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CHINESE OUTWARD FDI: IMPLICATIONS TO THE HOST COUNTRIES' ECONOMIC GROWTH

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Abstract

The Belt and Road (B&R) initiative, introduced in 2013, has led to a noticeable increase in China's outward foreign (OFDI) in the B&R countries. This paper aims to investigate the impacts of the Chinese OFDI investment on economic growth in the B&R countries. This study covers 55 B&R countries during 2006-2018. This paper applies the SYS-GMM model to estimate the empirical results. The results show that the Chinese OFDI could promote economic growth in the B&R countries, especially after the B&R initiatives. However, the country's government debt is the critical factor in enhancing the role of such OFDI on economic growth in those countries. Technological development, degree of trade openness, and labor market conditions in the B&R countries are crucial in promoting their economic growth.

Keywords

Outward FDI, Economic Growth, "The Belt and Road" Initiative, SYS-GMM

1. Introduction

This paper mainly explains the background, the significance, and the main objectives. China first proposed "the Belt and Road" initiative (B&R) in September 2013. As a development strategy

and framework, this initiative focuses on connectivity and cooperation among countries, primarily between China and the rest of Eurasia, consisting of two main components, "Silk Road Economic Belt" and "Maritime Silk Road." After this development plan was proposed, the Belt and Road initiative has caused vital considerations from countries worldwide.

Since the announcement of the B&R initiative, outward FDI from China to B&R countries has been increased noticeably. By the end of 2016, China's enterprises have established 56 cooperation zones in the countries along the Belt and Road, with a cumulative investment of about US$18.55 billion, and the total outbound investment increased by 44.1% year on year during 2013-16. According to the data from China's Ministry of Commerce, Chinese enterprises made a total of US$14.36 billion of non-financial direct investment in 59 countries along the Belt and Road, accounting for 12% of the total amount of the outward foreign direct investment of China in 2017.

Undoubtedly, under the B&R initiative, infrastructure connectivity plays a crucial role in promoting the cooperation between the B&R countries and China. Investment in infrastructure for countries along the Belt and Road has become more pronounced. The export of products, technologies, and services related to these industries tends to be conducive to China's industrial transformation and the rational solution of overcapacity (Hu, 2017).

Outward FDI from China into B&R countries has gone up significantly after the B&R initiatives in 2013. In terms of economic growth, there is unclear whether Chinese OFDI has helped to generate growth in the host countries. On the one hand, some argue that it would help generate growth through infrastructure development. (Tao et al.,2010; Wong and Lye, 2014). At the construction processes of the infrastructures, for example, Chinese enterprises established a great amount of manufacturing centers, industrial parks, and processing zones along the B&R lines. The transportation networks and investment would provide jobs to local communities. The data from China's ministry of commerce reveal that Chinese enterprises had established 56 economic and trade cooperation zones in more than 20 countries along the Belt and Road in 2016, increasing nearly US$1100million in taxes and 0.18 million jobs to the host country. On the other hand, there is concern about Chinese OFDI, particularly in terms of debt creating. In 2014, the non-performing loan ratio of Banks in countries along the Belt and Road was relatively high, e.g., the high-performing loan ratio

of Banks in Tajikistan, Kazakhstan, Serbia, Albania, and other countries exceeding 20%. Nearly two-thirds of B&R countries have a sovereign credit rating below investable grade. High debts in these countries from participating in the B&R initiative may eventually result in a growth slowdown or crisis. With the unsolved debates, two objectives are crucial to investigate. The first is to observed the influences of Chinese outward FDI - economic growth nexus in B&R countries during 2006-2018 and to see whether such impacts change the direction after 2013. Besides, this study also examines weather conditions in the countries of the Belt and Road, especially in terms of trade openness and debt, which matter for Chinese outward FDI to generate economic growth of these countries.

2. Literature Review

This paper reviews the literature relating to the relation between FDI and economic growth to lay down the groundwork for our methodology in the next section. This paper investigates how FDI contributes to a country's growth and presents empirical studies relating to the FDI-growth nexus.

The effect of FDI on economic growth can occur through both direct and indirect effects. For the direct effect, multinational enterprises can bring in investment capital, advanced production technology, management skills, distribution channel, and marketing know-how for locally affiliated firms (Caves, 1974; Dunning & Lundan, 2008). These could lead to improvement in their industrial capability and level of economic development. For the indirect effect, the benefit of FDI could spill over to non-affiliated firms.

First, FDI enterprises are competing with domestic enterprises to bring competitive spillover (Kokko,1992; Perez, 1998). Secondly, cooperation between FDI enterprises and upstream firms, and downstream consumers increases technological spillovers (Kokko,1992; Perez, 1997). The economic activities of FDI enterprises are in a certain industry and part of a certain industrial chain. When FDI enters the local industry, it is necessary to consider the adaptability of its technology. Another channel of spillover is labor turnover (Czinkota et al, 1999; De Mello, 1997; Meyer & Sinani, 2009). It occurs when employees of foreign affiliates move on to local firms or set up their businesses (Kohpaiboon, 2006). Blomstrom and Kokko (1996) point out that this effect is even more crucial in developing countries as the weak comprehensive education system, however, the magnitude of this effect is still

questionable. MNEs naturally may prevent labor turnover, particularly well-trained and talented employees, by offering better benefits than the local level (Fosfuri et al, 2001; Beata Smarzynska Javorcik, 2004; Moran, 2002). The potential channel of this type of spillover is the development of local entrepreneurship (Chen, 1983; Katz, 1987). Finally, demonstration-imitation effects between the FDI enterprises and local firms. This spillover effect occurs when host country enterprises observe and learn from foreign companies. (Kokko, 1992, Wang & Blomstrom, 1992). Fierce market competition leads local enterprises in host countries to face two choices -- to make more effective use of existing technologies and resources or to seek new technologies (Blomström & Kokko, 1998). It is much easier and cheaper for local firms to investigate the technology used by nearby foreign firms in the same market than it is to investigate distant foreign firms. It allows local enterprises to observe and study the multinational enterprises 'skills and management. These are particularly important for developing countries. Since there is a technological gap between local enterprises and subsidiaries of foreign firms, local companies learn to imitate foreign companies, leading to the emergence of demonstration effect and creating more opportunities for local companies to develop their strength (Meyer & Sinani, 2009). However, Meyer&Sinani (2009) point out that this effect may decline at some certain point. They show the U-shape of demonstration effects along with the stage of economic development in the host country.

Theory and empirical studies admit the pivotal role of FDI in economic development. However, the impacts of FDI on a host country have still been inconclusive. The productivity improvement induced by FDI and positive evidence of technology spillover from FDI exists only in some studies (Keller & Yeaple, 2003; Buckley &Meng, 2005; Vu,2008). From the kinds of literature, there are three key factors conditioning gains from FDI.

First is the trade policy regime. Bhagwati (1978), argues that the technology spillover of the country that applies the IS (import substitution) regime may lead to less or even negative than EP (export promoting) regime adopted by the host country. The demonstration effect and the imitation effect tend to occur in the host country. (Kohpaiboon, 2006). Under the highly protected market environment, it is difficult for local enterprises to learn advanced technologies from FDI, which may

lead to host country companies producing products that do not directly compete with FDI companies and only enjoy the profits brought by this system (Kokko, 1994).

The second is the development of human capital in a host country. According to Borensztein et al. (1998), Human capital is a necessary condition to host countries to be beneficial from FDI. From their estimation results of 69 countries during 1970-1989, FDI was positively correlated with educational level. In comparison, in the countries with a deficient level of human capital, the effect is negative. Blomstrom & Kokko (2002) also argue spillover is related to human capital in host countries. Host economies with relatively high levels of human capital could attract large amounts of technology-intensive foreign MNEs that contribute significantly to the further development of the local labor workforce. Some studies have shown that the host country's human capital level determines the size and degree of spillover and generates robust economic growth (Yokota & Tomohara, 2010; Anwar & Phi Lan Nguyen, 2010).

The third is domestic firms' technological capability. The less technical gap between the local firms and MNEs subsidiaries, the more likely to increase the technology spillover (Wang & Blomstrom, 1992; Blalock & Gertler, 2009). On the one hand, the huge technological gap provides host country enterprises with more opportunities to innovate or imitate foreign subsidiaries. However, local companies will not be able to seize these opportunities if their technology lags far behind that of foreign companies (Kokko, 1994; Kokko et al.,1996). Blalock and Gertler (2009) also pointed out that the greater the technical gap between host country enterprises and subsidiaries of multinational corporations, the lower the marginal spillover benefits.

3. Research Methodology

This paper presents a research methodology to examine the key question of the paper, i.e., what is the growing impact of Chinese OFDI in the host(B&R) countries? There are three sub-sections for this part. Section 3.1 shows the empirical model of FDI-growth nexus and factors that potentially enhance the effects of FDI on growth. Section 3.2 provides an econometric procedure applied for the models of OFDI determinants and FDI-growth nexus. The last section presents the selected sample countries and the variable measurements.

3.1 Impacts of Chinese outward FDI on B&R countries' economic growth

This section shows the empirical model of FDI-growth nexus and factors that potentially enhance the effects of FDI on growth.

From the analytical framework discussed in part 2, the model begins with the endogenous growth model:

$$Y = f(A, K, L)(1)$$

Where ***Y*** represents the total capacity in a nation. Total factor productivity (TFP) can be indicated by ***A***, capital stock can be shown by ***K***, ***L*** represents labor, and the capacity elasticity of capital can be measured by the parameter $\boldsymbol{\alpha}$ This paper assumes that ***A*** is affected through FDI, human capital, and technological level. Under this assumption, equation (1) also can be represented this way:

$$Y = f(flowtotalgdp, H, Tech, K, L)(2)$$

Note that to clearly examine the effect of Chinese OFDI on the growth of B&R countries, ***flowtotalgdp*** can be divided into two components, i.e., FDI inflow to the host country originating from other countries (***flowothergdp)***and FDI inflow from China to the Belt and Road Countries (***flowchinagdp***) as in equation (3) under "the Belt and Road" initiatives.

As mentioned in part 2, the effect of FDI on economic growth could ambiguous and may conditioned on some particular factors under "the Belt and Road" initiative.

There are three traditional factors, which most previous studied are found to be crucial conditions in a host country, i.e., trade openness (***Open***), human capital development (***H***), and technological capability (***Tech***).

On top of that, ***(Debt)*** is a critical driver for OFDI-economic growth nexus under "the Belt and Road" initiatives. Huge public debts (external debts) generate a negative impact on economic growth (Barro,1979; Baldacci & Kumar,2010; Cochrane,2011).

Thus, it is possible that impacts of outward FDI from China under B&R initiatives would be conditioned on the level of public debts in the B&R countries. The lower the level of public debts, the greater the benefit from FDI is expected.

To test all variables mentioned earlier, equation (3) is introduced as follow:

$$Y = f(flowchinagdp, flowothergdp, K, L, H, Tech, Open, Debt, BR) \quad (3)$$

Besides, the lagged variables of ***K***, ***L***, ***H***, ***Tech***, ***Open***, and ***Debt*** could also influence FDI-economic growth relation. To test these conditions for B&R countries, equation (3) is extended as follow：

$$Y_j = f\begin{pmatrix} flowchinagdp, flowothergdp, K, L, H, Tech, Open, Debt, BR, \\ L.K, L.L, L.H, L.Tech, L.Open, L.Debt \end{pmatrix} \quad (4)$$

It is worthy to note that BR countries are mainly developing countries. Data relating to human development are limited. So that equation (5) is introduced when ***H*** is dropped out from the estimation equation.

$$Y_j = f\begin{pmatrix} flowchinagdp, flowothergdp, K, L, Tech, Open, Debt, BR, \\ L.K, L.L, L.Tech, L.Open, L.Debt \end{pmatrix} \quad (5)$$

As described in part 2, the impact of FDI on economic growth may be ambiguous, and its effect on growth will depend on several specific factors. The model introduced the interaction terms of FDI and other key fundamental factors in a host country, including openness and debt. Note that to avoid the multicollinearity problem, the interaction terms for openness and FDI, debt, and FDI are included separately.

In order to test the influence of "the Belt and Road" initiatives on FDI on economic growth, constructing the interaction terms of time dummy variable BR and other interaction terms was introduced into the model. In addition, to test robustness, we will include these three interaction terms together in an equation. As shown in equation (6) to equation (9):

$$Y_j = f\left(\begin{matrix} flowchinagdp,flowothergdp,K,L,Tech,Open,Debt,BR, \\ L.K,L.L,L.Tech,L.Open,L.Debt, \\ flowchinagdp*Open,flowothergdp*Open, \\ flowchinagdp*Debt,flowothergdp*Debt \end{matrix}\right) \quad (6)$$

$$Y_j = f\left(\begin{matrix} flowchinagdp,flowothergdp,K,L,Tech,Open,Debt,BR, \\ flowchinagdp*Open,flowothergdp*Open, \\ flowchinagdp*Debt,flowothergdp*Debt, \\ BR*flowchinagdp*Open,BR*flowothergdp*Open \end{matrix}\right) \quad (7)$$

$$Y_j = f\left(\begin{matrix} flowchinagdp,flowothergdp,K,L,Tech,Open,Debt,BR, \\ L.K,L.L,L.Tech,L.Open,L.Debt,flowchinagdp*Open, \\ flowothergdp*Open,flowchinagdp*Debt, \\ flowothergdp*Debt,BR*flowchinagdp*Debt, \\ BR*flowothergdp*Debt, \end{matrix}\right) \quad (8)$$

$$Y_j = f\left(\begin{array}{c} flowchinagdp, flowothergdp, K, L, Tech, Open, Debt, BR, \\ L.K, L.L, L.Tech, L.Open, L.Debt, flowchinagdp*Open, \\ flowothergdp*Open, flowchinagdp*Debt, \\ flowothergdp*Debt, BR*flowchinagdp*Debt, \\ BR*flowothergdp*Debt, BR*flowchinagdp*Open, \\ BR*flowothergdp*Open \end{array}\right) \quad (9)$$

Note that as in equations, all variables, except **flowchinagdp,flowothergdp**, are in logarithm formula.

3.2 Econometric Procedure

Section 3.2 provides an econometric procedure applied for the models of OFDI determinants and FDI-growth nexus. The dynamic panel data model can be applied to process the problem of unobserved heterogeneity. The lag dependent variable was taken as an explanatory variable, and other explanatory variables were introduced. Then Equation (10) can be rewritten into the regression equation as follows：

$$Y_{j,t} - Y_{j,t-1} = (\alpha - 1)Y_{j,t-1} + \beta' X_{j,t} + \eta_j + \varepsilon_{j,t} \quad (10)$$

Where $\boldsymbol{Y}$ represents the logarithm form of GDP, $\boldsymbol{X}$ is the explanatory variable except the lagged variable of $\boldsymbol{Y}$, $\boldsymbol{\eta}$representsthe country-specific effect that cannot be observed, disturbance term can be indicated by $\boldsymbol{\varepsilon}$, the subscripts j and t show the survey nation and periods of time, respectively. And this paper also uses the time dummy variable to investigate that whether the model exist time-specific effects. Then rewrite the equation (11)

$$Y_{j,t} = \alpha Y_{j,t-1} + \beta' X_{j,t} + \eta_j + \varepsilon_{j,t} \quad (11)$$

Since there will exist the problem that the correlation between the explanatory variables and the country-specific effect η, where applying the equation (11) to run the model, there must generate a bias that gets the inconsistent estimators. Arellano & Bond (1991) show the solution to solve the above problem, take equation (11) into the first difference transformation:

$$Y_{j,t} - Y_{j,t-1} = \alpha\left(Y_{j,t-1} - Y_{j,t-2}\right) + \beta'(X_{j,t} - (X_{j,t-1}) + (\varepsilon_{j,t} - \varepsilon_{j,t-1}) \quad (12)$$

However, since there is a correlation between the independent term and $\boldsymbol{\varepsilon_{j,t}}$in the equation (11); this implies there also exists a correlation between the lagged values of Y and the lagged values of the $\boldsymbol{\varepsilon_{j,t}}$.Namely, the first difference lagged term $(\boldsymbol{Y_{j,t} - Y_{j,t-1}})$will be serially correlated with $\left(\boldsymbol{\varepsilon_{j,t} - \varepsilon_{j,t-1}}\right)$. Though the first-order difference GMM can solve the shortcomings of our model when

we apply using lagged variables as instruments. Whereas, if we estimate equation (11) by the fixed effect, the estimated results will be biased. Moreover, Blundell & Bond (1998) clearly pointed out that first-order difference Generalized Method of Moments (GMM) also has a serious finite sample bias, which means that first-order difference Generalized Method of Moments (DIF-GMM) regression is only asymptotically effective when it is applied to a large sample.

In order to reduce the bias caused by the DIF-GMM estimator, Blundell & Bond (1998) proposed the panel system Generalized Method of Moments (SYS-GMM) regressions. It is found that it is effective and informative to add instrumental variables to the system GMM estimator, which will produce a more reasonable parameter estimator, while also emphasizing the importance of allowing an autoregressive component to be added to productivity changes. While Blundell & Bond (1998) based on the assumption that the first differences are uncorrelated with the error term and unobservable heterogeneity.

The consistency of the GMM estimator relies on the validity of the instruments. There are two specifications that have to be tested: (1) Sargan-Hansen test of over-identifying restrictions. The overall instrument variables are efficient are assumed by the null hypothesis. (2) The second specification test for the second serial correlation (AR (2)). This test set the null hypothesis that there does not exist a second-order serial correlation between the disturbance term.

It is noteworthy that use lags of independent variables to redress a problem of endogeneity. For the growth equation, the lag variable is statistically significant so that the system GMM is applied.

3.3 Sample Countries and Variable Measurements

This section applied 2 tables to present the sample countries and variable measurement of the models.

Table 1: *The Selected Sample Countries Under "the Belt and Road" initiatives (55 Countries)*

Region	Country
Southeast Asia (10)	Brunei, Cambodia, Indonesia, Laos PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
Northeast Asia (2)	Mongolia, Russia
South Asia (5)	Bangladesh, India, Nepal, Pakistan, Sri Lanka
Central Asia (5)	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
West Asia and North Africa (19)	Afghanistan, Azerbaijan, Bahrain, Egypt, Georgia, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, UAE, Yemen Rep

Central and Eastern Europe (14)	Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Rep, Hungary, Latvia, Poland, Romania, Serbia, Slovakia, Slovenia, Ukraine

(Source: https://www.yidaiyilu.gov.cn/jcsjpc.htm)

Table 2: *The Variable Measurement and Data Sources of the SYS-GMM Model*

Variable	Expected sign	Variable measurement	Data source
lngdp	-	GDP (constant 2010US$) (in log form)	World Bank
flowtotalgdp	+	The total FDI inflow into the host country j	International Monetary Fund (IMF), the United Nations Conference on Trade and Development (UNCTAD)
flowchinagdp	+	The total FDI flows from China into the host country j	Statistical Bulletin on China's outward Foreign Direct Investment, International Monetary Fund
flowothergdp	+	The total FDI flows from other countries into the host country j	International Monetary Fund (IMF), the United Nations Conference on Trade and Development (UNCTAD)
lnK	+	capital stock of country j, proxied by gross fixed capital formation as a percentage of gross domestic product (GDP) (in log form)	World Bank
lnL	+	Total labor force in host country j (in log form)	World Bank
lnH	+	Total labor force as a percentage of population of host country j (in log form)	United Nations database
lnTech	+	The number of patent applications filed in the host country j (in log form)	International Intellectual Property Organization

Table 2 *The Variable Measurement and Data Sources of the SYS-GMM Model(continued)*

Variable	Expected sign	Variable measurement	Data source
lnOpen	+	The ratio of total import and export trade to GDP (in log form)	United Nations Commodity Statistics Database （UNCOMTRADE)
lnDebt	-	General government gross debt as a percentage of GDP (in log form)	World Bank
BR	+	Time dummy variable	-

(Source: Collected by Author)

4. Empirical Results

This paper will mainly present the analysis of the empirical results.

Table 3 shows the results of our analysis, composing of 8 columns. There are seven models in table3. It can be seen from Table 3 that the initial condition of the B&R countries, i.e., the first and second lags of the B&R countries' GDP (**L.lngdp** and **L2.lngdp**) can significantly affect the B&R countries' economic growth. The coefficients of **L. lngdp** are positive, and all are statistically significant in the 1% confidence interval while the coefficients of **L2. lngdp** are negative and statistically significant in most of the models in table3. The coefficient associated with the negative value of the second lags tends to be smaller than that of the first lag. It would be possible that most of "the Belt and Road" countries are still in the early stage of development so that evidence of the growth convergence effect was not clearly revealed.

According to table 3, coefficients of outward foreign direct investment in the BR countries (**flowchinagdp**) of China are positive in the model (1) and the model (2) is positive and statistically significant at the 10% confidence interval. It shows that under the background of "the Belt and Road" initiative, China's OFDI can significantly promote the BR country's economic growth.

In table 3, the coefficients of（**flowothergdp**) are negative. These suggest that OFDI from other countries cannot significantly promote the economic growth of BR countries. The coefficients of BR countries' labor force (**lnL**) in all seven models in table3 are significantly positive, indicates that BR countries' labor force generates a positive role in promoting economic growth.

For the human capital factor (**lnH**), the coefficients are negative and statistically significant at the confidence interval of 10% in the table 3. while the lag of this variable is positive but statistically insignificant. This may reflect a need to further develop human capital in the B&R countries to possibly promoting its impacts on economic growth.

For the variable of trade openness of BR country, the coefficients of (**lnOpen**) are positive and statistically significant in the model (1), model (2), and the model (3). The coefficient is positive but not significant in the other four models. The significant results show that the more trade between

BR countries and China, the more beneficial it is to BR countries' economic growth. However, the role of openness in these countries is not robust. The coefficients of the lag variable (**L. lnOpen**) of the host country's trade openness are negative and statistically significant as shown in table 3. In the early stage of opening to the outside world, most countries will earn foreign exchange through the export of labor-intensive and resource-intensive industries due to lack of funds. However, the reliance on the low-end value chain to stimulate exports may lead to a surge in exports in the short term, but it will lead to impoverished growth and, in the long run, depress economic development.

Table 3: *The Estimated Results of SYS-GMM Model*

Variables	(1) lngdp	(2) lngdp	(3) lngdp	(4) lngdp	(5) lngdp	(6) lngdp	(7) lngdp
L.lngdp	1.116***	1.136***	1.150***	1.131***	1.092***	1.132***	1.130***
	(0.06)	(0.06)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
L2.lngdp	-0.119**	-0.141**	-0.157**	-0.139**	-0.095	-0.139**	-0.136**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
flowchinagdp	0.471*	0.363*	0.275	-0.022	0.148	-0.052	0.029
	(0.26)	(0.22)	(0.22)	(0.42)	(0.27)	(0.38)	(0.39)
flowothergdp	-0.012	0.081	0.056	-0.247**	-0.273***	-0.267**	-0.187
	(0.09)	(0.10)	(0.09)	(0.12)	(0.09)	(0.12)	(0.12)
lnK	0.010	0.049	0.053	0.056	0.010	0.054	0.055 #
	(0.02)	(0.04)	(0.04)	(0.04)	(0.02)	(0.04)	(0.04)
lnL	0.026***	0.546**	0.294*	0.319*	0.025***	0.338**	0.308*
	(0.01)	(0.25)	(0.17)	(0.17)	(0.01)	(0.16)	(0.17)
lnH	-0.072*	-0.352			-0.094*		
	(0.04)	(0.26)			(0.05)		
lnTech	-0.006	0.015*	0.015*	0.014*	-0.009*	0.014*	0.013*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
lnOpen	0.039***	0.049**	0.046**	0.025	0.018	0.023	0.025
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
lnDebt	-0.018*	-0.054***	-0.055***	-0.052***	-0.018*	-0.050***	-0.052***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
BR	0.008**	0.008**	0.008**	0.009**	0.011**	0.007*	0.010**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
L.lnK		-0.058**	-0.056*	-0.059*		-0.061**	-0.064**
		(0.03)	(0.03)	(0.03)		(0.03)	(0.03)
L.lnL		-0.530**	-0.280*	-0.308*		-0.327**	-0.297*
		(0.25)	(0.16)	(0.16)		(0.16)	(0.17)
L.lnH		0.319					
		(0.27)					
L.lnTech		-0.015**	-0.014*	-0.014*		-0.016**	-0.017**
		(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
L.lnOpen		-0.049**	-0.051***	-0.061***		-0.061***	-0.058***
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)
L.lnDebt		0.043***	0.045***	0.045***		0.044***	0.044***
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)

flowchinagdplndebt		0.021	-0.147	0.246	0.469
		(0.54)	(0.36)	(0.53)	(0.57)

Table 3: *The Estimated Results of SYS-GMM Model (Continued)*

Variables	(1) lngdp	(2) lngdp	(3) lngdp	(4) lngdp	(5) lngdp	(6) lngdp	(7) lngdp
flowothergdplndebt				-0.302*	-0.309***	-0.341*	-0.308*
				(0.18)	(0.12)	(0.18)	(0.18)
flowchinagdplnopen				0.440	0.046	0.547	0.062
				(0.40)	(0.45)	(0.41)	(0.57)
flowothergdplnopen				0.551***	0.629***	0.589***	0.631***
				(0.11)	(0.10)	(0.11)	(0.11)
brflowchinagdplnopen					0.473		1.131*
					(0.43)		(0.65)
brflowothergdplnopen					-0.193***		-0.212***
					(0.07)		(0.07)
brflowchinagdplndebt						-0.594*	-0.967*
						(0.34)	(0.50)
brflowothergdplndebt						0.053	0.185*
						(0.09)	(0.10)
Constant term	-0.363***	-0.224*	-0.150**	-0.077	-0.345**	-0.075	-0.102
	(0.13)	(0.12)	(0.07)	(0.10)	(0.14)	(0.09)	(0.09)
N	412	393	393	393	412	393	393
Number of codes	46	45	45	45	46	45	45
Wald statistics	77331.92	259630.88	260234.00	306759.85	143189.48	398833.10	276982.99
AR (2)	-0.93816	-0.5601	-0.31532	0.06817	-0.88404	0.07955	-0.28591
p- value of AR (2)	0.3482	0.5754	0.7525	0.9457	0.3767	0.9366	0.7749

Notes：1). Robust standard errors in parentheses, * p < 0.10, ** p < 0.05, *** p < 0.01.

2). All the above models have passed the Sargan Test before estimate the robust results.

3). The sign "#" indicates that the coefficient of variable (lnK) was statistically significant at the confidence interval of 13.2%, and statistical significance at the confidence interval of 5% without robust in Model 7.

4). Before the robust regression results are presented, the Sargan-Hansen test, which for testing of over-identifying restrictions in GMM estimation, is carried out for all the models in Table 5-3. The p-value in the Sargan statistics of all the models is larger than 0.1 and statistically insignificant. The null hypothesis, "All instrumental variables are valid." cannot be rejected.

5). AR (2) Arellano–Bond test for analyzing the autocorrelation existence of second order All of the above models have p-values greater than 0.1. That is, the null hypothesis cannot be rejected, indicating that there is no second-order autocorrelation in all models.

(Source: Author's Estimation)

The coefficients of (**flowchinalnopen**) are positive but not statistically significant, while the coefficients of (**flowotherlnopen**) are positive and statistically significant within the 1% confidence interval. These two estimated results show that the trade opening of BR

countries plays an essential role in the economic growth of FDI and can positively promote host countries' economic growth.

It is worth noting that the coefficients of（**brflowchinalnopen**）and（**brflowotherlnopen**）which capture the economic growth effect of FDI of countries along the Belt and Road are opposite and statistically significant under the background of "the Belt and Road" initiatives proposed by China. The (**brflowchinalnopen**) coefficient is positive in the model (7) and statistically significant at the 10% confidence interval. This shows that the B&R initiative has made trade openness become more crucial in enhancing the role of Chinese OFDI in influencing economic growth in the B&R countries.

The coefficients of (**brflowotherlnopen**) are negative, and all at 1% is statistically significant on the confidence interval. The reason for this may cause of the large amount of OFDI from Chinese enterprises weakens the effect of OFDI from other countries on the economic growth effect of the BR countries.

It can be seen from Table 3 that the coefficients of (**lnDebt**) in the seven models are all negative and statistically significant at the confidence intervals of 1% or 10%. This shows that the lower the level of government external debt of countries along the Belt and Road, the more it can promote its own country's economic growth. This result is consistent with our theoretical hypothesis. However, the coefficients of (**L.lnDebt**) are positive, and both are statistically significant in the 1% confidence interval. Different estimates may be an inverted u-shaped relationship between the scale of government debt and economic development (Guo & Wang, 2014). In the early stage, appropriate external government debt promoted capital accumulation and economic growth. When the government's external debt becomes larger and larger in the later period and exceeds this optimal scale, the government's positive impact on economic growth will gradually diminish, while the negative impact will increase.

The coefficients of (**flowchinagdplndebt**) in model (4), model (6), and model (7) are positive but not significant, which indicates that the government debt of the BR countries has an insignificant role in enhancing Chinese OFDI in affecting economic growth. The coefficients of (**flowothergdplndebt**) are negative and significant in model (4), model (5), model (6), and model (7), respectively. This shows that the countries' government debt along the Belt and Road reduces the effects of OFDI from other countries in promoting economic growth.

The coefficients of (**brflowchinagdplndebt**) are negative and statistically significant at the 10% confidence level. This implies after the B&R initiative, the role of debts in the B&R countries is crucial in enhancing the role of Chinese OFDI in promoting economic growth in

the B&R countries. The higher the debt level, the lower the economic growth is expected from Chinese outward investment. The appropriate debt level is still an open question for further study.

In table3, countries' capital factors and technical factors along the Belt and Road are also worthy of significant attention. The coefficients of (**lnK**) in all models are positive, but only the (**lnK**) coefficient in model (7) is statistically significant at the confidence interval of 13.2%. The data limitation, i.e., using gross fixed capital formation to represent capital stock, could hinder the role of capital stock in promoting economic growth in our analysis.

By comparing the coefficients of labor factor (**lnL**) and capital factor (**lnK**), it can be seen that the coefficients of labor**(lnL)** are more significant than that of capital**(lnK**). The possible explanation of that may be the countries involved in the B&R are mostly developing countries where labor-intensive activities are still more crucial. The influence of the labor force is likely to be greater than that of capital.

Regarding the coefficients of (**lnTech**) are relatively small and statistically significant positive values at 10% confidence intervals. The coefficients of (**L. lnTech**) is negative and small, statistically significant in the confidence interval of 5% or 10%. The results show that technological development's positive promotion effect on the B&R countries' economic growth is not apparent and may hinder their economic growth.

5. Conclusions and Recommendations

This paper focuses on the main questions, namely, "How does China's OFDI affect the economic growth of the host country (along the Belt and Road)? The periods covered in this study are between 2006 and 2018. The analysis in the objective is further divided into pre-and post-the B&R initiative starting in 2013. So far, there have been no empirical studies examining this issue clearly.

Regarding the objective of this paper, our results can be summarized into the following points: Chinese OFDI could promote economic growth in the B&R countries, especially after the B&R initiatives. However, the country's government debt is the critical factor in enhancing the role of such OFDI on economic growth in those countries. Technological development, degree of trade openness, and labor market conditions in the B&R countries are crucial in promoting their economic growth.

From the above empirical findings, there are some policy inferences for the policymakers: First, to benefits from Chinese OFDI, the B&R countries need to ensure the appropriate level of debts in the countries. The government debt has to be maintained in a

reasonable and controllable range, which can strengthen the ability of the government to deal with external shocks and improve the ability of the functional government to self-rescue in the occurrence of the debt crisis. The appropriate level of debt could vary countries by countries depending on their economic fundamentals, which are beyond scope of this study. However, based on European Union's criteria, public debt should be around 60 % (Treaty of Maastricht, 1993).

In addition, trade openness is another crucial aspect, which would help the countries receive favorable impacts from the Chinese OFDI. Trade liberalization, both in terms of unilateral and multilateral, is essential in these countries in promoting FDI-growth nexus.

Apart from these, human capital and technological advancements are areas, which need to be further improved. For these developing countries, improving human capital is to enhance human capital quality. Therefore, it is necessary to continuously expand education expenditure, improve citizens' educational level, turn the demographic advantage into a demographic dividend, to promote economic growth.

Finally, regarding the role of China, China should take the initiative to shoulder the responsibility of a major country and highlight the contribution of China's direct investment to BR countries. Therefore, China should put aside the troubles caused by false statements, face up to the economic cooperation with the B&R countries, and pay attention to the actual benefits of China's direct investment to the countries along the Belt and Road. China should make use of "the Belt and Road" initiative to promote the concept of mutual benefit and win-win results, and fully reflect China's openness and inclusiveness.

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