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THE IMPACT OF FPREIGN DIRECT INVESTMENT ON POVERTY REDUCTION : STUDY OF INDONESIA

THESIS

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The Impact of Foreign Direct Investment on Poverty Reduction : Study of Indonesia

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ABSTRACT

This research is a study about *The Impact of Foreign Direct Investment on Poverty Reduction: Study in Indonesia*. The thesis analyzes the impact of Foreign Direct Investment on poverty by using OLS (Ordinary Least Square) in period year from 1981-2010. The economic growth in Indonesia is found to have a positive and significant impact on the reduction of poverty. The inflows of FDI have positive and significant impact on the poverty reduction in Indonesia. The evidence is consistent with the assumption of the direct and indirect effects of FDI on poverty reduction.

Keywords:Foreign Direct Investment , poverty, Ordinary Least Square square

This thesis has been presented in the Thesis Examination and successfully passed the Thesis Examination on January 20, 2012

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PREFACE

In the name of Allah, the Beneficent, the Merciful. Praise and Gratitude be to Allah for giving the strength, opportunity, guidance, opportunities, and goodness given to me during the time I had been working very hard to finish my thesis with the title " The Impact of Foreign Direct Investment on Poverty Reduction: Study of Indonesia."

I understand that this thesis needs to be improved due to its weaknesses to achieve perfection. Therefore, I would gladly welcome for suggestions and critics to improve its quality. I hope that this thesis will make a valuable contribution to academicians, monetary authority, students, and readers in general.

Padang, January 2012

HERANOF AL BASYIR

ACKNOWLEDMENTS

Thanks to the blessing of Allah and writer motivation, drive and also some advice from several involved, the thesis could finally be completed. I wish to express my sincere appreciation to those persons who have contributed either directly or indirectly to this thesis. I wish the special thank to Prof. Dr. Syafruddin Karimi, SE, MA as an advisor and Dean of Economics Faculty. I spent my time for discussing and reviewing my thesis. I would have not been able to finish my thesis without his kindness. He is my favorite lecture since I entered this major. He gave me motivation and suggestions. I can't do anything without him. Next, thanks to examiners Mr. Abdul Khaliq, SE.MA and Drs Zamzami Munaf, MA for the critics, suggestion and many questions about my thesis. Then thanks to Prof. Dr. H. Firwan Tan, SE,M.Ec.DEA.Ing as a head of economics department. Edi Ariyanto, SE, M.Si as a head of international program and Febriandi Prima Putra, SE, M.Si as a head of regular program. For all lecturers in Economics Faculty especially Economics Department. For Mr. Suryadi as a staff of reading room thanks to your kindness. Last but the least thanks to bureau staff Mr.Edi, Mrs. Nel, Mrs. Sam, Mrs Nini and Mr. Ujang,.

To my mother Delviati and my father Basyiruddin I appreciate the support, encouragement, and love which you have provided. For my sister Dolla Bestina, Amd and my brother Teshar Al Basyir thanks to all the things and spirit that you have done to me. Next for lovely nephew Kirani Almira.

I want to extend a special acknowledgment to Virza Gavinda S.Si really kindness, Yulia Eka Putri SE, Kak Meri, Kak Wini, Kak Yuri, Kak Subrini and Mr. Gafari.. For my classmates Hari, Yogi, Diana, Dila, Uci abil, Tika, Sri, Mulyanis, Ocin, Uci rmd, Uciyanti, Popi, Ratih, Imel, Juju Cigin, Yolit, Lani, and Gita . I also want to thank for Nani, Lisa, Lina, Rudi, Markus, Pandu, Kuliman, and many other regular students. Next lovely BBB, thanks for support Amad, Wahyu, Erik, Yudha, Oji, Andho, Cecep, I will miss a great moment around Padang with you guys.

Finally, I am extremely thankful for Ranti Mawardi my girlfriend always guidance, support, and pray for me. Love you ndut. Good luck for you.

Padang, January 2012

HERANOF AL BASYIR

LIST OF CONTENTS

Letter of Thesis Approval ii

Abstract iii

Preface v

Acknowledgment vi

List of Contents viii

List of Graphs..... xi

List of Tables xii

CHAPTER I INTRODUCTION

1.1 Background 1

1.2 Research question 6

1.3 Research Objectives..... 6

1.4 Hypothesis 6

1.5 Limitation of the Study 7

1.6 Organization of Thesis 7

CHAPTER II LITERATURE REVIEW AND EMPIRICAL EVIDENCE

2.1 Literature Review 9

2.2 Empirical Evidence 10

CHAPTER III FOREIGN DIRECT INVESTMENT AND ECONOMIC DEVELOPMENT

3. I Foreign Direct Investment in the world 13

3.1 Foreign Direct Investment Framework in Indonesia 15

3.2 Poverty Framework in Indonesia 16
3.3 Foreign Direct Investment and Economic growth in Indonesia 18

CHAPTER IV THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

4.1 Concept of Foreign Direct Investment
4.1.1 Growth Equation 20
4.1.2 Production cycle of theory of Vernon 21

4.2 Concept of Poverty 23
4.2.1 Poverty Measurement 24
4.3 Foreign Direct Investment and Poverty Reduction 27
4.4 Research Design 29
4.5 Technique of Data Analysis
4.5.1 Stationarity Test 32
4.5.1.1 Unit root test 32
4.5.1.2 Co-integration test 33
4.6 Analysis Tools
4.6.1 Statistical test 34
4.6.1.1 t-test 34
4.6.1.2 F-test 36
4.6.1.3 Coefficient of determination (R^2) 37
4.6.2 Classical Assumption
4.6.2.1 Multicolinearity 37
4.6.2.2 Autocorrelation 38
4.6.2.3 Heteroscedasticity 40

4.7 Data Sources 40

CHAPTER V EMPIRICAL RESULT AND ANALYSIS THE IMPACT OF FOREIGN DIRECT INVESTMENT ON POVERTY IN INDONESIA

5.1 Regression Description 42

5.2 Research Finding .....

5.2.1 Unit Root Test and Integrated of Order 42

5.2.2 Regression Result Analysis 44

5.2.2.1. Growth Model Determinant..... 44

5.2.2.1.1 Statistical Result Analysis. 45

5.2.2.1.2 Goodness of Fit (R^2) 49

5.2.2.1.3 Classical Assumption Test. 51

5.2.2.2 Poverty Model Determinant 53

5.2.2.3 Estimation result .,..... 55

5.3 Policy implication 57

CHAPTER VI CONCLUSION AND RECOMMENDATION

6.1 Conclusion 60

6.2 Recommendation 61

REFERENCES 63

APPENDIX 66

LIST OF TABLE

Table 3.1 Foreign Direct Investment in the world 13

Table 3.2 Foreign Direct Investment in Asia and Australia 14

Table 4.1 Percentage of Poverty in Indonesia from 1981-2010 26

Table 4.2 Data Sources and Collecting Data 41

Table 5.1 Regression Results of Poverty Model 44

Table 5.2 The Comparison value of t statistic and t table 46

Table 5.2 The Comparison value of F statistic and F table 49

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UNTUK KEDJAJAAN BANGSA

CHAPTER I

INTRODUCTION

1.1 Background

Economic growth in each country is different. Each Country would like to growing rapidly their economics . FDI is one of the key movement of the media or the economy. Particularly in developing countries, FDI is a driving factor of economic development. FDI is suitable for those elements that can affect translate into broad-based growth. (MVlichael Klein, Aaron Carl, Michael Bita Hadji, 2001). If FDI is growing rapidly in some countries it is no doubt economic growth will also increase.

According Tulus Tambunan (2007) developing countries in Asia, Africa, and Latin America to improve conditions to attract FDI and to maximize the benefits that can be the presence of FDI in their domestic economies. They tend to increase the flow of FDI as a source of economic development, job creation, developing human capital, revenue growth, and poverty reduction. Course of the benefits of FDI is expected to come, depending on the attractiveness and the factors supporting a State is the primary basis of FDI flows. After two decades countries have to implement broad economic reforms in a broad sense reforms that began with the liberalization of their foreign trade, the domestic market, the investment regime, and privatization of state enterprises which have the effect of FDI flows.

One form of FDI realization is the establishment of multinational companies which have an important role to encourage the creation of capital and employment opportunities that are sometimes not available locally. Lipsey in Heiner Schulz (2007) said that Multinational companies have a goal to increase their productivity in the transfer of skills, technology, and management skills that enable domestic firms to compete in world markets. However, the presence of multinational companies running smoothly. There is controversy in the multinational companies. They are regularly accused of having a preference for investing in countries where the rights of working people 'civil and political rights are ignored. Most important is the intervention of the government with laws and regulations applicable in the field of investing. Harmonious relations between the government, investors, and the people needed to avoid misunderstanding each other.

Indonesia is one developing country to be reckoned with in the flow of FDI. (Khaliq and Noy, 2007) investigated that beginning 1967, the Government of Indonesia started a program of liberalization that made Investment Law No. 1. Indonesia has experienced rapid economic growth rates in subsequent years, with a number around 7.3% over the period 1970-1996. Unfortunately, Indonesia is facing the economic crisis lead to a net outflow of capital in the private sector in 1997-1998.According to Thee in Parjiono (2006) After the end of the oil boom in the 1982s, the Indonesian government take measures of deregulation in a row that aims to promote foreign and domestic investment climate.

Some other steps are deregulated in the trade sector as a strong reduction in anti-export bias of protectionist trade regime. In the end the Indonesian government cares to run the deregulation investment. Indonesian government has made effective economic policies, including policies to regulate the flow of FDI in terms of promoting it.

According to Gray &Ikhsan in Parjiono (2006) Started by stimulating exports and economic diversification is certain that will serve as a new engine of growth and a major source of non oil gas export revenues to offset the decline in oil export revenues in that period. Indonesia experienced a net outflow of FDI in the period of crisis. Most of the net outflow due to the fact that FDI inflows in the form of equity and long-term loans for projects of PMA as well as continuing privatization and banking reshuffle exceed the amount paid by the project's economic FDI. Crisis unexpected arrival and also cannot be overcome as quickly as possible. Need a lot of effort to attract FDI flows are reduced at the time when the crisis was not only Indonesia have negative impacts, developed countries would want to handle it and more concerned with post-crisis economic growth.

The Indonesian government compensated a little attention to economic development under a regime of "Old Order". The government struggled to move from colonialism to independence and political problems faced by many domestic and strength to challenge authority, no new foreign direct investment. The Government believes that FDI flows stood for important media of the transformation of abundant resources in Indonesia to promote economic development.

FDI seen to deliver the capital, technology transfer and innovation, the skills required. Indonesia-generation successor has much potential and talent that can be sharpened to make another State stunned. FDI can contribute to the development potential and reduce unemployment in Indonesia. This policy continues in most of the new era of "reform". And the government should pay attention to do it (Khaliq & Noy, 2007)

According to the National Planning Forum and the PRSP (2006) poverty is multi-dimensional problem that requiring a holistic sustainable solution eventually. In every country there are certain problems of poverty, not only in developing countries but in developed countries despite the problems of unemployment and poverty. Indonesia has experienced many challenges in poverty reduction declined. With increasing economic growth and income route is not only for poverty reduction. This should be complemented with better access to basic services, empowerment of the poor, and reducing social exclusion insecurity and vulnerability.

In absolute poverty, income inequality is a problem. Absolute poverty that may occur if the level of income below the poverty line. Measurement of absolute poverty by the Central Bureau of Statistics with the "basic needs" approach is reflected by the formation of the poverty line in 2100 calorie intake per capita per day. Globally, the measurement of income per capita of U.S. $ 1 per day. The breadth and magnitude of absolute poverty depends on two factors: the average growth rate of real per capita income and levels of inequality in income distribution.

Poverty will increase if the distribution of income per capita equivalent. Likewise, it will decrease if the distribution of income per capita equal. Indonesia's economic growth each year has increased so that proved effective in reducing poverty, although the crisis in 1997 shows the elements that are not sustainable in the pattern of development. Crisis in 1997 had a direct impact on the poor poorer. Even sharp rise in the incidence of poverty has receded with economic recovery, the increase in poverty during the crisis has left large segments of the population in vulnerable circumstances.(Indonesia Central Bureau of Statistics)

The Indonesian government has a strategy for poverty reduction. Ways that can reduce the gap is to implement an effective strategy for poverty reduction. (Indonesia Central Bureau of Statistics) an effective strategy for poverty reduction should be based on: pro-poor sustainable economic growth, inclusive social development and good governance. If the three elements that have the proper coordination and better then over time will be reduced poverty in Indonesia.

Therefore, based on that condition the researcher is interested in observing and analyzing **"The Impact of Foreign Direct Investment on Poverty Reduction: Study of Indonesia".** The researcher tries to investigate whether FDI has impact to reduce poverty in Indonesia.

The researcher also finds out how economic growth reduces poverty in Indonesia and how foreign direct investment from abroad can add the capital and create new job fields to absorb employment in order to reduce unemployment rate and poverty.

1.2 Research Question

There are several questions posted in this research:

1. How is the relationship between FDI and economic growth in Indonesia?
2. What are the impact of growth and FDI on poverty reduction in Indonesia?

1.3 Research Objectives

In this thesis, researcher tries to analyze about the direct impact of FDI on poverty reduction in Indonesia and indirect impact of FDI on poverty reduction in Indonesia. According to the literature review, the impact of FDI on poverty reduction has two effects. The indirect effect is through increasing economic growth and subsequently, and the direct effect is through FDI's direct effects on poverty. The model used to test the impact of FDI on economic growth comes from the Cobb-Douglas production function.

1.4 Hypothesis

There are some hypotheses in this research:

1. Estimates that FDI has a positive impact on economic growth in Indonesia
2. Estimates that Number of poor people who live under the poverty line in Indonesia is negatively correlated with the economic growth
3. Estimate that the increasing of the amount of FDI could decrease unemployment and poverty

1.5 Limitation of the Study

Based on the hypothesis, the scope of the study is the impact of FDI, population, GDI, GDP, employment, and government spending on poverty in Indonesia. The indirect impact of FDI on the reduction of poverty is through economic growth which results in the improvement of living standards due to the increase in GDP, improvement of technology and productivity, as well as the economic environment. The direct impact of FDI on poverty can be seen through the increase in employment and the 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.

In this research, it will use two regression analyses to evaluate the relationship between FDI and economic growth, and then the impact of growth and FDI on poverty reduction in Indonesia. This research use OLS (Ordinary Least Square), data used is time series data collected in the period from 1981 to 2010 in Indonesia

1.6 Organization of Thesis

The organization of this thesis consists of 6 chapters. The following brief content of the chapters are as follow:

Chapter I : Introduction

Chapter II : Literature Review and Empirical evidence

Chapter III : Foreign Direct Investment and Economic Development

Chapter IV : Theoretical Framework and Research Methodology

Chapter V : Empirical Result and Analysis

Chapter VI : Conclusion and Recommendation

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CHAPTER II

LITERATURE REVIEW AND EMPIRICAL EVIDENCE

2.1 Literature Review

As the guidance, researcher has searched many references related to the idea of this thesis. The data are taken from many journals and literatures. By journals, researcher catches the main ideas and also the empirical evidences from some countries that will strengthen the theory and analysis about relationship between Foreign direct investment and poverty reduction.

According to Tran Trong Bende-Nabende in Hung (2003) Foreign direct investment exactly have a direct and indirect impact on poverty reduction. Since FDI is a mutual benefit, not just investors who get the benefits but the host country must also have its positive impact depends on the agreement between both parties. Indirect impact of FDI on poverty reduction can be known through economic growth that results in the improvement of living standards due to first is an increase in GDP, second is improved technology and productivity, and economic environment. With the increase of technology that is the case then before the people that were using traditional technology, of course after the flow of FDI they will use more modern technology. The direct impact of FDI on poverty can be seen through first is an increase in employment growth and second is the reduction of people living below the poverty line the next of the increase in the demand for labor, and increased labor and safety nets. If productivity increases, the demand for labor is increasingly needed. Network of labor and safety will also be taken into account.

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Saravanamuttoo in Tran Trong Hung (2003) said that among all the various forms of contribution of FDI, which is widely believed that the most important for reducing poverty is to expand access to jobs, especially jobs productively. Many experiences in developing countries prove that employment is not sufficient is the result of low levels of investment, both foreign and domestic. More difficult if low investment may make other forms of poverty, since economic growth rate lower than the rate of population growth means that more people each year are added to the ranks of the poor. Domestic and foreign investors are potential sources for formation of capital that can support economic growth.

Dollar and Kraay (2000), using the Deninger and Squire database, he investigated that that growth tends to increase the incomes of the poor proportionately with overall growth. Thus, economic growth is the most important single influence factor of poverty reduction. Because if the economic growth of a country casual or decrease the decline in poverty rates actually increased as well. Increased economic growth after the flow of FDI will increase people's income.

2.2 Empirical evidence

FDI is not only growing rapidly in developing countries like China, ASEAN countries were the main attraction of investors. It's just an example of FDI to Indonesia, Malaysia and the Philippines have a positive relationship with growth, while for Singapore and Thailand have a negative relationship. State of Singapore and Thailand began independently to maintain its domestic investment.

Then the two countries have a negative relationship to FDI. They have to say that ASEAN countries leading and independent. Furthermore, the results exposed that FDI promote economic growth in ASEAN countries mostly through labor and human capital (Bende-Nabende, 1998)

(Trang Trong Hung, 2003) observed that FDI inflows in the province found a positive effect on economic growth and significant in Vietnam. Economic growth each provincial level were found to have a positive and significant impact on poverty reduction in Vietnam. FDI inflows have a positive and significant impact directly and strongly on the reduction of poverty in a province in Vietnam by using panel data from 1998-2002. The government managed to reduce poverty in each province, this indicates that the distribution of revenue receipts have positive relationship also in Vietnam. (The Economist International Unit, 2011) said that Vietnam joined the World Trade Organization (WTO) in January 2007, a development that should bring about much change for the benefit of foreign investors and increase the attractiveness of Vietnam as an investment destination.

Not only Asia, but also developing countries in Africa such as Nigeria gets a part, and Abachi Ayashagba in I. J. Okpe and G.A. Ash (2009) found that the entry of foreign private investment and foreign loans to reduce poverty in Nigeria. Foreign direct investment has contributed in the development aspirations of their host country if they could release some of their profit levels for projects that improve the living standards of their host countries. "Nigeria is a country without many natural resources compared to Indonesia is also able to move their economy through the flow of FDI.

Countries of Asia and Africa are two countries that feel the positive and negative impacts of FDI flows, but in Latin America, Cesar C. Marco A. Calvo Hernandez (2006) found that the view of the lack of capital as a factor influencing poverty, and therefore FDI as a potential contributor to poverty alleviation by using panel data from 20 Latin American countries. Both domestic and foreign investment was found to be significant determinants of changes in poverty. FDI is often seen as a strategic complement to local activities. On the other hand, as far as poverty reduction is concerned, the necessary qualifications. Policies designed to attract FDI to the host country does not guarantee maximize the economic benefits derived from the presence of multinational enterprises (MNEs) general policy aims to improve the fundamentals so as to absorb the waste. Between education and training is still needed. Poverty is the result of unemployment, if unemployment is reduced, too, of course, poverty is reduced.

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CHAPTER III

3. I FDI inflows in the world

In this era of increasingly globalized world economy, FDI is a particularly significant driving force behind the interdependence of national economies

Table 3.1 FDI inflows in the world based on rank (US$ bn)

country	US$ bn	Rank	% of world total		country	US$ bn	Rank	% of world total
US	250.9	1	16.75		Finland	5.7	42	0.38
UK	112.9	2	7.54		Czech Republic	5.4	43	0.36
China	86.8	3	5.79		Hungary	5.1	44	0.34
France	78.2	4	5.22		New Zealand	5.0	45	0.34
Belgium	71.6	5	4.78		Ukraine	4.9	46	0.33
Germany	66.0	6	4.41		Algeria	4.7	47	0.32
Canada	63.2	7	4.22		Austria	4.0	48	0.27
Hong Kong	48.0	8	3.20		South Africa	3.2	49	0.21
Spain	44.9	9	2.99		Qatar	3.1	50	0.21
Italy	41.6	10	2.77		Pakistan	2.9	51	0.19
Netherland	38.5	11	2.57		Serbia	2.8	52	0.19
Australia	37.8	12	2.52		Bulgaria	2.6	53	0.17
Russia	31.4	13	2.10		Croatia	2.6	54	0.17
Brazil	27.5	14	1.84		Philippines	2.4	55	0.16
Singapore	27.1	15	1.81		Slovakia	2.2	56	0.15
Sweden	26.1	16	1.74		Jordan	2.1	57	0.14
Mexico	22.7	17	1.51		Nigeria	2.1	58	0.14
India	20.4	18	1.36		Peru	2.0	59	0.14
Ireland	20.3	19	1.35		Angola	1.9	60	0.12
Turkey	20.0	20	1.33		Tunisia	1.8	61	0.12
Switzerland	18.2	21	1.22		Libya	1.6	62	0.11
Japan	13.3	22	0.89		Azerbaijan	1.6	63	0.11
UAE	12.8	23	0.85		Dominican Republic	1.6	64	0.10
Poland	12.6	24	0.84		Morocco	1.5	65	0.10
Chile	10.9	25	0.73		Greece	1.5	66	0.10
Portugal	9.1	26	0.61		Ecuador	1.5	67	0.10
Thailand	8.9	27	0.59		Estonia	1.4	68	0.09
Denmark	8.2	28	0.55		Cyprus	1.3	69	0.08
Saudi Arabia	7.9	29	0.52		Lithuania	1.2	70	0.08
Romania	7.7	30	0.51		Latvia	1.0	71	0.07
South korea	7.2	31	0.48		Slovenia	1.0	72	0.07
Taiwan	7.1	32	0.47		Venezuela	1.0	73	0.07
Israel	7.0	33	0.47		Costa Rica	1.0	74	0.07
Malaysia	6.8	34	0.45		Bahrain	1.0	75	0.06
Kazakhstan	6.7	35	0.45		Bangladesh	0.7	76	0.05
Indonesia	6.6	36	0.44		El Salvador	0.6	77	0.04
Argentina	6.5	37	0.44		Cuba	0.5	78	0.04
Vietnam	6.5	38	0.44		Kuwait	0.4	79	0.03
Norway	6.4	39	0.43		Iran	0.4	80	0.02
Colombia	6.3	40	0.42		Sri Lanka	0.3	81	0.02
Egypt	6.0	41	0.40		Kenya	0.1	82	0.01

Source: Economist Intelligence Unit

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The strong global performance affect in large part the increasing weight of fast increasing emerging markets, especially China and India. Another reason is to expect continued growth in FDI include the ongoing global trend towards better business environments; technological change and the search for competitively priced skills; and sharper global competition that will move forward from companies to growth through acquisitions or seek lower cost destinations (The Economist Intelligence Unit, 2011).

Table 3.2 FDI inflows (% of GDP) in Asia &Australia

Country	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	4.1	1.5	5.7	-4.9	3.3	4.7	4.2	4.5	4.7	4.8
Bangladesh	0.1	0.5	0.8	1.4	1.0	1.0	0.9	0.9	0.8	0.9
China	3.4	2.9	2.8	3.5	2.0	2.4	2.2	1.9	1.7	1.5
Hong Kong	5.9	8.6	20.5	18.9	22.6	24.6	22.2	20.6	18.3	16.4
India	1.1	0.7	0.8	0.8	1.9	1.5	1.4	1.3	1.3	1.3
Indonesia	0.1	-0.3	0.7	1.8	2.1	1.4	1.3	1.2	1.2	1.2
Japan	0.2	0.1	0.2	0.1	-0.2	0.3	0.2	0.2	0.2	0.3
Malaysia	3.4	2.4	3.9	1.0	4.1	3.7	3.1	3.0	3.0	3.1
New Zealand	2.9	3.1	2.9	1.6	7.8	4.7	4.0	4.1	4.2	4.4
Pakistan	1.1	0.6	1.1	2.0	3.3	2.0	1.7	1.6	1.6	1.6
Philippines	2.0	0.6	0.8	1.1	2.0	1.6	1.6	1.5	1.3	1.2
Singapore	8.2	11.2	13.8	17.2	19.5	17.7	15.7	16.2	15.8	15.4
South Korea	0.4	0.6	1.4	0.8	0.4	0.5	0.6	0.6	0.6	0.7
Sri Lanka	1.2	1.3	1.2	1.2	1.8	0.9	0.8	0.8	0.9	0.9
Taiwan	0.5	0.2	0.6	0.5	2.1	2.0	1.7	1.5	1.5	1.6
Thailand	2.6	3.7	3.6	5.1	4.7	3.5	3.4	3.5	3.2	3.0
Vietnam	4.0	3.7	3.6	3.7	6.7	6.3	7.4	7.5	6.9	6.2

Source: Economist Intelligence Unit

From the table, from year of 2005 to 2006 Indonesia FDI inflows is increase as much 0.3%, from 2007 was decrease as much 0.1 % and from 2009-2011 the inflows of FDI was stagnant.

According to DBS Group Research (2011) Aside from public investment, Indonesia is must be encouraging the private sector to participate in infrastructure construction. The government has been operational with international organizations in recent years to recommend financial incentives for private investors' commitment in PPP (public-private partnership) projects, such as establishing the Indonesia Infrastructure Financing Facilities and Indonesian Infrastructure Guarantee Fund.

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3.1 Foreign Direct Investment Framework in Indonesia

Investment in Indonesia is regulated primarily by the New Investment Law No.25 of 2007 (April 26, 2007) ("Law 07/25") .1 Law 25/07 integrates previous investment law and its implementing regulations to some extent, but transactions with several obstacles regularly cited by foreign investors doing business in this country. Law 25/07 introduces new issues such as Corporate Social Responsibility and Dispute Settlement mechanism. Law 25/07 also introduced one-door integrated services in accordance with the licensing process. (INA, 2011).Furthermore, Law 25/07 counties and cities provide the right, authority and duty to regulate and manage their own investment agreement taking into account the interests of local communities.

Law 25/07 also offers every investor the same treatment with the reform of the bureaucracy in the ministry of investment and fiscal incentives. This shows the government's efforts to obtain a more transparent investment climate. From 1967 and until now the government of Indonesia to try to make changes to encourage foreign investors with an investment of 07.25 set a new Act (INA, 2011).

3.2 Framework of Poverty in Indonesia

Poverty reduction has always been the main agenda of the Indonesian government development. It took the administration of Suharto (1965-1997), Habibie's administration (1997-1998), Megawati's administration (2000-2005), and Susilo Bambang Yudhoyono (2005-present). Law No.25 of 2000 on National Development Program (PROPENAS) mandates the government of Indonesia to reduce poverty at 14 percent at the end of 2004 (Indonesia Central Bureau of Statistics).

With the size of global poverty, such as income per capita of U.S. $ 1 per day, percentage of poor people in Indonesia is estimated to 7.4 percent of the total population in 2003. If the benchmark rose to U.S. $ 2 per day, more than half of Indonesia's population (approximately 53.4 percent) could be regarded as poor. Indicators such as the Poverty Gap Index and Index of Severity Distributions can also provide information about the severity and extent of poverty in Indonesia. Actions such as the Gini coefficient relative poverty also reveal gaps between rich and poor in this country both at national and local level (Indonesia Central Bureau of Statistics)

To assess the impact of government policies for poverty reduction in Indonesia, it is important to have good poverty monitoring system. Poverty monitoring also provides government planners, policy makers and local leaders with data to design and improve the social and development policies for poverty alleviation.

Indonesia Central Bureau of Statistics one of the leading institutions with the main task is to provide statistical information on poverty for policy formulation. To measure poverty in Indonesia, BPS using the "basic needs approach".

Basic needs approach is reflected by the formation of the poverty line in 2100 calorie intake per capita per day. It defined five main basic needs for people to survive and live in dignity as food, water, health, and sanitation, education, and shelter. Basic needs approach was chosen to build a basic level of social services to sustain the lives of the poor. One major assumption is that governments have the political will to increase the resources needed to sustain social welfare for the poorest people. Besides finances, the government must offer a vision and build capacity for the public to participate in social development efforts. In Indonesia, needs-based approach to cause major problems because it tends to ignore the complexity of poverty, which is the result of poor human resources, lack of social infrastructure and natural resource management issues.

Government of Indonesia through Presidential Decree 124 in 2001 and revised by Presidential Decree No.8 of 2002 established the National Committee on Poverty Reduction (KPK) with a function to formulate an integrated policy and support local government to work with other stakeholders to eradicate poverty (Indonesia Central Bureau of Statistics)

According to the Assessment of the PRSP (2006) Poverty in Indonesia Strategy Paper (PRSP) was developed by the Committee on Poverty Reduction. PRSP has two goals in poverty reduction, which increases the income of the poor and reduce the burden of expenditure on basic needs.

This approach will be implemented through four broad initiatives, or pillars:

- Opportunity creation.

  Establishment of employment or entrepreneurial opportunities for the poor.

- Empowerment of communities.

  Strengthening of public institutions to improve information access for the poor and enable them to participate in formal decision-making process.

- Increased capacity.

  Increased capacity through investments in health, education and training to become more productive purposes.

- Social protection.

  The creation of social insurance, social support or assistance, and social mechanisms and savings programs, and promotion of traditional social safety nets

3.3 Development of Strategy and Foreign Direct Investment

Foreign Direct Investment Development Studies effort, especially for light hut in the second issue, by focusing on the overall effect of FDI on macroeconomic growth and improve the welfare of the process, and the channels through which these benefits take the results. Overall benefits of FDI to developing the country's economic well recognized. By providing host-nation that the right policies and a basic level of development, the dominant study shows that FDI triggers technology spillovers, helping the formation of human capital, structural formation, as a contributor to international trade integration, helps create a more competitive business environment and enhance business development.

All of these contribute to higher economic growth, which is the most powerful tool for alleviating poverty in developing countries.(OECD, 2002).

Moreover, beyond the severe economic benefits, FDI can help improve the environmental and social conditions in the host country, for example, transfer of "clean" technology and leads to a more socially responsible corporate policy domestic policy the host countries, important challenges remain can arise when the short comings cannot be easily overcome. Potential weaknesses include the worsening balance of payments as profits are repatriated, the lack of positive relationships with local communities, environmental impacts are potentially at risk of FDI, especially in the extractive and heavy industries, the social disruption of accelerated commercialization in less developed countries, and the effect on competition in the market national.

Furthermore, some host country authorities to distinguish increased dependence on companies that operate internationally as representing the loss of political sovereignty. Even some expected benefits may prove elusive if, for example, the host economy, in the current state of economic development, was unable to take advantage of the technology or know-how transferred through FDI (OECD, 2002)

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CHAPTER IV

THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

4.1 Concept of FDI

4.1.1 Growth equation

According to Solow, in the theoretical basis technical change as a short hand expression for any kind of shift in the production function, that's come from mathematical seems simpler. If Q represent output and K and L represent capital and labor inputs in "physical" unit, then the aggregate production function can be written as :

$$Q = A(t)f(K,L)$$

The variable t for time appears in F to allow for technical change. Solow said that the aggregate production function, corrected for technical change gives a distinct impression of diminishing returns. Technical change will improve growth.

According to Solow in Khaliq & Noy (2007) revolutionary contribution to growth theory has generated the theoretical basis for growth accounting. The growth accounting approach can be derived from the following equation:

$$Y = A\Phi(K,L,\Omega) \quad (1)$$

where Y, K, L, and A are output, capital, labor, and the efficiency of production, respectively; and Ω is a vector of ancillary variables.

We assume that for example, a Cobb-Douglas form, and taking the logarithms and time derivatives of equation (1) yields:

$$g_Y = g_A + \alpha g_K + \beta g_L + \gamma g_\Omega \qquad (2)$$

Where g_Y is the rate of growth of *A*, *K*, *L*, Ω (the subscripts are defined in per capita terms), and α, β, γ are, respectively, the elasticities of output with respect to physical capital, labor and the ancillary variables. Findlay in Khaliq &Noy, (2007) developed Solow's model and assumed that the growth rate of technology diffusion is an increasing function of FDI.

4.1.2 Production Cycle Theory of Vernon

According to Vintila Denisia (2011) Production cycle theory developed by Vernon in 1966. There are certain types used for foreign direct investment made by U.S. companies in Western Europe after the Second World War in the manufacturing industry. There are four stages of production cycle: innovation, growth, decline and maturity. In the first stage the U.S. transnational firms or company create new innovative products for local consumption and export the surplus in order to serve also the foreign markets. Based on the theory of the production cycle, after the Second World War in Europe has increased demand for manufactured products like those produced in USA.

Consequently, American firms began to export, having the benefit of technology on international competitors.

After manufacturers have an advantage by possessing new technologies, as the product develops also the technology becomes known.

Then, Manufacturers will standardize the product, but there will be companies that will copy it. Thus, European firms have started imitating American products that U.S firms were exporting to these countries. US companies were forced to perform production facilities on the local markets to maintain their market shares in those areas.

If Solow discuss theories about the growth equation, the other thing with Vintila Denisia. He focuses on the theory production cycle. According Vintila Denisia (2011) Production cycle theory developed by Vernon in 1966. There are certain types that are used for foreign direct investment made by U.S. companies in Western Europe after the Second World War in the manufacturing industry. There are four stages of the production cycle: innovation, growth, decline and maturity. According to Vernon in Vintila Denisia (2011) in the first phase of trans-national U.S. companies or companies creating innovative new products for local consumption and export surplus in order to serve the overseas market as well. Based on the theory of the production cycle, after the Second World War in Europe has increased the demand for manufactured products such as those manufactured in the United States.

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Consequently, American companies began to export, has the benefit of technology in international competition. Once a manufacturer has the advantage of having the new technology, as technology develops products also become known. Then, the producer will standardize the product, but there will be companies that will copy it. Thus, European companies have started to mimic American products that U.S. companies that export to these countries. U.S. companies are forced to do a production facility in the local market to maintain their market share in the area. From the theory of the production cycle has been widely applied in developing countries such as Indonesia its terms. Innovation and growth will mature appears logical to be more independent in the enhancement and acceleration of economic growth.

4.2 Concept of Poverty

According to McClelland(2000), poverty is a condition where people have a standard of living is too low compared with others, cannot afford to buy basic necessities, such as refrigerators for example; and lack of real experience and difficulties in their daily lives" international. People the lack of food and shelter for a minimum requirement is said to live in absolute poverty. There are high rates of poverty among the unemployed, single parent families, and people with disabilities. There are several ways to calculate poverty. Poverty is calculated necessary to know how many people living below the poverty line. How to calculate poverty is by using the poverty income poverty can be measured in different ways. this is often expressed in relation to the poverty line, defined income levels are updated regularly. Poverty is divided into two: the relative and absolute.

Relative if it is determined each year in relation to the average level of income of the population and absolute poverty if it is determined in relation to the monetary value of the bundle of goods and services necessary, updated annually to account for variations in price and bundle composition (McClelland, 2000),

4.2.1 Poverty Measurement

Poverty measurement is important to calculate how much poverty rate in a country or regional. There is 3 ways to measure poverty according to (McClelland, 2000):

1. Headcount Poverty Indices (HPI) are the most popular, easiest to understand and simplest to compute.

   The percentage of the population falling below the poverty line is measured by HPI. Capture only one dimension of poverty within a country.

   HPI = P / N

   Where: P is the number of units with income (or consumption) below the poverty line z, N is the total number of individuals. The data of poverty for this research used HPI.

2. Gap Poverty Index (GPI), measures the average level of consumption of the poor with respect to the poverty line.

   GPI = 1 - (yp / z)

   Where: yp is the average income (or consumption) of the poor,

   z is the poverty line.

3. Foster-Greer-Thorbecke (1984) family of indices (*FGT*), which simultaneously consider the percentage of the poor, their average consumption and the distribution of consumption among the poor.

$$FGT = \frac{1}{nz^2} \sum_{i=1}^{q} gi^2$$

Where: *gi*is the income shortfall of the *i*-th household,

q is the number of poor households (with income not exceeding the poverty line *z*),

*n*is the total number of households

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Table 4.1 Percentage of Poverty in Indonesia from 1981-2010

Year	Percentage (%)
1981	25.76
1982	22.85
1983	20.39
1984	20.91
1985	20.21
1986	19.69
1987	16.97
1988	16.01
1989	14.65
1990	14.64
1991	13.73
1992	13.09
1993	13.31
1994	12.97
1995	12.78
1996	17.47
1997	21.33
1998	24.23
1999	23.43
2000	19.14
2001	18.41
2002	18.2
2003	17.42
2004	16.66
2005	15.97
2006	17.75
2007	16.58
2008	15.42
2009	14.15
2010	13.33

Source : BPS

4.3 Foreign Direct Investment and Poverty Reduction

Economic growth remains a necessary ingredient for poverty reduction. Recent studies suggest that growth tends to lift the incomes of the poor proportionately with overall growth (Dollar and Kraay, 2000). FDI as a key vehicle to generate growth is thus a most important ingredient for poverty reduction.

In the following it is argued that FDI can actually do more than just generate growth. FDI has the potential to improve the quality of growth by :

* reducing the volatility of capital flows and incomes
* improving asset and income distribution at the time of privatization
* helping improve social and environmental standards
* helping improve social safety nets and basic services for the poor

FDI thus also belongs in the toolkit for poverty reduction in countries where simple reliance on "trickle down" does not work. Protecting the poor from bad investment decisions and financial volatility. While foreign investment can be critical for rapid growth, critics fear that the gains from productivity improvements are transferred abroad. Nevertheless, this is not the case when foreign investors operate under competitive conditions.

Among private financial flows FDI is thus most conducive to promote sensible development for the poor, **Improved corporate governance.** FDI brings with it the superior incentives of equity investors who tend to make sure they invest sensibly.

Among forms of cross-border equity investments FDI is also clearly the most effective form of equity in countries with weak corporate governance rules and practices.

EU Ambassador to Indonesia, Julian Wilson remarked, investment opportunities from the European Union can be increased more than 1.6percentoftotalEuropean investment in Indonesia. "Indonesia get 1.6 percent of the FDI (Foreign Direct Investment) of the European Union, it could be improved," said Julian Wilson. (VIVA news). Indonesia also has weaknesses that could hamper EU investment. The weakness of which the quality of public services, infrastructure, and lack of legal certainty "This should be corrected if you want to increase investment," a foreign investor or a number of countries continued to glance at Indonesia as a field of investment. No exception, the European countries which are currently being haunted by the economic crisis. "Indonesia will accompany China and India, as the country's new economic power in Asia. The position of Indonesia will be increasingly excluded from European markets, if Indonesia does not establish economic cooperation in a more comprehensive with the European Union. In fact, other countries have started to aggressively execute the work same (VIVA news).

Indonesia should improve itself in order not negligent inches International trade and foreign investment is entering the Asian market. We can expect the investment to become the engine of economic growth in the future so not only depend on domestic consumption.

But also the contribution of household consumption household and government consumption, the export sector should also be one contributor to economic growth. Furthermore, based on introduction the determination of Foreign Direct Investment and poverty reduction are: Gross Domestic Product, Gross Domestic Investment, Population, Employment,, Government Spending and Exchange rate. Let see how the relationship each of them toward poverty reduction is.

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4.4 Research Design

This research is organized in a quantitative and qualitative type of research. Data used in this paper is relating to foreign domestic investment and rate of poverty reduction. For simplicity, the researcher just takes analysis in Indonesia case but the researcher has some guidance's from some literature reviews which analyzed about this before. It is also type of descriptive analysis.

There are several reasons why the researcher chooses Indonesia. The researcher chooses Indonesia because in Indonesia many people still live on poverty line especially in Java and Papua. In Java, inequality of income distribution is high but in Papua still low the human resources capital and the natural resources in that regional is not explore optimally yet. So that, the researcher interest to choose his own country as a wish the researcher could give little contribution to the reducing of poverty in Indonesia.

An econometric approach using the ordinary least squares method (OLS) is used in this paper to examine the effects of FDI on economic growth as well as the effects of FDI and economic growth on poverty incidence of each surveyed province. To evaluate these effects, this paper will adopt two stage econometric methods to capture the relationship between FDI, growth, and poverty reduction. Processing model is accomplished using the Eviews 6 and Microsoft Excel 2007. Based on the literature review, the determinants chosen are: FDI inflows, private investment, public investment, government spending, GDP, GDP growth rate, employment, and exchange rate.

(Trang Trong Hung, 2003) observed that Cobb-Douglas production function will be the model used to test the impact of FDI on economic growth . The initial econometric model to estimate the growth from FDI is:

Growth = f(FDI, Conditional set);

$Y = f(K,L) = AK^{\beta 1}L^{\beta 2}g(FDI)$;

Or : $f(K,L) = A\,K^{\beta 1}L^{\beta 2}K_{FDI}{}^{\beta 3}$ ..... (*)

The basic of logarithm natural (ln)

- $\ln (a.b) = \ln (a) + \ln (b)$
- $\ln \left(\frac{a}{b}\right) = \ln (a) - \ln (b)$
- $\ln a^k = k \ln (a)$

From equation (*) we change to become logarithm natural equation

$\ln (f(K,L)) = \ln (AK^{\beta 1} . L^{\beta 2} . K_{FDI}{}^{\beta 3}$

$\ln (A) + \ln (K^{\beta 1}) + \ln (L^{\beta 2}) + \ln (K_{FDI}{}^{\beta 3})$

$\ln (f(K,L)) = \ln (A) + \beta 1 \ln (K) + \beta 2 \ln (L) + \beta 3 \ln (K_{FDI})$

$\ln GDP = \ln (f(K,L)) = \ln (A) + \beta 1 \ln (K) + \beta 2 \ln (L) + \beta 3 \ln (K_{FDI})$

So, The production function will be:

$\ln GDP = \ln A + \beta 1 \ln(K) + \beta 2 \ln(L) + \beta 3 \ln(KFDI)$,

where ln(GDP) is the change in GDP, ln(K), ln(L) and ln(KFDI), and lnA is the change of gross domestic investment, change of human capital and change of FDI inflows and a change in productivity respectively.

The growth equation used in this paper is:

$\ln(GDP) = \alpha it + \beta 1 \ln(FDI) + \beta 2 \ln(GDI) + \beta 3 \ln(Pop)$ 1)

GDP = Gross Domestic Product

FDI = Foreign Direct Investment

Pop = Population

(Trang Trong Hung, 2003) The second model is adopted to test the effects of economic growth on the reduction of poverty. Furthermore, the ratio of FDI to GDP is used to capture the direct effect of FDI on poverty reduction in the model.

POVT = f(GDPGRTH, FDI/GDP, EMP, GOVSPD, EXC);

Using OLS regression :

$Povit = c + \beta 1 \ln GDP + \beta 2 \ln(FDI/GDP) + \beta 3 \ln(Emp) + \beta 4 \ln(Govspd) + \beta 5 \ln(Exc)$ (2);

Where :

Pov = poverty line

GDPcap = Gross Domestic Percapita per capita

FDIt/GDP = the proportion of FDI to GDP

Emp = employment

Govspd = government spending

Exc = exchange rate

Technique of Data Analysis

4.5.1 Stationarity Test.

The study adopts two-step procedure in co-integration. Step one involves a preliminary analysis to find the order of integration of the data series, and after that, partial adjustment model regression is carried out to estimate the equations for those economic aggregates where co-integration can be found. These are the stationary test (unit root test) and co-integration test respectively. In the second stage, the residuals obtained in the long-run co-integration regression are used as explanation variable to specify a dynamic partial adjustment model (Gujarati and Damodar, 2003).

This approach is necessary because it has been found that a large number of time-series used in econometric analysis are non-stationary which means that they have persistence to increase or decrease over time.

4.5.1.1 Unit Roots Test

The test is conducted to know the level of stationer data used, where at the level of how the data used is in the stationary state. This test is done by using Augmented Dickey-Fuller (ADF-test). Suppose the variable Y_t as dependent variable, it will be changed to:

$$Y_t = \rho Y_{t-1} + U_t$$

If the coefficient of Y_{t-1} (ρ) is 1, in means that the hypothesis is accepted, then the variable contains a unit root and is non-stationary. To change the trend in non-stationary to stationary, it is necessary to test first-order condition (first difference).

$\Delta Y_t = (\rho-1)(Y_t - Y_{t-1})$ when $\delta = (\rho - 1)$

ΔY is the first difference of the dependent variable. Coeficient δ would be worth less than zero and the hypothesis will be rejected, so the model becomes stationary. Conclusion of ADF-test hypothesis:

Ho : $\delta = 0$ (there are unit roots, the variable Y is not stationary)

H1 : $\delta \neq 0$ (there are no unit roots, the variable Y is stationary)

Root test results conclusion obtained by comparing the calculated t value with critical value Augmented Dickey-Fuller. If the absolute value of the ADF is greater than the critical value then Ho is rejected, meaning there are no unit roots or time series data is stationary and vice versa (Gujarati and Damodar, 2003).

4.5.1.2 Co-Integration Test.

The purpose of the use of co-integration model is to determine whether in the long run a balance on the model used. Co-integration test is conducted to analyze whether the trend of the value of independent variables move in the same direction with the trend of dependent variable. This test can be done using Eugle-Granger method.

The equation used is:

$\Delta U_t = \rho U_{t-1} + u_t$

Hypothesis that conducted to test the co-integration is:

Ho : $\rho = 0$, variables in the model is not co-integrate.

H_1 : $\rho \neq 0$, variables in the model is co-integrate.

4.6 Analysis Tools

4.6.1 Statistical test

To determine whether the model used is good or not, there are several criteria for statistical testing of the t test and F test, coefficient of determination or R-Square.

4.6.1.1 t-test

t-test is used to know the correlation between the dependent variable and independent variables individually. In this research, the writer combining the uses of one tail test and two tail test to shows the theoretical expectation.

1. Hypotheses that use one tail test positive can be written as follows:

   - $H_0 \rightarrow \beta_i = 0$; i= 1.2....etc

   Individually, the independent variable does not have any affect on the dependent variable.

   - Ha $\rightarrow \beta_i > 0$; i= 1.2....etc

   Individually, the independent variable positively affects the dependent variable.

2. Hypotheses that use one tail test negative can be written as follows:

   - Ho : $\beta_i = 0$; i= 1.2....etc

Individually, the independent variable does not have any affect on the dependent variable.

- Ha : $\beta_i < 0$; i= 1.2....etc

Individually, the independent variable negatively affects the dependent variable.

3. Hypotheses that use two tail test can be written as follows:

- $H_0 : \beta_i = 0$; i=1.2....etc

Individually, the independent variable does not have an effect on the dependent variable.

- $H_{a:} \beta_i \neq 0$; i=1.2....etc

Individually, the independent variable has an effect on the dependent variable. The effect might be positive or negative.

4. The decision of the one tail test.

The decision of the one tail hypothesis is based on the following rules:

a. When the hypothesis is positive, and the finding is positive, then it is said that the hypothesis is proven. The researcher will have to find the level of significance of the finding. On the other hand, when the finding is negative this will mean that the hypothesis is not proven.

b. When the hypothesis is negative, and the finding is negative, then it is said that the hypothesis is proven. The researcher will have to find the level of significance of the finding. On the other hand when the finding is positive this will mean that the hypothesis is not proven.

5. The decision of the two tail test.

The decision of the two tail hypothesis is based on the following rules:

a. When the value of computed t < critical value (t table value), H_o is accepted. In this case, the independent variables significantly do not influence the dependent variable.

b. When the value of computed t > critical value (t table value), H_o is rejected. In this case, the independent variables significantly influence the dependent variable (Gujarati and Damodar, 2003).

4.6.1.2 F-test

F-test is used to test whether all independent variables simultaneously have significant effect to dependent variable or not. Hypotheses are formulated as follows:

- Ho : $\beta_1 = \beta_2 = \beta_3 = 0$

All independent variables simultaneously do not affect the dependent variable.

- Ho : $\beta_1 = \beta_2 = \beta_3 \neq 0$

All independent variables simultaneously affect the dependent variable.

By using F – stats table, it can be said that:

1. If F-statistic < F-table

   df denominator = (n-k), df numerator = (k-1)

   Ho is accepted, and Ha is rejected.

2. If F-statistic > F-table

   df denominator = (n-k), df numerator = (k-1)

   Ho is rejected, and Ha is accepted (Gujarati and Damodar, 2003).

4.6.1.3 Coefficient of Determination (R^2)

According to (Nachrowi and in Gujarati and Damodar, 2003) to measure the adequacy of regression models, can be seen from the coefficient of determination (R-Sq).

The value of determination coefficient is a measure that shows the large contribution of the explanatory variables against response variables. The greater the coefficient of determination, then the model better.

R^2 is used to measure how well the regression fits the data. The result of R squared is ranged from 0 to 1. The higher the R squared (closed to 1), the more probable the data can be explained by the model. The R squared is usually converted into percentage in order to make the analysis easier (GUJARATI, DAMODAR, 2003).

4.6.2 Classical Assumptions

4.6.2.1 Multiolinearity

(Gujarati and Damodar, 2003) Multicollinearity is an existence of a perfect (nearly exact) linear relationship between independent variables in the model. There are some methods to detect multicollinearity:

- Multicollinearity happens when there is high R squared and significant F statistic in the regression, but some t statistic appears to be statistically not significant.
- If correlation between variables exceeds 0.89, multicollinearity appears in regression.

4.6.2.2 Autocorrelation

(Gujarati and Damodar, 2003) The term autocorrelation is defined as correlation between residual of one observation ordered in time (as in time series data) or space (in cross sectional data). This problem arises because the disturbance term is not freely to move from one observation to another.

If there is autocorrelation in the model, it will raise the value of residual and the impact is the number of t test, F test and R^2 will decline. Method to measure the existence of autocorrelation are :

1. Durbin – Watson
2. Breusch - Godfrey

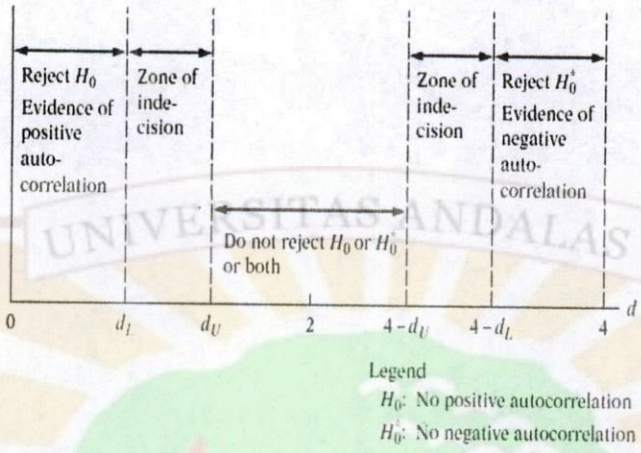
✓ **Durbin Watson test.**

The most celebrated test for detecting serial correlation is developed by statisticians Durbin-Watson *d* statistic:

1) If $0 < dw < dL$	Reject null hypothesis
	Positive autocorrelation
2) If $dL < dw < du$	No decision
	No positive autocorrelation
3) If $4- dL < dw < 4$	Reject null hypothesis
	Negative correlation
4) If $4-du < dw < 4-dL$	No decision
	No negative autocorrelation
5) If $du < dw < 4-du$	Do not reject null hypothesis

No autocorrelation, positive or negative

Figure 4.2 Durbin Watson Decision



DW test is relatively easy, but there are some weaknesses that must be known. The disadvantage is:

- Test DW independent valid only when the variables are random (stochastic).
- Test DW cannot be used in moving average models (moving average)

To overcome the drawbacks mentioned above, can be used Breusch-Godfrey test (BG)

✓ **Breusch-Godfrey.**

In this way, we only see the value of R2 probability.

- If the value probability> $\alpha = 5\%$, meaning there is no autocorrelation.
- If the value probability $\leq \alpha = 5\%$, meaning there is autocorrelation.

4.6.2.3 Heteroscedastisity Test

Heteroscedasticity test used to determine whether there is any deviation heteroscedasticity classical assumption, namely the inequality of the residual variance for all observations in the regression model. Prerequisites that must be fulfilled in the regression model is the absence of symptoms of heteroscedasticity. There are several testing methods that can be used such as the Park Test, Test Glesjer, Seeing Patterns Regression Graphics, and Spearman Correlation Coefficient Test (Gujarati and Damodar, 2003).

4.7 Data Sources

Data are taken from several sources because the researcher has planned that this analysis will use secondary data. Data are taken from Indonesian Statistic Bureau (BPS) and Bank Indonesia (BI). Panel data that is used to econometrics analysis is time series years 1981-2010 in Indonesia.

All of the data are needed to analyze the impact of to the poverty reduction in Indonesia. For the next step data will be processed by using statistical software. After that, we can see how significant the impact of international trade toward poverty reduction in Indonesia.

Table 4.2 Data Sources and Collecting Data

Data	Unit	Data sources	Collecting data
Poverty	%	Central Bureau of Statistics	Indirect
GDP growth	%	Bank Indonesia	Indirect
GDP per cap	Trillion (Rupiah)	Bank Indonesia	Indirect
FDI	Trillion (Rupiah)	Bank Indonesia	Indirect
GDI	Trillion (Rupiah)	Bank Indonesia	Indirect
Employment	%	Central Bureau of Statistics	Indirect
Population	Thousand(person)	Central Bureau of Statistics	Indirect
Government spending	Trillion (Rupiah)	Bank Indonesia	Indirect
Exchange rate	US Dollar to Rupiah	Index mundi	Indirect

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CHAPTER V

EMPIRICAL RESULT AND ANALYSIS OF EFFECTIVENESS FOREIGN DIRECT INVESTMENT TOWARD POVERTY REDUCTION IN INDONESIA

5.1.Research Description.

This chapter describes research result and secondary testing data collected from many sources to study "The Impact of Foreign Domestic Investment on Poverty: Study in Indonesia in the year of 1981 – 2010. Analysis descriptions are based on the secondary data collected from several sources. The main sources are:

a. Indonesian Central Bank (BI).
b. International Monetary Fund, International Financial Statistics.

The observed data are from 1981 until 2010, in other words, in this research the writer uses 30 numbers of observations by using Ordinary Least Square method.

5.2.Research Findings.

5.2.1 Unit Root Test and Integrated of Order

One of the procedures which must be done in economic model estimation with data of time series is with testing stationery data or referred as also process stochastic stationary. Data of Time series told by stationer if the data do not contain unit roots with word of mean, variance, and constant covariant a spell of.

Examination of unit roots of root [done/conducted] with method of Augmented Dickey Fuller (ADF), that is by comparing value of ADF statistic with Mackinnon critical value 1%, 5%, and 10%.

There are several ways of testing in unit root test. However we're focusing on using Augmented Dickey-Fuller test (ADF test). In the ADF test, the formulation of the null hypothesis that the observed variable has a unit root, which means these variables are not stationary. The null hypothesis is rejected if the ADF test statistic value is greater than the critical value. Decision rejecting the null hypothesis in the ADF test shows that the observed variables do not have a unit root, which means it stationary.

Stationery test is necessary because the data are not stationary will lead to biased results because the regression results derived from non stationary data will cause a spurious regression. Spurious regression caused regression estimation results that have a high R square, but no significant relationship between variables (Gujarati, 2003).

This essence stationary test was intended to examine whether a particular coefficient of autoregressive models are estimated to have a value of one or not. In examining the behavior of the data used augmented Dickey Fuller test (ADF). To compare the value of augmented Dickey Fuller (ADF) is used tables of critical values developed by Mac-Kinnon and Lilien.

The results of the unit root tests are shown in appendix I. The null hypothesis of the presence of a unit root (non-stationarity) was tested against the alternative hypothesis of the absence of a unit root (stationarity).

On application of the DF and ADF tests on their first differences, all variables were stationary as indicated by their t-values of the DF and ADF which were all negative and larger (in absolute terms) than the standard critical values, thus leading to the rejection of the null hypothesis. From the above results, it is proven that it can be proceeded to discuss the results of co-integration between the dependent and each independent variables.

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5.2.2 Regression Result Analysis

The first step to analyze the data is by regress the data using the computer program which is competent and compatible with the research. The computer program used by the writer is EVIEWS 6.0 in order to make the data estimation easier. The EVIEWS program also helps to reduce and avoid computing error.

5.2.2.1. Growth Model Determinant

This shows the regression results Impact of FDI on Growth. The regression is shown in table 5.1 below:

Table 5.1 Regression Results of Growth Model

Equation	Coefficient	T-statistics	Prob
Constanta	1108.957	2.615217	0.0146
FDI	0.053395	3.372302	0.0023
GDI	4.475798	11.91540	0.0000
POP	7.260856	2.918490	0.0072

Sample	1981 – 2010
R square	0.979513
F statistic	414.3743
D-W	1.712565

Based on the result of regression, the regression models for the total of Gross Domestic Product (GDP), Foreign Domestic Investment (FDI), Gross Domestic Investment (GDI), and Population (POP) the writer gets the estimation equation for the total GDP in Indonesia, that is:

$\ln(GDPit) = \alpha it + \beta 1 \ln(FDIit) + \beta 2 \ln(GDIit) + \beta 3 \ln(Popit)$

ln(GDP) = 1108.957+ 0.053395 lnFDI + 4.475798 ln(GDIit) + 7.260856 ln(Popit)

t-test (2.615217) (3.372302) (11.91540) (2.918490)

R^2 = 0.979513

Adjusted R^2 = 0.977150

DW = 1.242565

F-stat = 414.3743

5.2.2.1.1 Statistical Result Analysis.

➢ **t-Test**

The t-test is used to test the correlation between the dependent variable and independent variables individually.

From the regression result, it shows that the computed t value of each independent variable is compared with the value of the computed t table.

The way to find the critical t value is: T table = t α df (n-k), where: α is level of significance, degree of freedom (df) is 26, using 30 number of data and 4 number of parameters.

By using t-test analysis at definite degree of freedom, the significant correlation between dependent and independent variables can be determined.

From the regression result, the significance or insignificance from each computed t value of independent variables can be seen in table 5.2 below:

Table 5.2 The Comparison Value of t-statistic and t-table

riable	Compute d-t	A	Critical-t	t-test	Hypothesis
FDI)	3.372302	5 %	1.706	One tail-positive	**Proven**
GDI)	11.91540	5 %	1.706	One tail-positive	**Proven**
POP)	2.918490	5 %	1.706	One tail-positive	**Proven**

i. t-test on ln Foreign Domestic Investment

$H_o : \beta_1 = 0$

$H_a : \beta_1 < 0$

Computed t value. is 3.372302

Critical t value with $\alpha = 5\%$ and $df = 26$ is 1.706, with one tail-positive test.

After observing the result above, it can be concluded that the computed t value is greater than critical t value, so H_o is rejected or H_a is accepted statistically. It means that Foreign Domestic Investment has a positive and significant effect on the total of Indonesian. In other words, there is a positive relationship between independent and dependent variables.

ii. t-Test on ln Gross Domestic Investment

$H_o : \beta_1 = 0$

$H_a : \beta_1 < 0$

Computed t value is 11.91540

Critical t value with $\alpha = 5\%$ and $df = 26$ is 1. 1.706, with one tail- negative test.

After observing the result above, it can be concluded that the computed t value has a positive sign which is the same as the sign of it hypothesis, and the value is higher than the critical t value, so Ho is rejected or Ha is accepted statistically. It means that the interest rate has a significant and positive effect to the total of Gross Domestic Product in Indonesia. In other words, there is a positive relationship between independent and dependent variables.

iii. T-test on Population

$H_o : \beta_1 = 0$

$H_a : \beta_1 < 0$

Computed t value. is 2.918490

Critical t value with $\alpha = 5\%$ and df = 26 is 1.706, with one tail-positive test.

After observing the result above, it can be concluded that the computed t value is greater than critical t value, so H_o is rejected or H_a is accepted statistically. It means that Foreign Domestic Investment has a positive and significant effect on the total of Indonesian. In other words, there is a positive relationship between independent and dependent variables.

➢ **F Test**

F test is used to detect the correlation between dependent variable and all the independent variables (simultaneously). The using of F test is similar as the using for t test. Hypotheses are formulated as follows:

This decision will use parameter at 5% ($\alpha = 5\%$) based on the following rules:

1) If F-statistic < F-table

   Ho is accepted and Ha is rejected, the independent variables simultaneously do not have any effect on the dependent variable.

2) If F-statistic > F-table

   Ho is rejected and Ha is accepted, the independent variables simultaneously have effect on the dependent variable.

The F test is similar to the t test that comparing the value of the computed value and the table value (critical F value).

To find the critical F value, we must get the degree of freedom for numerator (k-1) and the degree of freedom for denominator (n-k).

With the level of significance $\alpha = 5\%$, the degree of freedom for numerator is 3= (4-1) and the degree of freedom for denominator is 26= (30-4). It can be found that value of F table in point (3:26) is 2.98.

It is already known that F value from the regression is 414.3743. We proceed to compare the computed F value and critical F value. From the comparison, it can be concluded that the computed F value is higher than the critical F value. It means that H_o is rejected and H_a is accepted. The independent variables simultaneously have effect on dependent variable. In other words, Foreign Domestic Investment, Gross Domestic Investment, and Population significantly and simultaneously have effect on the total of Gross Domestic Product.

Table 5.3 The Comparison Value of F-statistic and F-table.

F-Statistic	A	F-Table	Result
414.3743	5%	2.98	Significant

5.2.2.1.2 Goodness of Fit (R^2)

From the regression done by the writer, the value of coefficient of determination (R^2) is 0.98. This value shows a high measurement for the independent variables to explain their effect on the dependent variable in the model.

It means that the variation of the dependent variable can be explained by the independent variables about 98 %, when the rest 12 % are explained by factors outside the model.From the table we can see that FDI, Gross Domestic Investment and Population have positive relationship with economic growth in Indonesia.. The significance of independent variables toward dependent variable could be seen from p-value, if p-value is less than 0.05 it means the impact is significant. From table, we can conclude that FDI, Gross Domestic Investment and Population are significant in Growth rate in Indonesia Moreover, the F-stat is 414.3743 > F-table is 2.98 with its significant value is 0,0000. It means that the independent variables (FDI, Gross Domestic Investment and Population) during 30 years all together influenced dependent variable (Gross Domestic Product Growth) in Indonesia.

Foreign Domestic Investment (%)

Gross Domestic Product has positive relationship with Foreign Domestic Investment, the coefficient is 0.0533. It means, every increasing 1% of Foreign Domestic Investment causes Gross Domestic Product increase 0.0533 %. The result is appropriate with the hypothesis that stated between Gross Domestic Product and Foreign Domestic Investment have positive relationship and significant.

Gross Domestic Investment (%)

Gross Domestic Product has positive relationship with Gross Domestic Investment, the coefficient is 4.475. It means, every increasing 1% of Gross Domestic Investment causes the Gross Domestic Product increase 4.475%.

The result is appropriate with the hypothesis that stated between Gross Domestic Product and Gross Domestic Investment have positive relationship and significant.

Population (%)

Gross Domestic Product has positive relationship with Population, the coefficient is 7.260. It means, every increasing 1% of Population causes the Gross Domestic Product increase 7.260%. The result is appropriate with the hypothesis that stated between Gross Domestic Product and Population have positive relationship and significant

5.2.2.1.3 Classical Assumption Test.

✓ **Multicollinearity**

To test the multicollinearity, the writer uses correlation matrix test. In this test, the writer detects multicollinearity by comparing the correlation among the independent variables. To detect the Multicolinearity, we can use the correlation (r) method as the best one. The correlation is $r < 0.89$, we suspect no multicolinearity, and there will be multicollinearity if $r > 0.89$.

With the help of Eviews computer program, the writer can search the value of each r and the result is shown on table 5.3 below:

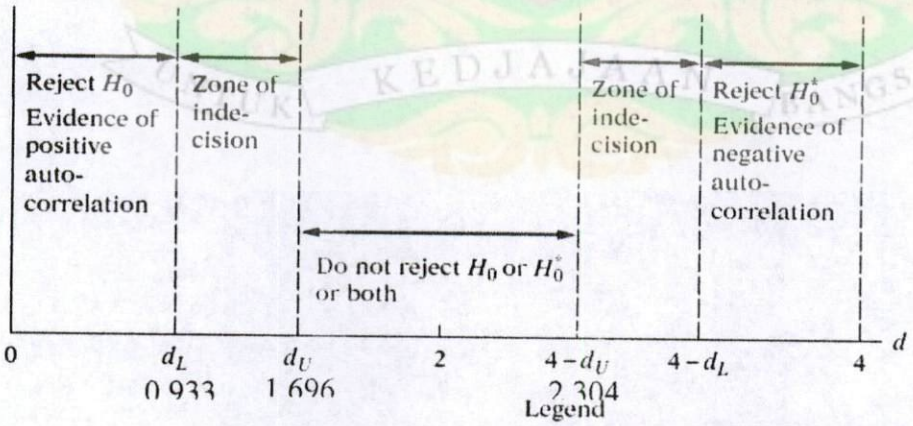
Table 5.4.Correlation Matrix Multicollinearity Result

	GDP	FDI	GDI	POP
GDP	1.000000	0.666216	0.837374	0.895109
FDI	0.666216	1.000000	0.583436	0.493930
GDI	0.837374	0.583436	1.000000	0.848473
POP	0.895109	0.493930	0.848473	1.000000

From the table above, it can be concluded that the values of the correlation among the independent variables are relatively high. According to the result of the data above, r <0.89, it means that there is no multicollinearity on variable of GDP, FDI, and GDI. There is multicollinearity on variable of POP because the number of r as much 0. 895109.

✓ **Autocorrelation**

An autocorrelation is defined as correlation between residual of one observation ordered in time (as in time series data) or space (in cross sectional data). If there is autocorrelation in the model, it will raise the value of residual and it has an effect on the number of t test, F test and R^2 will decline. Criteria of autocorrelation testing with k = 4; n = 26, and α = 5 % are shown on the figure 5.1 below:



Based on D-W *d* Stat figure above, from analysis result of D-W for 1. 1.712, it is located on du ≤ d < 4-du or between 1.696 (du) of lower border and 2.304 (4-dU) of upper border. In other words, analysis of D-W do not reject H_o or H^*_o. It means there is no indication of autocorellation.

✓ **Heterocedasticity**

In this research, to detect Heterocedasticity problem on regression equation we use white Heterocedasticity without cross term method. If the value of Chi-square is greater than 5%, indicate there is no Heterocedasticity on regression equation model. From estimation result, writer got the value of Chi-squares probability for 0.0672, which is greater than 5%. It means there is no Heterocedasticity problem on regress equation model.

5.2.2.2 **Poverty Model Determinant**

Impact of FDI on Poverty Reduction

This shows the regression results impact GDP, FDI/GDP, Employment, and government spending on poverty. The regression is shown in table 5.2 below:

Table 5.5 Regression Results of Poverty Model

Equation	Coefficient	T-statistics	Prob
Constanta	15.50483	1.733077	0.0959
GDP cap	-0.205640	-2.758921	0.0109

FDI_GDP	-0.025800	-0.764947	0.4518
Emp	-3.096355	-1.652077	0.1115
Gov	-0.001008	-0.902169	0.3759
Exc	0.321042	1.949078	0.0631
Sample			1981-2010
R square			0.939572
F statistic			4.902192
D-W			1.70923

Based on the result of regression, the regression models for Impact of FDI on Poverty Reduction the writer gets the estimation equation, that is:

$Povit = c + \delta 1 lnGDPcapt + \delta 2 ln(FDIit/GDPt) + \delta 3 ln(Empt) + \delta 4 ln(Govspdt) \delta 5 ln(Exc)$

Pov = 15.50483 - 0.205640 ***lnGDPcap*** -0.025800 ***ln(FDI/GDP)*** -3.096355 ***ln(Emp)*** --0.001008 ***ln(Govspd)*** + 0.321042 ***ln(Exc)***

t-test *(1.733077) (-2.758921) (-0.764947) (-1.652077)(-0.902169) (1.949078)*

R^2 = 0.939

Adjusted R^2 = 0.929

DW = 1.709

F-stat = 4.902

From the table we can see that GDP per capita, the partial coefficient of the ratio of the inflows of FDI to the GDP, Employment and Government spending have negative relationship with poverty reduction in Indonesia.

The significance of independent variables toward dependent variable could be seen from p-value, if p-value is less than 0.05 it means the impact is significant. From table , we can conclude that GDP per capita, the partial coefficient of the ratio of the inflows of FDI to the GDP, Employment and Government spending in Indonesia

Moreover, the F-stat is 4.902 > F-table is 2.98 with its significant value is 0,0000. It means that the independent variables (GDP per capita, ratio FDI to GDP, Employment, and Government Spending) during 30 years all together influenced dependent variable (poverty rate) in Indonesia.

In this result, D-w = 1.709. it is located on du ≤ d < 4-du or between 1.696 (du) of lower border and 2.304 (4-dU) of upper border. In other words, analysis of D-W do not reject H_o or H^*_o. It means there is no indication of autocorellation. So, we can use this result to the model.

F-test **Table 5.6**

F-Statistic	A	F-Table	Result
414.3743	5%	2.98	Significant

5.2.2.3 Estimation result

Gross Domestic Product per capita (%)

Poverty rate has negative relationship with Gross Domestic Product, the coefficient is - 0.205. It means, every increasing 1% of Gross Domestic Product causes the poverty rate decrease 0.205 %.

The result is appropriate with the hypothesis that stated between Gross Domestic Product and poverty rate have negative relationship and significant.

The ratio FDI to GDP (%)

Poverty rate has negative relationship with the ratio FDI to GDP, the coefficient is -0.025. It means, every increasing 1% of the ratio FDI to GDP causes the poverty rate decrease 0.025 %. The result is appropriate with the hypothesis that stated between the ratio FDI to GDP and poverty rate have negative relationship and significant.

Employment (%)

Poverty rate has negative relationship with Employment, the coefficient is -3.096. It means, every increasing 1% of Employment causes the poverty rate decrease 3.096%. The result is appropriate with the hypothesis that stated between Employment and poverty rate have negative relationship and significant.

Government Spending (%)

Poverty rate has negative relationship with Government spending , the coefficient is - 0.001. It means, every increasing 1% of government spending causes the poverty rate decrease 0.001 %. The result is appropriate with the hypothesis that stated between Government spending and poverty rate have negative relationship, but statistically the coefficient is (in)significant.

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It should be noted that we have to explore the government spending thoroughly in order to know more the portion from the spending intended specifically for poverty reduction program. Based on the observation to the government budget, it is found that more than 50% of the budget allocated dominantly for personnel expenses. Therefore, in this study even it can prove that government spending has a negative relationship but it is statistically insignificant. In this regards, further study related to the effectiveness of government spending for poverty reduction is still needed.

Exchange rate (%)

Poverty rate has positive relationship with Exchange rate, the coefficient is 0.321. It means, every increasing 1% of Exchange rate causes the poverty rate increase 0.321 %. The result is appropriate with the hypothesis that stated between Exchange rate and poverty rate have positive relationship and significant.

5.3 Policy implication

. To analyze the impact of FDI on poverty reduction in Indonesia, we can see from the policy issue to enhance economics performance in Indonesia. The inflows of FDI in Indonesia increases the GDP 0.053 percent. This result supports the first hypothesis, which states the positive correlation between the inflows of FDI and economic growth. Furthermore, its positive sign shows that a province with a large inflow of FDI tends to grow faster. This result is also consistent with the finding of Blomstrom et al. (1996) that the inflow of FDI has a statistically significant effects on the growth.

According to the literature review, the economic growth is stimulated by the inflows of FDI through the channel of investment, and diffusion of technology, and increase in government revenue, and increases the employment opportunity. This result is also consistent with the finding of Blomstrom et al. (1996) that the inflows of FDI have a statistically significant effect on the growth. That is interesting to note that the effect of gross domestic investment is larger than the effect of FDI. The different results can be explained by the nature of the source of investment. This can be due to the nature of gross domestic investment, which is mostly from the saving of people, and FDI which consists of the financial and physical capital resources, which come from overseas. Its positive sign shows that the labor force expansion in a province can largely improve the economic growth.

The growth of an economy reduces the number of poor people in Indonesia. It shows that holding other variables constant, the percentage of people living below the poverty line in a province will decrease by 0.074 % when GDP per capita increases 1%. This result can be explained by Dollar and Kraay's (2000) finding that growth tends to increase the incomes of the poor proportionately with the overall growth.

In the ratio of FDI to GDP in a province will decrease by 0.073 % the number of people living below the poverty line. It is interesting to note that the impact of FDI is even larger than the impact of growth on poverty reduction. This is possible due to the nature of the inflows of FDI, which usually flows into areas having good infrastructure, labor, and availability of market.

Government policy is better to watch pro poor, pro growth and pro employment. As the fact, the experience of East Asia Demonstrates has successfully showed that International trade has proportion to act as a powerful catalyst for the reduction of poverty.

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CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The study provides empirical evidence on the impact of FDI in both direct and indirect ways on the reduction of poverty in surveyed in Indonesia from the period from 1981 to 2010. Times series data analysis is used in the form of two regressions, which is represented in the growth model and poverty model in the paper, and the findings of the regressions are discussed. The major findings derived from the study are:

- The inflows of FDI in Indonesia are found to have a significant and positive effect on the economic growth.
- The economic growth in Indonesia is found to have a positive and significant impact on the reduction of poverty.
- The inflows of FDI have a directly and strongly positive and significant impact on the poverty reduction in Indonesia. The evidence is consistent with the assumption of the direct and indirect effects of FDI on poverty reduction.

A country with high FDI will be has new job opportunities to the unemployment. The fact that happens recently in Indonesia shows that the distribution proportion of FDI is still unbalanced between regional. Java gets bigger proportion because most of industries are took place there. On other hand, regional that have fewer industries such as Sumatera and Papua only get smaller proportion

The inequality is exists in Indonesia same with another developing country. Inequality of income is wages gap between skilled labor and unskilled labor. It is known that Indonesia labor mostly is unskilled labor. Finally, Foreign Direct Investment has contribution to reduce poverty rate in Indonesia.

6.2 Recommendation

There are some recommendations that can be given as a contribution to increase FDI performance in Indonesia. Indonesia government should improve the policy coherence and a whole of government approach to economic development and poverty reduction. The crucial thing that needs bigger attention from Indonesia government is the unbalance of FDI distribution among regional in Indonesia. If the distribution of FDI is balance to all of regional, their will grow up together. Growing up of FDI not only stimulate new job opportunities but also absorb unemployment, and make many workers get income.

On the other hand, the welfare of Indonesia people can measure from labor welfare. To reduce inequality of income between unskilled labor and skill labor, it is needed to change the capability of labor from unskilled labor to the skill labor by giving some practices or seminars. Another way is by adding more multilateral or bilateral agreement with another country. CAFTA for instance, will be a good key for expanding international trade of Indonesia. Moreover, it will purpose to hit the target from the trade, to get maximum gain.

For development of this debatable issues, it recommends to next research:

a. Research about The Impact of Foreign Direct Investment on Poverty in Indonesia more completed developing countries in all over the world, since in this reseacrh, writer get data from only in Indonesia, more data and developing countries like South East Asia completed will make strong results.

b. Research about Foreign Direct Invesment not only give impact on poverty reduction but also the others aspect, like education, agriculture, and industrialization.

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APPENDIX

Appendix 1. Stationarity test (1nd difference)

GDP

Null Hypothesis: D(ln_GDP),2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.466467	0.0000
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

FDI

Null Hypothesis: D(ln_FDI) has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.104826	0.0391
Test critical values:	1% level	-3.724070	
	5% level	-2.986225	
	10% level	-2.632604	

*MacKinnon (1996) one-sided p-values.

GDI

Null Hypothesis: D(ln_GDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.749529	0.0001
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

POP

Null Hypothesis: D(ln_POP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.947470	0.0004
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

POV

Null Hypothesis: D(POV) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.309064	0.0241
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

FDI_GDP

Null Hypothesis: D(ln(FDI_GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.526636	0.0013
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

EMP

Null Hypothesis: D(ln(EMP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.463342	0.0015
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

GOV

Null Hypothesis: D(LNGOV) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.387752	0.0201
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

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Appendix II. OLS (Ordinary Least Square)

1st model (Growth Model)

Dependent Variable: lnGDP)
Method: Least Squares
Date: 01/05/12 Time: 18:49
Sample: 1981 2010
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ln(FDI)	0.053395	0.015833	3.372302	0.0023
ln(GDI)	4.475798	0.375631	11.91540	0.0000
ln(POP)	7.260856	2.487881	-2.918490	0.0072
C	1108.957	424.0403	2.615217	0.0146

R-squared	0.979513	Mean dependent var	608.7388
Adjusted R-squared	0.977150	S.D. dependent var	680.8492
S.E. of regression	102.9196	Akaike info criterion	12.22934
Sum squared resid	275403.6	Schwarz criterion	12.41617
Log likelihood	-179.4401	Hannan-Quinn criter.	12.28911
F-statistic	414.3743	Durbin-Watson stat	1.712565
Prob(F-statistic)	0.000000		

2nd model (Poverty model)

Dependent Variable: POV
Method: Least Squares
Date: 01/05/12 Time: 18:49
Sample: 1981 2010
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGDP	-0.205640	0.074536	-2.758921	0.0109
LNFDI_GDP	-0.025800	0.033728	-0.764947	0.4518
LNEMP	-3.096355	1.874219	-1.652077	0.1115
LNGOV	-0.001008	0.001118	-0.902169	0.3759
LNEXC	0.321042	0.164715	1.949078	0.0631
C	15.50483	8.946414	1.733077	0.0959

R-squared	0.939572	Mean dependent var	2.847119
Adjusted R-squared	0.415358	S.D. dependent var	0.201185
S.E. of regression	0.153830	Akaike info criterion	-0.729085
Sum squared resid	0.567926	Schwarz criterion	-0.448846
Log likelihood	16.93628	Hannan-Quinn criter.	-0.639434
F-statistic	4.902192	Durbin-Watson stat	1.709230
Prob(F-statistic)	0.002461		

APPENDIX III

Correlation Matrix Multicollinearity Result

	GDP	FDI	GDI	POP
GDP	1.000000	0.666216	0.837374	0.895109
FDI	0.666216	1.000000	0.583436	0.493930
GDI	0.837374	0.583436	1.000000	0.848473
POP	0.895109	0.493930	0.848473	1.000000

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APPENDIX IV

Heterocedasticity Test

Heteroskedasticity Test: White

F-statistic	3.570595	Prob. F(3,26)	0.0672
Obs*R-squared	8.753416	Prob. Chi-Square(3)	0.0328
Scaled explained SS	8.537717	Prob. Chi-Square(3)	0.0361

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 01/05/12 Time: 19:18
Sample: 1981 2010
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8710.292	18388.09	-0.473692	0.6397
LNFDI^2	-0.001097	0.000660	-1.662452	0.1084
LNGDI^2	0.088859	0.073312	1.212071	0.2364
LNPOP^2	0.363118	0.553956	0.655500	0.5179

R-squared	0.691781	Mean dependent var	9180.119
Adjusted R-squared	0.210063	S.D. dependent var	15047.17
S.E. of regression	13373.69	Akaike info criterion	21.96353
Sum squared resid	4.65E+09	Schwarz criterion	22.15036
Log likelihood	-325.4530	Hannan-Quinn criter.	22.02330
F-statistic	3.570595	Durbin-Watson stat	2.243155
Prob(F-statistic)	0.027550		

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APPENDIX V

Correlation LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.054302	Prob. F(2,24)	0.0151
Obs*R-squared	4.385067	Prob. Chi-Square(2)	0.0148

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 01/05/12 Time: 19:22
Sample: 1981 2010
Included observations: 30
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFDI	-0.005127	0.015755	-0.325416	0.7477
LNGDI	-0.038711	0.363158	-0.106597	0.9160
LNPOP	0.434490	2.417623	0.179718	0.8589
C	-74.91189	412.1714	-0.181749	0.8573
RESID(-1)	0.420987	0.207875	2.025199	0.0541
RESID(-2)	-0.134787	0.230762	-0.584095	0.5646

R-squared	0.726169	Mean dependent var	1.44E-13
Adjusted R-squared	-0.031713	S.D. dependent var	97.45088
S.E. of regression	98.98403	Akaike info criterion	12.20465
Sum squared resid	235148.1	Schwarz criterion	12.48489
Log likelihood	-177.0698	Hannan-Quinn criter.	12.29430
F-statistic	0.821721	Durbin-Watson stat	1.978461
Prob(F-statistic)	0.546395		

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