Research

The Impact of China’s Foreign Direct Investment on Economic Growth of Lao PDR

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Accepted: 12 November, 2019; Online: 15 November, 2019
DOI: https://doi.org/10.5281/zenodo.3543924

Abstract: FDI is considered to be a significant factor in order to support economic growth, the inflows of foreign capital is not only creating more employment to the host countries, but it also provide a dynamic benefit to those countries in term of technological transfer. A large amount of capital comes in through these investments more and more industries are set up, and it helps to promote the international trade. The current paper attempts to analyze the impact of Chinese FDI on Laos’s economic growth. The secondary data sources were obtained from the World Development Indicators (WDI) database published by the World Bank (WB), the Bank of Laos (BOL) and the Ministry of Planning and Investment (MIP) of Laos. The study analyzes time series data from 2005 to 2018, by following independent variables including Chinese foreign direct investment, foreign exchange rate, inflation rate and interest rate. The study used correlation and multiple regression analysis techniques for data analysis. The results of the study found that China's FDI has a positive impact on the economic growth of Laos. The study recommends that the government should bring reforms in the domestic market to attract foreign direct investment in Laos.

Keywords: FDI, Economic Growth, Impact, Laos’ Economic

1. Introduction

China has been well known as one of the largest recipients of foreign direct investment (FDI) among developing countries since the mid-1990s, and a global manufacturing hub as well as the second largest investing countries in the world (UNCTAD, 2018). Despite the global slowdown of capital flow, the trends in China’s overseas investment kept a strong growth momentum with the boost of the Belt and Road Initiative, with costs more than 1 trillion US dollars in the
construction of railways, roads, bridges and ports across more than 65 countries and regions (UNCTAD, 2018).

Laos is a country in Southeast Asia, and has joined China’s Belt and Road Initiative, under the Belt and Road Initiative, making China become the biggest foreign investor in Laos, Capital inflows from Chinese foreign direct investment (FDI) to Laos accounting for 25.2 per cent of the total FDI of the country (Kang, 2019). Chinese investment in Laos are mostly in the resource-related sector, such as mining and hydropower, which two sectors constituted more than 70 per cent of total Chinese investment. From 2005 to 2018, China had over 840 projects in Laos, with a total investment of over 11 billion US dollars. The projects have created a number of generate jobs for Lao nationals. According to World Bank 2018, more than 180 Chinese business units are now doing business at the Development of Special Economic Zones (SEZs) in Laos. The SEZs helps generate jobs and incomes for Lao people, with a record of 11,000 workers in 2014 to 17,000 in 2017 (WB, 2018)

Despite Chinese investment have created job opportunities for Lao people, reduced labor migration, contributed to social activities and improved infrastructure. They are also having negative impacts on Lao people. For example¹ Laos-China Railway Project under “China’s Belt and Road Initiative”, more than 4,400 families negatively affected by the project, over 3,300 buildings and more than 3,800 hectares of land, as well as crops and trees also impacted. In addition, Chinese banana plantation negatively impacted on environment and Lao economy by using hazardous chemicals for productions. For example, in 2018, ²Chinese- owned banana firm released chemicals into a river, killed over 300 kilograms of fishes, local villagers can’t catch fish and bathe in the polluted stream. The chemical leaks from the banana plantations into the river have been blamed for this environmental catastrophe and disrupted appropriate agriculture

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in local community. On the other hand, the employment of local workers works at the Chinese plantation still receive a low wage of about 50,000 kip (about 7 US dollars) a day.

In view of the above discussion, it could be seen that China’s FDI has both positive and negative effects on Lao economy. In other words, it has both advantages and disadvantages on Lao economy. However, the net effect of China’s FDI on Laos in terms of GDP growth remains unknown since not many empirical studies have been undertaken in this regard. Therefore, the research aims to fill this knowledge gap through a case study of Lao PDR. The researcher will focus on the impact of Chinese FDI on economic growth in Laos. Will Chinese FDI inflows stimulate economic growth?. A vital question that will be elaborated in this research

2. Literature Review

2.1 Theoretical Framework

There are many theoretical papers that examine foreign direct investment (FDI) impacts on economic growth in host countries. Some literature identifies that FDI inflows can use a positive influence on economic growth through the transfer of new technology and spillover efficiency. In addition, economists believe that foreign direct investment is an important component of economic development in all country, especially in the developing countries and both governments of developed and developing countries also believed that FDI can help them get through stagnation and even circumvent the poverty trap (Brooks et al., 2010).

Theoretically, FDI is not only a source of capital funds and foreign exchange, but also a dynamic and efficient vehicle to secure the much needed industrial technology, managerial expertise and marketing knowledge and networks to improve growth, employment, productivity and export performance. FDI inflows could contribute to high level of investment and employment generation, raising productivity and skill development and sharply improve competitiveness (Mesthrie, 2008). FDI can create technological positive externalities and knowledge spillovers for the local economy (Ang, 2008). And (Rahman, 2012) mentioned the role of the foreign capitals in gaining an increased GDP rate through contribution to human resources development,
capital formation, and raising the level of competitiveness on the local market and FDI as a key source of finance for developing economies.

Foreign direct investment (FDI) triggers technology spillovers, supports human capital formation and international trade integration. FDI helps create a more competitive business environment and enhances enterprise development (Mencinger, 2003). According to the Solow economic growth model, the capital stock of the country expands due to FDI inflows, and the country would experience economic growth in the short run which is known as capital widening. On the other hand, an endogenous growth model adds a further dimension the latest technology and managerial skills in developed countries can be transferred to all countries via FDI which would also trigger productivity and economic growth in host countries.

2.2 Review of Related Literature

Bhatt (2000) examined foreign direct investment on ASEAN economy. He found that there was a positive influence of the size of the economy (GNP) on FDI inflows in Indonesia and Singapore. In addition, the investment-GNP ratio was a significant factor for FDI inflows in Malaysia, openness of the economy also was significant factor in attracting FDI for Malaysia, the Philippines, Thailand and Cambodia. (Abdullah, 2010) studied the factors of FDI into ASEAN and Latin America in the period 1980-1998. He found that the exchange rate and market sizes were factors influencing significantly on FDI flows into Latin America. Meanwhile, FDI flows into ASEAN were only affected by the exchange rate.

Alfaro, (2003), and (Sayek, 2010) analyzed FDI effects on growth in the sectors of primary, manufacturing and service. They used ordinary least square (OLS) for cross-section regressions with 47 countries and data from 1981-1999. They found that FDI in the primary sector tend to have a negative effect on growth, while the investment in manufacturing has a positive one, and evidence from the service sector was ambiguous. (Borensztein, 1997) studied the FDI effect on economic growth in a cross-country regression framework, using data on FDI flows from industrial countries in 69 developing countries over the last two decades. The findings suggest that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. However, the higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital. Thus, FDI contributes to
economic growth only when a sufficient absorptive capability of the advanced technologies is available in the host economy.

(SISOMBAT, 2008) analyzed the trend and pattern of FDI inflows to Laos by focusing on Australia’s FDI inflows to Laos. He used data from 1988-2004. He that FDI has benefited the country in terms of its contribution to the socio-economic development, foreign exchange rate earning, technological advantages, increased gross domestic product, and employment creation. (Rahman, 2010) investigated the roles of FDI impact and financial development in the process of economic development in Thailand. By using data from 1970 to 2004, the results show that financial development stimulates economic development whereas FDI impacts negatively on output expansion in the long run. However, an increased level of financial development allows Thailand to gain more from FDI, the findings suggests that the impact of FDI on output growth can be enhanced through financial development and develop financial system allow Thai’s economy to exploit more benefit from FDI.

Ewing and Yang (2009) investigated the impact of FDI in manufacturing sector on economic growth, using the data from 48 states in USA over the 1977-2001 periods. They found that the dependent variable was the growth rate of real per capita Gross State Product (GSP) whereas the main independent variable is FDI as a share of GSP. They also employ some control variables namely, investment as a share of GSP, growth rate of state employment and human capital. They estimated the regression by using panel data OLS estimation method and allowing for fixed effects for states. They clearly conclude that FDI promotes growth but the growth impact is not uniform across regions and sectors. Hence, they argued a FDI policy which takes regional differences into account. Also, they found a positive coefficient for schooling which implies, states with a higher stock of human capital grow faster and might benefit from FDI to a higher extent.

(Koojaroenprasi, 2012) explored the FDI impacts on economic growth in South Korea, by using data from 1980 to 2009. The study attempts to determine empirical impact of FDI on South Korean economy using macroeconomic variables annual time series data FDI, domestic investment, employment, export and human capital. The multiple regressions are employed in this study. He found that there is a strong and positive impact of FDI on South Korean economic
growth. Furthermore, the study indicates that human capital, employment and export also have positive and significant impact, while domestic investment has no significant impact on South Korean economic growth. The interaction effects of FDI - human capital and FDI-export indicate that the transfer of high technology and knowledge has an adverse impact on South Korean economic growth. (Kherfi, 2005) analyzed FDI and economic growth in Central and Eastern Europe (CEE) and the Middle East and North Africa (MENA). The main findings of analysis suggest that FDI has a positive effect on growth only in EU accession countries, while the effect of FDI on growth in MENA and non-EU accession countries is negative. Candidacy to EU membership is considered as a driving force for stronger commitment and more serious reforms that may have led to the positive effect of FDI on growth.

(Doku, 2017) analyzed the contribution of China’s FDI to employment generation in the building and construction sector of Ghana. By using a robust regression model, the study found that Chinese FDI flows affect employment through direct effects on building and construction sector of Ghana. Hence, the study found that FDI has positive and significant effect on employment growth. Chinese FDI contributes to an efficient workforce which benefits an economy from high productivity and leads to growth in individual household while empirical studies on the effect of Chinese FDI on economic growth in Africa are scanty, and other studies have looked at the determinants of FDI in general and its effect on economic growth.

3. An Overview of Lao Economy and FDI

After the national liberation in 1975, the government of Laos has focused on the implementation of many tasks to heal the wounds of the aggressive wars and, to improve the living conditions of the Lao multi-ethnic people. In 1986, the government adopted the New Economic Mechanism, transforming the central planned economy to a market-oriented economy, resulting in the gradually progress being recorded in the national economic development. The goal was also set for the Lao PDR to lift out from its status as a Least Developed Countries (LDC) by 2020. As such, the government opened more cooperation with many countries, and building necessary conditions to attract Foreign Direct Investment (FDI) from nearby countries and around the world. In 1988, the government induced the Foreign Investments Promotion Law. The
government offered many incentives to foreign investors: plenty of unexploited natural resources, hydropower potential, large areas of fertile agricultural land, low labor costs, socio-political stability and low political risk. As a result, except during the Asian financial crisis of the 1990s, Laos has been achieving high economic growth. Economic growth averaged about 7-8 percent over 2005–2016, faster than that in 1999–2004 (6 percent) (see figure 1). The key factors supporting the expansion of GDP growth were mainly driven by industrial and service sectors such as electricity, mining and quarrying (copper), manufacturing and agriculture (MPI). According to the Bank of Laos (BOL, 2016), service sector accounted for 42.48 percent of GDP, while industry sector accounted for 28.76 percent of GDP and agriculture sector accounted for 17.23 percent of GDP. After peaking in 2016, Lao economy declined for the second consecutive year- to 6.85 percent in 2017 and 6.47 percent in 2018 (BoL, 2018), due to the country has been affected by natural disaster, especially floods. Nevertheless, Laos’s economy remains strong, with natural resource exports such as electricity, tin, copper and gold. And additionally, the rapid economic growth in neighboring countries such as China, Thailand and Vietnam helped expand trade and investment in Laos.

Figure 1 Approved investment values and GDP growth, 2005-2018

Source: Bank of Laos (BOL), Ministry of Planning and Investment (MPI)

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4 Laos - Market Overview
https://www.export.gov/article?series=a0pt0000000PAuEAAW&type=Country_Commercial__kav
4. Research Methodology

4.1 Research Design

The secondary data sources were used to assess the impact of FDI on the economic growth in Laos. The study analyzes time series data throughout 2005-2018 for the following independent variables including foreign direct investment, foreign exchange rate, inflation rate and interest rate. The data were obtained from the World Development Indicators (WDI) database published by the World Bank, and Bank of Laos (BOL) and Laos Ministry of Planning and Investment (MIP).

4.2 Model Specification

To find the relationship between economic growth and FDI, and the study conducted a multilinear regression analysis among the variables. The specification of the regression model is as follows:

\[ GDP = C + \beta_1 CHFDI + \beta_2 CPI + \beta_3 EXR + \beta_4 INR + \epsilon \]

Where:

- \( C \) = Constant term
- \( \epsilon \) = Error term
- \( \beta_1 \ldots \beta_4 \) = Regression Coefficients
- GDP = Gross Domestic Product (GDP) (Dependent Variable)
- CHFDI = China’s Foreign Direct Investment
- CPI = Consumer Price Index (Inflation Rate)
- EXR = Exchange Rate
- INR = Interest Rate

5. Data Analysis and Interpretation

5.1 Descriptive Statistics

The study findings on GDP, Chinese FDI, foreign exchange rate, inflation rate, and interest rate are given below.
Table 1 Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min. Value</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>9.86</td>
<td>5.24</td>
<td>2.74</td>
<td>18.13</td>
</tr>
<tr>
<td>CHFDI</td>
<td>545.35</td>
<td>420.54</td>
<td>21</td>
<td>1313</td>
</tr>
<tr>
<td>CPI</td>
<td>4.3</td>
<td>2.70</td>
<td>0.03</td>
<td>7.63</td>
</tr>
<tr>
<td>EXR</td>
<td>8646.58</td>
<td>866.44</td>
<td>7660.14</td>
<td>10655.17</td>
</tr>
<tr>
<td>INR</td>
<td>10.70</td>
<td>7.64</td>
<td>3.41</td>
<td>28.54</td>
</tr>
</tbody>
</table>

The above findings in Table 1 indicate the descriptive statistics of studied variables over the period of 2005-2018. The maximum value of GDP is just 2.74 billion U.S dollars in 2005, while the maximum value of GDP is calculated at 18.13 billion U.S dollars in 2018. Furthermore, the mean of GDP and standard deviation are 9.86 billion U.S dollars and 5.24 billion U.S dollars, respectively. On the other hand, the mean of Chinese FDI is 545.35 million U.S dollars, while the standard deviation is 420.54 million U.S dollars and the minimum value is 21, and the maximum value is 1313.

The three control variables are inflation rate, exchange rate and interest rate with the mean values which are 4.3, and 8646.58, and 10.70, respectively. The standard value of inflation rate is 2.70, the minimum value is 0.03 and 7.63 is the maximum value, while the minimum and maximum value of exchange rate is 7660.14 and 10655.17. The standard value of interest rate is 7.64, the minimum and maximum value is 3.41 and 28.54.

5.2 Correlation Matrix

Table 2 Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Real GDP</th>
<th>Chinese FDI</th>
<th>Exchange rate</th>
<th>Inflation Rate</th>
<th>Interest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHFDI</td>
<td>0.9240</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPI</td>
<td>-0.6091</td>
<td>-0.5251</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXR</td>
<td>-0.6748</td>
<td>-0.6587</td>
<td>0.3479</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>INR</td>
<td>-0.6848</td>
<td>-0.7016</td>
<td>-0.0575</td>
<td>0.6106</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

The correlation matrix on Table 2 above shows that FDI is positively related to GDP.
5.3 Multiple Regression Analysis

The study conducted multiple regression analysis to determine the relationship between Chinese FDI and economic growth in Laos. The findings of the study are presented in the tables below.

Table 3 Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-square</th>
<th>Adjust R-square</th>
<th>Std. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.9599</td>
<td>0.9215</td>
<td>0.8866</td>
<td>7.25</td>
</tr>
</tbody>
</table>

The four independent variables FDI, inflation rate, exchange rate and interest rate that were studied, indicate 92.15 percent of the variance in economic growth of Laos as represented by $R^2$. It means that other factors not included in this study contribute 7.85 percent of the variance in the dependent variable.

Table 4: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Degree of Freedom (df)</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>329.23</td>
<td>4</td>
<td>82.30</td>
<td>26.40</td>
<td>0.0001</td>
</tr>
<tr>
<td>Residual</td>
<td>28.05</td>
<td>9</td>
<td>3.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>357.29</td>
<td>13</td>
<td>27.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: GDP  
b. Predictors: (Constant ), FDI, CPI, EXR, INR

The findings show that the significance value is less than 0.05, so the model is statistically considerable to predict how FDI, inflation rate, exchange rate and interest rate affect Laos’s GDP. The F calculated value is greater than the F value critical, which shows that the overall model was significant.

Table 5: Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients (Beta)</th>
<th>Standard Error</th>
<th>t-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>13.95</td>
<td>7.25</td>
<td>1.87</td>
<td>0.087</td>
</tr>
<tr>
<td>CHFDI</td>
<td>0.005</td>
<td>0.002</td>
<td>-2.60</td>
<td>0.094</td>
</tr>
<tr>
<td>CPI</td>
<td>-0.812</td>
<td>0.311</td>
<td>-0.03</td>
<td>0.029</td>
</tr>
</tbody>
</table>
From the regression findings in table 5 above, we substituted the values in the regression equation,

\[ GDP = C + \beta_1 CHFDI + \beta_2 CPI + \beta_3 EXR + \beta_4 INR + \epsilon \]

\[ GDP = 13.95 + 0.005CHFDI - 0.812CPI - 0.000EXR - 0.279INR + \epsilon \]

According to the equation, by taking all the factors i.e. FDI, inflation rate, exchange rate and interest rate constant at zero, GDP will be 13.95. The result revealed that a unit increase in Chinese FDI would lead to 0.005 rises in GDP; a unit increase in inflation rate will result in 0.812 percent increases in GDP, while a unit of exchange rate will decrease at 0.000 percent in GDP and a unit of interest rate had a 0.279 level of significance. At 5 percent level of significance and 95 percent level of confidence, FDI had a 0.094 level of significance, inflation rate had a 0.029 level of significance, exchange rate had a 0.973 level of significance and interest rate had a 0.064 level of significance.

5.4. Result Discussion

The results of the study are very interesting, and in line with the results obtained by other researchers on the relationship between economic growth and the FDI. The study of (Sekkat, 2007) found that FDI flows have significant effect on economic growth and it acts as a driving force in economic growth process. (Kherfi, 2005) found that FDI has a positive effect on growth in developing countries. (MOSIORI, 2014) found in his study that firms choose a location for investment because of the comparative advantage in terms of low inflation rates, availability of raw materials, good infrastructure, adequate labor force and low capital cost. Castilla (2005) found that employment generation is another positive impact of FDI. (Moshayedi, 2012) found that FDI allows for technology transfer and specialized knowledge which in turns favors and increase in productivity. (Arango, 2008) found that productive FDI usually results in long lasting and stable capital flows as they are invested in long term assets.

Conclusions and Recommendations
The study aims to investigate the impact of Chinese FDI on the economic growth of Laos over the period 2005-2018. The study used correlation and multiple regression analysis to determine the impact of Chinese FDI on the economic growth of Laos. The results of the study reveal that Chinese FDI has a positive impact on the economic growth of Laos. Correlation analysis also suggests that Chinese FDI and GDP are positively related to each other. Then, the findings of the study reveal that Chinese FDI positively affects the economic growth of Laos. Therefore, the study recommends that government policy makers should bring reforms in the domestic market in order to attract more Chinese FDI in Laos.

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