POVERTY REDUCTION IN VIETNAM: THE ROLE OF FOREIGN DIRECT INVESTMENT

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Abstract - Poverty is one of the most discussed issues in the international arena and Foreign Direct Investment (FDI) has been suggested to be an important ingredient in poverty reduction. Thus, this paper examines the impacts of FDI on poverty alleviation in Vietnam. Using panel dataset covering 63 provinces of Vietnam in the period 2002-2012, the estimates of the fixed effects method indicate that FDI reduces poverty in Vietnam. Therefore, in general, integration into the world economy through FDI, benefits the poor in Vietnam.

Index Terms - Foreign Direct Investment, Poverty Reduction, Vietnam.

I. INTRODUCTION

The role of Foreign Direct Investment (FDI) has been essential in spurring economic growth and poverty reduction in developing countries, especially in the context of globalization and liberalization. Literature on FDI and economic growth suggests that there are a number of channels through which FDI permanently affects economic growth. FDI can influence output and income by increasing the stock of capital, enhancing the labor force through job creation, improving the human capital through technology and knowledge transfers via labor training, skill acquisition, new management practices and organizational arrangements [1]. All of these benefits are expected to contribute to higher economic and employment growth, which is an effective tool for achieving improvement in poverty alleviation. However, the impacts of FDI on poverty reduction depend on many factors, including the host countries' institutions and policies, the quality of the labor market, the economic environment, and the investment itself [2]-[3].Vietnam has been reasonably successful in attracting FDI since the introduction of the reform policy known as Doi Moi in 1986. According to General Statistics Office of Vietnam (GSO, [4]), from 1989 to the end of 2014, total FDI inflows to Vietnam were approximately US$ 291 billion in terms of commitments, while the implementation capital inflows were over US$ 124 billion. During this period, FDI inflows into Vietnam have played a very important role, not only in providing investment capital but also in promoting export activities as well as introducing new labor and management skills, transferring technologies and creating job opportunities. Notably, the number of people living below the poverty line in Vietnam has been considerably reduced since the opening of the country, from 58.1% in 1993 to approximately 11.1% in 2012 (Vietnam Household Living Standards Survey (VHLSS), [5]). Vietnam has achieved and in some cases surpassed many of the Millennium Development Goals (MDGs).

Although the influences of FDI on the reduction of poverty have been identified, empirical studies regarding the impact of FDI on poverty alleviation in Vietnam have not been widely conducted. In addition, research using econometric models to assess the relationship between the inflows of FDI, growth, and poverty reduction in Vietnam is lacking. This can be attributable to the limitation of data availability on FDI, poverty, as well as other determinant variables in Vietnam. However, to examine the effect of FDI as well as to introduce the policies to promote the positive impact of FDI on poverty alleviation, a regression analysis is necessary and useful. Therefore, in this study, we evaluate the impact of FDI upon poverty reduction within the context of Vietnam. Specifically, we use a panel dataset on FDI and poverty across Vietnamese provinces in the period 2002-2012.

The remaining of this study is organized as follows. Section 2 reviews the literature on the impact of FDI on poverty reduction. Section 3 discusses the research methodology and data used in the regression analysis. The empirical results are presented in section 4. Finally, section 5 draws the conclusion and proposes policies and future research.

II. REVIEW OF THE LITERATURE ON FDI AND POVERTY

FDI can impact on poverty reduction in the host country through both direct and indirect channels. The direct effect of FDI can be realized through the result of constructing new facilities or plants, acquiring equipment and supplies, and developing human capital through employee training in new business ventures. Phrased differently, the direct impact of FDI on poverty involves job creation and reduction of people living below the poverty line resulting from the increase in the demand for employment, and the improvement of workforce and safety nets. Moreover, for this channel to be efficient, the number of jobs created must be greater than the number of jobs lost as a result of FDI-related activities such as layoffs

pursuant to mergers and acquisitions, the closing of local firms, etc. FDI in a labor-intensive, pro-poor sector such as agriculture is, thus, likely to have the greatest impact on poverty alleviation [6].The increase in the return to labor in foreign-invested enterprises (FIEs) is supported through empirically studies find that FIEs generally pay higher wages to both skilled and unskilled labor than local firms [7]-[8]-[9]. Reference [10] summarized that "foreign-owned firms pay above-average wages even after controlling size, sector, trade orientation, and other characteristics of the TNCs". Likewise, using time-series data of Mauritius for the period 1980-2013, reference [11] suggested that FDI contributed to poverty reduction through the employment channel, although the magnitude of the coefficient is relatively smaller in the short run as compared to the long run.The indirect impact of FDI on poverty alleviation is through economic growth which results in the improvement of living standards due to the increase in GDP, creation of a more competitive business environment, flows of ideas and best-practice standards worldwide supporting international competitiveness and increased tax revenues from corporate profits generated by FDI. Moreover, FDI may crowd in domestic investment through backward and forward linkages further pushing economic growth. Additionally, inward FDI may induce local governments to invest in infrastructure such as roads, bridges, harbors, water and electricity supply which might facilitate domestic investment as well. For instance, by using the data on FDI received by developing countries from industrial countries only, reference [12] examined the effect of FDI on economic growth in a cross-country regression framework. They found some indications that FDI has a positive impact on economic growth, but this effect depends on the human capital stock in the host countries. The higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital. Therefore, FDI contributes to economic growth only when a sufficient absorptive capability of the advanced technologies is available in the host economy. In addition, the authors found some evidence of a "crowding-in" effect, that FDI is complementary to domestic investment.

In addition, results from other studies using the same analytical framework such as [13]-[14]-[15] supported the view that the role of FDI is important when it comes to increased economic growth in developing countries.

Reference [16] investigated that FDI, government expenditure on health and education and economic growth rate had positive and significant impact on poverty alleviation. Thus, FDI is helping in reducing the poverty level in Pakistan. Similarly, by employing panel data across 71 Russian regions from 1998 to 2008, reference [17] found that FDI reduces poverty in Russia, especially when controlling for biases that may result from autocorrelation, cross-sectional dependence, and endogeneity.With regard to the empirical studies in Vietnam, aiming to analyze the impacts of FDI on poverty reduction in Vietnam in the 1990s, reference [18] presented the indirect effects of the FDI inflow on economic growth. The estimated coefficients of FDI are statistically significant and positive based on panel data covering sixty-one provinces of Vietnam in the period 1990-2000. Moreover, FDI interacts positively with the local human capital in affecting economic growth. Economic growth is then estimated to exert significantly positive impacts on the magnitude of poverty reduction results. Consistent with the work of [18], reference [19] employed the ordinary least squares method to examine the effects of FDI on economic growth as well as the impacts of FDI and economic growth on poverty incidence of each surveyed province. The paper found that FDI has indirect impacts on poverty reduction through economic growth, which resulted in the improvement of living standards, technological progress, and productivity growth.

III. METHODOLOGY AND DATA

3.1. Description of the Variables and Data

This section presents the variables used in the econometric analysis of this study in more detail. The summary statistics for both the dependent and explanatory variables are available in Table 1. Moreover, the full description of each variable used in the analysis, as well as their sources, is found in the Appendix. In addition, this study employs a panel dataset covering 63 provinces of Vietnam in the period 2002-2012. According to VHLSS, the poverty rate data are calculated every two years. Therefore, to harmonize with the dependent variable, all the independent variables are computed on a two-year average basis.

Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
LnPOV	378	2.36	0.88	-2.81	4.06
LnFDI	378	-4.90	2.69	-10.19	1.31
LnSEC	378	0.08	0.02	0.03	0.12
LnDOI	378	-1.05	0.58	-3.52	0.72
LnTO	378	-1.28	1.25	-6.91	1.94
LnGC	378	-1.44	0.64	-3.77	0.36
LnINF	378	-2.81	2.99	-3.11	-0.99
LnTEL	378	1.65	0.69	0.03	3.76
LnPGPC	378	1.75	0.65	0.47	4.90
LnURB	378	-1.66	0.55	-2.85	-0.16

Source: Author's calculation

Poverty

For the purposes of this study, poverty is defined as the condition in which an individual's income is insufficient to purchase the adequate living standard. Specifically, the measure of poverty used throughout this analysis, available from the General Statistics Office of Vietnam (GSO), VHLSS and Ministry of Labor, Invalids and Social Affairs (MOLISA), is the percentage of the overall population whose income falls below the general poverty line, where general poverty line is defined as a minimum consumption of non-food necessities in addition to food consumption

as mentioned in the previous section. Basically, the set poverty line is used for determining social welfare and unemployment insurance from the national government to local authority as well as for the formation of the provincial budgets. In summary, this study uses a headcount poverty index that measures relative poverty.

FDI

The explanatory variable of interest in this analysis is FDI. We employ two-year average FDI inflows by province from 2002 to 2012, as its measure of FDI activity. This data is available from GSO and comprises both tangible and intangible contributions made by foreign investors to the capital of a direct investment enterprise, loans received by the direct investment enterprise from foreign investors, and any trade and other credit (including debt securities) extended to the direct investment enterprise (Ministry of Planning and Investment (MPI), 2000).

Control Variables

To examine the specific linkage between FDI and poverty, this study controls for various other determinants of poverty. The share of students enrolled in secondary education of a province or city's population (SEC) is used as a proxy for human capital. Domestic Investment (DOI), which equals the use of capital in cash or other lawful assets by domestic investors in order to carry out investment activities in Vietnam as a share of PGDP, is also included in the regression model. Moreover, the role of the public sector is proxied by the provincial government spending as a percentage of PGDP (GC). Additionally, the trade openness of the province (TO) is calculated as the sum of exports and imports as a share of PGDP. The macroeconomic stability is proxied by the inflation rate (INF), calculated as the percentage increase or decrease in the CPI from one year to the next. Using the idea of [17], the infrastructure of the province is proxied by the number of telephone lines per 1,000 people (TEL). Additionally, we insert the provincial gross domestic product per capita (PGPC) as the control variable in the regression model. The use of PGPC controls for the level of provincial development. To measure the degree of urbanization in Vietnam, the relative number of people who live in urban areas (URB) is also included in the regression model.

3.2. Econometric Methodologies

Pooled OLS

Following the idea of [17], the pooled OLS regressions are firstly employed on data by province during the period 2002-2012 with heteroskedasticity-robust errors. This model serves each value of poverty, FDI, and control variables for a given province at a given time as an independent observation. By relying on the assumption that there is no cross-sectional dependence or autocorrelation of residuals, the basic regression has the form:

$$LnPOV_{it} = \alpha + \beta LnFDI_{it} + \gamma_j LnX_{ijt} + \varepsilon_{it} \quad (1)$$

where i denotes province, t stands for time and remainder ε_{it} is the error term which is assumed to be white noised and varies over both province and time. LnPOV is the logarithm of the provincial poverty rate, LnFDI is the logarithm of FDI inflows by province, and LnX is a vector of conditioning information.

Fixed Effects

Apart from the simple OLS, this study also uses a fixed effects estimator to control for unobserved variation across provinces that remains constant over time. Therefore, this estimator handles for political factors, cultural factors, and institutional factors, among other omitted variables, that may all have an impact on the relationship between FDI and poverty and can be considered to remain fairly consistent over time. Moreover, this estimator has the distinct advantage compared to previous specification of absorbing cross-regional variation in initial conditions. The fixed effects model can be rewritten as follows:

$$LnPOV_{it} = \alpha + \beta LnFDI_{it} + \gamma_j LnX_{ijt} + v_i + \varepsilon_{it} \quad (2)$$

where v_i denotes province's unobservable individual effects. In addition, to confirm the applicability of the fixed effects model to data as compared to the random effects model, the Hausman test is employed, which takes as its null hypothesis that the time-invariant residual v_i is not correlated with any of the regressors, allowing for the use of the more efficient random effects model. As for the previous model, the regular fixed effects estimator is robust to heteroskedasticity, but otherwise dependent on the assumption that the errors are independent identically distributed (i.i.d.).

IV. EMPIRICAL RESULTS

Pooled OLS

Table 2 presents the results from the pooled OLS model with heteroskedasticity-robust errors. In the baseline specification where the logarithm of FDI is the only explanatory variable, FDI inflows enter negatively and significantly at the 1% level (column 1), suggesting that greater FDI inflows are likely linked with lower poverty.

The negative relationship between this variable and the logarithm of the poverty rate is robust to a number of sensitivity tests. First, secondary education and domestic investment are employed as controls and their coefficients are negative and statistically significant at the 1% level (column 2).

[Table 2 about here]

In columns 3, 4, and 5, controls are added for trade openness, government spending, inflation, and urban ratio as well as phone density, respectively. Consistent with the work of [20], the negative and statistically

significant estimate of trade openness indicates that high trade performance is likely to reduce the poverty rate. Government spending has strong positive effects on poverty reduction from the results of the regression. This strong effect is possible because government spending focuses largely on investment in infrastructure as well as poverty alleviation programs. This can promote economic growth and poverty reduction simultaneously. The coefficient of urban ratio is negative and statistically significant at the 1% level, indicating that the urbanization has a poverty reducing effect in Vietnam. According to [21], although Vietnam has embarked on a trajectory of rapid economic liberalization with the inception of Doi Moi, the government has also implemented a variety of policies in an attempt to foster a more even distribution of economic growth and urban development. For instance, Government Decision No. 10 (1998) on the Urban System and Development Strategy to 2020 called for the development of medium and small-sized cities while containing the growth of the largest cities. Subsequently, the Government accepted the possibility of the rise of mega-cities with populations over 10 million (Government Decision No. 445 in 2009). The 2011-2020 Socio-Economic Development Strategy de facto accepts that urbanization will be necessary to promote the country's goals of industrialization and modernization.

Notably, phone density, as a proxy for infrastructure, has no significant impact upon poverty rate (column 5). In addition, column 6 shows the result of inserting PGPC into the regression. As expected, the level of development of the region is negatively and significantly related to poverty. The coefficient on FDI inflows remains consistently negative and statistically significant at the 1% level upon the addition of these controls.

Fixed Effects

To control the possibility of region-specific effects that are time-invariant and equally inter-temporally correlated within the region, the fixed effects model is applied. This model focuses on within-region variation and the coefficients on the parameters indicate a cross-regional average of their effect on the dependent variable over time. Moreover, to check whether the random effects model is more appropriate than the fixed effects model, we employ the Hausman specification test. The null hypothesis that the region-specific error term v_i is not correlated with the regressors is repeatedly rejected, meaning that fixed effects model is more appropriate.

Next, we test for the possibility that the residuals exhibit autocorrelation using the Wooldridge (2002) test [22] for serial correlation. The results consistently suggest that there is no presence of autocorrelation across different specifications of the fixed effects regression.

Table 3: Impact of FDI Inflows on Poverty Reduction - Fixed Effects

	Dependent Variable: LnPOV			
	Fixed Effects			
	(1)	(2)	(3)	(4)
LnFDI	-0.0047*	-0.0034**	-0.0072*	-0.0078*
	(-1.74)	(-2.13)	(-1.76)	(-1.77)
LnSEC		-0.0021***	-0.0019***	-0.0015***
		(-7.03)	(-6.33)	(-5.01)
LnDOI		-0.1403*	-0.1704*	-0.1553*
		(-1.74)	(-1.83)	(-1.72)
LnTO			-0.0170*	-0.0153
			(-1.73)	(-1.73)
LnGC			-0.0300	-0.1098*
			(-0.22)	(-1.89)
LnINF			0.3622	-0.4966
			(0.67)	(-1.04)
LnTEL			0.0412	
			(0.46)	
LnPGPC				-0.8761***
				(-7.13)
LnURB			-0.6010*	-0.8082**
			(-1.67)	(-2.33)
Observations	378	378	378	378
R - squared within	0.0003	0.0816	0.1386	0.1994

Source: Author's calculation

Note: Values in parentheses are t-statistics. *, ** and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

As before, the logarithm of FDI inflows is statistically significant with a negative coefficient (Table 3, column 1). The result is robust to the inclusion of secondary education and domestic investment as control variables in column 2, as well as the addition of trade openness, government spending, inflation, phone density and urban ratio in column 3. The negative coefficient of FDI inflow remains its significance when controlling for PGPC, which significantly related to poverty (column 4). In column 2, the coefficient of secondary education is negative and statistically significant at the 1% level, suggesting that secondary school attainment has a positive impact upon poverty reduction, which is consistent with the findings of [23]. The attainment of education enhances the earning potential of individuals and consequently, the increased earnings will definitely help them to be out of poverty. Moreover, the largest coefficient of the domestic investment in absolute value suggests that the benefits the poverty gains from domestic investment are highest in comparing with the FDI and secondary education.

V. CONCLUSION

The study provides empirical evidence on the impact of FDI on poverty reduction across Vietnam provinces in the period from 2002 to 2012. The econometric methodology adopted by this research represents a significant improvement over previous works, which are weakened by various biases. The study begins with basic pooled OLS models and gradually builds up to fixed effects model, which deal with the aforementioned complications in the data. The rather consistent finding is that inward FDI flows reduce poverty across Vietnamese provinces. Therefore, the integration of Vietnam into the world economy through FDI generally benefits the poor. The results

are robust when controlling for human capital, domestic investment, trade openness, government expenditure, as well as a variety of region-specific factors by province.

In addition, the research adds tentative support to the great push for attracting FDI into Vietnam. Policies to attract FDI into Vietnam within the current context of increasing regionalization and globalization must take into account the competition of neighbors who have many features similar to Vietnam. This might be overcome through measures that improve the domestic competitive environment. In this regard, a specification of the sequence of opening the economy may be of great importance. Allowing FDI to come into different sectors and under different forms, for instance, mergers and acquisitions of moribund state-owned enterprises may benefit the country. A level playing field together with official's activities to introduce and invite foreign investors to come may then be quite useful.

Policies to promote human capital upgrading include raising public spending on education and training, enhancing cooperation between training centers and FIEs and targeting these activities more on the poor. This might be important in Vietnam since public spending on education has been declining during the reform and education has been opened more to the private sector. The resulting fact that the poor have fewer chances to upgrade their human capital implies that contribution to growth is smaller than it would be and poverty may easily increase. Therefore, well targeted policies may be necessary to enable the poor to participate in the increasingly integrated economy. Subsidies to children of poor households in participating schools should be applied wider as well as applied to training centers. Last but not least, cooperation between local training centers and FIEs in specifying learning contents should be followed, first in simple technology industries and gradually in other high-technology ones. Then the positive interaction between FDI and human capital and its resulting impact on poverty reduction might be intensified.

Some potential shortcomings of this research are that the results can be considered as a lower bound for the effect of FDI on poverty. In addition, while FDI is found to reduce poverty, the current study has not examined what influence it has upon the depth of poverty. It is likely that while reducing the absolute poverty rate, FDI has no effects upon the most indigent in society. Thus, while not obviously tested in the Vietnamese context, future work should address how the impact of FDI upon poverty varies by industrial structure, the policy regime, the level of human capital, the level of economic development, and infrastructure [17].

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Table 2: Impact of FDI Inflows on Poverty Reduction

	Dependent Variable: LnPOV					
	Pooled OLS					
	(1)	(2)	(3)	(4)	(5)	(6)
LnFDI	-0.0981***	-0.1011***	-0.0463***	-0.0411***	-0.0425***	-0.0451***
	(-6.68)	(-7.54)	(-4.06)	(-3.64)	(-3.63)	(-4.03)
LnSEC		-0.0011***	-0.0005**	-0.0003	-0.0003	-0.0003
		(-3.67)	(-2.50)	(-1.50)	(-1.50)	(-1.49)
LnDOI		-0.1983***	-0.1958***	-0.1555**	-0.1612**	-0.1496**
		(-3.29)	(-2.85)	(-2.32)	(-2.40)	(-2.27)
LnTO			-0.1582***	-0.1031***	-0.1068***	-0.1095***
			(-4.65)	(-2.96)	(-2.90)	(-3.08)
LnGC			-0.7441***	-0.6844***	-0.6929***	-0.8433***
			(-6.60)	(-6.27)	(-6.32)	(-7.05)
LnINF			0.3124	-0.5357	0.7849	1.8550
			(0.47)	(-0.79)	(0.82)	(1.21)
LnTEL					0.0391	
					(0.46)	
LnPGPC						-0.2170**
						(-2.31)
LnURB				-0.3084***	-0.3254***	-0.3584***
				(-3.78)	(-3.72)	(-4.49)
Observations	378	378	378	378	378	378
R - squared	0.091	0.198	0.410	0.430	0.431	0.436
F test	44.61	21.49	33.16	30.90	27.85	28.99
Prob>F	0	0	0	0	0	0

Appendix: Variable Definitions

Variable	Variable Definition	Source
POV	The percentage of the population below the poverty line	MOLISA, GSO
FDI	FDI inflows in Vietnam	GSO, MPI
SEC	Secondary education, general pupils (as a share of population)	GSO
DOI	Domestic investment	GSO, MPI
TO	Trade openness (sum of Exports and Imports as a percentage of PGDP)	GSO
GC	Provincial government expenditure as a fraction of PGDP	GSO
INF	Inflation rate	GSO
TEL	Number of telephone lines per 1,000 people	GSO
PGPC	Provincial gross domestic product (PGDP) per capita	GSO
URB	The number of people who live in urban areas as a share of population	GSO

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