			0.716***	0.0455
			(0.251)	(0.164)
Constant	3.928***	3.924***	-3.546	-0.989
	(0.158)	(0.158)	(2.939)	(2.600)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	No	No	Yes
Observations	62,875	62,875	62,875	62,274
R-squared	0.670	0.670	0.672	0.706

Note: This table reports the results of estimating Equation (7) with log(Volume of investment + 1) being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 8: Political Competition and Firm Investment–Heterogeneity

	All SOE	All POE	Central SOE	Local SOE
	(1)	(2)	(3)	(4)
$\|a_i - a_j\|$	1.598***	0.306*	0.136	1.611***
	(0.218)	(0.178)	(0.147)	(0.216)
a_i	0.300	-0.108	-0.0234	0.295
	(0.295)	(0.266)	(0.189)	(0.292)
a_j	0.120	-0.0845	0.134	0.107
	(0.186)	(0.151)	(0.163)	(0.184)
$\log(\text{Population}_i)$	0.403	0.192	0.0690	0.394
	(0.267)	(0.266)	(0.0789)	(0.262)
$\log(\text{Population}_j)$	-0.231	-0.212	0.0979	-0.227
	(0.242)	(0.197)	(0.126)	(0.238)
$\log(\text{GDP}_i)$	0.690*	0.732**	-0.149	0.704*
	(0.385)	(0.334)	(0.166)	(0.382)
$\log(\text{GDP}_j)$	0.0409	-0.0414	0.299*	0.0284
	(0.187)	(0.145)	(0.168)	(0.185)
Constant	-2.562	-0.156	-1.360	-2.567
	(2.798)	(2.471)	(1.245)	(2.777)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes
Observations	59,092	62,212	65,679	59,056
R-squared	0.673	0.708	0.417	0.674

Note: This table reports the results of estimating Equation (7) with log(Volume of investment + 1) being the dependent variable. The data sample includes city pairs from the same province. Column (1) reports the regression results for investment made by SOEs, column (2) reports the regression results for investment made by POEs, and columns (3) and (4) report the regression results for investment made by central SOEs and local SOEs respectively. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 9: Local Protectionism: Political Competition and Allocation of Resources to Home Firms

	Procurement		Investment	
	(1)	(2)	(3)	(4)
$\min_{j \neq i} \lvert a_{jt} - a_{it} \rvert$	-1.603**	-1.553**	-1.836***	-1.810***
	(0.685)	(0.686)	(0.583)	(0.579)
a_i	0.651**	0.656**	0.712***	0.668***
	(0.266)	(0.268)	(0.238)	(0.236)
log(Population$_i$)		-0.416*		0.0574
		(0.223)		(0.218)
log(GDP$_i$)		-0.592**		1.282***
		(0.298)		(0.283)
Constant	5.108***	11.79***	13.33***	4.271**
	(0.0595)	(2.014)	(0.0390)	(2.158)
City FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2,060	2,060	4,338	4,338
R-squared	0.875	0.875	0.680	0.685

Note: This table reports the results of estimating Equation 9 with the number of contracts awarded to home firms (in logs) or the volume of equity investment from firms to home cities (in logs) being the dependent variable. The data sample includes all cities, and the level of observation is city-year. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 10: Political Competition and Resource Allocation–Adjacent Cities

	Procurement		Investment	
	Same Province	Different Province	Same Province	Different Province
	(1)	(2)	(3)	(4)
$\lvert a_i - a_j \rvert$	0.296*	-0.244	1.063***	-0.136
	(0.168)	(0.326)	(0.359)	(0.857)
a_i	0.195	-0.191	-0.0536	-1.527
	(0.276)	(0.290)	(0.395)	(0.938)
a_j	-0.131	0.423	-0.392	0.621
	(0.169)	(0.428)	(0.332)	(0.924)
$\log(\text{Population}_i)$	1.058	2.113	-0.148	-0.621
	(0.884)	(1.856)	(0.221)	(0.712)
$\log(\text{Population}_j)$	0.137	2.802	-0.137	-0.349
	(0.203)	(1.592)	(0.127)	(0.581)
$\log(\text{GDP}_i)$	0.0960	0.128	0.339	-0.437
	(0.0881)	(0.190)	(0.282)	(0.599)
$\log(\text{GDP}_j)$	0.0843	-0.138	-0.205	-0.347
	(0.0614)	(0.110)	(0.130)	(0.467)
Constant	-0.782***	-28.97	-1.588***	16.00
	(0.150)	(18.94)	(0.441)	(10.64)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes
Observations	5,686	2,396	15,032	6,336
R-squared	0.499	0.779	0.317	0.626

Note: This table reports the results of estimating Equation (7). The data sample includes adjacent city pairs. Columns (1) and (2) report the regression results with log(Number of procurement contracts + 1) being the dependent variable, and columns (3) and (4) report the regression results with log(Volume of investment + 1) being the dependent variable. Columns (1) and (3) report the regression results for adjacent city pairs from the same province, and columns (2) and (4) report the regression results for adjacent city pairs from different provinces. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 11: Falsification Test: Political Competition and Inter-province Allocation

	Procurement			Investment		
	(1)	(2)	(3)	(4)	(5)	(6)
$\|a_i - a_j\|$	0.0502	0.0471	0.0197	0.183	0.162	-0.0292
	(0.0290)	(0.0259)	(0.0164)	(0.111)	(0.107)	(0.0582)
a_i	-0.0299	-0.0281	-0.0462	-0.392***	-0.396***	-0.288***
	(0.0312)	(0.0263)	(0.0356)	(0.129)	(0.121)	(0.0640)
a_j	0.00520	0.00850	0.0108	-0.451***	-0.452***	-0.326***
	(0.0182)	(0.0147)	(0.0407)	(0.124)	(0.119)	(0.0850)
log(Population$_i$)		0.639	0.239		0.680***	0.186***
		(0.367)	(0.199)		(0.223)	(0.0512)
log(Population$_j$)		0.190	0.0952		0.618**	0.133*
		(0.124)	(0.109)		(0.258)	(0.0683)
log(GDP$_i$)		0.115**	0.0505*		0.460***	0.134***
		(0.0370)	(0.0212)		(0.0837)	(0.0440)
log(GDP$_j$)		0.0218	0.0202		0.391***	0.0998
		(0.0125)	(0.0120)		(0.113)	(0.0682)
Constant	0.219***	-6.093*	-2.481	0.828***	-15.33***	-3.400*
	(0.000666)	(2.495)	(1.383)	(0.00705)	(3.728)	(1.683)
City pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	No	No	Yes	No	No	Yes
Observations	451,978	451,978	451,978	1,194,626	1,194,626	1,194,626
R-squared	0.686	0.689	0.724	0.494	0.496	0.543

Note: This table reports the results of estimating Equation (7). The data sample includes city pairs from *different* provinces. Columns (1) to (3) report the regression results with log(Number of procurement contracts + 1) being the dependent variable, and columns (4) to (6) report the regression results with log(Volume of investment + 1) being the dependent variable. Standard errors are clustered at city level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 12: Political Connection and Resource Allocation

	Procurement			Investment		
	(1)	(2)	(3)	(4)	(5)	(6)
Faction	0.115***			0.0828*		
	(0.0203)			(0.0467)		
Work		0.0105			0.0473	
		(0.0191)			(0.0422)	
Connection			0.114**			0.169*
			(0.0503)			(0.0946)
a_i	0.360**	0.355**	0.355**	0.364	0.363	0.363
	(0.165)	(0.165)	(0.165)	(0.250)	(0.250)	(0.250)
a_j	0.260***	0.264***	0.265***	0.139	0.146	0.146
	(0.0701)	(0.0703)	(0.0704)	(0.139)	(0.140)	(0.140)
log(Population$_i$)	0.0622	0.0551	0.0543	0.189	0.193	0.191
	(0.207)	(0.209)	(0.209)	(0.270)	(0.269)	(0.270)
log(Population$_j$)	0.151	0.163	0.163	-0.252	-0.254	-0.252
	(0.182)	(0.185)	(0.185)	(0.228)	(0.226)	(0.226)
log(GDP$_i$)	-0.236	-0.234	-0.236	0.911**	0.912**	0.912**
	(0.218)	(0.217)	(0.217)	(0.357)	(0.357)	(0.357)
log(GDP$_j$)	-0.00162	-0.000527	0.00152	0.0495	0.0482	0.0495
	(0.122)	(0.121)	(0.121)	(0.164)	(0.164)	(0.164)
Constant	2.260	2.228	2.226	-0.708	-0.720	-0.716
	(1.867)	(1.863)	(1.863)	(3.068)	(3.072)	(3.074)
City pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,228	27,228	27,228	62,274	62,274	62,274
R-squared	0.909	0.909	0.909	0.706	0.706	0.706

Note: This table reports the results of estimating Equation (10) with log(Number of procurement contracts + 1) being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 13: Career Incentive and Resource Allocation

	Procurement		Investment	
	(1)	(2)	(3)	(4)
BC_i	0.0211	0.0202	0.0154	0.0142
	(0.0204)	(0.0204)	(0.0156)	(0.0156)
BC_j	-0.0450***	-0.0459***	-0.0286**	-0.0286**
	(0.0146)	(0.0145)	(0.0115)	(0.0116)
a_i	0.367	0.388	0.207	0.250
	(0.246)	(0.246)	(0.245)	(0.246)
a_j	0.305***	0.305***	0.136	0.132
	(0.0706)	(0.0688)	(0.125)	(0.126)
$\log(\text{Population}_i)$		0.251		0.113
		(0.220)		(0.187)
$\log(\text{Population}_j)$		-0.0912		0.0194
		(0.203)		(0.0994)
$\log(\text{GDP}_i)$		0.205		0.579**
		(0.246)		(0.268)
$\log(\text{GDP}_j)$		0.284*		0.00788
		(0.164)		(0.138)
Constant	1.136***	-3.284*	3.985***	-0.0629
	(0.0973)	(1.835)	(0.141)	(1.838)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	18,248	18,248	52,317	52,317
R-squared	0.910	0.910	0.707	0.707

Note: This table reports the results of estimating Equation (11) with $\log(\text{Number of procurement contracts} + 1)$ being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table 14: Competition Intensity and Resource Allocation

	Procurement				Investment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\lvert a_i - a_j \rvert$	0.352***	0.360***	0.383***	0.317***	0.409**	0.356*	0.470**	0.373*
	(0.0836)	(0.0839)	(0.0793)	(0.110)	(0.204)	(0.208)	(0.198)	(0.224)
$\lvert a_i - a_j \rvert \times$Faction	0.348**				0.620**			
	(0.142)				(0.289)			
$\lvert a_i - a_j \rvert \times$Work		0.144				0.653**		
		(0.110)				(0.287)		
$\lvert a_i - a_j \rvert \times$Connection			0.171				1.023	
			(0.306)				(0.911)	
$\lvert a_i - a_j \rvert \times BC_j$				-0.175**				-0.187*
				(0.0748)				(0.109)
Faction	0.0806***				0.0308			
	(0.0266)				(0.0546)			
Work		-0.000157				-0.00206		
		(0.0236)				(0.0487)		
Connection			0.0585				0.106	
			(0.0490)				(0.105)	
BC_i				0.0204				0.0114
				(0.0204)				(0.0156)
BC_j				-0.0374**				-0.0205
				(0.0169)				(0.0142)
a_i	0.0672	0.0759	0.0738	0.0283	0.0175	0.0271	0.0302	-0.130
	(0.161)	(0.161)	(0.161)	(0.244)	(0.289)	(0.290)	(0.290)	(0.267)
a_j	0.0347	0.0484	0.0488	0.0289	-0.128	-0.114	-0.115	-0.178
	(0.0828)	(0.0837)	(0.0839)	(0.0822)	(0.168)	(0.169)	(0.169)	(0.159)
log(Population$_i$)	0.0539	0.0500	0.0501	0.232	0.188	0.194	0.191	0.113
	(0.207)	(0.209)	(0.209)	(0.218)	(0.269)	(0.269)	(0.270)	(0.187)
log(Population$_j$)	0.157	0.168	0.168	-0.0679	-0.249	-0.252	-0.251	0.0232
	(0.182)	(0.184)	(0.185)	(0.202)	(0.227)	(0.225)	(0.226)	(0.0986)
log(GDP$_i$)	-0.238	-0.238	-0.238	0.202	0.907**	0.905**	0.906**	0.567**
	(0.217)	(0.217)	(0.217)	(0.248)	(0.356)	(0.357)	(0.356)	(0.267)
log(GDP$_j$)	-0.00748	-0.00417	-0.00146	0.274*	0.0461	0.0436	0.0460	0.00293
	(0.123)	(0.121)	(0.122)	(0.165)	(0.164)	(0.164)	(0.164)	(0.139)
Constant	1.693	1.644	1.623	-3.228*	-1.012	-0.998	-1.008	-0.0225
	(1.800)	(1.797)	(1.799)	(1.831)	(2.596)	(2.603)	(2.601)	(1.836)
City pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,228	27,228	27,228	18,248	62,274	62,274	62,274	52,317
R-squared	0.909	0.909	0.909	0.910	0.706	0.706	0.706	0.708

Note: This table reports the results of estimating Equations (12) and (13) with log(Number of procurement contracts+ 1) being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Appendix A: Proofs

Proof of Proposition 1

Proof. Politician i's expected payoff (3) 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 Equation (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. Further, it can be verified that $u_i(x_i, x_j)$ is strictly concave in x_i under Assumption 1.

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

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

and

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

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

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

The term $Q'^{-1}\left((1-\alpha)V\tau\frac{\delta}{1-\delta}g(a_1 - a_2)\right)$ is well defined if $(1-\alpha)V\tau\frac{\delta}{1-\delta}g(a_1 - a_2) < Q'(0) = \overline{q} - \underline{q}$, 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: Model Extensions

In this appendix, we present two extensions to the baseline model and demonstrate that our main predictions remain largely intact. First, we extend the model to allow the distribution of product quality in two cities to be different. Second, we generalize the model to incorporate a noncompeting city and allow local leaders to select projects from cities beyond their immediate competitors.

Heterogeneous Project Quality Distributions Denote the distribution of product quality in city $i \in \{1, 2\}$ by $H_i(\cdot)$, with $H_1(\cdot) \neq H_2(\cdot)$. The long-run economic performance of politician i's selected projects amounts to

$$Q_i(x_i) := \underbrace{\int_{H_j^{-1}(1-x_i)}^{\overline{q}} q dH_j(q)}_{\text{projects selected from competing city } j} + \underbrace{\int_{H_i^{-1}(x_i)}^{\overline{q}} q dH_i(q).}_{\text{projects selected from home city } i} \tag{14}$$

Define $\psi(s) := s - (1-\alpha)V\tau\frac{\delta}{1-\delta}g\left(\tau\left(Q_1'^{-1}(s) - Q_2'^{-1}(s)\right) - (a_1 - a_2)\right)$. The following assumption analogous to Assumption 1 is imposed to ensure equilibrium uniqueness.

Assumption 2 $\psi(s)$ strictly increases with s and there exists a unique solution to $\psi(s) = 0$. Further, $(1-\alpha)\,V\tau^2 \times \frac{\delta}{1-\delta}\max_{t\in\mathbb{R}}|g'(t)| \leq \min_{x\in[0,1]}|Q_i''(x)|$.

Denote the unique solution to $\psi(s) = 0$ by s^*. With slight abuse of notation, denote the equilibrium strategy profile of the two politicians by (x_1^*, x_2^*). The following result ensues.

Proposition 3 *Consider two competing politicians with ex ante strength pair (a_1, a_2) and suppose that Assumption 2 holds. Then there exists a unique pure-strategy equilibrium in the political tournament, in which*

$$x_i^* = Q_i'^{-1}(s^*),\ i \in \{1, 2\}.$$

Moreover, the following statements hold in the unique pure-strategy equilibrium:

(i) The equilibrium measure of projects that politician i selects from the competing city, x_i^*, is U-shaped in his opponent's ex ante strength a_j.

(ii) The equilibrium measure of projects that politician i selects from the competing city, x_i^*, increases in α—i.e., when politicians have stronger affinity.

(iii) The equilibrium measure of projects that politician i selects from the competing city, x_i^*, decreases with δ—i.e., when the politician is closer to change of his term.

Proof. Similar to the proof of Proposition 1, we can derive the first-order condition of politician i's expected payoff with respect to x_i, with $i \in \{1, 2\}$, which yields the following:

$$(1-\alpha)\, V\tau\delta g\left(\tau(x_1^* - x_2^*) - (a_1 - a_2)\right) = (1-\delta)Q_1'(x_1^*) = (1-\delta)Q_2'(x_2^*).$$

Solving the above system of equations yields that

$$x_1^* = Q_1'^{-1}(s^*), \text{ and } x_2 = Q_2'^{-1}(s^*),$$

where s^* is the unique solution to $\psi(s) = 0$.

Next, we prove the comparative statics results. It can be verified that $Q_i(x_i)$ defined in Equation (14) is strictly concave in x_i. Therefore, $x_i^* = Q_i'^{-1}(s^*)$ is strictly decreasing in s^* and it suffices to consider $\partial s^*/\partial a_j$, $\partial s^*/\partial\alpha$, and $\partial s^*/\partial\delta$.

For part (i) of the proposition, it suffices to show that s^* is inverted U-shaped in a_j. From the fact that $g(\cdot)$ is unimodal and symmetric around zero and $\psi(\cdot) = 0$ is a strictly increasing function by Assumption 2, we can conclude that fixing s^* and a_i, there exist at most two a_j such that $\psi(s^*) = 0$. Further, simple algebra would verify that

$$\lim_{a_j \to +\infty} s^* = \lim_{a_j \to +\infty} \tau \frac{\delta}{1-\delta}(1-\alpha)Vg\left(\tau\left(Q_1'^{-1}(s^*) - Q_2'^{-1}(s^*)\right) - (a_1 - a_2)\right) = 0,$$

where the second equality follows from the fact that both $Q_1'^{-1}(\cdot)$ and $Q_2'^{-1}(\cdot)$ are bounded and $g(t)$ approaches (or is equal to) zero as t approaches infinity. Similarly, we have that $\lim_{a_j \to -\infty} s^* = 0$. Last, note that $s^* = (1-\alpha)V\tau\frac{\delta}{1-\delta}g\left(\tau\left(Q_1'^{-1}(s^*) - Q_2'^{-1}(s^*)\right) - (a_1 - a_2)\right) > 0$. These facts altogether imply that s^* is inverted U-shaped in a_j.

Next, we prove parts (ii) and (iii) of the proposition. It is straightforward to verify that $\partial\psi/\partial\alpha > 0$; together with the postulated $\psi'(s) > 0$ from Assumption 2, we can conclude $\partial s^*/\partial\alpha < 0$ by the implicit function theorem. Similarly, we can show $\partial s^*/\partial\delta > 0$. This concludes the proof. □

Noncompeting City and Multidimensional Project Selection Decision Suppose that politicians can also select projects from a noncompeting city. The quality of available projects for politician $i \in \{1, 2\}$ is drawn from a distribution with CDF $\widetilde{H}(\cdot)$, with support $[\underline{q}, \overline{q}]$. Let x_i and $\widetilde{x}_i$ denote the measure of projects that politician i selects from the competing city and the noncompeting city, respectively. It follows immediately that $1 - x_i - \widetilde{x}_i$ is the measure of projects selected from the politician's home city. The long-run economic

performance of politician i's selected projects can then be expressed as

$$\widetilde{Q}(x_i;\widetilde{x}_i) := \underbrace{\int_{H^{-1}(x_i+\widetilde{x}_i)}^{\overline{q}} qdH(q)}_{\text{projects selected from home city } i} + \underbrace{\int_{H^{-1}(1-x_i)}^{\overline{q}} qdH(q)}_{\text{projects selected from competing city } j} + \underbrace{\int_{\widetilde{H}^{-1}(1-\widetilde{x}_i)}^{\overline{q}} qd\widetilde{H}(q).}_{\text{projects selected from noncompeting city}}$$

With slight abuse of notation, let

$$Q(x_i) := \max_{\widetilde{x}_i\in[0,1-x_i]} \widetilde{Q}(x_i;\widetilde{x}_i).$$

The following lemma ensues.

Lemma 1 *$Q(x_i)$ is strictly concave in x_i. Moreover, we have that*

$$Q'(0) = \bar{q} - H^{-1}(\widetilde{x}_i^*), \tag{15}$$

where $\widetilde{x}_i^*$ is the unique solution to $H^{-1}(\widetilde{x}_i) = \widetilde{H}^{-1}(1-\widetilde{x}_i)$.

Proof. The first-order condition of $\widetilde{Q}(x_i;\widetilde{x}_i)$ with respect to $\widetilde{x}_i$ gives

$$H^{-1}(x_i+\widetilde{x}_i) = \widetilde{H}^{-1}(1-\widetilde{x}_i),$$

which implies that $x_i+\widetilde{x}_i$ is strictly increasing in x_i. By the envelope theorem, we have that

$$Q'(x_i) = H^{-1}(1-x_i) - H^{-1}(x_i+\widetilde{x}_i),$$

which strictly decreases with x_i. This concludes the proof. □

The following assumption analogous to Assumption 1 is imposed to ensure equilibrium uniqueness.

Assumption 3 $g(\Delta_a) < \frac{Q'(0)}{(1-\alpha)V\tau} \times \frac{1-\delta}{\delta}$, where $Q'(0)$ is provided in (15). Further, $(1-\alpha)\,V\tau^2 \times \frac{\delta}{1-\delta}\max_{t\in\mathbb{R}}|g'(t)| \leq \min_{x\in[0,1]}|Q''(x)|$.

Again, with slight abuse of notation, denote the equilibrium measure of projects that politician i selects from the competing city by x_i^*, with $i\in\{1,2\}$. The following result can be obtained.

Proposition 4 *Consider two competing politicians with ex ante strength pair (a_1,a_2) and suppose that Assumption 3 holds. Then there exists a unique pure-strategy equilibrium in*

which

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

Moreover, the following statements hold in the unique symmetric pure-strategy equilibrium:

(i) The equilibrium measure of projects that politician i selects from the competing city, x_i^*, is U-shaped in his opponent's ex ante strength a_j and reaches its minimum at $a_j = a_i$.

(ii) The equilibrium measure of projects that politician i selects from the competing city, x_i^*, increases in α—i.e., when politicians have stronger affinity.

(iii) The equilibrium measure of projects that politician i selects from the competing city, x_i^*, decreases with δ—i.e., when the politician is closer to change of his 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 distributions of the noise term, g, and the project quality H, and are indeterminate. However, the two partials must be of opposite signs—i.e., $sign\left(\frac{\partial^2 x_i^*}{\partial\Delta_a\partial\alpha}\right) = -sign\left(\frac{\partial^2 x_i^*}{\partial\Delta_a\partial\delta}\right)$.

Proof. The proof is analogous to those of Propositions 1 and 2, and is omitted for brevity. □