

FDI AND GROWTH: EVIDENCE FROM PROVINCES AND CITIES IN SOUTH EAST REGION OF VIETNAM

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(Received May 04, 2021; Accepted June 21, 2021)

Abstract - The paper uses recent panel dataset of provinces and cities in South East region of Vietnam to investigate the effects of foreign direct investment (FDI), local governance quality, state investment rate, domestic private investment rate and trade openness on economic growth. Empirical results show that an increase in foreign direct investment share to GRDP and governance capacity and quality of provincial authorities in creating a favorable business environment will significantly impulse the growth of the local economy. The private investment is found to play an important role in the economic growth of South East provinces and cities, while the impact of public investment and trade openness on economic growth of the region is found to be insignificant over the period 2015 - 2019..

Key words - Foreign Direct Investment (FDI); economic growth; South East region; local governance quality; state investment; private investment

1. Introduction

In recent years, the role of foreign direct investment in economic development has become an interesting topic in the literature on economics. In the early research, [1] and [2] presented a theory to predict that the economic growth of a country is determined by investment rate, the growth of population. In 1992, [3] provided a standard empirical specification to test the Solow model using cross-country data. [3-4] also consider the role of human capital in enhancing the process of economic growth. Later works, for example [5-6], extend the Solow model to investigate the effect of public and private investment (i.e. non-public investment) on economic growth at regional and provincial levels. According to the studies of [7-9], besides investment, the governance capacity of the host country's government (or the local government) is also an important factor determining growth. Another factor that researchers consider affecting economic development is foreign direct investment (FDI). FDI is considered as another factor affecting economic growth because it helps to supplement capital, transfer technology, increase labor productivity and expand international markets [10-14].

[15-17] analyze datasets of ASEAN countries over the period 1986-2008, 1977-2009 and 1998-2008, indicating that foreign direct investment contribute to promoting the economic growth of the countries in the studied periods. [18] argue that the impact of foreign direct investment on economic growth not only exist in the short term but also in the long term because technology transfers through foreign direct investment have a long-term effect on the total factor productivity of the host country.

However, there are also several studies showing that

foreign direct investment does not play an important role in economic development such as [19]. Other studies suggest that when the volume of foreign investment capital flowing into a country (or a locality) is too much in short term, domestic companies may not compete with the advanced production and business of FDI enterprises. This leads a negatively effect on domestic investment capital and thereby may negatively impact economic growth [20-22].

For Vietnam, research papers often investigate the impacts of FDI on economic growth on the national level using aggregate data, such as the studies of [22-24]. There are also several works of the effect of FDI on the economy at the provincial level, such as the research of [25-26] analyzing the impact of FDI on economic growth of Tra Vinh province and Khanh Hoa province. It can be seen that there have been a few studies on the regional level of Vietnam so far, especially in the South East region. For the reason, this work makes an attempt to investigate the impact of FDI on economic development of provinces and cities in South East region of Vietnam in order to partially fill in the research gap.

The rest of this paper is structured as follows: section 2 describes research models, data and estimation methods; section 3 presents empirical results and finally section 4 is the conclusions of this paper.

2. Model, data and estimation methods

Replied on the existing literature and given data availability constraints, this paper investigates the relationship between FDI and economic growth as in the following model:

$$GROWTH_{it} = \beta_1 \ln fdi_{it} + \beta_2 \ln CONTROL_{it} + \varepsilon_{it} \quad (1)$$

where i and t denote province/city in South East region of Vietnam and time indexes respectively. \ln denotes natural logarithm. $GROWTH$ denotes the growth rate of GRDP (Gross Regional Domestic Product) per capita. fdi is the share of FDI in GRDP. $CONTROL$ represents popular determinants of economic growth based on studies in the literature and is selected based on the availability of data for the provinces and cities in South East of Vietnam. Accordingly, $CONTROL$ includes: 1) The rate of state investment to GRDP (Ig); 2) The rate of domestic private investment (i.e. non-state investment) to GRDP (Ip); 3) The provincial competitiveness index (PCI) proxying local governance quality of local government; 4) The human capital ($HUMAN$); 5) Population growth (n); And 6) the share of trade in GRDP ($OPEN$) using to control the effect of economic openness of the province on growth.

Following empirical studies in the literature, e.g. [3, 10, 27], we include the initial GRDP per capita (y_0) into the growth model to control the “catch-up” effect¹.

Model (1) can be rewritten fully as follows:

$$\begin{aligned} GROWTH_{it} = & \beta_{1i} \ln fdi_{it} + \beta_{2i} \ln Ig_{it} + \beta_{3i} \ln Ip_{it} \\ & + \beta_{4i} \ln PCI_{it} + \beta_{5i} \ln HUMAN_{it} \\ & + \beta_{6i} \ln n_{it} + \beta_{7i} \ln OPEN_{it} \\ & + \beta_{8i} \ln y_{i,0} + \varepsilon_{it} \end{aligned} \quad (2)$$

The dependent variable, GROWTH, in this study is measured by the growth rate of real GRDP per capita in each province/city. Data on the real GRDP per capita is collected from Statistics Office of provinces/cities (PSO) in South East region of Vietnam. Explanatory variable fdi is measured as a ratio of FDI to GRDP, of which data on FDI is collected from annual statistical yearbooks from General Statistics Office (GSO) of Vietnam.

Data on other explanatory variables of public investment rate (Ig), and domestic private investment rate (Ip), population growth rate (n) and y_0 are collected from PSO of each province/city. Human capital ($HUMAN$) is proxied by the percentage of trained labour force at 15 years of age and above, which is collected from GSO. Openness is measured as the ratio of sum exports and import to GRDP, reflecting the trade openness of each province. Data on exports and imports is collected from General Department of Vietnam Customs. Variable of local governance, PCI , is measured by Provincial Competitiveness Indexes, collected from Vietnam Chamber of Commerce and Industry (VCCI) and the United States Agency for International Development (USAID). The index is surveyed annually by VCCI and USAID to assess the governance quality of provincial authorities in creating a favorable business environment. A province that is considered to perform well on the PCI is the one that has: 1) Low entry costs for business start-up; 2) Easy access to land and security of business premises; 3) A transparent business environment and equitable business information; 4) Minimal informal charges; 5) Limited time requirements for bureaucratic procedures and inspections; 6) Limit crowding out of private activity from policy biases toward state, foreign, or connected firms; 7) Proactive and creative provincial leadership in solving problems for enterprises; 8) Developed and high-quality business support services; 9) Sound labor training policies; And 10) fair and effective legal procedures for dispute resolution.

This study uses a sample of 6 provinces/ cities in South East region of Viet Nam, including Ba Ria – Vung Tau, Binh Phuoc, Binh Duong, Dong Nai, Tay Ninh provinces and Ho Chi Minh city, over the latest period from 2015 to 2019. Descriptive statistics of variables used in this research is clearly presented in Appendix 1, in which, noticeably, average real GRDP per capita of provinces/cities of South East region is approximately 4.3% over the period 2015-2019.

Next, we turn to discuss the estimation methods. Consider a form of a growth model as follows:

$$y_{it} = \beta'_i x_{it} + \varepsilon_{it} \quad (3)$$

where y is the dependent variable, x is a vector of observed

explanatory variables [in model (2)] and β are the slope parameters for the elements of x . In this study, the explanatory variables are assumed to be exogenous.

The model (3) is conventionally estimated by Pooled Ordinary Least Squares (POLS), Random Effects (RE) and Fixed Effects (FE) estimators [29, 30]. The POLS estimator uses a conventional least squares regression based on pooling all the observations without considering time-invariant province-specific effects, which could lead to biased estimates. This is because each province has different time-invariant specific characteristics such as climate and natural resources which may impact its economic growth.

Apart from the POLS, in the RE and FE estimators, time-invariant province-specific effects are taken into account and treated as random and fixed in the regression respectively. Therefore, the RE and FE estimators could allow the (time-invariant) variance across provinces.

The model in the RE and FE estimators have the following general form:

$$y_{it} = \beta'_i x_{it} + \mu_i + \varepsilon_{it} \quad (4)$$

where μ_i denotes province-specific effects.

According to Greene [29] and Baltagi [30], in order to choose between the FE and the RE estimator, we can run a Hausman test where the null hypothesis is that the preferred model is RE versus the alternative being FE. The null hypothesis (H_0) in Hausman test is that the error terms are uncorrelated with the regression. If the null hypothesis is rejected, the FE is the preferred estimation, and vice versa.

In this research, we use RE and FE estimators to estimate model (2) and later perform a Hausman test to choose the preferred estimator. The empirical estimation results will be presented in the next section.

3. Empirical results

The random effects (RE) estimation and fixed effects (FE) estimation results are reported in Table 1. In the RE estimation, the coefficients on the variable of ration of FDI to GRDP, fdi is positive and significant at the ten percent level; implying that foreign direct investment has a positive and significant effect on the growth of GRDP per capita in provinces and cities in South East region of Vietnam over the period 2015-2019. Similarly, the coefficients on domestic private rate, Ing , and Provincial Competitiveness Index, PCI , are also found to be positive and significant at the five and one percent level, with the elasticity of 0.02 and 0.211 respectively. This indicates that private investment rate and provincial governance quality have significant and positive effects on economic growth of South East provinces and cities. However, the public investment rate, Ig , is found to be negative and significant impact on growth in the RE estimation. With respect to the variable of population growth (n), RE estimation results shows that growth rate of population tends to increase the growth of GRDP per capita in South East region. Trade openness is found to have an insignificant effect on economic growth of South East provinces and cities in RE estimation.

¹ According to [3, 28], the coefficient on initial GDP per capital in growth models is conventionally expected to be negative. See more in [3, 27-28].

In the FE estimation, the coefficient on variable of FDI ratio to GRDP is again found to be significant and positive at the five percent level with a value 0.012. This result confirms that foreign direct investment impulses local economic development in South East region of Vietnam for the period 2015-2019. It might be explained that FDI brings external capital from abroad along with advanced management methods, knowledge and technology, helps to increase labor productivity and expands new markets; and thus it positively impacts on economic growth of provinces/cities in South East Region. Similar to the RE estimation, the variables of domestic private rate, Ing , and of provincial competitiveness index, PCI , are found to have positive and significant effects on the growth of GRDP per capita in South East provinces and cities, with the coefficient's values being 0.07 and 0.211 respectively. The coefficient on variable of population growth is negative and significant, implying that an increase in growth rate of population lead to a decrease in growth rate of GRDP per capita of provinces and cities in South East region. Variables of human capital and trade openness are found to have insignificant impacts on the process of economic growth as in RE estimation. However, different with the result in the RE estimation, variable of state investment rate is found to have an insignificant effect on economic growth.

Table 1. Empirical estimation results

	Random effects (RE)	Fixed effects (FE)
Ratio of FDI to GDP, $\ln fdi$	0.007* (0.004)	0.012** (0.004)
State investment rate, $\ln Ig$	-0.026* (0.016)	0.022 (0.017)
Domestic private investment rate, $\ln Ing$	0.020*** (0.008)	0.070** (0.027)
Provincial governance quality, $\ln PCI$	0.211** (0.107)	0.505*** (0.118)
Human capital, $\ln HUMAN$	0.003 (0.015)	0.005 (0.044)
Population growth, $\ln n$	0.017 (0.013)	-0.044*** (0.008)
Trade openness, $\ln OPENNESS$	-0.016 (0.026)	0.004 (0.021)
Initial GDP per capita, $\ln y_0$	-0.045*** (0.014)	-0.118*** (0.029)

Note: *** denotes significance at the one percent level. ** denotes significance at the five percent level. * denotes significance at the ten percent level. Standard errors are reported in parentheses. In RE and FE regressions, the reported standard errors are heteroskedasticity-robust and clustered by province. Hausman test suggests to choose the FE estimator over the RE estimator (p -value < 0.01).

As discussed in the above section, we use Hausman test to determine the preferred model between fixed and random effects. The p -value of Hausman test is found to be

lower than 0.01. It means that the null hypothesis of the Hausman test, H_0 , is rejected so the FE estimation is preferred to the RE estimation. Therefore, the results found in FE estimation are preferred² in the research.

4. Conclusion

This paper uses recent panel dataset of 6 provinces and cities, including Ba Ria – Vung Tau, Binh Phuoc, Binh Duong, Dong Nai, Tay Ninh and Ho Chi Minh city in South East region of Vietnam over the latest period, from 2015 to 2019, to investigate the effects of foreign direct investment, provincial governance quality, state investment rate, domestic private investment rate, human capital, population growth and economic openness on economic growth.

Empirical results indicate that foreign direct investment significantly and positively impact the process of economic growth in South East region of Vietnam over the period 2015-2019. This is because foreign direct investment could help the host province/city to supplement capital, transfer knowledge and technology, increase labor productivity, diversify products and expand new markets. Therefore, the positive impact of FDI on economic growth found in the empirical research suggests that the authorities should continue to develop policies and incentives that would help to attract more flows of FDI into the region. Besides, the quality of local governance, proxied by provincial competitiveness index (PCI), is also found to have significant and positive impact on growth in the region. This indicates that the governance quality of provincial authorities plays an important role in impulsing economic growth of the region.

It is noteworthy that, in the research, the investment from the state sector and the private sector is found to have different effects on economic growth. The effect of state investment rate is found to be insignificant, while private investment rate is found to have a significant and positive impact on the growth of GRDP per capita of South East region in empirical results. The results imply that the state investment in South East region of Vietnam seems to be inefficient for impulsing economic growth. This could be because resources in an economy are limited. The fact that the public sector possesses a large share of the resources (but operating and investing inefficiently) will “overwhelm” private sector investment, and thus lead to an insignificant impact on the process of growth over recent years.

The estimation result of the significant and positive effect of FDI and private investments, along with the insignificant effect of state investment on economic growth of South East region implies that the government should pay attention to improving the efficiency of the investment from the state sector, as well as creating an equally competitive environment for enterprises from both state and non-state sectors: such as stepping up the equitisation of state-owned enterprises, and allowing non-state and

² Additionally, this research conducts a joint test of time effects to check whether time fixed effects are need to be included into the FE model to check the robustness of the estimation results. We find that p -value of joint test of time effect is insignificant, implying time effects should not be included into the model. Therefore, the above FE estimation is an appropriate estimation in the research.

private enterprises to participate in industries (or services) which the state has been being monopolising.

Moreover, the fact that effects of FDI, private investment and PCI are found to have significant and positive effect on economic growth in the research strongly suggests that the local government should create more favorable conditions in terms of business environment, improve the transparency and fairness of the legal environment in order to encourage enterprises from FDI and private sectors to operate and develop.

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APPENDIX 1: Descriptive statistics

	Mean	SD	Minimum	Maximum
<i>GROWTH</i>	0.043	0.038	-0.057	0.075
Ratio of FDI to GRDP, <i>ln fdi</i>	-1.832	1.091	-3.672	0.553
State investment rate, <i>ln Ig</i>	-2.978	0.289	-3.729	-2.397
Domestic private investment rate, <i>ln Ing</i>	-2.098	0.818	-3.906	-1.210
Provincial governance quality, <i>ln PCI</i>	4.132	0.056	4.029	4.210
Human capital, <i>ln HUMAN</i>	3.017	0.340	2.542	3.614
Population growth, <i>ln n</i>	-3.978	0.613	-4.787	-2.260
Trade openness, <i>ln OPENNESS</i>	0.528	0.469	-0.497	1.099
Initial GRDP per capita, <i>ln y₀</i>	4.270	0.676	3.445	5.503