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Study on the Impact of Bilateral Tax Treaties on OFDI

-- Empirical Research based on Contracting Countries and Regions

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Abstract

In recent years, China has been accelerating the pace of opening up to the outside world, and the signing of bilateral tax treaties has become one of the important means to solve international tax disputes. This paper uses the stock data of FDI from 2003 to 2022 for empirical analysis, and finds that: (1) the signing of bilateral tax treaties has a significant promoting effect on enterprises' FDI. (2) A bilateral tax treaty with a tax concession provision is more likely to promote foreign direct investment by enterprises than a bilateral tax treaty without such provision. (3) Bilateral tax treaties have a stronger promotion effect on enterprises' direct investment in small and close countries with total trade volume. The research shows that China should actively promote the signing of bilateral tax agreements with other countries, and actively negotiate the content of tax exemption clauses, so as to provide a solid system guarantee for Chinese enterprises to go global.

Keywords

Bilateral Tax Treaty; OFDI; Pardon Clause.

1. Introduction

Since entering the 21st century, China has continuously accelerated the pace of opening to the outside world. In the Central Economic Work Conference in 2024, it was clearly listed as one of the key tasks of "expanding high-level opening up to the outside world". At present, China's opening to the outside world has formed an all-dimensional, multi-level and wide-field opening-up pattern, and the development of Outward Foreign Direct Investment (OFDI) has also shown leapfrog development. As of 2015, For the first time, China's outbound investment exceeded the amount of foreign investment it attracted, which means that China has transformed from a major capital importer to a major capital exporter, and has become the world's second largest outbound investor. The shift shows a major change in China's role and influence in the global economic landscape, marking a new stage in its opening up strategy. In 2023, China's foreign investment cooperation is also developing steadily, and the amount of foreign direct investment of the whole industry reached 104.85 billion yuan, an increase of 5.7%. In recent years, the rapid rise of China's OFDI stock highlights the significant improvement of domestic enterprises' competitiveness in the global market, which means that China is increasingly occupying a dominant position in international cooperation. At the same time, this trend also reveals that, to a certain extent, faced with the uncertainty of the global economic and trade system, OFDI has become one of the key strategies for Chinese enterprises to promote transformation and upgrading. This has not only promoted the dynamic adjustment of the international economic pattern, but also brought diversified development opportunities to participating countries.

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In the process of foreign direct investment, changes in the international tax environment can significantly affect their global business and investment decisions, causing new challenges in strategic adjustment and risk management. The tax system and tax rate of different countries constitute a complex environment for enterprises' outbound investment, which not only provides the possibility of tax evasion, but also makes multinational corporations face the challenge of double taxation when making outbound investment, which significantly increases the investment cost and restricts the ability of enterprises to implement the "going global" strategy. In order to deal with this dilemma and help enterprises create a more fair and harmonious environment in international competition, China must take measures to accelerate the promotion of international tax coordination. Among them, bilateral tax treaties are one of the main forms of international tax treaties, the main purpose of which is to reduce double taxation, promote international economic cooperation, prevent transnational enterprises from evading tax and tax avoidance, protect the national tax base from erosion and strengthen international tax cooperation and many other goals, most of the tax treaties signed by our country are bilateral tax treaties. By 2023, China has signed 114 bilateral tax treaties, 105 of which have entered into force. Through mutual consultation, various countries determine key elements such as tax objects and tax rates, so as to build a tax framework for transnational investment, and create a relatively fair and harmonious investment environment for Chinese multinational enterprises to explore the international market. However, there is still a lack of empirical research and analysis on whether bilateral tax treaties have a significant impact on the actual OFDI activities of enterprises, whether they can really promote the growth of OFDI, and whether their effectiveness varies with different provisions.

Therefore, through a comprehensive analysis of China's bilateral tax treaty system, this paper aims to explore in depth how these agreements affect the mechanism of China's outbound direct investment (OFDI). From the theoretical perspective, combined with the empirical analysis method, this paper identifies and evaluates the specific mechanism of existing bilateral tax treaties on OFDI, and then identifies the limitations and deficiencies in the current agreements. Based on this research, we will put forward more targeted and perfect suggestions to give full play to its role in the process of China's opening up and promoting foreign investment.

2. Literature Review and Research Hypothesis

(1) Literature review

The core objective of signing tax treaties between countries is to eliminate double taxation and prevent tax evasion and tax avoidance by multinational enterprises, which respond to the real needs of global capital cross-border circulation. The emergence and widespread use of tax treaties are closely related to the prosperity of transnational direct investment activities, which makes it impossible to separate the discussion of tax treaties from the background of global investment activities. As a result, the study of tax treaties is naturally intertwined with the increasing volume of outward foreign direct investment in the global economy, forming a deep link.

Foreign scholars have rich research results on the quantitative analysis of tax treaties, but their conclusions show diversity, mainly reflected in the three dimensions of promotion, inhibition and double effect. Different scholars failed to reach a unified conclusion due to the similarities and differences in research methods and sample selection. This reveals that the impact of bilateral tax treaties on OFDI is not static, but depends on the specific configuration and interaction of multiple factors. Most scholars believe that tax treaties can help encourage enterprises to make foreign direct investment. For example, Blonigen and Davies (2002) made use of the macroeconomic data of OECD countries from 1982 to 1992 to evaluate and found

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that tax treaties did have a significant positive impact on FDI, and their study provided empirical support for this theory. In addition, Davies et al. (2009) also found the promoting effect of tax treaties on enterprises' OFDI when using the micro-data of Swiss enterprises for research. However, other scholars have put forward the opposite conclusion. For example, Egger et al. (2006), based on the study of the macroeconomic data of OECD countries from 1985 to 2000, put forward the view that the tax agreement will have a restraining effect on OFDI. A small number of scholars believe that bilateral tax treaties have a two-sidedly impact on OFDI. For example, Kumas et al. (2018) used the quantile regression model to further explore this point through empirical analysis, and found that tax treaties have a promoting effect on entities with small investment scale, and with the increase of investment scale, the effect will also turn into a inhibiting effect.

Domestic scholars' studies on the impact of tax treaties on OFDI mainly focused on theoretical studies at the beginning, and they studied various provisions of tax treaties. For example, He Yang et al. (2013) held the view that tax treaties can reduce the tax burden of enterprises to encourage enterprises' OFDI activities and promote capital flow and international cooperation. With the enhancement of data acquisition ability and the continuous improvement of international tax agreement network, Chinese scholars pay more and more attention to the use of empirical research methods to explore the impact of tax agreement on enterprises' OFDI. Deng Liping et al. (2019) further empirical research shows that tax treaties can significantly ease the barriers to investment caused by high tax rates and negative tax environment in host countries, and help encourage Chinese enterprises to increase investment in countries with similar challenges. To sum up, tax treaties not only provide legal protection and tax incentives for investors, but also optimize the investment environment and promote the development of enterprises' OFDI activities.

On the basis of the above literature, we can find that domestic and foreign scholars have done a lot of theoretical and empirical research on tax treaties, foreign direct investment, etc., but most of the research angles of foreign scholars are from the standpoint of developed countries, while China is still in the situation of developing countries, whether their research results are applicable to our country is still open to question. In addition, most of Chinese scholars' research on tax treaties is still based on theoretical research, and tax is rarely taken as the core explanatory variable when discussing the key factors affecting OFDI. However, this issue actually has great potential, especially in such a big economic country as China. Current studies often ignore the specific impact of tax treaties on OFDI activities, which leaves plenty of academic research space. Therefore, in our country, the correlation between tax treaty and foreign direct investment, how the government should continue to optimize our tax treaty network system, and then give full play to its role still need to be further studied.

(2) Theoretical mechanism and research hypothesis

As the most important way to achieve international tax coordination between countries, bilateral tax treaties affect transnational investment in the following two ways.

First, the signing of bilateral tax treaties can reduce the tax burden of transnational investment of enterprises and encourage enterprises to make foreign direct investment. If there is no bilateral tax agreement signed between the two countries, multinational companies are likely to face the need to pay tax not only to the host country on the investment income, but also to the host country according to the tax law of the host country on the income, which may cause double taxation, thus increasing the tax burden of enterprises on transnational investment. After the tax agreement is signed between the two countries, the tax agreement will divide the tax scope of the host country and the country of residence through specific provisions, so as to eliminate double taxation, reduce the tax burden of enterprises, enterprises have more funds to invest in foreign investment activities, and enterprises will continue to increase their willingness to invest in foreign investment activities.

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Second, the signing of bilateral tax treaties can reduce the uncertainty of the tax burden of enterprises' outbound investment activities, and the cost of resolving tax disputes will be greatly reduced. Compared with domestic investment, enterprises are faced with greater uncertainty due to different tax systems in different countries. According to the real option theory, in an uncertain market environment, enterprises often adopt more cautious business strategies and are more inclined to wait and see temporarily rather than increase investment immediately, waiting to obtain more relevant information. Make more insightful decisions. After the signing and implementation of the bilateral tax treaty, not only the scope of taxation and jurisdiction are clearly defined, but also the stable and transparent legal framework for overseas investment activities of enterprises has been provided, which has greatly enhanced the investment willingness. In addition, tax systems around the world have different characteristics, leading to the inevitable tax disputes that enterprises will encounter when making cross-border investments. Once a tax dispute arises, companies are likely to face complex and costly coordination costs, including legal advice and tax compliance reviews, which pose a threat to business operations and strategic planning. Bilateral tax treaties can be negotiated with each other through standardized procedures, so as to shorten the time and reduce the cost of dispute resolution.

Based on the above theoretical mechanism, this paper proposes the following hypotheses regarding the role of bilateral tax treaties on OFDI of Chinese enterprises:

Hypothesis 1: Signing bilateral tax treaties has obvious promoting effect on OFDI of Chinese enterprises.

Most of the current bilateral tax treaties are formulated according to the OECD model and the UN model, but in the process of signing agreements, countries have made some adjustments to the terms of the agreements according to their actual conditions, such as whether there is a tax exemption clause. The tax exemption clause means that the resident country of its resident enterprise has obtained tax relief in foreign countries is equivalent to fulfilling its tax obligations, and also gives tax credit treatment, and no longer collects relevant taxes on this part of income in accordance with the tax rate of the residence country. In practice, if the bilateral tax treaty signed between the two countries does not contain a tax concession clause, then the special tax incentives and deductions enjoyed by the enterprise in the host country are still unpaid taxes at the time of tax payment in the country of residence, and the part of tax needs to be paid in the country of residence. If the bilateral tax agreement signed between the two countries contains a tax concession clause, then the tax incentives enjoyed by the enterprise in the host country are regarded as having been actually paid, so as to exempt the enterprise from the back taxes on these parts in the country of residence, and the enterprise really enjoys the tax incentives given by the capital importing country. Therefore, from a theoretical point of view, bilateral tax treaties containing tax exemption clauses can increase the tax incentives enjoyed by enterprises, thus stimulating the enthusiasm of enterprises to invest abroad.

According to the research of Hines (2000) on the transnational investment of Japanese enterprises, the tax exemption clause is more conducive to promoting the foreign investment of enterprises. This paper proposes the following hypothesis for the promotion effect of the tax exemption clause on foreign direct investment:

Hypothesis 2: A tax treaty with a tax exemption clause can promote OFDI more than a tax treaty without it.

3. Research Design

(1) Sample selection and data sources

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Since China's current statistical system of OFDI has been implemented since 2002, in order to better test the impact of bilateral tax treaties on OFDI, countries that signed tax treaties before 2003 are excluded in this paper. The data of 126 countries in the investment stock data of Foreign Investment Communique published by the Ministry of Commerce from 2003 to 2022 are selected for empirical analysis, and the countries that have never signed contracts and are not affected by the policy are taken as the control group, so as to better study the effect of the policy.

(2) Model construction

In order to study the implementation effect of the policy more directly, this paper adopts the Difference-In-Difference method to compare the situation before and after the implementation of the policy by setting the control group and the experimental group. Since the bilateral tax treaties studied in this paper were signed in different years and different countries had different time nodes affected by policies, this paper introduced progressive differential method on the framework of classical differential method, that is, multi-time-point differential analysis, to deepen empirical research.

Based on the stock data of foreign investment from 2003 to 2022, this paper takes the 126 countries remaining after excluding those countries that signed bilateral tax treaties with China before 2003 as empirical samples. In order to verify hypothesis 1, the samples are divided into two groups under the empirical method of multi-time-point differential method. One group is the countries that signed bilateral tax treaties with China between 2003 and 2022, which will be the experimental group affected by the policy; The other group is countries that do not have bilateral tax treaties with our country as a control group not affected by the policy. In addition, in order to test hypothesis 2, we excluded countries that had not signed bilateral tax treaties in the sample, and divided the remaining samples into two groups. One group was the experimental group of countries that had signed tax treaties that included tax concession clauses, and the other group was the control group of countries that had signed tax treaties that did not include tax concession clauses. Since the development trend of the two groups is relatively similar, the endogeneity problem caused by sample selection can be effectively avoided, so the effect of policy impact can be studied more effectively. At the same time, this paper draws on the research methods of many scholars, such as Du Jiang and Song Yuegang (2014), etc., and selects the following control variables and sets the model as follows:

$$LnOFDI_{cjt} = \beta_0 + \beta_1 BTT_{cj,t} + \beta_n Controls_{jt} + \lambda_t + \lambda_j + \varepsilon_{cjt} \quad (1)$$

$$LnOFDI_{cjt} = \beta_0 + \beta_1\_TS_{cj,t} + \beta_n Controls_{jt} + \lambda_t + \lambda_j + \varepsilon_{cjt} \quad (2)$$

Where c represents China, j represents the investor country, and t represents time. $OFDI_{cjt}$ represents the stock of China's foreign investment in Country j in year t; $BTT_{cj,t}$ represents $Treat_j \times After_t$ intersect and multiply term, $Treat_j$is the dummy variable of whether the investor country has signed a bilateral tax treaty with China. If country j has signed a bilateral tax treaty with China during the sample period, the value of the dummy variable is 1, and otherwise, it is 0, $After_t$ is the dummy variable of the time when the investor country signs the bilateral tax treaty with China, and the value is 1 if it is after the year of the bilateral tax treaty signed between country j and China, and 0 if it is not, therefore, $BTT_{cj,t}$ takes the value of 1 after Country j signs a bilateral tax treaty with China, and 0 if not; $Controls_{jt}$ is some control variable; $\lambda_t$is a time-fixed effect; λ_j is the country fixed effect; ε_{cjt} is the perturbation term.

To verify hypothesis 2, we introduce in equation (2)_$TS_{cj,t} = TS_j \times After_t$ this dummy variable is used to test the effect of the tax forgiveness clause. If the clause of the bilateral tax treaty

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signed by China and Country j contains the tax forgiveness clause,, In that way_$TS_{cj,t}$ the value is 1.Otherwise, the value is 0. The remaining variables in equation (2) are the same as in equation (1).

(3) Variable selection

On the basis of referring to relevant literature at home and abroad, this paper selected the following variables:

Explained variable (OFDI). According to relevant literature studies, investment stock data can better demonstrate the long-term purpose of investment than flow data. Therefore, this paper selects the investment stock data in the "Outward Investment Communique" published by the Ministry of Commerce from 2003 to 2022 for empirical research. In order to enhance the standardization of data and make its distribution more even. We perform logarithmic processing on the investment stock data.

Explanatory variables (BTT, TS). In this paper, according to the data of the website of the State Administration of Taxation, dummy variables BTT and TS are used to indicate whether a bilateral tax treaty has been signed and whether the bilateral tax treaty has contained relevant tax concession clauses.

Control variables:

1) China's GDP (DGDP) : This variable is used to measure China's economic development level, and the continuous improvement of China's economic development level also helps to promote the enthusiasm of enterprises to invest abroad, and helps to expand the scale of OFDI. To express the natural logarithm of China's total GDP in t years.

2) Investment country market size (IGDP) : This variable is used to measure the market size of the investment country. According to the existing research, we can find that the market size of the investment country is proportional to the ability to attract investment. The larger the market size of the investment country, the more enterprises can be attracted to the country for investment activities. To express the market size of Country j in year t, it is calculated by taking the natural logarithm of the total GDP of the investing country.

3) Labor cost (PGDP) : Labor cost plays a crucial role in enterprises' outbound investment decisions. When labor costs are higher in a country, the cost of investing in that country will increase accordingly. Such an increase in costs could squeeze companies' profit margins and thus affect their willingness to invest. In other words, high labor costs could make the country less attractive for companies to invest in, leading companies to seek more cost-effective investment destinations. To express the labor cost of country j in year t, it is calculated by taking the natural logarithm of GDP per capita of the investor country.

4) Tax burden level of investment country: tax burden level is also one of the important factors affecting the foreign investment of enterprises. The higher the tax burden level of investment country, the higher the investment cost of enterprises to invest in the country, and it will also discourage the investment enthusiasm of enterprises. To express the tax burden level of Country j in year t, it is calculated as the total corporate tax rate of country j in year t.

5) Natural Resource Endowment (Re) of the investor country: This paper uses data from the World Bank database to assess the abundance of natural resources in the country. According to the data research, Chinese enterprises tend to resource-seeking investment in foreign direct investment decision-making, and the richness of natural resources becomes the key factor to attract Chinese enterprises to invest. In short, resource-rich countries are more likely to become targets for investment by our companies. To express the natural resource endowment of Country j in year t, it is calculated as the proportion of the exports of minerals, fuels and metals in the total exports of commodities.

6) The degree of trade openness of the investor country (To) : The degree of trade openness of the investor country is also one of the important factors affecting the foreign investment of

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enterprises. If the degree of trade openness of a country is higher, it is more likely to attract foreign investment. To express the degree of trade openness of country j in year t, it is calculated by the proportion of the total import and export of the investor country to its GDP.

7) Bilateral Trade intensity (Trade) : This variable reflects the total trade flow between China and the target investment countries. This indicator is used to assess the intensity of trade interaction between two countries, and the frequency of trade is often seen as an important factor in driving outward direct investment (OFDI). To express the bilateral trade closeness between Country j and China in year t, the calculation method is to take the natural logarithm of the sum of the total imports and exports of trade between China and the investment country.

Table 1. Description of variables and their sources

Variable name	symbol	definition	Data source
Foreign direct investment	*LnOFDI*	The natural logarithm of China's outward investment stock is taken	Outward investment bulletin
Bilateral tax treaty	BTT	Whether to sign bilateral tax treaties	State Administration of Taxation website
The tax waiver clause	TS	Whether it contains a tax waiver	State Administration of Taxation website
China's economic development level	*LnDGDP*	Take the natural logarithm of China's total GDP	World Bank database
Market size of the investor country	*LnIGDP*	Take the natural logarithm of the total GDP of the investing country	World Bank database
Labor costs in investment countries	*LnPGDP*	Take the natural logarithm of the per capita GDP of the investing country	World Bank database
Tax burden level of the investor country	Tax	The total corporate tax rate of the investor country	World Bank database
Natural resource endowments	Re	The share of ore, fuel and metal exports in total commodity exports	World Bank database
Degree of trade openness	To	The ratio of total imports and exports to GDP of the investing country	World Bank database
Bilateral trade tightness	*LnTrade*	The total volume of trade between China and the investment country is taken as the natural logarithm	World Bank database

Descriptive statistics were conducted on the main variables selected in this paper, and the results were shown in Table 2.

Table 2. Descriptive statistics

variable	Sample size	Mean value	Standard deviation	Minimum value	Maximum value
LnOFDI	2,292	8.909	2.943	0	18.88
BTT(Carry out=1)	2,520	0.205	0.404	0	1
TS(There are=1)	2,520	0.0556	0.229	0	1
LnDGDP	2,520	29.59	0.739	28.14	30.52
LnIGDP	2,389	23.57	2.328	17.68	29.08
LnPGDP	2,204	1.369	1.594	-2.226	5.190
Tax	1,660	49.02	40.09	8	339.1
Re	2,519	18.04	26.93	0	99.99
To	2,389	1,570	4,595	0.757	62,528
LnTrade	2,520	28.78	0.533	27.47	29.89

4. Empirical Results and Robustness Test

(1) Baseline regression results

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We first test the first hypothesis of this paper, that is, the impact of signing bilateral tax treaties on foreign direct investment of Chinese enterprises, and the results are shown in Table 3. In the process of regression, in order to test the robustness of the regression results, we gradually added the control variables such as China's GDP, the market size of the investor country, and the labor cost of the investor country that may affect the choice of enterprises' OFDI. According to columns (1) - (3) in Table 3, we can observe that the coefficients of BTT are significantly positive at the level of 1%.

According to the regression results, hypothesis 1 is valid, and the signing of bilateral tax treaties has a significant promoting effect on Chinese enterprises' OFDI, increasing by 42.3%. This shows that through the establishment of bilateral tax treaty relations with investment countries, Chinese enterprises can reduce the cost of overseas investment, and such cost-effectiveness encourages enterprises to make overseas investment more actively and increase the amount of foreign direct investment.

Table 3. Returns to Table 1

	(1)	(2)	(3)
	$LnOFDI$	$LnOFDI$	$LnOFDI$
BTT	0.763***	0.732***	0.423***
	(7.968)	(7.480)	(3.797)
$LnDGDP$		1.566***	5.160***
		(18.410)	(7.087)
$LnIGDP$		0.887***	0.927***
		(4.167)	(4.040)
$LnPGDP$		-0.258	-0.375
		(-1.150)	(-1.548)
Tax			0.001
			(1.495)
Re			0.009***
			(5.013)
To			-0.000
			(-0.682)
$LnTrade$			-5.466***
			(-4.607)
Year	YES	YES	YES
Country	YES	YES	YES
_cons	5.384***	-58.758***	-8.636
	(46.702)	(-13.034)	(-0.683)
N	2292	2002	1507
R^2	0.680	0.699	0.668
F	227.982	206.233	131.104

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

(2) Parallel trend hypothesis test

Since this paper uses a multi-time-point differential model, the important premise for the establishment of this model is to meet the parallel trend hypothesis test, that is, to verify whether the data before and after the implementation of the policy has the same trend of change. Therefore, this paper selected the data from the first four years to the sixth years after the implementation of the policy for analysis, and took the year of the implementation of the

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policy as the base year. The results are shown in Figure 1. The short line with a cover perpendicular to the horizontal axis is the 95% confidence interval of the regression coefficient of the cross-pollination term between the number of each period and the dummy variables of the experimental group. However, in all years after the implementation of the policy, the coefficient is significant, which indicates that the implementation of the policy is effective, and the signing of bilateral tax treaties effectively promotes the OFDI of enterprises. The regression model in this paper passes the parallel trend hypothesis test.

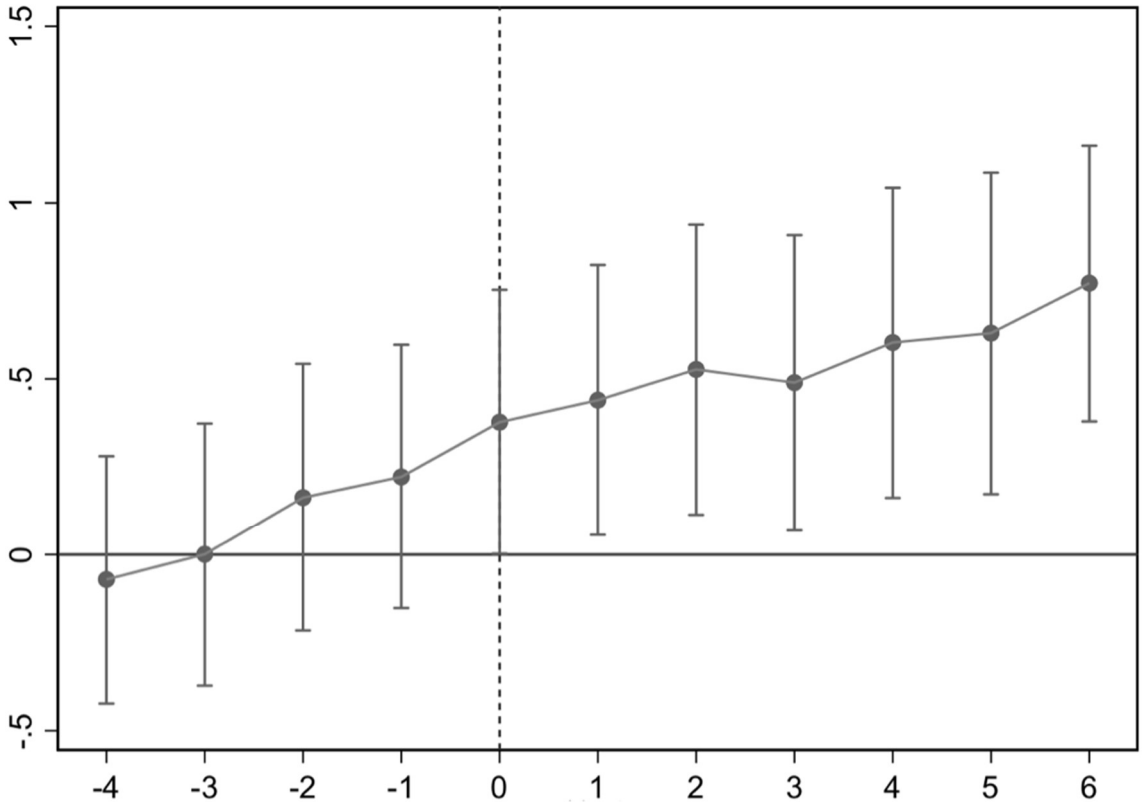

Figure 1. Parallel trend hypothesis testing

(3) Robustness test

(1) Replace some control variables

In order to verify the robustness of the baseline regression results, this paper first adopts the method of replacing the control variables to carry out the robustness test. Using data from the World Bank database, we measure the science and technology development (SCI) of an investor country by the total number of articles in its scientific journals. Measuring investment opportunities (IC) by the ratio of gross capital formation to GDP in the investing country; The economic growth rate (GDPGR) of the investor country is measured by the per capita GDP growth rate of the investor country. We used the above data To replace the natural resource endowment (Re), Trade openness (To) and bilateral trade closeness (Trade) in the control variables in this paper, and tested the research hypothesis in this paper again. The results are shown in Table 4 below. According to columns (1) to (3) in Table 4, we can see that after replacing some control variables, the coefficient of BTT is still significantly positive at the level of 1%, which further confirms the core conclusion of this paper: signing bilateral tax treaties has a significant positive impact on promoting enterprises' OFDI.

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Table 4. Robustness test 1

	(1)	(2)	(3)
	LnOFDI	*LnOFDI*	*LnOFDI*
BTT	0.424***	0.448***	0.588***
	(3.735)	(3.976)	(5.450)
LnSCI	-0.162**		
	(-2.293)		
LnIC		0.225**	
		(2.143)	
GDPGR			-0.003
			(-0.555)
LnDGDP	5.126***	5.037***	1.828***
	(6.888)	(6.937)	(18.779)
LnIGDP	1.014***	0.483	0.669***
	(4.358)	(1.628)	(2.925)
LnPGDP	-0.331	-0.077	-0.370
	(-1.350)	(-0.266)	(-1.503)
Tax	0.001	0.001	0.002
	(0.978)	(1.406)	(1.547)
Re		0.007***	0.009***
		(3.592)	(5.074)
To	-0.000		-0.000
	(-0.994)		(-1.357)
LnTrade	-5.333***	-5.198***	
	(-4.379)	(-4.356)	
Year	YES	YES	YES
Country	YES	YES	YES
_cons	-12.611	-2.170	-61.064***
	(-0.958)	(-0.171)	(-12.241)
N	1490	1299	1496
R^2	0.662	0.676	0.659
F	126.219	117.394	125.106

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

(2) Replace dependent variables

In addition, in order to verify the robustness of the research results in this paper, the paper also uses the replacement of dependent variables to carry out the robustness test. This paper chooses to use the ratio of natural logarithm of OFDI/natural logarithm of the total GDP of the investor country (recorded as OFDI2) and the ratio of natural logarithm of OFDI/natural logarithm of the total GDP of China (recorded as OFDI3) to replace the natural logarithm of OFDI used in the above research, and then uses this ratio to re-test the research hypothesis of this paper. The results are shown in Table 5 below. From columns (1) to (2) of Table 5, it can be seen that the coefficient of BTT is still significantly positive at 1% level, so the core conclusion of this paper is still robust.

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Table 5. Robustness test 2

	(1)	(2)
	$OFDI2$	$OFDI3$
BTT	0.013***	0.013***
	(2.809)	(3.555)
$LnDGDP$	0.139***	0.150***
	(4.464)	(6.065)
$LnIGDP$	0.027***	0.029***
	(2.723)	(3.758)
$LnPGDP$	-0.019*	-0.012
	(-1.813)	(-1.461)
Tax	0.000	0.000
	(1.186)	(1.406)
Re	0.000***	0.000***
	(5.194)	(5.054)
To	0.000	-0.000
	(0.658)	(-0.532)
$LnTrade$	-0.104**	-0.158***
	(-2.055)	(-3.944)
Year	YES	YES
Country	YES	YES
_cons	-1.374**	-0.264
	(-2.540)	(-0.617)
N	1507	1507
R^2	0.622	0.602
F	107.531	98.726

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

(4) Heterogeneity test

1) There are tax exemption clauses and no tax exemption clauses

In order to test the second hypothesis in this paper, countries that have not signed bilateral tax treaties are excluded from the samples, and the remaining samples are divided into two parts: those with tax exemption clauses and those without tax exemption clauses, as shown in Table 5. Column (1) of Table 5 shows that the coefficient _TS is significantly positive at the 5% level when a bilateral tax treaty contains a tax concession clause. This means that, where bilateral tax treaties have been signed, agreements containing such provisions can significantly promote FDI by enterprises, demonstrating the positive role of tax concessions in incentivizing FDI by enterprises. As shown in column (2) of Table 5, the coefficient in front of _TS is positive but not significant when a bilateral tax treaty signed does not contain a tax concession clause, which indicates that in countries that have also signed bilateral tax treaties, if the bilateral tax treaty signed does not have a tax concession clause, its promotion effect on enterprises' OFDI is not obvious. Therefore, in countries that have also signed bilateral tax treaties, if the bilateral tax treaties contain tax concession clauses, the promotion effect of the bilateral tax treaties on enterprises' foreign direct investment is more significant than that of bilateral tax treaties without tax concession clauses. Therefore, hypothesis 2: If there is a tax exemption clause in the tax treaty, it can promote the establishment of OFDI of enterprises more than if there is no such clause.

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Table 6. subsample regression 1

	(1) There are tax exemptions	(2) No tax exemption
	LnOFDI	*LnOFDI*
_TS	1.624**	0.160
	(2.295)	(1.403)
LnDGDP	65.341**	4.271***
	(2.083)	(6.195)
LnIGDP	-2.812	0.916***
	(-1.184)	(3.114)
LnPGDP	1.194	-0.815**
	(0.460)	(-2.396)
Tax	0.024	0.010
	(1.405)	(1.580)
Re	-0.083***	0.009***
	(-3.248)	(3.941)
To	-0.000	-0.003**
	(-0.823)	(-2.186)
LnTrade	-97.988*	-3.477***
	(-1.988)	(-2.900)
Year	YES	YES
Country	YES	YES
_cons	955.527*	-38.062***
	(1.964)	(-2.692)
N	75	577
R^2	0.852	0.797
F	13.175	96.438

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

2) The size of the investment country's total trade volume

On the basis of baseline regression, in order to investigate whether the results of this paper will change with the change of the foreign trade volume of the investor country, this paper selects the relevant data of the total trade volume of the investor country from 2003 to 2022 in the database of the World Bank, and uses stata to calculate the average of the total trade volume of each year. Sample countries with higher than average volume of trade are classified as large countries, and sample countries with lower than average volume of trade are classified as small countries. After dividing the sample data into two groups, regression analysis was carried out, and the results were shown in Table 7 below.

As can be seen from columns (1) - (2) of Table 7, the coefficient of core explanatory variables of large countries with total trade volume is positive but not significant, while that of small countries with total trade volume is positive and significant at the level of 10%. This shows that the signing of bilateral tax treaties has no obvious incentive effect on Chinese enterprises' direct investment in large countries with total trade volume, but has a significant effect on the promotion of Chinese enterprises' direct investment in small countries with total trade volume. This may be because the ability of large countries to attract foreign investment is relatively strong, and the stock of Chinese enterprises' direct investment in them is already relatively large, so the incentive effect of signing bilateral tax treaties on enterprises is not obvious. However, small countries with total trade volume have weak ability to attract foreign capital. After signing bilateral tax agreements with China, Chinese enterprises will pay more attention to these small countries with total trade volume, thereby increasing their direct investment.

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Therefore, bilateral tax agreements have more significant incentive effect on enterprises' direct investment in small countries with total trade volume.

Table 7. subsample regression 2

	Big trading country	Small trade countries
	(1)	(2)
	LnOFDI	*LnOFDI*
BTT	0.299	0.273*
	(1.631)	(1.786)
LnDGDP	2.790***	1.583***
	(10.780)	(14.575)
LnIGDP	2.557	0.978***
	(1.540)	(4.083)
LnPGDP	-3.520*	-0.314
	(-1.941)	(-1.266)
Tax	0.031**	0.001
	(2.389)	(1.135)
Re	0.015***	0.009***
	(2.812)	(4.729)
To	-0.040	-0.000
	(-1.024)	(-0.255)
Year	YES	YES
Country	YES	YES
_cons	-130.585***	-61.060***
	(-3.577)	(-12.060)
N	292	1215
R^2	0.798	0.633
F	49.292	94.688

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

3) The geographical distance between the investment country and China

In order to investigate the dependence of the impact of bilateral tax treaties on FDI on the geographical distance between the investor country and China, this paper adopts the geographical distance data of countries and China recorded in the World Bank database during 2003-2022, and calculates the average geographical distance in these years by stata software. Based on this average, we define countries with above-average geographic distances as distant countries and the rest as near countries. After grouping the sample data, we conducted regression analysis, and the regression results are shown in Table 8 below.

From the regression results of columns (1) - (2) in Table 8, we can see that the coefficients of the core explanatory variables are significantly positive in both distant countries and near countries, indicating that bilateral tax treaties can promote enterprises' direct investment in both distant countries and near countries. In order to further verify whether the signing of bilateral tax treaties has a stronger promoting effect on distant countries or near countries, we assign the distant countries as 1 and the near countries as 0, and introduce the interaction term for regression analysis. The results are shown in column (3) of Table 8. The coefficient of the interaction term is -0.402, which is significant at the level of 10%. This indicates that the effect of signing bilateral tax treaties in distant countries on the promotion of Chinese enterprises' direct investment is smaller than that in close-distance countries. This may be because the cost

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of employee dispatch and cargo transportation are important components of enterprises' FDI. Investment in distant countries will greatly increase the cost of employee dispatch and cargo transportation, which will reduce the investment income of enterprises and thus reduce the investment enthusiasm of enterprises. Therefore, the signing of bilateral tax treaties has a stronger effect on the promotion of enterprises' direct investment in nearby countries.

Table 8. subsample regression 3

	Distant state	Proximate country	
	(1)	(2)	(3)
	$LnOFDI$	$LnOFDI$	$LnOFDI$
BTT	0.336**	0.458***	0.604***
	(2.031)	(2.941)	(4.163)
$BTT \times LnDistance$			-0.402*
			(-1.943)
$LnDGDP$	-0.908	4.791***	4.738***
	(-0.321)	(5.802)	(6.243)
$LnIGDP$	0.701*	1.139***	0.974***
	(1.895)	(3.452)	(4.227)
$LnPGDP$	-0.180	-0.779*	-0.425*
	(-0.567)	(-1.822)	(-1.749)
Tax	0.001	0.002	0.002
	(1.132)	(0.349)	(1.540)
Re	0.006**	0.012***	0.008***
	(2.472)	(4.858)	(4.984)
To	-0.000	-0.000	-0.000
	(-1.475)	(-0.248)	(-0.710)
$LnTrade$	4.052	-4.563***	-4.796***
	(0.900)	(-3.285)	(-3.885)
Year	YES	YES	YES
Country	YES	YES	YES
_cons	-97.444**	-27.768	-16.491
	(-2.196)	(-1.586)	(-1.243)
N	908	599	1507
R^2	0.639	0.717	0.668
F	69.036	63.787	125.570

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

(5) Mechanism analysis

In order to further verify the impact of the signing of bilateral tax treaties on the OFDI of Chinese enterprises, we introduce the institutional variable of economic risk, which is derived from the ICRG International Country Risk Guide. Table 9 shows that the signing of bilateral tax treaties can effectively reduce the economic risks encountered by Chinese enterprises investing in this country. Moreover, it can significantly improve the ability of enterprises to resist economic risks and mitigate the negative effect of economic risks on enterprises' foreign direct investment. Bilateral tax treaties can enhance the security and stability of enterprises' cross-border investment. By reducing the problem of double taxation, enterprises can better plan their cross-border investment activities, thus improving their viability and return on investment.

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From the perspective of national economic risk analysis, we can easily conclude that the lower the economic risk, the more able to attract enterprise investment. When the country's economic risks are low, investors face less uncertainty, which allows them to predict future benefits and costs more accurately, and the stability of the economy can increase investors' confidence in the market, making them more willing to make long-term investments. In addition, economic stability also helps enterprises to carry out technological innovation and industrial upgrading. A lower economic risk environment can encourage enterprises to invest in research and development, promote technological progress and industrial upgrading, which makes more enterprises willing to go to countries with lower economic risks for development. Therefore, when the economic risk of a country is reduced, it will be more attractive for Chinese enterprises to invest, and it will be more able to promote the direct investment of Chinese enterprises in the country.

Table 9. Mechanism analysis

	(1)
	Erisk
BTT	1.023**
	(2.566)
LnDGDP	7.979***
	(3.203)
LnIGDP	3.150***
	(3.721)
LnPGDP	4.911***
	(5.281)
Tax	0.008*
	(1.869)
Re	0.013**
	(2.105)
To	0.002**
	(2.245)
LnTrade	-19.160***
	(-4.657)
Year	YES
Country	YES
_cons	264.422***
	(5.877)
N	1106
R^2	0.288
F	19.392

Note: ***, ** and * are significant at 1%, 5% and 10% levels respectively.

5. Conclusion and Enlightenment

(1) Research conclusions

Based on the FDI data from 2003 to 2022, this paper conducts a regression analysis to explore how the signing of bilateral tax treaties and the tax concession clauses affect the FDI behavior of enterprises. The main conclusions are as follows:

First of all, the signing of bilateral tax treaties has a significant impact on the promotion of foreign direct investment of Chinese enterprises. The signing of bilateral tax treaties has

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significantly alleviated the problem of double taxation that Chinese enterprises may encounter when making foreign direct investment, alleviated the tax burden faced by Chinese enterprises going global, thus reducing the financial cost of enterprises making foreign direct investment, and provided a solid foundation for the global expansion of Chinese enterprises. At the same time, the signing of bilateral tax treaties also clarifies the taxation rights between the two countries, improves the transparency of tax-related information, and reduces the possibility of tax evasion by enterprises.

Secondly, the tax concession clauses contained in bilateral tax treaties can significantly enhance their promoting effect on enterprises' outward direct investment. The main effect of this provision is to provide tax incentives for taxpayers to invest in their country of origin. The tax concession clause plays an important role in attracting foreign capital to the investor country. In order to attract foreign capital, the investor country will usually give tax incentives. However, if there is no tax concession clause, the enterprise will still need to pay relevant taxes after returning to the country of residence for the tax concessions enjoyed by the investor country, which is equivalent to the enterprise not enjoying the tax incentives given by the investor country. And when there is a tax waiver clause in a bilateral tax treaty, it can ensure that the company truly enjoys the tax benefits granted by the investor country. As a result, bilateral tax treaties with tax-sparing provisions are more likely to promote foreign direct investment.

In the end, this paper does subsample regression on the basis of benchmark regression. The regression results show that the signing of bilateral tax treaties has a stronger promoting effect on the direct investment of Chinese enterprises to small and close countries with total trade volume. In addition, the mechanism analysis is carried out to further verify the robustness of the conclusions.

(2) Policy suggestions

The empirical results of this paper show that in the context of China's entering the era of net capital export, the signing of bilateral tax treaties is of great significance in promoting the OFDI of Chinese enterprises. Based on the above research conclusions, the following policy suggestions are put forward:

First, our government should actively participate in the construction of the international tax system. First of all, we should actively sign with countries that have not signed bilateral tax agreements, strive for more rights and interests of Chinese enterprises' foreign investment through effective negotiation means, and accelerate the establishment and improvement of international tax agreement network, which will effectively escort the transnational investment of Chinese enterprises. Secondly, we should speed up the convergence between bilateral tax treaties and our domestic tax law, help our domestic tax law to be in line with international standards, and better solve international tax disputes. Finally, for the bilateral tax agreements that have been signed, the tax authorities and other relevant departments should follow up the implementation situation in time, adjust the insufficient part of it, complete the corresponding safeguard measures, give full play to the role of government departments in protecting enterprises' foreign direct investment activities, and protect the legitimate rights and interests of Chinese enterprises going global.

Second, appropriate inclusion of tax concession clauses in the signing of bilateral tax treaties. At present, most of the bilateral tax treaties signed by China do not contain tax concession clauses, the absence of tax concession clauses is not conducive to enterprises using the tax incentives of investment countries to reduce their tax burden and investment costs, which will be detrimental to the development process of enterprises going global to a certain extent. Therefore, our country may consider adding the tax concession clause to the newly signed tax treaty, or adding the tax concession clause to the original tax treaty by signing an agreement. In addition, the application of the tax concession provision can be tailored to each country's

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unique tax system to suit a wide variety of investment projects and income categories. At the same time, the tax authorities should strengthen publicity and education, promulgation of guidance documents, establishment of consulting services and organization of seminars and other measures to popularize the tax incentives of investment countries and tax forgiveness policies provided by China to transnational investors, improve the awareness of transnational enterprises on overseas investment, stimulate their investment enthusiasm, and enhance their competitiveness in the global market.

Third, the Chinese government should improve the cross-border tax service system to help multinational enterprises deal with the tax challenges they encounter when making foreign direct investment. Given that these enterprises may lack in-depth understanding of the host country's tax system, it is difficult to fully recognize the potential tax risks, tax authorities should actively intervene to provide professional tax support and safeguard measures to help enterprises avoid risks and ensure the smooth progress of their OFDI activities. First of all, the tax department should strengthen the publicity and popularization of relevant tax policies to reduce the risk of investment failure caused by enterprises not understanding relevant tax policies. Secondly, the tax authorities should actively study the tax policies of various countries, and cover the Country (region) Guide to Foreign Investment Cooperation to more trade partner countries, so that enterprises can more easily understand the tax system of various countries, and remind enterprises of investment risks. In addition, tax authorities should open a variety of consultation channels, such as opening tax Windows, providing tax hotline consultation numbers, opening relevant tax consultation sections on the official website of the tax website, etc., to smooth the channels for enterprise tax consultation. Finally, in the face of tax disputes, the relevant government departments should take a positive solution to effectively protect the legitimate rights and interests of domestic enterprises.

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