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Move to success? Headquarters relocation, political favoritism, and corporate performance

Shuo Chen[a,*], Xun Yan[b], Bo Yang[c]

[a] School of Economics, Fudan University. 600 Guoquan Road, Shanghai, China
[b] Macroeconomics, Trade and Investment Global Practice, World Bank, 1818 H Street, NW, Washington, DC, United States of America
[c] Marshall School of Business, University of Southern California. 3670 Trousdale Pkwy, Los Angeles, CA 90089, United States of America

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ABSTRACT

This study documents an unexplored corporate rent-seeking phenomenon in non-representative regimes—relocating headquarters (HQ) to the political center. Focusing on China, we find that firms that relocate their HQs to Beijing (the political center) enjoy increased political favors, but those that move to Shanghai or Shenzhen (the country's two main economic centers) do not. Although both groups of movers experience improved profitability, their sustainable growth paths diverge after relocating. Firm productivity and innovation worsen after relocating to Beijing, but improve after moving to Shanghai or Shenzhen. Overall, these findings support the argument that political favoritism benefits firms' profitability but impairs their productivity and innovation.

1. Introduction

Corporate headquarters (HQ) are the center of modern firms' organizational management (Goold and Campbell, 1987; Chandler, 1991; Foss, 1997; Collis et al., 2007; Menz et al., 2013, 2015). HQs serve not only as the supervisory body for firms' internal functioning, but also as the main channel through which firms acquire market information. Therefore, the choice of HQ location (and relocation) has become a strategic decision for firms. HQ relocations take place quite often (Baaij et al., 2004; Birkinshaw et al., 2006; Strauss–Kahn and Vives, 2009; Voget, 2011; Laamanen et al., 2012). According to Strauss–Kahn and Vives (2009), more than 1500 U.S. firms (around 5%) moved their HQs during 1996–2001.[1]

Many studies have sought to identify the push and pull factors affecting HQ relocations by primarily focusing on operational efficiency or operational cost considerations. Regarding the former, there is considerable evidence that HQ relocations can increase the supply of market information as well as outsourcing opportunities (Ono, 2003; Lovely et al., 2005; Aarland et al., 2007; Henderson and Ono, 2008; Davis and Henderson, 2008; Strauss–Kahn and Vives, 2009). Multinational corporations often achieve cost reductions by moving their HQs to destinations with a lower tax rate (Voget, 2011; Laamanen et al., 2012). Although they focus on different factors, these studies share a common feature: their reasoning stems from a pure market framework, within which they investigate the impact of market factors on firms' HQ relocation decisions; they are based on an implicit assumption that HQ relocations can improve corporate performance.

Recent studies have exhibited a growing interest in the impact of political factors on corporate performance (Piotroski and

* Corresponding author.
E-mail addresses: cs@fudan.edu.cn (S. Chen), xyan@worldbank.org (X. Yan), bo.yang@marshall.usc.edu (B. Yang).

[1] Another study on the United States (Klier, 2006) shows that around 13% of American firms moved their HQs in the 1990s. The figures for multinational relocations in Europe are lower: Voget (2011) finds that 6% of European-based multinationals relocated their HQs during 1997–2007.

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Zhang, 2014; Acemoglu et al., 2016; Liu et al., 2017; Halforda and Li, 2019). The location of HQs undoubtedly affects the potential political favors available to firms: those that base or move their HQs to the political center find it more convenient to lobby or establish personal connections with politicians (Faccio and Parsley, 2009; Kim et al., 2012). Although different from market-oriented relocations, politically motivated relocations could also improve corporate performance. Yet few studies have systematically investigated how either kind of HQ relocation relates to long-term corporate performance. This study aims to fill this gap.

This paper examines China's listed companies to explore HQ relocations motivated by two distinct goals—market or political. In many countries—such as the United Kingdom, France and Russia—the economic center is also the political center (see Appendix Fig. A1). In China, the centers are geographically separate, offering us an opportunity to distinguish the impact of relocations driven by these different objectives. Shanghai has always been the largest city and regarded as the economic center of mainland China (Ma et al., 2013). We treat Shenzhen as the other economic center since it is the first Special Economic Zone and exemplifies the country's spectacular economic growth over the past four decades. Its economic output rose from the bottom to the 3rd by the end of 2017, behind only Shanghai (1st) and Beijing (2nd). Thus, we classify HQ relocations to Shanghai or Shenzhen (SH/SZ movers, hereafter) as market oriented. We assume that firms relocating their HQs to Beijing (BJ movers, hereafter) are more likely to be politically driven for two reasons.[2] First, unlike a federalist government, the centralized Chinese government has a monopoly over making industrial policies, establishing regulatory and market entry policies, as well as issuing licenses. Moving their corporate HQ to Beijing would almost certainly increase a firm's chances of obtaining political favors. Second, given the lack of de facto representative institutions, Chinese firms cannot gain political favors through specialized lobbying groups located in the capital. Physically relocating their HQ to the capital is a much more realistic (and perhaps the only viable) way for Chinese firms to win favoritism from the utmost political power. Fig. 1 compares the spatial distributions of corporate HQs in China vs. the United States. It clearly illustrates that Chinese firms strongly prefer to set up their HQs in the capital. By the end of 2015, 261 of the country's 2780 (9.4%) A-share listed companies had their HQs in Beijing,[3] while only 16 of the 3938 (0.41%) companies listed on the NASDAQ or New York stock exchanges had their HQs in Washington, D.C.[4]

This study empirically examines how HQ relocations to different destinations relate to firms' access to political favors and corporate performance using a difference-in-differences framework. Our sample consists of all listed companies in China's A-share main-board market up to 2015. BJ or SH/SZ movers are taken as the treatment group, and non-relocated firms are considered the control group. After correcting for the imbalance between the treatment and control groups, the paper first provides evidence substantiating our conjecture that firms relocate their HQs to Beijing in order to acquire political favors.

Specifically, we find that after relocating to the capital, the number of politically connected directors on BJ movers' boards increases significantly, and the likelihood of entering government-regulated sectors also increases. The amount of bank loans received increases, while the interest rates decline. These firms also receive more government subsidies, though not statistically significant. By contrast, SH/SZ movers experience no changes in political favors.

We then examine how HQ relocations relate to corporate performance. We find that HQ relocations of either kind are followed by improved profitability measured by the return on equity (ROE), return on total assets (ROA) or return on sales (ROS). A closer investigation, however, reveals that the two groups of movers have divergent trajectories in terms of sustainable growth. Firm productivity, measured by total factor productivity (TFP), declines following relocation to Beijing. Underlying innovative capability, measured by R&D expenditures and the number of patent applications, decreases as well. By contrast, SH/SZ movers achieve a higher level of productivity. These findings thus support the argument that political favoritism resembles a "resource curse": it brings some extra returns to favored firms, yet it undermines their productivity.

Finally, a further analysis suggests that HQ relocations to Beijing seem to exert negative externalities at the industry level. We find that BJ movers are able to win a larger market share after they relocate, and the related industries tend to be more monopolistic as more firms relocate their HQs to Beijing. By contrast, SH/SZ movers do not exhibit such externalities. These additional results thus lend credibility to the conjecture that HQ relocations motivated by political favoritism reduce the degree of market competition and decrease economic efficiency.

We acknowledge that we do not fully address the endogeneity problem, though we employ multiple empirical strategies and numerous robustness tests to minimize the possibility that the correlations we find are spurious. Despite this limitation, our paper still contributes to three different strands of the literature. First, to the best of our knowledge, our paper is the first to systematically document how HQ relocations are associated with long-term corporate performance. Prior studies have mostly focused on the impact of HQ relocations on short-term stock prices (Alli et al., 1991; Ghosh et al., 1995; Cox and Schultz, 2008), and have overlooked the longer-term implications.[5] Yet discussions of issues such as productivity (TFP) and innovation (R&D and patents) become possible only when we examine them over the longer term.

[2] We discuss Beijing's dual role as a political and economic center in Section 5.1.

[3] This pattern is not driven by state-owned enterprises (SOEs). For non-SOEs, the percentage of companies with HQs in Beijing is 8.2%.

[4] The United States has no specific regulations restricting firms from establishing their HQs in the nation's capital.

[5] The only two exceptions are Chan et al. (1995) and Gregory et al. (2005). They conducted a statistical comparison, instead of a regression analysis, of the accounting indices between relocated and non-relocated firms and found that relocations had no impact on corporate performance.

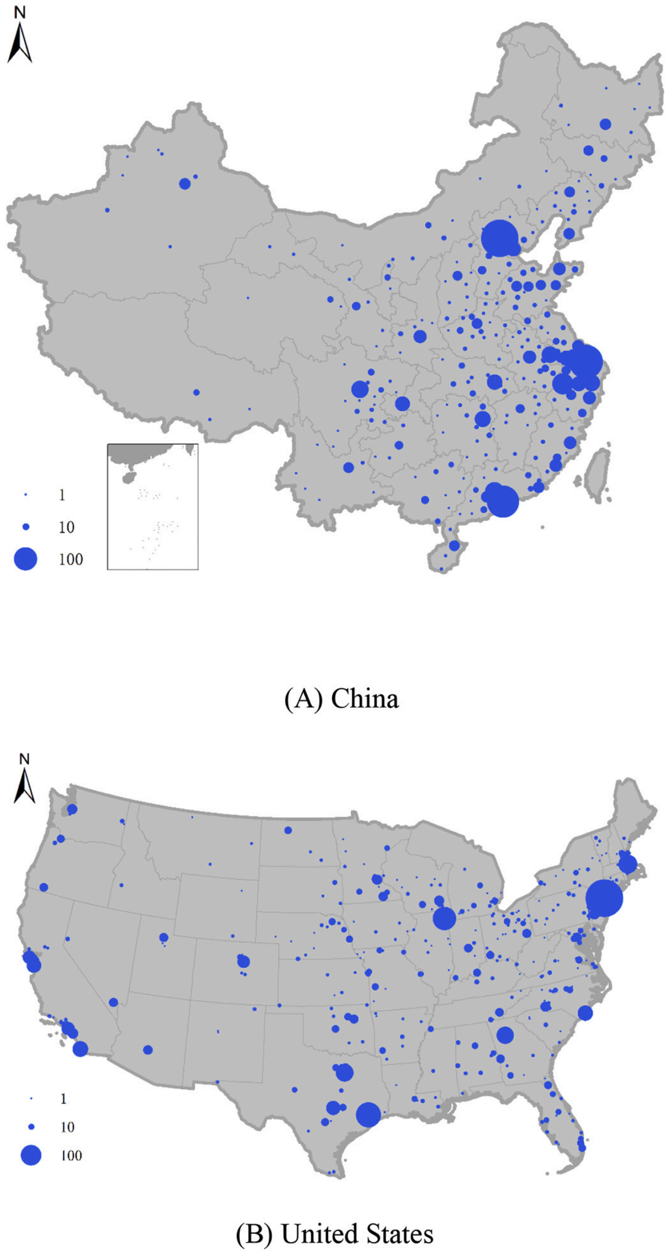

Fig. 1. Spatial distribution of listed companies, China and the United States.
Source: Wind Info (http://www.wind.com.cn/) and OSIRIS database (https://osiris.bvdinfo.com).

Second, our findings are closely linked to the rapidly growing literature on political connections. Though numerous studies suggest that political connections can improve corporate performance in developing and developed societies alike,[6] much less is known about how firms build political connections, especially in non-representative regimes (Fang et al., 2018). Our paper contributes to this strand of the literature by being the first to document a significant phenomenon. We also make marginal contributions by exploring the "dark side" of political favoritism in corporate efficiency and innovation, which has only recently begun to receive attention (Akcigit et al., 2018; Fisman et al., 2018; Schweizer et al., 2019). Our findings echo those of the small number of studies on the negative impact of political connections on firm dynamics (Fan et al., 2007; Boubakri et al., 2008; Wu et al., 2012; Barwick et al.,

[6] Studies based on developing counties include Fisman (2001), Johnson and Mitton (2003), Khwaja and Mian (2005), Faccio et al. (2006), Faccio et al. (2006), Li et al. (2008), Claessens et al. (2008), Calomiris et al. (2010), Chen et al. (2017), and Lehrer (2018). Studies based on developed counties include Jayachandran (2006), Ferguson and Voth (2008), Goldman et al. (2008), Cooper et al. (2010), Amore and Bennedsen (2013), Hill et al. (2013), Borisov et al. (2015), Akey (2015), Acemoglu et al. (2016), Brown and Huang (2017), and Ferris et al. (2016).

2017; Banerji et al., 2018).

Lastly, this study advances our understanding of economic geography from a political economy perspective. The new economic geography explains the geographic agglomeration of economic activities from a market perspective (Krugman, 1991; Fujita et al., 2001).[7] Recent research, however, has gradually revealed the significant role that political factors play in shaping the spatial distribution of economic activities (Ades and Glaeser, 1995; Davis and Henderson, 2003; Galiani and Kim, 2008; Hodler and Raschky, 2014; Pan and Xia, 2014). In contrast to most previous studies, which use administrative regions as the unit of analysis, this paper focuses on firms, thus providing a more micro-level perspective. It also enhances our understanding of the spatial distribution and evolution of economic activities, especially in non-representative regimes.

The rest of the paper is organized as follows. Section 2 introduces the data. Section 3 discusses the empirical strategy. Section 4 reports evidence on changes in political favoritism, profitability, and sustainable growth following relocation. Section 5 discusses multiple robustness tests. Section 6 further explores the externality of HQ relocations, and Section 7 concludes.

2. Data

Our sample covers 2211 companies listed on China's A-share main-board stock market from 2000 to 2015, which produces a total of 24,027 observations.[8] This section presents the HQ relocation sample and discusses the measures of political favoritism, profitability, sustainable growth, as well as the control variables.

2.1. HQ relocations

Our data on the HQ locations of the listed companies since 2003 comes from the China Securities Market and Accounting Research (CSMAR) database; we manually collected information before 2003 from annual reports. We classify an HQ as having relocated if the firm's HQ address changes at the prefecture level between two consecutive years. We find that 156 firms relocated their HQ during the sample period. Fig. 2 shows the annual frequency of HQ relocations: the figure stabilized at around 10 per year during 2005–2014, and surged to 31 in 2015.[9]

Fig. 3 illustrates the spatial movements of these 156 relocated firms. While the 99 cities with HQ outflows are evenly distributed geographically, almost all of the 48 cities with HQ inflows, not surprisingly, are located in the economically advanced eastern region. Beijing, Shanghai, and Shenzhen are the most popular destination cities; they attract 42, 20, and 9 listed companies, respectively, accounting for 46% of all relocations.[10]

This paper focuses on BJ and SH/SZ movers.[11] Most importantly, HQ relocations to Beijing are viewed as firms' investments in building political connections. This practice has some clear advantages over investigating other connection-building means such as direct bribes. Most of the alternative means are barely observable and only help firms build up connections cumulatively, which makes it difficult to disentangle the effects of political favoritism. By contrast, relocating HQs to Beijing can be easily observed and forecasts a stepwise change in a firm's political connections. Thus, HQ relocations help researchers examine the long-term implications of political favoritism. We acknowledge the potential endogeneity concerns associated with relocations and subsequent sample selection biases. We discuss this concern and propose our solutions in Section 3.

2.2. Political favoritism

No single index can perfectly capture political favoritism since it has various manifestations. Hence, we adopt an exploratory approach by employing five indicators that have been used in prior studies. The first is the number of politically connected directors on the board, *Politically Connected Directors*. Many studies on different countries have shown that having a board of directors with political backgrounds can improve corporate performance. It can, for instance, bring more government procurement contracts to a firm (Goldman et al., 2008), supply insider information about the public policy process, and even

[7] Huang et al. (2017) found that in China, efficiency considerations affect the spatial distribution of ownerships of SOEs.

[8] We drop 2106 observations with negative net asset values or changes in production sites.

[9] This phenomenon might be related to local governments' enthusiastic promotion of the "HQ Economy" at that time. Beijing, Shanghai and Shenzhen all introduced several preferential policies to incentivize HQs to move to their jurisdictions. We test the sensitivity of our results to this concern by eliminating the year 2015 from the sample, and find similar results.

[10] Among the rest, other centrally administered municipalities and provincial capitals attract 41 HQs, prefecture-level cities attract 43 HQs, and county-level cities attract 1 HQ. Fig. 3 also reveals another interesting phenomenon: 12 companies moved their HQs to cities within 200 km of Shanghai/Shenzhen, but only two moved their HQs to cities within 200 km of Beijing, suggesting that Beijing is not a typical economic center with strong economic spillover effects.

[11] We also examine how relocations to other destinations are associated with company outcomes, and find that relating to these cities is not followed by changes in political favors, profitability, or productivity. We do not find a similar pattern as in BJ or SH/SZ movers, because it is hard to tell whether those movers are motivated by political or economic reasons (or a mixture of the two). This finding thus supports our practice of excluding other relocations from the sample and constructing the treatment group using only BJ or SH/SZ movers.

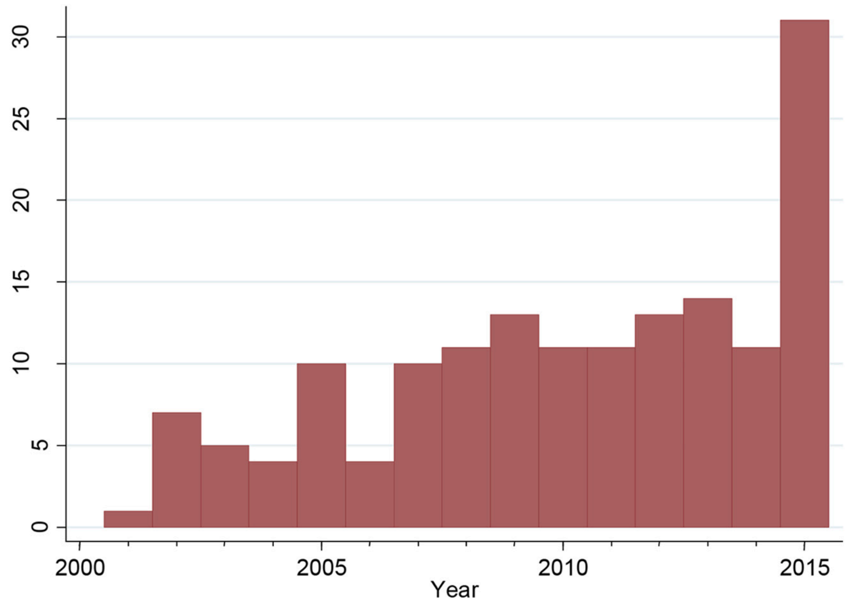

Fig. 2. Number of HQ relocations of China's listed companies.

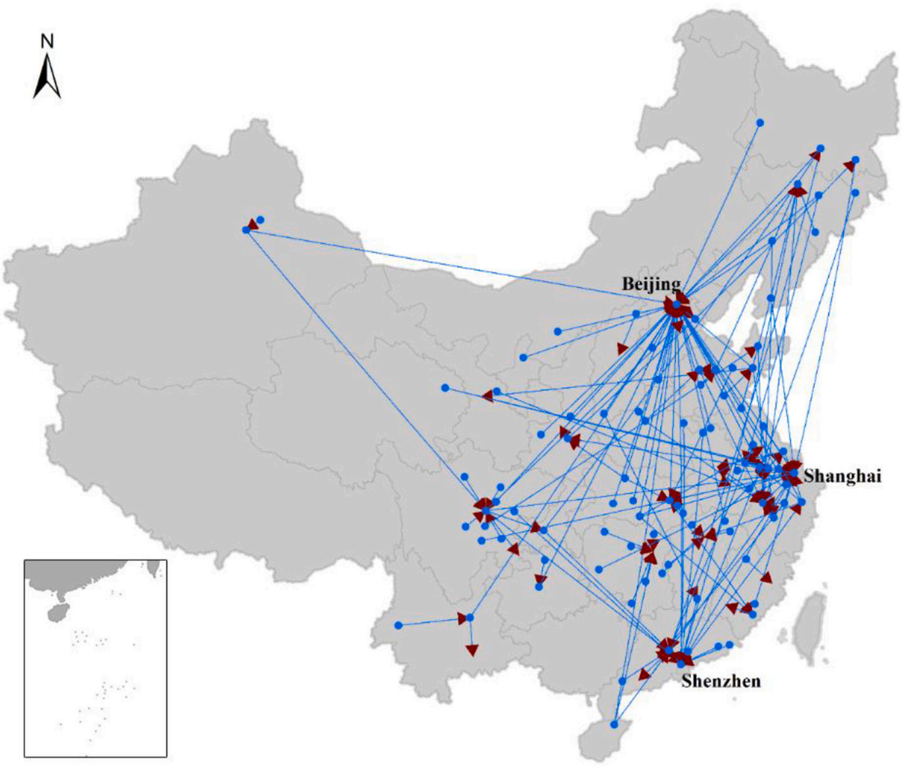

Fig. 3. Direction of HQ relocations of China's listed companies.
Note: Each line represents a HQ relocation from the original city (blue solid dots) to the destination city (red triangles).

influence political decisions (Hillman, 2005). We define a board member as being "politically connected" if he or she has been a government employee, a People's Congress deputy, a Party Congress representative, or a member of the National Committee of the Chinese People's Political Consultative Conference at the prefecture level or above. There are, on average, nine directors on a board, two of whom have a political background.

Our second indicator is a dummy variable, *Regulated Sectors*, indicating whether the firm has access to government-regulated sectors. In China, it is a strong sign of political favoritism if a firm's main business involves public utilities, public transport or finance.[12] This variable takes a value of 1 if a firm's business covers any of the regulated sectors, and 0 otherwise.

The third and fourth indicators are related to firms' financial constraints—bank loans and interest rates. Various studies reveal that Chinese enterprises suffer from severe financing constraints, and bank loans are their major source of financing (Allen et al., 2005; Qian et al., 2015). Recent research further suggests that political connections have a vital impact on a firm's ability to obtain bank loans in emerging markets (Claessens et al., 2008; Cull et al., 2015; Haveman et al., 2017), even in developed markets (Infante and Piazza, 2014). Therefore, we believe bank loans and interest rates reliably capture the political favors enjoyed by firms. The bank loan figures are standardized by firms' total revenues, and the interest rate is calculated by dividing the interest payment by the total amount of the loans.

The fifth indicator is the amount of government subsidies.[13] Chinese government subsidies to listed companies are enormous in terms of both coverage and amount: in 2015, 97% of listed companies obtained government subsidies, which totaled 161.2 billion RMB (around 26 billion USD). Studies often attribute the ability to attract subsidies to firms' political connections (Wu et al., 2012). The government subsidy figures are also standardized by firms' total revenues.

Data on these indicators comes from the CSMAR and Wind databases. Data on the number of politically connected directors is available from 2008; information on government subsidies is available from 2007; data on the other variables covers the whole sample period. To increase confidence in the effectiveness of those indicators, Fig. 4 illustrates the time trends of these five indicators for firms with HQs in Beijing or Shanghai/Shenzhen, respectively. The figure shows that firms with HQs located in Beijing generally enjoy more political favors than those in Shanghai/Shenzhen.[14]

2.3. Profitability

A number of studies have revealed that political connections help channel government resources to firms, and thus contribute to firm profitability (Khwaja and Mian, 2005; Faccio, 2006; Li et al., 2008; Goldman et al. 2013). We measure profitability using three accounting-based indicators: *ROE*, *ROA*, and *ROS*. *ROE* is the ratio of the net profit (after tax) to owners' equity, *ROA* is the ratio of the net profit (after tax) to total assets, and *ROS* is the ratio of the net profit (before interest and taxes) to operating incomes. Appendix Fig. A2 presents the annual averages of these three indicators, which show similar patterns: the correlation coefficients among the three ratios are between 0.63 and 0.84.

2.4. Sustainability

In addition to firm profitability, we are also interested in examining the underlying productivity and innovative capabilities that are critical to longer-term corporate performance.

2.4.1. Productivity

We adopt a widely used measure of productivity, TFP, which represents the "residual" portion of output that cannot be explained by the amount of inputs used in production. This residual reflects how efficiently inputs are utilized in production (Comin, 2010). This paper calculates TFP using Schoar's (2002) method, which is the most commonly used approach in the literature. Fig. A3 documents detailed calculations and plots the annual average TFP as well as the standard deviation. The mean TFP in each year is zero, as theoretically indicated. The standard deviation, however, increases from 0.244 in 2000 to 0.289 in 2015, reflecting a widening gap among firms' production efficiency.

2.4.2. Innovation

Endogenous growth theory holds that improvements in production efficiency come from innovation, and that innovative capacity, in turn, is determined mainly by investments in research and development (R&D) (Romer, 1986). We use the number of patent applications (*Patent*) to measure a firm's capacity to innovate.[15] On average, each firm applies for eight patents per year. R&D intensity (*R&D*) is measured as the share of R&D expenditures as a proportion of total revenues; it shows a significant increase over

[12] Public utilities include electricity, gas, water production and water supply; public transport includes road, water, rail, aviation, and pipeline transportation; and the finance sector includes banking and insurance. All these industries are regulated by the government.

[13] Government subsidies refer to the monetary or non-monetary government assets an enterprise obtains for free. Common government subsidies include value-added tax (VAT) returns, rewards for technological innovations as well as rewards for energy conservation.

[14] Due to data limitations, the five measures do not differentiate between political favors from the central government vs. local governments. Since the Chinese political structure features a high degree of integration and centralization, firms can leverage their political connections with the central government to elicit more favors from the local government.

[15] As this value can be 0 for some observations, we first add 1 to the variable before taking the logarithm in the regression analysis.

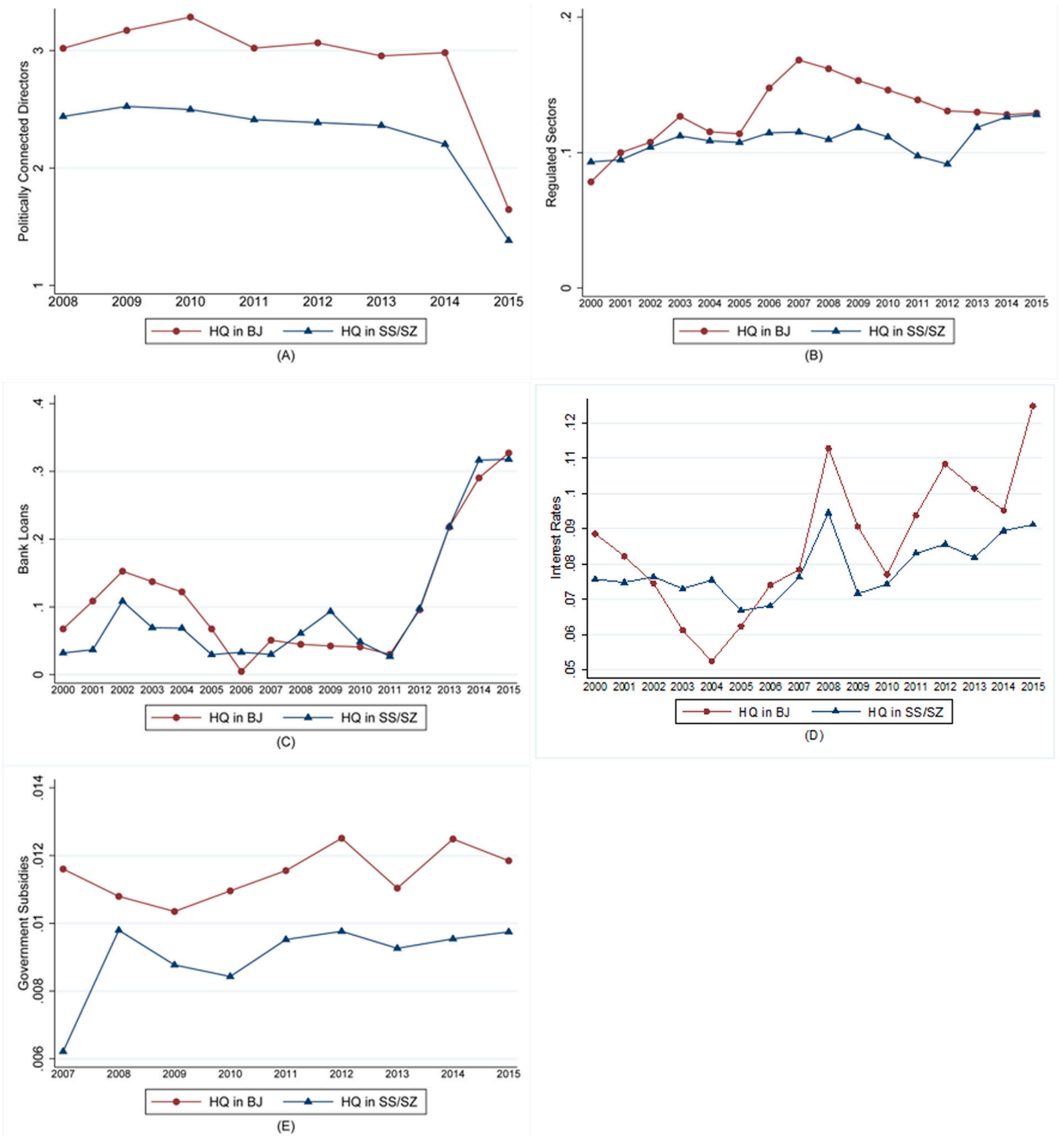

Fig. 4. Five indicators of political favors, 2000–2015.
Note: The number of politically connected directors dropped dramatically in 2015, as many government officials resigned as independent directors of listed companies after the introduction of "Opinions on Further Regulating the Part-time and Part-time Employment of Party and Government Leading Cadres in Enterprises", issued by the Organization Department of the Central Committee of the Communist Party of China in October 2013. The sample used to generate these figures does not include relocated firms.

Table 1
Summary statistics.

	Mean	Median	Std. Dev.	No. of Obs.	Data source
Panel A: Dependent variables					
Politically connected directors	0.953	1.099	0.603	14,972	A
Regulated sectors	0.088	0.000	0.283	24,027	B
Bank loans	0.104	0.000	0.315	23,158	A
Interest rates	0.087	0.063	0.116	19,485	A, C
Government subsidies	0.010	0.004	0.017	16,370	A
ROE	0.051	0.068	0.163	23,620	A
ROA	0.034	0.033	0.056	23,620	A
ROS	0.111	0.094	0.196	23,437	A
TFP	0.000	0.004	0.280	20,019	A
R&D	0.015	0.000	0.025	16,370	A
Patent	0.610	0.000	1.066	24,027	A
Panel B: Key independent variables					
Move to Beijing	0.009	0.000	0.096	24,027	A, D
Move to Shanghai/Shenzhen	0.006	0.000	0.080	24,027	A, D
Panel C: Control variables					
Second	0.010	0.000	0.100	24,027	D
Size	21.879	21.698	1.389	24,025	A
Leverage	0.489	0.482	0.234	24,025	A
Block	0.378	0.359	0.163	24,027	A
Volatility	0.034	0.028	0.023	23,907	A
FCF	−0.001	0.015	0.120	22,583	A
Age	12.278	12.000	5.618	24,027	A
IPO	0.060	0.000	0.238	24,027	A
MAR	0.046	0.000	0.210	24,027	A

Sources: A. CSMAR database (http://www.gtarsc.com/).
B. RESSET database (http://www.resset.cn/).
C. Wind database (http://www.wind.com.cn/).
D. Manually collected.
Note: To eliminate the impacts of outliers, the following variables are winsorized at the top and bottom one percentiles: *Bank loans, Interest rates, Government subsidies, ROE, ROA, ROS, R&D, and Patent.*

time from 0.24% in 2007 to 2.5% in 2015.

2.5. Control variables

Our regressions also control for firm- and market-related factors that previous studies have found affect corporate performance (Jiang et al., 2015; Giannetti et al., 2015). Firm-related factors include firm size, capital structure, agency costs, as well as the firm's age. Firm size (*Size*) is measured as the logarithm of total assets; capital structure is measured as total liabilities divided by total assets (*Leverage*); agency costs are proxied by two measures, the fraction of shares owned by the largest shareholder (*Block*) and the free cash flow (*FCF*) scaled by total assets; the firm's age refers to the number of years since foundation (*Age*). Market-related factors include the listing year dummy (*IPO*) and stock price volatility (*Volatility*). Stock volatility is calculated as the standard deviation of the firm's daily stock returns within one calendar year. In addition, we noticed that HQ relocations are often accompanied by major asset restructuring. We therefore generate a dummy *MAR* (coded 1 when a major asset restructuring takes place, and 0 otherwise) to control for its influence. Lastly, we construct a dummy, *Second* (coded 1 if the firm has a second relocation in a given year and all subsequent years, and 0 otherwise), to capture the impact of repeated HQ relocations.[16] Table 1 reports the summary statistics of all the variables as well as the data sources.

3. Empirical strategy

Since the HQ relocations in our sample took place in different years, we can apply a difference-in-differences strategy to examine the association between HQ relocations and corporate performance based on the following specification:

$$y_{i,t} = \alpha_0 + \beta Move_{i,t} + \gamma X'_{i,t} + \varphi_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

where i indexes the firm, t indexes the year, and $y_{i,\,t}$ represents a series of outcomes, including indicators of political favors, profitability, and sustainability. The key explanatory variable is the dummy $Move_{i,\,t}$, which equals 1 when a firm relocated its HQ in year t and remains 1 for all subsequent years, and 0 otherwise. The parameter of interest is β, which measures the average change in the

[16] Two firms that relocated to Shenzhen ended up moving to Beijing in subsequent years. One firm that relocated to Beijing later ended up moving again to Shanghai. We drop these repeated movers and the results remain the same.

Table 2
Balance tests between relocated and non-relocated firms.

Variable	(1)	(2)	(3)	(4)
	BJ-Control	SH/SZ-Control	BJ-Control (weighted)	SH/SZ-Control (weighted)
Size	−0.556***	−0.652***	−0.030	0.043
	(0.185)	(0.222)	(0.148)	(0.115)
Leverage	0.025	0.033	0.019	0.019
	(0.030)	(0.036)	(0.029)	(0.041)
Block	−0.015	−0.028	−0.001	−0.008
	(0.026)	(0.031)	(0.028)	(0.030)
Volatility	−0.003	0.010	−0.006	−0.003
	(0.006)	(0.007)	(0.006)	(0.009)
FCF	−0.030	0.047**	−0.028	0.013
	(0.017)	(0.020)	(0.019)	(0.022)
Age	−0.010	−1.263	0.106	−0.044
	(0.636)	(0.763)*	(0.528)	(0.598)
West	0.055	0.026	0.057	0.047
	(0.049)	(0.059)	(0.059)	(0.068)
Central	0.270***	0.128*	0.016	−0.038
	(0.061)	(0.073)	(0.079)	(0.089)
SOE	−0.081	−0.382***	−0.091	0.019
	(0.078)	(0.093)	(0.078)	(0.060)
HQ count1	−23.175***	−20.383**	−0.073	0.671
	(7.286)	(8.783)	(2.539)	(5.638)
HQ count2	−1.733**	−1.636*	0.018	0.057
	(0.808)	(0.975)	(0.265)	(0.741)
ROE	−0.044**	−0.064***	0.002	0.053
	(0.018)	(0.022)	(0.029)	(0.043)
ROA	−0.019***	−0.018***	−0.004	0.012
	(0.007)	(0.008)	(0.008)	(0.009)
ROS	−0.042	−0.084***	−0.002	0.038
	(0.027)	(0.032)	(0.039)	(0.045)
Tobin's Q	0.814***	0.107	0.020	−0.257
	(0.226)	(0.269)	(0.265)	(0.248)

Note: the variable *West* indicates that the HQ is located in provinces in the western region (Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Ningxia, Qinghai, and Xinjiang), *Central* indicates that the HQ is located in provinces in the central region (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan, and Inner Mongolia). *Tobin's Q* is approximated as the ratio between a firm's sum of the total stock value and book value of total liabilities and its the book value of total assets (Chung and Pruitt, 1994). All variables are measured in 2000. If a firm did not go public before 2000, we use the average of the first two years since IPO. To save space, we only report the differences in the covariates' means. The original covariates' means for the movers and (weighted) control group are available upon request.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%

outcome following HQ relocations. $X'_{i,\ t}$ is a series of time-variant firm-level control variables. φ_i is the firm fixed effect, which captures all time-invariant firm characteristics. δ_t is the time fixed effect, which captures economic shocks that affected all firms in a given year. Standard errors are clustered at the firm level to allow for arbitrary correlations of the error term, $\varepsilon_{i,\ t}$, over time within each firm. To control for some linear unobservable factors and better achieve pre-treatment common trends, we also run regressions including firm-specific time trends.[17]

An underlying assumption of this specification is that in the absence of HQ relocations, the outcomes of relocated firms would parallel those of non-relocated firms. This assumption may be implausible if pre-treatment characteristics that are thought to be associated with the dynamics of the outcome variable are unbalanced between the treated and untreated groups (Heckman et al., 1998; Abadie, 2005). Many factors can affect the deliberation of HQ relocations and thus lead to unbalanced samples. For instance, staying closely tied to the local government may help firms extract substantial benefits from political connections (e.g. more local resources, fewer bureaucratic delays). Moving the HQ not only entails substantial costs at the firm level; it can also damage local economies, which would prompt local politicians to prevent firms from moving their HQs. Therefore, firms that successfully relocate their HQ might be systematically different from non-relocated firms.

We test this concern by comparing the pre-relocation characteristics between relocated and non-relocated firms. These characteristics include all the continuous control variables, as well as time-invariant factors such as ‘whether HQ was originally located in the less developed central or western regions of China’ (*West, Central*), ‘whether the firm is a state-owned enterprise’ (*SOE*), ‘the number of headquarters in the same city’ (*HQ count1*), and ‘the number of headquarters in the same city and the same industry’ (*HQ*

[17] Fig. A4 compares estimates with and without firm-specific time trends. The two sets of estimates are almost the same, which increases the robustness of our findings. We thank an anonymous reviewer for reminding us to conduct this robustness test.

Table 3
HQ relocations and firms' political favors.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Beijing subsample					Shanghai/Shenzhen subsample				
	Politically connected directors	Regulated sectors	Bank loans	Interest rates	Government subsidies	Politically connected directors	Regulated sectors	Bank loans	Interest rates	Government subsidies
Move	0.170*	0.087*	0.093*	−0.049**	0.008	0.056	−0.000	−0.039	0.001	0.003
	(0.097)	(0.045)	(0.049)	(0.022)	(0.005)	(0.130)	(0.000)	(0.032)	(0.022)	(0.005)
Second	0.317**	−0.066**	0.226	0.014	−0.005	0.127	−0.000	0.030	−0.038	0.011
	(0.154)	(0.032)	(0.140)	(0.030)	(0.005)	(0.230)	(0.000)	(0.072)	(0.044)	(0.009)
Constant	0.485***	0.032***	0.021	0.082***	0.009***	0.435***	−0.000	−0.013	0.078***	0.009**
	(0.052)	(0.009)	(0.024)	(0.007)	(0.002)	(0.069)	(0.000)	(0.033)	(0.013)	(0.004)
Obs.	10,417	17,272	16,841	14,321	11,412	5603	8672	8422	6960	6108
R^2	0.126	0.062	0.141	0.029	0.030	0.159	0.000	0.118	0.052	0.035
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Due to data limitations, data in Columns (1) and (6) starts in 2008; data in Columns (2)–(4) and (7)–(9) starts in 2000; and data in Columns (5) and (10) starts in 2007. Standard errors clustered at the firm level are shown in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

count2). We also compared the pre-relocation performance indicators to inspect potential reverse causality problems. Columns (1) and (2) of Table 2 show the mean differences of those variables between BJ or SH/SZ movers and non-movers. We find noticeable differences in terms of size, free cash flow, age, original HQ locations, SOE status, and HQ agglomerations. Those movers also have poorer accounting performance but better stock performance.[18]

This imbalance between relocated and non-relocated firms thus needs to be addressed. We use the propensity score weighting method proposed by Hirano and Imbens (2001) and Hirano et al. (2003).[19] First, a logit model is applied to estimate the HQ relocation probability of each firm in the BJ or SH/SZ subsamples. We then drop firms that are not in the common support of the propensity scores. Finally, the balance could be achieved by re-weighting the units in the control group by a function of their estimated propensity score (see Table A1 for details). Columns (3) and (4) present comparisons after the weighting adjustment: none of the differences in covariates' means remains significant, which suggests that the imbalance problem has been effectively mitigated. In addition, there are no differences between the performance of relocated and non-relocated firms, alleviating the concern that bad performance might prompt relocations.

4. Firm-level changes following HQ relocations

This section first builds an association between relocations to Beijing and *ex post* political favors. It then examines how the two types of relocations relate to firm profitability. Finally, it explores the changes in productivity and innovation from a sustainable growth perspective.

4.1. HQ relocations and political favors

Table 3 relates HQ relocations to Beijing (the first five columns) or Shanghai/Shenzhen (the last five columns) to five indicators of political favors.[20] The control groups for both subsamples are non-relocated firms. We control for the impact of repeated HQ relocations and firm and year fixed effects across all models. All regressions are weighted by a function of the propensity scores. We find that the political favors enjoyed by BJ movers increase significantly following relocations: the number of politically connected directors on the board increases by 17.0%, and the possibility of entering government-

[18] Despite our efforts to capture as many observable covariates as we can, some unobservable heterogeneity could still bias our estimates. Due to the absence of any exogenous variation in what prompts a firm to move its HQ, we adopt a different strategy to deal with this issue in Section 5.2.

[19] The traditional propensity score method matches each unit in the treatment group to one or n unit(s) in the control group, based on the closest propensity score(s). Although it secures a good balance of the propensity scores, this method unfavorably drops many units in the control group. This disadvantage is particularly problematic in our setting, because we have a small treatment group and doing so would considerably reduce the statistical power. Our weighting method achieves the balance between the treatment and control groups not by nearest-neighbor(s) matching, but by weighting all control units with a function of the propensity scores. This method can also achieve a balance of the covariates between the treatment and control groups without a loss of observations. We thank an anonymous reviewer for helping us clarify the two different approaches.

[20] Fig. A6 tests the ‘parallel trend’ hypothesis of these regressions as well in Tables 4 and 5.

regulated sectors increases by 8.7%. The financial restrictions faced by firms also ease to some extent: the ratio of bank loans to total revenues increases by 9.3%, and the interest rate decreases by 4.9%[21]; the ratio of government subsidies to total revenues, though not statistically significant, also increases by 0.8%.[22] Estimates in the last five columns are close to zero and insignificant, indicating that SH/SZ movers do not experience changes in political favors. To facilitate comparisons between BJ and SH/SZ movers, we introduce an interaction term *Move*BJ* based on specification (1), where *BJ* is a dummy variable indicating whether the destination city is Beijing. By simply testing the coefficient of the interaction term, we can determine whether the difference is statistically significant within a single regression. We find the signs are as expected, though several estimates are statistically insignificant.[23] These results thus validate our conjecture that relocations to Beijing are politically motivated.

Apart from our political favor-seeking explanation, the above results might also be interpreted as a learning process.[24] To illustrate, a BJ mover may learn that its local competitors in Beijing meet extensively with government officials, and adopt similar practices. Such a learning process would only apply to movers and start after relocation, which motivates us to use movers to other cities as the control group based on the premise that they experience more or less a similar leaning process. We find similar results using this alternative control group, suggesting that the learning and adoption scenario is not a major concern (see Section 5.1 for details).[25]

4.2. HQ relocations and profitability

Table 4 examines the changes in profitability following both types of HQ relocations. The first (last) three columns show how relocations to Beijing (Shanghai/Shenzhen) relate to firm profitability measured by ROE, ROA, and ROS sequentially. Although both types of relocations are followed by an increase in profitability, a closer look at the time profile of changes in profitability in Fig. A6-2 shows that this increase diminishes gradually for BJ movers, but grows over time for SH/SZ movers. This contrast implies differentiated sustainable growth paths for the two groups of movers, which motivates us to explore how a firm's underlying productivity and innovative capability changes following HQ relocations.

4.3. HQ relocations and sustainable growth

We next examine whether there is a longer-term difference between the two types of movers due to different abilities to maintain sustainable growth. The first (last) three columns of Table 5 show how relocations to Beijing (Shanghai/Shenzhen) relate to indicators of productivity and innovation. First, we find that the TFP diverges between the two groups of movers after relocating. The point estimate in Column (1) is −0.101, which is significant at the 10% level, implying that a firm with a median TFP would drop to the 27th percentile after relocating its HQ to Beijing. In Column (4), on the contrary, the point estimate is 0.217 and significant at the 1% level, showing that a firm with a median TFP would rise to the 86th percentile after relocating its HQ to Shanghai/Shenzhen.[26]

To further explore the sources of changes in productivity, we examine the R&D intensity and the number of patent applications of BJ and SH/SZ movers in Columns (1)–(2) and (5)–(6), respectively. The estimates show that after a firm relocates its HQ to Beijing, its R&D intensity drops by 0.8% and the number of patent applications decreases by 19.7%. Both estimates are significant at the 5% level.[27] By contrast, neither R&D intensity nor the number of patent applications changes after relocations

[21] A potential concern is that the increase in bank loans and decrease in interest rates may instead capture the local capital market structures in Beijing, which is dominated by bank lending. If this were the case, the estimates would only reflect the catching-up effect of relocated firms compared with those already in Beijing. Our evidence, however, can alleviate this concern: compared with firms originally located in Beijing, relocated firms receive 41% more bank loans, and their interest rates are 27% lower, on average.

[22] Some previous studies have also found that political connections can reduce firms' legal risks (Firth et al., 2011). We find that HQ relocations to Beijing are indeed followed by a decreased probability of being involved in litigation or arbitration, though this finding is not statistically significant. We do not observe similar results on relocations to Shanghai/Shenzhen.

[23] Fig. A7 plots estimates of the coefficients of the interaction term. We thank an anonymous reviewer for this suggestion.

[24] We thank an anonymous reviewer for contributing this discussion.

[25] Two additional sets of evidence also help mute this alternative narrative. First, Fig. A6-1 illustrates that all indicators of political favors (except interest rates) experience an immediate increase following relocations, rather than a delayed improvement as predicted by the learning story. Second, we try to identify and drop cases where firms relocate to Beijing and adopt local practices. We find similar results based on the remaining BJ movers who are more plausibly motivated to seek political favors (see Section 5.1 for details).

[26] Some people might argue that the efficiency decline might instead come from the increased distance between the HQ and the production sites resulting from HQ relocations. Henderson and Ono (2008) show that such a change makes communication and monitoring more difficult, and thus impedes efficiency. In our study, the average relocation distance for firms that moved to Beijing is 1040 km, which is slightly further than the average distance for firms that relocated to Shanghai/Shenzhen (993 km). But the difference between the two means is insignificant (*p*-value = .768). In order to more rigorously consider the impact of distance, we introduced in the regression an interaction of the HQ relocation variable *Move* with the demeaned relocation distance: $y_{i,t} = \alpha_0 + \beta_1 Move_{i,t} + \beta_2 Move_{i,t} * (Distance_i - \overline{Distance}) + \gamma X'_{i,t} + \varphi_i + \delta_t + \varepsilon_{i,t}$. Table A2 reports the regression results. We find that the estimates of the coefficient β_2 in both the Beijing and Shanghai/Shenzhen subsamples are negative, as predicted, but insignificant. This indicates that the relocation distance does not contribute to the efficiency decline.

[27] As we add 1 to the number of patents before taking the logarithm, the coefficient of HQ relocations measures the rate of change in the number of patents after relocations. We also employ Poisson and negative-binomial models to check the robustness of our results due to the count-based nature

Table 4
HQ relocations and firms' profitability.

	(1)	(2)	(3)	(4)	(5)	(6)
	Beijing subsample			Shanghai/Shenzhen subsample		
	ROE	ROA	ROS	ROE	ROA	ROS
Move	0.060**	0.020**	0.072*	0.112***	0.049***	0.111**
	(0.027)	(0.009)	(0.038)	(0.042)	(0.015)	(0.043)
Second	−0.018	−0.014	−0.012	−0.086	−0.031	0.079
	(0.049)	(0.014)	(0.046)	(0.070)	(0.023)	(0.079)
Size	0.057***	0.011***	0.057***	0.046**	0.008	0.019
	(0.012)	(0.003)	(0.018)	(0.019)	(0.006)	(0.020)
Leverage	−0.477***	−0.123***	−0.348***	−0.437***	−0.121***	−0.271**
	(0.063)	(0.014)	(0.060)	(0.101)	(0.030)	(0.116)
Block	0.053	0.022	0.112	0.366***	0.120***	0.221*
	(0.077)	(0.024)	(0.094)	(0.118)	(0.027)	(0.119)
Volatility	0.828**	0.241	1.272***	1.159*	0.183	0.998
	(0.388)	(0.151)	(0.347)	(0.595)	(0.228)	(0.833)
FCF	0.156***	0.034**	0.103	0.081	0.015	0.095
	(0.055)	(0.016)	(0.079)	(0.076)	(0.019)	(0.100)
Age	−0.004*	−0.002**	−0.007*	0.006	0.000	0.001
	(0.002)	(0.001)	(0.004)	(0.008)	(0.002)	(0.008)
IPO	0.014	0.017**	0.017	−0.047	0.002	−0.010
	(0.029)	(0.008)	(0.037)	(0.035)	(0.013)	(0.045)
MAR	0.028	0.008	0.030	0.045	0.012	0.054*
	(0.026)	(0.008)	(0.041)	(0.034)	(0.013)	(0.028)
Constant	−0.998***	−0.157**	−0.982***	−1.084**	−0.159	−0.398
	(0.242)	(0.067)	(0.324)	(0.466)	(0.123)	(0.460)
Obs.	16,214	16,214	16,206	7941	7941	7938
R^2	0.145	0.130	0.092	0.209	0.208	0.151
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors clustered at the firm level are shown in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

to Shanghai/Shenzhen.[28]

We also conduct exploratory analysis on changes in intangible assets, long-term investments, and investments in "big" projects (see Appendix Table A3).[29] We find that intangible assets increase following relocations to SH/SZ. Since many components of such assets, e.g. software, are productivity enhancing, this evidence is consistent with the increasing TFP of SH/SZ movers. By contrast, BJ movers experience a decrease in investments in "big" projects, which indicates that their investment opportunities decrease. We find null results on other specifications. Taken together, these findings suggest that SH/SZ movers are able to achieve sustainable growth, while BJ movers are not.[30]

5. Robustness discussion

5.1. Is Beijing also an economic center?

One might challenge the above findings by arguing that at least some BJ movers are motivated not by political favors, but by other economic reasons. This criticism seems plausible, as Beijing is also an economic center featuring a large number of elite universities and research institutes.[31] Two implications follow from this argument. First, the negative correlation

(*footnote continued*)
of the patent counts. The results are consistent with the ordinary least squares estimators. We thank an anonymous reviewer for the suggestion.

[28] We also employ the interaction term method. The differences between the BJ and SH/SZ subsamples are statistically significant except for the regression with R&D expenditure as the dependent variable. See Fig. A7 for the coefficients of the interaction term.

[29] We thank an anonymous reviewer for this suggestion.

[30] The question then arises naturally: whether the differential growth prospects in the long term are echoed with their performance in the stock market? Using Tobin's Q as a measure of market evaluation, we find that Tobin's Q increases for SH/SZ movers but not for BJ movers (see Appendix Table A4). This finding further corroborates the evidence on the divergent productivity and innovation between the BJ and SH/SH movers.

[31] There are other situations where HQ relocations have nothing to do with firms' rent-seeking behaviors. For instance, the Chinese central government might tighten its grip over the Internet by requiring tech firms to relocate to Beijing. We scrutinize our sample and find only one tech firm out of the 42 firms that have relocated their HQ to Beijing. We drop that firm and obtain similar results.

Table 5
HQ relocations and firms' sustainability.

	(1)	(2)	(3)	(4)	(5)	(6)
	Beijing subsample			Shanghai/Shenzhen subsample		
	TFP	R&D	Patent	TFP	R&D	Patent
Move	−0.101*	−0.008**	−0.197**	0.217***	−0.001	−0.082
	(0.056)	(0.003)	(0.085)	(0.070)	(0.004)	(0.093)
Second	−0.052	0.015	−0.148**	−0.148	−0.013***	−0.226**
	(0.120)	(0.014)	(0.069)	(0.134)	(0.002)	(0.095)
Size	−0.014	0.002*	0.036*	0.017	−0.001**	0.067**
	(0.025)	(0.001)	(0.021)	(0.027)	(0.001)	(0.032)
Leverage	−0.186**	−0.019**	−0.010	−0.261	0.003	0.232***
	(0.083)	(0.008)	(0.050)	(0.212)	(0.003)	(0.081)
Block	0.265**	−0.012	−0.071	0.181	0.012	−0.821***
	(0.132)	(0.009)	(0.122)	(0.225)	(0.008)	(0.267)
Volatility	−0.104	−0.058	0.356	−0.097	−0.004	−2.155**
	(0.955)	(0.044)	(0.527)	(0.672)	(0.038)	(1.056)
FCF	0.300***	0.009*	−0.032	0.149	0.001	−0.076
	(0.076)	(0.005)	(0.052)	(0.101)	(0.004)	(0.124)
Age	0.007	0.004**	0.018***	0.002	0.004***	0.016**
	(0.005)	(0.001)	(0.005)	(0.007)	(0.001)	(0.006)
IPO	0.043	0.008*	0.016	−0.057	−0.002	−0.024
	(0.075)	(0.004)	(0.155)	(0.069)	(0.007)	(0.253)
MAR	0.014	0.002	−0.107**	0.046	−0.004	−0.104*
	(0.037)	(0.003)	(0.052)	(0.043)	(0.002)	(0.058)
Constant	0.209	−0.086**	−0.684*	−0.385	−0.023	−0.969
	(0.481)	(0.038)	(0.384)	(0.540)	(0.030)	(0.620)
Obs.	15,338	10,987	16,468	6609	5779	8120
R^2	0.061	0.224	0.084	0.123	0.218	0.158
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors clustered at the firm level are shown in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

between relocations to Beijing and sustainability would be underestimated. Given the positive association between relocations to economic centers and sustainability, as we find in the Shanghai/Shenzhen subsample, we should expect that BJ movers improve their sustainability as well. Thus, the observed negative correlations in the first four columns of Table 5 are actually conservative estimates. Second, the same reasoning also implies that the positive correlation between relocations to Beijing and profitability might be overestimated: at least part of this positive correlation comes from Beijing's advantages in the economic arena.

To attenuate this overestimation bias, we first divide the industries into two groups: high- and low-political-favoritism industries.[32] We assume that firms in the former group tend to make HQ relocation decisions that are more politically motivated than those in the latter group. We then restrict the sample to high-political-favoritism industries and re-examine how HQ relocations to Beijing are related to corporate outcomes. Table 6 repeats the regressions of the Beijing subsample from Tables 4 and 5. We find that the new estimates are very close to the previous estimates in terms of both economic magnitudes and statistical significance, which reaffirms that our findings are mainly driven by BJ movers who are motivated to seek political favors.

5.2. Selection of the control group[33]

Decisions about whether to relocate could be rationalized by a cost–benefit calculation: only those who believe the potential benefits outweigh the costs would choose to relocate, and can be observed subsequently. In other words, there is heterogeneity between relocated and non-relocated firms. Although we have tried to control for observables in the analysis, the presence of potential unobservables would make it hard to apply our findings to all firms in the sample, especially the non-relocated ones.

To alleviate this concern, we use relocated firms as alternative control groups to capture some unobservable heterogeneity. Our dataset allows us to construct two such control groups. The first consists of 85 firms that relocated to cities other than Beijing,

[32] See Fig. A8 for details of the industry classification.
[33] We thank the two anonymous reviewers for their tremendous contributions to this subsection.

Table 6
Subsample results of highly politically motivated HQ relocations.

	(1)	(2)	(3)	(4)	(5)	(6)
	Beijing subsample					
	ROE	ROA	ROS	TFP	R&D	Patent
Move	0.055*	0.019*	0.075*	−0.092*	−0.010***	−0.205**
	(0.028)	(0.010)	(0.044)	(0.054)	(0.003)	(0.094)
Second	−0.040	−0.020	−0.019	−0.069	0.023	−0.188**
	(0.051)	(0.014)	(0.050)	(0.140)	(0.017)	(0.074)
Size	0.062***	0.013***	0.061***	−0.024	0.003*	0.044*
	(0.013)	(0.003)	(0.019)	(0.027)	(0.001)	(0.025)
Leverage	−0.513***	−0.127***	−0.367***	−0.203**	−0.020**	−0.019
	(0.072)	(0.016)	(0.069)	(0.097)	(0.008)	(0.055)
Block	0.048	0.018	0.072	0.370***	−0.011	−0.084
	(0.073)	(0.024)	(0.095)	(0.138)	(0.009)	(0.152)
Volatility	1.008***	0.359**	1.306***	1.108**	−0.058	0.420
	(0.352)	(0.146)	(0.451)	(0.555)	(0.054)	(0.617)
FCF	0.175***	0.038**	0.129	0.268***	0.007	−0.007
	(0.061)	(0.018)	(0.087)	(0.081)	(0.005)	(0.060)
Age	−0.005**	−0.002***	−0.009**	0.007	0.005***	0.024***
	(0.003)	(0.001)	(0.004)	(0.005)	(0.001)	(0.006)
IPO	0.016	0.015*	0.026	0.005	0.007	0.029
	(0.031)	(0.009)	(0.041)	(0.090)	(0.004)	(0.161)
MAR	0.024	0.007	0.028	0.026	0.001	−0.089*
	(0.030)	(0.010)	(0.048)	(0.043)	(0.004)	(0.052)
Constant	−1.090***	−0.188***	−1.023***	0.340	−0.115***	−0.890*
	(0.255)	(0.067)	(0.351)	(0.517)	(0.040)	(0.469)
Obs.	13,442	13,442	13,437	12,763	9244	13,630
R^2	0.164	0.144	0.107	0.080	0.254	0.095
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors clustered at the firm level are shown in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

Table 7
Changes in market share following HQ relocations.

	(1)	(2)	(3)	(4)
	Beijing		Shanghai/Shenzhen	
	Close competitors	Movers	Close competitors	Movers
Move	0.006	0.016**	0.000	0.019
	(0.011)	(0.008)	(0.009)	(0.029)
Second	0.028*	0.007	0.010	−0.002
	(0.015)	(0.028)	(0.012)	(0.027)
Constant	0.056***	0.026***	0.057***	0.051***
	(0.008)	(0.008)	(0.006)	(0.018)
Obs.	1106	594	684	381
R^2	0.035	0.076	0.035	0.056
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Note: The dependent variable is the market share measured as the ratio of a firm's annual revenue to the total revenues of all firms in that sector at the 3-digit level. Standard errors clustered at the firm level are shown in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

Table 8
Impacts of HQ relocations on industries' monopoly levels.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	CR8	CR20	HHI	CR8	CR20	HHI
Number of BJ movers	0.017***	0.013**	0.015*			
	(0.005)	(0.006)	(0.008)			
Number of SH/SZ movers				−0.003	−0.010	0.006
				(0.010)	(0.006)	(0.008)
Number of firms	−0.053	−0.055	−0.018	−0.011	−0.019	0.014
	(0.081)	(0.066)	(0.057)	(0.078)	(0.062)	(0.053)
Constant	0.681***	0.882***	0.148***	0.663***	0.867***	0.135***
	(0.039)	(0.031)	(0.022)	(0.037)	(0.030)	(0.023)
Obs.	336	336	336	336	336	336
R^2	0.091	0.232	0.101	0.051	0.206	0.086
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: The concentration ratio *CR8* (*CR20*) means the market share of the eight (twenty) largest firms in an industry in a certain year. *HHI* is the Herfindahl Index in an industry in a certain year. The *Number of BJ (or SH/SZ) movers* is the number of firms within an industry that had relocated their HQs to Beijing (or Shanghai/Shenzhen) as of year *t*. The *Number of firms* refers to the count of all listed companies in each industry during that year. Standard errors clustered at the industry level are shown in parentheses.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

Shanghai, or Shenzhen (Other movers, hereafter). Other movers share more similar cost–benefit considerations when making relocation decisions, thus presumably qualifying as a better control group for companies moving HQs to BJ or SH/SZ than a control group of firms that never moved. A balance test reveals that the differences between BJ (or SH/SZ) movers and Other movers are indeed small, and thus they are comparable to each other (see Table A5).

The second control group contains BJ or SH/SZ movers only. We exploit the staggered timing of BJ (SH/SZ) movers and use firms that later relocated to BJ (SH/SZ) as the control group for current BJ (SH/SZ) movers. This design better addresses the heterogeneity concern than designs that use non-movers or Other movers as the control group, but at the cost of a considerable loss of observations. To help appreciate how the estimates depend on different control groups, Fig. A9 contrasts the two new sets of estimates against the baseline results. We find the new estimates are very close to those in the baseline, suggesting that our findings are robust to the selection of different control groups.

6. A remaining story: The externality of HQ relocations

Beyond the focus on the associated changes following relocations among the movers themselves, we also explore the potential impact of HQ relocations on other players in the market and the market structure as a whole since political capital is limited.[34] We first investigate how relocations are associated with changes in the market shares of both movers and their close competitors.[35] The regression results are reported in Table 7, where the dependent variable in the first (last) two columns is the market share of close competitors or BJ (SH/SZ) movers, respectively. First, the estimates in Columns (1) and (3) suggest that neither BJ nor SH/SZ movers can affect their close competitors' market shares. Second, for movers, the statistically significant estimate in Column (2) indicates that relocating their HQs to Beijing is associated with a 1.6% increase in market share, while the estimate in Column (4) is insignificant.

In addition to the market shares of movers and their competitors, we further examine the impact of the two types of relocations on the degree of market competition, which is measured using two sets of standard indicators. The first set consists of the eight- or twenty-firm concentration ratio, which means the market share of the largest eight or twenty firms in an industry.[36] One disadvantage of this type of measure is that it does not cover all firms in the industry, and thus fails to account for the distribution of firm sizes. The Herfindahl index overcomes this disadvantage by including all firms in the calculation and giving more weight to larger firms. All three indicators take a value between 0 and 1. The larger the value, the lower the degree of market competition.

Table 8 presents the estimated impact of the two groups of movers within an industry on the degree of market competition.[37] The

[34] We thank an anonymous reviewer for contributing extensively to the discussion in this section.

[35] We define close competitors as two firms, in the same 3-digit industry, whose revenues are closest to that of the focal relocated firm in the year before the relocation. Close competitors are chosen with no placements. In this way, we matched 83 competitors with 42 BJ movers, and 56 competitors with 29 SH/SZ movers.

[36] These indicators are also used by the U.S. Census Bureau in Economic Census: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

[37] The unit of observation is industry-year. In all regressions, we include industry and year fixed effects. We also control for the number of firms (in hundreds) in each industry across all specifications in order to eliminate the impact of new entries or exits.

explanatory variable in the first (last) three columns is the number of BJ (SH/SZ) movers and the dependent variable is the eight-firm concentration ratio, twenty-firm concentration ratio, and Herfindahl index, respectively. The estimates in the first three columns are consistently positive and significant, suggesting that BJ movers would reduce the degree of market competition. With regard to the effect magnitude, the estimate in Column (3), for instance, indicates that an additional BJ mover would increase the industry's Herfindahl index by 0.015. Considering that each related industry has three BJ movers on average and the sample mean of the HHI index is 0.155,[38] HQ relocations to Beijing alone contribute to a 29% reduction in the degree of market competition. By contrast, estimates in the last three columns are close to zero and insignificant, indicating that SH/SZ movers do not have such an impact. Taken together, these findings reveal that relocations that are motivated by the desire to seek political favors would impose a negative externality at the sector level by reducing the degree of market competition, which provides a fresh contribution to our understanding of political favoritism.

7. Conclusion

This paper examines how HQ relocations are related to long-term corporate performance by focusing on China's listed companies. We are particularly interested in HQ relocations motivated by seeking political favoritism. The analysis reveals three main findings. First, HQ relocations to Beijing are associated with increased political favors, while relocations to Shanghai/Shenzhen are not. Second, while all HQ relocations increase profitability, the sustainable growth paths of the two groups of movers seem to diverge after relocations. Firm productivity and innovation worsen after relocating to Beijing but improve after moving to Shanghai/Shenzhen. Overall, these correlations support the argument that political favoritism benefits firms' profitability but impairs their productivity and innovation. Finally, we also find evidence that HQ relocations to Beijing impose a negative externality by reducing the degree of market competition of related industries.

These findings demonstrate that political factors play a significant role in shaping the geographic distribution of economic activity, especially in a non-representative regime where political power is highly concentrated. Political favoritism attracts economic activities to the political center, but this concentration is accompanied by a decline in economic units' efficiency and innovation. This indicates that political favoritism distorts the effective allocation of resources and thus resembles a “resource curse”.

Acknowledgements

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[38] In our sample, 14 industries have at least one BJ mover, while the remaining eight do not.

Appendix A

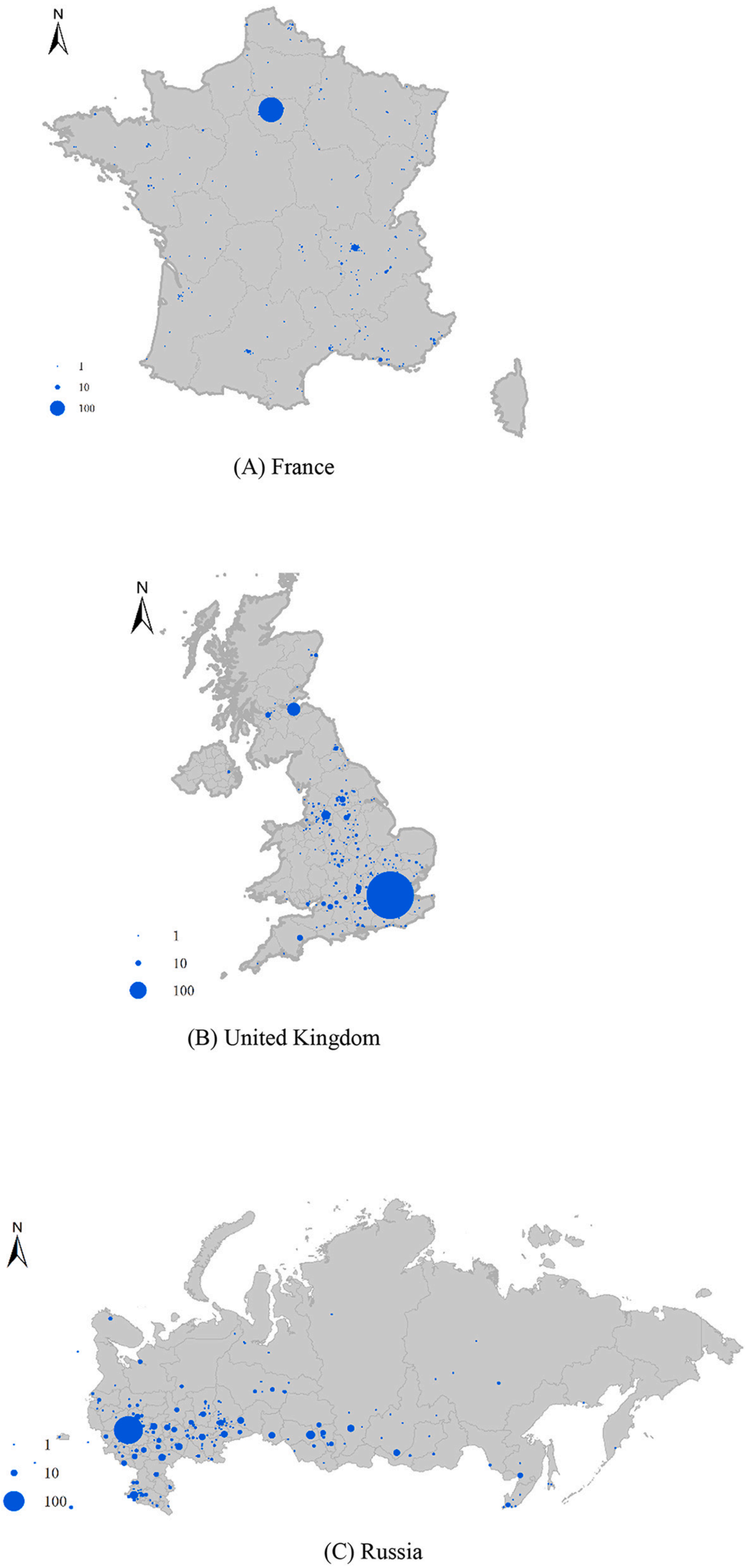


Fig. A1. Spatial distribution of listed companies in France, the United Kingdom, and Russia.

Note: In these three countries, the political and economic centers coincide, and the share of listed companies in the capital city far exceeds that in the city with the second-largest number. Up to the end of 2015, there were a total of 798 listed companies in France, 276 of which (34.6%) had their HQs in Paris; Lyon – which has the second-largest number of listed companies – hosted only 19 HQs (2.4%). Of the 1665 listed companies in the UK, 768 firms (46.1%) located their HQs in London, and 61 (3.7%) in Edinburgh, the city with the second-largest number. Of the 899 listed companies in Russia, 188 firms (20.9%) had their HQs in Moscow, and Novosibirsk hosted 19 (2.1%). In comparison, the rank of Chinese cities by the number of listed companies' HQs are: Beijing (261 firms, 9.4% of total), Shanghai (218, 7.8%) and Shenzhen (199, 7.2%).

Data source: Osiris database (https://osiris.bvdinfo.com).

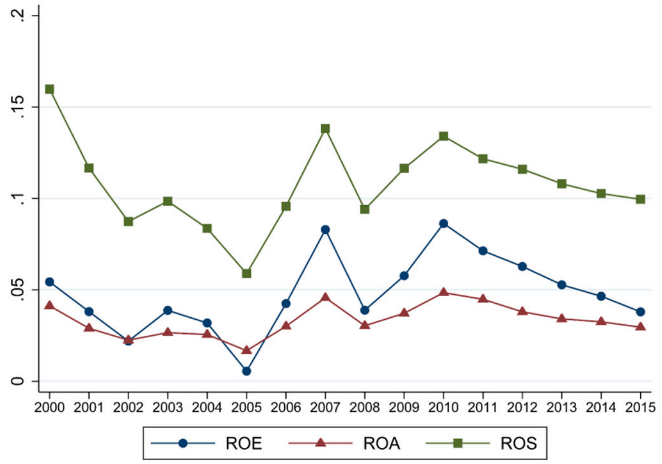


Fig. A2. Profitability of listed companies in China, 2000–2015.
Note: ROE is the ratio of the net profit (after tax) to owners' equity, ROA is the ratio of the net profit (after tax) to total assets, and ROS is the ratio of the net profit (before interest and taxes) to operating incomes.

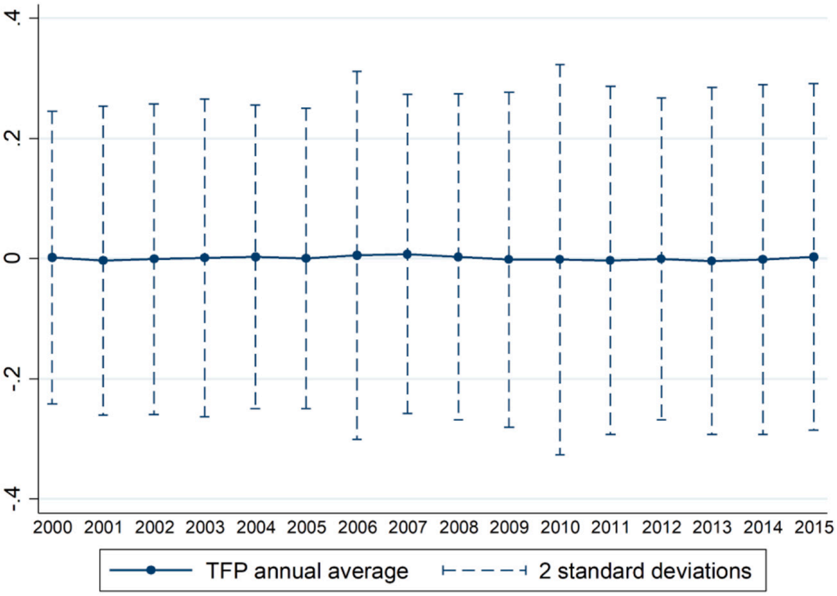


Fig. A3. TFP of listed companies in China, 2000–2015.

We utilize the classic log-linear Cobb-Douglas production function to calculate the TFP of each listed company. TFP is the estimated residual of the following equation:

$$y_{ijt} = \alpha_{jt} + \beta_{jt} l_{ijt} + \gamma_{jt} k_{ijt} + \delta_{jt} m_{ijt} + \epsilon_{ijt},$$

where y_{ijt} denotes the logarithm of the total output of firm i in sector j in year t; l, k, m are the logarithm of labor, capital, and material inputs, respectively. The residual term $\widehat{\epsilon_{ijt}}$ is the TFP of the focal firm. To allow for different factor intensities across industries and years, we estimate the equation by industry and year. Thus, our TFP estimates indicate a firm's deviation from the average factor productivity within its industry in a given year. As suggested in Giannetti et al. (2015), we use the 'sales of goods and services', 'number of employers', 'total assets' and 'cash payments for raw materials and service' in the annual reports of the listed companies to proxy for y, l, k, m in the equation. All the data used for the TFP estimation comes from the CSMAR database. The figure plots the annual average TFP as well as the standard deviation. The annual average is not precisely equal to zero due to the elimination of some observations.

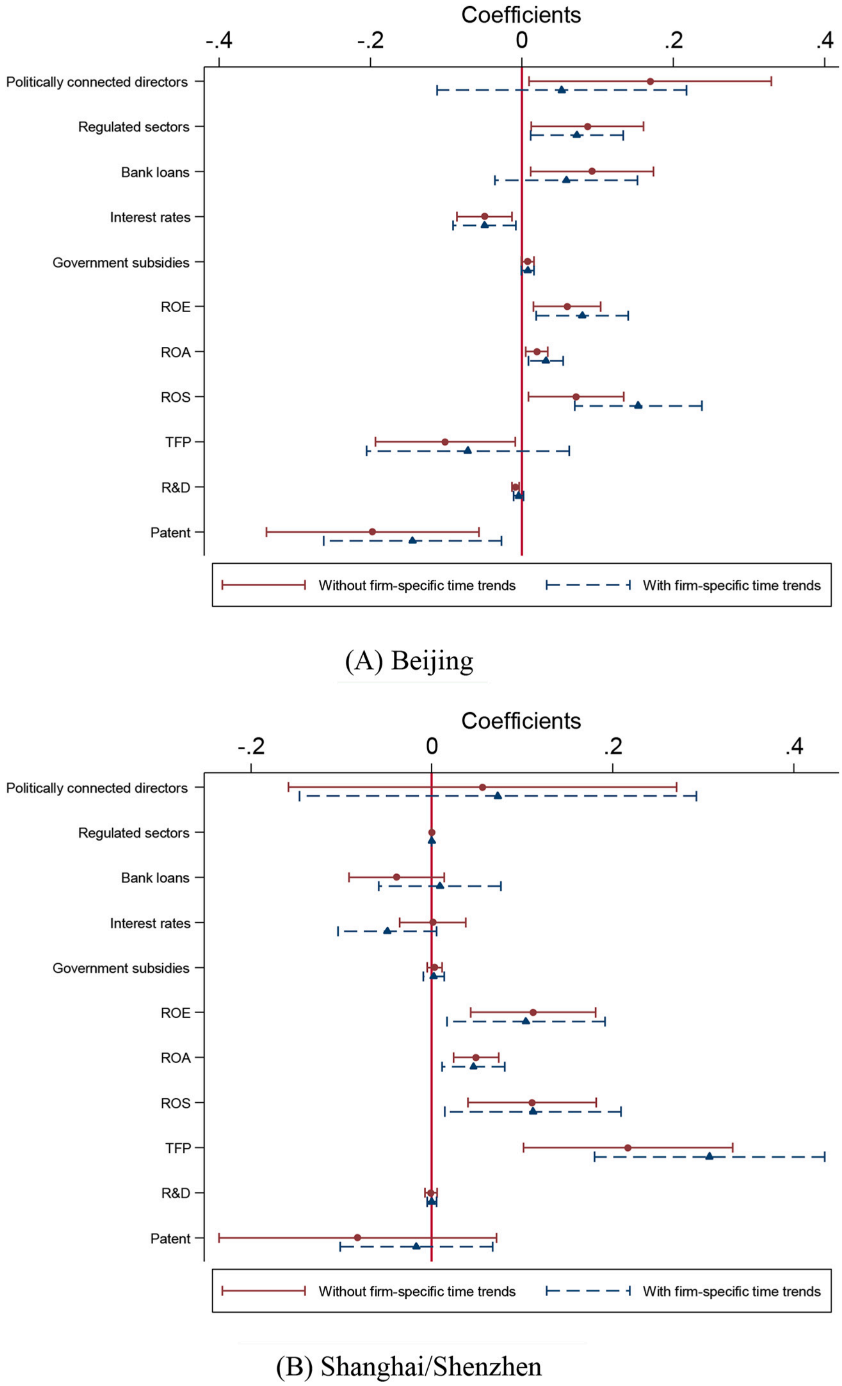
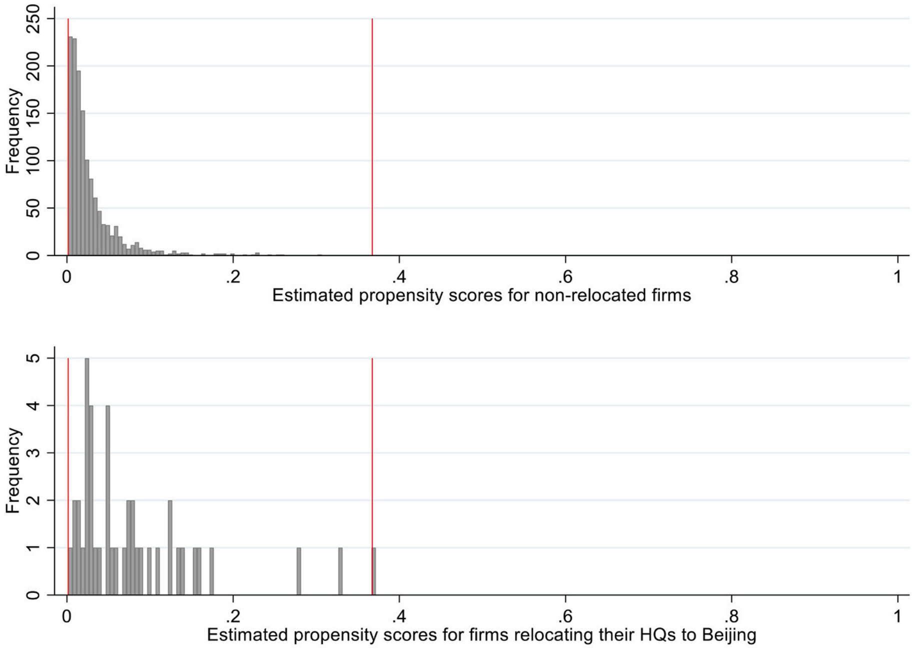
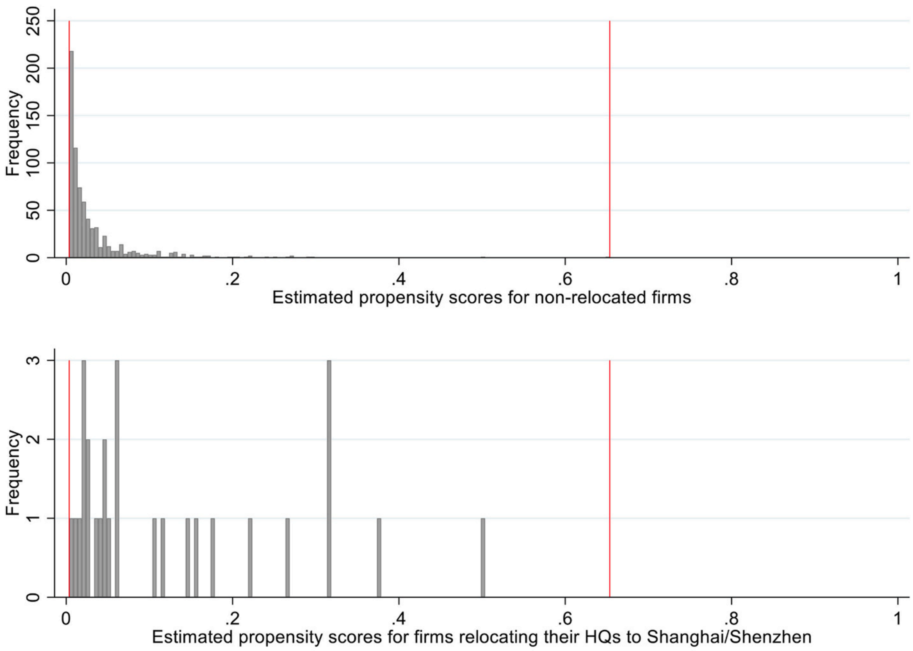


Fig. A4. Comparisons of estimates with and without firm-specific time trends.

Note: The red dots indicate estimates without firm-specific time trends, as in the main analysis, and the solid red lines show the corresponding 90% confidence intervals. The blue triangles indicate estimates with firm-specific time trends, and the dashed blue lines show the corresponding 90% confidence intervals. Panel (A) shows estimates for the Beijing subsample, and panel (B) for the Shanghai/Shenzhen subsample.



(A) Beijing



(B) Shanghai/Shenzhen

Fig. A5. Distribution of the estimated propensity scores.

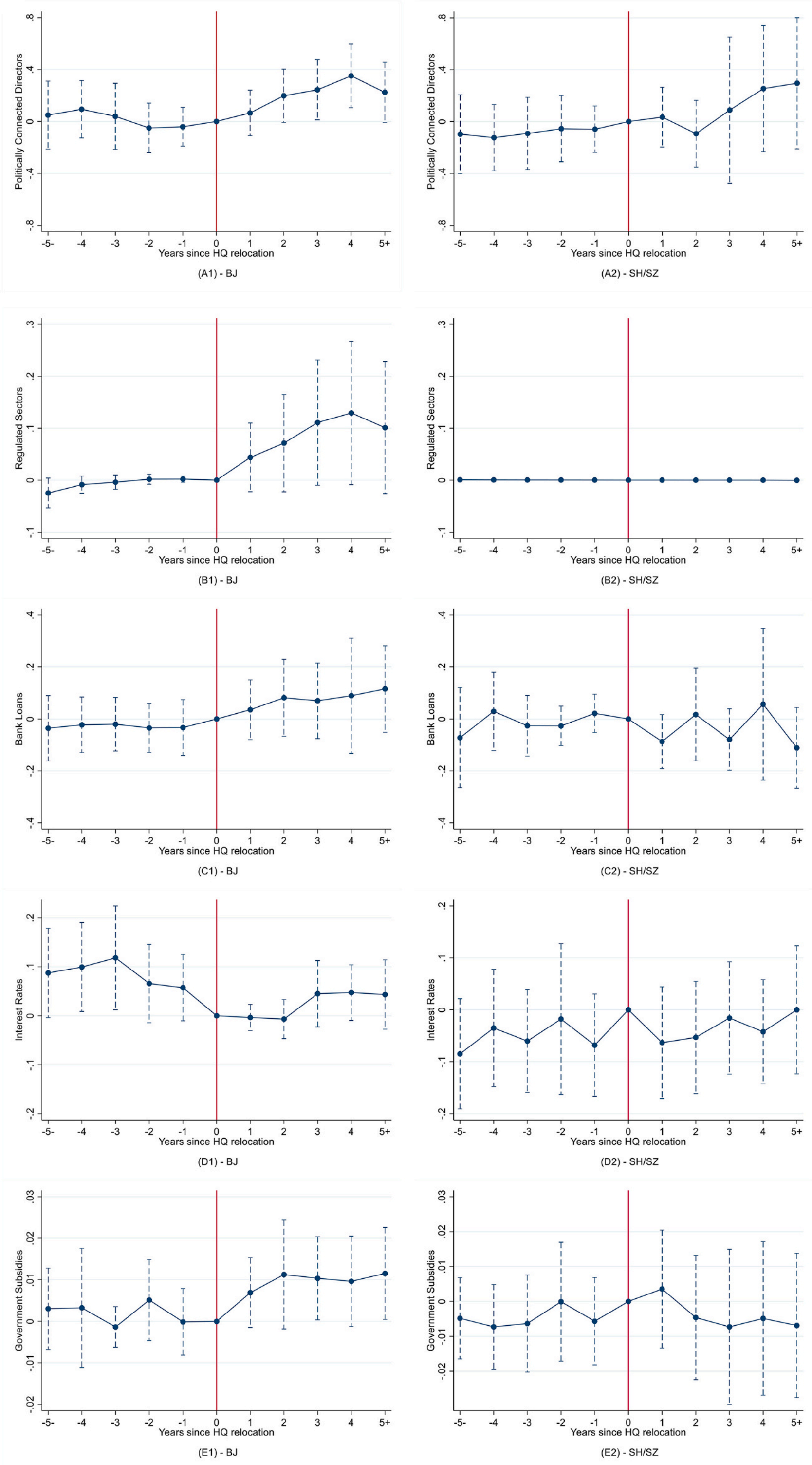
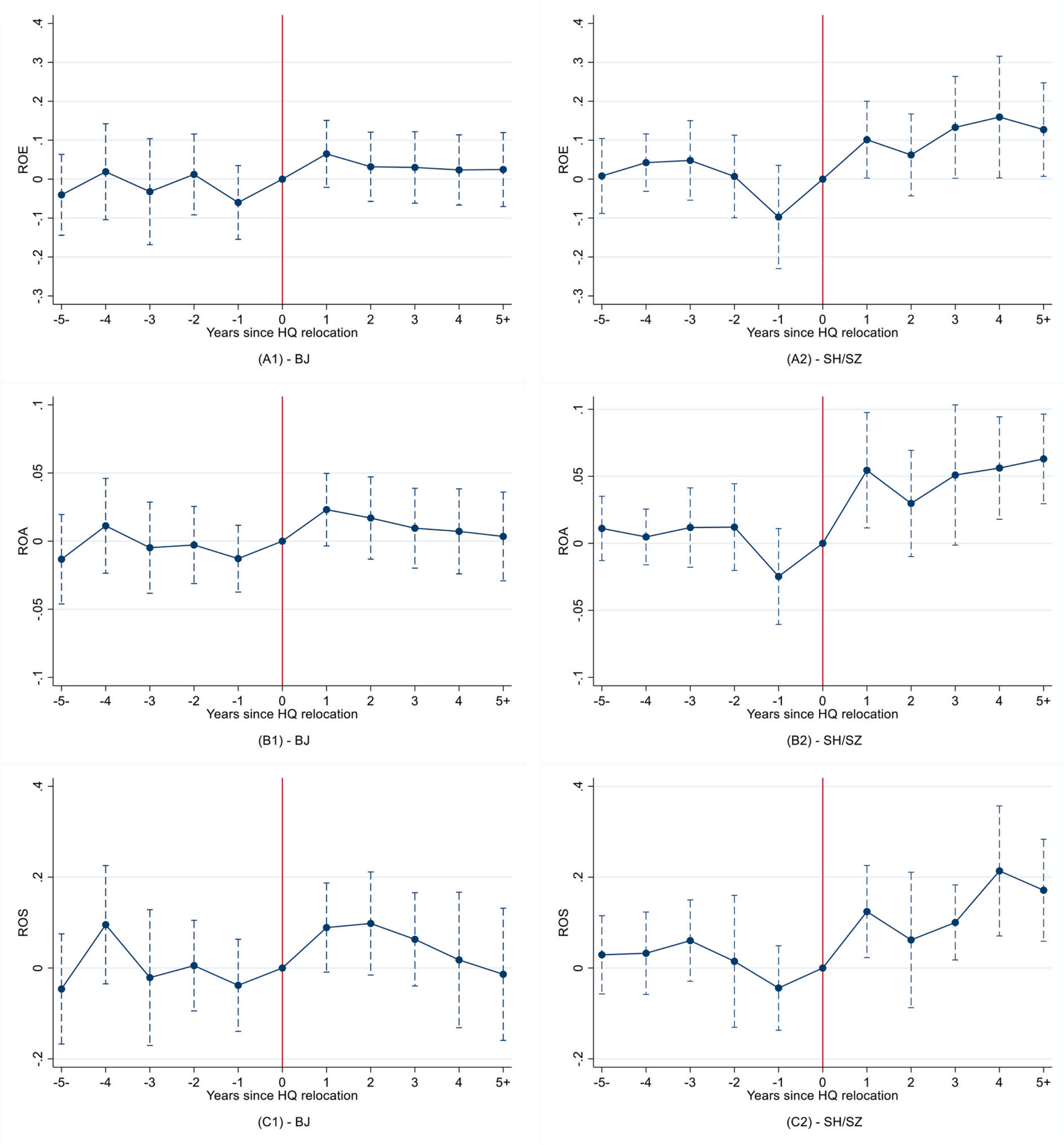
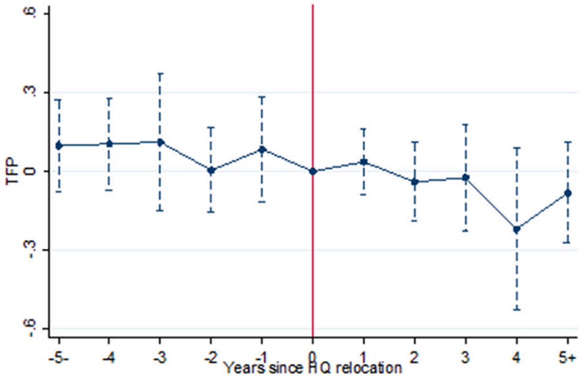
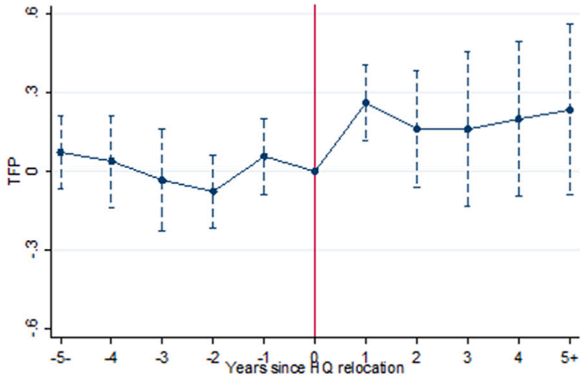


Fig. A6. Dynamic changes following HQ relocations.

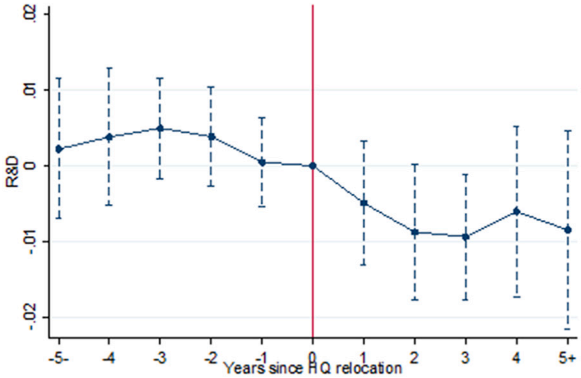

ROE
Years since HQ relocation
(A1) - BJ
ROE
Years since HQ relocation
(A2) - SH/SZ
ROA
Years since HQ relocation
(B1) - BJ
ROA
Years since HQ relocation
(B2) - SH/SZ
ROS
Years since HQ relocation
(C1) - BJ
ROS
Years since HQ relocation
(C2) - SH/SZ



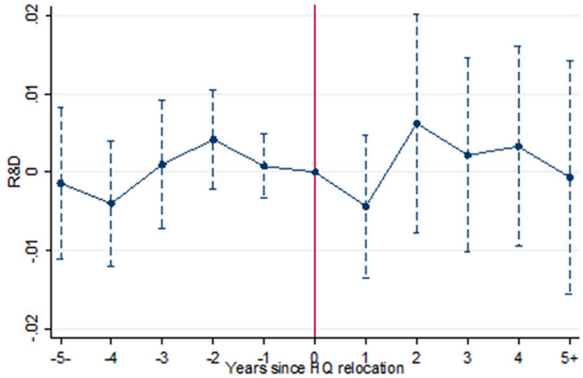
(A1) - BJ



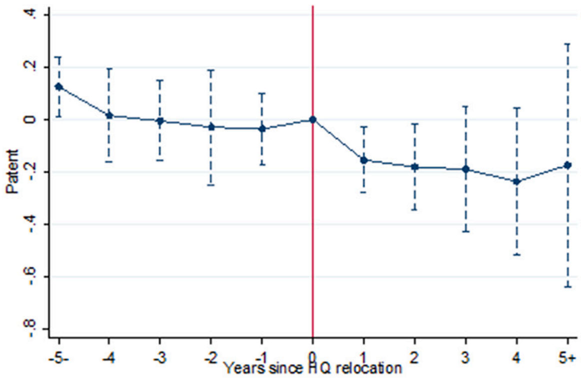
(A2) - SH/SZ



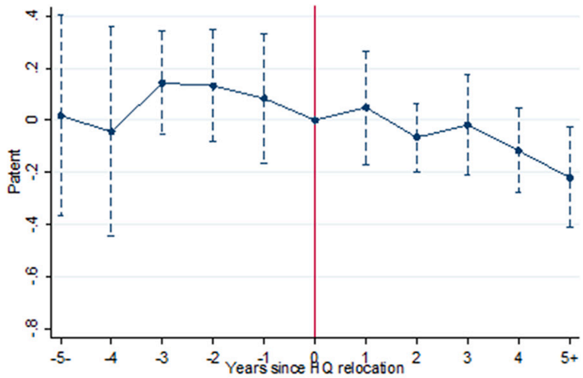
(B1) - BJ



(B2) - SH/SZ



(C1) - BJ



(C2) - SH/SZ

Notes: the horizontal axis represents the time relative to the reference year – the year immediately before HQ relocations (red vertical line). "-5-" is the fifth year prior to HQ relocations as well as years before the fifth year; "5 + " is the fifth year after HQ relocations as well as years after the fifth year. The plots connected by the solid line show the changes in related outcomes in relocated vs. non-relocated firms (the reference group) relative to the reference year, derived from the propensity-weighted regressions after controlling for firm fixed effects, year fixed effects, and control variables. The dotted line shows the 95% confidence intervals, and standard errors are clustered at the firm level.

The validity of the regression results in Tables 3–5 depends on whether the outcomes of the relocated firms, before HQ relocations, have similar time trends as non-relocated firms. To verify this assumption, we replace $Move_{i,\,t}$ in Eq. (1) with a set of dummy variables, $Move_{i,\,t,\,k}$, which indicates the k_{th} year before or after HQ relocations. Testing for pre-treatment trends is equivalent to a test that the coefficients β_k of $Move_{i,\,t,\,k}$ are equal to 0 for $k < 0$. The results are plotted in the figures below, in which the horizontal axis measures the number of years from HQ relocations, and the vertical axis measures the estimated $\widehat{\beta_k}$ in regressions where the dependent variable is an indicator of political favors, profitability, or productivity. The charts in the left and right columns correspond to the dynamic changes following HQ relocations to Beijing or Shanghai/Shenzhen, respectively. We find that in most cases, the outcomes share similar trends for relocated and non-relocated firms before relocations: the estimated coefficients $\widehat{\beta_k}(k < 0)$ are close to zero and insignificant, confirming that the estimates in Tables 3–5 are not seriously affected by unobserved omitted variables.

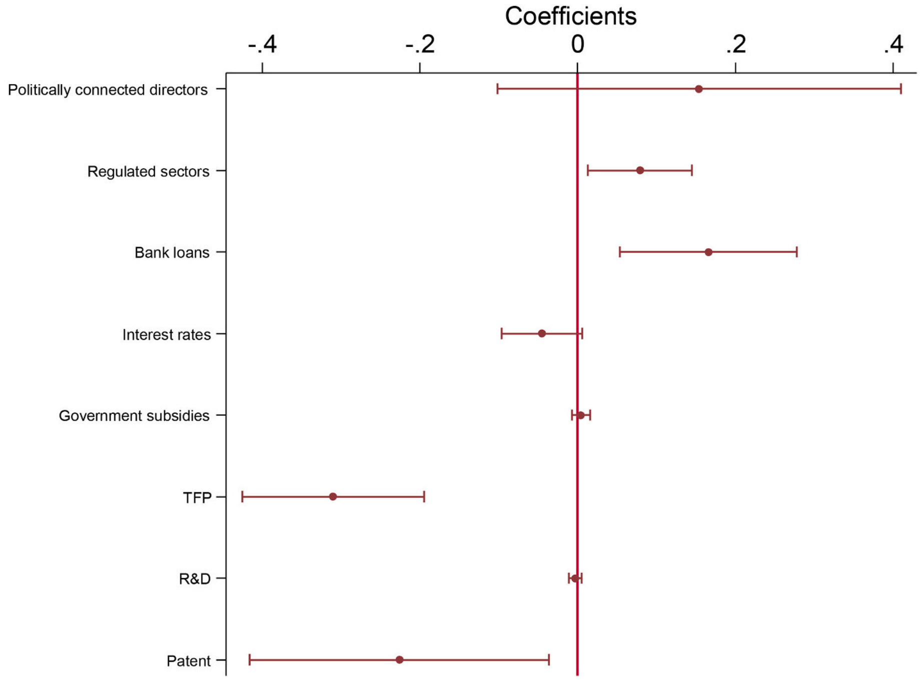


Fig. A7. Estimation of the specification with the interaction term.

We estimate the following specification:

$$y_{i,t} = \alpha_0 + \beta Move_{i,t} + \gamma X'_{i,t} + \lambda Move_{i,t} * BJ_i + \varphi_i + \delta_t + \varepsilon_{i,t},$$

where *BJ* is a dummy variable indicating whether the destination city is Beijing. The sample consists of BJ movers, SH/SZ movers, and non-movers. The following figure plots the estimates of the coefficients of *Move***BJ* when the dependent variable is a measure of either political favor or sustainability. The solid lines indicate 90% confidence intervals.

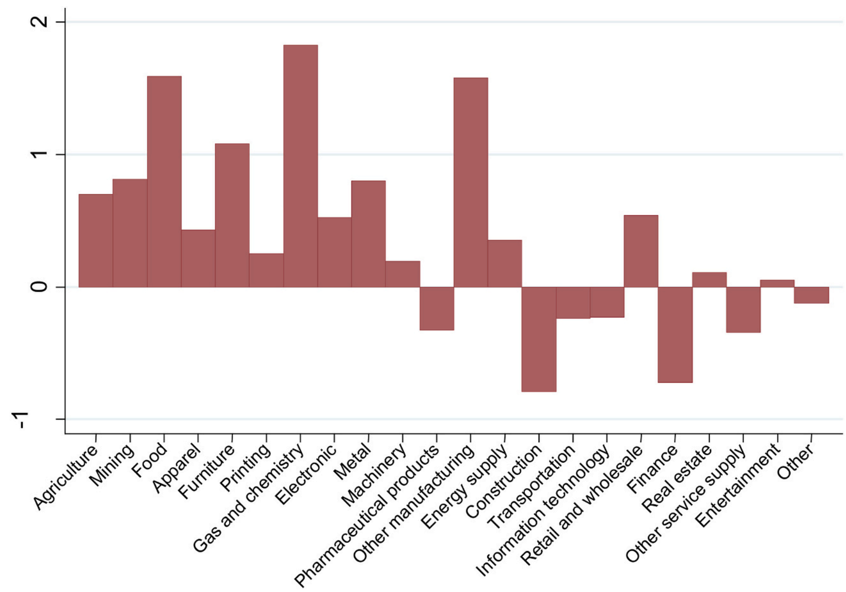
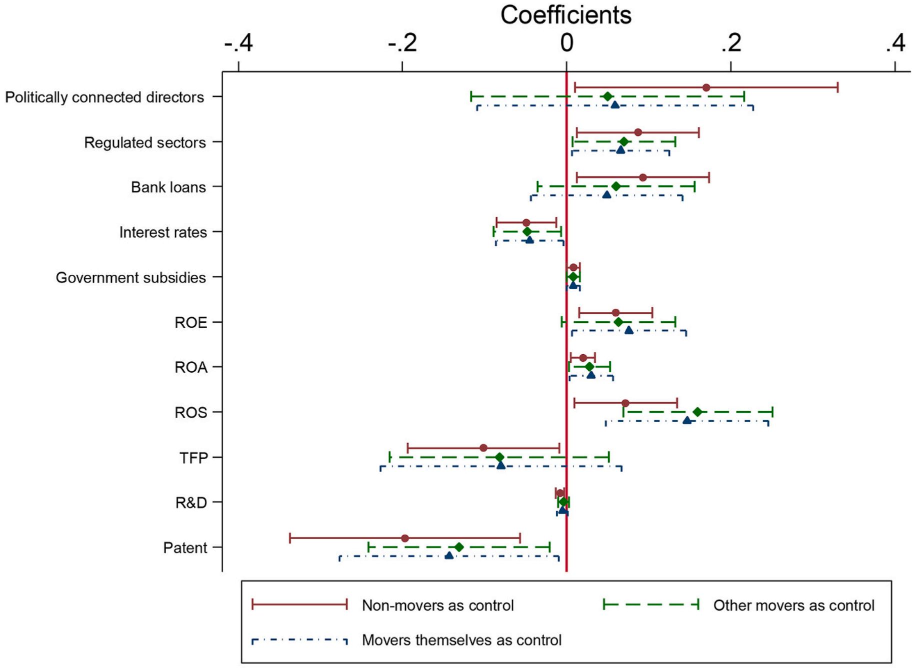
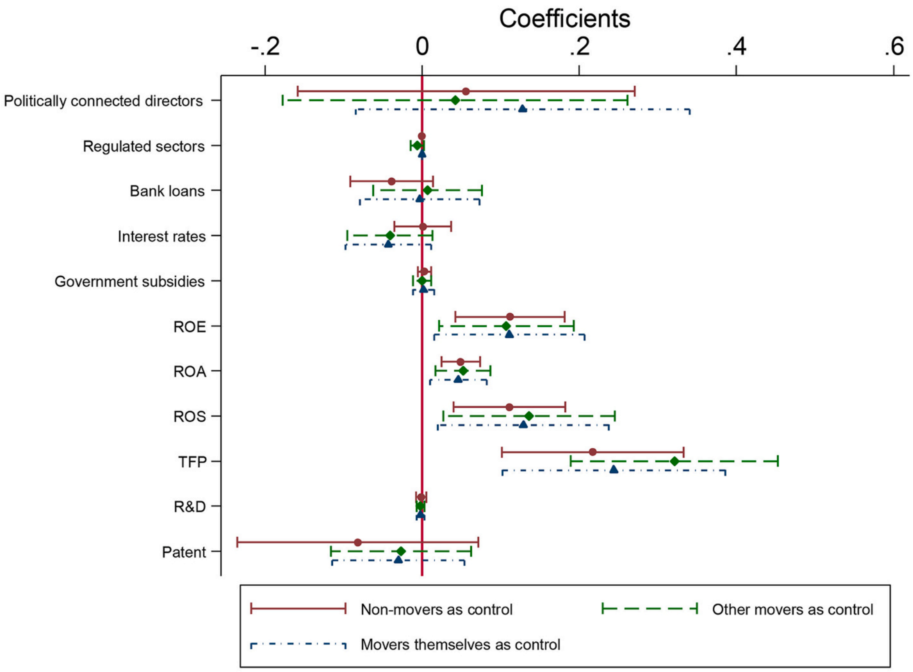


Fig. A8. Industry classification based on differences in political favors between Beijing and Shanghai/Shenzhen.

We generate a composite index based on five measures of political favors to identify industries within which firms are more likely to relocate their HQs to obtain political favors, rather than to benefit from the economic advantages in Beijing. As variables of different units cannot be added directly, we first standardize the five variables with their standard deviations (we take the inverse number for interest rates because a lower interest rate means a stronger political bias) before calculating the sum of the five measures for every industry, and then obtain the difference between the sum for Beijing and that for Shanghai/Shenzhen for every industry. If the difference (the composite index) is greater than zero, we classify this industry as having high political favoritism.



(A) Beijing



(B) Shanghai/Shenzhen

Fig. A9. Comparisons of estimates based on alternative control groups.

Note: The red dots indicate estimates using non-movers as the control group, as in the main analysis, and the solid red lines show the corresponding 90% confidence intervals. The green dots indicate estimates using Other movers (which move to cities other than Beijing or Shanghai/Shenzhen) as the control group, and the green dashed lines show the corresponding 90% confidence intervals. The blue triangles indicate estimates using BJ or SH/SZ movers as the control group, and the blue dashed-dotted lines show the corresponding 90% confidence intervals. Panel (A) shows estimates for the Beijing subsample, and panel (B) for the Shanghai/Shenzhen subsample.

Table A1
Estimation of propensity scores.

	(1)	(2)
	Beijing subsample	Shanghai/Shenzhen subsample
Size	−0.308	−0.565
	(0.272)	(0.347)
FCF		4.761**
		(2.259)
Age		−0.112*
		(0.062)
Central	1.154***	0.786*
	(0.341)	(0.475)
SOE		−2.158***
		(0.652)
HQ count1	−0.012	−0.011
	(0.013)	(0.010)
HQ count2	−0.087	0.003
	(0.124)	(0.086)
ROA	−5.917**	−12.079***
	(2.713)	(3.909)
Tobin's Q	0.298***	
	(0.109)	
Constant	−12.957	10.585
	(3052.125)	(7.282)
Obs.	1806	1793
Sector Dummies	YES	YES

* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

We use a *logit* model to estimate each firm's propensity score (i.e. probability) of relocating its HQ. The variables used for prediction show significant differences between relocated and non-relocated firms in Table 2 plus sector dummies. All variables are measured in 2000; if a firm did not go public before 2000 we use the average of the first two years since the IPO. The dependent variable is a dummy indicating whether the firm relocated its HQ during 2000–2015. The following table presents the estimation results. The sample in Column (1) includes firms that relocated their HQ to Beijing and non-relocated firms; the sample in Column (2) includes firms that relocated their HQ to Shanghai/Shenzhen and non-relocated firms. The fitted *p*-values obtained from the two regression models are the propensity scores of moving HQs to Beijing or Shanghai/Shenzhen, respectively. Fig. A5 demonstrates the corresponding distribution of the estimated propensity scores in each subsample. For each subsample, firms that are not in the common support (outside the zone delimitated by the two red lines) are dropped. We estimate the specifications of interest with weights equal to one for relocated firms and $p/(1 - p)$ for non-relocated firms.

Table A2
The influence of relocation distance on TFP.

	(1)	(2)
	Beijing sub-sample	Shanghai/Shenzhen subsample
Move	−0.096*	0.218***
	(0.055)	(0.069)
$Move * (Distance_i - \overline{Distance})$	−9.965e-5	−6.388e-5
	(10.437e-5)	(4.284e-5)
Second	−0.036	−0.156
	(0.124)	(0.127)
Size	−0.013	0.015
	(0.024)	(0.028)

(*continued on next page*)

Table A2 (*continued*)

	(1)	(2)
	Beijing subsample	Shanghai/Shenzhen subsample
Leverage	−0.184**	−0.265
	(0.082)	(0.215)
Block	0.259*	0.167
	(0.132)	(0.221)
Volatility	−0.080	−0.323
	(0.959)	(0.666)
FCF	0.302***	0.158
	(0.077)	(0.102)
Age	0.007	0.003
	(0.005)	(0.007)
IPO	0.058	−0.042
	(0.066)	(0.073)
MAR	0.015	0.048
	(0.036)	(0.042)
Constant	0.193	−0.334
	(0.463)	(0.547)
Obs.	15,338	6609
R^2	0.063	0.126
Firm FE	YES	YES
Year FE	YES	YES

Note: standard errors clustered at the firm level are shown in parentheses.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

This table introduces the interaction between the HQ relocation variable *Move* and the demeaned relocation distance, based on Column (1) of Table 5. The specification is as follows:

$$TFP_{i,t} = \alpha_0 + \beta Move_{i,t} + \beta' Move_{i,t} * (Distance_i - \overline{Distance}) + \gamma X'_{i,t} + \varphi_i + \delta_t + \varepsilon_{i,t}.$$

where $\overline{Distance}$ is the mean relocation distance of relocated firms in each subsample.

Table A3
Results on intangible, long-term and "Big" investments.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Beijing subsample				Shanghai/Shenzhen subsample			
	Intangible assets	Long-term investments	Has at least one big project	Value of big projects	Intangible assets	Long-term investments	Has at least one big project	Value of big projects
Move	−0.070	0.047	−0.111**	−1.890*	2.598**	−0.829	−0.078	−1.522
	(0.955)	(1.162)	(0.053)	(1.019)	(1.258)	(2.250)	(0.070)	(1.309)
Second	4.224***	−2.489	−0.118	−2.518	−2.450	1.837	0.062	1.360
	(1.363)	(1.840)	(0.101)	(1.974)	(1.506)	(2.299)	(0.106)	(2.074)
Size	2.383***	2.857***	0.054**	1.379***	1.728***	1.074*	−0.014	−0.063
	(0.338)	(0.573)	(0.024)	(0.459)	(0.582)	(0.652)	(0.016)	(0.317)
Leverage	−4.007**	1.593	−0.000	0.098	−0.856	1.543	−0.104	−1.560
	(1.803)	(1.880)	(0.106)	(1.973)	(1.903)	(2.064)	(0.068)	(1.215)
Block	−1.297	−4.252	−0.291**	−5.882**	−6.103	−7.603	−0.400**	−7.844**
	(2.117)	(3.736)	(0.146)	(2.872)	(5.075)	(6.425)	(0.181)	(3.525)
Volatility	2.478	−18.936	−0.395	−9.316	−6.994	19.498	−2.512**	−46.377**
	(9.467)	(17.573)	(0.724)	(13.299)	(14.100)	(20.752)	(1.107)	(20.294)
FCF	−0.420	4.716***	−0.039	−0.431	1.196	5.054***	−0.065	−1.310
	(0.824)	(1.217)	(0.064)	(1.197)	(1.904)	(1.471)	(0.070)	(1.275)
Age	0.005	1.265	0.025***	0.444***	−0.043	−0.016	0.030***	0.530***
	(0.332)	(0.810)	(0.004)	(0.066)	(0.559)	(0.721)	(0.006)	(0.115)
IPO	−1.477*	1.930*	−0.079	−1.398	−0.669	−2.019	0.120	2.667
	(0.810)	(1.012)	(0.092)	(1.596)	(0.811)	(1.953)	(0.107)	(1.996)
MAR	0.448	−2.377**	−0.053	−1.148	0.165	0.531	−0.072	−1.302
	(0.625)	(0.954)	(0.051)	(0.927)	(0.543)	(1.067)	(0.063)	(1.192)
Constant	−36.685***	−73.645***	−1.098**	−27.870***	−20.756*	−11.637	0.520	5.735

(*continued on next page*)

Table A3 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Beijing subsample				Shanghai/Shenzhen subsample			
	Intangible assets	Long-term investments	Has at least one big project	Value of big projects	Intangible assets	Long-term investments	Has at least one big project	Value of big projects
	(9.547)	(17.804)	(0.494)	(9.534)	(11.365)	(20.622)	(0.331)	(6.408)
Obs.	10,564	10,926	16,468	16,468	5565	5710	8120	8120
R^2	0.270	0.168	0.240	0.256	0.238	0.065	0.216	0.226
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: *Intangible assets* refer to the (log) net value of patents, trademarks, copyrights, software, etc. *Long-term investments* refer to the (log) net value of long-term equity investments. *Big projects* are defined as those with a book value divided by total assets greater than 1%. *Has at least one big project* is a dummy variable equal to 1 if the firm has at least one big project in that year, and 0 otherwise. *Value of big projects* refers to the (log) value of big projects. Due to the scope change of intangible assets and long-term equity investments under the new Accounting Standards in 2007, the sample starts from 2007 and afterwards in Columns (1)–(2) and (5)–(6). Standard errors clustered at the firm level are shown in parentheses.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

Table A4

Results on Tobin's Q.*

	(1)	(2)
	Beijing subsample	Shanghai/Shenzhen subsample
Move	0.213	0.960***
	(0.143)	(0.345)
Second	0.141	−0.264
	(0.417)	(0.384)
Size	−1.165***	−0.927***
	(0.103)	(0.144)
Leverage	0.209	−0.188
	(0.340)	(0.428)
Block	−0.288	0.054
	(0.690)	(0.808)
Volatility	15.781***	18.136**
	(3.066)	(7.142)
FCF	0.070	−0.564**
	(0.278)	(0.237)
Age	0.025	0.032
	(0.016)	(0.021)
IPO	−0.049	−0.364
	(0.184)	(0.355)
MAR	0.313**	0.002
	(0.140)	(0.237)
Constant	27.832***	22.371***
	(2.153)	(2.882)
Obs.	16,214	7941
R^2	0.542	0.543
Firm FE	YES	YES
Year FE	YES	YES

Note: Tobin's Q is defined as the ratio between a firm's market value and its replacement costs. The market value is the sum of the total stock value and book value of total liabilities, and the replacement costs are measured as the book value of total assets (Chung and Pruitt, 1994). Standard errors clustered at the firm level are shown in parentheses.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

Table A5
Balance tests between BJ (SH/SZ) movers and other movers.

Variable	(1)	(2)
	BJ movers-Other movers	SH/SZ movers-Other movers
Size	−0.089	−0.185
	(0.177)	(0.185)
Leverage	−0.018	−0.010
	(0.041)	(0.048)
Block	−0.008	−0.022
	(0.033)	(0.035)
Volatility	−0.003	0.010
	(0.008)	(0.009)
FCF	−0.037	0.040
	(0.022)	(0.025)
Age	0.669	−0.583
	(0.609)	(0.673)
West	−0.038	−0.067
	(0.075)	(0.085)
Central	0.115	−0.027
	(0.092)	(0.102)
SOE	−0.053	−0.354***
	(0.095)	(0.099)
HQ count1	−2.882	−0.090
	(4.947)	(6.399)
HQ count2	−0.412	−0.314
	(0.715)	(0.930)
ROE	−0.017	−0.037
	(0.033)	(0.040)
ROA	−0.009	−0.007
	(0.010)	(0.012)
ROS	−0.025	−0.066
	(0.044)	(0.049)
Tobin's Q	0.514***	−0.193
	(0.290)	(0.307)

Note: The first (second) column presents the differences in characteristics between Beijing (Shanghai/Shenzhen) movers and Other movers. The variable *West* indicates that the HQ is located in provinces in the western region (Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Ningxia, Qinghai, and Xinjiang), *Central* indicates that the HQ is located in provinces in the central region (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan, and Inner Mongolia). All variables are measured in 2000. If a firm did not go public before 2000, we use the average of the first two years after the IPO. Standard errors are shown in parentheses. Significant at 10%; Significant at 5%.

*** Significant at 1%.

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