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Political Promotion and Manufacturing Firm Productivity: Evidence from Chinese Firms

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ABSTRACT

This paper aims to investigate the impact of political promotion on the productivity of manufacturing firms using the database of Chinese industrial enterprises from 1998 to 2007. We found that the political promotion of officials had a negative impact on manufacturing firm productivity, and this impact varied according to the characteristics of officials and enterprises. In addition, there was an age "ceiling effect" among Chinese municipal officials. Further research showed that the regional level of rule of law mitigated the negative effect of political promotion on the productivity of manufacturing firms. Finally, this paper makes policy recommendations for improving the promotion mechanism of officials, enhancing regional legalization, and transforming government functions.

KEYWORDS

Political promotion; Firm productivity; Promotion incentive; Market-oriented reform

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1. Introduction

As an institutional design, officials' tournaments have long been an explanation for the growth of the reformed economy of China. However, their harmful effects on China's economic development are often overlooked. The fact that China is currently transitioning to high-quality development provides an opportunity to analyze official tournaments' harmful effects on enterprises' high-quality development. The level of productivity of manufacturing firms is crucial to the quality and operational efficiency of the economy (Chen and Guariglia, 2013; Ding and Niu, 2019; Defever et al., 2020). Under the "catch-up strategy", China's economy has grown rapidly for more than 40 years through heavy investment since 1978 (Lee at al., 2017; Zhang and Zheng, 2018; Chen at al., 2021), but it has also objectively created a path dependence on the sloppy development model. Under this path dependence, the quality of economic growth is relatively low; and coupled with the accelerated diminishing marginal returns of factors caused by the excessive accumulation of high savings and investment, the growth of China's economy is likely to slow (Xu at al., 2016; Chen and Groenewold, 2019; Cao and Wang, 2022). China's economic growth is likely to decelerate. Especially after the economic crisis in 2008, China has implemented the "four trillion" stimulus plan, and local governments relied on urban investment platforms to further expand investment. Infrastructure, real estate development, and state-owned enterprises were the main beneficiaries of the government's stimulus package, and large-scale investment brought about a deterioration of resource allocation, thus leading to a decrease in the total factor productivity of China (Hsieh and Klenow, 2009; Tian and Yu, 2012; Lu et al., 2019). Against the background of economic upgrading and the middle-income trap of China, an understanding of how to improve productivity, especially the productivity of manufacturing firms, is not only an urgent requirement to promote the industrial sector but also the key to the upgrading of China (Yao, 2015; Paus, 2020; Peng et al., 2021).

Meanwhile, because of Douglas North's contribution, economists have begun to focus on the important role of the institutional environment in economic growth in recent years. Studies have shown that a country's judicial system and official promotion mechanism have a great impact on economic development and economic efficiency. According to Li and Zhou (2005), the promotion of officials is one of the key clues to understanding government incentives and growth. On the one hand, promotion tournaments can provide local government officials who are concerned about their career paths to promote local economic development. On the other hand, promotion tournaments can also lead to market distortions and resource misallocation, making the transformation of Chinese government functions and economic growth difficult. Because of the shortcomings of promotion tournaments, the current governance model of local officials in China is the main source of major problems facing the current economy (Wang et al., 2022). This has important policy implications for China to deepen reforms in the economy, promote marketization, and foster regional total factor productivity growth.

An important question that is closely related to the aforementioned reality is, what exactly is the relationship between political promotion of municipal officials and the productivity of manufacturing firms? And what are the mechanisms involved? Systematic discussion of these questions has important policy implications for advancing the reform of Chinese government governance and the political promotion system. In this paper, we use the promotion of China's municipal political leaders as an appropriate setting to study the impact of political promotion on the productivity of manufacturing firms using the database of Chinese industrial enterprises from 1998 to 2007.

The rest of this paper is organized as follows: Section II gives a literature review, Section III presents the data and identification strategy, Section IV reports the main empirical results and the robustness analysis, Section V describes the mechanism analysis, Section VI reports the results of heterogeneity analysis, Section VII is the extended discussion, and Section VIII concludes.

2. Literature review

China's marketization process has long been government-led, with the government playing a key role in such areas as supporting economic growth and maintaining social stability (Wei, 2001; Zhang, 2008). Local government officials play an active role in implementing economic policies and reforms, and the passion and enthusiasm shown by local Chinese government officials for economic growth are probably unparalleled in the world (Yang et al., 2013; Kong et al., 2021). Because of North's fundamental contributions (North and Thomas, 1971; North, 1981), economists have begun to focus on the importance of institutions, particularly economic and political institutions, in economic growth in recent years. Physical and human capital expansion, as well as technological progress, is regarded as the consequence of growth rather than the source of growth, with the underlying driver being a country's institutional organization (Giunta and Trivieri, 2007; Adelakun, 2011; Gong et al., 2012; Nordhaus, 2021; Xie et al., 2022). So far, the promotion tournament has been one of the most prevalent theories to explain China's economic miracle from the perspective of the government system (Li and Zhou, 2005; Akhtari et al., 2022; Wang et al., 2022). According to the theory of official promotion tournaments, the tenure of officials will directly affect regional economic growth, such as investment attraction and bank loans in the region. Competition among officials in different regions is also an effective means of promoting economic growth (Chaudhry and Garner, 2006; An et al., 2016; Zhang, 2022). Furthermore, under China's fiscal decentralization system, local officials have increased financial and administrative capabilities, allowing them to promote economic growth through resource allocation. Local governments prefer to choose projects with short cycles and quick results, regardless of economic and social costs. As a result, political tournaments successfully unify regional economic growth and officials' political interests and can strengthen officials' subjective initiative to improve regional economic growth (Lv and Bai, 2019; Chen et al., 2020; Ding et al., 2022; Wang,2023).

However, the promotion effect has also generated distorting effects that make the upgrading of economic development difficult (Xu et al., 2016; Luo et al., 2020). The promotion tournament holds local officials accountable for local economic development as well as making them do whatever it takes to achieve economic development, including means that are not conducive to fostering and maintaining market order, such as condoning local enterprises' producing counterfeit and shoddy products and irregularly handling market entry procedures or credit guarantees for enterprises. In terms of economic growth techniques, local governments are more interested in crude economic growth, which may be contradictory to economic logic without respect to economic efficiency but is consistent with political logic. Crude growth disregards the cost of economic development outcomes and concentrates solely on production, seeking quantity and scale at the expense of quality and efficiency, which is the subject of this research (Liu et al., 2017; Cheng et al., 2021).

This paper contributes to the literature. First, it enriches the political economy literature on the productivity of manufacturing firms. Second, it enriches the research on the impact of political promotion. Previous studies on political promotion started with aggregate objectives, such as evaluating its effects on economic growth, enterprise expansion, and local government land transfers, whereas only a few studies have focused on the performance or productivity of manufacturing firms. Third, this paper provides insight into the mechanism analysis of the effect of political promotion on the productivity of manufacturing firms. Officials are motivated by promotion considerations to take various measures to intervene in the economy and achieve their own promotion goals.

3. Research design

3.1. Sample selection and data sources

The data on manufacturing firms in this paper come from the National Bureau of Statistics' database of industrial enterprises (1998–2007). We chose Chinese industrial enterprise data instead of listed company data because it contains a more extensive sample than listed company data. Many unlisted companies among them are more vulnerable to local government policies. At the same time, compared to listed companies, which are subject to more legal regulations and have more robust independence characteristics. The general industrial enterprises depend more on local governments, which makes them more vulnerable to local government policies. The data interval is chosen from 1998-2007, because the data of Chinese industrial enterprises only have sufficient sample values in this time interval for the calculation of total factor productivity. The data of officials was collected from the China Research Data Service Platform, which contains various data on municipal party secretaries' personal characteristics, such as their education, age, and tenure. The socioeconomic data was collected from the Wind database.

3.2. Model setting and description of variables

The relationship between political promotion of municipal officials and manufacturing firm productivity is estimated with the following equation:

$$tfp_{it} = \alpha + \theta offcd_{it} + \beta X_{it} + \sum id + \sum year + \sum city + \varepsilon_{it} \quad (1)$$

Where tfp_{it} is the total factor productivity of enterprise i in year t based on Olley and Pakes (1996). The variable of the political promotion of municipal party secretary is $offcd_{it}$; for example, if a municipal party secretary were promoted, the value is 1 and 0 otherwise. X_{it} is the group of controls, including corporate characteristics variables and Personal characteristics variables. $\sum id$, $\sum year$, and $\sum city$ represent the individual fixed effect, the year fixed effect, and the region fixed effect, respectively. Variable definitions are presented in Table 1.

Table 1. Variable Definitions.

	Variable	Definition
Dependent variable	tfp	Total factor productivity of enterprise
Independent variables	offcd	Political promotion of municipal officials
	roa	Total profit of corporate/total assets of corporate
	asset	Scale of fixed assets of the corporation
	debtratio	Corporate interest expenditures/total assets of corporation
	loan	Corporate liability/total assets of corporation
	gdp	Logarithm of GDP of the sample city
	income	Logarithm of average wage of employed persons
Control variable	deficit	Logarithm of the deficit of the sample city
	area	Logarithm of the administrative area of the sample city
	fdi_actual	Logarithm of the fdi of the sample city
	road_area	Logarithm of the area of the road in the sample city
	fix_invest	Logarithm of the fixed asset investment of the sample city
	gender	Gender of the municipal party secretary
	education	Level of education of the municipal party secretary

3.3. Descriptive statistical analysis

The descriptive statistics of the variables are shown in Table 2. As seen, the enterprises' mean of tfp during the sample period is 1.958.

Table 2. Descriptive Statistics of the Main Variables.

Variable	Mean	S.D.	Min.	Max.	N
tfp	1.958	2.452	0.000	12.578	679,768
offcd	0.299	0.458	0.000	1.000	679,768
roa	0.104	1.666	-14.280	4.008	679,768
asset	8.548	1.698	0.000	19.110	679,768
debtratio	-0.781	0.833	-14.300	3.489	679,768
loan	-4.536	1.376	-15.170	2.747	679,768
gdp	4.707	0.964	-0.223	6.829	679,768
income	9.554	0.388	8.261	10.410	679,768
deficit	7.862	0.981	3.705	10.270	679,768
area	9.077	0.700	5.464	12.440	679,768
fdi_actual	5.935	1.767	-3.912	9.004	679,768
road_area	2.613	0.962	-4.605	4.836	679,768
fix_invest	10.670	1.156	6.257	12.900	679,768
gender	0.018	0.133	0.000	1.000	679,768
education	0.225	0.418	0.000	1.000	679,768

4. Empirical results and analysis

4.1. Basic results

The main results of equation (1) are presented in Table 3. We introduce control variables, and control for different levels of fixed effects on the findings are estimated step by step.

The results indicate that the political promotion of municipal officials has a stable and significant negative impact on the productivity of manufacturing firms after controlling for other major factors that are likely to affect the productivity of manufacturing firms and controlling for industry, year, and regional fixed effects. The findings are robust to different fixed effects and control variables. This is because promoted government officials tend to adopt policy measures to promote regional economic growth, and these policies misallocate resources and hinder enterprises' productivity.

Table 3. Basic Regression Results.

	(1) TFP	(2) TFP	(3) TFP	(4) TFP
VARIABLES	tfp	tfp	tfp	tfp
offcd	-0.093***	-0.080***	-0.056***	-0.056***
	(0.005)	(0.005)	(0.011)	(0.011)
roa			0.414***	0.414***
			(0.003)	(0.003)
asset			-0.537***	-0.537***
			(0.006)	(0.006)
debtratio			0.042***	0.043***
			(0.008)	(0.008)
loan			0.240***	0.240***
			(0.004)	(0.004)
gdp			0.230***	0.252***
			(0.051)	(0.053)
income			1.174***	1.179***
			(0.076)	(0.076)
deficit			0.249***	0.249***
			(0.009)	(0.009)
area			-0.010	0.008
			(0.093)	(0.098)
fdi_actual			-0.027***	-0.027***
			(0.008)	(0.008)
road_area			-0.104***	-0.103***
			(0.019)	(0.019)
fix_invest			0.005	0.007
			(0.028)	(0.028)
gender			0.091**	0.090**
			(0.039)	(0.039)
education			0.040***	0.040***
			(0.013)	(0.013)
Constant	1.988***	1.814***	-4.392***	-4.639***
	(0.002)	(0.101)	(1.153)	(1.200)
Observations	679,768	679,768	679,768	679,768
R-squared	0.000	0.015	0.146	0.147
Controls	No	No	Yes	Yes
Id effect	No	Yes	Yes	Yes
Year effect	No	Yes	Yes	Yes
City effect	No	No	No	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

4.2. Robustness test

4.2.1. Replacement of the measure of the dependent variable

First, we followed the basic idea of Olley and Pakes (1996) and drew on Loecker (2007) to reevaluate the tfp of equation (1) in the OP framework. We adjusted it according to Ackerberg et al., (2015). The specific results are shown in column (1) of Table 4 below. Then we followed the basic idea of Levinsohn and Petrin (2003) to reevaluate the tfp of equation (1) in the LP framework and adjusted it according to Bond and Söderbom (2005). The specific regression results are shown in in columns (2) and (3) of Table 4 below.

Table 4. Replacement of the Measure of the Dependent Variable.

	(1) TFP	(2) TFP	(3) TFP	(4) TFP
VARIABLES	OP_acf	LP	LP_acf	tfp
offcd	-0.016***	-0.021***	-0.015***	-0.050***
	(0.003)	(0.004)	(0.003)	(0.016)
Constant	-0.052	1.078**	-0.148	1.376
	(0.413)	(0.456)	(0.411)	(1.299)
Observations	679,768	679,768	679,768	679,768
R-squared	0.281	0.483	0.302	0.285
Controls	Yes	Yes	Yes	Yes
Id effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
City effect	Yes	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

The results of Table 4 above show that after replacement of the measure of the dependent variable of equation (1), we still arrive at the conclusion that the political promotion of municipal officials has a stable and significant negative impact on the productivity of manufacturing firms. This verifies the robustness of the baseline results.

4.2.2. Regression analysis after exclusion of 35 large and medium-sized cities

We conducted regression analysis after excluding 35 large and medium-sized cities from the original data sample, including Beijing, Shanghai, Guangzhou, and Shenzhen, because their size and special political status may have affected the results of our empirical analysis. The results are shown in columns (4) of Table 4 above.

As seen, after considering the possible effects of city size and political status, we still conclude that the political promotion of municipal officials has a stable and significant negative impact on the productivity of manufacturing firms. This verifies the robustness of the baseline results.

4.2.3. Excluding the possibility of reverse causality

In this paper, we argue the impact of official promotion on the tfp of enterprises. To address possible issues such as reverse causality, we also conducted the following robustness tests: the age (Age) of officials were included as instrumental variables in the 2SLS regressions. Officials' age affect their administrative enthusiasm and thus their willingness to change tax policies. Officials' age as a personal physiological feature and social capital as a social characteristic, both of which are unrelated to an enterprise's tfp, have exogenous characteristics and are valid instrumental variables. The results are shown in Table 5.

From the results of Table 5, we can see that the Kleibergen-Paap rk Wald F statistics (79.631) and the Cragg-Donald Wald F statistic (145.465) are significantly larger than the critical value of 16.38 for the F value at a 10% bias level, indicating there is no weak instrumental variable problem. And the estimated coefficient of column (2) is consistent with the empirical findings of our original model. This ensures the robustness of the results of our model.

Table 5. Excluding the Possibility of Reverse Causality (Age).

	(1) First-stage	(2) Two-stage
VARIABLES	offcd	tfp
Age	-0.008***	
	(0.000)	
offcd		-4.178***
		(0.7029)
Constant	-8.361***	15.123***
	(0.155)	(2.243)
Kleibergen-Paap rk Wald F Statistics		79.631
Cragg-Donald Wald F Statistics		145.465
Stock-Yogo 10%		16.38
Observations	679,768	679,768
R-squared	0.7180	0.2680
Controls	Yes	Yes
Id effect	Yes	Yes
Year effect	Yes	Yes
City effect	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

5. Mechanism analysis

5.1. The role of promotion incentives for officials

When new officials take office, they often implement large-scale economic stimulus measures to boost the economy and improve people's living standards to show their talent, which is reflected in an increase in local governments' fiscal deficit (lndeficit) at the beginning of the officials' tenure. In Table 6 below the results in column (1) show that the new officials' taking office (Takingoffice) leads to a 4.4% increase in the deficit of the local government. The same is true for land transfers (lnbargin_money), as shown in column (2) of Table 7.

Table 6. The Role of Promotion Incentives for Officials.

	(1) Fiscal Deficit	(2) Land premium	(3) Fiscal Deficit
VARIABLES	lndeficit	lnbargin_money	lndeficit
Takingoffice	0.044***	0.075***	
	(0.001)	(0.007)	
Tenure			-0.034***
			(0.000)
Constant	2.665***	-9.349***	2.467***
	(0.176)	(0.128)	(0.175)
Observations	679,768	679,768	679,768
R-squared	0.467	0.140	0.474
Controls	Yes	Yes	Yes
Id effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
City effect	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

Meanwhile, as an old going says, the first drumming cheers them up, the second weakens, and the third devitalized. The determination of officials to stimulate economic development begins to decline as their tenure lengthens, as shown by the declining trend of government deficits (lndeficit) as officials' tenure (Tenure) lengthens (Li, X., 2018), as shown in column (3) of Table 6. This is primarily because with the extension of officials' tenure, on the one hand, the enthusiasm at the beginning of their tenure begins to fade; on the other hand, the pressure of fiscal balance caused by the expansion of the fiscal deficit also prompts officials to contract their fiscal expansion efforts. Thus, the deficit of local governments tends to decline with the extension of officials' tenure and the decline in fiscal deficits.

5.2. Political promotion, government policies, and the capital–labor ratio of firms

According to the theory of official promotion tournaments, local governments prefer to choose projects with short cycles and quick results, regardless of economic and social costs. Various kinds of government policies, such as subsidies, propensity loans from state-owned banks, and tax deductions, will be adopted by manufacturing firms to achieve their economic goals. This will affect the allocation behaviour of firms regarding their resources for the period, which in turn will affect the total factor productivity of firms. The results are shown in Table 7 and Table 8 below.

Table 7. Political Promotion, Government Policies and the Capital-Labor Ratio of Firms.

	(1)	(2)	(3)	(4)
	Subsidy	Capital-labor ratio	Loan	Capital-labor ratio
VARIABLES	lnsubsidy	lnpercapital	lnbankloan	lnpercapital
offcd	-0.062***		0.030***	
	(0.016)		(0.005)	
lnsubsidy		-0.026***		
		(0.002)		
lnbankloan				-0.498***
				(0.002)
Constant	5.439***	-0.035	5.462***	0.585***
	(0.009)	(0.029)	(0.003)	(0.011)
Observations	679,768	679,768	679,768	679,768
R-squared	0.160	0.611	0.084	0.689
Controls	Yes	Yes	Yes	Yes
Id effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
City effect	Yes	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

Table 8. Political Promotion, Tax Policies and the Capital-Labor Ratio of Firms.

	(1) Income tax	(2) Capital-labor ratio	(3) VAT	(4) Capital-labor ratio
VARIABLES	lntaxincome	lnpercapital	lnvat	lnpercapital
offcd	-0.084***		-0.024***	
	(0.006)		(0.004)	
lntaxincome		-0.174***		
		(0.001)		
lnvat				-0.235***
				(0.001)
Constant	5.199***	-0.518***	6.541***	-0.336***
	(0.004)	(0.011)	(0.002)	(0.010)
Observations	679,768	679,768	679,768	679,768
R-squared	0.099	0.649	0.095	0.679
Controls	Yes	Yes	Yes	Yes
Id effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
City effect	Yes	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

Table 7 and Table 8 above indicate that to get promoted, local government officials have significantly decreased the number of government subsidies to firms, increased loans to enterprises, and cut income tax and value-added tax of enterprises, all of which have an influence on enterprise capital-labor ratios. The capital-labor ratio is the proportion of an enterprise's capital and lab or input. It reflects the most fundamental resource allocation in the manufacturing process, which will negatively affect the productivity of firms.

6. Heterogeneity analysis

6.1. Heterogeneity analysis according to gender and age

The gender and age of local government officials have a significant impact on their decision-making. We grouped the sample data into regression analyses based on the gender and age of the officers (whether the age was 55 years or older or younger). The results are shown in Table 9 below.

The results shown in column (1) and column (2) of Table 9 indicate that the political promotion effect on manufacturing firm productivity is more pronounced for male officers, demonstrating the difference in leadership styles between male and female officers. This is mainly because (1) males are more career-oriented than females, and to improve their performance and increase their chances of promotion, they put in more effort to stimulate the economy; and (2) female leaders are less likely to be promoted in an overwhelmingly male group of officials, making them hesitant to exchange more aggressive government policies for uneven promotion prospects.

Column (3) and column (4) of Table 9 show that age is one of the factors that influence the decision-making of officials, and for officials younger than 55, the political promotion effect on the productivity of manufacturing firms is more evident, which has also been confirmed by other studies. Officials over the age of 55 are reluctant to adopt more aggressive government policies to stimulate the economy to increase the probablility of promotion, given the

low probability of later promotion.

Table 9. Heterogeneity Analysis According to Gender and Age.

	(1)	(2)	(3)	(4)
	Gender		Age	
	Male	Female	⩽55	>55
VARIABLES	tfp	tfp	tfp	tfp
offcd	-0.054***	0.020	-0.092***	0.027
	(0.011)	(0.084)	(0.011)	(0.383)
Constant	-8.068***	-259.364*	0.388	-26.429***
	(1.290)	(137.156)	(1.373)	(8.018)
Observations	448,303	231,465	393,320	286,448
R-squared	0.148	0.124	0.152	0.164
Controls	Yes	Yes	Yes	Yes
Id effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
City effect	Yes	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

6.2. Heterogeneity analysis according to enterprise ownership

State-owned enterprises strongly influence China's economic development whereas the private economy is generally small and relatively scarce in capital, technology, and talent. In our study, considering that enterprise ownership may be an important factor affecting the productivity of manufacturing firms, we divided the sample data enterprises into public enterprises (including state-owned enterprises and collectively owned enterprises), private enterprises, enterprises from Hong Kong, Macao, and Taiwan (HMT), and foreign enterprises. The results are in columns (1)–(4) in Table 10 below.

Table 10. Heterogeneity Analysis According to Enterprise Ownership.

	(1)	(2)	(3)	(4)	(5)	(6)
	Public enterprise	Private enterprise	HMT enterprise	Foreign enterprise	Export enterprise	Non-export enterprise
VARIABLES	tfp	tfp	tfp	tfp	tfp	tfp
offcd	-0.089*	-0.085***	-0.022	0.023	-0.023	-0.050***
	(0.047)	(0.018)	(0.026)	(0.040)	(0.015)	(0.015)
Constant	1.523	-6.736***	-8.282***	-11.657***	0.280	-6.247***
	(3.942)	(2.386)	(2.769)	(4.415)	(2.125)	(1.550)
Observations	40,910	240,421	34,759	35,373	115,521	339,602
R-squared	0.112	0.179	0.120	0.106	0.115	0.158
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Id effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
City effect	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

As seen in columns (1) and (2) of Table 11 above, public and private enterprises are more vulnerable to the effect of political promotion than HMT and foreign enterprises. There are several reasons for this. First, public

enterprises are larger and stronger, and they contribute more to a region's taxation. As a result, officials can raise more funds for fiscal expansion at the start of their tenure by improving the tax collection rate of public enterprises; as government officials' tenure and the pressure to promote grow, they have an incentive to lower the effective tax rate for state-owned enterprises to promote investment of public enterprises to achieve the region's economic growth goals. The second reason is that public enterprises usually have closer ties to local governments and often take the initiative to help government officials in their financing practices to achieve their economic goals; by contrast, private enterprises have greater independence and are thus less influenced by local governments. The third reason is that at present, private enterprises in China have gradually become an important foundation of the national economy, playing an indispensable role in various areas such as social investment, labor absorption, and tax contribution. They are, therefore, one of the important influential targets of the government's economic decision-making behaviour, and their effective tax rate levels are also affected by the political promotion of the officials. At the same time, columns (3) and (4) of Table 10 above show that the HMT and foreign enterprises are not susceptible to political promotion effects, which reflects that the HMT and foreign enterprises are more independent, with higher levels of corporate governance and less interference from local governments.

6.3. Heterogeneity analysis according to whether they export and firm size

Whether a firm exports is an important aspect of its heterogeneity, and it is widely believed that exporting enterprises have larger production scales, greater productivity, and higher wage levels than non-exporting enterprises. In this paper, we classify enterprises with a trade value greater than zero as export enterprises and those with a trade value equal to zero as non-export enterprises according to the export status of enterprises in Chinese industrial enterprise data for group regression analysis. The results are shown in column (5) and column (6) of Table 10.

The results show that the public and non-exporter enterprises are more vulnerable to the effects of political promotion than export enterprises. This is primarily because: (1) Exporting enterprises are more independent and better managed than non-exporting enterprises, less dependent on local government, and therefore less affected by local governments. (2) Exporting enterprises are usually larger in size and have a stronger overall legal awareness than non-exporting enterprises. They are also the enterprises to which local governments are willing to "give" more than "take," and they are less affected by local governments. (3) Non-exporting enterprises tend to be more influenced by various local government policies because their manufacturing and sales are local, which requires them to strengthen cooperation with local governments to obtain support in such areas as loan resources and market access. They also often bear the responsibility of solving local employment issues.

7. Expanded Analysis: Political promotion, market-oriented reform, and manufacturing firm productivity

Currently, the Chinese government is closely promoting its own market-oriented reforms to ensure that the market plays a decisive role in resource allocation, which is crucial for the future transformation and development of the Chinese economy. In this paper, we use the "regional level of rule of law" index (law) of the marketization index by Wang et al. (2016) to measure the development of rule of law in each region of China, and the "share of government investment in total social investment" index (govinvest) to measure the position of regional governments in China's economy. The index of "financial marketization" (finance) is used to measure the development of the financial sector in each region of China. The results are shown in Table 11.

Table 11. The Role of Market-Oriented Reform.

	(1) TFP	(2) TFP	(3) TFP
VARIABLES	tfp	tfp	tfp
offcd	-0.272***	0.154***	0.120***
	(0.015)	(0.016)	(0.018)
offcd*law	0.023***		
	(0.003)		
offcd*govinvest		-0.032 ***	
		(0.002)	
offcd*finance			-0.036***
			(0.002)
Constant	2.200***	1.189***	1.859***
	(0.010)	(0.026)	(0.029)
Observations	679,768	679,768	679,768
R-squared	0.109	0.110	0.109
Controls	Yes	Yes	Yes
Id effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
City effect	Yes	Yes	Yes

*Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

In column (1) of Table 11, we can see that the regional level of rule of law mitigates the negative effect of political promotion on the productivity of manufacturing firms. Regions with higher levels of rule of law also tend to have higher levels of local government behavioral constraints, such as higher fiscal transparency and strict budget constraints, which are important factors that influence the ability of local governments to intervene in enterprises.

From column (2) of Table 11, we can see that the higher the share of government investment in total social investment, the more pronounced the negative effect of official promotion is on firm productivity. The share of government investment in total social investment represents the degree of government intervention in the operation of the market economy. The higher the share of government investment in total social investment, the greater the degree of government intervention in the autonomous behavior of enterprises, which harms the productivity of manufacturing firms.

Column (3) of Table 11 shows that financial marketization exacerbates the negative effects of political promotion on the productivity of manufacturing firms. Regions with a high degree of financial marketization are the focus areas from which the Chinese government selects local officials, which leads to a strong incentive for government officials in these regions to intervene in local enterprises. It also shows that the improvement in corporate financing constraints brought about by financial marketization does not mitigate the negative impact of the political promotion of government officials on the productivity of manufacturing firms.

8. Main conclusions and policy recommendations

In the context of China's existing system, government behavior can provide a key analytical lens through which to understand China's economic development and corporate behavior. Local government officials adopt various policies to interfere in enterprises to satisfy their own political promotion goals. This can lead to resource misallocation and negatively affect the productivity of firms. This study finds that the political promotion of officials has a significant negative impact on manufacturing firm productivity, and this impact varies according to the characteristics of officials and firms. The paper also finds a significant age "ceiling effect" among municipal officials

in China. Further research showed that the regional level of rule of law mitigated the negative effect of political promotion on the productivity of manufacturing firms. Finally, this paper proffers policy recommendations for improving the promotion mechanism of officials, enhancing regional legalization, and transforming government functions.

First is improving the promotion and appraisal mechanism of officials. In the future, the central government should pay greater attention to the GDP growth rate generated by consumption so that local authorities are encouraged to concentrate on long-term economic and social development. Second is strengthening the rule of law at the local level. A market economy is an economy based on the rule of law, which means that the central government should increase the protection of regional enterprises and strengthen the external regulation of local government interference with enterprises by law. Third are efforts to transform government functions to accelerate the shift of government operations from development-focused to service-focused. The market must be allowed to play a larger role in resource allocation and limiting government involvement in the production and operation of manufacturing firms.

The research in this paper also has shortcomings: the study has a relatively old data sample due to data availability, which needs to be improved in the future. It is also vital to examine the impact of officials' tournaments on the development of enterprises, for example, by exploring industrial policy and resource mismatch in the context of officials' tournaments.

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Conflict of interest

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Author contributions

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