

Research on the Trade Effect of China's Outward Foreign Direct Investment in Myanmar

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Abstract—Traditional international investment theory holds that the foreign direct investment of one country to another will affect the import and export trade between the two countries. Based on the facts of the economic and trade relations between China and Myanmar, this paper analyzes the impact of China's outward foreign direct investment (OFDI) in Myanmar on bilateral trade through empirical test. The study found that China's direct investment in Myanmar has no obvious impact on bilateral trade in the short term, but has a significant long-term impact.

Keywords—China's outward foreign direct investment in Myanmar; bilateral trade between China and Myanmar; trade effect

I. INTRODUCTION

The "One Belt And One Road" initiative will help China to deepen the economic and trade relations between China and the countries along the "One Belt And One Road". Against this background, the national studies of countries along the One Belt And One Road are increasingly important. In recent years, China's outward foreign direct investment (OFDI) in Myanmar and the bilateral trade between China and Myanmar continued to deepen and strengthen, but in terms of academic research, the existing researches are usually one-way researches which either focus on the problem of China's direct investment in Myanmar or the unilateral trade issues between China and Myanmar, there are few combining direct investment and trade together. This paper attempts to study the trade effect of China's direct investment in Myanmar and explore whether China's direct investment in Myanmar can play a beneficial role in promoting bilateral trade.

II. LITERATURE REVIEW

A. Theoretical Researches

Traditional international trade and international investment theories usually separate international trade from international direct investment. After 1950s, more and more scholars began to pay attention to the connection between them. So far, researches on the relationship between trade and investment have been focused on whether trade and investment are substitutes or complements.

As one of the earliest research scholars who studied the relationship between the bilateral trade and direct investment, Mundell [1] put forward the investment and trade substitution model, under the assumptions that the factors can freely flow cross border, the two countries have the same production function, the direct investment of one country to the other country will completely substitute for international trade. Vernon [2] thought in the product life cycle theory that in different phases of product life cycle, the relationship between the bilateral trade and direct investment will change, there will be a stage in which direct investment can substitute bilateral trade. Along with the development of world economy further, the substitution theory between direct investment and the bilateral trade failed to explain very well and guide the reality of transnational direct investment, at this point the complementary effect theory between direct investment and bilateral trade appeared. Kojima [3] believes that international investment and bilateral trade show a complementary relationship when the mother country invests internationally in an industry with a comparative disadvantage. He believes that the key to international direct investment is production materials, such as the advanced instruments and equipment as well as the leading management philosophy, the transfer of technology and skills, not just the capital transfer. Compared with Mundell's theory, the theory has broadened the scope of capital to include assets, technology and human capital. on the premise of changing the assumptions of Mundell's model, Markusen and Svensson [4] used the factors proportion model describe the mutual relationship between factors flow and trade in goods, point out that whether the performance between them as substitute or complementary, depends on the relationship between trade and non-trade factors. If trade and non-trade factors are cooperative, then the flow of commodity trade and production factors will promote each other, thus showing a complementary relationship. otherwise, it will be represented as substitute relationship.

B. Empirical Researches

Empirical researches in this field focus more on verifying the substitution and complementarity between trade and investment, as well as which one is the cause or the effect [5]-9].

C. Chinese Scholars' Researches

Chinese scholars' researches mainly focus on the trade effect of China's outward foreign direct investment as a mother country. Zhang [10] believes that China's foreign direct investment and export trade have obvious promotion effect. Xiang [11] applied panel model and conducted a long-term and short-term trade effect test showing that: in the short term, China's foreign direct investment to promote import and export is not obvious, but in the long run, the role is significant. Zhang [12] concluded that China's foreign direct investment has obvious trade promotion effect, China's OFDI in developed countries and regions has strong export and import create effect; China's OFDI in developing world has strong export creation effect but weak import create effect. Chai and Hu [13] proposed that the trade effect of China's direct investment to ASEAN countries is better than EU countries, and the trade effect in the short term is less obvious than of long-term. Wang, Tian and Xie [14] found that China's outward FDI to developed countries, emerging economies as well as the resources abundance countries is aimed to circumvent the trade barriers of the host country, and can reduce China's exports. But China's outward FDI in resource-rich countries will significantly increase the flow of imports and exports. Tang and Zhang [15] argues that as China's "One Belt One Road" initiative to further expand, more competitive-advantage industries and overcapacity industry in China will gradually shift to the neighboring countries, the trade effect of China's foreign direct investment will become increasingly obvious.

The researches on Sino-Myanmar economic and trade relations mainly focus either on the economic and trade relations between China and Myanmar or on China's direct investment to Myanmar. Shan [16] predicted and concluded that the overall development trend of Sino-Myanmar economic and trade cooperation would be good; She also proposed to promote Sino-Myanmar economic and trade cooperation in terms of industrial policy and cultural exchange and cooperation. Xue and Xie [17] thought that China's direct investment in Myanmar still face various challenges although China's OFDI in Myanmar was enlarging. Chinese enterprises should make proper investment strategy according to the local specific circumstances to maintain the diversification of investment, take account of the local people and manifest the sense of social responsibility of the enterprise. Wang and Zhu [18] believes that Myanmar's low level of trade openness, underdeveloped productivity and low international competition for agricultural products will restrict the development of Sino-Myanmar trade.

It can be seen from the above literature review that most current studies focus on the overall trade effects, such as the trade effect of China's foreign direct investment, or the trade effect of China's direct investment in a specific economic bloc, etc., fewer are aimed to study the trade effect of China's OFDI in a single country. China has now become Myanmar's largest overseas investor after replacing Thailand, as an important investment, trading partners of Myanmar, studying the trade effect of China's OFDI in Myanmar's has a big research significance, the study can provide some theoretical basis and

the policy suggestions for China's direct investment in Myanmar and bilateral trade.

III. EMPIRICAL ANALYSIS ON THE IMPACT OF CHINA'S OFDI IN MYANMAR ON BILATERAL TRADE

A. Model Setting and Variable Selection

This paper studies the trade effect of China's OFDI in Myanmar, and the dependent variable is China's import and export value to Myanmar. In terms of the choice of the independent variables, given the trade effect of direct investment has a certain time-lag effect, so 2 independent variables were chosen, one is the direct investment flow of current year, another is the direct investment stock of previous year, the two independent variables can be respectively used to inspect the short-term effect and long-term effect. Refer to the method used in "Japanese exports and foreign direct investment", a time series regression model of relationship between China's OFDI in Myanmar and China's exports/imports to Myanmar is constructed as follows:

$$\ln EX_t = x_1 + y_1 \ln OFDIF_t + z_1 \ln OFDIS_{t-1} + U_t \quad (1)$$

$$\ln IM_t = x_2 + y_2 \ln OFDIF_t + z_2 \ln OFDIS_{t-1} + U_t \quad (2)$$

In formula, EX denotes exports, IM denotes Imports, OFDIF denotes the China's OFDI flow to Myanmar, OFDIS denotes the China's OFDI stock in Myanmar, and U_t represents random changes.

B. Data Sources

As the earliest data available in the statistical bulletin of China's foreign direct investment is 2003, this paper analyzes the data from 2003 to 2016. The data of flow and stock of China's OFDI come from the statistical bulletin of China's foreign direct investment in past years, import and export data between the two countries come from the official website of Chinese bureau of statistics, the specific data are shown in table 1.

TABLE I. STATISTICS OF CHINA'S OFDI FLOW, STOCK IN MYANMAR AND IMPORT / EXPORT TRADE VOLUME BETWEEN TWO COUNTRIES FROM 2003 TO 2016. (UNIT: \$10,000)

Year	OFDIF	OFDIS	IM	EX
2003	—	1022	16952	91022
2004	409	2018	20694	93844
2005	1154	2359	27440	93485
2006	1264	16312	25265	120742
2007	9231	26177	37814	169970
2008	23253	49971	64755	197777
2009	37670	92988	64613	225399
2010	87561	194675	96655	347552
2011	21782	218152	167990	482150
2012	74896	309372	129823	567371
2013	47533	356968	285687	733869

2014	34313	392557	1560128	936765
2015	33172	425873	544930	965091
2016	28769	462042	410000	819000

Source: 2010-2016 China foreign direct investment statistical bulletin, official website of China national bureau of statistics.

C. Data Analysis

- Stationary test. Due to the adoption of 2003-2016 time series data, a stationary test using ADF unit root was conducted in Eviews 8.0 software to avoid spurious regression due to the data's non-stationarity. The test results are shown in the following table 2:

TABLE II. UNIT ROOT TEST OF CHINA'S OFI FLOWS, STOCKS AND TRADE BETWEEN CHINA AND MYANMAR.

Variable	ADF test value	critical value		conclusion
		5%	10%	
LnOFDIF	-1.260934	-3.933364	-3.420030	non-stationary
ΔLnOFDIF	-5.034853	-4.008157	-3.460791	stationary
LnOFDIS	-1.519907	-4.008157	-3.460791	non-stationary
ΔLnOFDIS	-4.500544	-4.107833	-3.515047	stationary
LnIM	0.071277	-4.008157	-3.460791	non-stationary
ΔLnIM	-9.581740	-4.008157	-4.008157	stationary
LnEX	-3.048215	-3.875302	-3.388330	non-stationary
ΔLnEX	-9.326572	-4.107833	-3.515047	stationary

Note: Δ denote the first order difference

- Through the unit root test, we can see that the four variables OFDIF, OFDIS, IM and EX are non-stationary at the confidence level of 5% and 10% when the logarithm is taken. After the first order difference of the four variables LnOFDIF, LnOFDIS, LnIM and LnEX, it can be seen that the absolute value of the ADF test value is above the critical value at the significant level of 5% and 10%, which belongs to the stationary sequence.
- regression results and analysis. Using Eviews 8.0 to carry out OLS regression analysis of the model, the following regression estimation results can be obtained in table 3 and table 4:

TABLE III. THE EXPORT EFFECT OF CHINA'S OFDI IN MYANMAR.

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	8.807931	0.290521	30.71770	0.0000
LnOFDIF	-0.096679	0.033362	-2.897898	0.0177
LnOFDIS	0.422724	0.032316	13.699641	0.0000
R ²	0.963608		Adjusted R ² 0.955521	
DW stat 1.626656				

- It can be seen from table 3 that the value of R² is 0.963608, and the adjusted R² value is 0.955521, indicating that the fitting effect of the model is very good. The DW value is 1.626656, and from the DW threshold test table it can be seen that the DW value is between d_u and 4-d_u (d_u is 1.562), indicating that the model does not have self-correlation. According to the model previously set, the model is significant at the significant level of 0.05, and for the export effect of China's OFDI to Myanmar, the direct investment

stock is more significant than the direct investment flow. For every 1% increase in China's stock of direct investment in Myanmar, China's exports to Myanmar will rise by 0.4% (i.e. the elasticity is 0.4). For every 1% increase in China's flow of direct investment in Myanmar, China's exports to Myanmar will reduce by 0.09%(i.e. the elasticity is -0.09).

TABLE IV. THE IMPORT EFFECT OF CHINA'S OFDI IN MYANMAR.

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	6.424842	0.982455	6.539580	0.0001
LnOFDIF	-0.186267	0.113469	-1.641561	0.1351
LnOFDIS	0.641811	0.106007	6.054405	0.0002
R ²	0.826852		Adjusted R ² 0.788374	
DW stat 2.090521				

- It can be seen from table 4 that R² is 0.826852, and the adjusted R² is 0.788374, indicating that the fitting effect of the model is good. The DW value is 2.090521, and the comparison of the DW threshold test table shows that the DW value is between d_u and 4-d_u (d_u is 1.562), so the model does not have self-correlation. The coefficient of direct investment flow is negative, which is not significant at the significant of 0.05 and 0.10, while the coefficient of direct investment stock is positive and significant at the significant level of 0.05. This indicates that the import effect of direct investment stock is significantly more effective than that of direct investment flow. For every 1% increase in China's stock of direct investment in Myanmar, China's imports from Myanmar will rise by 0.6% (i.e. the elasticity is 0.6). the result Also suggests that China's direct investment in Myanmar, in its early stage does not promote import from Myanmar, but in the long run, China's direct investment in Myanmar would play a more active role in promoting import from Myanmar.

IV. CONCLUSION

This paper studied the impact on Sino-Myanmar bilateral trade of China's OFDI in Myanmar in recent years, the study found that in the short term trade creation effect of China's direct investment in Myanmar is not obvious, but in the long run China's OFDI will produce more significant export and import create effect, moreover, import create effect is greater than export create effect. From the empirical analysis, conclusion can be made that in the long run, China's direct investment in Myanmar and bilateral trade between China and Myanmar are complementary, and this complementary relation can reduce China's trade surplus and the bilateral trade friction, so it's more conducive to the development of bilateral economic and trade relations. The shortcoming of this paper is that the sample size of the data is relatively small, which is prone to the deviation of the research conclusions. Based on this, some more specific bilateral investment and trade issues are expected to be further analyzed in the follow-up study. Such as China's direct investment in resource, energy industries in Myanmar.

ACKNOWLEDGMENT

I want to give thanks to the International Business School of Yunnan University of Finance and Economics for sponsoring this conference and giving me an opportunity to attend. I also want to give thanks to my wife Maggie Zhang, she undertakes most of housework and takes care of our little daughter during I work for this paper.

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