

# The Impact of Import Competition on Enterprise Decentralization: Evidence from China

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## Abstract

With the deepening of China's opening to the outside world and the intensification of import competition, the devolution of power in the operation and management of Chinese enterprises may be affected. Using a sample of more than ten thousand manufacturing enterprises, this paper empirically studies the impact of import competition on the decentralization of Chinese enterprises. The results show that import competition significantly promotes a greater degree of centralization. The results of heterogeneity analysis show that when general manager is inexperienced and faced with import competition, they will be more inclined to centralize power; compared with SOEs, import competition has a bigger effect on the centralized management of private firms; when the technical capability of the enterprise is stronger and the complexity of the operation is higher, the more centralized power will be reduced. To deal with the endogeneity problem, the instrumental variable method is adopted to construct the tariff reduction indicator as the instrumental variable of import competition, and the estimation results are basically consistent with the benchmark regression results.

## Keywords

Import Competition, Decentralization, Centralization

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## 1. Introduction

In order to achieve a higher level of opening up, China needs to actively expand imports. With the improvement of openness, trade barriers to imports have been falling. China's average tariff level was 17.3% in 1998, but has dropped to about 7.4% by 2022 (Zhang et al., 2022). The reform of trade policy with tariff conces-

sions as the core content promoted the liberalization of import trade, but also intensified the degree of import competition faced by Chinese domestic firms. The intensification of import competition will affect the internal operation and management of enterprises, such as enterprise decentralization. How import competition affects corporate decentralization is worthy of theoretical and empirical research.

At present, most of the relevant studies on the impact of import competition pay attention to its impact on employment, wages, enterprise innovation, enterprise vertical integration, employee psychological factors and other aspects. In particular, there is less literature focus on the impact of import competition faced by Chinese firms on corporate decentralization. Therefore, the research of this topic supplements the shortcomings of existing research, fills the gap in the perspective of existing research, and has certain theoretical significance.

From the perspective of practical significance, as the main body and basic unit participating in international trade activities, the distribution of internal power of enterprises has an important impact on their own development and the development of regional import and export trade. This study uses the World Bank database, China Industrial Enterprise database, China Customs Import database and other relevant data, constructs a multiple linear regression model, and uses Stata software to empirically test the impact of China's import competition on enterprise decentralization, which provides a basis for the study of the relationship between them. It has reference significance for improving the internal governance of enterprises, enhancing the competitiveness of enterprises, and improving the regional and national economic development and welfare level.

It should be noted that there are some defects in this paper. In the empirical analysis, the selected data are cross-section data rather than panel data, which is what future research needs to improve. The remainder of the paper is organized as follows: Section two is literature review; Section three is theoretical hypothesis; Section four is empirical research, and Section five is conclusion.

## **2. Domestic and Overseas Research Status**

The two issues of import competition and enterprise decentralization have always been hot topics in economics and management. Existing research can be summarized as follows:

### **2.1. The Impact of Import Competition**

The previous literature has extensively analyzed the effects of import competition on firm behaviors, although there has been limited attention to how competition affects firm decentralization. In terms of the impact of import competition, scholars have mainly considered employment and wages, corporate tax avoidance, corporate innovation, vertical integration, psychological factors of employees, and the export value added rate of enterprises etc. (Cai & Liu, 2009) studied whether market competition has an incentive effect on Chinese industri-

al enterprises to evade corporate income tax. The results showed that in a market with a more competitive environment, enterprises are more likely to participate in tax avoidance activities. (Zhang, Wu, & Yan, 2022) studied the differences in innovation behaviors of enterprises with heterogeneous productivity facing import competition, and found that under the impact of import, enterprises with high productivity can resist the downward pressure of cost plus brought by import competition through R & D innovation, so they are more motivated to strengthen innovation input to “escape competition”. (Li & Liu, 2023) analyzed the influence and mechanism of import competition caused by the decline of final product tariffs on income distribution. The results showed that import competition remarkably increases the average wage of managers and reduces the average wage of ordinary employees, thus widening the wage gap within firms. (Hu et al., 2023) successfully revealed the causal effect of trade competition on the dynamics of firm ownership by taking advantage of China’s entry into the World Trade Organization, the largest trade liberalization process in history. Analyzing varying degrees of tariff reductions across industries, they find that firms that are more affected by competitive shocks experience significantly higher relative increases in foreign ownership compared to less affected firms.

## 2.2. The Influencing Factors of Enterprise Decentralization

(Colombo & Delmastro, 2004) found that whether plant managers are empowered is affected by multiple factors. These include the complicity of plant operation and organization, the features of the communication technology used, the ownership status of the plant, and the product portfolio of the parent company. (Acemoglu et al., 2007) found that enterprises close to the technological frontier, enterprises in heterogeneous environments and younger enterprises are more inclined to decentralize. (Bloom et al., 2012) found that enterprises headquartered in areas of high trust tend to adopt a decentralized management style.

## 2.3. The Impact of Import Competition on Enterprise Decentralization

(Bloom et al., 2010) analyzed data from nearly 4000 companies in 12 countries in Europe, North America and Asia, and found that import competition promoted greater decentralization. (Guadalupe & Wulf, 2010) used a unique panel data set of large US firms and a quasi-natural experiment in trade liberalization, found that competition leads to a flatter corporate hierarchy. (Li & Zhou, 2021) conducted a study on the decision-making autonomy of subsidiary CEOs given by holding companies after China’s entry into the World Trade Organization. The results suggest that in output markets where subsidiaries face greater import competition, CEOs generally enjoy greater autonomy and can make autonomous decisions on aspects of production, investment, and employment. In contrast, when the subsidiary’s input market faces greater foreign competition, the holding firm tends to be more inclined to reduce the CEO’s decision-making

autonomy. By analyzing the effect of China's trade liberalization on product market competition, (Kong et al., 2022) found that competition has largely facilitated the government's decentralization of the SOEs.

#### **2.4. Literature Commentary**

Among the existing studies, there are few literatures directly studying the impact of import competition on the decentralization of Chinese local firms. Although (Li & Zhou, 2021) studied how trade liberalization reshaped the decentralization of Chinese enterprises, this study is different from it. The biggest difference is that this study puts forward the research hypothesis that import competition may cause the centralization of Chinese enterprises, and the empirical research results also support the hypothesis, which is completely contrary to the conclusion of (Li & Zhou, 2021). In addition, the choice of proxy variable for corporate decentralization is also different.

In general, this study fills the gap in the research field of the impact of import competition on the decentralization of Chinese enterprises. At the same time, this study also supplements the literature on the possible impact of import competition and the factors that may affect import competition.

### **3. Theoretical Hypothesis**

Centralization and decentralization are two basic organizational forms in enterprise management. Centralized and decentralized organizational forms often affect the results of enterprises in different operating environments. First of all, the adoption of the centralized system is conducive to coordination and command, so that the instructions from the top can be quickly sent to the grass-roots departments, so as to cultivate the team spirit of members in the organization and maintain the stability of the organization in the case of complex changes and emergencies. However, the centralized organization is easily influenced by the ideology of the upper level, and it is difficult for the opinions of the lower departments to be conveyed upward, and it is difficult to timely reflect the dynamic information of the market. More importantly, as centralized management emphasizes hierarchy, the existence of authoritarianism leads to the feedback mechanism of reporting from level to level, and the approval system will make it difficult for corporate strategies to change with market changes. To overcome these shortcomings, centralized organizations often need a strong core at the top with keen insight and leadership, and thus exert the advantages of centralization.

Compared with centralized organizations, decentralized organizations have more advantages in decision-making flexibility and information feedback. For example, decentralized management can give full play to the flexibility and creativity of low-level organizations, which is conducive to making rapid responses to changes in the external environment and mobilizing the enthusiasm of subordinates. Therefore, many existing organizations regard decentralization as a means to realize the incentive mechanism. However, when facing a complex and

changeable environment, the disadvantages of decentralization are also obvious. For example, too accessible upward information transmission channels are easy to lead to buck-passing among different departments, thus affecting the overall decision-making efficiency of the organization and restricting the top management from making correct judgments. When organizations face strong competitive pressure or even crisis, decentralization will bring loose organizational structure, which is not conducive to organizational stability. Many existing studies have found that group decision-making represented by centralization is better than individual decision-making in terms of decision-making quality.

Complex and changeable organizational forms will lead to serious information bias. (Bloom et al., 2010) proposed that more intense competition will highlight the information advantages of competitive territories, and making good use of the information advantages of territories can mitigate the adverse impact of competition to the greatest extent, and the probability of delaying decision-making is also small. (Li & Zhou, 2021) argued that greater competitive pressure forced holding companies to adjust their power, understand local information, and build specialized information feedback channels.

Either the use of information in a biased way or the establishment of specialized feedback channels requires a strong top-level architecture. For example, a strong leadership makes it less difficult to obtain information that is biased toward a single talent or a key department. However, under the condition of decentralization, such a specialized decision-making mechanism is difficult to achieve, because the implementation of the decision-making mechanism favoring a certain group under the condition of decentralization will lead to the opposition of other stakeholders.

In addition to the requirements of decision-making mechanisms, increased competitive pressures bring about centralization in the following ways. First, import competition will promote the innovation of local enterprises to a certain extent (Zhang, Wu, & Wang, 2022). In the case of endless innovation, enterprises need to mobilize more forces to tackle key problems in science and technology, information collection and other work, which requires senior leaders to do more decision-making and organizing work, so they will be more centralized. Second, as a developing country, China's situation should not be generalized with that of European and American countries. Compared with developed countries, China's market economy system is still immature, the legal construction is still not perfect, and the credit system and security system need to be further improved. Although import competition leads to more public information in the market, so does the potential risk. In this case, more managers who have the ability of identifying various risks need to be unified, and they make decisions through the deliberation. Thus, the enterprise could be more centralized. Finally, from the perspective of culture, China is a typical collectivist culture. When facing external competition, enterprises are more willing to unite together and employ centralized management.

Therefore, this paper proposes the following hypothesis: under the condition of facing import competition, Chinese enterprises will adopt more centralized organizational forms.

## 4. Empirical Research Design

### 4.1. Model Setting

In order to verify the impact of import competition on enterprise decentralization, this paper constructs the following multiple linear regression models:

$$D_{ij} = \beta_0 + \beta COMP_{ij} + \delta x_{ij} + u_{ij} \quad (1)$$

where  $i$  represents the enterprise,  $j$  represents the industry, explained variable  $D$  is the enterprise decentralization, core explanatory variable  $COMP$  represents import competition,  $x_{ij}$  is the set of control variables,  $\beta$  is the coefficient of explanatory variable,  $\delta$  is the coefficient of control variables,  $\beta_0$  is the constant term, and  $u_{ij}$  is the random error term.

The above regression can preliminarily test the impact of import competition on the decentralization of enterprises, but it will still cause estimation errors due to the selection of indicators, measurement methods and omitted variables. In order to alleviate this problem, this paper uses the instrumental variable method and the substitution variable method to further test the robustness of the model.

### 4.2. Description of Variables

The specific description of each variable is as follows:

#### 4.2.1. Explained Variable

The explained variable is enterprise decentralization. As for the proxy variable of enterprise decentralization, this paper chooses the index I10 in the World Bank Investment Climate Survey 2005 to measure enterprise decentralization. I10 is described in the questionnaire as How much decision-making power the junior managers/staff have. There are five answer options for this question: 1) None, 2) A little, 3) Some, 4) Strong and 5) Very strong. Therefore, the larger the value of I10 index, the more decentralized the enterprise. In addition, in order to verify the robustness of the model, two indexes I91 and I93 are also used as replacement variables of I10 in the following.

#### 4.2.2. Explanatory Variable

The core explanatory variable is import competition. As for the measurement of import competition, this paper defines it as follows: Import competition = Imports Input/T-output. That is, the import competition of an industry is equal to the ratio of the import trade volume of the industry to the GDP of the industry in that year.

#### 4.2.3. Control Variables

Three control variables are selected in this model, as shown in **Table 1**. These

three control variables may all be correlated with corporate decentralization. The reasonable guess is that the higher the general manager's education level is, the more inclined it is to decentralization; the older the enterprise is, that is, the longer the enterprise has been established, the more inclined it is to decentralization; The more the core business income of the enterprise is, that is, the larger the enterprise scale is, the more inclined it is to decentralization (**Table 1** and **Table 2**).

### 4.3. Data Source

The data sources used in this paper are as follows:

The indicators of explained variable, control variables and heterogeneity analysis variables are all derived from the statistics of the World Bank's Investment Climate Survey 2005, which covers a sample of 12,400 manufacturing firms from 120 cities in all provinces of China except Tibet. In each province, the capital city was included, while the other cities were selected based on the size of the province's economy.

The import volume of subdivided manufacturing industry is derived from

**Table 1.** Description of control variables.

Variable	Code	Measurement Method
education level of the general manager	I1	Set according to the answers to the I1 index questions in the questionnaire. The higher the degree, the greater the value.
enterprise age	age	2004-A1
core business income of 2004	ln_core_income	log(AB1101)

Data source: World Bank investment climate survey 2005.

**Table 2.** Descriptive statistical analysis table.

Type of variable	Name of variable	Sign of variable	Number of observations	Mean value	Standard deviation	Minimum value	Maximum value
Explained variables	decision-making power of the junior managers/staff	I10	12,400	2.473	0.977	1	5
	Production autonomy	I91	12,316	7.406	1.494	1	8
	Employment autonomy	I93	12,302	7.304	1.587	1	8
Explanatory variable	Import Competition	m_import_share	12,400	0.306	0.273	0.000	3.901
Control variables	Education level of the General Manager	I1	12,386	2.422	0.998	1	7
	Enterprise age	age	12,384	12.6413	13.315	2	100
	core business income of 2004	ln_core_income	12,400	10.945	2.035	2.303	18.430

Data Source: mentioned in part 4.3. *Notes:* Some data are missing, and the reasons are mainly attributed to two aspects. One is that much of the data comes from World Bank Investment Climate Survey 2005, but not all of the 12,400 companies answered all the questions. Second, the author processed some data, such as the variable "age", and the author eliminated the observed values with a value of more than 100.

China Customs trade database. The gross industrial product data is derived from China Industrial Enterprise Database. Drawing on the common practice of existing literatures, the data of Chinese industrial enterprises were cleaned, and the industry codes in Chinese industrial enterprises database were unified according to the 2002 edition of the National Economic Industry Classification Standard, and the samples of manufacturing enterprises with 2-bit code industry ranging from 13 to 43 were retained.

Data on import duties are derived from (Brandt, Van Biesebroeck, Wang, & Zhang, 2017) published data in *WTO Accession and Performance of Chinese Manufacturing Firms*.

## 5. Empirical Result Analysis

### 5.1. Benchmark Regression Results

According to the multiple linear regression equation constructed in this paper, and using Stata software, the regression results are shown in **Table 3**. Columns (1) and (2) present the regression results of import competition on the decentralization of enterprises. Column (2) is the estimation results after adding control variables, *ceteris paribus*, for every unit increase in import competition, decentralization of firms will decrease by 0.138 units, and the result is significant at the 1% level. It can be seen from the above results that import competition has a reverse promotion effect on the decentralization of enterprises, or that the import competition faced by Chinese enterprises leads to more centralization of

**Table 3.** Results of benchmark regression analysis.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	i10	i10	i91	i91	i93	i93
i1		-0.073*** (0.010)		0.078*** (0.015)		0.082*** (0.016)
m_import_share	-0.113*** (0.033)	-0.138*** (0.033)	-0.157*** (0.050)	-0.127** (0.051)	-0.123** (0.053)	-0.096* (0.053)
age		-0.000 (0.001)		0.000 (0.001)		-0.001 (0.001)
ln_core_income		-0.002 (0.005)		0.002 (0.008)		0.009 (0.008)
Constant	2.508*** (0.013)	2.718*** (0.066)	7.454*** (0.020)	7.228*** (0.101)	7.342*** (0.021)	7.045*** (0.107)
Observations	12,400	12,370	12,316	12,300	12,302	12,286
R-squared	0.010	0.014	0.009	0.011	0.021	0.023

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Data Source: The author's computation using Stata 17.

power, which is consistent with the hypotheses of the previous theoretical analysis.

## 5.2. Robustness Test

In order to verify the robustness of the benchmark regression results, referring to the practice of (Li & Zhou, 2021), the I91 index and I93 index in the World Bank Investment Climate Survey 2005 are respectively used as the replacement variables of the explained variable I10. Hereby, the corresponding regression analyses were conducted. The description of I91 and I93 in the questionnaire is as follows:

How much autonomy does the GM has over the production, investment, employment (i.e. not intervened by the government, 1 = 0% - 19%; 2 = 20% - 39%; 3 = 40% - 59%; 4 = 60% - 69%; 5 = 70% - 79%; 6 = 80% - 89%; 7 = 90% - 99%; 8 = 100%) (Table 4).

According to the description, higher values of I91 and I93 indicate a higher degree of decentralization. The regression results are shown in Columns (4) and (6) of Table 3, indicating that when other conditions remain unchanged, each unit increase in import competition will reduce the decentralization of enterprises by 0.127 and 0.096 units respectively, and the results are significant at the level of 5% and 10% respectively. This further confirms the main conclusion of the benchmark regression and the empirical results remain very stable.

## 5.3. The Endogeneity Treatment

Allowing for endogeneity problems arising from omitted variables or measurement errors in import competition may lead to biased estimation results. For example, if the implementation of an industrial policy leads to more liberalization of the industry, it will affect both import competition and enterprise decentralization. Therefore, in order to solve the influence of endogeneity problem on the estimation results, this paper takes advantage of China's entry into WTO, the largest trade liberalization event, to construct the tariff reduction index from 2001 to 2004 as the instrumental variable of import competition. The construction method is as follows:

$$\Delta T = \text{Tariff}_{2004,j} - \text{Tariff}_{2001,j} \quad (2)$$

The regression results are shown in Table 5. Column (1) presents the regression results of  $\Delta T$  on import competition, and the results show that  $\Delta T$  is negatively correlated with import competition, and the results are significant at the level of 1%, so  $\Delta T$  is an appropriate instrumental variable. Columns (2) and (3) present the regression results of import competition on enterprise decentralization, and column (3) is the estimation results after adding control variables. The results show that, ceteris paribus, for every one unit increase in import competition, corporate decentralization will decrease by 0.561 units, and the results are significant at the level of 5%. Therefore, import competition still significantly promotes corporate centralization, and the coefficient value is higher than that of the benchmark regression results.

**Table 4.** Types and autonomy level.

Types	Autonomy level
I91:Production autonomy	1 2 3 4 5 6 7 8
I93:Employment autonomy	1 2 3 4 5 6 7 8

Data Source: World Bank investment climate survey 2005.

**Table 5.** Results of regression analysis.

VARIABLES	(1)	(2)	(3)
	m_import_share	i10	i10
m_tariff	-1.038*** (0.065)		
i1			-0.081*** (0.012)
m_import_share		-0.471** (0.219)	-0.561** (0.232)
age			0.001** (0.001)
ln_core_income			-0.001 (0.007)
Constant	0.244*** (0.004)	2.617*** (0.068)	2.833*** (0.074)
Observations	12,397	12,397	12,367
R-squared	0.054		

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Data Source: The author's computation using Stata 17.

## 5.4. Heterogeneity Analysis

### 5.4.1. Working Experience as a General Manager

When the working experience of general managers is different, the effect of import competition on the decentralization of Chinese corporations may be different. This paper adds the interaction term ( $m\_import\_share \times if\_experience$ ) between import competition and the dummy variable of whether general managers have rich work experience into the measurement model. When  $if\_experience = 1$ , it means that the general manager has rich work experience; when  $if\_experience = 0$ , it means that the general manager has less rich work experience. The results in Column (1) of **Table 5** show that if general managers have rich work experience, when they face changes in the external environment such as import competition, their degree of centralization will be greatly reduced. The reason may be that the more experienced the general manager is, the better he can control the friction and conflict in decision-making within the organization under the decentralized mechanism, and the better he can judge the accuracy of infor-

mation. Thus, under certain constraints, general managers can stimulate the creativity of subordinates and give full play to the advantages of the organization.

#### 5.4.2. Registration Status (Ownership)

When the Registration Status (Ownership) of enterprises is different, the impact of import competition on the decentralization of Chinese corporations may also be different. Based on this, this paper adds the interaction term ( $m\_import\_share \times if\_state-owned$ ) between import competition and the dummy variable of whether an enterprise has state-owned holding in the measurement model. The estimation results in Column (2) of **Table 5** show that when an enterprise has state-owned holding, facing the change of external environment such as import competition, the possibility of decentralization will be greater. The reason may be that SOEs face less competition in the market than private firms, so they are less likely to change their management mode when import competition intensifies. This result is also similar to the research conclusion of (Kong et al., 2022).

**Table 6.** Results of heterogeneity analysis.

VARIABLES	(1)	(2)	(3)
	i10	i10	i10
i1	-0.075*** (0.010)	-0.071*** (0.010)	-0.071*** (0.010)
m_import_share	-0.182*** (0.036)	-0.209*** (0.034)	-0.170*** (0.038)
age	-0.001 (0.001)	0.000 (0.001)	-0.000 (0.001)
ln_core_income	-0.002 (0.005)	-0.006 (0.005)	-0.003 (0.005)
m_import_share × if_experience	0.143*** (0.046)		
m_import_share × if_state-owned		0.247*** (0.060)	
m_import_share × ratio			0.079* (0.046)
Constant	2.721*** (0.066)	2.757*** (0.065)	2.726*** (0.066)
Observations	12, 370	12, 370	12, 370
R-squared	0.015	0.008	0.015

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Data Source: The author's computation using Stata 17.

### 5.4.3. The Technical Capability of the Enterprise and the Complexity of Its Operations

Referring to the view of (Li & Zhou, 2021), this paper believes that the ratio of R & D expenditure to fixed assets can be used to measure the technological capability and operation complexity of enterprises. When this ratio is different, the impact of import competition on the decentralization of firms will also be different. Based on this, this paper adds the interaction term ( $m\_import\_share \times ratio$ ) between import competition and the dummy variable of enterprises' technological capability to the measurement model. The estimation results in Column (3) of **Table 6** show that the stronger the technological capability is and the higher the complexity of the operation is, the less the centralization will become. The reason may be that in this case, the product technology of the enterprise has high added value and strong innovation, which is difficult to be copied. Therefore, in the face of foreign competition of similar products, its substitutability is weak and the impact of competition is small.

## 6. Conclusion

In the increasingly fierce market competition environment, the choice of organizational form of enterprises is very important to their future development. Based on the data of World Bank Investment Climate Survey 2005, this paper studies the impact of import competition on the decentralization of Chinese firms by using multiple linear regression method, and uses tariff reduction index as instrumental variable to control the endogeneity of the model. The results show that: 1) The centralization mechanism is more conducive to coping with the competitive market environment, especially in China, where the market economy is not fully mature, and the centralization is crucial to coping with the import competition. 2) When general manager is inexperienced and faced with import competition, it is more inclined to centralize power. 3) Compared with state-owned enterprises, import competition has a bigger impact on the centralized management of private enterprises. 4) The stronger the technical capability is and the more complex the operation is, the less the centralization will be. Based on the research results, this paper argues that Chinese enterprises need a vertical management structure system, so that they may be able to better cope with the increasing import competition. Furthermore, forward-looking professional managers can be selected for enterprises through internal selection or headhunting recruitment, so that enterprises can quickly identify risks and make decisions and adjustments conducive to the development of enterprises when import competition comes.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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