Moving "umbrella": Identify Political Connections through Bureaucratic Transfers in China

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Abstract

Collusion between businessmen and officials relies upon strong trust. In China, bureaucratic rotations and promotions across jurisdictions are a common practice. When officials are transferred to new places, it is hard for them to immediately establish trust with local businesses. Consequently, they tend to bring their trusted businessmen along with them. This paper studies this phenomenon using two unique administrative datasets, firm registry and bureaucratic promotion databases. We find an immediate spike in investment flow, particularly in real estate and construction industries, accompanying transferred officials. We show that the jump in investment flow is mainly driven by collusion rather than by better information. Firms investing in the new places following the transferred officials enjoy greater profitability when their "umbrella" (connected official) is in office, but are more likely to shut down after the "umbrella" leaves office. The collusion crowds out new business and dampens innovations of existing firms.

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1 Introduction

It is well documented in the literature that political connections have significant impacts on the operation, performance, and value of firms (Fisman, 2001; Faccio, 2006). The consequences in social welfare, however, are ambiguous and lacking in empirical research. The net effect depends on whether they help the firms to overcome distortions that restrict welfare-improving activities, or they simply facilitate corruption and create larger distortions. In this paper, we examine the nexus between political connections, corruption, and the interregional allocation of firm investment in China. We ask how interjurisdictional transfers of government officials are associated with investment flows, with particular focus on the role of corruption and on the impacts on allocative efficiency. Our answer to this question hence sheds light on the social costs of political connections.

In China, political connections are pervasive and play an important role in resource allocation. Officials in the local government are delegated autonomous power over local affairs, and hence have discretion to allocate resources such as land, production licenses, and pollution permits. This gives rise to crony capitalism in China. Firms and businessmen have strong incentives to establish connections with the officials in power, usually through bribery, to get preferential treatment. Even the officials are transferred to other jurisdictions, connected businessmen and firms are willing to follow them so as to further derive benefits from the connections.

There are many well-publicized accounts that Chinese officials are followed by firms and businessmen from place to place throughout their political careers. As a motivating example, Wang Min, the former Party Standing Committee Member in Jiangsu Province during 2002-2005, was assigned as the Party Secretary in Liaoning province in 2009. After this assignment, many businessmen in Jiangsu followed him and invested in Liaoning. They offered him bribery in exchange for winning the bids for several public projects. In 2016, Wang and his connected businessmen were prosecuted and penalized for graft, which concluded their political and business careers[1]. This example is further echoed by the accumulating cases of the downfall of many officials during the current anti-corruption crackdown.

We investigate the allocative and welfare effects of political connections by empirically examining the link between interjurisdictional official transfers and investment flows. The setting of China has great relevance for two reasons. First, Chinese local officials are frequently transferred across jurisdictions. This unique institutional arrangement enables us to identify the effects of political connections on resource allocation, by testing the association between the movements of officials and businessmen. Second, the misallocation of capital across space is a crucial component of economic inefficiency in China, which account for nearly half of the TPF loss (Brandt et al., 2013). Thus, the impacts of official transfers on interregional investment flows may have substantial economic significance, thereby informing us about the social costs of political connections in Chinese economy.

Our empirical analysis, which is the focus of our paper, begins by establishing a robust positive correlation between interjurisdictional official transfers and investment flows. Official

[1] Xinhua News. `http://news.xinhuanet.com/legal/2016-08/10/c_1119370548.htm`

transfers are coded using a hand collected data set on the political career of Chinese officials. Investment flows, on the other hand, are calculated using a unique database containing the business registry information for approximately 20 million firms. The investment flow from city A to city B is measured by the aggregate registry capital of firms newly established in B whose legal representative is from A. In our baseline specification, we find that if an official presiding city B was previously transferred from A, the investment flow from B to A increases by approximately 3%. This pattern holds in different regression specifications, and for different measures of investment flows.

We proceed to exploring the heterogeneity for such pattern. First, we examine the heterogeneity by industry and ownership using the investment flows within a specific type of industry or ownership as the dependent variable. We find that the effects of official transfers only exist in rent-seeking industries and private sectors. This implies that rent-seeking by private firms, whose property right are relatively insecure and hence need more support from the government, should be responsible for our main results. Then we test whether the effects of transfers vary with the characteristics of the transferred officials. We show that the effects of the transfers are significantly stronger for officials who had a long tenure in their previous job before transferred, and for those whose age exceeds the mandatory retirement limit and hence do not have any incentive for promotion. Since these officials have smaller (opportunity) costs of corruption, our results further suggesting that corruption may be the main driver of the effects of the transfers.

We next examine the private benefits, both to officials and to firms, of the political connections. We first test whether the connected firms contribute to the officials' monetary gains and their political careers. We find that officials attracting more investment flows are more likely to end up being investigated or prosecuted for corruption, but less likely to be promoted. This implies that officials utilize the connected firms mainly for pecuniary benefits yet not for political gains. We then examine how political connections affect firm survival, using a firm-level data set containing more than 2 million observations. Exploiting the Cox hazards model, we find that firms have highest survival rates when they are associated with transferred officials and when the officials hold office. Nevertheless, the survival rates drop significantly, even lower than those of the unconnected firms, when the official leaves office. These results indicate that firms are willing to follow official transfers because they can enjoy protection from the connected officials. Thus, the political connections can be seen as a way of reciprocal exchange which induces rent-seeking and bribery.

Overall, we argue that official transfers have strong effects on interregional investment flows, and that rent-seeking and corruption can serve as the best explanation for such effects. In the final step of our empirical analysis, we explore the implications for economic welfare and allocative efficiency. First, we examine the entry deterrence effects of the politically connected firms. Using a city-industry panel data set, we find that cities with a greater share of the connected firms have a smaller entry rate for the unconnected firms and the local firms, and yet a larger entry rate for the connected firms. Such effects are even amplified in non-competitive industries. We then estimate a growth equation using a city level panel

data set, and we find that connected firms have much less contribution to economic growth compared to unconnected firms that have comparable total scale. Such findings point to the social costs of political connections, in that the connected firms block the entry of more dynamic and productive firms that have no connections[2]. This is also consistent with the previous literature on the negative impact of corruption on growth, since these politically connected firms mainly arise from rent-seeking and corruption.

Our paper is most directly related to the literature on politically connected firms. Most empirical works in this field focus on the micro-level impacts of political connections(Fisman, 2001; Khwaja and Mian, 2005; Faccio, 2006; Ferguson and Voth, 2008; Li et al., 2008; Cingano and Pinotti, 2013; Fisman and Wang, 2015), while our paper stands on a macro level and emphasize the effects on economic welfare and efficiency. Further, most of the papers measure political connections by a dummy indicating whether the firm has any member in the managerial board who used to serve in the government, whereas our paper identify political connections using the co-movements of officials and firm investment. The existent literature has reached a consensus that political connections contribute to firms' value and performance, since they help firms obtain preferential treatment from the government. Our paper also documents that politically connected firms enjoy higher survival rates; yet we make a step forward by showing that the connected firms deter the entry of unconnected firms, which make much more contributions to economic growth than the connected ones. Hence we contribute to the small but growing literature studying the social costs of political connections (Cingano and Pinotti, 2013; Fisman and Wang, 2015).

Considered more broadly, our paper also contributes to our understanding on rent-seeking and corruption, and particularly their welfare impacts. Krueger (1974), Murphy et al. (1993), and Shleifer and Vishny (1993) provide a theoretical analysis on why corruption and rent-seeking are costly to the society. Mauro (1995) presents the first cross-country evidence indicating of the negative correlation between the degree of corruption and economic growth. Further, Fisman and Svensson (2007) use a firm level panel data set and show that corruption has greater damage to growth than taxation. Our paper provides new evidence that rent-seeking and corruption are facilitated by political connections, and thus account for the co-movements of officials and investment flows. Besides, we show that corruption induces social costs by causing spacial misallocation of firm investment.

Finally, our paper relates to the literature on misallocation in China. Young (2000) argues that, the dual-price system in the China's incremental market reform gave rise to numerous rent-seeking opportunities and result in large resource misallocation. Hsieh and Klenow (2009) focus on misallocation at firm level, and document a large dispersion of the marginal product of capital across firms. They find that a reallocation across firms to eliminate this dispersion may increase the total factor of production (TFP) by 30-50%. Brandt et al. (2013) decompose the misallocation in China into sector, time, and space. They find that between-

[2]The source of allocative inefficiency is the crony capitalism facilitated by political connections between businessmen and corrupt government officials, not the transfer of the officials. In fact, interjurisdictional transfers of the officials raise the cost of corruption (Yao and Zhang, 2015) and hence reduce the efficiency loss.

province misallocation, which is the focus of our paper, reduced the manufacturing TFP by approximately 10%. Our work provides an explanation on the political and institutional cause of one aspect of the misallocation. We emphasizes the impacts of a special institutional arrangement, official transfers, on the (mis)allocation of firm investment across space.

The remainder of this paper is organized as follows. Section 2 discusses the institutional background. Section 3 describes the data. Section 4 and 5 discuss the empirical strategy and report the empirical results. Section 6 concludes this paper.

2 Background

As in Xu (2011), China's political institution can be characterized as a regionally decentralized authoritarian regime, which is a combination of economic decentralization and political centralization. On the one hand, the local governments are delegated autonomous power from the central government to take charge of local affairs ranging from boosting economic growth to keeping social stability. On the other, the selection and appointment of government officials are in the control of the central government. Such institutional setting is crucial to understanding the impacts of official transfers on the spatial allocation of investment flows, which is the theme of our paper.

2.1 Political Connections in China

The economic decentralization provides the local government officials with substantial power that plays a crucial role in allocating economic resources. The power is intended to allow for discretion to promote economic development, but in many cases it is abused. For instance, officials can affect the allocation of land and the authorization of construction projects, for their personal interest. It is reported that between November 2009 and August 2010, more than 1500 officials were prosecuted for abusing power over public projects and land bidding[3].

In the absence of legal supervision and enforcement, firms and businessmen are strongly incentivized to establish connections, usually through bribery, with the officials in power. Cai et al. (2011) document that a large proportion in Chinese firms' wage bills go to the expenditure item "Entertainment and Travel Costs", which is primarily used for building relations with government officials. In return, these firms enjoy preferential treatment and protection.

It is well-established in the literature that political connections have significant effects on Chinese firms' operation and performance. Li et al. (2008) find that Chinese private firms with political connections have better performance. These firms can obtain loans from banks or other state institutions with lower costs, and they are more confident when facing lawsuits. Fisman and Wang (2015) document that political connections help firms avoid safety regulations that constrain their profitability, yet at the cost of greater workplace

[3]News excerpt from *China Daily*: `https://www.chinadaily.com.cn/china/2010-10/28/content\_11467586.htm`

fatalities.

The political connections based on reciprocity between firms and officials operate on the fringe of law, but they serve as substitutes for the formal institutional arrangements (Xin and Pearce, 1996). They are particularly important for private firms whose property rights are relatively insecure, and in regions where the legal framework is underdeveloped (Li et al., 2008; Chen et al., 2011). With political connections (the so called "red hats"), private firms are less prone to the predation and expropriation from the state.

Political connections can facilitate corruption, which has always been rampant in China. In 2011, the concluding year of our sample, China ranked 75th out of 183 countries in the Corruption Perceptions Index reported by Transparency International. Such high level of corruption raised deep concern among Chinese national leaders. General Party Secretary Xi Jinping told the Politburo in November 2012 that "If corruption becomes increasingly serious, it will inevitably lead to the downfall of the Party and the state.[4]" Following his words (and the ending of the 18th National Congress of the Communist Party in 2012) began the massive anti-corruption campaign, and it yielded enormous impacts on Chinese political environment. Till 2016, China had punished more than one million officials for graft[5].

2.2 Transfers of Government Officials in China

The local officials' career turnovers within the political system are in the control of the central government, but in practice they are mainly decided by the Organizational Department in the upper level of the political hierarchy. When making appointments, the Organizational Department often transfers the officials, basically at the city and provincial level, toward different localities: in general, provincial officials are moved across provinces, and city officials are moved to another city within the same province.

The interjurisdictional transfers occur in a high frequency and on a massive scale. Before the National Party Congress held in every five years, there is a nationwide reshuffling of all levels of local governments; at other times there are also minor personnel adjustments. In the reshuffling process, a large proportion of officials are moved to other jurisdictions. Hence, one official may serve in different localities in his political career, yet each of his term is relatively short. The average term length for provincial and city officials is about three years, even shorter than that stipulated by the institution.

Given such institutional setting, the transfers of the local officials can be seen as external shocks for local firms and businessmen. In our empirical analysis, we examine how firms and businessmen respond to such shocks. We focus on answering whether they follow the transferred officials to the new jurisdiction hence to maintain the political connections.

[4]Bloomberg News. https://www.bloomberg.com/news/articles/2013-12-30/china-s-xi-amassing-most-power-since-deng-raises-risk-for-reform

[5]BBC News. http://www.bbc.com/news/world-asia-china-37748241

3 Data

We use six data sets in our empirical analysis. To analyze the relationship between the transfers of officials and investment flows, we collect a panel data set of city dyads. We next relate the career outcomes of the transferred officials to the investment flows following their transfers. We examine whether officials bringing more investment are more likely to end up being investigated or prosecuted for corruption, using an official level data set. Then, to answer whether the investment flows following an transferred official within his term lead to greater probability of promotion, we utilize an official-term level data set, in which an official can have more than one observation (for having multiple terms). We further turn to investigate whether firms connected to transferred officials have greater survival probabilities in the market, and for this purpose we use a firm-level data set containing over 2 million firms. We then use a city-industry level panel data set to test whether the connected firms lower the entry rates of local firms or unconnected nonlocal firms, especially in non-competitive industries. Finally, we evaluate the contributions of connected, unconnected, and local firms to cities' economic growth. All the six data sets cover the period of 2000 - 2011.

3.1 City-dyad Data Set

Our main empirical analysis are based upon a city-dyad data set, which contains variables on intercity investment flows and the transfers of officials. Each observation in the data set is a *directed* city dyad in the sense that dyad ij and ji are different. The data set does not include any city dyad made up of two identical cities, such as ii, since the investment flow for such dyad is not well-defined. The entire sample consists of 296 cities, 87320 city dyads, and more than one million observations in total.

3.1.1 Investment Flows

Our main interest of analysis is the intercity investment flows, which are calculated using the Chinese firm registry database. This database provides registry information of all firms in China (about 20 million firms), including the location, the year of being established, the year of exit (if any), the value of registry capital[6], and the origin of the firm's legal representatives [7]. We construct two variables to measure the investment flows. First, we calculate the log aggregate registry capital of all firms established in city j and year t that has at least one legal representative from city i. We denote this variable as $\log(1+flow_{ijt})$, and use it as our main dependent variable. Second, we generate a dummy, $1(flow_{ijt} > 0)$, indicating whether the investment flow is strictly positive. We use this variable as an alternative dependent variable to confirm the robustness of our results. The descriptive statistics for the investment flows are shown in Panel A of Table 1. The mean of $\log(1 + flow_{ijt})$ is 1.646 (the mean intercity

[6]The registry capital is not the firm's fixed assets. But according to Chinese Business Law, the registry capital should be proportional to the scale (and the assets) of the firm.

[7]The database displays the first six digits of legal representatives' ID number, from which we can deduce the origin of the legal representatives.

investment flows, with no log, is 21.4 million RMB). Besides, 10.1% observations in the sample have strictly positive investment flows.

To explore the heterogeneity by industry and ownership, we further calculate the investment flows for different industries and ownership types. First, we calculate the investment flows for rent-seeking industries and competitive industries separately. Rent-seeking industries include energy, construction, transportation, real estate, and health industries, and competitive industries include agriculture, manufacture, catering, IT, and sci-tech industries. The average investment flows in rent-seeking industries are larger than those in competitive industries. Then, we calculate investment flows of three types of ownership, which are state-owned, collectively-owned, and private, respectively. The investment flows for private firms are largest among the three types.

3.1.2 Official Transfers

Our main independent variable is a dummy for official transfer, denoted as $Transfer_{ijt}$, indicating whether there is at least one official presiding city j in year t whose previous job location is city i. To construct this variable, we collect data on career histories of city mayors, city Party Secretaries, and provincial Party Committee Members ("Shengwei Changwei") for all cities and provinces from 2000 to 2011. For example, Sun Ruibin served as the mayor of Cangzhou City during 2005-2006, and as the Party Secretary of Handan City during 2007-2008; for this case $Transfer_{ijt}$ for "Cangzhou-Handan" dyad during 2007-2008 equals 1. If the official has a gap between two jobs of the three positions (city mayors, city Party Secretaries, and provincial Party Committee Members), then we also count it as a transfer from the former to the latter jurisdiction. For instance, Hu Ercha served as the mayor of Chifeng City during 2002-2003, then not served in the three positions during 2003-2005, but later assigned as the Party Secretary of Baotou City during 2006-2011; for this case, $Transfer_{ijt}$ for "Chifeng-Baotou" dyad during 2006-2011 equals 1. Moreover, if a provincial Party Committee Member in province A was assigned as a provincial Party Committee Member in province B, then we specify that there is a transfer from all cities in province A to all cities in province B, since a provincial official takes charge of all cities within the province[8]. Finally, if an official takes multiple jobs at the same time, then we consider the job with the highest ranking.

Table 1 shows that there are 5.9% dyads in the sample having at least one official transfer. Thus there might be concern that the proportion of this treatment is too small to have enough statistical power for identification. In robustness checks we replicate our analysis using the sample only including city dyads with at least one transfer from 2000 to 2011, and in this sample the fraction of zero values is reduced to 15.2%, which is an acceptable level.

In China, the National Congress of the Communist Party is held cyclically in every five years. Before each Congress, there will be a nationwide reshuffling of government officials.

[8]With the same principle, if a mayor or a Party secretary in city A was assigned as a Party Committee Member in province B, then there is a transfer from city A to all cities in province B; if a Party Committee Member in province A was assigned as a mayor or a Party secretary in province B, then there is a transfer from all cities in province A to city B.

Therefore, the pattern of official transfers may coincide with this political cycle. Figure 2 displays this pattern. Thus, in our regression specifications it is necessary to control for the political cycle, since it might be correlated with both the official transfers and the investment flows.

3.1.3 Officials' Characteristics

In our empirical analysis, we test whether officials having certain characteristics attract more investment flows. We are especially interested in officials' incentives for corruption and promotion, and we use age, hometown, and previous job histories as the proxies. We generate a dummy, $Native_{ijt}$, indicating whether there is at least one official presiding city j who was previously transferred from city i and whose hometown is city i. Native officials might build stronger networks with local businessmen and hence bring more investment.

We then generate a dummy variable, $LongTenure_{ijt}$, indicating whether there is at least one official presiding city j who was previously transferred from city i and whose tenure in city i is no less than 5 years. Such officials may have established stronger connections with businessmen in the previous job position, city i. The proportion of officials having a long tenure is 28.8%.

We construct two dummy variables, $ExceedRL_{ijt}$ and $LastTermBeforeRL_{ijt}$, to capture officials' promotion incentives. In China, there is an age limit for mandatory retirement for Chinese local officials, beyond which the officials must leave office or at least go to unimportant job positions. For provincial officials the retirement limit is 63, and for city officials it is 58[9]. As an official ages beyond the retirement limit, the probability for him to get promoted becomes zero. We generate the variable $ExceedRL_{ijt}$ to code whether there is at least one official presiding city j who was previously transferred from city i and whose age exceeds the retirement limit. Similarly, $LastTermBeforeRL_{ijt}$ denotes whether the official is in the final term before the retirement limit, i.e., whether the official's age is larger than retirement limit minus 5 and smaller than the limit. These officials have the last chance for promotion, and hence their promotion incentives are strongest. In our sample, 5% are aged beyond the retirement limit, and 30% are in the final term before the limit.

3.1.4 Regional Characteristics

We use cities' (log) per capita real GDP and (log) population as control variables. These data are obtained from the Chinese City Statistics Year Books from 2000 to 2011. The summary statistics of these variables are presented in Table 1.

3.2 Official Data Set

In the empirical analysis we examine whether the investment flows are associated with the officials' probability of engaging in corruption. We construct a data set in which each

[9]In China, provincial officials are mandated to retire at the age of 65, but in practice many of them have to step down or go to unimportant positions two years before retirement. We thus set 63 as the de facto retirement limit. For city officials, the retirement limit is one term (five years) earlier, and hence is 58.

observation is an official, and there are 506 observations in total. The dependent variable is an indicator, $corrupt_i$, denoting whether official i has been investigated, prosecuted, or penalized for corruption up till the time this paper was written. We construct this variable using data from the official web site of Commission for Discipline Inspection of the Central Committee of the CPC[10]. There are 52 out of 506 officials with $corrupt_i$=1. The independent variable, $\log(flow\_career_i)$, is the log interregional investment flows associated with the official i's all interjurisdictional transfers throughout his career. If the official experienced multiple transfers in our sample coverage, then we add all investment flows following all transfers together.

3.3 Official-term Data Set

We also test how investment flows affect the probability of officials' career turnover. Here we construct a official-term data, where each observation is a term of an official. An official can appear more than once in this data set, since in his career he can have many terms in difference places and different positions. The dependent variable, the career turnover of each official i after his tenure j ends, is a discrete variable denoted by $turnover_{ij}$. It is equal to 0 if the official's political career is terminated[11], equal to 1 if the official remains at the same level, and equal to 2 is the official is promoted. This variable is generated using information from the curriculum vitae of the officials. In our sample, 23.5% of the officials' terms end up with termination, 67.4% remaining at the same ranking, and 9.1% getting promoted. The independent variable here, $\log(flow\_term_{ij})$, is the (log) interjurisdictional investment flows associated with the official i during his term j.

3.4 Firm Survival Data Set

We test whether firms associated with official transfers enjoy higher survival rates, using a firm-level data containing approximately 2 million firms. The data set includes the year of establishment and the year of exit (if applicable) for each firm. We also code when the firm's connected official holds (and leaves) office. We generate a dummy variable, $ConnectHold_i$, indicating whether firm i follows from a transferred official and the official still holds office. Then, we construct an indicator $ConnectLeave_i$ denoting whether firm i follows from a transferred official but the official has left office. We construct these two variables to investigate whether a connected firm has different survival rates if the connected officials hold office. Then, we generate a dummy variable $local_i$ which equals 1 for firms that are established by people within the province. Hence the remaining base group is firms that are established by people outside the province but do not follow from any official transfer. Panel D of Table 1 shows that the proportion of these different types of firms in the sample.

[10] All the data of the corruption cases used in our empirical analysis can be retrieved at `http://www.ccdi.gov.cn`

[11] There are many reasons for being terminated: retirement, being suspended for violating the law, health issues, and so on.

3.5 City and City-industry Data Set

We examine the entry deterrence effects of political connections using a city-industry panel data set. We first categorize firms into three types: (1) local firms: those whose legal representatives are local people; (2) unconnected non-local firms: those whose legal representatives are nonlocal people, and did not follow from any incumbent officials; (3) connected (non-local) firms: those whose legal representatives are nonlocal people, and followed from at least one incumbent officials. Here the notion of political connections only apply to nonlocal firms since they are defined according to the co-movement of transferred officials and the firms' legal representatives.

The outcome variable of interest is the log registry capital of new entry firms in city i, industry j, and year t, which is denoted by $\log K_{entry,ijt}$. We calculate this variables for all the three types of firms respectively, so that we can allow for heterogeneity in the deterrence effects. The independent variable, $ConnectShare_{it}$, is the share of the aggregate registry capital of connected firms out of all three types of firms in city i and year t. This variable measures the pervasiveness of the political connections. The summary statistics for these variables are shown in Panel E of Table 1.

In the last set of our analysis, we evaluate the contribution to economic growth by the three types of firms. We calculate the aggregate stock of registry capital of each type, and relate it to cities' economic growth rates. The summary statistics are reported in Panel F of Table 1. On average, the aggregate scale of the connected firms is similar to that of the unconnected firms, but much smaller than the local firms.

4 Baseline Results

4.1 Official Transfers and Investment Flows

We begin with Figure 1, a graphical description of the pattern of the intercity investment flows around the transfer of government officials. There is a rise in the investment flows at event time $t = 0$, when the new officials arrive. Then we estimate the effect of interregional official transfers on investment flows. Our baseline specification is as follows:

$$\log(flow_{ijt}) = \alpha\ Transfer_{ijt} + X_{ijt}\beta + \lambda_{ij} + \gamma_t + \delta_t \times \eta_{ij} + u_{ijt} \tag{1}$$

X_{ijt} is a vector of control variables including log real per capita GDP and log population in both origin city i and destination city j in year t. γ_t denotes year fixed effects, λ_{ij} denotes city-dyad fixed effects, and $\delta_t \times \eta_{ij}$ region-specific cyclic year trends. Region-specific political cycles is the interactions between dummies for political cycles and dummies for origin city and destination city's regions respectively[12]. We include fixed effects for year and city dyads in all specifications. Since the transfers of government officials follow the national political cycle (as in Figure 1) we also include region-specific political cycles in the specification. For

[12]There are six region dummies: Huabei, Dongbei, Dongnan, Huanan, Xinan, Xibei.

most of our analysis, we use $\log(flow_{ijt})$ as the dependent variable, while for robustness checks we also use $1(flow_{ijt} > 0)$.

Table 2 presents the results for this baseline specification. In all specifications we cluster the standard errors at the city-dyad level. We start with a specification using $\log(flow_{ijt})$ as the dependent variable and with no controls. The coefficient on $Transfer_{ijt}$ is 0.029 and significant at 5 percent level. After adding controls in column 2 and including region-specific political cycles in column 3, the coefficient on $Transfer_{ijt}$ is reduced to 0.028 and 0.027 respectively, but they are still significant at 5 percent level. Then in column 4 through 6 we use $1(flow_{ijt} > 0)$ as the dependent variable. The coefficients on $Transfer_{ijt}$ are in the range of 0.003. They are significant at 1 percent in columns 4 and 5, and significant at 5 percent level in column 6. Given that the mean of $1(flow_{ijt} > 0)$ is 0.101, this implies that an official transfer from one city to another increases the probability of having investment flows by 3% (0.003/0.101). Given this estimate, a provincial official transferred from Shanxi Province to Shandong Province will increase the investment flows by 120 million RMB in total[13].

4.2 Robustness Checks

We next conduct different robustness checks to strengthen our main results. There is a concern for identification that the correlation between official transfers and investment flows might be driven by the unobserved differences between city dyads with and without transfers. What is even worse is that city dyads without any transfer throughout the sample period constitute a major proportion of our sample. We thus re-estimate the baseline specification only using the sample with nonzero variation on $Transfer_{ijt}$, and we denote this sample as "nonzero sample". In this case the effect of $Transfer_{ijt}$ is identified through the shifts of the official transfers within each city dyad. We report the estimation result in column 1 of Table 3. Reassuringly, the coefficient on $Transfer_{ijt}$ is 0.027, similar to those obtained in the baseline regressions, and significant at 5 percent level.

Further, we run several falsification tests for robustness. First, we repeat the baseline estimation after moving the official transfers back and forward two years. Then, we randomly reassign the destinations of all official transfers (keeping the date of the transfers unchanged) and rerun the baseline regression. Finally, we use the inverse of the investment flows (flows from city j to i, $\log(flow_{jit})$ as the independent variable. We expect none of these regressions produce similar results as the baseline. Columns 2 through 5 of Table 3 show that it is indeed this case.

Finally, there might be concerns that pre-existing unobserved trends might be responsible for our baseline results. In light of this, we use a more flexible specification to allow the effects of the transfers vary with time. Consider the following specification:

[13]Shanxi has 11 cities and Shandong has 17 cities. Given that the mean of intercity investment flows is 21 million RMB, the increase in intercity investment flows in total is $21 \times 0.03 \times 11 \times 17 = 120$.

$$\log(flow_{ijt}) = \sum_{-11\leq\tau\leq11,\tau\neq-1} \alpha_\tau \, Transfer_{ij,t+\tau} \times \rho_{ij,t+\tau} + X_{ijt}\beta + \lambda_{ij} + \gamma_t + u_{ijt} \qquad (2)$$

Equation (2) is similar to the baseline specification, with the only exception that the dummy for the transfers, $Transfer_{ijt}$, is replaced by the interaction terms $Transfer_{ij,t+\tau} \times \rho_{ij,t+\tau}$. $\rho_{ij,t+\tau}$ is the dummy indicating whether city dyad ij at year t has a new transferred official τ years earlier (if $\tau \leq 0$), or will experience a transfer after τ years (if $\tau < 0$). We set $-11 \leq \tau \leq 11, \tau \neq -1$ since the span of our sample is 12 years, and we take the year just prior to the transfer as the base group. α_τ capture the dynamic effects of the transfers.

If the correlation between the incidence of the transfers and investment flows is not caused by pre-existing trends, then we should expect that α_τ is not positive and statistically significant when $\tau < 0$. We run the above specification, and plot the coefficients for $-3 \leq \tau \leq 2$ in Figure 3. The coefficients between three years to one year prior to the transfer is very close to zero, and statistically insignificant. On the contrary, the coefficients for the first two years after the transfer are positive and significant. Thus we rule out the possibility that unobserved pretrends are the main driver of our baseline results.

5 Further Results

There are two possible explanations for the positive association of official transfers and investment flows. First, firms and businessmen may follow the transferred officials to their new jurisdictions for rent-seeking. If this is the case, then corruption can be detected, and the firms established in the new jurisdictions may in return enjoy favored treatment by the connected officials. The second explanation is that transferred officials may reduce information asymmetry, so as to attract firms that can boost economic growth in the new jurisdiction. In this scenario firms' entry barriers are reduced and hence are better off. Plus, these firms' contribution to growth can lead to better outcomes for the officials' political career, since in China growth is one of the most essential factor in evaluating local officials' performance (Li and Zhou, 2005; Yao and Zhang, 2015). In this section we examine these two hypotheses.

5.1 Heterogeneity by Industry and Ownership

In the baseline results, we presented the average effect of official transfers on all kinds of investment. It is natural to ask whether our findings exhibit any heterogeneity. In Table 4 we allow the impacts of $Transfer_{ijt}$ vary in different industries and ownership types, using the log investment flows in two industries (rent-seeking and competitive industries) and four ownership types (state-owned, collectively-owned, foreign, private) as the dependent variable.

Panel A of Table 4 indicates that the effects of official transfers mainly exist in rent-seeking industries. In column 1 the coefficient on $Transfer_{ijt}$ is 0.0197 and significant at 5 percent level, and it is 12% larger than that in the baseline result. Adding controls in

the specification produces similar result, although the magnitude and significance of the coefficient are slightly reduced. When using investment flows in competitive industries as the dependent variable, however, the result is completely different. In columns 3 and 4, the coefficients on $Transfer_{ijt}$ are much smaller and are statistically insignificant. These results imply that corruption and rent-seeking is the main story responsible for the effects of official transfers.

We present the heterogeneity by ownership in Panel B of Table 4. In columns 1 through 3 the dependent variables are log aggregate investment flows for state-owned, collective, and private firms, respectively. The coefficients on $Transfer_{ijt}$ are very small in magnitude and are not statistically significant. When using $\log(flow_{ijt})$ for private firms as the dependent variable, however, the coefficient on $Transfer_{ijt}$ is much larger (even twice as that in the baseline result), and significant at 1 percent level. Thus the effects of official transfers mainly exist for private firms. Such results further prove the story of corruption, because (1) The business activities of private firms can be more hidden, and hence the cost to detect bribery of private firms are larger relative to the other types of firms. (2) The property rights of private firms are relatively insecure, thus providing these firms strong incentives to seek protection from the government officials.

5.2 Interacting with Officials' Characteristics

We then proceed to examining how the characteristics of the transferred officials affect the impacts of the transfers. In Table 5 we allow the effects of $Transfer_{ijt}$ to vary with the officials' characteristics by separately interacting $Transfer_{ijt}$ with (1) a dummy indicating whether the official is native for the origin city, (2) a dummy for whether the official has a tenure longer than 5 years before transferred, and (3) dummies for whether the official's age exceeds the retirement limit and whether the official is in the last term (i.e., within a 5-year time window) before the retirement limit.

These dummies serve as good proxies for officials' corruption incentives. Officials who are native and who hold a long tenure can establish strong connections with local businessmen and hence engage in corruption with lower costs. Officials aged beyond the retirement limit have zero promotion probability, and hence do not have to sacrifice their monetary gain from bribery for the economic growth in their jurisdiction (which is closely related to their potential of promotion). Thus, such officials have the strongest incentives to engage in corruption. Officials in the last term before the retirement limit, however, are much less incentivized for corruption, since their promotion incentives are most salient.

Table 5 presents the results. In column 1, the coefficient on the interaction term between $Transfer_{ijt}$ and $1(Native_{ijt})$ is 0.0101, which is positive and has moderate magnitude (though it is not statistically significant). One possible explanation is that the proportion of native officials is too small to have sufficient statistical power. In column 2, the coefficient on the interaction between $Transfer_{ijt}$ and $1(LongTenure_{ijt})$ is 0.0399, significant at 5 percent level. Column 3 shows that officials aged beyond the retirement limit attract much more investment flows than those aged prior to the last term before the limit. All these findings

confirm our explanation that corruption is the main channel to account for the effects of official transfers.

5.3 Impacts on Officials' Career Outcomes

The preceding sections document a robust association between official transfers and investment flows, and provide preliminary evidence that the major mechanism for this association is corruption. In this section, we further strengthen this argument by explaining why officials are willing to bring investment from their previous jurisdiction.

We first investigate how the investment flows attracted by the transferred official affect his probability of being investigated, prosecuted, or penalized for corruption ex post. We collapse the data into the official level, and we use a logistic specification as follows:

$$Prob(corrupt_i = 1) = \Lambda[\beta \log(flow\_career_i) + \delta_i + \eta_i + \mu_i + \eta_i \times \mu_i], \tag{3}$$

$Prob(corrupt_i = 1)$ is the probability that official i has been found to engage in corruption. $\Lambda(\cdot)$ is the cumulative probability function of logistic distribution. $\log(flow\_career_i)$ denotes the aggregate investment flows attracted by official i in all his transfers. Recall that if official i has experienced more than one transfer in his career, then we add all investment flows associated with these transfers together. δ_i represents the dummies for birth years, η_i denotes the dummies for transfer patterns (whether the official has M within-province transfers and N cross-province transfers), and μ_i is the dummies for the official's highest job ranking during 2000 - 2011. Conditional on these dummies, which may affect the corruption behavior, we test the correlation between investment flows and the probability of corruption, which is captured by β.

We present the results in Panel A of Table 6. In columns 1 through 3 we add control variables progressively, and the coefficients on $\log(flow\_career_i)$ are in the range of 0.05, and significant at 10 percent level. The marginal effects on the sample average are around 0.22. Given that the sample average of $Prob(corrupt_i = 1)$ is 11%, raising the investment flows by one standard deviation increase $Prob(corrupt_i = 1)$ by 17%. These results imply that an important reason why officials are willing to bring the connected firms with their transfers is that they can enjoy monetary reward (in the form of bribery) from these firms.

A natural next step is to ask whether the connected firms benefit the officials in other respects, especially the officials' promotion. It is possible that despite corruption, the connected firms can better implement the officials' policy goals (due to lower information asymmetry and smaller supervision cost), and hence officials can use these firms to achieve better performance. Thus, officials with more connected firms might enjoy higher probability of promotion due to their superior performance. To test this story, we use the following ordered logistic specification (similar to that in Li and Zhou (2005)) correlating investment flows with officials' turnover.

$$Prob(turnover_{ij} = 0) = \Lambda\{\alpha_1 - [\beta \log(flow\_term_{ij}) + \gamma age_{ij} + \delta_{ij} + \mu_{ij} + \eta_{ij} + \eta_{ij} \times age_{ij}]\}$$
$$\equiv \Lambda(\alpha_1 - X\beta), \quad (4)$$
$$Prob(turnover_i = 1) = \Lambda(\alpha_2 - X\beta) - \Lambda(\alpha_1 - X\beta), \quad (5)$$
$$Prob(turnover_i = 2) = 1 - \Lambda(\alpha_2 - X\beta) \quad (6)$$

$turnover_{ij}$ is a discrete variable for official i's turnover outcome after term j. Recall that it equals to 0 for termination, equal to 1 for remaining at the same rank, equal to 2 for promotion. $\log(flow\_term_{ij})$ is the log investment flows attracted by official i in his term j. age_{ij} is the official i's age at the beginning of term j. δ_{ij} denotes dummies for the province of the job, η_{ij} denotes dummies for the starting year of the term, and μ_{ij} denotes dummies for the official's job ranking of the term. We also interact μ_{ij} with age_{ij} to further capture the heterogenous impacts of age on turnover.

We present the results in Panel B of Table 6. The coefficients on $\log(flow\_term_{ij})$ are about -0.05 and stable when adding different control variables. Hence officials attracting more investment flows have smaller probability to get promotion. Recalling that investment flows are positively correlated with the probability of corruption, these results suggest that officials engage in corruption with the connected firms pay a cost of their political career.

5.4 Impacts on Firm Survival

We then explain why firms are willing to follow transferred officials. An easy guess is that firms can provide bribery to the connected officials in exchange for preferential treatment. Since we have data on the timing of each firm's entry and exit, we can conduct a survival analysis on these firms to test this conjecture. We use Cox Hazards model with the following specification:

$$h(t|x) = \exp(t)\exp[\alpha_1 ConnectHold_{1,i} + \alpha_2 ConnectLeave_{2,i} + \alpha_3 Local_i + \beta \log(capital_i) + \delta_i + \mu_i] \quad (7)$$

$h_i(t|x)$ is the hazard rate for whether firm i exit market. The key independent variables are three dummies $ConnectHold_i$, $ConnectLeave_i$, and $Local_i$. $ConnectHold_i$ indicates whether the firm is connected with any transfer and the connected official is still in office. $ConnectLeave_i$ indicates whether the firm is connected with any transfer and yet the connected official has left office[14]. $Local_i$ indicates whether the firm is established by people within the province. Hence the base group consists of firms established by people outside the province but not connected with any transfer. We also control for $\log(capital_i)$ which is the log registry capital, δ_i which denotes provincial dummies, and μ_i which denotes year dummies for when the firms are established.

[14]By definition $ConnectHold_i = 1$ or $ConnectLeave_i = 1$ implies that firm i is established by nonlocal people.

Cox regressions allow us to compare the hazard rates of firm exit for the different types of firms. Due to the large number of observations and computational constraints, we estimate this specification using one-sixth of the entire sample that is randomly chosen. We present the results in Table 7. In column 1, the coefficients on $ConnectHold_i$, $ConnectLeave_i$, and $Local_i$ are -0.235, 0.182, and -0.0258 respectively, all significant at 1 percent level. This indicates that firms with $ConnectHold_i = 1$ are 21% less likely to exit the market $(1 - \exp(-0.235) = 0.21)$, while firms with $ConnectLeave_i = 1$ are 20% more likely to exit the market $(1 - \exp(0.182) = 0.20)$, both compared to the base group, firms established by people outside the province but not connected with any transfer. When adding more controls in columns 2 and 3, this pattern still holds. Also note that the registry capital is negatively correlated with the hazard rate. Hence, these results imply that firms associated with transfers are more likely to survive only when the connected officials hold office and hence can provide them with protection and preferential treatment. After the connected officials leave office, these firms are less likely to survive (even less than unconnected firms), suggesting that at nature they are not superior to other firms.

5.5 Impacts on Local Economy

In previous sections we discuss the correlation of official transfers and investment flows as well as its underlying mechanism. Now we begin to evaluate the impact of the investment flows on the local economy. We first examine whether the incumbent connected firms deter the entry of new firms. We run the following specification:

$$\log K_{entry,ijt} = \gamma \log K_{stock,ij(t-1)} + \alpha Share_{i,t-1} + \beta X_{it} + \lambda_{ij} + \lambda_t + t \times \lambda_i + t \times \lambda_j + \epsilon_{ijt} \quad (8)$$

$\log K_{entry,ijt}$ is the log registry capital of new entry firms in city i, industry j, and year t. $\log K_{stock,ij(t-1)}$ is the stock of registry capital. $Share_{i,t-1}$ is the share of the stock of registry capital of connected firms in city i and year t, and it can measure the pervasiveness of political connections in city i's business environment. X_{it} is a vector of city level controls including the log per capital real GDP, log population, urbanization rate, and the share of output in the secondary industry. We include city-industry fixed effects (λ_{ij}) and year fixed effects (λ_t) in all regressions, and we progressively add city and industry linear year trends ($t \times \lambda_i$ and $t \times \lambda_j$).

The parameter of interest is α, which could be regarded as the effect of the share of connected firms on the entry rate, since the capital of new entry and incumbent firms takes the log form. We estimate equation (8) for the three types of firms - connected, unconnected, and local firms - separately. Recall that connected firms are those that followed from a transfer of at least one incumbent official; unconnected firms are those invested by nonlocal people and did not follow from any transfer; local firms are those invested by local people. We also estimate equation (8) for the subsample excluding competitive industries (agriculture, manufacture, catering, IT, and sci-tech industries).

We present the results in Table 8. In Panel A we use the full sample for the estimation. In columns 1 through 3, the dependent variable is the log registry capital of the new entry of the connected firms, while in columns 4 through 6 and 7 through 9 the dependent variable is that of the unconnected firms and the local firms, respectively. The effects of politically connected firms on firm entry are heterogenous to different types of firms. In columns 1 through 3, the coefficients on $Share_{i,t-1}$ for is around 1.8, significant at 1 percent level. This indicates that raising the share of the connected firms by one standard deviation increases the entry rate of connected firms by 16% (1.8×0.087). In columns 4 through 7, the coefficients are about -0.3 and significant at 10 percent level (in columns 5 and 6). Thus the connected firms deter the entry of the unconnected firms: increasing $Share_{i,t-1}$ by one standard deviation reduces the entry rate by 3% (-0.3×0.087). Similarly, in columns 7 through 9, the coefficients are also negative (around -0.2), although not statistically significant.

In Panel B of Table 8, we only use the subsample excluding competitive industries for regressions. In all columns, the coefficients on $Share_{i,t-1}$ are larger in their magnitudes compared to their counterparts in Panel A, and they are also more statistically significant. Such result confirms that the connected firms deter the entry of the unconnected firms and the local firms, but not the connected firms themselves. Also, comparing Panel A and B, we may reach the previous conclusion that political connections play a more important role in rent-seeking (non-competitive) industries.

Finally, we assess the contribution to economic growth by the three types of firms: connected, unconnected, and local firms. We calculate the stock of registry capital of the three types of firms, and relate them to cities' economic growth. We estimate the following growth equation:

$$\log y_{it} = \gamma \log y_{i,t-1} + \alpha_1 \log k_{connect,it} + \alpha_2 \log k_{unconnect,it} + \alpha_3 \log k_{local,it} + \beta X_{it} + a_i + \lambda_t + t \times \delta_p \epsilon_{it} \tag{9}$$

$\log y_{it}$ is the log real per capita GDP in city i and year t. $\log k_{connect,it}$, $\log k_{unconnect,it}$, and $\log k_{local,it}$ is the (log) per capita stock of registry capital of connected firm, unconnected firms, and local firms, respectively. X_{it} is a vector of control variables including city i's population, urbanization rate, shares of output for secondary and tertiary industries. We also include city fixed effects a_i, year fixed effects λ_t, and provincial linear year trends $t \times \delta_p$. α_1, α_2, and α_3 stand for the correlation between economic growth and the total capital stock of the three types of firms.

Table 10 shows the results. In column 1, the coefficient on $\log K_{connect,it}$ is about 0.01 and statistically insignificant. While in column 2 the coefficient on $\log K_{unconnect,it}$ is nearly four times larger and significant at 1 percent level. Given that both the connected firms and the unconnected firms are established by non-local people and have similar total scale, the contrast in the coefficients suggest that the connected firms indeed contribute much less to economic growth than the unconnected firms. In column 3, the coefficient on $\log K_{local,it}$ is even larger and also significant at 1 percent level. Including the log capital of all the three types of firms in column 4 yields similar results.

The results in Table 8 and 10 indicate that the political connected firms block the entry of more productive firms without connections. This could be interpreted as the social costs of political connections. If the supervision on corruption is further tightened, then the crony capitalism will be less severe, and hence there will be more dynamic firms entering the market and promoting economic growth.

6 Conclusion

In this paper, we document a robust positive correlation between interjurisdictional transfers of government officials and interregional investment flows in China. This pattern is more salient in rent-seeking industries and private sectors, and when officials have stronger incentive to engage in corruption. Further, such pattern reflects the reciprocal relationship between officials and businessmen, in which the latter provide bribery in exchange for preferential treatment. On the one hand, officials attracting more investment flows are ex post more likely to be investigated for corruption, implying that they obtain a higher monetary payoff at the cost of their political career. On the other, firms associated with the transfers have greater probability of survival when their connected officials hold office. It is thus unsurprising to expect the efficiency loss induced by the political connections. Firms connected with transferred officials contribute much less to economic growth compared to unconnected firms, and they crowd out local firms.

Our results suggest that political connections facilitate corruption, and give rise to misllocation of investment across space. These results can thus contribute to our understanding on the social costs of corruption, as well as the political and institutional causes of misallocation in China. While our work focuses on this single country, researchers can also conduct similar exercises for other countries with bureaucratic transfers and pervasive political connections.

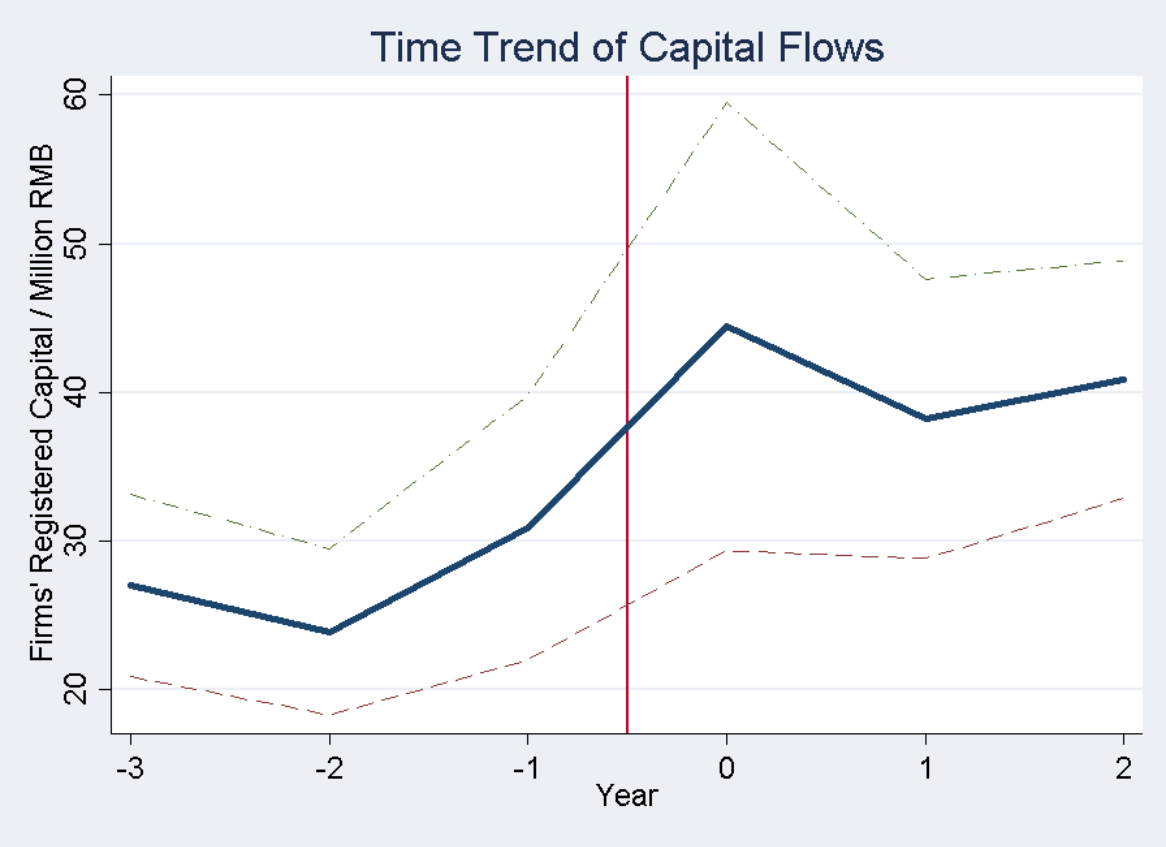

Figure 1: Time Trend of Investment Flows Before and After Official Transfers

Notes: This figure illustrates the time trend of investment flows before and after the official transfers. The horizontal axis measures the year since the city dyad experienced an official transfer. 0 represents the first year of the new official. The vertical axis measures the average investment flows in a city dyad, conditional on an official transfer occur at t=0. The dashed lines indicate the 95% confidence interval of the mean by year.

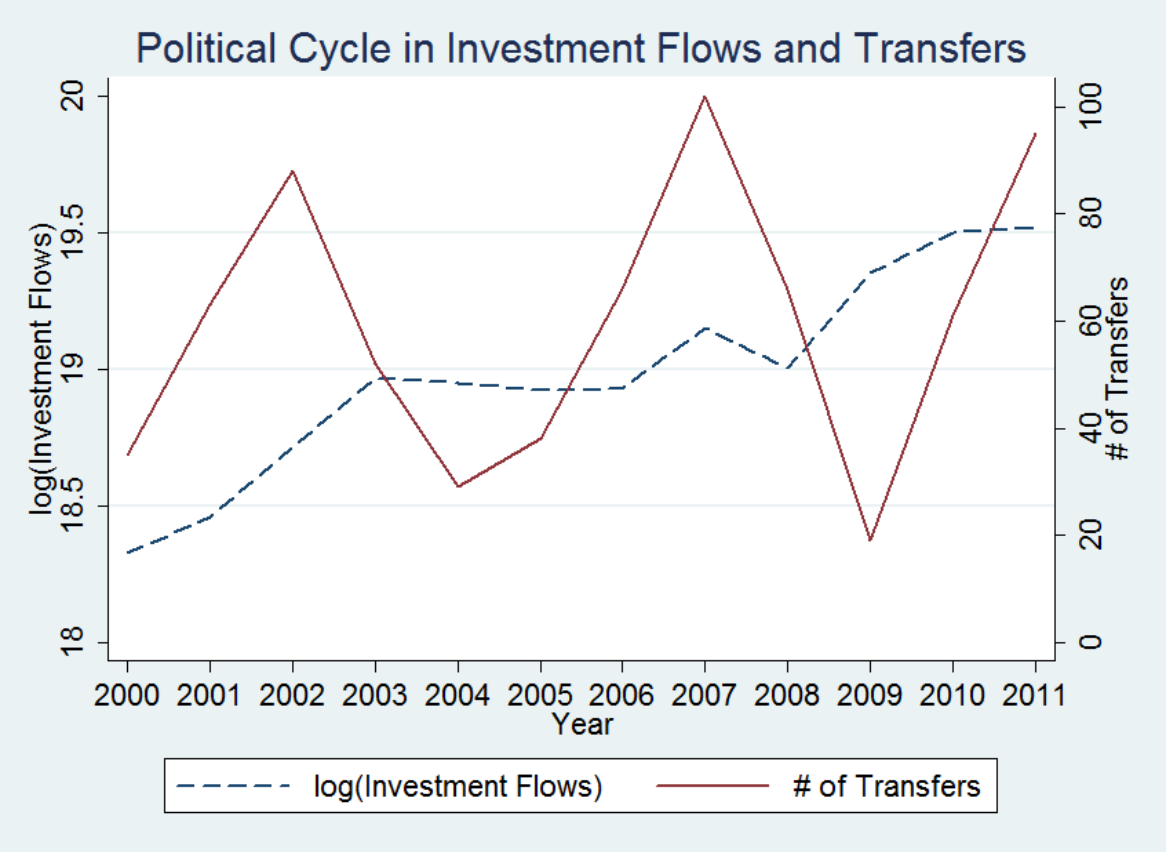

Figure 2: Political Cycle in Investment Flows and Official Transfers

Notes: This figure illustrates how investment flows and official transfers vary in the political cycles. The National Party Congress is held in 2002, 2007, and 2012, before which there is a nationwide reshuffling of government officials.

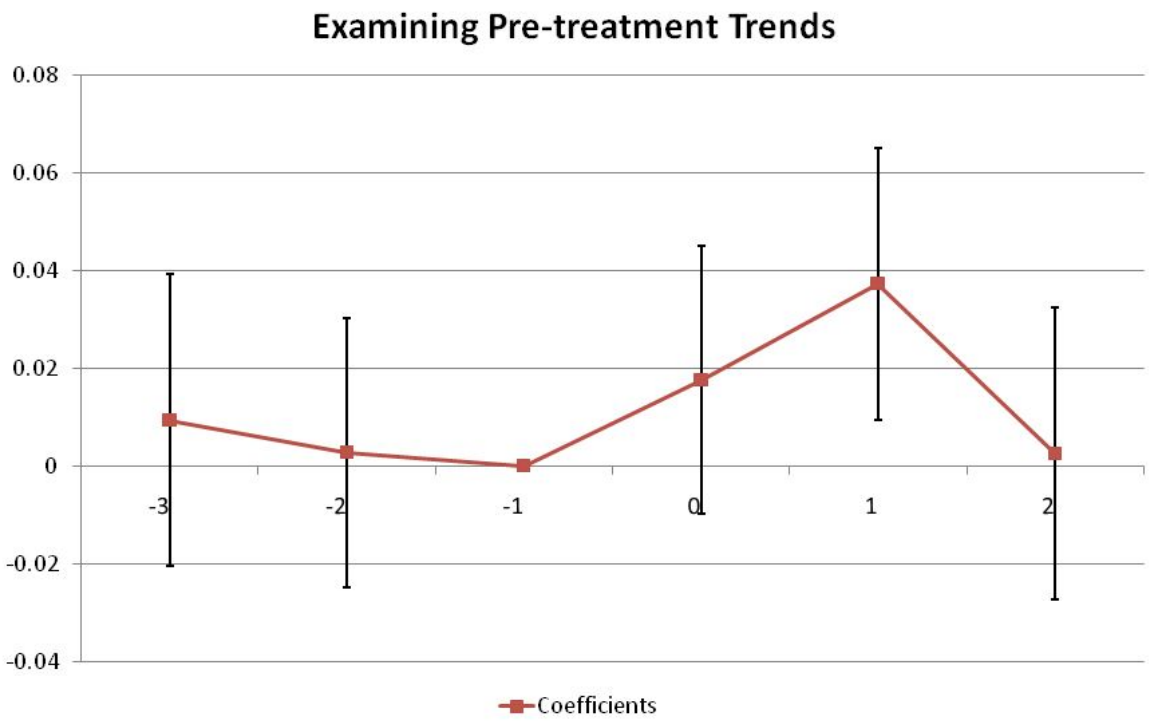

Figure 3: Estimating Dynamic Effects of the Transfers

Notes: The figure illustrates the dynamic effects (three-year range before and after the transfer) of the transfers on $\log(flow_{ijt})$*. The horizontal axis measures the year since the city dyad experienced an official transfer. 0 represents the first year of the new official. The vertical axis measures the regression coefficients for the dynamic effects. The coefficients are obtained using the baseline specification (with controls, city-dyad fixed effects and year fixed effects), with the only exception that the dummy for the transfer is replaced by the interaction terms of the dummy for transfer and dummies for time. The figure shows that the positive effect of the transfers is restricted to the period in which the new official has arrived* ($t \geq 0$)*. The vertical line around each plotted coefficient indicates the 95% confidence interval, with standard errors clustered at the city-dyad level. Every estimated effect is compared to the year that is one year prior to that of the new official's arrival, which is standardized to 0.*

Table 1: Summary Statistics

	N	Mean	Std. Dev.	Min	Max
		Panel A: City-dyad Data Set			
log(Capital Flow+1)	1047840	1.646	2.086	0	17.631
log(Capital Flow+1, Rent-seeking)	1047840	1.026	2.441	0	17.798
log(Capital Flow+1, Competitive)	1047840	0.844	2.262	0	17.508
1(Capital Flow > 0)	1047840	0.101	0.301	0	1
1(Official Transfer)	1047840	0.059	0.235	0	1
log(GDP Per Capita, Origin)	1047840	5.787	0.750	0	8.111
log(GDP Per Capita, Destination)	1047840	5.787	0.750	0	8.111
log(Population, Origin)	1047840	9.832	1.649	0	17.478
log(Population, Destination)	1047840	9.832	1.649	0	17.478
Native	1047840	0.005	0.072	0	1
LongTerm	1047840	0.017	0.130	0	1
GDP Gap	1047840	1.194	0.759	0.097	10.320
log(Distance)	1047840	6.765	0.724	2.177	8.216
		Panel B: Official Data Set			
1(Corruption)	506	0.103	0.304	0	1
log(Connected Capital Flow, Career)	506	4.523	5.373	0	15.530
		Panel C: Official-Term Data Set			
Turnover	712	0.857	0.553	0	2
log(Connected Capital Flow, Term)	712	2.429	4.481	0	15.530
		Panel D: Firm Data Set			
1(Death)	2438195	0.374	0.484	0	1
ConnectHold	2438195	0.017	0.129	0	1
ConnectLeave	2438195	0.015	0.120	0	1
Local	2438195	0.719	0.449	0	1
log(Registry Capital)	2438195	4.194	1.724	0.000	24.019
		Panel E: City-industry Data Set			
log(Firm Capital New Entry, Unconnected)	66228	2.658	3.663	0	16.786
log(Firm Capital New Entry, Connected)	66228	8.071	3.686	0	23.091
log(Firm Capital New Entry, Local)	66228	5.783	4.422	0	24.091
Share of Connected Firms	64596	0.029	0.087	0	0.879
		Panel F: City Data Set			
log(Firm Capital Per Capita, Connected)	3533	2.060	1.944	0	8.473
log(Firm Capital Per Capita, Unconnected)	3533	2.459	1.838	0	7.868
log(Firm Capital Per Capita, Local)	3533	7.359	1.453	0	15.030
log(Population)	3627	8.514	0.588	5.545	9.260
Ratio of Urban Population	3212	0.447	0.299	0.074	1.195
Share of Secondary Industry	3505	47.507	11.530	15.7	90.97
Share of Tertiary Industry	3505	35.646	7.975	8.5	76.07

Table 2: Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)
	log(Capital Flows in a city Dyad)			l(Capital Flows in a city Dyad>0)		
	Mean: 1.466			Mean: 0.101		
1(Official Transfer)	0.0286**	0.0277**	0.0266**	0.00330***	0.00330***	0.00307**
	(0.0115)	(0.0115)	(0.0115)	(0.00125)	(0.00125)	(0.00125)
Controls	N	Y	Y	N	Y	Y
Dyad FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Regional Political Cycles	N	N	Y	N	N	Y
Group-Year Dummies	N	N	N	N	N	N
Observations	1047840	1047840	1047840	1047840	1047840	1047840
R-squared	0.066	0.067	0.067	0.021	0.021	0.022
Number of City Dyads	87320	87320	87320	87320	87320	87320

Notes: The sample covers 87320 city dyads from 2000 to 2011. In all columns city-dyad and year fixed effects are included. Controls include log per capita real GDP and log population of both the origin and the destination cities. Regional political cycles refer to the interaction between two regional dummies and a dummy for the year in the national political cycle. * Significant at 10%, ** 5%, *** 1%.

Table 3: Robustness and Falsification Tests

	(1)	(2)	(3)	(4)	(5)
	log(Capital Flows)				log(Capital Flows),Inverse
	Non-zero Sample	Full Sample	Full Sample	Full Sample	Full Sample
l(Official Transfer)	0.0265**				0.00753
	(0.0115)				(0.00823)
l(Official Transfer), 2-Year Lag		-0.00335			
		(0.00942)			
l(Official Transfer), 2-Year Forward			0.00856		
			(0.00782)		
l(Official Transfer), Randomly Reassigned				0.0101	
				(0.00748)	
Controls	Y	Y	Y	Y	Y
Dyad FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Observations	223,632	1,047,840	1,047,840	1,047,840	1,047,840
R-squared	0.034	0.027	0.027	0.027	0.027
Number of City Dyads	18,636	87,320	87,320	87,320	87,320

Notes: The sample covers 87320 city dyads from 2000 to 2011. In all columns city-dyad and year fixed effects are included. Controls include log per capita real GDP and log population of both the origin and the destination cities. * Significant at 10%, ** 5%, *** 1%.

Table 4: Heterogeneity by Industry and Ownership

Panel A: Heterogeneity by Industry				
	(1)	(2)	(3)	(4)
	log(Capital Flows in a City Dyad, Rent-seeking)		log(Capital Flows in a city Dyad, Competitive)	
1(Official Transfer)	0.0197**	0.0187*	0.00481	0.00421
	(0.0101)	(0.0100)	(0.00955)	(0.00954)
	(0.00843)	(0.0234)	(0.00784)	(0.0209)
Controls	N	Y	N	Y
City Dyad FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	1,047,840	1,047,840	1,047,840	1,047,840
R-squared	0.052	0.052	0.027	0.028
Number of City Dyads	87,320	87,320	87,320	87,320

Panel B: Heterogeneity by Ownership			
	(1)	(2)	(3)
	log(Capital Flow Between Cities)		
	State-owned	Collective	Private
l(Official Transfer)	-0.00484	-0.00166	0.0335***
	(0.00359)	(0.00285)	(0.0114)
Controls	Y	Y	Y
Dyad FE	Y	Y	Y
Year FE	Y	Y	Y
Obervations	1,047,840	1,047,840	1,047,840
R-squared	0.000	0.004	0.072
Number of City Dyads	87,320	87,320	87,320

Notes: The sample covers 87320 city dyads from 2000 to 2011. In all columns city-dyad and year fixed effects are included. Controls include log per capita real GDP and log population of both the origin and the destination cities. Rent-seeking industries include energy, construction, transportation, real estate, and health industries, and competitive industries include agriculture, manufacture, catering, IT, and sci-tech industries. * Significant at 10%, ** 5%, *** 1%.

Table 5: Interacting with Official Characteristics

	(1)	(2)	(3)
	log(Capital Flows Between Cities)		
l(Official Transfer)	0.0161**	0.00474	0.0576***
	(0.00792)	(0.00923)	(0.0223)
l(Official Transfer) * l(Corruption)			
l(Official Transfer) * l(Native)	0.0101		
	(0.0304)		
l(Official Transfer) * l(tenure $\geq$ 5 Years)		0.0399**	
		(0.0158)	
l(Official Transfer) * l(RL-5$\leq$Age$<$RL)			0.0206
			(0.0238)
l(Official Transfer) * l(Age$\geq$RL)			0.0472**
			(0.0237)
Controls	Y	Y	Y
Dyad FE	Y	Y	Y
Year FE	Y	Y	Y
Obervations	1,047,840	1,047,840	1,047,840
R-squared	0.030	0.030	0.027
Number of City Dyads	87,320	87,320	87,320

Notes: The sample covers 87320 city dyads from 2000 to 2011. In all columns city-dyad and year fixed effects are included. Controls include log per capita real GDP and log population of both the origin and the destination cities. * Significant at 10%, ** 5%, *** 1%.

Table 6: Impacts on Officials' Career Outcomes

	(1)	(2)	(3)
	Logistic Regressions		
	l(Official Investigated/Arrested For Corruption)		
log(Total Captal Flows Following Transfers)	0.0569*	0.0553*	0.0533*
	(0.0305)	(0.0310)	(0.0309)
Dummies for Officials' Birth Years	Y	Y	Y
Dummies for Transfer patterns	Y	Y	Y
Dummies for Officials' Rankings	N	Y	Y
Dummies for Transfer Patterns * Officials' Rankings	N	N	Y
Log Pseudolikeliood	-141.54348	-141.17595	-139.55516
Pseudo R2	0.0891	0.0914	0.0896
Observations	406	406	391

	(1)	(2)	(3)
	Ordered Logistic Regressions		
	Turnover (0 = Termination, 1 = Same Level, 2 = Promotion)		
log(Capital Flows Following Transfers within Tenure)	-0.0533***	-0.0492**	-0.0477**
	(0.0199)	(0.0201)	(0.0202)
Age at the Beginning of the Tenure		-0.0252	0.0259
		(0.0204)	(0.0408)
Provincial Dummies	Y	Y	Y
Year Dummies	Y	Y	Y
Official Ranking Dummies	Y	Y	Y
Official Ranking Dummies * Age	N	N	Y
Constant cut1	-3.816**	-5.069***	-2.739
	(1.533)	(1.854)	(2.463)
Constant cut2	0.00667	-1.239	1.113
	(1.513)	(1.828)	(2.445)
Log Pseudolikelihood	-545.68793	-544.95355	-542.984
Pseudo R2	0.0704	0.0717	0.0750
Observations	712	712	712

Notes: Results in Panel A and B are obtained using the official and official-term data set, respectively. The official ranking dummies in Panel A refer to dummies for the highest ranking throughout the official's career, while those in Panel B refer to the official's current ranking for the term. The transfer pattern dummies indicate how many inter-province and intra-province transfers the official has experienced in his career. The year dummies in Panel B are dummies for the starting year of the term. * Significant at 10%, ** 5%, *** 1%.

Table 7: Impacts on Firm Survival

	(1)	(2)	(3)
		Cox Hazard Rate	
1(Connect & Hold Office)	-0.235***	-0.217***	-0.159***
	(0.0130)	(0.0129)	(0.0129)
1(Connect & Leave Office)	0.182***	0.186***	0.154***
	(0.0117)	(0.0117)	(0.0120)
1(Local)	-0.0258***	-0.0859***	-0.146***
	(0.00269)	(0.00271)	(0.00264)
	Base group: unconnected & established by people out of the province		
log(Registered Capital)		-0.213***	-0.216***
		(0.000618)	(0.000630)
Provincial Dummies	Y	Y	Y
Establish Year Dummies	N	N	Y
Log pseudolikelihood	-13086401	-13031786	-12979282
Observations	2,438,195	2,438,195	2,438,195

Notes: The sample covers over two million firms established during 2000-2011. We randomly choose one sixth of the full sample to avoid calculation difficulties. * Significant at 10%, ** 5%, *** 1%.

Table 8: Entry Deterrence Effects

Panel A: Entry Deterrence Effects, Full Sample									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	log(New Entry, Connected)			log(New Entry, Unconnected)			log(New Entry, Local)		
lag Share of Connected Firms	1.836***	1.836***	1.836***	-0.267	-0.325*	-0.339*	-0.115	-0.249	-0.246
	(0.237)	(0.237)	(0.237)	(0.180)	(0.183)	(0.182)	(0.171)	(0.189)	(0.188)
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
City-Industry FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
City Linear Year Trend	N	Y	Y	N	Y	Y	N	Y	Y
Industry Linear Year Trend	N	N	Y	N	N	Y	N	N	Y
Observations	51,403	51,403	51,403	51,403	51,403	51,403	51,403	51,403	51,403
R-squared	0.084	0.128	0.160	0.068	0.098	0.166	0.065	0.111	0.167
Number of City-industries	5383	5383	5383	5383	5383	5383	5383	5383	5383
Panel B: Entry Deterrence Effects, Excluding Competitive Industries									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	log(New Entry, Connected)			log(New Entry, Unconnected)			log(New Entry, Local)		
lag Share of Connected Firms	1.643***	1.464***	1.565***	-0.473**	-0.558**	-0.567**	-0.209	-0.392*	-0.389*
	(0.282)	(0.372)	(0.375)	(0.228)	(0.236)	(0.235)	(0.217)	(0.237)	(0.236)
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
City-Industry FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
City Linear Year Trend	N	Y	Y	N	Y	Y	N	Y	Y
Industry Linear Year Trend	N	N	Y	N	N	Y	N	N	Y
Observations	38,128	38,128	38,128	38,128	38,128	38,128	38,128	38,128	38,128
R-squared	0.073	0.114	0.149	0.054	0.086	0.152	0.048	0.090	0.142
Number of City-industries	3993	3993	3993	3993	3993	3993	3993	3993	3993

Notes: The sample covers 279 cities, 20 industries, and 12 years for 2000 - 2011. The dependent variable is the log registry capital of one type of new entry firms (connected, unconnected, or local). Controls include the lag log aggregate capital stock of the incumbent firms, log population, urbanization rate, and the output shares of the secondary industries. * Significant at 10%, ** 5%, *** 1%.

Table 9: The Effects of Political Connections on Innovation

	(1)	(2)	(3)	(4)	(5)	(6)
	PatApp: the Number of Patents Applied			PatGrt: the Number of Patents Granted		
	log(PatApp+1)	log(PatApp/Pop+1)	log(PatApp/Cap+1)	log(PatGrt+1)	log(PatGrt/Pop+1)	log(PatGrt/Cap+1)
lag Share of Connected Firms	-0.131**	-0.027***	-0.034*	-0.130**	-0.017**	-0.025*
	(0.061)	(0.009)	(0.017)	(0.053)	(0.008)	(0.013)
Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
City-Industry FE	Y	Y	Y	Y	Y	Y
City Linear Year Trend	Y	Y	Y	Y	Y	Y
Industry Linear Year Trend	Y	Y	Y	Y	Y	Y
Observations	51,403	51,384	51,403	51,403	51,384	51,403
R-squared	0.389	0.376	0.221	0.385	0.367	0.203
Number of City-industries	5383	5383	5383	5383	5383	5383

Notes: The sample covers 279 cities, 20 industries, and 12 years for 2000 - 2011. The dependent variables are the log number of applied/granted patents (normalized by the population of the city or by the total registry capital of the city-industry) in a specific year, city, and industry. The main independent variable is the lag share of the registry capital of the connected firms in the city. Controls include the lag log aggregate capital stock of the incumbent firms in the city-industry, log population, urbanization rate, and the output shares of the secondary industries of the city. * Significant at 10%, ** 5%, *** 1%.

Table 10: Contributions to Economic Growth by Connected, Unconnected, and Local Firms

	(1)	(2)	(3)	(4)
	log(Real GDP Per Capita)			
lag log(Real GDP Per Capita)	0.207***	0.203***	0.204***	0.200***
	(0.0578)	(0.0561)	(0.0554)	(0.0541)
log(Firm Capital Per Capita, Connected)	0.0119			0.00306
	(0.00815)			(0.00876)
log(Firm Capital Per Capita, Unconnected)		0.0404***		0.0316**
		(0.0114)		(0.0124)
log(Firm Capital Per Capita, Local)			0.0926***	0.0926***
			(0.0220)	(0.0210)
Controls	Y	Y	Y	Y
Year Dummies	Y	Y	Y	Y
City Dummies	Y	Y	Y	Y
Provincial Linear Year Trend	Y	Y	Y	Y
Observations	2,863	2,863	2,863	2,863
R-squared	0.949	0.952	0.952	0.952
Number of Cities	279	279	279	279

Notes: The sample covers 279 cities and 12 years for 2000 - 2011. Controls include log population, urbanization rate, the output shares of the secondary and tertiary industries. * Significant at 10%, ** 5%, *** 1%.

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