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EFFECTS OF FOREIGN DIRECT INVESTMENT ON EMPLOYMENT IN VIETNAM

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Abstract. The paper assesses the interconnections between foreign direct investment (FDI) and employment in Vietnam over the period 2010–2019. The analysis uses employing panel data of all 63 Vietnamese provinces from the General Statistics Office of Vietnam and Pooled OLS method to determine effects of FDI on employment. Findings reveal that FDI affects employment. In particular, FDI has a positive impact on employment in Vietnam in the short run and negative effects in the long run. However, the benefits of FDI on employment are considered limited. Effects of FDI are discrepant across economic sectors, in which FDI has the strongest impact on the foreign-invested economic sector. Results also show that the effects of FDI on employment in the 6 key economic regions are different.

Keywords: foreign direct investment; employment; Vietnam

JEJ code: E24, J21, P45

1 Introduction

In the context of globalization, foreign direct investment has become a trend with the figure of worldwide FDI reaching 34.628.331 million USD [1]. The question is whether, with such a huge amount, does FDI have any effect on employment in the host country? There are many studies on the effects of FDI on employment, but the results seem to be different in each country. Uddin et al. [2] pointed out that the impact of FDI on labor in Bangladesh is positive in the long run and negative in the short run. Regarding the negative impacts, the author argues that in the short run, investors hire skilled workers and fire ineffective workers, thus reducing the number of jobs. Research by Romanus Osabohien et al. [3] shows that the effect of FDI on employment is strongly positive in Nigeria. At a significant level of 5%, an increase of 1 unit of FDI leads to an increase of approximately 0,97 units in employment level. However, CBER pointed out that FDI did not seem to have made an impact on the job market in Mexico during the period of the study from 2005 to 2018 [4].

Joining the trend of globalization, Vietnam started to receive FDI in 1988. After 30 years, 18 sectors and fields have been invested in Vietnam by 111 foreign partners, which contributes to

the development of the economy [5]. According to statistics from the Ministry of Planning and Investment [6], the FDI sector contributes about 23,5% of the total social investment (nearly 20% of GDP), accounting for over 70% of export turnover. The FDI sector has attracted a large number of employees, with about 3,5 million direct workers and 4–5 million indirect workers. FDI also contributes to gradually raising the position of Vietnamese workers in terms of workmanship, work style and corporate culture, trained leaders with core skills and prestige [7].

Despite the impressive numbers in attracting workers, many studies on the effects of FDI on Vietnamese labor have shown negative results. Research by Rhys Jenkins [8] and Thai Quang Nguyen [9] show that FDI in Vietnam is often in the form of mergers or acquisitions, so there is no construction of new factories leading to no initial increase in employment. There are also disparities in the effects of FDI on unskilled and skilled workers in Vietnam, as well as differences between capital-intensive and labor-intensive professions. However, the author has not yet given any typical solution to this difference, nor has confirmed the certainty of the negative impact conclusion while FDI is still attracting a generous number of labors.

In order to fill the above research gaps, this paper aims to explore whether the impact of FDI on employment in Vietnam is positive or negative. The new points of this study are: (1) the use of data from the Statistical Yearbook of 63 provinces from 2010 to 2019. (2) Analysis of the effects of FDI and related factors such as trade openness and 6 key economic regions to find the degree of influence on labor. Instead of aggregating economic regions like the previous studies, the study specifically divides into pieces, because the amount of FDI inflows is different between regions, so the impact on labor is also relatively different. Besides, (3) the topic clearly separates the effects of the above factors on each specific sector of labor: total annual employees at 15 years of age and over; employed population aged 15 and over, employed population aged 15 and over in the state sector, employed population aged 15 and over in foreign investment sector, the ratio of trained employed population aged 15 and over (%). While the previous studies are aggregated, analyzing the effects of FDI on each part of labor in detail (eg. the employed population aged 15 and over in the State sector and the employed population aged 15 and over in the foreign investment sector) will reveal positive and negative points for different ages and forces of labors classified by different industry structures which help to provide concrete solutions to the government on policy.

2 Literature Review

Empirical studies have provided various findings on the impacts of FDI on employment. On the one hand, the positive impacts are found in many developing countries. In Ethiopia, FDI has a positive and significant effect on employment in the long run [10]. In addition, research conducted in Korea confirmed that inward greenfield FDI incurs domestic firms to increase their employment in the same industry [11]. This positive effect is observed only in the goods

(i.e., primary and manufacturing) sector and in the unclassified sector. However, in the services sector, the research has not found such a positive effect. This positive effect is also observed to be stronger when the source countries of greenfield FDI have developed countries. We have also found that the positive effect of inward greenfield FDI on local employment is greater among small-size firms. Another research aimed to estimate the impact of FDI inflow on employment [12]. Through Multiple Linear Regression Models, this research has confirmed that the FDI inflow gives a minimum contribution to increasing employment, while the time effect plays the main role in showing a positive impact of FDI inflow on employment. However, the research has some limitations. The first limitation is the unavailability of FDI official national data. The second limitation is that only one country is taken into consideration. And the third limitation is the inclusion of just three macroeconomic indicators. The analysis in India shows that FDI has a positive impact on overall employment in the factory and on the workers who get appointed on a written contract basis [13]. According to this research, FDI only has an 'immediate' impact on employment and is insignificant in producing employment for workers who do not receive such contracts and are hired on a more casual basis.

Other studies in Vietnam also show a positive effect of FDI on employment. Such as the research paper of Steenbergen which focuses on exploiting the impact of FDI on developing countries, including Vietnam [14]. Another study also points out the same result [15]. Namely, the result shows that the FDI enterprise sector has a higher employment creation capability than the domestic enterprise sector. One per cent increase in the size of capital resources leads to a higher percentage increase in employment in the FDI enterprise sector than in the local enterprise sector. However, the causes that make the FDI enterprise sector more capable in creating jobs than the domestic enterprise sector are left unexplored.

On the other hand, FDI inflows may cause either decreases or no changes in labor demand in developing countries. The regression analysis of the relationship between FDI and the quantity of employment in Shanghai [16] indicates that FDI will reduce the total employment. Even though a large number of employees are hired by foreign companies, it created still small than squeezed. Because efficient positions will take over inefficient jobs previously, that is why FDI has a negative relationship with employment quantity. On the contrary, FDI has an obvious promotion of employment quality because high-end jobs have also squeezed the existing low-end jobs, thus promoting the whole employment quality. In another research also is constructed in China, the key findings are as follows: (1) the employment rate in Chinese foreign-funded enterprises remains largely insignificant; (2) the research finds regional differences in the employment effect of FDI; (3) FDI plays a constructive role in promoting employment demand for both high- and low-skilled labor [17]. However, that role is greater in the case of high-skilled labor.

The research paper of Jenkin [8] which investigates the effects of FDI on employment in Vietnam in the 1995–1999 period also shows the negative employment impacts of FDI. According to Jenkin, although FDI firms expanded to labor-intensive industries during the 1995–1999 period, the direct impacts when they create jobs were limited due to their high productivity, and minimal value-added. While the direct employment effects of FDI were low, the indirect effects were negative due to limited connections between foreign and domestic firms and a more competitive business environment that foreign firms generated. Foreign firms mainly imported raw materials for production and displaced their domestic competitors, creating overwhelming effects. Apart from the research paper of Jenkin, the research aims at assessing the impacts of FDI on the demand for aggregate employment and employment of skilled labor in Vietnam during the 2011–2015 period also shows that the effects of FDI inflows on aggregate employment and skilled labor in Vietnam are significantly negative [9]. In terms of magnitude, the effects on the number of skilled labor are markedly more substantial than those of aggregate employment. To some extent, the negative effects on demand for skilled labor support the dependency theory on FDI in which foreign investors take advantage of unskilled labor in developing countries to expand their production. Meanwhile, skilled jobs in foreign firms could be occupied by foreigners. Besides, domestic firms prioritize recruiting less-skilled workers with lower wages paid to improve their competitiveness, which has negative impacts on the demand for skilled labor [9].

The above studies attempt to examine whether employment and net FDI inflow have long-run associations and short-run dynamics in developing countries. Despite the differences in outcomes, most of the empirical studies confirm that FDI tendentiously affects employment, but the effects on the number of skilled labor are markedly more substantial than those of aggregate employment. To conclude the literature review, one can see that FDI inflow is one of the factors as regards changes in employment, but differently in different countries and different regions. Therefore, the question that arises is whether it brings any significant changes in employment in Vietnam.

3 Data and Research methodology

3.1 Data

This study uses data from 63 provinces/cities in Vietnam for the period from 2010 to 2019. All data of the study are collected from the Statistical Yearbook of Vietnam. To ensure uniformity and reliability when performing the test, the data has been processed and transformed to match the properties of the variables in the quantitative model.

Labor (lab1, lab2, lab21, lab22, lab23) is measured as persons in number. FDI is measured in the current VND. Gross Domestic Product (GDP) is measured in VND based on the 2010 price. Trade openness (TO) is the ratio of the sum of total export and total import to GDP. All the data

Table 1. Descriptive statistics for the values of variables that have taken logarithms

Var	Obs	Mean	Std. Dev.	Min	Max
lnlab1	571	13,403	0,512	10,927	15,393
lnlab2	559	13,420	0,522	12,142	15,366
lnlab21	549	10,955	0,565	9,574	13,394
lnlab22	549	13,285	0,508	12,045	15,197
lnlab23	535	8,829	2,372	1,609	13,272
lntlab	553	2,769	0,487	0,924	4,065
lnfdi	550	6,651	2,616	-2,303	12,758
lnfdi(t-1)	524	6,681	2,650	-2,303	12,758
lngdpr(t-1)	553	10,356	0,868	8,230	13,793
lnfdi(t-2)	516	6,625	2,571	-1,609	12,758
lngdpr(t-2)	544	10,316	0,838	8,230	13,793
lnfirm	515	3,252	1,817	0,000	8,059
lngdpr	579	10,348	0,854	8,230	13,793
lnto	575	6,828	0,911	1,960	9,208
inf	590	1,007	0,013	0,921	1,116

Source: Results of data processing from GSO in 2010–2019 of the authors (2021)

is obtained from the Statistical Yearbook of 63 provinces in Vietnam issued by the General Statistics Office.

Since the variables are measured in different units, there are huge differences between the variables in terms of mean and standard of deviations, especially the important variables which are labor and FDI. To get a better standard distribution and a firm estimate, we proceeded to get the logarithm of these variables. After taking the logarithm, most of the variables in the model are evenly dispersed and more concentrated.

Observations with the value 0 (for variables lab23, fdi, firms) cannot be taken logarithms, so the study will assign the value 0 for these observations, and the observations less than 1 when taking the log will have a negative value.

2.1 Regression model

With the time series data used, the regression models that can be used include REM, FEM and Pooled OLS. To find out the most exact method for this study, we regress all 6 models with 3 types of techniques.

With model 1: $lnlab1_{it} = \alpha_1 lnfdi_{it} + \alpha_2\ 1fdi_{it} + \alpha_3 lngdpr_{itb} + \alpha_4\ 12fdi_{it} + \alpha_5\ 1gdpr_{it} + \alpha_6\ lnfirm_{it} + \alpha_7 12gdpr_{it} + \alpha_8 lnto_{it} + \alpha_9 inf_{it} + \alpha_{10} reg1_{it} + \alpha_{11} reg2_{it} + \alpha_{12} reg3_{it} + \alpha_{13} reg4_{it} + \alpha_{14} reg5_{it} + \varepsilon_{it}$

Regression results show that all 3 regression techniques give Prob > chi2 = 0.0000 < 0.05, which means all 3 regression methods can be used.

Next, to choose one of the three methods, the study conducted the Hausman test to choose between FEM and REM. The results showed that Prob > chi2 = 0.1609 > 0.05, so REM is selected.

Finally, this study uses the Breusch and Pagan Lagrangian multiplier test to check the fit degree between REM and the Pooled OLS method. The results show that Prob > chibar2 = 1.0000 > 0.05, so it is concluded that with the data used in this study, pooled OLS is the most suitable method.

Similar results for the remaining 5 models.

2.2 Model

According to Gujarati [18], a regression analysis model based on the panel data has both factors: space as i and time as t. The equation is as below:

$$Y_{it} = \beta_{1it} + \beta_{2it}\ X_{2it} + \beta_{3it}\ X_{3it} + \ldots + \beta_{kit}\ X_{kit} + u_{it} \quad (1)$$

And the estimation of equation (1) depends on the assumptions about the ordinate, the slope coefficients and the u_{it} error term. However, in this study, the author assumes to consider only the spatial change of the origin (fixed by time) and the slope coefficient does not change with space and time for the regression model pooled OLS.

Constant coefficient model has constant coefficients. In the absence of specific effects in space or time, we can aggregate all cross data and time series and run the regression model using the usual least- squares method (OLS) is also known as the Pooled OLS model. The model is as below:

$$Y_{it} = \beta_1 + \beta_2\ X_{2it} + \beta_3\ X_{3it} + \ldots + \beta_k\ X_{kit} + u_{it} \quad (2)$$

After reading and referring to [2, 11, 19, 20, 21], we study the effects of FDI inflows on employment in the socio-economic context of Vietnam by using FDI inflows and other variables that can affect labor to measure the change in employment of employees working in state-owned, non-state, foreign-invested enterprises and proportion of the trained employed population in 6 separate models. The model is as follows:

Model 1: $lnlab1_{it} = \alpha 1 lnfdi_{it} + \alpha 2 lnfdi(t\text{-}1)_{it} + \alpha 3 lngdpr_{itb} + \alpha 4 lnfdi(t\text{-}2)_{it} + \alpha 5 lngdpr(t\text{-}1)_{it} + \alpha 6 lnfirm_{it} + \alpha 7 lngdpr(t\text{-}2)_{it} + \alpha 8\ lnto_{it} + \alpha 9\ inf_{it} + \alpha 10\ reg1_{it} + \alpha 11\ reg2_{it} + \alpha 12\ reg3_{it} + \alpha 13\ reg4_{it} + \alpha 14\ reg5_{it} + \varepsilon it$

Model 2: $lnlab2_{it} = \alpha 1 lnfdi_{it} + \alpha 2 lnfdi(t-1)_{it} + \alpha 3 lngdpr_{itb} + \alpha 4 lnfdi(t-2)_{it} + \alpha 5 lngdpr(t-1)_{it} + \alpha 6 lnfirm_{it} + \alpha 7 lngdpr(t-2)_{it} + \alpha 8\ lnto_{it} + \alpha 9\ inf_{it} + \alpha 10\ reg1_{it} + \alpha 11\ reg2_{it} + \alpha 12\ reg3_{it} + \alpha 13\ reg4_{it} + \alpha 14\ reg5_{it} + \varepsilon_{it}$

Model 3: $lnlab21_{i} = \alpha 1 lnfdi_{it} + \alpha 2 lnfdi(t-1)_{it} + \alpha 3 lngdpr_{itb} + \alpha 4 lnfdi(t-2)_{it} + \alpha 5 lngdpr(t-1)_{it} + \alpha 6 lnfirm_{it} + \alpha 7 lngdpr(t-2)_{it} + \alpha 8\ lnto_{it} + \alpha 9\ inf_{it} + \alpha 10\ reg1_{it} + \alpha 11\ reg2_{it} + \alpha 12\ reg3_{it} + \alpha 13\ reg4_{it} + \alpha 14\ reg5_{it} + \varepsilon_{it}$

Model 4: $lnlab22_{it} = \alpha 1 lnfdi_{it} + \alpha 2 lnfdi(t-1)_{it} + \alpha 3 lngdpr_{itb} + \alpha 4 lnfdi(t-2)_{it} + \alpha 5 lngdpr(t-1)_{it} + \alpha 6 lnfirm_{it} + \alpha 7 lngdpr(t-2)_{it} + \alpha 8\ lnto_{it} + \alpha 9\ inf_{it} + \alpha 10\ reg1_{it} + \alpha 11\ reg2_{it} + \alpha 12\ reg3_{it} + \alpha 13\ reg4_{it} + \alpha 14\ reg5_{it} + \varepsilon_{it}$

Model 5: $lnlab23_{it} = \alpha 1 lnfdi_{it} + \alpha 2 lnfdi(t-1)_{it} + \alpha 3 lngdpr_{itb} + \alpha 4 lnfdi(t-2)_{it} + \alpha 5 lngdpr(t-1)_{it} + \alpha 6 lnfirm_{it} + \alpha 7 lngdpr(t-2)_{it} + \alpha 8\ lnto_{it} + \alpha 9\ inf_{it} + \alpha 10\ reg1_{it} + \alpha 11\ reg2_{it} + \alpha 12\ reg3_{it} + \alpha 13\ reg4_{it} + \alpha 14\ reg5_{it} + \varepsilon_{it}$

Model 6: $lntlab_{it} = \alpha 1 lnfdi_{it} + \alpha 2 lnfdi(t-1)_{it} + \alpha 3 lngdpr_{itb} + \alpha 4 lnfdi(t-2)_{it} + \alpha 5 lngdpr(t-1)_{it} + \alpha 6 lnfirm_{it} + \alpha 7 lngdpr(t-2)_{it} + \alpha 8\ lnto_{it} + \alpha 9\ inf_{it} + \alpha 10\ reg1_{it} + \alpha 11\ reg2_{it} + \alpha 12\ reg3_{it} + \alpha 13\ reg4_{it} + \alpha 14\ reg5_{it} + \varepsilon_{it}$

Where i, t denote provinces in Vietnam (i = 1, …, 63) and year (t = 2010, …, 2019)

The variables utilized in the models are described in Table 2.

Table 2. Descriptive variables

Variables	Description	Expectations
Dependent variables		
lab1	Total annual employees at 15 years of age and above, counted on 1 July, unit: persons in number.	
lab2	Annual employed population at 15 years of age and above, counted on 1 July annually, unit: persons in number	
lab21	Annual employed population at 15 years of age and above in state-owned enterprises, counted on 1 July, unit: persons in number.	
lab22	Annual employed population at 15 years of age and above in non-state enterprises, counted on 1 July, unit: persons in number.	
lab23	Annual employed population at 15 years of age and above in foreign-invested enterprises, counted on 1 July, unit: persons in number.	
tlab	Annual proportion of employed population who have been trained at 15 years of age and above, counted on 1 July, unit: percentage.	
Independent variables		
fdi	Total annual inflow of foreign direct investment (FDI) into Vietnam's provinces, calculated at current exchange rate, unit: billion VND.	+/-
fdi(t-1)	Total annual inflow of foreign direct investment (FDI) into Vietnam's provinces with one-year lag, calculated at current prices, unit: billion VND.	+
fdi(t-2)	Total annual inflow of foreign direct investment (FDI) into Vietnamese provinces with 2-year lags, calculated at current prices, unit: billion VND.	+
Control variables		
gdpr	Gross domestic product (GDP), converted into the price of the year 2010, unit: billion VND.	+
gdpr(t-1)	Gross domestic product (GDP), converted into the price of the year 2010, one-year lag, unit: billion VND.	+
gdpr(t-2)	Gross domestic product (GDP), converted into the price of the year 2010, unit: billion VND.	+
to	Trade openness, determined by the ratio between the sum of exports (exp_{it}, unit: billion VND) and imports (imp_{it}, unit: billion VND) to GDP.	+
inf	Inflation or consumer price index (CPI) growth compared to the previous month, unit: percentage	-
firm	Number of foreign-invested companies, unit: companies in number.	+
Dummy variables		
There are 6 key economic regions in Viet Nam: Northern Midlands and Mountainous; Red River Delta; North Central and South Central Coast; Central Highlands; Southeast and Mekong Delta.		
reg1	reg1 = 1 if the provinces are considered to be in the Northern Midlands and Mountainous, 0 otherwise.	+
reg2	reg2 = 1 if the provinces are considered in the Red River Delta, 0 otherwise.	-
reg3	reg3 = 1 if the provinces are considered to be in the North Central and South Central Coast, 0 otherwise.	-
reg4	reg4 = 1 if the provinces are considered to be in the Central Highlands, 0 otherwise	+
reg5	reg5 = 1 if the provinces are considered to be in the Southeast, 0 otherwise	-

Source: authors (2021)

4 Results and discussion

In Table 3, we regress employment on FDI variables and control variables. Estimation results from the baseline model show that the impacts of FDI and FDI after 1 year on employment are positive and statistically significant at the 1% level. Meanwhile, from the second year, FDI (FDI lagging 2 years) has a significant negative impact on employment with a significant level of 10% in state sector and proportion of trained employed population aged 15 and over, FDI does not have any effect on employment in other areas. Besides, GDP and inflation contribute to increasing employment, especially inflation is the factor that has the strongest impact on employment. In contrast, Red River delta and Southeast decline in employment. Trade openness, number of foreign companies, Northern Midlands and Mountains, North and South Central Coast, and Central Highlands have both positive and negative impacts on employment in Viet Nam.

The above research results are similar to previous studies such as [8, 9, 13, 16, 20].

FDI affects employment, in particular, has a positive effect on the employment of the total labor force at 15 years of age and above, employed population at 15 years of age and above, employed population in state, non - state and foreign investment sectors. FDI has the strongest impact in the foreign investment sector, followed by the total labor force at 15 years of age and above, non-state employees and employed population at 15 years of age and above at the significant level of 1%. But the positive level of FDI is considered limited because finding show that a 1% increase in the inflow of foreign direct investment to Vietnam is only capable of increasing the highest level of employment by about 0.367% with a significance of 1%, which may be due to the capital base [2].

Besides, the effect of FDI after 1 year have similarity to the impact of FDI in the current year at the significant level of 5%. Additionally, FDI did not affect state employees at first, but after 1 year it showed a positive effect. The reason might be the indirect effect of FDI on state sector. When economic growth thanks to FDI leads the state to need more human resources to serve socio-economic activities. For foreign investment sector, the first year showed the strongest impact, but from the second year, it did not affect employment.

Two–year lagged FDI has almost no effect on employment: labor force at 15 years of age and over, employed population at 15 years of age and over, the employed population at 15 years of age and above in non-state sector and foreign investment sector, negatively affecting the employed population at 15 years of age and over in state sector and percentage of trained employed population aged 15 and over at the significant level of 10%. This suggests that the maximum influence of FDI on employment seems to occur within the first year of the initial inflow, and then gradually declines thereafter. FDI does not have any sustained effects on employment generation, in order to increase the number of employments we need persistent FDI

Table 3. Impacts of FDI on employment in Vietnam

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	**lnlab1**	**lnlab2**	**lnlab21**	**lnlab22**	**lnlab23**	**lntlab**
lnfdi	0,0370***	0,0295***	-0,0116	0,0355***	0,367***	-0,0219
	(0,0113)	(0,00986)	(0,0123)	(0,0117)	(0,0411)	(0,0185)
lnfdi(t-1)	0,0199**	0,0214**	0,0257**	0,0221**	0,0208	-0,0161
	(0,00939)	(0,00889)	(0,0110)	(0,0104)	(0,0360)	(0,0122)
lngdpr(t-1)	-0,108***	-0,133***	-0,0436	-0,135***	-0,149	0,113**
	(0,0282)	(0,0270)	(0,0346)	(0,0318)	(0,110)	(0,0440)
lnfdi(t-2)	0,00690	-0,0108	-0,0225*	-0,00694	0,0516	-0,0256*
	(0,0175)	(0,00890)	(0,0130)	(0,0104)	(0,0359)	(0,0140)
lngdpr(t-2)	-0,0583**	-0,0238	0,0310	-0,0352	0,0245	0,136***
	(0,0275)	(0,0272)	(0,0274)	(0,0320)	(0,111)	(0,0379)
lnfirm	-0,126***	-0,104***	-0,0330	-0,149***	0,600***	0,105***
	(0,0211)	(0,0193)	(0,0237)	(0,0228)	(0,0801)	(0,0368)
lngdpr	0,587***	0,586***	0,607***	0,574***	0,438***	0,0672
	(0,0524)	(0,0349)	(0,0544)	(0,0409)	(0,142)	(0,0710)
lnto	0,0387	0,0580***	0,0958***	0,0639***	-0,295***	0,118*
	(0,0256)	(0,0198)	(0,0292)	(0,0233)	(0,0805)	(0,0646)
inf	2,165**	2,532**	1,662	2,935**	5,633	-0,126
	(0,887)	(1,010)	(1,472)	(1,183)	(4,086)	(1,874)
reg1	-0,155**	-0,0706	-0,138**	-0,0929	0,612***	-0,0525
	(0,0606)	(0,0515)	(0,0598)	(0,0603)	(0,208)	(0,0682)
reg2	-0,185***	-0,0810	0,00384	-0,0730	-0,406*	-0,134
	(0,0690)	(0,0516)	(0,0648)	(0,0623)	(0,216)	(0,0973)
reg3	-0,292***	-0,274***	-0,0966	-0,330***	-0,0982	0,216**
	(0,0532)	(0,0450)	(0,0588)	(0,0527)	(0,182)	(0,0859)
reg4	0,200***	0,134**	-0,0878	0,120	0,593**	-0,314***
	(0,0588)	(0,0652)	(0,0729)	(0,0762)	(0,263)	(0,0694)
reg5	-0,179**	-0,175***	-0,270***	-0,165**	-0,948***	-0,167*
	(0,0715)	(0,0642)	(0,0821)	(0,0751)	(0,259)	(0,0917)
Constant	6,803***	6,280***	2,748*	6,052***	-2,917	-1,115
	(1,107)	(1,143)	(1,623)	(1,338)	(4,629)	(2,039)
Observations	328	328	319	319	316	322
R-squared	0,655	0,814	0,706	0,734	0,830	0,269
Log Lik	-88,98	0,578	-103,1	-49,05	-439,5	-181

Standard errors in parentheses: *** p <0,01, ** p <0,05, * p <0,1

Source: Results of data processing by authors (2021)

inflows [13]. To create an environment for investment and sustainable development, governments should execute policies that include creating regulatory and legal capacity for

managing investment inflows, promoting and facilitating investment, attracting private investment in infrastructure, strengthening the links between investment and trade, and promoting responsible business conduct by multinational enterprises.

The results also show that GDP positively affects employment, in particular, GDP has positive effects on the total employed population aged 15 and over, employed population at 15 years of age and over, employed population at 15 years of age and above in state, non-state and foreign-invested sector. GDP increases, and human resources are used, taking advantage of opportunities to produce more products and services. GDP has a positive impact on the total employed population aged 15 and over but does not affect the proportion of the trained employed population aged 15 and over, this can be explained because the growth rate of employment is not comparable to the annual population growth rate.

GDP lagging 1 year has the opposite effect on current GDP when it reduces the total labor force, total employed population and non-state workers. However, after 1 year, GDP has a positive effect on the ratio of the trained employed population and this effect increases after 2 years showing the long-term impact of GDP on the percentage of the employed population. GDP lagging 2 years also shows a negative impact on total employment and the proportion of the trained employed population. In addition, GDP produces no other long-term effects on labor in economic sectors.

Besides, the increase in inflation also makes jobs increase. This result is completely consistent with The Phillips curve [22], theory shows the inverse relationship between inflation and unemployment: as unemployment decreases, inflation increases. A number of foreign companies increase employment in the foreign-invested sector and the percentage of trained employed population aged 15 and over. Given that in most developing countries, foreign investors are often advised to carry out collective social investments in the area where their firms are located [20].

Trade openness can play a key role to generate employment opportunities in the state sector, the non-state sector, the employed population at 15 years of age and above and the proportion of the trained employed population aged 15 and over. Conversely, trade openness hurts the foreign-invested sector. The reason is that the expansion of trade that causes exports in the state and non-state sectors to increase, requiring more workers to control machinery and process raw materials, while foreign-invested enterprises move towards the automation of machinery as well as the production process of products. With the increasing rate of export earnings, producers are stimulated to raise their production, so this creates more jobs [2].

Northern Midlands and Mountains showed a reduction in employment on total labor force at 15 years of age and above, employed population at 15 years of age and above in state sector; increases the number of jobs in the FDI sector. North and South Central Coast decreased total

labor force at 15 years of age and above, employed population at 15 years of age and above, drastically declined employed population in the non-state sector and increases the ratio of trained employed population aged 15 and over. The Central Highlands indicates the opposite effect compared to North and South Central Coast, rising total labor force and employed population, the strongest increase in the foreign investment sector, and a decrease in the ratio of the trained employed population. The Red River Delta and the Southeast have a decreasing trend.

The effect on employment in 6 key economic regions is different. The North and South Central Coast, The Red River Delta, The Southeast and The Mekong Delta are home to the most FDI inflows in Vietnam. FDI in Viet Nam has been concentrated in capital-intensive industries and this has limited the extent of employment creation by foreign firms [8]. Furthermore, the raw materials used by subsidiaries are imported, so they lack domestic linkages and these linkages form a siege on the local economy. Consequently, these regions are found to harm employment, especially in the foreign-invested economic sector. Meanwhile, the Northern Midlands and Mountains, and the Central Highlands have an unfavorable position in FDI inflows, thus having the effect of increasing employment.

5 Conclusion

By applying Pooled OLS model, this paper aims to find out the existence of any kind of relationship between FDI affecting the employment level of all 63 provinces in Vietnam, using time series data for 10 years ranging from 2010 to 2019. From our estimated result, FDI has a lower positive impact on employment generation in the short run. Namely, a 1% increase in the inflow of FDI to Vietnam is only capable of increasing the highest level of employment by about 0.367% with a significance of 1%. Meanwhile, from the second year, FDI has a significant negative impact on employment. We also found that the foreign-invested enterprise sector has a higher employment creation capability than the state enterprise sector and FDI has a positive indirect effect on employment growth in the state enterprise sector after one year. The reason might be the indirect effect of FDI on the state enterprise sector when economic growth thanks to FDI leads the state to need more human resources to serve socio-economic activities. FDI does not have any sustained effects on employment generation in the long run, to increase employment, we need persistent FDI inflows [13]. Besides, estimation results from the baseline model also show that the effect on employment in 6 key economic regions is different which may be due to the difference in economic development and geography. To overcome these issues, we propose following recommendations:

Firstly, the government should have policies to attract FDI continuously for a long time to take advantage of the positive effects of FDI in the first 2 years. This result is consistent with the result in [13]. In the short term, an increase in FDI invested in Vietnam will have a positive effect on job creation for employees in all three regions: state, non-state and foreign-invested.

Secondly, the government should have policies to develop labor skills. The labor force in Vietnam is abundant but a large part still is low-skilled. That's why despite a large number of jobs, the unemployment rate is still high due to the imbalances between job qualifications and job requirements. The government should encourage businesses to implement training programs for employees and interns, coordinate with relevant organizations to build training frameworks.

Moreover, the government can create more favorable conditions for greenfield FDI to prioritize job creation. With greenfield, FDI will be used to build new establishments such as new headquarters, factories and a lot of new jobs can be created for workers of every level. If FDI is in the form of mergers and acquisitions, foreign firms will take advantage of existing assets of domestic companies, which is consistent with the result of [23]. However, because FDI through mergers and acquisitions can create more jobs in the long run through higher efficiency, this type of FDI should still be approved but must be carefully considered when domestic firms find it difficult to compete with foreign-invested enterprises.

Besides, the importance lies in developing the domestic economy by encouraging state-owned and non-state enterprises. Some methods are recommended such as creating forums to listen to the difficulties and limitations of domestic businesses. Information should be published clearly and friendly access to help enterprises grasp it easily. The government should also pay attention to the labor imbalance between provinces and should have support programs for migrant workers. Support programs should focus on job placement in underdeveloped provinces. There should be social security programs for migrant workers by providing accommodation. Some other aspects which should be concentrated are legal frameworks for enterprises and controlling inflations to keep a stable economic environment.

According to the previous sections, it could be assumed that employment is affected by FDI in different directions depending on different areas of labor. In particular, FDI is related to employment and has a positive impact on total annual employees at 15 years of age and above, annual employed population at 15 years of age and above, employees in non-state and foreign-invested enterprises. In addition, the lag of FDI also has an impact on employment and has shown that FDI has only a short-term impact on employment. Other factors in the economy also have different effects on employment: trade openness, inflation and GDP. The statistical data has clearly shown that each socio-economic region also has a different impact on employment.

In conclusion, we call for a more critical view on the impacts of FDI on the Vietnamese economy. Strategic policies on attracting FDI inflows should help Vietnam increase demand for employment and improve quality of human resources.

Although the study has tried to overcome many difficulties and limitations in the research process, the fact that employment is completely affected by many other factors in the economy, it is difficult for all the factors to be reflected in the research. In addition, the data set used ranges

from 2010 to 2019, which does not clearly show the gap of the number of jobs created by FDI at this stage compared to the period of "Đổi Mới" (Renovation) when the reform policies launched in Vietnam in 1986. Besides, the research has not shown the impact of FDI on employment in different departments while in Vietnam, the majority of FDI is invested in industries. These would be the interest for further studies.

ACRONYM LIST

FDI: Foreign direct investment

OECD: Organization for Economic Cooperation and Development

CBER Centre for Business & Economic Research

GDP: Gross Domestic Product

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