

China's Anti-dumping Barriers Jumping Outward Direct Investment

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Abstract. This article analyzes how companies manage their companies in the event of anti-dumping. This paper constructs Stackelberg's monopolistic competition model to analyze that Chinese enterprises have outward direct investment behaviors to jump anti-dumping barriers. this paper analyzes China's anti-dumping barriers jumping outward direct investment using the panel data model. The results show that there are two direct investment methods for Chinese enterprises to jump anti-dumping barriers: one is to jump anti-dumping barriers by investing in countries that implements trade barriers, and the other is to invest in third countries that have not been accused of dumping. Further research found that China's trade barriers jumping outward direct investment in developing countries is obvious, while not in developed countries.

Introduction

The continuous expansion of trade scale has made foreign anti-dumping against China increasingly serious. China has become the country with the most serious anti-dumping trade barriers. According to WTO statistics, between 1995 and 2015, 4,768 anti-dumping investigations were launched worldwide, including 1,070 cases involving Chinese products, more than one-fifth of the global total. At the same time, the scale of China's foreign direct investment is also expanding. According to the 2016 China Foreign Direct Investment Bulletin, China's foreign direct investment stock increased from US\$29.9 billion to US\$1,097.86 billion in 2002-2016, an increase of nearly 460 times. The average annual growth rate is as high as 30.71%. The existing literature has done a lot of research on the relationship between anti-dumping barriers and China's foreign direct investment, and has drawn different conclusions.

However, the existing literature examines that the path of China's foreign direct investment across anti-dumping barriers is relatively simple. These documents only examine Chinese companies investing in countries building anti-dumping barriers after suffering anti-dumping barriers. Those literatures ignore the investment path of Chinese companies in third-country countries that have not been accused of anti-dumping by importing countries and then exports from third countries to the original importing countries. Belderbos (2004) pointed out that in order to avoid the increase in export costs brought about by anti-dumping barriers, enterprises will choose foreign direct investment. There are two ways for enterprises to evade anti-dumping barriers through foreign direct investment: the first is direct investment in importing countries that implement anti-dumping measures. Enterprises evade anti-dumping barriers through local sales; the second is to invest and build factories in third countries that have not been accused of anti-dumping by importing countries. Enterprises then export from third countries to the original importing countries to evade anti-dumping barriers.

As a supplement to the existing literature, this paper will further examine whether Chinese companies have evaded anti-dumping barriers for foreign direct investment, and will also examine the investment path of China's foreign direct investment across anti-dumping barriers. As a supplement to the existing literature, this paper will further examine whether Chinese companies have foreign direct investment to cross anti-dumping barriers, and will also examine the investment path of China's foreign direct investment across anti-dumping barriers. As a supplement to the existing literature, this paper continues the research results of Belderbos (1997). For the first time, it examines the direct foreign investment behavior of Chinese enterprises across anti-dumping barriers. First, after the anti-dumping measures are taken by importing countries, Chinese export enterprises

choose to cross the anti-dumping barriers by investing directly in the importing country. Second, after the importing countries adopted anti-dumping measures, Chinese export enterprises chose to invest in a third country that had not been accused of anti-dumping by the importing country, and then exported from the third country to the original importing country to cross the anti-dumping barrier.

Model

The core assumption of the model is that Chinese exporters have an advantage in terms of production costs compared to those in importing countries. Such cost advantages include cheap labor and land, so Chinese exporters have the advantage in prices. Assume that the sales price of the importing country enterprise is P^i , and the sales price of the Chinese export enterprise is P^e , then $P^e < P^i$. This paper draws on the linear demand response function established by belderbos et al. (2004) to examine the price game between importing enterprises and Chinese exporting enterprises. Assuming that the linear demand function of importing country enterprises and Chinese exporting enterprises is:

$$q^i = 1 - p^i + kp^e \quad (1)$$

$$q^e = 1 - p^e + kp^i \quad (2)$$

Where k indicates the similarity between the products of the importing country and the Chinese export enterprise. The closer k to 1, the bigger difference between the two products, the greater the degree of substitution and the greater competition among enterprises.

Assume c^i and c^e represent the marginal cost of importing companies and Chinese export enterprises. s represents the unit tariff cost of China's export enterprise exporting product, and d represents the unit transportation cost of China's export enterprise exporting product. Then the marginal cost of exporting products from Chinese export enterprises is $c^e + s + d$. Since it is assumed that Chinese export enterprises have the advantage in cost of production, then $c^e + s + d < c^i$, $t = c^i - c^e - s - d$ is the cost difference between the two countries' products. It is assumed that the importing country government chooses to impose a unit anti-dumping duty on the imported products in order to protect the local enterprises, so that the price of the two products tends to Consistent.

Chinese Export Enterprises Choose to Continue Exporting.

According to formula (1), Chinese export enterprises as price followers, depending on the observed price level of the importing country enterprise P^i , choose the optimal price P^e , maximize the profit function:

$$\max \pi^e = (p^e - c^e - s - d - t)q^e(p^e, p^i) \quad (3)$$

The importing country can predict the response function of Chinese export enterprises, assume that the response function of Chinese enterprises is $P^e = g(P^i)$. The importing country enterprises select the optimal price level according to the response function of Chinese export enterprises, and maximize profits:

$$\max \pi^i = (p^i - c^i)q^i(g(p^i), p^i) \quad (4) \quad \text{By inverse}$$

induction, the optimal Nash equilibrium solution can be obtained:

$$p^i = \frac{2 + (2 - k^2)c^i + k(c^e + s + t + d + 1)}{2(2 - k^2)}$$

$$q^i = \frac{2 - (2 - k^2)c^i + k(c^e + s + t + d + 1)}{2(2 - k^2)}$$

$$p^e = \frac{2k + k(2 - k^2)c^i + (4 - k^2)(c^e + s + t + d + 1)}{4(2 - k^2)}$$

$$q^e = \frac{8 + 2k - 4k^2 + k(2 - k^2)c^i + (3k^2 - 4)(c^e + s + t + d + 1)}{4(2 - k^2)}$$

Chinese Export Enterprises Choose to Cross Anti-Dumping Barriers Through Foreign Direct Investment.

Now consider that Chinese exporters choose to cross the importing countries' anti-dumping barriers through foreign direct investment. Chinese export companies have two investment options. The first is to invest and build factories directly in the importing country, the marginal production cost is c_{FDI}^h , the second is to choose to invest in a third country that has not been accused of anti-dumping by the importing country, and then export to the original importing country, the marginal production cost is c_{FDI}^t , And $c_{FDI}^t < c_{FDI}^h$, $c^e < c_{FDI}^t < c_{FDI}^h$. In the following, we discuss the Chinese anti-dumping behavior of Chinese export enterprises through foreign direct investment according to the investment path.

1. Chinese export enterprises choose to invest directly in the importing country to build factories

Assume that there is a fixed green space investment cost F for FDI. At this time, Chinese export enterprises select the optimal price p_{FDI}^h and maximize the profit function according to the observed price level of the importing country enterprise p^i :

$$\max \pi_{FDI}^h = (p_{FDI}^h - c_{FDI}^h)q_{FDI}^h(p_{FDI}^h, p^i) - F \quad (5)$$

According to the response function $p_{FDI}^h = g(p^i)$ of Chinese export enterprises, the importing country enterprises choose the optimal price level to maximize profits:

$$\max \pi^i = (p^i - c^i)q^i(g(p^i), p^i) \quad (6)$$

By inverse induction, the optimal Nash equilibrium solution can be obtained:

$$p^i = \frac{2 + (2 - k^2)c^i + k(c_{FDI}^h + 1)}{2(2 - k^2)}$$

$$q^i = \frac{2 - (2 - k^2)c^i + k(c_{FDI}^h + 1)}{4}$$

$$p_{FDI}^h = \frac{2k + k(2 - k^2)c^i + (4 - k^2)(c_{FDI}^h + 1)}{4(2 - k^2)}$$

$$q_{FDI}^h = \frac{8 + 2k - 4k^2 + k(2 - k^2)c^i + (3k^2 - 4)(c_{FDI}^h + 1)}{4(2 - k^2)}$$

2. Chinese export enterprises choose to invest and build factories in third countries that have not been accused of anti-dumping by importing countries.

Similarly, Chinese export enterprises select the optimal price p_{FDI}^t and maximize the profit function according to the observed price level of the importing country enterprise p^i :

$$\max \pi_{FDI}^t = (p_{FDI}^t - c_{FDI}^t - s - d)q_{FDI}^t(p_{FDI}^t, p^i) - F \quad (7)$$

According to the response function $p_{FDI}^t = g(p^i)$ of Chinese export enterprises, the importing country enterprises choose the optimal price level to maximize profits:

$$\max \pi^i = (p^i - c^i)q^i(g(p^i), p^i) \quad (8) \quad \text{By}$$

inverse induction, the optimal Nash equilibrium solution can be obtained:

$$p^i = \frac{2 + (2 - k^2)c^i + k(c_{FDI}^t + s + d + 1)}{2(2 - k^2)}$$

$$q^i = \frac{2 - (2 - k^2)c^i + k(c_{FDI}^t + s + d + 1)}{4}$$

$$p_{FDI}^t = \frac{2k + k(2 - k^2)c^i + (4 - k^2)(c_{FDI}^t + s + d + 1)}{4(2 - k^2)}$$

$$q_{FDI}^t = \frac{8 + 2k - 4k^2 + k(2 - k^2)c^i + (3k^2 - 4)(c_{FDI}^t + s + d + 1)}{4(2 - k^2)}$$

3. Fixed investment cost boundary and foreign direct investment behavior of Chinese export enterprises

When will Chinese export enterprises choose foreign direct investment? This paper choose critical cost analysis using enterprise behavior . In the case of anti-dumping barriers, the critical cost of Chinese exporters choosing to invest directly in the importing country is:

$$F_h^* = (5) + F - (3) = (4 - 3k^2)(s + d + t) - \frac{2(4 + 2k - k^2) + 2k(2 - k^2)c^i + (3k^2 - 4)(2c_{FDI}^h + s + d + t)}{4(2 - k^2)}$$

The critical cost for Chinese exporters to choose to invest in third countries that are not subject to anti-dumping charges by importing countries is:

$$F_t^* = (7) + F - (3) = (4 - 3k^2)t - \frac{2(4 + 2k - k^2) + 2k(2 - k^2)c^i + (3k^2 - 4)(2c_{FDI}^t + t)}{4(2 - k^2)}$$

The critical cost of Chinese export enterprises choosing foreign direct investment is:

$$F^* = \max\{F_h^*, F_t^*\}$$

The above analysis shows that Chinese export enterprises will choose foreign direct investment in order to avoid the loss of export profits caused by anti-dumping barriers. Moreover, the countries of destination of foreign direct investment include not only importing countries that have adopted anti-dumping measures against the enterprises, but also third countries that have not been accused of anti-dumping by importing countries.

Data and Research Design

Based on the classic investment gravity model, this paper sets the model into the following form by introducing some control variables:

$$\ln odi_{ijt} = \alpha_0 + \alpha_1 \ln HGDP_{it} + \alpha_2 \ln FGDP_{jt} + \alpha_3 AD_{it} + \alpha_4 X_{jt} + \eta_t + \mu_j + \varepsilon_{ij}$$

Where odi_{ijt} represents the stock of investment in the host country from China (i) in year t ; $HGDP_{it}$ represents the gross domestic product of China in year t , and $FGDP_{jt}$ represents the gross domestic product of host country j in year t ; η_t and μ_t represent time and individual fixed effects respectively . The control variable X_{jt} mainly controls the impact of China's trade exports to the host country and the amount of labor in the host country, factor abundance, and institutional environment to the amount of the investment.

AD_{it} is the core explanatory variable of this article, indicating anti-dumping quantities that China

has encountered. According to the results of the previous theoretical part, enterprises will conduct foreign direct investment in two ways to avoid anti-dumping barriers. The first is to directly invest in the importing country that implements anti-dumping trade protection measures for the enterprise. This article defines it as a direct investment in trade barriers; the second is to invest in a third country that has not been accused of anti-dumping, and then exports from the third country to the original importing country, which is defined as an indirect investment in trade barriers. Therefore, this paper chooses to discuss China's direct investment behavior across trade barriers in two cases. First, direct investment, which means the impact of host country's anti-dumping on China's direct investment to the host country. This article uses three indicators to measure the anti-dumping situation of China from host country j in year t : 1. $Dcase$, which means the amount of anti-dumping investigations initiated by the host country against China at the end of year t ; 2. $Ddump$, which means the amount of $Dcase$ confirmed the existence of dumping at the end of year t ; 3. $Dinj$, which means the amount of $Ddump$ confirmed the existence of injuring to the host country at the end of year t . Second, the indirect investment of trade barriers, which means treating the host country as a third country and examining the impact of China's anti-dumping from the world (except the host country) on China's direct investment in the host country. This article uses three indicators to measure the anti-dumping situation of China from the world (except the host country j) in year t : 1. $Icase$, which means the amount of anti-dumping investigations initiated by foreign countries in the world (except the host country j) against China at the end of year t ; 2. $Idump$, which means the amount of $Icase$ confirmed the existence of dumping at the end of year t ; 3. $Iinj$, which means the amount of $Idump$ confirmed the existence of injuring to the host country at the end of year t .

Empirical Test

Table 1 reports the results of direct investment for jumping trade barriers. $Dcase$'s coefficient is 0.0195, which is significant at the 10% level, indicating that the host country's anti-dumping investigation will significantly stimulate China's foreign direct investment in the country. In order to avoid an increase in export costs caused by the imposition of anti-dumping duties in the future, exporting enterprises will choose to invest directly in the host country. For other control variables, China's GDP coefficient is significantly positive, indicating that a country's economic development level has a significant positive impact on foreign direct investment. The faster the economic development, the more capital accumulation, the more idle funds generated, the more increase direct investment in foreign countries. The coefficient of the host country's GDP is positive, but not significant, indicating that the country of destination of China's foreign direct investment is not based on its economic size. China's export coefficient to the host country is significantly negative, indicating that China's foreign investment and trade exports are an alternative relationship. The three variables of Pop , nr and rul are positive, indicating that the richer the labor force in the host country, the richer the natural resources and the better the institutional environment, the more it will attract Chinese direct investment in the country.

The regression results were overall significant and pass through the F test. The model itself did not have autocorrelation, and the adjusted goodness of fit $R^2 = 0.6875$, was within the acceptable range. Therefore, the estimation results were considered to be credible.

Table 1 Results of direct investment for jumping trade barriers

Variable name	(1)	(2)	(3)
Cons	-136.5872***	-136.9132***	-138.623***

	(9.058)	(9.0364)	(9.0362)
Dcase	0.0194* (0.0116)		
Ddump		0.0298*** (0.0109)	
Dinj			0.0297*** (0.0109)
HGDP	5.3239*** (0.2208)	5.2622*** (0.2200)	5.2648*** (0.2198)
FGDP	0.3814 (0.4579)	0.02918 (0.4572)	0.2966 (0.4569)
Exp	-0.1686* (0.0937)	-0.1887** (0.0935)	-0.1887** (0.09349)
Pop	0.0062*** (0.0001)	0.0062*** (0.0006)	0.0062*** (0.0006)
nr	2.5561** (1.2338)	2.5181** (1.2305)	2.5181** (1.2305)
rul	1.1588*** (0.3292)	1.1893*** (0.3284)	1.1893*** (0.3284)
R^2	0.6860	0.6875	0.6876
F	282.42	284.51	294.49

The coefficients of Ddump and Dinj are both positive and greater than the regression coefficients of Dcase. The reason is that when it is confirmed that there is dumping behavior or has caused substantial damage, the probability of the exporting enterprise being levied anti-dumping tax is greater than that of merely launching an anti-dumping investigation. The cost increase caused by taxes, etc. makes the exporting enterprise having a greater possibility of choosing to invest in the host country to avoid the export cost due to the anti-dumping. In other words, Ddump and Dinj has a greater stimulating effect on China's investment in the host country than just launching anti-dumping investigations. The estimation results of other control variables are consistent with the results in column (1) and will not be described again.

Table 2 reports the estimates of indirect resulting investment jumping trade barriers. The coefficient of Icase is 0.0078, which is significant at the 1% level, indicating that anti-dumping trade barriers will significantly stimulate China's direct investment in untaxed third countries. The coefficients of Idump and Iinj are both positive, indicating that no matter what substitution variables are used, it can be concluded that China's anti-dumping trade barriers will lead to direct investment in third countries. Comparing the results reported in Table 2(1)(2)(3), the coefficient of Icase is greater than the regression coefficients of Idump and Iinj. The reason is that when an anti-dumping investigation is ruled to confirm that there is dumping or material damage has been caused, the exporting enterprise must be vigilant against the law by re-exporting it to a third country. The Dunkle Draft was drafted during the WTO Uruguay Round negotiations, and the anti-dumping part of the draft included the draft anti-circumvention clause for the first time. Due to the existence of anti-circumvention law, when the products under investigation are confirmed to have substantial damage caused by dumping or dumping, the exporter chooses to re-export to the original importing country in the third country and still has the risk of being charged anti-dumping duties. Evading export enterprises may not choose to cross anti-dumping trade barriers through third-country investment. In other words, due to the existence of risk-averse export enterprises, the incentive effect of confirming the number of dumping and confirming the damage is less than the impact of the number of anti-dumping investigations on China's investment in third countries.

Table 2 Results of indirect investment for jumping trade barriers

Variable name	(1)	(2)	(3)
Cons	-108.3766***	-113.1957***	-113.062***

	(11.8192)	(13.4074)	(13.3347)
Icase	0.0077*** (0.0021)		
Idump		0.0065*** (0.0027)	
Iinj			0.0066*** (0.0028)
HGDP	4.5116*** (0.3273)	4.6164*** (0.4058)	4.6131*** (0.4244)
FGDP	0.5786 (0.4486)	0.5097 (0.4502)	0.5099 (0.4525)
Exp	-0.1971** (0.0927)	-0.1700* (0.0927)	-0.1732** (0.0929)
Pop	0.0061*** (0.0006)	0.0061*** (0.0006)	0.0061*** (0.0006)
nr	2.1909* (1.2317)	2.4824** (1.2328)	2.4443** (1.2336)
rul	1.1722*** (0.3265)	1.1683*** (0.3284)	1.1673*** (0.3283)
R^2	0.6896	0.6869	0.6869
F	287.20	283.62	293.70

Comparing the results reported in Tables 1 and 2, the regression coefficient of Dcase is greater than the regression coefficient of Icase. Similarly, the regression coefficients of Ddump and Dinj are greater than the regression coefficients of Idump and Iinj respectively. This means that for China's foreign direct investment, the direct investment effect of anti-dumping trade barriers is greater than the indirect investment effect.

Conclusion

This article focuses on China's foreign direct investment across anti-dumping barriers. Using the data of China's foreign direct investment from 2003 to 2015, through theoretical and empirical analysis, it is concluded that China's foreign direct investment does have the motivation to cross the anti-dumping barrier. Moreover, the direct investment path of Chinese enterprises across anti-dumping barriers includes two types: First, after the importing countries adopt anti-dumping measures, Chinese export enterprises directly invest in importing countries to cross anti-dumping barriers. Second, after importing countries adopt anti-dumping measures, Chinese export enterprises Choose to invest in a third country that has not been accused of anti-dumping by the importing country, and then export from the third country to the original importing country to cross the anti-dumping barrier. With the results of empirical tests, this paper summarizes the following two conclusions. First, compared with the investment in third countries that have not been accused of anti-dumping and then from the third country, China's foreign direct investment is more willing to invest directly in countries that implement trade barriers. Due to the existence of anti-circumvention laws, enterprises choose to invest in third countries and still have the risk of encountering trade barriers. Therefore, some risk-averse enterprises prefer the first investment method that crosses trade barriers.

China is a country with more serious anti-dumping barriers. Due to the establishment and development of the World Trade Organization, traditional trade protection policies such as tariffs are being weakened, and other trade protection tools such as anti-dumping are prevailing. When faced with anti-dumping barriers, the Chinese government can encourage competitive enterprises to invest abroad in order to reasonably avoid the damage caused by anti-dumping barriers. With the continuous advancement of China's "going out" strategy and the "One Belt, One Road" initiative, China's foreign investment environment will continue to improve. By encouraging superior enterprises to "go global", China's trade imbalance can be effectively improved and reduced. Trade friction between China and other countries to improve China's trade environment.

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