

THE EFFECT OF FOREIGN DIRECT INVESTMENT & OFFICIAL DEVELOPMENT ASSISTANCE TO HUMAN DEVELOPMENT INDEX OF DEVELOPING COUNTRIES IN 2009-2013

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Abstract. Foreign Direct Investment (FDI) occurs when a foreign firm from particular country invest in foreign country in purpose to develop their business even more global, meanwhile Official Development Assistance (ODA) is another type of capital source that formed in loan in which will be given to the countries in DCA list. These two types of capital source have been playing important role in supporting development and human welfare in developing countries around the world. The human welfare dan development will be measured by Human Development Index (HDI) since this measurement is able to cover all aspects to measure human welfare and development in which have 3 dimensions: health that is measured by life expectancy, education that is measured by the education level achieved, and the last is the standard of living dimension that is measured by GNI per capita. The ODA inward amount alone that flow to developing countries for 2009-2013 reach the number of 700 million dollars, meanwhile the flow FDI reach the number of 5 billion dollars. This fantastic amount of money indicates that the demand for capital sources from foreign countries is still considered high. The tools that will be applied to find the effect of FDI and ODA is panel data regression analysis with purposive sampling to choose 124 countries as the samples. The findings of this research are: 1. FDI and ODA are proven to have significant effect to Human Development Index simultaneously 2. FDI and ODA are proven to have positive significant effect to Human Development Index partially with the number of R^2 reaches 99% meaning that FDI and ODA can explain strongly its variance of HDI. This research can also be useful to consider the right type of capital sources or investmet that should be taken by a country in supporting development.

Keywords: Foreign Direct Investment, Official Development Assistance, Developing Countries, Human Development Index, Statistics

Introduction

Almost all developing countries have lots of needs for capital, their domestic saving level is considered cannot cover their needs for investment in building their infrastructures. Lack of capital is known as the principal cause of the slow economic growth than the developed ones. Thus, developing countries simply will need aid and help from other countries, the aid and investment will be formed on ODA (Official Development Assistance) and FDI (Foreign Direct Investment). Therefore, this thesis will try to explain the most common form of development assistance in infrastructure and financial, which are ODA and FDI, and its effect to the development of developing countries. Besides the capital and investments matter, the dependent variable which is about development of a country will be measured with HDI or Human Development Index, and also the research that conducted HDI as its dependent variable is less than other macroeconomics indicator like GDP growth rate or exchange rate (Masud and Yontcheva, 2005). Therefore, this research will try to contemplate the effect of FDI and ODA to Human Development Index. Based on the classification by The World Bank says that the developing countries are those who have GNI per capita less than US\$ 12,616, and currently there are 140 countries that classified as developing

countries. Low- and middle-income economies are sometimes referred to as developing economies.

Research objective

Objective of the research based on the problem statements are as follow:

1. To explain the effect of Foreign Direct Investment to Human Development Index.
2. To explain the effect of Official Development Assistance to Human Development Index.
3. To give further explanation and recommendation towards the result of analysis.

Research limitation

The scope of this research is only limited to discuss about Foreign Direct Investment and Official Development Assistance in which to see their effect to Human Development Index in developing countries around the globe for the year between 2009 to 2013 only.

Literature Review

FDI and ODA as the attempts to against poverty

Developing countries are too poor to utilize the money they have for investment. This is characterized by the agricultural behavior in which production is directly used for daily consumption and therefore nothing is left for saving and investment (Chenery and Strout,1966). Thus, they will need to finance their required growth and make investments from foreign aid and loan, developing nations now is seemingly require more resources to achieve those vital goals. Moreover, many poor countries is lacking the resources to finance their development, burdened by high levels of debt, and unable to compete in the global marketplace, therefore they will need assistance from rich countries (World Bank, 2004, p. 27).

In the fight against poverty, developed countries have tried to offer various kinds of contributions to the developing countries. The three main offerings are development assistance, trade, and security, these are implemented to create effective developmental cooperation. This aid has to be provided into poor countries as the attempts for developmental programs. The purpose of ODA is to alleviating poverty, enhancing living standards, and quality of life for people in the receiver countries. With this purpose, developed nations provide ODA to poor nations in the world (Moe,2008).

Indicators that make a country attractive to be invested

The term host country and home country as explained by Hill (2011), said that home country is the country where the foreign firm come, meanwhile the host country is the country that being the host of foreign firm. For example if a firm from USA invests in China than the home country will be USA and the host country will be China. There are several eight factors that determine and help to choose the location for undertaking FDI as mentioned by Gilomre, O's Donnel, Carson, and Cummins (2003), they are as follows:

1. Knowledge and experience of foreign market
2. Size and growth of the foreign market
3. Government emphasis on FDI and financial incentives
4. Economic Policy
5. Transportation material and labor cost
6. Availability of resources
7. Technology
8. Political Stability

Previous researches and the results

Lack of managerial capital has been the main impediments for growth and also for the effectiveness in other input factors. Particularly, in small and medium enterprises, the literature about large economic development has been developed to better understand about the factors that has been the obstacle for them to grow. Moreover, the importance of input factors with the likes of capital and employee of a production function have been of explored further also by the common standard growth theories. A lot of this kind of research has focused on how the productivity is affected by labor and education (Klenow,2009). Overall, many literatures shows that FDI have a positive relationship towards economic development. In theory, economic development can stimulate the inflow of FDI with the likes of these motivations such as seeking new consumer markets, or when the development bring much benefit on economies of scale that will lead to better cost efficiency. On the other hand, FDI may affect economic development through its effect on capital stock, technology transfer, skill acquisition or market competition. (Solow,1956)

Methodology

Data Sampling

The sample size determination technique that is implemented in this research is purposive sampling, since by doing this, the author can get precise data that truly needed and can eliminate the data that would have been inhibit this research of going further. The criteria that are set in this research are:

1. Developing countries only, that is indicated by the GNI per capita that less than US\$ 12,616 as of July 1 2013.
2. The availability of the data, data of FDI,ODA,and HDI of developing countries have to be fully accessible and available from 2009 to 2013

Based on the criteria, finally the 124 countries have been chosen as the final samples for this research.

Variables and measurement

In this research, the independent variables that will be examined are Foreign Direct Investment and Official Development Assistance, these variables act as capital sources in helping developing countries to develop even further. The development itself will be measured by Human Development Index that cover multi-dimensions of human welfare and development, actually there are others variable such as GDP per capita to measure development but that variable is only limited to economic development only and not covering the human part. The research variables will be listed as follows:

- Human Development Index (Dependent)
The Human Development Index (HDI) is a measurement of three basic dimensions of human development: long and healthy life that measured by life expectancy, educational level, and the standard of living as measured by the GNI per capita.
- Official Development Assistance (Independent)
Official Development Assistance (ODA) is a type of loan that will be given on concessional terms and grants by official members of the Development Assistance Committee (DAC) ,multilateral institutions, and by non-DAC members in purpose to elevate economic development and human welfare in countries the DAC list.
- Foreign Direct Investment (Independent)
Foreign Direct Investment occurs when a company directly invest in purpose to market or to produce goods in certain industry within a foreign country.

Regression model, model testing, classic assumption

This research includes time-series and cross-section therefore this research will use data panel regression using Eviews tool. There are three test to estimate the best model for data panel regression; common effect, fixed effect, and random effect. And also, to compare which one is the best among them the Chow Test and Hausman Test will also be applied. The data panel, however, will only require multicollinearity and heteroscedasticity test as classic assumption. The output of data panel regression can be analyzed on its F-test, t-test, and the value of R².

Data Analysis

Model Testing

Firstly the researcher chooses the better model between random effect, fixed, and common uses the Hausman Test and Chow Test. The results are as follows:

Table 1. Chow Test

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	1164.757005	(123,494)	0.0000
Cross-section Chi-square	3517.482471	123	0.0000

Source: Eviews 6

The value of cross-section F above shows the value that less than 0.05, therefore with confidence level of 95% the fixed effect is chosen rather than common effect. After fixed effect has been chosen, the researcher has to choose between fixed effect and random effect using Hausman test, the result is as follow:

Table 2. Hausman Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.505234	2	0.0000

Source: Eviews 6

The value of cross-section random above is below 0.05, therefore it can be concluded that fixed effect is better than random effect to be applied.

**Classis Assumption
Multicollinearity**

Table 3. Multicollinearity result

Model	Tolerance	VIF
FDI	0.998	1.002
ODA	0.998	1.002

Source: Author

The result of multicollinearity test above shows that it is free from multicollinearity since the value of tolerance is between 0 -1 and the value of VIF is below 10.

Heteroscedasticity

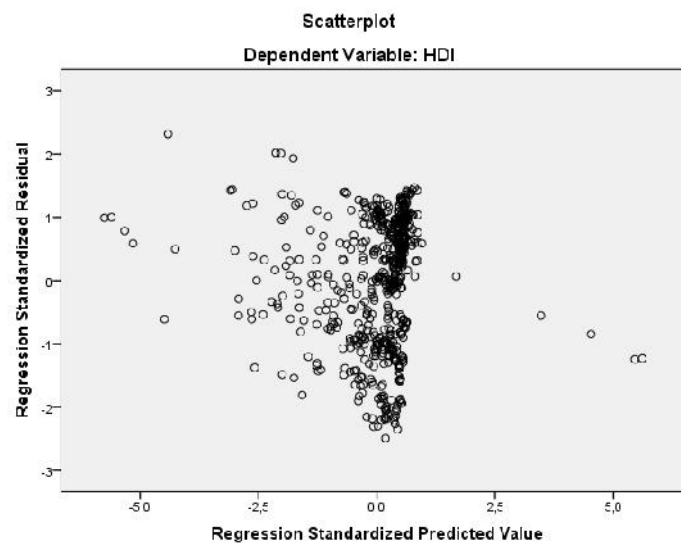


Figure 1: Heteroscedasticity Scatter Plot Test

The scatter plot above shows that the plots are concentrated in the value of 0.0 at the x axis, therefore it can be concluded that this model contains heteroscedasticity since the plots are not scattered well.

Regression Model

The result of the best model is using fixed effect, and below is the result:

Table 4. Fixed Effect

Dependent Variable: HDI				
Method: Panel Least Squares				
Date: 08/05/15 Time: 23:18				
Sample: 2009 2013				
Periods included: 5				
Cross-sections included: 124				
Total panel (balanced) observations: 620				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.604106	0.000853	707.8347	0.0000
FDI	1.95E-13	5.24E-14	3.718604	0.0002

ODA	1.85E-12	9.76E-13	1.896305	0.0585
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.997008	Mean dependent var	0.606444	
Adjusted R-squared	0.996251	S.D. dependent var	0.129989	
S.E. of regression	0.007959	Akaike info criterion	-6.649644	
Sum squared resid	0.031296	Schwarz criterion	-5.749411	
Log likelihood	2187.390	Hannan-Quinn criter.	-6.299717	
F-statistic	1316.809	Durbin-Watson stat	0.708865	
Prob(F-statistic)	0.000000			

Source: Eviews 6

The value of *prob (F-stat)* above shows the value that less than 0.05, with confidence level of 90%, we can conclude that at least one independent variable has significant effect to dependent variable. The significant effect is indicated by the value of *prob (t-stat)* that is less than 0.1, therefore with 90% level of confidence we can conclude that Foreign Direct Investment and the Official Development Assistance has significant effect to Human Development Index. However, this model can explain 99% variation that occurs in the Human Development Index variable according to R-square. However, the model above contains heteroscedasticity, and to overcome this the GLS method have to be applied according to Gujarati (2003), and then result will be as follow:

Table 5. Fixed Effect with White Test

Dependent Variable: HDI				
Method: Panel EGLS (Cross-section weights)				
Date: 08/05/15 Time: 23:30				
Sample: 2009 2013				
Periods included: 5				
Cross-sections included: 124				
Total panel (balanced) observations: 620				
Linear estimation after one-step weighting matrix				
White diagonal standard errors & covariance (d.f. corrected)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.604793	0.000375	1613.404	0.0000
FDI	1.99E-13	2.51E-14	7.911753	0.0000
ODA	8.80E-13	4.80E-13	1.831562	0.0676
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.999140	Mean dependent var	1.146418	
Adjusted R-squared	0.998923	S.D. dependent var	1.176739	
S.E. of regression	0.007935	Sum squared resid	0.031102	
F-statistic	4592.941	Durbin-Watson stat	0.911395	

Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.997002	Mean dependent var	0.606444
Sum squared resid	0.031362	Durbin-Watson stat	0.701732

Source: Eviews 6

After the GLS treatment and, the value of ODA and FDI has been changed, that indicated indeed there was heteroscedasticity problem before given the GLS method as this method make the variance of error become consistent (Novan,2009). The FDI is actually significant at the confidence level of 95% but the ODA is significant at confidence level of 90%, the researcher has making several attempts to make the ODA variable to be significant at 5% like transforming into log,ln,sqrt but the result is still the same, thus, the researcher chooses 90% level of confidence and we can conclude that Foreign Direct Investment and the Official Development Assistance has significant effect to Human Development Index. However, this model can explain 99% (based on R²) variation that occurs in the Human Development Index variable.

Result discussion

For The illustration about how exactly FDI and ODA give benefit to developing countries are as follows:

- **Resource-Transfer Effects**
FDI can open the possibility for a host country to enjoy capital, new technology, and management resources that will boost the host-country economic development. By acquiring new technologies, it can stimulate industrialization and economic development.
- **Employment Effects**
The other important effect of FDI is that it can absorb new employment pr jobs for the host country that originally cannot be created there, and this must be will increase people's standard of living and drive economic and also human development.
- **Balance-of-Payments Effects**
Government of the host-country will try to not experiencing deficit in their balance of payment. Deficit occurs when there is more goods or service imported than exporting. Therefore FDI and ODA can be useful to avoid deficit.
- **Effect on Competition and Economic Growth**
Both of FDI and ODA will surely help a lot in supporting the economic growth and to compete with other nations. For example, when greenfield FDI is taken by a foreign firm, a lot of new firm will increase the number of players in the market and also customer choice. In result, this will make the prices down and the welfare will arise. Moreover, a lot of competitors will make them to think hard how to differentiate from the other competitors that will lead to research and development, product innovation, and surely greater economic development.

Conclusion

In line with Moe (2008), Solow (1956), and Tamer (2013), Foreign Direct Investment and Official Development Assistance do have effect to development and human welfare. The data panel regression above shows that both ODA and FDI have significantt effect to Human Development Index both partially and simultaneously. And also, the correlation shows positive coefficient, therefore we can conclude that every penny of capital sources that flow into developing countries will help them to develop. For instance, FDI and ODA can be called as the trigger for human welfare and development, since it can bring many advantages like in employment absorbment, increase the

power to purchase, increase competition power, and keep avoid from deficit import. Thus, all that advantages will lead to human welfare and development in the end, like in economics, and infrastructures.

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