ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

Quality of Imported Intermediates, Learning Ability and Technological Innovation

-- An Empirical Study Based on Chinese Industrial Enterprises Data

Dexue Liu[1] and Hui Yu[1, a, *]

[1]College of Economics, Jinan University, Guangzhou 510000, China

[a]Corresponding author e-mail:15603071994@163.com

Abstract

This paper mainly studies whether the import of intermediate products of different quality will promote the innovation of Chinese enterprises through learning. Empirical research shows that the enterprises innovation is influenced by both imported intermediate goods and learning ability: importing high-quality intermediates will promote enterprises innovation when the learning ability exceeds a certain threshold. What's more, they will mutually promote enterprise innovation; If the learning ability of enterprises is lower than a certain level, importing high-quality products will ultimately inhibit enterprises innovation due to imported-dependence. The robustness test further confirms this result. This provides a factual basis for our country to continue to deepen the import of high-quality intermediate goods and take measures to encourage enterprises to actively strength learning abilities.

Keywords

Imported Intermediates, Quality, TFP, Innovation.

1. INTRODUCTION

Since the reform and opening up, China has officially begun to introduce foreign investment through the establishment of special economic zones, encourage the development of an export-oriented economy and implement export tax rebates by reducing import tariffs. These measures have greatly enhanced China's international competitiveness and made the economy grow miraculously: China's import and export trade volume has ranked from 29th in 1978 to the world's first in 2013. It accounts for 0.8% of the world's share in 1978 to 11.5% in 2017, what proves that the status of an economic power is increasingly consolidated. However, there is still a big gap compared to the economic powers: in the "Global Competitiveness Report 2017-2018" issued by the World Economic Forum, China's ranking is better than last year, ranking 27th in the world. The result is still in sharp contrast to China's economic volume and the status of a major trading nation because China has long been passively "low-end embedded" in the global value chain system. According to OECD estimates, the domestic value-added of China's export products is about 68%, which is located in the middle and low positions of major economies. Specifically, the added value of low-end products such as food, textiles and clothing exceed 70%, while the domestic added value of computers, electro-optical equipment, electrical equipment, etc. does not exceed 50%, that is in the middle of the "smile curve" in the international division of labor. In face of the continued sluggish demand in the international market and the increasing participation of low-cost countries in international competition,

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

China's low-cost winning model is becoming less applicable. The factor advantage brought by the demographic dividend is gradually decreasing, and the resource and environmental constraints are becoming more severe, which are forcing China to accelerate the rise of the value chain and increase the added value of China's exports. Improving the technological content and innovation capacity of products has become the main way out due to China's not rich natural resources.

The report of the 19th National Congress clearly pointed out that "we need to expand foreign trade, cultivate new trade formats and new models to promoting the construction of a strong trade country." However, a country hopes to improve its ability to innovate by relying on its own scientific research breakthroughs is not only slow but also difficult. By importing intermediate products, we can obtain high-quality foreign production factors, technologies, products and services at a price lower than the domestic market, as well as advanced technologies condensed in products and equipment, as a result, we can improve the quality and competitiveness of domestic products and better enter the international market.

2. RELATED RESEARCH

In terms of literature, it's mainly from three aspects:

In the study of the import of intermediate goods, the existing literature mainly focuses on the following issues: 1) The relationship between the import of intermediate goods and the productivity of enterprises: Halpern et al. believe that the introduction of imported intermediate products can promote productivity. The increase in types and the improvement of quality affect the productivity of enterprises [1]; Goldberg et al. believe that the decline in tariffs on imported intermediates gives domestic manufacturers the opportunity to choose low-priced, multi-category intermediates, thereby reducing costs and increasing productivity [2]. 2) The relationship between the quality of imported intermediate products and the quality of exported products: Zhang Jie et al. believe that the technical level of embedded foreign products will represent higher quality, so it can promote the quality of imported enterprises [3]; Ma Shuzhong, Wu Guojie believe that imported intermediate products can improve the quality of export products and promote the role in the processing trade [4]. 3) The relationship between import intermediates and export performance: Tian Wei and Yu Miaojie found that the decline in tariffs on imported intermediate products will increase the export strength of enterprises [5]; Geng Yeqiang and Zheng Chaoqun believe that the quality upgrade of imported intermediate products can significantly improve the export performance of enterprises [6].

In focusing on corporate learning capabilities, the existing literature mainly considers the following aspects: 1) Learning ability and corporate performance: Mao Jianjun et al. believe that organizational learning ability will have a significant direct positive impact on management innovation and technological innovation, and there is indirect positive impact on corporate performance through management innovation and technological innovation [7]; Feng Xiaobin, Chen Liqiong found that basic practice has an indirect impact on business performance through exploration and utilization learning, while core practice has an impact on business performance only through utilization-learning [8]. 2) Learning ability and innovation: Li Hui believes that exploratory learning ability is positively affecting inward-oriented open innovation, and utilization-learning ability positively affects outward-oriented open innovation [9]; Zheng Qinghua et al. believes that corporate responsibility has a positive impact on organizational learning, mainly in terms of the increase in the number of new products and the speed of development; organizational learning has a positive impact on innovation behavior, and more reflected in a shared vision [10].

In researching and promoting enterprise innovation factors, the existing literature mainly comes from the following dimensions: 1) Introducing foreign capital and enterprise innovation:

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

Mao Qilin believes that the introduction of foreign capital can not only improve the degree of innovation, but also help to extend the innovation time of local enterprises. Intellectual property protection has strengthened the role of foreign investment in the innovation of local enterprises [11]; Luo Jun analysis that in the high degree of FDI entry, FDI forward linkage will promote technological innovation, with the increase in personnel and funding. However, there is no significant impact on the manufacturing industry with low FDI entry [12]. 2) The role of government subsidies for enterprise innovation: Yang Yang et al. believe that government subsidies have a greater role in promoting innovation for private enterprises than state-owned enterprises. Compared to high distortions area, government subsidies play great roles in low distortion areas [13]; Mao Qilin and Xu Jiayun believe that moderate subsidies can help enterprises to innovate, while high-value subsidies will shorten the duration of new product innovations by “seeking subsidies” [14]. 3) The influence of business management methods on enterprise innovation: Dang Li et al. believe that the acquisition of political connections and the improvement of innovation capabilities replace each other in the development of enterprises. The introduction of anti-corruption policies will inhibit enterprises from seeking political connections and promote enterprise innovation [15]; Tan el al. took the share-trading reform as the research object and found that privatization has a positive effect on enterprise innovation [16].

Few literatures focus on the impact of imported intermediates on corporate innovation. The process of digesting and absorbing learning is an important part of corporate innovation. This article explores enterprise innovation by studying the imported intermediates and learning capabilities of enterprises. Compared with the existing research, this paper has the following contributions: analysis of the innovation brought by imported intermediate products, which provides new ideas for improving the competitiveness of our products; screening imported intermediate products according to the BEC classification method, and empirical analysis of enterprise innovation capabilities provides a reference for corporate innovation; by selecting different variables for representing corporate innovation to measure whether import and learning capabilities will actually lead to corporate innovation.

3. DATA

In order to describe the impact of intermediate product imports and learning capabilities on corporate innovation in detail, this article uses highly detailed time-enterprise-product data from the China Industrial Statistics Database and China Import and Export Customs Database, supplemented by BEC data classification.

The first set of data is from 2000 to 2006 of China's industrial enterprises. This set of data contains the most comprehensive data on business operations, mainly including two types of information: (1) the basic characteristics of the enterprise: the company name, legal person, address, Telephone and the nature of the enterprise, etc.; (2) Financial information of the enterprise: assets and liabilities, profit and loss, cash flow, etc. However, the statistics are relatively rough. According to the methods of Cai-Liu and Feenstra-Li-Yu, according to the "General Accounting Standards", delete the samples of current assets greater than the total assets; delete the samples of total fixed assets greater than the total assets; Delete samples with net fixed assets greater than total assets; delete samples with missing enterprise code; delete samples with invalid establishment time: start time (month)> 12 or start time (month) <1 [17-18].

The second set of data is the customs data for the same period. As the customs data is detailed monthly data, it mainly includes two types of information: (1) basic characteristics of the enterprise: company name, telephone, legal person, etc.; (2) enterprise trade information: trade products, trade volume, trade routes, trade types, trade mode, customs, etc. This article

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

organizes customs data: First, the monthly data is aggregated into annual data according to the enterprise-product-import and export; second, according to Feng et al., choose The BEC codes "111", "121", "21", "22", "31", "322", "42", and "53". They are considered intermediate products [19]; (3) According to the trade model, import companies and export companies samples are separated; (4) The quality of each product is obtained by consolidating the customs data from 2000 to 2006, and then split into annual data to obtain the product quality of each enterprise.

Since the data of Chinese industrial enterprises is 9 digits, and the Chinese customs database is 10 digits, there is no way to directly match the two. Refer to the method of Yu et al. to match the data from two aspects: (1) Match based on the Chinese name and year of the company, that is, two companies with the same name in the same year are considered to be the same company; (2) Match by postcode plus seven phone numbers. As long as there is a way for any company to match successfully, it will be included in the sample [20]. Finally 175,075 data will be matched, accounting for 8.90% of the data sample. See Table 1 for details.

Table 1. Consolidated Table of Imported Intermediate Products from the Industrial Enterprise Database and the Customs Database (2000-2006)

	2000	2001	2002	2003	2004	2005	2006	sum
Number of import mergers	17446	19110	20986	22803	33225	27853	33652	175075
Total import companies	208948	219990	235708	257031	339947	325019	381296	1967939
proportion	8.35%	8.69%	8.90%	8.87%	9.77%	8.57%	8.83%	8.90%

The variables in this paper are mainly divided into three categories: explained variables—enterprise innovation, explanatory variables—enterprise input, and control variables. See Table 2 for detailed statistical descriptions.

Table 2. Statistical description

variable	sample	average value	Standard deviation	Minimum value	Maximum value
new	141839	31852.61	517929.6	0	6.45E+07
quality	163645	0.300333	0.202581	0	1
wage	141418	8552.543	41959.98	-12007	5234731
KI	111841	0.29908	0.190136	0	1
Iasset	111841	0.026465	0.052701	-0.9817	0.939241
QA	111841	0.375514	0.352303	-2.27816	76.12048
ROA	111841	0.045661	0.285223	-66.3494	31.74817
age	174882	8.562036	12.99013	-6	1999
size	111841	10.6739	1.502282	4.330733	20.05579
finance	140420	0.049499	2.829672	-287.255	930

This article studies enterprise innovation. According to the availability of industrial enterprise database data, the use of "new product output value " can effectively reflect the use of new technologies and new design ideas to produce new products.

In measuring the input of imported intermediate products, this article mainly focuses on the quality of the imported products of the enterprise. With reference to the practice of Shi

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

Bingzhan, a model for measuring the imported intermediate quality is established as follows [21]:

$$lnquantity_{fct} = \alpha_t - \beta lnprice_{fct} + \delta_{fct} \quad (1)$$

Among them, quantity represents the quantity of enterprise product imports, price represents the product import price, α_t=$lnE_t - lnP_t$, E_t is the total consumer expenditure on the product, and P_t represents the price index corresponding to the product utility function. α_t be the dummy time variable. δ_{ft}=$(\beta - 1)ln\gamma_{fct}$ is used as a residual term to measure the quality of the company's imported products. f represents the importing enterprise, c represents the country of origin of the import, and t represents the year.

$$quality1_{fct} = ln\gamma_{fct}hat = \frac{\delta_{fct}hat}{\beta - 1} = \frac{lnquantity_{fct} - lnquantity_{fct}hat}{\beta - 1} \quad (2)$$

(2)Is used to measure the quality of a certain HS product imported by each enterprise from each market in each year. In order to facilitate the summation of the quality of different products, standardized processing is performed:

$$\text{s\_quality}_{\text{fct}} = \frac{quality1_{fct} - minquality_{fct}}{maxqualtiy_{fct} - minqualtiy_{fct}} \quad (3)$$

Among them, $minquality_{fct}$and$maxqualtiy_{fct}$ are the minimum and maximum values for a certain HS product in all years, all enterprises, and all importing countries. The enterprise-year import intermediate quality is expressed as:

$$quality_{ft} = \sum \frac{value_{fct}}{\sum value_{fct}} \text{ s\_quality}_{\text{fct}} \quad (4)$$

Among them, $value_{fct}$ represents the amount of trade value.

When companies produce products, they will accompany the process of self-learning, digestion and absorption, which can be reflected by wages, management costs, and sales expenses. This article focuses on wage inputs in the data. Theoretically, the company's investment in employees on the one hand reflects the value of the human capital of the employees themselves, and on the other hand, high wages will increase the motivation of employees and enhance their learning capabilities.

In terms of control variables, select other factors that may also affect the innovation ability of the enterprise: (1) the proportion of fixed assets (KI)= net fixed assets / total assets; (2) the proportion of intangible assets (Iasset)= intangible assets / total assets (3) Proportion of current assets (QA)= (current assets-inventory) / total assets; (4) profitability (ROA)= (total profit-income tax payable) / total assets; (5) age of the enterprise (age) = Year of statistical data-establishment time of the enterprise; (6) enterprise size (size) = ln(total assets); (7) interest expense ratio (finance)= interest expense / fixed assets.

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

4. EMPIRICAL ANALYSIS

In order to verify the innovation ability of enterprises, we establish the following regression (5):

$$new_{it} = \beta_0 + \beta_1 P_{it} + \beta_2 E_{it} + \beta_3 P_{it} E_{it} + \beta_4 X_{it} + \delta_{it} + \varepsilon_{it} \quad (5)$$

i represents the enterprise, t represents the year, and $\boldsymbol{new_{it}}$ represents the new product output value of the i enterprise in the t year; $\boldsymbol{P_{it}}$ refers to the product input of the enterprise i in the t year, which is measured by product quality In logarithmic form in this article; $\boldsymbol{E_{it}}$ refers to the i enterprise productive input for t years, this article mainly focuses on the wages of workers and is replaced by the total payable wages In logarithmic form of the enterprise; $\boldsymbol{P_{it}E_{it}}$ refers to the interactive term of productive input and productive input; $\boldsymbol{X_{it}}$ is the control variable, including KI, Iasset, ROA, QA, age, size; $\boldsymbol{\delta_{it}}$ is the fixed time effect; $\boldsymbol{\varepsilon_{it}}$ is the error term of the model. Table 3 shows the regression results of the model.

Table 3. Benchmark regression results

	(1)	(2)	(3)
	new	new	new
quality	-10,847**	-8,577**	-23,029***
	(4,290)	(4,306)	(4,284)
wage		21,334***	5,336**
		(2,406)	(2,434)
quality*wage			5.169***
			(0.165)
KI	-83,689***	-87,083***	-86,402***
	(11,988)	(12,023)	(11,893)
Iasset	-166,171***	-141,892***	-114,051***
	(42,933)	(43,142)	(42,684)
QA	25,068***	22,153**	19,214**
	(8,739)	(8,765)	(8,671)
ROA	11,570	8,603	4,850
	(9,966)	(9,983)	(9,876)
age	-17.49	-165.8	-473.0***
	(164.0)	(165.0)	(163.5)
size	56,004***	43,306***	37,806***
	(1,509)	(2,097)	(2,081)
finance	-812.8	-663.9	-745.1
	(1,923)	(2,026)	(2,004)
constant	-564,119***	-591,373***	-432,202***
	(16,858)	(17,145)	(17,702)
fixed effect	yes	yes	yes
Observations	44,845	44,715	44,715

Notes: *** p<0.01, ** p<0.05, * p<0.1

The regression (3) in the above table shows that corporate innovation is affected by the import of high-quality intermediates and learning capabilities. When an enterprise's learning

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

ability is higher than a certain threshold, importing high-quality intermediate products will promote enterprise innovation, and the interaction between learning ability and imports will make enterprise innovation significantly at the 1% level. The coefficient of quality in regression (1) is significantly negative, which means that if the company's learning ability is below a certain threshold, the higher the quality of imported intermediate products, the more it will depend on imported intermediate products, which is not conducive to innovative breakthroughs. Generally speaking, when the learning ability of a company is relatively weak, the higher the quality of imported intermediate products, the more inertia of "free-rider" will be in the production process, which is harmful to enterprise innovation.

5. ROBUSTNESS TEST

Due to the existence of endogenous problems caused by the two-way causality of the promotion of intermediate product import by enterprise innovation, this paper refers to the method of Lin Zhengjing et al [22]. Since the industrial enterprise database does not contain total factor productivity, the existing data is pre-processed and the TFP is calculated using the LP method. The specific process is as follows:

Due to the lack of industrial added value in the database of Chinese industrial enterprises in 2004, first of all: industrial added value = depreciation of this year + (main business payable wages + main business payable welfare expenses + labor unemployment insurance premiums) + (product sales tax and surplus + tax (management fee) + tax payable-subsidy income) + (operating profit-wages-benefits + production subsidy), to calculate the industrial added value in 2004; With reference to the China Statistical Yearbook, find the "industrial product export price index" and "input price index", and perform price deflators on industrial added value, total industrial intermediate inputs, and total fixed assets. Since the price index of the China Statistical Yearbook is more than one year as the base period, this article uniformly converts it to 1999 as the base period. The specific conversion results are shown in Table 4 and Table 5 below; TFP is calculated with reference to the LP method.

Table 4. Ex-factory price index

year	1999	2000	2001	2002	2003	2004	2005	2006
Index(previous year = 100)	97.6	102.8	98.7	97.8	102.3	106.1	104.9	103
Index(Based on 1999 = 100)	100	102.8	101.5	99.2	101.5	107.7	113	116.4

Table 5. Input price index

year	1999	2000	2001	2002	2003	2004	2005	2006
Index(previous year = 100)	96.7	105.1	99.8	97.7	104.8	111.4	108.3	106
Index(Based on 1999 = 100)	100	105.1	104.9	102.5	107.4	119.6	129.6	137.3

The results of the robustness test are consistent with those of the original regression, as shown in Table 6 below. The regression result in column (3) still shows that only when the learning ability of a company exceeds a certain threshold, imports can positively promote the innovation of the company, and the interaction between imports and learning is strengthened, making innovation highly significant; if the learning ability of the company is low, importing high-quality products will not promote corporate innovation.

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

Table 6. Robustness test

	(1)	(2)	(3)
	TFP	TFP	TFP
quality	-6.079***	-5.847***	-8.389***
	(0.727)	(0.730)	(0.733)
wage		3.094***	0.732
		(0.492)	(0.499)
quality*wage			0.000908***
			(3.66e-05)
KI	-10.14***	-11.13***	-11.75***
	(2.157)	(2.168)	(2.156)
Iasset	-14.30**	-13.61*	-12.87*
	(7.273)	(7.294)	(7.253)
QA	4.645***	4.383***	4.245***
	(1.051)	(1.053)	(1.046)
ROA	17.97***	17.38***	17.17***
	(1.296)	(1.299)	(1.292)
age	-0.0629	-0.0859*	-0.135***
	(0.0508)	(0.0511)	(0.0509)
size	10.43***	8.703***	7.882***
	(0.436)	(0.517)	(0.515)
finance	0.114	0.121	0.120
	(0.159)	(0.160)	(0.159)
constant	-96.46***	-101.3***	-78.54***
	(4.692)	(4.762)	(4.828)
fixed effect	yes	yes	yes
Observations	68,023	67,892	67,892

Notes: *** p<0.01, ** p<0.05, * p<0.1

6. CONCLUSION

This article uses the 2000-2006 database of Chinese industrial enterprises to match with the customs database, combined with the BEC intermediate product correspondence table and China Statistical Yearbook calculating the import intermediate quality, price deflator, TFP, and studies intermediate product imports and enterprise learning capabilities on the impact on corporate innovation. The conclusion is as follows: Simply importing high-quality intermediate products does not necessarily improve the company's innovation ability. Only when the company's learning ability is higher than a certain threshold, importing high-quality intermediate products can promote enterprise innovation. The benign interaction will further promote corporate innovation. When a company's learning ability is low, importing high-quality intermediate products will actually inhibit business innovation.

With the gradual disappearance of China's demographic dividend, improving the ability of enterprises to innovate and increasing the value-added of products that will continue to inject vitality into economic development and achieve the goal of building a strong country in science and technology. In order to improve the level of innovation, while focusing on importing intermediate products, enterprises should also pay more attention to the improvement of learning ability. They can improve their digestion and absorption of learning ability and achieve

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

a climb in the global value chain through strengthening the building of talent teams and human capital accumulation. On the contrary, if the company still only focuses on importing high-quality intermediate products and neglects the cultivation of its own learning ability, it will have a path dependence on high-quality imported products from abroad, thereby inhibiting innovation, which will seriously restrict the sustainable development of enterprises, and bring negative impact on economic development.

REFERENCES

[1] Halpern L, M.Korean and A. Szeidl, (2015). Imported inputs and productivity. American Economic Review, vol.105, no.12, p.3660-3703.

[2] Goldberg P, Khandelwal A, Pavcnik N,et al., (2010). Imported Intermediate Inputs and Domestic Product Growth: Evidence from India. Quarterly Journal of Economics, vol.124, no.2, p.1727-1767.

[3] Zhang Jie, Zheng Wenping and Chen Zhiyuan (2014). Whether Imports Cause Exports: A Micro-Interpretation of China's Export Miracle. World Economy, no.6, p.3-26.

[4] Ma Shuzhong and Wu Guojie (2016). Import of Intermediate Goods, Types of Trade and Quality of Enterprises' Export Products: A Study Based on Microdata of Chinese Enterprises. Quantitative and Technical Economic Studies, no.11, p.77-93.

[5] Tian Wei and Yu Miaojie (2013). Enterprise Export Intensity and Liberalization of Imported Intermediate Trade: An Empirical Study from Chinese Enterprises. Management World, no.1, p. 28-44.

[6] Geng Yeqiang and Zheng Chaoqun (2018). Liberalization of Intermediate Trade, Import Diversity and Enterprise Innovation. Industrial Economics Research, no.2, p.39-52.

[7] Mao Jianjun, Wu Dekun and Gao Junshan (2008). An Empirical Study on the Relationship between Organizational Learning Capability and Enterprise Performance. Journal of University of Science and Technology Beijing, no.7, p.820-825.

[8] Feng Xiaobin and Chen Liqiong (2016). Research on the Relationship between Quality Management Practice, Organizational Learning and Enterprise Performance——Based on the Empirical Analysis of Zhejiang Manufacturing Enterprises. Management Reviews, no.1, p.31-41.

[9] Li Hui (2019). Research on the Transformation Mechanism of Organizational Learning Capability, Open Innovation and Innovation Performance——Taking Knowledge-intensive Service Enterprises as a Sample. Journal of Beijing Jiaotong University (Social Science Edition) , no.2, p.89-97.

[10] Zheng Qinghua, Zhao Jiahui and Liu Lin (2019). Corporate Social Responsibility, Organizational Learning and Innovation. Journal of Capital University of Economics and Business, no.5, p.103-112.

[11] Mao Qilin (2019). How does the liberalization of foreign investment affect the innovation of Chinese local enterprises? Financial Research, no.1, p.72-90.

[12] Luo Jun (2016). FDI Forward Links and Technology Innovation-Is Host Country R & D Investment Important? International Trade Issues, no.6, p.3-14.

[13] Yang Yang, Wei Hong and Luo Laijun (2015). Who is innovating with government subsidies? —— The role of joint mediation in distorting ownership and factor markets. Management World, no.1, p.75-86.

[14] Mao Qilin and Xu Jiayun (2015). The Impact of Government Subsidies on Enterprise New Product Innovation——Based on the Perspective of "Moderate Range" of Subsidies. China Industrial Economy, no.6, p.94-107.

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202002_6(2).0002

[15] Dang Li, Yang Ruilong and Yang Jidong (2015). Anti-corruption and corporate innovation: an explanation based on political connections. China Industrial Economy, no.7, p.146-160.

[16] Tan, Y., X. Tian, X. Zhang and H. Zhao (2015). The Real Effects of Privatization: Evidence from China's Split Share Structure Reform, SSRN Working Paper.

[17] Cai Hongbin and Liu Qiao (2009). Does Competition Encourage Unethical Behavior? The Case of Corporate Profit Hiding in China. Economic Journal, no.119, p.764-795.

[18] Feenstra Robert, Li Zhiyuan and Yu Miaojie (2014). Export and Credit Constraints under Incomplete Information: Theory and Empirical Investigation from China. Review of Economics and Statistics forthcoming.

[19] Feng L., Li Z. and Swenson D.L. (2016). The Connection between Imported Intermediate Inputs and Exports: Evidence from Chinese Firms. Journal of International Economics, no.101, p.86-101.

[20] Yu Miaojie and Tian Wei (2012). China's Processing Trade: A Firm-Level Analysis in Huw McMay and Ligang Song eds., Rebalancing and Sustaining Growth in China. Australian National University E-press, p.111-148.

[21] Shi Bingzhan and Zeng Xiangfei (2015). Quality Measurement and Facts of Chinese Enterprises' Import Products. World Economy, no.3, p.57-77.

[22] Lin Zhengjing and Zuo Liancun (2018). Import Intermediate Quality and Enterprise Productivity: A Study Based on Chinese Manufacturing Enterprises. Southern Economy, no.11, p.27-46.