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Analysis of the Determinants of Chinese Foreign Direct Investment in Laos

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Abstract

Foreign Direct Investment (FDI) plays a crucial role in promoting long-term economic growth and development for both host and source nations. In the last three decades, Laos has experienced a significant increase in FDI inflows, particularly from China, which has played an important role. In recent years, China has become an important source of FDI for most developing countries, including Laos. This paper examines the determinants of Chinese FDI inflows in Laos. The paper employs Ordinary Least Squares (OLS) Regression and Stata 17 software to analyze the time series data from 2000 to 2020, which consists of 21 observations. The findings demonstrate that the ample natural resources and market size of Laos have a substantial and favorable influence on the flow of Chinese FDI into Laos. Furthermore, the presence of bilateral trade between Laos and China, the level of infrastructure in Laos, and the exchange rate in Laos all have a favorable influence on Chinese FDI inflows to Laos. In this context, this research enhances the current body of knowledge on the factors that drive Chinese foreign direct investment in developing nations, especially in Laos. In addition, the findings of this study will enhance the current knowledge regarding the determinants of Chinese FDI abroad by providing support for the common argument that Chinese FDI is driven by resource-seeking and market-seeking motives.

Keywords: Foreign direct investment (FDI), natural resources, market size, Laos, Chinese FDI

1. Introduction

Several factors have a crucial role in attracting foreign direct investment (FDI) to an economy. Therefore, it is imperative for policymakers and the general public in host countries to examine and understand the factors that determine FDI. Over the past thirty years, there has been a growing focus on obtaining FDI in developing countries, including Laos, because of its significant impact on the economy. For example, capital inflows from FDI can provide an important source of financing by promoting economic growth, enhancing competition among companies in the local market, and enhancing technology capability in the long term (Buckley et al., 2015; Kyophilavong et al., 2017). Also, it can create jobs for the local people, which is important for their livelihood. Therefore, in order to reap the full benefits of FDI and lift the country from the category of Least Developing Countries (LDC) by the year 2026, Laos has been trying to attract FDI by creating favorable investment laws and business environments.

In 1986, the government of Laos reformed the economy from a centrally planned to a market-oriented. And in 1988, the government promulgated a law on FDI, which allowed 100 percent foreign ownership of investments in all

sectors. Since then, FDI inflows to Laos have increased significantly. Furthermore, in 2003 the government of Laos established Special Economic Zones (SEZs) and started to provide several special incentives for foreign investors categorized by sector, zone, and tax in order to attract more FDI. For example, from 1988 to 1999, the total amount of FDI projects amounted to USD 587 million according to World Bank statistics. The main sources of FDI in Laos are neighboring countries such as Thailand, Vietnam, and China (Kyophilavong et al., 2017). Chinese investors have constituted a large portion of this FDI influx, in which in 2007 China surpassed Thailand and Vietnam to become the top investor in Laos (Tan, 2012).

During the period examined in this paper, Chinese FDI in Laos increased from USD 9 million in 2000 to USD 2599 million in 2020 (Department of Investment, MPI, 2020) (see Figure 1 in the Appendix). There are more than 860 projects worth USD 12 billion (Ibid). Before the 2000s, Chinese FDI projects were small-scale and concentrated in northern Laos which borders with Yunnan Province of China (Onphanhdala et al., 2013; Tan, 2014). In fact, Chinese investment in Laos started to increase dramatically in the mid-2000s, after the implementation of China's "Going Out" strategy to encourage its domestic enterprises to invest overseas. Chinese FDI in Laos is often directed to natural resource sectors, such as mining and hydropower (Kyophilavong et al., 2017; Tan, 2014). However, recently Chinese FDI has shown different forms of growth, such as real estate, agriculture, and construction (Philakone, 2023; Xaysombath & Fei, 2021). Therefore, this paper aims to examine the motives and key determinants of Chinese FDI inflows to Laos over the period from 2000 to 2020.

According to Dunning's (1991) eclectic paradigm, the motivations for FDI are characterized as resource, market, efficiency, and strategic asset seeking. Kamal et al. (2019) stated that the motive to seek resources appears to be stronger than the other motives, especially in less-developed nations that have plentiful natural resources. Furthermore, multiple researchers have discovered a positive relation between market size and the influx of FDI (Dang & Nguyen, 2021; Hoang & Bui, 2015; Kyophilavong et al., 2017). This motivation is strongly influenced by the size of the host nation's market, which is tends to be substantial in countries experiencing high population and GDP growth (Saini & Singhania, 2018).

Moreover, several studies found that greater trade motivates FDI inflows (Shaari et al., 2023; Simon, 2015; Xaysombath & Fei, 2021). As trade gives the nation access to a wider market, generates resources for import and export, and raises investor expectations for significant profits in the host nation. Thus, trade has a significant impact on FDI (Kamal et al., 2019). Additionally, the level of infrastructure development in the host country attracts FDI inflows (Kaur et al., 2016; Mat & Harun, 2012). Generally, a country with good physical infrastructures such as roads, highways, bridges, ports, electric power transmission, communication, and technology, is likely to attract more FDI. Exchange rate is another significant factor that determines FDI inflows. According to Udomkerdmongkol et al. (2009), and Hušek and Pánková (2008) countries with low domestic currency can attract FDI because lowers the cost of investment to foreigners and so increases FDI (Ibid).

In this context, this paper examined the determinants of Chinese FDI inflows to Laos. It sets up five hypotheses to test and analyze the factors that influence Chinese FDI inflows to Laos. Based on the discussions above, if FDI is resource-seeking (H1), we would expect the natural resource variable to have positive coefficients. When FDI is market-seeking (H2), we would expect that it is attracted to nations with larger markets. Hence, we expect the coefficient of the market size variable to be positive. If the host nation's infrastructure (H3) has a great role to play in attracting FDI, then we

would expect that the infrastructure variable is positively related to FDI. If trade (H4) helps the nation to access a wider market and generate resources for import and export, hence, we would expect trade variables to be positively related to FDI. If the host country's currency depreciation (H5) is considered to be a significant element for the attraction of FDI, then we would expect the exchange rate to have a negative sign for FDI.

2. Methodology

2.1 Data and Variable Explanation

This research paper used time series data to analyze the determinants of Chinese FDI to Laos from 2000 to 2020, which consists of 21 observations. Most of the data are collected from the websites of the World Bank, and annual reports from the Ministry of Planning and Investment of Laos (MOPI), Bank of Laos (BOL), and Ministry of Industry and Commerce of Laos (MOIC).

The number of FDI projects undertaken by Chinese firms in Laos is the dependent variable. And the data is collected from the Ministry of Planning and Investment of Laos, and it is measured in millions of USD. The main independent variables in this study are absolute GDP, natural resources, infrastructure, trade volume between Laos and China, and exchange rate. The absolute Gross domestic product **(GDP)** variable will be used to explain the country's market size, and it is measured in current USD. Data is obtained from the World Development Indicators database (WDI) of the World Bank.

In addition, as a proxy for natural resources (**NR**), the value of total natural resources rents (natural gas rents, coal rents (hard and soft), mineral rents, and forest rents in Laos was used. The total natural resources rent is calculated in percentage of GDP. In this study, the percentage of the population using the internet will be used to explain the level of infrastructure **(INF)** in Laos. Data on Laos's infrastructure level were collected from the World Development Indicators database (WDI) of the World Bank. Furthermore, trade volume (**TRADE**) will be used as a proxy to explain the bilateral trade between Laos and China. Trade volume is measured in millions of USD. Data were collected from the Ministry of Industry and Commerce of Laos. Moreover, an exchange rate **(EX**) is calculated in the host country's currency against the U.S. dollar. Data were collected from the Bank of Laos.

2.2 Data analysis

This research paper uses Stata17 software to analyze the data. Then we made regressions by using ordinary least squares (OLS) because OLS regression allows researchers to assess the strength of the relationship between independent and dependent variables. The analysis at the univariate level involved the presentation of findings in the form of frequency tables and graphs with percentages. At the bivariate level, Pearson correlation coefficient was used to establish whether a linear relationship exists between GDP, natural resources, infrastructure, exchange rate, trade, and Chinese FDI project in Laos.

Model Specification

The specific model of the study is used to investigate the determinants of Chinese FDI in Laos, and in order to test the hypothesis mentioned above, the following econometric model is used:

$$FDI = f(natural\ resources, market\ size, infra$$
$$trade, exchange\ rate)$$

Formally, the equation of the model can be written as follows:

$$FDI_t = \beta_0 + \beta_1 NR_t + \beta_2 GDP_t + \beta_3 INF_t + \beta_4 TRADE_t + \beta_5 EX_t + \varepsilon_t \quad (2)$$

Where FDI refers to Chinese FDI projects in Laos, NR refers to the natural resources, GDP is an absolute GDP, INF is the level of infrastructure, and TRADE denotes to trade volume between Laos and China. EX is the host country's exchange rate against the U.S. dollar, t time period, β_0 is intercepted, $\beta_1 - \beta_5$ are the

coefficients of the independent variables, and ε_t is the random error.

In addition, all variables in this study will take the natural logarithm, thus, the function into logarithm takes the following form:

$$lnFDI_t = \beta_0 + \beta_1 lnNR_t + \beta_2 lnGDP_t + \beta_3 lnINF_t + \beta_4 lnTRADE_t + \beta_5 lnEX_t + \varepsilon_t \quad (3)$$

3. Results

3.1 Correlation Analysis

Table 1 presents the results of the correlation matrix between Chinese FDI and all variables used in this study. The findings indicate that, with the exception of the exchange rate variable, which has a negative correlation (-0.188) with Chinese FDI, other variables have a positive connection. The maximum value of coefficients is 0.789 between Chinese FDI and infrastructure, indicating that multicollinearity is not an issue in the model.

3.2 OLS Regression

Table 2 reports the OLS results of the determinants of Chinese FDI inflows to Laos. As can be seen from the Table, the coefficient of the natural resource variable (lnNR) has a positive influence on Chinese FDI inflow. According to the result, a 1% increase in natural resource variables would lead to about a 0.178% increase in inward Chinese FDI. Therefore, hypothesis 1 is supported for this study, meaning that natural resource in Laos is a very important motivation for Chinese investors. In other words, Chinese FDIs are directed towards countries with rich in natural resources.

Furthermore, the coefficient of market size variable (lnGDP) also has a positive influence on Chinese FDI inflow, with a 5 % rise in GDP variable increasing Chinese FDI by 3.192 %. Thus, hypothesis 2 is supported, meaning that Laos' market size is an important factor in attracting Chinese FDI.

Moreover, the finding has revealed that the level of infrastructure in Laos (lnINF) has a significant impact on Chinese FD inflows. According to the result, a 5 % increase in the infrastructure variable would lead to about a 1.112 % increase in inward Chinese FDI. Therefore, hypothesis 3 is supported, meaning that the level of infrastructure in Laos attracts Chinese FDI.

In addition, bilateral trade (lnTRADE) is statistically significant at the 1 % level in explaining Chinese FDI in Laos during the period under study, however, surprisingly, its coefficient shows a negative relationship with Chinese FDI. According to the results of this study, we can explain that the substitution effect between bilateral trade and Chinese FDI prevails over complementarity. Thus, FDI is considered an alternative way for Chinese firms to internationalize and expand in Laos and hypothesis 4 was rejected.

On the other hand, the results of the analysis showed that the exchange rate (lnEX) is significant at the 5% level in explaining Chinese FDI in Laos during the period under study, and the estimated coefficient has shown a negative sign which means that host country's currency depreciation raises inward Chinese FDI to the host country. Therefore, hypothesis 5 is supported.

4. Discussion

The findings of this paper are mostly consistent with previous studies. As previously pointed out, one of the main determinants of Chinese FDI in Laos is natural resources (lnNR). This result supports the finding of Tan (2014), Buckley et al. (2015) and Kyophilavong et al. (2017), who found that natural resources have a positive and statically significant with FDI. Furthermore, Khamphengvong et al. (2018) analyzed the determinant of FDI inflow from Asian economies to Laos during the period 1995-2015. They found that the natural resource (hydropower and mining), have a positive impact on FDI inflow. Similarly, Utesch-Xiong and Kambhampati (2022) used the Generalized Method of Moments to study the factors that influenced Chinese FDI in 43 African nations

over 11 years. They found that resource-rich African countries are the main factors to attract Chinese FDI.

In addition, the market size (lnGDP) in Laos is also one of the factors that attract Chinese FDI. Pandya and Sisombat (2017) studied the determinants of Australian direct investment in Laos and found out domestic market size attracts the FDI inflows. In line with this view, Buckley et al. (2015) argued that a large market size in the host country attracts FDI inflows. Furthermore, Dang and Nguyen (2021) investigated the determinants of FDI inflows in the ASEAN-7 countries from 1996 to 2019, by using the panel data sample with pooling, a seemingly unrelated regression, and fixed-effects models. They discovered that market size is a key factor in attracting FDI in the ASEAN-7 countries. Therefore, it is evident that fast-developing economies such as China can find new economic opportunities in these countries, especially in terms of FDI, markets, products, and exports.

An additional relevant factor that attract Chinese FDI is the level of infrastructure (lnINF). Leebouapao and Insisienmay (2019) argued that development of major cross-country transport infrastructure is expected to attract FDI. Kamal et al. (2019) discovered that there is a positive relationship between infrastructure and FDI. The analysis suggests that the provision of an adequate infrastructure base is an effective tool for stimulating FDI inflows. Moreover, Saini and Singhania (2018) investigated the determinants of FDI in developed and developing countries. The authors discovered that the main determinant of FDI in developed and developing countries is the quality of infrastructure.

Bilateral trade (lnTRADE) between China and Laos is also one of the important determinants of Chinese FDI in Laos. Vernon (1992) argued that countries that have more openness to the outside world attract more FDI. Similarly, Ang (2008) discovered a positive and significant connection between trade and FDI in Malaysia from 1960 to 2005. Moreover, Xaysombath and Fei (2021) and Philakone (2023) confirmed that there is a positive relationship between trade and FDI inflows. Furthermore, Avik Chakrabarti (2001) used the Extreme Bound Analysis (EBA) to examine the determinants of FDI, and find that trade is the main factors affecting FDI inflows.

In addition, the study found that the level of Chinese FDI in Laos is heavily influenced by the exchange rate (lnEX). The negative relation between the exchange rate and Chinese FDI is due to the fact that the host country's currency depreciation, which reduces the cost of capital investment. This result supports the finding of Baek and Okawa (2001) that reveals that a depreciation of the Asian currencies against the dollar significantly increases FDI in the export-oriented leading sectors such as chemical and electrical machinery sectors. Similarly, Hušek and Pánková (2008) and Udomkerdmongkol et al. (2009) indicated that depreciation in the host nation's exchange rate encourages the increase in FDI inflow.

5. Conclusion

Over the last three decades, the rapid growth of FDI in Laos, especially from China has been extensive. As a result, examining the factors that determine Chinese FDI in Laos has become a timely and interesting topic for research. The inflow of Chinese foreign direct investment into Laos has resulted in the emergence of extensive bodies of literature. The rationales for this investment, as well as the elements that impact it, have been examined. However, only a limited number of academics have explored the motivation behind the investment. Against this background, this paper analyzed the determinants of Chinese FDI in Laos with a specific emphasis on the motives related to resource-seeking and market-seeking. By applying the OLS and the Stata 17 to analyze the time series data from 2000 to 2020, the findings of the paper indicate that natural resources and market size have a significant positive impact on Chinese FDI inflows to Laos. Furthermore, the

presence of bilateral trade between Laos and China, the level of infrastructure, and the exchange rate, all have a favorable influence on Chinese FDI inflows to Laos.

In brief, this study has accomplished its research purpose by providing an analysis that validated the hypothesis. Moreover, this research enhances the current body of literature on the factors driving Chinese foreign direct investment in developing nations, particularly focusing on Laos. The researcher believes that the findings of this study will enhance current knowledge by providing support for the common argument that Chinese foreign direct investment is driven by resource-seeking motives and market-seeking motives. In addition, the study highlights the remarkable success of Chinese firms in investing in lower-middle-income countries such as Laos. Furthermore, the findings of this research offer useful insights to researchers, educators, and professionals who wish to investigate the factors that determine foreign direct investment in Laos.

6. Conflict of Interest

We certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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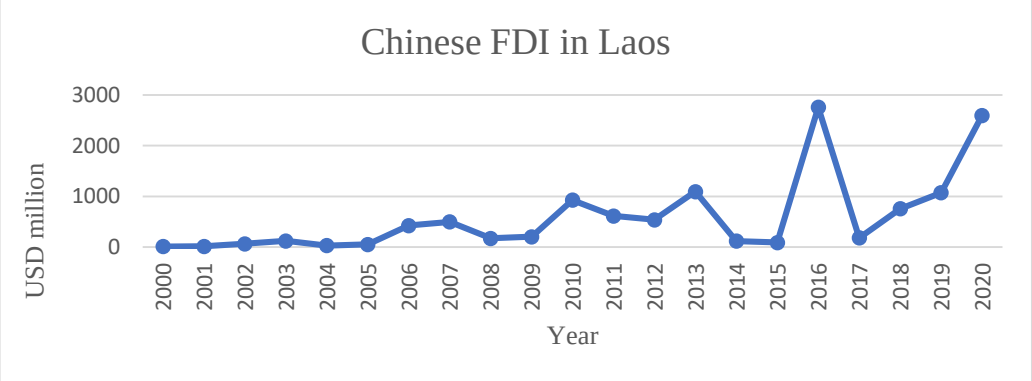
Figure 1: Number of Chinese FDI Projects in Laos between 2000 and 2020 (USD million)



Source: Department of Investment Promotion, Ministry of Planning and Investment of Laos.

Table 1: Results of correlation among independent and dependent variables

	Chines FDI	Natural resource	Market size	Infrastructure	TRADE	Exchange rate

Chines FDI	1.000					
Natural resource	0.252	1.000				
Market size	0.786	-0.050	1.000			
Infrastructure	0.789	0.018	0.970	1.000		
TRADE	0.739	0.031	0.962	0.983	1.000	
Exchange rate	-0.188	0.324	-0.266	-0.326	-0.374	1.000

Source: Author's calculations from the Stata 17

Table 2: OLS regression results of the determinants of Chinese FDI inflows to Laos from 2000 to 2020

Dependent variable: Chinese FDI			
Variable	Coefficient	Std. Err	(P>|t|)
Natural resource (NR)	0.178***	0.050	0.003
Market size (MS)	3.192**	1.165	0.015
Infrastructure (INF)	1.112**	0.555	0.064
TRADE	-2.183***	0.696	0.007
Exchange rate (EX)	-4.503**	2.142	0.053
Constant	29.370	18.622	0.136
Observations 21			
F (5, 15) = 14.16			
Prob > F = 0.0000			
R-squared = 0.8251			

Note: *P < 0.1, **P <0.05, ***P <0.01, denote significance at the 10%, 5%, and 1% levels, respectively. Source: Author's calculations from the Stata 17