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China's One Belt and One Road Initiative and Outward Chinese Foreign Direct Investment in Europe

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Abstract: For the last few years, the execution of the Belt and Road Initiative (hereinafter referred to as the BRI) and China's outward foreign direct investment (hereinafter referred to as OFDI) in Europe have seen a significant upward trend. For our current paper, we collected empirical data pertaining to China's OFDI and foreign trade (gathered from 21 European countries in the trade gravity market for the period 2003 to 2016) that yielded the following results: (a) China's OFDI to Europe has significantly promoted international trade between China and European countries. On the other hand, OFDI has equally promoted China's exports to European counties, while it has not encouraged China's imports from European counties. (b) The Belt and Road Initiative has had a positive impact on China's exports to European counties and has had a negative impact on China's imports from European counties. (c) There have been both complementary trade impacts and substitution trade impacts when China has directly invested in European countries, but the complementary impact was much stronger than its substitution impact in the chosen sample period.

Keywords: outward FDI; the Belt and Road Initiative; Sino–EU Trade; gravity model

1. Introduction

For more than two millennia, different trade and business routes, jointly called the "Silk Road", have played a pivotal role in promoting international communication, business, and trade across the world, particularly in terms of the communication between two different parts of it: China and Europe. In 2013, China's president, Xi Jinping, proposed building the "Silk Road Economic Belt" and the "21st Century Maritime Silk Road", also known as the "Belt and Road Initiative" (BRI). This initiative involves infrastructure construction and also seeks to establish a widespread setup for economic cooperation, policy cooperation, trade and business collaboration, and everlasting cultural cooperation [1,2]. Through open, transparent, and efficient cooperation, participating countries are likely to avail themselves of substantial mutual economic benefits from the Belt and Road Initiative. One study has said that the BRI is a sustainable continuation and economic expansion of long-term economic and institutional cooperation rather than a temporary policy shock within the "Belt and Road" countries [3].

The main purpose of the BRI is to establish a network of railways, utility grids, and pipelines with the intention of channeling the entire world and promoting deep and long-lasting regional cooperation between the East and West and adjacent areas [4]. The BRI provides a new way forward for the economic growth of China and cross-border business cooperation with other countries [5]. In a true

sense, this project aims to ensure and promote the business and financial integration of mainland China with the world [6]. The most prioritized areas are enhancing investment, business coordination, and facilitation and eliminating trade and business obstacles to create a conducive business environment inside and alongside the road. In Figure 1 below, we show how the BRI project will connect China with the rest of the world, including Europe [6].

Figure 1. The Belt and Road Initiative (BRI) project and global connectivity with China. Source: adapted from Ullah et al. (2019, p. 472).

The BRI's influence extends from the Middle East and North Africa to Europe, and cooperation between Europe and China is getting stronger. It has been estimated that the targeted regions of China's investment are central and western Asia, Europe, and Russia [7]. Due to Europe's significance to the BRI, the success of the BRI will be determined by its countries. Furthermore, as the relationship between investment and trade has historically been a controversial topic in the field of overseas business, it is essential to examine the relationship between them in relation to the BRI.

At present, China is considered to be the main source of imports and the second prime export marketplace for the EU market. The Chinese and European trade partnership is strong, with mutual investment from both sides. Despite the length of the trade partnership, the role of China as an outward investor has been seldom discussed. Compared to inflows, China's outward foreign direct investment (OFDI) is modest. According to United Nations statistics, China's FDI and outward foreign direct investment (OFDI) ratio was 6.4 to 1 in 2005. This increased in 2015 by 18% to USD 145.7 billion. This exceeded the FDI inflow of USD 135.6 billion and therefore made China, for the first time, the sole exporter of direct investment [8,9]. In 2017, although China's OFDI flow declined slightly, it was still ranked the second highest investor in history and the third largest in the world. Additionally, China stands at 4th among the top 10 European countries and 8th among the top 20 European countries in terms of OFDI rank, indicating a big trade achievement.

In recent years, China has received substantial external capital inflows after having suffered capital or wealth flight for the previous 10 years [10]. A previous study has suggested that Chinese OFDI supports international finance [11]. Researchers in the international business and emerging market economies literature have predominantly used Chinese FDI data (cross-sectional and survey data) to map where Chinese investment is located and what drives Chinese investment in a particular region. While regional-level aggregate data may only indicate one aspect of Chinese investment, they fail to capture macrolevel variations in the behavior of Chinese firms. Using panel data, researchers can fully

capture the perception of actual investors (Chinese firms) and relevant stakeholders involved in this investment process.

Sustainable development is one of the main objectives for the socioeconomic development of a state or nation [12]. In the era of globalization, each and every developed and emerging state in the world wants to obtain sustainable development through international trade [13]. As China's overseas investment in Europe has increased rapidly, it is essential to study the trade impact of China's OFDI in Europe [14]. In the context of the BRI, new opportunities and challenges have arisen: how it will affect imports and exports is worth studying. Therefore, our results on China's OFDI to Europe will provide a positive impact for cooperative business and will have practical significance.

The main purpose of our current article is to provide an understanding of the relationship that exists between OFDI and business in Europe with the help of an econometric analysis and a literature review. Using a trade and business gravity model, we utilized panel data on the OFDI of China as well as trade flows to 21 European countries from 2003 to 2016. Our collected samples included a key time period (from 2003 to 2016) and also covered the period before and after the BRI began.

This article is designed as follows. Section 2 is a review of closely connected literature. Section 3 introduces the empirical model specification and describes the data. Section 4 shows the empirical results and demonstrates the analyses. Lastly, Section 5 covers our conclusions.

2. Theoretical Framework and Literary Review

Theoretically, OFDI could cover and promote foreign trade which has far-reaching impacts on the business community. This section exhibits and will cover both an empirical and theoretical review of literature pertaining to the relationship between foreign trade and OFDI.

2.1. The Flow of Substitution Impact from Outward Foreign Direct Investment to Foreign Business

It has been observed that the role of international trade and business is essential for poverty alleviation and economic growth of a country. In the first place, OFDI could help to improve foreign capital flows as well as to boost the structure and price of factor endowments for global convergence. In this context, Mundel (1957) was considered as pioneer who investigated the relationship between ODFI and international trade [15,16]. In doing so, he addressed the conventional substitution effect between trade and investment [17,18]. Secondly, OFDI could substitute for the foreign trade of a home country by channeling a home country's industries and their sales to foreign countries. On the other hand, Chinese OFDI is involved in the promotion of projects that mandate the use of Chinese professionals and enterprises, financed by loans which are to be repaid by host countries, and strategic infrastructure developed due to requirements of or structural leadership for direct Chinese ownership. For example, the Center for Strategic Studies recently calculated that about 90% of belt and road projects are being built by Chinese companies (http://www.cadtm.org/A-critical-look-at-China-s-One-Belt-One-Road-initiative).

BRI OFDI may temporarily help a large number of Chinese industries. In addition, Chinese state-owned enterprises (SOEs) continue to play a critical role in the development of its strategic aims. Though these industries have to suffer from excess capacity, absorb excess capital, and increase corporate profit margins, they still serve as a sustainable solution for China's growing economic challenges. Ma's study suggests that international finance positively and significantly contributed to sustainable competitive performance [19]. In order to study OFDI, Vernon (1966) suggested a way to implement product life theory empirically [20].

Buckley and Casson (1981) presented the theory of market internalization, emphasizing the importance of cost reduction when trading goods [21,22].

Additionally, Horst (1972) found that production technologies can be utilized by various companies as public goods, which attracts those companies towards the expansion of their businesses globally and the substitution of their exports with OFDI [23]. On the other hand, the substitution impact has been supported by empirical studies. Belderbos and Swanson (1998) indicated that investor/business

protection initiatives set up by the European Union motivated Japanese companies to establish many manufacturing plants in Europe in the late 1980s, underpinning a remarkable increase of Japanese exported goods to Europe [24]. The substitution impact can be expressed as an export substitution impact and an import transfer impact, both of which show that when OFDI increases, the trade amount decreases.

2.2. Harmonizing Effect from Outward Foreign Direct Investment (OFDI) to Foreign Trade

For the poverty reduction and economic growth of a country, international trade can play an important role [25]. In contrast to the conventional approach of centralizing manufactured exports and emphasizing substitution impacts, Markusen (1995) claimed that global investment can expand imports of intermediaries from a home country, which further harmonizes its exports [26–28]. According to new trade theory, OFDI, which can be motivated by technology searching entities [29,30], can improve the productivity of various enterprises and can affect foreign trade within home countries. Empirical research could also support the complementary impact suggested by research. Swenson (1997) found that once Japan established its own car manufacturing plants in the USA, many more vehicle parts were imported from Japan instead of being purchased from local companies in the US [24], which further augmented the theory of Markusen (1995) [26,27]. Head and Ries (2001) also collaboratively found a harmonizing relationship between foreign trade and OFDI of Japanese manufacturing business ventures [31]. The complementary effect is mainly reflected in an export-induced effect and a reverse import effect, both of which show that the trade amount increases with an increase of OFDI.

A continuing debate however, still exhibits the relationship between OFDI and foreign trade. In a broad sense, the major OFDI players are multinational companies from developed countries. In the 1980s, the OFDI from developing countries was on the rise [32,33]. Our current paper will cover the case of China looking at the effects of its OFDI involving Europe on two-sided trade and business.

2.3. Gravity Model for Outward Direct Foreign Investment and Foreign Trade

Trade gravity models (TGM) have been highly praised in the recent times and are generally used as an empirical tool [34]. These models have also been used to gauge the relationship between OFDI and trade. Brouwer assessed the gravity models of trade and OFDI individually, and found a constructive relationship between bilateral FDI and bilateral trade [35]. Nonetheless, the authors did not discuss the issues pertaining to misplaced statistics in FDI (about 50% of statistics on the subject). Egger in 2001 developed a system of similar comparations for trade [36] and OFDI while examining intra-EU two-sided flows from 1988 to 1996, and developed theories with a similar streak to the theoretical assumptions of Helpman (1984) as well as Markusen and Maskus (2001), which categorically suggested that bilateral exports were increasing the functions of OFDI stock [26–28,37]. Chen et al. (2012) evaluated the relationship that existed between OFDI and exports of 15 Taiwanese manufacturing companies [38]. The main results showed the presence of complementarity between overseas investment and exports. Yao (2019) used the gravity model to assess free trade agreements, where the objective of the study was to check whether free trade agreements are good or bad for the environment of various countries [25]. Cheung and Qian (2009) evaluated the impacts of Chinese exports as factors of China's OFDI, and found that this relationship is positive [39]. As part of a focus on China, Caporale et al. (2015) evaluated China's business with the Western world of its interest in FDI [40,41]. They found a positive relationship between the two factors. An additional paper written by Yang and Martinez-Zarzoso (2014) was focused on China's international trade, and evaluated the impact of the ASEAN-China trade agreement on sectoral trade [42]. The authors focused mainly on the creative effect of trade and business on China, but they did not take FDI into account as a controlling variable in their gravity model, which mainly focuses on trade flows. Choi, Chung and Young, (2019) study the bilateral trade relationship between China and Kazakhstan using the gravity model [43]. They found that the coldness of the relationship between the importer and exporter as well as the relative distance from other trading partners, rather than the absolute distance, had negative impacts on trade outcomes [40]. Li and Xu (2018) believed that

the overall impact of OFDI on trade by countries along the BRI route is not significant [44], while other researchers hold the opinion that China's foreign direct investment has a positive influence on the export trade conducted by countries along the BRI [44–46].

Although there are many studies about the connection between OFDI and trade, most of them are relatively broad and did not focus on a specific region. The results also vary. There is very little research on China-EU trade and OFDI focusing on the context of the BRI. Hence, this paper focuses on China's OFDI to Europe and it relationship with exports and imports. Moreover, past research has at times taken the effect of the BRI into consideration, while little research has been produced about the effect of China's OFDI related to trade in a trade gravity model (TGM) containing the BRI's factor. For the last few decades, the OFDI of China has increased rapidly. As such, our current samples will cover the time period from 2003 until 2016, which are the eras when both the OFDI and China's trade were growing rapidly and consistently.

Based on the above discussion and the implementation of BRI, it is sensible to imagine that China's OFDI to Europe has positive effects on bilateral trade. Therefore, our primary hypotheses are as follows.

Hypothesis 1. *China's OFDI to Europe plays a positive role in promoting China-EU bilateral trade (including imports and exports).*

Hypothesis 2. *The Belt and Road Initiative plays a positive role in promoting China's foreign trade (predominantly including exports).*

3. Econometric Model and Data

3.1. Methodology

In order to check our hypotheses, we employed panel data for China's OFDI to Europe during the period 2003–2016. We also used data on exports, imports, and other related variables, to examine the effects of China's OFDI to Europe on China-EU bilateral trade using the TGM.

The underlying assumptions of the TGM have been inspired from Newton's law of universal gravitation. TGM was first empirically applied by Tinbergen in his research on international trade when he found that this two-sided trade and business measure is directly related to the financial balances of the both countries and is inversely related to the distances between these countries. TGM is categorically protracted by presenting further main issues affecting two-sided trade flows. Owing to the increased accessibility and the high trustworthiness of the necessary data, TGM broadly uses research in related to global trade.

A standard TGM can be described as follows:

$$X_{ij,t} = A Y_{it}^{\alpha 1} Y_{jt}^{\alpha 2} D_{ij}^{\beta} \tag{1}$$

where *i* and *j* represent the two sides of the trade separately, $X_{ij,t}$ signifies imports (or exports) from country *i* to country *j* in year *t*; Y_{it} and Y_{jt} represent the economic scale and strength of country *i* and country *j* in year *t*, respectively (GDP is usually used as a representative figure); D_{ij} is the distance between the two countries.

In order to facilitate the quantitative study, gravity models are often converted into logarithmic forms. The general equation is:

$$lnX_{ij,t} = C + \alpha_1 lnY_{it} + \alpha_2 lnY_{jt} + \beta lnD_{ij} + \varepsilon_{it} \tag{2}$$

where *C* is the constant term, and ε_{it} is the arbitrary error term. As we try to conduct a panel regression analysis of the effects of China's OFDI to Europe on bilateral trade, the regression equation of TGM is extended as follows:

$$lnT_{jt} = C + \alpha_1 lnOFDI_{jt} + \alpha_2 lnGDP_{jt} + \alpha_3 lnGDPC_t + \alpha_4 lnDist_j + \alpha_5 lnPop_{jt} + \\ \alpha_6 TF_{jt} + \alpha_7 ExRate_{jt} + \alpha_8 Infla_{jt} + \alpha_9 BRI_j + \varepsilon_{jt}. \tag{3}$$

The variables used in our study are shown in Table 1.

Table 1. Variable Specification.

Variables	Definitions
lnT_{jt}	China's exports or imports (in logarithm) to European country *j* in year *t*
$lnOFDI_{jt}$	China's outward foreign direct investment (ODFI, in stock form) to European country *j* in year *t* (in logarithm)
$lnGDP_{jt}$	GDP (in logarithm) of European country *j* in year *t*
$lnGDPC_t$	GDP (in logarithm) of China in year *t*
$lnDist_j$	Distance between China and the capital of European country *j* (in logarithm)
$lnPop_{jt}$	Population of country *j* in year *t* (in logarithm)
TF_{jt}	Trade freedom of country *j* in year *t*
$ExRate_{jt}$	Exchange rate in year *t* between RMB and the legal currency of country *j*
$Infla_{jt}$	Inflation index (measured by GDP deflation index) of country *j* in year *t*
BRI_j	Dummy variable (the Belt and Road Initiative (BRI) variable is "1", and for other counties not along the BRI, the BRI variable is "0".)
C	Constant term
ε_{it}	Random error

As we can see from Table 1, T_{jt} is the dependent variable, and $OFDI_{jt}$ is the key independent variable used to explain the exports and imports. GDP_{jt}, $GDPC_t$, $ExRate_{jt}$, Pop_{jt}, TF_{jt}, $Dist_{jt}$, and $Infla_{jt}$ are the other explanatory variables and control variables. lnT_{jt} denotes China's exports or imports (in logarithm) to European country *j* in year *t*, and the data of trade volumes come from "Statistical yearbook of china", published by the National Bureau of Statistics of China (http://data.stats.gov.cn/index.htm). $lnOFDI_{jt}$ represents China's overseas investment (in stock form) to European country *j* in year *t* (in logarithm), and the data is from "Statistics Bulletin of China's Outward Foreign Direct Investment" published by P.R of China Bureau of Commerce (http://fec.mofcom.gov.cn/article/tjsj/tjgb/). $lnGDP_{jt}$ is GDP (in logarithm) of European country *j* in year *t*, which is used to measure the market scale and the macroeconomic strength of the host country. $lnGDPC_t$ is the GDP (in logarithm) of China in year *t*, which is used to measure the market scale and the macroeconomic strength of the home country China, and the GDP data also comes from the National Bureau of Statistics of China. $lnDist_j$ indicates the distance between China and the capital of European country *j* (in logarithm), which can be used to measure the transport cost of trade, and geographical distances between China and European countries are measured on Google Maps. These are the basic variables of the Trade Gravity Model (distance and economic scale) with the key explanatory variable being OFDI stock. In addition, the following control variables were selected to control the heterogeneity of countries that may affect international trade. $lnPop_{jt}$ is the population of country *j* in year *t* (in logarithm), which is used to measure the market demand of the host country. TF_{jt} is the degree of trade freedom of country *j* in year *t*, which is used to measure the degree of convenience of commodity trading in the host country. The higher the trade freedom of a country, the smaller obstacles are to the flow of goods, the lower the cost of commodity flow, and the easier it is to achieve transnational trade and transfer. The data on trade freedom is from the Heritage Foundation (https://www.heritage.org/index/explore?view=by-region-country-year). $ExRate_{jt}$ is the exchange rate in year *t* between RMB and the legal currency of country *j*. We used the data of exchange rate between US dollars and other currencies from World Bank (https://data.worldbank.org.cn/), and calculate the exchange rate between RMB and the Danish krone, the Swiss Franc, the Swedish

Krona, and so on. In this study, we used the direct quotation method, that is to say when $ExRate_{jt}$ rises, RMB depreciates. $Infla_{jt}$ is the inflation index (measured by GDP deflation index) of country j in year t. In addition, we put a dummy variable BRI_j into the model to preliminarily examine the influence of the BRI. For the countries along the BRI in Europe, the BRI variable is "1", and for other counties not along the BRI, the BRI variable is "0".

For specific studies, we set up three different models to research the impact of China's OFDI to Europe on bilateral trade, from three different perspectives, including bilateral trade, imports, and exports, separately. The regression equations are as follows:

Bilateral Trade Equation:

$$lnBT_{jt} = C + \alpha_1 lnOFDI_{jt} + \alpha_2 lnGDP_{jt} + \alpha_3 lnGDPC_t + \alpha_4 lnDist_j + \alpha_5 lnPop_{jt} + \alpha_6 TF_{jt} \\ + \alpha_7 ExRate_{jt} + \alpha_8 Infla_{jt} + \alpha_9 BRI_j + \varepsilon_{jt} \tag{4}$$

Exports Equation:

$$lnEX_{jt} = C + \alpha_1 lnOFDI_{jt} + \alpha_2 lnGDP_{jt} + \alpha_3 lnGDPC_t + \alpha_4 lnDist_j + \alpha_5 lnPop_{jt} + \alpha_6 TF_{jt} \\ + \alpha_7 ExRate_{jt} + \alpha_8 Infla_{jt} + \alpha_9 BRI_j + \varepsilon_{jt} \tag{5}$$

Imports Equation:

$$lnIM_{jt} = C + \alpha_1 lnOFDI_{jt} + \alpha_2 lnGDP_{jt} + \alpha_3 lnGDPC_t + \alpha_4 lnDist_j + \alpha_5 lnPop_{jt} + \alpha_6 TF_{jt} + \\ \alpha_7 ExRate_{jt} + \alpha_8 Infla_{jt} + \alpha_9 BRI_j + \varepsilon_{jt} . \tag{6}$$

In Equation (4), $lnBT_{jt}$ is the bilateral trade between China and European country j in year t (in logarithm); in Equation (5), $lnEX_{jt}$ is the exports of China from European country j in year t (in logarithm); in Equation (6), $lnIM_{jt}$ is the imports of China from European country j in year t (in logarithm).

3.2. Data Description

We used panel data for 21 European countries from 2003 and 2016 by using comparatively whole data obtained for China's OFDI and bilateral imports and exports, rather than choosing the time series of Europe Data, which cannot show the difference between counties in Europe. A constructive and significant estimation of α_1 could show a complementary effect of China's OFDI on foreign trade, while an adverse or negative and significant estimation of α_1 indicates a substitution effect.

On the one hand, before 2003, China did not have a perfect FDI statistical system; on the other hand, China has experienced a period when both trade and ODI grew rapidly from 2003–2016. Therefore, our samples range from 2003 to 2016.

When it comes to selecting countries, to ensure the accuracy and robustness of the analysis results, we excluded countries which had little trade data with China. Finally, we chose 21 European countries to be the samples. They were Germany (GER), United Kingdom (GBR), Russia (RUS), The Netherlands (NED), France (FRA), Italy (ITA), Switzerland (SUI), Spain (ESP), Belgium (BEL), Poland (POL), Sweden (SWE), the Czech Republic (CZE), Denmark (DEN), Hungary (HUN), Ireland (IRL), Austria (AUT), Finland (FIN), Romania (ROU), Malta (MLT), Luxembourg (LUX), and Belarus (BLR). The countries above account for 93.8% of China-EU trade, and 96.6% of China's OFDI to Europe (The data was calculated by author based on the "Statistics Bulletin of China's Outward Foreign Direct Investment"), so it is suitable for these samples to represent Europe.

The statistics for the variables are described in Table 2.

Table 2. Statistical Description of Regression Variables.

Variables	Observations	Mean	Median	Std. Dev.	Minimum	Maximum
$lnBT_{jt}$	294	13.84	13.76	1.359	9.465	16.69
$lnIM_{jt}$	294	12.72	12.79	1.509	9.177	16.17
$lnEX_{jt}$	294	13.30	13.26	1.417	8.078	15.85
$lnOFDI_{jt}$	294	9.034	9.444	3.053	0.000	14.54
$lnGDP_{jt}$	294	12.84	12.91	1.484	8.604	15.17
$lnGDPC_t$	294	12.48	12.52	0.375	11.83	13.01
$lnDist_j$	294	8.923	8.919	0.108	8.663	9.131
$lnPop_{jt}$	294	7.181	6.947	1.472	3.685	9.579
TF_{jt}	294	83.11	86.00	7.007	44.20	90.00
$ExRate_{jt}$	294	5.965	7.343	4.204	0.0003	15.21
$Infla_{jt}$	294	3.657	1.960	7.334	−5.010	75.28

Table 2 displays the descriptive information of the all variables. As we can see from table above, bilateral trade, imports and exports are the three main dependent variables in our models. There is little difference between the mean and the median of all the three dependent variables, indicating that the three data sets have a normal distribution. At the same time, the difference among the three means is relatively small, which also reflects that all these three dependent variables hold very important positions in the analysis of China's import and export trade with Europe. In addition, it is obvious that the dispersion degree of $lnDist_j$ is very small, because the sample of our study only covers the countries in Europe, and there are almost no geographical differences between the samples. And $Infla_{jt}$ is the only variable containing a negative number because it is measured by using the GDP deflation index.

4. Empirical Results and Analysis

As the sample data in this paper is panel data, it is necessary to determine what kind of panel data model is suitable. The models available for panel data analysis include the pooled OLS model, fixed effects model, and random effects model. The appropriate model can be judged by constructing the F-statistic test and Hausman test. The results of the Hausman test and F-statistic test show that the pooled OLS model, if used, will produce biased and inconsistent estimates. An OLS approach is also vulnerable to endogeneity when different sources are used, while fixed effects can resolve these issues to a greater extent. Fixed effects estimation internally transforms the data in tackling unobserved heterogeneity. However, variables such as $lnDist_j$ and BRI_j do not change over years and they are collinear with individual fixed effects in fixed effect estimation. In such a situation, STATA estimates automatically delete the two explanatory variables, which means we cannot judge the relationship between the two explanatory variables and the interpreted variables. Hence, the fixed effects model was not suitable for our study and it was therefore better to use the pooled OLS estimation method. In this paper, we introduced the control variables such as exchange rate, inflation, and trade freedom into the following models, and constructed nine models.

4.1. Total Trade

Firstly, we conducted Equation (4) by using bilateral trade as the dependent variable. The pooled OLS regression results are shown in Table 3.

Table 3. Trade effect of OFDI on Total trade volume.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$lnOFDI_{jt}$	0.291 *** (14.75)	0.117 *** (9.07)	0.045 ** (2.51)	0.058 *** (3.32)	0.058 *** (3.31)	0.056 *** (3.12)	0.061 *** (3.42)	0.063 *** (3.56)	0.062 *** (3.48)
$lnGDP_{jt}$		0.677 *** (25.4)	0.737 *** (26.89)	0.698 *** (24.69)	0.707 *** (12.82)	0.740 *** (11.92)	0.715 *** (11.43)	0.657 *** (10.17)	0.678 *** (7.20)
$lnGDPC_{t}$			0.704 *** (5.70)	0.701 *** (5.82)	0.695 *** (5.61)	0.775 *** (5.46)	0.722 *** (5.06)	0.749 *** (5.31)	0.753 *** (5.31)
$ExRate_{jt}$				0.033 *** (4.13)	0.032 *** (3.20)	0.032 *** (3.27)	0.046 *** (4.01)	0.049 *** (4.24)	0.051 *** (3.87)
$lnPop_{jt}$					−0.009 (−0.18)	−0.042 (−0.729)	−0.029 (−0.59)	0.019 (0.33)	−0.002 (−0.02)
TF_{jt}						−0.008 (−1.15)	−0.002 (−0.30)	−0.006 (−0.86)	−0.007 (−0.90)
$lnDist_{j}$							−0.921 ** (−2.30)	−1.099 *** (−2.75)	−1.077 *** (−2.66)
$Infla_{jt}$								−0.016 *** (−3.04)	−0.016 *** (−3.01)
BRI_{j}									0.054 (0.31)
Constant	11.21 *** (59.63)	4.085 *** (13.63)	−4.805 *** (−3.03)	−4.586 *** (−2.97)	−4.558 *** (−2.93)	−5.070 *** (−3.13)	3.424 (0.85)	5.439 (1.35)	5.095 (1.22)
R^2	0.427	0.820	0.840	0.846	0.847	0.849	0.852	0.854	0.857
N	294	294	294	294	294	294	294	294	294

Notes: The t-Statistics are in parentheses. *** and ** represent the significance level at 1 and 5 percent, respectively.

This table shows the effect of OFDI on total trade. It is obvious that OFDI has positively promoted the total trade volume from model 1 to model 9. In model 1, the coefficient of OFDI is 0.291, which means for every 1% increase in China's OFDI in a European country, the total trade volume will increase by 0.291 percentage points. When control variables are continuously added, the coefficient of OFDI decreases and tends to be stable. In model 9, the coefficient of OFDI is 0.062, which means for every 1% increase in China's OFDI in a European country, the total trade volume will increase by 0.062 percentage points. For all nine models, the effect has always been significant. The results indicate a complementary effect of China's OFDI on foreign trade.

For other explanatory variables, the host countries' market size ($lnGDP_{jt}$) and home country' economic strength ($lnGDPC_{t}$) indicate positive effects on the bilateral trade between China and Europe at the 1% level of significance, which is consistent with the prediction that large countries have more trade. The distance variable is significantly negative, which is consistent with our expectations. The farther the distance between two countries, the higher the transportation cost will be.

For control variables, the exchange rate shows a significant positive effect, that is to say, when $ExRate_{jt}$ rises, the RMB depreciates and the trade volume between China and Europe increases, which is also consistent with our expectations. Inflation reflects economic risk in this model, which is has a significantly negative relationship with trade volume, which is consistent with expectations. In addition, there are some other variables in these models which are not significant, such as population, trade freedom, and BRI. We see this in other models as well.

In order to distinguish whether the main impact of OFDI on total trade is on exports or imports, we conducted pooled OLS regression on Equations (5) and (6).

4.2. Export

In the export model, the estimated coefficients of OFDI are significantly positive, suggested that China's OFDI in host states in Europe can significantly encourage China's exports. As control variables, the host states' economic scale ($lnGDP_{jt}$) also has significantly encouraging effects on China's imports and exports, just as in the total trade model. Exchange rates, distance, and inflation have the same effect since they are also in the total trade model. Host countries' population and degree of trade freedom also show positive effects on China's exports. From Table 4, we can see that the promotion outcome of overseas investment on trade volume is largely reflected in the promotion of exports.

Table 4. Trade effects of OFDI on exports.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$lnOFDI_{jt}$	0.306 ***	0.145 ***	0.110 ***	0.127 ***	0.127 ***	0.132 ***	0.137 ***	0.139 ***	0.132 ***
	(14.95)	(8.97)	(4.75)	(5.52)	(5.51)	(5.71)	(5.87)	(6.05)	(5.75)
$lnGDP_{jt}$		0.628 ***	0.656 ***	0.608 ***	0.524 ***	0.461 ***	0.440 ***	0.36 ***	0.559 ***
		(18.89)	(18.37)	(16.45)	(7.29)	(5.71)	(5.38)	(4.28)	(4.59)
$lnGDPC_t$			0.337 **	0.333 **	0.385 **	0.232	0.188	0.224	0.259
			(2.09)	(2.12)	(2.38)	(1.26)	(1.01)	(1.22)	(1.41)
$ExRate_{jt}$				0.041 ***	0.051 ***	0.050 ***	0.062 ***	0.065 ***	0.083 ***
				(3.94)	(3.98)	(3.87)	(4.07)	(4.32)	(4.89)
$lnPop_{jt}$					0.090	0.154 *	0.165 **	0.231 ***	0.035
					(1.37)	(2.04)	(2.18)	(2.98)	(0.29)
TF_{jt}						0.015 *	0.020 **	0.014	0.010
						(1.70)	(2.11)	(1.52)	(1.05)
$lnDist_j$							−0.78	−1.022 *	−0.823
							(−1.49)	(−1.96)	(−1.57)
$Infla_{jt}$								−0.021 ***	−0.02 ***
								(−3.17)	(−3.04)
BRI_j									0.504 **
									(2.25)
Constant	10.54 ***	3.931 ***	−0.331	−0.058	−0.330	0.655	7.856	10.59 **	7.40
	(54.05)	(10.53)	(−0.16)	(−0.03)	(−0.16)	(0.31)	(1.49)	(2.02)	(1.37)
R^2	0.432	0.744	0.750	0.762	0.764	0.766	0.768	0.775	0.780
N	294	294	294	294	294	294	294	294	294

Notes: The t-Statistics are in parentheses. ***, ** and * represent the significance level at 1, 5, and 10 percent, respectively.

Furthermore, it is remarkable that the BRI dummy has shown a constructive effect on China's exports to host states.

4.3. Import

Looking at the model in Table 5 representing imports, it can be determined that China's OFDI to Europe has an unstable effect on imports. In model 1, when there is only the explanatory variable OFDI, China's OFDI to Europe has a positive effect on China's imports, but in model 3 to model 8, OFDI appears to have a negative effect on imports, and in model 9, the results show that there is not a significant effect of OFDI on imports. We cannot get a clear answer regarding the effect of OFDI on imports, and the promotion effect of OFDI on total trade largely consists of the promotion of exports.

In addition, BRI has a major negative impact on the import factor at the 1% significance level, which implies that the Belt and Road Initiative reduces China's imports from European countries.

Based on the empirical research above, it can be concluded that China's OFDI in Europe has a statistically significant impact on China's exports to European countries. Therefore hypothesis 1 has been confirmed. The results also show that the BRI has positive effects on China's exports to European countries, and negative effects on China's imports from European countries. Hypothesis 2, therefore, is proved to be partially true.

Table 5. Trade effect of OFDI on imports.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$lnOFDI_{jt}$	0.278 *** (11.62)	0.077 *** (4.49)	−0.046 ** (−2.04)	−0.040 * (−1.74)	−0.040 * (5.51)	−0.055 ** (−2.46)	−0.045 ** (−2.03)	−0.044 ** (−1.99)	−0.028 (−1.32)
$lnGDP_{jt}$		0.783 *** (22.09)	0.884 *** (25.18)	0.867 *** (23.32)	0.924 *** (12,77)	1.103 *** (14.07)	1.057 *** (13.52)	1.022 *** (12.51)	0.538 *** (4.78)
$lnGDPC_t$			1.20 ** (7.55)	1.194 *** (7.55)	1.158 *** (2.38)	1.591 *** (8.87)	1.493 *** (8.37)	1.509 *** (8.46)	1.425 *** (8.42)
$ExRate_{jt}$				0.015 (1.41)	0.007 (0.58)	0.012 (0.92)	0.038 *** (2.63)	0.040 *** (2.72)	−0.005 (−0.31)
$lnPop_{jt}$					−0.062 (−0.93)	−0.242 *** (−3.30)	−0.22 *** (−3.00)	0.189 ** (2.51)	0.29 *** (2.70)
TF_{jt}						−0.042 * (4.94)	−0.03 *** (−3.56)	−0.034 ** (−3.77)	−0.04 * (−2.71)
$lnDist_{jt}$							−1.72 *** (−3.43)	−1.821 *** (−3.61)	−2.37 *** (−4.77)
$Infla_{jt}$								−0.009 (−1.43)	−0.012 * (−1.88)
BRI_j									−1.23 *** (−5.93)
Constant	10.21 *** (44.75)	1.964 *** (4.93)	−13.13 *** (−6.50)	−13.04 *** (−6.42)	−12.5 *** (−6.29)	−15.64 *** (−7.66)	0.190 (0.038)	1.391 (0.273)	9.175 * (1.84)
R^2	0.316	0.744	0.786	0.788	0.789	0.805	0.813	0.814	0.835
N	294	294	294	294	294	294	294	294	294

Notes: The t-Statistics are in parentheses. ***, ** and * represent the significance level at 1%, 5%, and 10%, respectively.

5. Conclusions

In this article, we used the panel data of China's OFDI in European countries, the trade flows between China and Europe from 2003 to 2016, and the trade gravity model to empirically examine the effect of China's overseas investment in Europe on bilateral trade. The Belt and Road Initiative's effects have been positive overall. Further studies with specific facts and data reveal that after entering the 21st century, China and Europe have achieved tremendous developments in investment and bilateral trade. This paper illustrates the impact of China's OFDI in Europe on bilateral trade between China and Europe. The Belt and Road Initiative will increasingly demonstrate its positive value and strategic significance over time. The main results of the empirical research are as follows: (a) China's OFDI to Europe significantly promotes international trade between China and European countries, but the promotion effect of OFDI on total trade largely consists of the promotion of exports from China. China's OFDI to Europe greatly promotes China's exports to European counties, while China's OFDI does not promote China's imports from European counties. (b) The Belt and Road Initiative plays a different role in promoting bilateral trade between China and Europe. The BRI has both a positive effect on China's exports to European counties, and a negative effect on China's imports from European counties, perhaps due to a slow development of the import effect. With the further development of BRI, it could be expected that the import effects will gradually emerge. There are both complementary trade effects and substitution trade effects when China directly invests in European countries, but the complementary trade effects seem to be stronger than the substitution trade effect. This paper presents an overview of the Chinese investment in Europe using a panel data analysis. However, further study must be undertaken on country level data from Europe to discuss opportunities and risk related with the Belt and Road Initiative Project.

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