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The Effects of Growth and Change in Inequality on Poverty Reduction in Indonesia:

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Table of Contents

List of Tables and Figures

List of Acronyms

DI	:	Special City of Yogyakarta
DI/TII	:	Darul Islam (Islamic State)/Tentara Islam Indonesia (Islamic Indonesian Army
DKI	:	Special Capital territory of Jakarta
DY	:	the year dummy variable
G	:	per Capita GRDP
GDP	:	Gross Domestic Products
GRDP	:	Gross Regional Domestic Products
H	:	the poverty headcount ratio
KNIL	:	*Koninklijk Nederlands Indisch Leger* (The Royal Netherlands East Indies Army)
L	:	the Gini ratio
LSDV	:	Least Square Dummy Variable
OECD	:	Organization for Economic Co-operation and Development
OLS	:	Ordinary Least Square
PDBI	:	Pusat Data Bisnis Indonesia (Centre of Indonesian Business Data)
RMS	:	the South Molluca

Abstract

In this study I want to analyze how much the changing on economic growth and inequality is affecting the changing on poverty reduction; is it true that in order to reduce the number of poverty incidences in Indonesia, the appropriate things should be done is only increasing the economic growth in this case is increasing the average income.

Due to fulfil those objectives, I estimate poverty elasticity to growth and inequality for twenty five provinces in Indonesia using the headcount and Gini ratio data and per capita GRDP for each twenty five provinces on year 2001 and 2005. Used formula was developed by Besley and Burgess (Besley and Burgess 2003) and one formula for estimating trade off between economic growth and inequality by Wodon (Wodon 1999). The first conclusion that can be retrieved from those data are high increase in per capita GRDP followed by small change in the Gini ratio will affect faster reduction on the headcount ratio. Secondly, the time specification effect does not give any impact on the linkage of the change in headcount ratio, Gini ratio, and per capita GRDP for twenty five provinces in Indonesia in year 2001 and 2005. And, the last, if the value of Gini ratio increase by 1%, it should be compensated by 3.418% of the change in per capita GRDP otherwise, that increasing will harm the poor because they will receive less the gain from economic growth.

Relevance to Development Studies

Through this study, it can be said even though at provincial level the Gini Ratios are fluctuate over time, Indonesia is one of the country having lower inequality rate. That is, for reducing poverty rate, the appropriate tool should be implemented is achieving pro-poor economic growth.

Keywords

Economic growth, Poverty reduction, inequality

Chapter 1
Introduction

We can describe poverty as a condition where people cannot get enough food for daily life, have neither shelter nor any access to meet their basic needs: health facilities and insurances and clothing. Base on Mooij's lecture on Development Studies, poverty has a multidimensional meaning[1]. It can be defined either as a residual or a relational term as well as an income or a dimensionality term. First, as a residual term, poverty is the fact that there are some people left out of the development process. Then, bringing them into the development process will help them to escape from that condition. Second, as a relational term, poverty is an outcome of process of social inequality or exploitation. It means, there are some groups taking benefits from other groups. Third, as an income term, poverty is defining through certain level of earning income a day. For instance, World Bank determines two poverty lines, $1 and $2. It means people who earn below $2 a day will be defined as poor if we choose the $2 as the poverty line. But, when we choose $1 as the poverty line, they might not be poor except they earn below $1 a day. $1 a day poverty line is used to estimate the extreme poverty. And forth, as a dimensionality term, poverty can be seen through people accessibility to health facilities and insurances, educations, and political participations.

Considering those conditions, poverty can be measured through several ways. Ray (1998c) explains there are two ways for measuring the poverty. Firstly, poverty is measured in absolute term by using the changing in people income. Generally there is a positive relationship between an increase in average income per capita and the percentage of people lived above an absolute poverty line (Mc Kinley 2001). Secondly, poverty is measured in its relative term by knowing how much people get the accessibility to the basic needs as we have already mentioned in the previous paragraph. But, measuring poverty in a relative term regarding the dimensionality of poverty terminology is difficult. There are variations in what might be considered 'adequate' subject to society-specific interpretations (Ray 1998c).

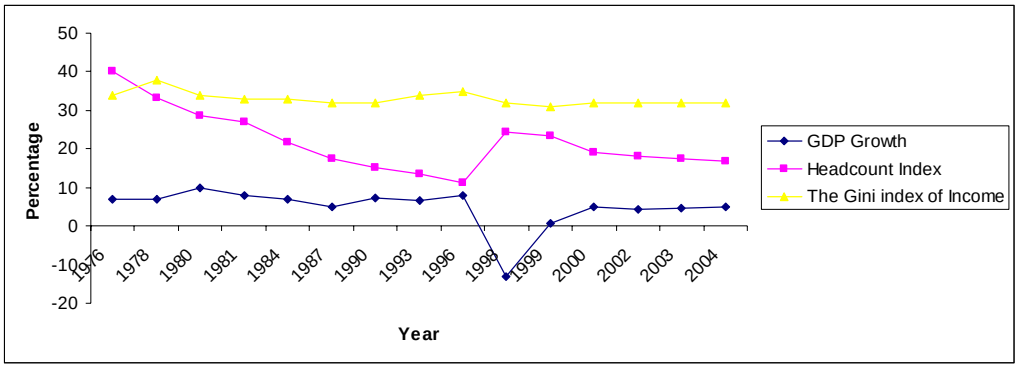
Absolute poverty reduction is maximized if high economic growth can be distributed equally among the poor (S. Klassen 2008). According to Barro and Sala-i-Martin (2004), aggregate growth is probably the single most important factor affecting individual levels of income. Bourguignon (2004) also argued that the reduction of absolute poverty needs strongly country-specific combinations of growth and distribution policies. In other words, he explained that an increase in income is not necessarily a contradiction to a reduction in inequality. It implies besides only focusing on growth to reduce poverty, policy makers can focus on inequality and growth at the same time.

The effect of inequality might be positive or negative for economic growth. A direct negative effect on growth because it can reduce investment opportunities, worsens borrowers' incentives, and generate macro-economic volatility (Aghion et al. 1999). Reducing inequality may give triple effective. For instance, it may reduce poverty for given level of income, accelerate the poverty reduction impact from economic growth, and base on cross-country growth regressions; it may contribute to a larger rate of growth. According to

Bourguignon (2004) low inequality may expose them to the costs of contraction. Meanwhile, a positive effect of inequality on economic growth can be explained through Kuznet's analysis. More explanation on it can be seen in the next chapter.

Having consideration about the important role of economic growth as a robust tool to combat poverty, policy makers in Indonesia put their focus how to increase economic growth as well as equalize its distributions. Showed by the data released by Statistics Indonesia and several studies done by several researchers, over the long periods since, reduction on the number of poverty incidences in Indonesia can be associated with the increase of economic growth while the change in the inequality illustrated by the Gini ratio constant. Clearly, we can see from the following figure.

Figure 1
Economic Growth, Inequality, and Poverty in Indonesia



Source: Data from Statistics Indonesia (2005)

Even though there are several studies have already been done for Indonesia to analyze the relation among poverty reduction, economic growth, and inequality, I still have an interested to analyze that linkage. In this study I want to analyze how much the changing on economic growth and inequality is affecting the changing on poverty reduction; is it true that in order to reduce the number of poverty incidences in Indonesia, the appropriate things should be done is only increasing the economic growth in this case is increasing the average income. Due to deliver some empirical evidences to strengthen my analysis, I do some regressions for estimating the elasticity of poverty to growth and inequality using the formula by Besley and Burgess (2003), calculating the marginal rate proportional of substitution between inequality and growth using the formula given by Wodon (1999), and since growth in mean incomes is considered having an important role to reduce poverty in developing countries meanwhile to achieve that purpose every country improves its growth in different ways. That is, in this study I try to find what the source of growth in Indonesia is. For all estimations in this study, I use data given by Statistics Indonesia for 25 provinces in Indonesia for the 2001 and 2005 data.

The purpose of this study is to add some information about the linkage of poverty, economic growth, and inequality. Until now Indonesia is still searching what the more appropriate tool for combating poverty due to reach

the MDGs, particularly the poverty goal, halving the rate of absolute poverty during 1990-2015.

The paper is organized in six chapters. Theoretical framework which includes the theory about economic growth, inequality, poverty reduction, and how those three are related will be concerned in the next chapter. Chapter 3 reviews about growth, inequality, and poverty in Indonesia before and after 1966 and followed by detailed description during the research period. Explanations about data and methodology used in this study are explaining in the fourth chapter. The analysis about what the effects of changing growth and the change in inequality for reducing poverty in Indonesia based on the empirical evidences will be given in chapter 5. Then, summaries and conclusions will be given in the last chapter.

Chapter 2
Theoretical Framework

Economic growth is important to reduce poverty even though its effect are varies across countries (Besley and Burgess 2003). Those variations are affecting the pace of growth effects to reduce poverty. Two factors that can be associated with the poverty reduction are the initial level of inequality and the change in inequality; if a country has higher inequality level, poverty will reduce slower than a country which has lower inequality given the same growth rate (Ravallion 2005). On the other hands, economic growth may be related by an increase or decrease in inequality, in which case, changes in inequality play an important role in explaining the interrelation between growth and poverty (Kakwani et al. 2004). According to Ravallion (2004) and Klassen (2008), a change in inequality is affecting the difference response of growth on poverty reduction. The pace of absolute poverty reduction will depend on the rate average income growth, the initial level of inequality, and the changes in the level of inequality. It means the poverty in one country can be reduced faster if there is higher growth of average income, lower level of initial inequality, and combination between income growth and decreasing inequality. Particularly, poverty reduction will be fastest in countries where average income growth is highest, initial inequality is lowest and where income growth is combined with falling inequality (Bourguignon 2004).

2.1 Economic Growth and Change in Inequality

Changes in inequality at the country level have no correlation with rates of economic growth (Ravallion 2005). The reasons are: 1) we cannot see change in overall inequality at every levels of living through cross-sectional surveys, 2) inequality in this measurement is relative inequality which is unchanged during an aggregate economic expansion results consistent with large increases in absolute income disparities; 3) growth processes have been giving a lot of pressures on inequality; 4) there are errors that can weaken the power of tests coming from various of sources including sampling and selective compliance errors.

Combined with political economy and traditional arguments an increase in inequality will give negative incentive effects of redistribution (Alesina and Rodrik (1994) and Persson and Tabellini (1994)). Developing a model implied the more unequal is the distribution of resources in societies; the lower is the rate of economic growth (Alesina and Rodrik 1994). The link between those two is given by redistributive policies. In less equal societies, more redistributive is sought by the majority of population, thus in turn will reduce growth through economic distortion. Their result shows that countries experiencing a land reform in the aftermath of World War II and reduce the inequality in land ownership should have had higher growth than countries with no land reform, as often mention in the economic literature for explaining the successful experience of several Asian countries such as Japan, South Korea, and Taiwan which had land reform.

Benabou (1996) also did some studies to explain the relationship among inequality, redistribution[2], and growth. For instance, first proposition coming up from his studies, increasing in inequality will lead redistribution and will reduce growth and delay the efficiency of productions. It means where there is an increase in inequality level, the government as a decision maker in the political system will create policies to overcome this problem through redistribution policies such as increasing taxes on capital income. At the end this kind of policies will slow down output growth because efficiency on production will be obstructed. This proposition will be stronger in democracy countries rather than that in non-democracy countries. Then, since inequality is not so large that the positive effect on redistribution and negative effect on growth are weaker, the less favourable to the poor is the political system. Benabou also explained if political power is sufficiently correlated with financial or human wealth and if capital market imperfections are not so severe that greater inequality may actually increase growth through a decline in redistribution (Benabou 1996).

In the previous chapter I already mentioned that the relationship between inequality and economic growth can be either the negative or positive effect. According to Aghion *et al.* (1999) triple effects such as reducing investment opportunities, worsening borrowers' incentives, and generating macroeconomic volatility because of an increase on inequality level if it happens under heterogeneous condition of wealth or human capital endowments among people and imperfect capital market. The first argument is investment indivisibilities. Investment projects often involve large sunk cost, minimum capital bust be made before the investment yield the return (Lustig et al. 2002). Under imperfect capital markets, the poor cannot borrow to cover that costs. This condition will hinder development of a new industrial activity, and at the end it will reduce rapid economic growth. The second argument is incentive consideration. This argument basically explains that greater taxation is reducing the return to saving, thus lowering the incentives to accumulate capital and then the rate of growth (Aghion et al. 1999).

In contrast, the positive relationship between inequality and economic growth says that growth was induced by inequity and would reduce national inequity, and all nation would converge to the same growth path even reduce international inequity through pursuing growth [3]. Base on Kuznet's analysis[4], inequality will increase in the beginning stages of growth and then falling after some point. When a country begins developing economically, its income inequality worsens. But it will decrease after a few decades when the rich begin investing more in the economy and income equalizes and people are wealthier then they would have been previously. For instance, he found that as Germany, the United Kingdom and the United States have a high income gap due to move from agrarian to industrial societies, after several periods after industrialization began, the income gap decreased as full industrialization approached[5].

In their paper, Aghion *et al.* (1999) explained arguments coming from Kaldor's hypothesis. Building on this assumption, Kaldor used empirical data to show that productivity growth in the 1950s and 1960s in Organization for Economic Co-operation and Development (OECD) countries was largely a

function of investment behaviour. The logic that capitalists and high-income earners had a greater marginal propensity to save, combined with the importance of investment for growth, led to the conclusion that inequality fostered growth. If the growth rate of GDP is directly related to the proportion of national income that is saved, more unequal economies are bound to grow faster than economies characterized by a more equitable distribution of income; Stiglitz (1969) formalized this argument in Solow's growth model[6] showing that with a linear saving function, aggregate behaviour is independent of the distribution.

Questioning the negative relationship inequality on growth, three studies have been done by Barro (1999), Forbes (1997), and Li and Zou (1998)[7]. They rerun Alesina and Rodrik regressions using panel data and introducing country-specific fixed-effects, the relationship becomes positive. Those three recent studies only emphasized on short-run variations, that is the reinterpreted could be as saying that there is evidence in the short-run inequality gives positive effects on growth reversed effects in the long-run because inequality's effect giving bad impact on growth that has been discussed relates to inequality's effect on political system.

Patridge (1997) did another study base on Persson and Tabellini model using a panel data of U.S states. The results shows through the Gini Coefficient, that states with more income inequality at the beginning of the period actually experience greater subsequent economic growth, but states which the middle quintile had a larger share of income also had faster growth. Another issue comes up base on Patridge's study is that overall negative relationship between inequality and future economic growth may only apply to developing or newly industrialized nations, but not for developed countries. In developed countries inequality is necessary for wealth to be sufficiently concentrated to ensure greater future investment; more unequal income distributions may indicate greater labour market incentives encouraging working effort.

2.2 Inequality and Poverty reduction

The most commonly used variable for analyzing inequality is income. But, in this term we usually use the distribution of income rather than the level of income. The clarification of the nature of income distribution which is wanted to be analyzed should be known previously. We should ensure it illustrates suitable concepts of economy and does for each constituent unit (Jenkins 1991). By visual, income inequality can be showed by plotting the cumulative share in total income against the cumulative proportion of the population with incomes not exceeding a given level for each level of incomes (Subramanian 1997).

There are four principal of inequality measurements (Ray 1998b). The first principle is anonymity. Under this principle permutation of income between members of the population do not matter. Secondly, population size; it means on inequality measurements population size does not matter, only shares of incomes matter. The third principle is relative income. This principle affirms that on inequality measurements our focus only to relative income, it means

even though the income for each population will be doubled, the proportion still stay the same. And, the last principle is known as Dalton principle. Income transfer from the poorer to richer is the regressive transfer then former distribution is more unequal[8].

The common tool used for showing inequality is Lorenz curve where the X and Y axis representing cumulative value of percentage income and population respectively. The diagonal line shows equality line, closer to this line more equal the condition. The Gini ratio comes from the ratio between the wide of Lorenz curve and total area below the equity curve. The value is between 0 and 1[9].

Ravallion has been doing a lot of studies about inequality, growth, and poverty reduction. Finding from his studies there are two factors that can be identified as the main causes to distinct total elasticity of poverty reduction (Ravallion 2005). The first factor is the initial level of inequality; naturally the higher it is in a country the less the poor will share in the gains from growth; unless there is sufficient change in distribution. In other words, a country which has low inequality the rate of poverty reduction will be faster than a country which has higher level of inequality given the same growth rate.

The second factor is changing in income distribution. Even though growth tends to be distributed neutral on average, it does not mean the distribution is not changing. Changing in inequality can give differences to the rate of poverty reduction but it cannot determine the headcount index of a country. Essential factors of changes in distribution and affect poverty are many known as idiosyncratic factors and for developing countries there is one factor that can be matter is the geographic and sectoral pattern of growth (Ravallion 2005). Still based on Ravallion's paper, low-inequality can benefit for people living in unstable macroeconomic environment because it can help them for sharing the benefits of growth, even though they may be exposed to the contraction costs.

Considering an increase in Inequality has certain effect on the welfare of the society, Wodon (1999) estimated the trade off between inequality and economic growth. How much economic growth should be achieved to compensate 1% increase in the Gini ratio is. Firstly he estimated the elasticity of poverty to growth and inequality. After finding estimated coefficients, he divided the estimated coefficient of poverty elasticity to inequality by the estimated coefficient of poverty elasticity to growth.

2.3 Economic Growth and Poverty Reduction

Economic growth showed by growth of GDP is considered as the appropriate way to reduce poverty. Incomes of the poor may be increased if economic growth is associated with an increase in average income. By this condition, growth is good for the poor (Dollar and Kraay 2002). Economic growth creates more opportunities for the poor to get additional jobs as their strategy for increasing their incomes. For example, when there was financial crisis, people did not have any access to get jobs and many people who had already had jobs would lose their jobs. Employers should reduce their employees to reduce their financial loss. People who loss their jobs would be difficult to

fulfil their basic needs, they did not have money to get any access for health, education, even for food.

Generally, poverty reduction may be associated to growth in average incomes or redistribution among households at existing level of average incomes (Mckay 1997). Keeping the level of inequality is constant; we can estimate the relation between growth and poverty reduction (Naschold 2004). Besley and Burgess (2003) have analyzed the relationship between economic growth and poverty using cross-country poverty and national income data from the World Bank. The results of their study have implied that the large role of redistribution and institutional reforms are needed to reduce poverty through economic growth improvement. The other result is confirming that increases in income per capita are associated with reductions in poverty. It shows growth reduces poverty in all regions except Latin America and Caribbean and Middle East and North Africa and the amount of growth needed to halve the poverty rate is large relative to historical averages. Those results give two implications: the first is how to increase economic growth to reduce poverty so that uncovering specific institutional and other factor deterministic of growth remain one of the main focuses in development economics. The second implication is already explained previously, the large role of redistribution and institutional reforms are needed.

Furthermore, either increasing average income or non-income dimension is not directly reducing poverty. It depends on which strategies are people apply for achieving those. For deciding which strategy is better to be applied, we should know what the source and determinant of growth is. The source of growth derives the quality[10] and quantity of growth (Fane and Warr 2002).

In the framework of neoclassic, developed by Sollow, growth is driven by the diminishing return to capital assumption (Ray 1998a). According to this model, growth is definite; the lower the starting level of per capita income, he higher the rate of growth, with the economy converging to a steady state level. It means the poorer country will grow faster, and at the certain time the growth will be converge among countries. The level of steady state depends on the propensity to save and the position of production function(Bigsten and Levin 2004). While Barro (1997) explains that the steady state level is also determined by government policies(Bigsten and Levin 2004).

Opposing to Sollow's assumption, Romer (1986) and Lucas (1989) explain that since there are external effects such as investments in human capital, growth can be indefinite(Bigsten and Levin 2004). Hall and Jones (1999) find that social infrastructure such as institutions and government policies may indirectly determine the level of productivity influencing output per workers(Bigsten and Levin 2004). For helping the poor because they have limited accesses, the role of government is needed. Government should create policies giving the poor get the benefits from economic growth even taking a part on it.

One study done by Fane and Warr is explaining how poverty is linked with the exogenous factors[11] driving the growth of GDP. We already agree that there is a strong relation between growth and poverty reduction. But the important thing we should know is how those two components are linked. Their studies imply that growth in broad sectors may give different effects on

poverty and inequality determined whether the exogenous shocks affect demands or supplies (Fane and Warr, 2002).

Besides knowing the sources of growth, we should know which kind of growth that can reduce poverty. According to Besley and Burgess (2003), the growth that can give advantages for the poor is important to reduce poverty. This kind of growth is known as pro-poor growth.

Pro-poor growth in relative term can be characterized if the growth rate of income of the poor (aggregated measurements) exceeds the average income growth rate[12]; otherwise we could defend such an approach that pro-poor growth is where the inequality must have been reduced at least inequality between the poor and the non-poor; while in absolute term, growth is pro-poor where the absolute income-gain of the poor is larger than those on average (or those of the rich) (Stephan Klassen 2005). Both absolute and relative term of pro-poor should not be argued furthermore. Those terms can be used for explaining different purposes.

We can also define pro-poor growth through what its concerns. Firstly, growth is pro-poor if the Poor's incomes grow higher than those of the non-poor. In this term, our focuses are on rising inequality during a period of economic expansion, in other words the growth is pro-poor if the poor's incomes grow at a higher level than those of the non-poor (Ravallion 2004). Secondly, the growth can be said to be pro-poor if it can reduce poverty; we only focus on what happens to poverty, how much it might depend on, and what happens to distributions and average living standards (Ravallion 2004).

Kakwani, Khandker, and Son (2004) in their paper proposed a measure of pro-poor growth known as the poverty equivalent growth rate emphasizing on improvement and reduction in inequality and poverty during economic growth. Furthermore this measure is characterized into two approaches, relative and absolute approaches. In relative approaches, it explains that growth proportionally benefits the poor rather than the non-poor even causing a fall in relative inequality. Hence, in absolute approaches, it explains that the poor will receive more than the absolute benefits of growth compared to the non-poor. Absolute inequality would be expected during decreased growth. Using absolute measurement, we will be benefited because we can see what the distinction between the existences of pro-poor growth which is measured by (Stephan Klassen 2005).

2.4 The Growth Elasticity of Poverty

One type of empirical studies done for explaining the relationship among growth, inequality, and poverty is the elasticity of Poverty to growth and inequality provided by Kakwani (1993) and Kanbur (1987) (Wodon 1999). We should prepare appropriate measures of needed variables before estimating that elasticity.

According to Ravallion, a key conceptual issue for measuring poverty is how we determine the poverty line[13]. It depends on our perception about poverty, whether it is in the term of absolute poverty or relative. For absolute poverty, the poverty line should fixed purchasing power and for the relative one, the line tends to have a higher real value in less poor sub-group (Ravallion

2004). As an example, we can set the line as a constant proportion of mean income; that is we can see how the poverty is rising when the level of living has risen.

Then, as the poverty measurement we can choose from the Foster, Greer, and Thorbecke (1984) class (Wodon 1999). The first is the headcount index. It estimates the proportion of the relevant living population in households with income below a predetermined poverty line; this measurement illustrates what has happened to distribution below the poverty line. Through the value of headcount index we can know the rate of poverty incidences. The second is the poverty gap index. According to OECD glossary of statistical terms, poverty gap index is the mean distance below the poverty line which is expressed as a proportion of the poverty line where the mean is taken over the whole population while the non-poor as having zero poverty gap. Using this measurement we can estimate the depth of poverty and the average level change of distribution will be illustrated better than that through the previous one. The third measurement is the squared of poverty gap index; It measures the severity of poverty. This measurement not only counting the distance from the poor to the poverty line but also the inequality among the poor (Wodon 1999).

As the measurement of inequality, the Gini index is commonly used. Explained in Wodon's paper, the Gini index is calculated using normalized consumption. The value of Gini index depends on the used poverty line (Wodon 1999).

Furthermore, we can calculate the elasticity of poverty to growth and inequality formulated by Kakwani (1993). This elasticity is derived from mean income holding the distribution constant, meaning the Lorenz curve is shifted in constant proportion (Heltberg 2004). This process can be seen on the following equation (Heltberg 2004).

$$\eta_\theta = \frac{1}{\theta}\int_0^z x \frac{\partial P}{\partial x} f(x) dx \qquad (1)$$

where η shows the elasticity of poverty and θ is the poverty measurement. The value of η is always negative. For the headcount index, denoted as η_H, it implies the percentage of the poor crossing the poverty line given one percent increase on incomes (Heltberg 2004). This formula has been developed by several researchers into suitable models depending on what the aims of their studies. The model that will be used is the model which is developed by Besley and Burgess (2003). Detail explanation about used formula will be seen on the fourth chapter.

Chapter 3
Poverty and Inequality Performances in Indonesia

It is difficult to say when Indonesian economic development begins, particularly economic development implying an improvement on people welfare. But, there are a lot of empirical studies show that in the New Era period Indonesia economic development have suitable and proper forms that can give the real impact on people welfare. At that time, a series of economic concepts and programmes were done systematically, then the direction of Indonesian economy can be determined precisely.

Before 1966, economy was ruled to be closed for foreign investments and more nationalist. Management was done in irrational ways, less controls, and did not obey economic concepts (Hadi 2004). Illustared by Yustika (2007), since 1950 the production and investment levels had been declined. Per capita income in 1966 was lower than that in 1938. Industrial level only gave 10% shares to GDP and faced serious unemployment problem. At the beginning of 1966 budget deficit reached 50% of total expenditures, incomes coming from export were decreasing, and during 1964-1966 Indonesia suffered hyperinflation which smashed up the economy. Yustika also says that Indonesian economy was worsen by four factors (Yustika 2007). Firstly, there was political instability. During 1948-1965 Indonesia suffered six non-consensus rebellions, such as DI/TII[14], the South Maluku Republic (RMS)[15], PRRI/Permesta (during 1957-1961)[16], G30SPKI (1965)[17]. All those revolts hampered production activities even caused scarce of food and other things for supporting daily life. Secondly, Government's oriented and target is only for political purposes. Third factor is international relationship, basically at that time Indonesia's relationship to the west countries not so well, principally because those countries have different ideology with Indonesia. As the results, most of the aids came from the East Block Countries which often create weak and unproductive projects of economic development. And lastly, Government tended to intervene in broad manners. For instance, for determining the prices of productions and enacting licensed imports.

These worst conditions had been changed from 1966 after the unforgettable rebellions of The Indonesia Communist Party which caused changing in the government. Indonesian Economists under Suharto's presidency, tried to improve Indonesian economy. Principally, their focused on how to fulfil people's basic needs immediately, reduce the inflation, and built the infrastructures to support economic developments. The reason why they only focused on those because in order to improve Indonesian economy the main problem should be fulfilled is investments. Most of problems for developing countries to increase their economy are the lack of investments. To contend this problem, Indonesian government put much interest on controlling the inflation, physical infrastructure rehabilitations, and developing good relationship with donor countries.

Surprisingly, implementing those new fiscal and monetary policies can control the inflation. The good relation with donor countries has been responded well by domestic and foreign investors. Indonesian economic growth experiences since 1966 until 1997 was improving rapidly. During that

time Indonesia was known as one of The Newly Industrializing Economies in the Southeast Asia (Hadi 2004). This high economic growth was followed by an improvement in people welfare, an increase in life expectancy from 56 years old to 71 years old, and the most important was a reduction on the absolute poverty from 60% in 1966 to 14% in 1990 (Hadi 2004).

3.1 How poverty may be reduced

Poverty has become a crucial issue and a matter of public concern in Indonesia after Soeharto as Indonesian President announced it in August 1992. In fact, this is not a really new issue. Income inequality problems which might have close relationship with poverty have been openly discussed for over two decades because it has been already become a policy turning point on the issue of wealth distribution in Indonesia's economic development since 1978 (Asra 2000). Since poverty incidences become the national concern to be reduced to improve people welfare, Indonesian government put all its effort on activities that may alleviate it. Reducing poverty will be a first stage to develop Indonesia's economy. It is noted by spreading out job opportunities and ability to fulfil people's basic needs.

For Indonesia, economic growth plays an important role to reduce poverty incidences. As already shown by Figure 1 in the first chapter, the rate of poverty will change a long with the change of economic growth. The Gini ratio seems to be constant; even though there is a change, the change is also constant. But it does not mean the effect of inequality on the rate of poverty reduction is not important as well as economic growth. Even though at national level, the change is very small, if we look deeper inside the country, at provincial level, the values of Gini ratio are fluctuate (see Table 1). We take Kalimantan Selatan province as an example; in 1996, its Gini ratio was only 29.20%, it was lower than the median value, but in 1997, its Gini ratio increase to 40.70% which is the highest value compare to other provinces; and in 1998, the value declined greater than its increase. In general we can say that it does not always happen if one province has the highest Gini ratio will still have the highest one for the next year.

Generally, poverty in Indonesia keeps a high intensity as the rural problem. Two thirds of those living below the poverty line live in the rural areas. Many of them depend on subsistence agriculture, often in resource-poor areas, and must earn a living with low-skill labour. The rural poor tend to have low education and are thus excluded from many types of formal employment.

In 1969, Anne Booth, one of economic professor from University of London, had noted that the proportion of poor people in rural Java reached 61% of total number of rural populations; But, one year after, this number was reducing until 38.7% (Susanto 2006b).

Table 1
The Gini Ratio at Provincial Level in Indonesia during 1995-2005

No.	Province	Gini Ratio						
		1996	1997	1998	1999	2000	2001	2005
1	Sumatera Utara	30.10	28.80	27.20	27.00	27.00	27.00	32.70
2	Sumatera Barat	27.80	28.80	27.30	25.00	27.00	29.00	30.30
3	Riau	30.00	27.60	30.50	27.00	33.00	33.00	28.30
4	Jambi	24.60	24.70	27.40	26.00	26.00	27.00	31.10
5	Sumatera Selatan	30.00	26.20	25.30	27.00	30.00	26.00	31.10
6	Bengkulu	27.30	27.70	26.80	28.00	26.00	26.00	35.30
7	Lampung	27.60	27.60	27.20	29.00	29.00	27.00	37.50
8	DKI Jakarta	36.30	36.70	34.90	46.00	38.00	33.00	27.40
9	Jawa Barat	35.60	30.80	30.20	29.00	29.00	29.00	26.90
10	Jawa Tengah	29.10	26.30	26.50	27.00	27.00	28.00	33.60
11	Dista Yogyakarta	35.30	35.30	33.70	34.00	37.00	40.00	30.60
12	Jawa Timur	31.10	31.10	32.40	29.00	29.00	31.00	41.50
13	Bali	30.90	28.80	31.40	28.00	28.00	32.00	35.80
14	Kalimantan Barat	30.00	29.90	28.50	27.00	31.00	30.00	33.00
15	Kalimantan Tengah	27.10	26.00	26.30	27.00	27.00	27.00	31.00
16	Kalimantan Selatan	29.20	40.70	26.30	27.00	28.00	28.00	28.30
17	Kalimantan Timur	31.80	33.10	31.10	29.00	32.00	27.00	27.90
18	Sulawesi Utara	34.40	28.80	30.40	28.00	29.00	31.00	31.80
19	Sulawesi Tengah	30.20	28.00	30.70	30.00	30.00	34.00	32.30
20	Sulawesi Selatan	32.30	28.20	27.80	28.00	29.00	27.00	30.10
21	Sulawesi Tenggara	31.10	29.20	26.30	28.00	29.00	29.00	35.30
22	Nusa Tenggara Barat	28.60	27.20	26.50	25.00	27.00	30.00	36.40
23	Nusa Tenggara Timur	29.60	27.60	28.50	28.00	28.00	30.00	31.80
24	Maluku	26.90	26.00	27.40	29.00	30.00	31.00	35.10
25	Irian Jaya	38.60	37.70	39.40	44.00	39.00	38.00	38.90
Summary								
Minimum		24.60	24.70	25.30	25.00	26.00	26.00	26.90
Median		30.00	28.80	27.80	28.00	29.00	29.00	31.80
Maximum		38.60	40.70	39.40	46.00	39.00	40.00	41.50
Average		30.62	29.71	29.20	29.28	29.80	30.00	32.56
St.Dev.		3.312225	4.022988	3.314488	5.054041	3.547299	3.547299	3.719991

Source: Data from Statistics Indonesia (2006)and my calculation

The successful of Indonesia history on reducing the number of poor in the New Order is supported by some policies outside the poverty alleviation programmes. Firstly, Indonesia government introduced the social programme such as the family planning programme. Reducing number of population systematically may reduce the number of the poor. Higher economic growth reached through economic development in the New Era will satisfy by less people (Remi and Tjiptoherijanto 2002). Secondly, reducing the number of poor was also caused by the openness job opportunities outside the agricultural sector. Increasing on industrial sector and services were the important contributors for increasing workers' incomes.

Even though it had reducing, in 1970 period, Indonesia was the one of the poorest country in Asia. Its annual income per capita was only US$ 70 according to World Bank Atlas 1971 (Arndt 1983). Through rapid economic growth Indonesia's GDP has increased but there is still as a part of the populated but poor country in the world. Remi and Tjiptoherijanto (2002) says that it may be happened because of some reasons. First, the effort to reduce poverty incidences in Indonesia was ineffective and had been saturated in the middle of 1980s. Second, income inequality tended to be wider, not only among sectors and groups, but also among regions.

This condition has been worsening when Indonesia was hit by financial crisis[18] in the late of 1997 and followed by drought; it affected Indonesian macro-economy conditions. Number of poverty which had been reducing during 1970-1996 increased more than a hundred percent in 1998 (see Figure 1 in Chapter 1). During 1976-1996 number of poor had been reduced from 54.2 million people (40.08% of populations) to 22.5 million people (11.34% of population); but because of the crisis this number were increased becoming 49.5 million people (24.23% of population) (Remi and Tjiptoherijanto 2002). Following table shows the change of poverty rate in Indonesia during 1976-1998 (see Table 2).

Table 2
Percentage of Poor In Indonesia during 1976-1998

Year	% The Poor (Headcount ratio)		
	Urban	Rural	Urban + Rural
1976	38.79	40.37	40.08
1978	30.84	33.38	33.31
1980	29.04	28.42	28.56
1981	28.06	26.49	26.85
1984	23.14	21.18	21.64
1987	20.14	16.14	17.42
1990	16.75	14.33	15.08
1993	13.45	13.79	13.67
1996	9.71	12.3	11.34
1998a	14.43	20.08	17.86
1996*	13.69	19.87	17.65
1998*	21.92	25.72	24.86

Source: Remi and Tjiptoherianto (2002)

Notes:

1998a: adjustment value of 1998. This adjustment means the measurement uses the food and non food categories similar to the categories used in 1996 measurements.

1996*: adjustment value of 1996. It means the 1996 data is adjusted using the categories similar to the categories in 1998

1998*: the value is measured using the categories in 1998

According to this table, during 1976-1998 increasing the rate of poverty in the urban area is similar to increasing the rate of poverty in rural area (around 60%). This increasing is enabled because the rate of poor in rural is higher than that in urban area. The crisis caused the number of poverty in urban area increased by 140% and 105% in rural area. It means people in urban area

suffered more than people in rural area through this crisis. Two possible explanations which are 1) the crisis affected worse to the several sectors in urban area such as constructions, trades, and finances; 2) people in rural area can fulfil their needs such as food by produce it by themselves, meanwhile people in urban area should buy it (Remi and Tjiptoherijanto 2002).

Overcoming this problem due to reduce number of poverty, the government has published several policies. According to Bappenas, during the crisis, Indonesia government and donor countries realize that building the Social Safety Net which is important for 1) creating activities that can be access by the poor; 2) creating productive job opportunities to improve people's purchasing power; 3) improving the wealth of poor; 4) recovering social services for the poor and their economy is needed. This programme consists of several activities such as 1) food security programme 2) education and social security programme 3) health and social security programme, and 4) labour intensive programme.

Firstly, the aim of food security programme principally is to give better access to the poor in term of the price and its availability. Two main activities in this programme are 1) providing food for the poor through *Operasi Pasar Khusus* (Special Market Operation)[19] and 2) improving national food security through farmer's empowerments[20].

Secondly, education and social security programmes are aimed for stabilizing educational services to the poor through giving scholarships, improving and building schools for basic education. Under this programme, children coming from the poor families are allowed to get nine year basic education for free.

Thirdly, the aim of health and social security programme. Under this programme the poor families can be served in public health centre for free. They are also given additional food supplement particularly for children including babies and pregnant women.

Then, fourthly, labour intensive programme. The aim of this programme for creating several jobs that can be absorbed large number of people and at the end improving their purchasing power.

The impacts of those policies are varying. It can be either long term or short term impacts. For instance Indonesian government produces one policy about rice's price part of food security programme. The aim is helping the farmers because if the rice's price increases, incomes of the farmers also increase. But, in reality this objective cannot be reached. In the short term this policy is worsening not only farmer's welfare but also whole society in Indonesia. Most of them consume more rice than produce it, so that an increase in rice's price forms transfers from the consumers to producers at all income levels (Mcculloch 2008).

Other policy which has been done to improve the welfare of agriculture households is the land ownership policy. This policy is an essential policy for farmers even though land ownership is only an exogenous factor determining agriculture households' revenue. This factor will determine household revenue. Some farmers in Indonesia rent the land for farming. It might be risky because if the production is failed they will suffer much financial loss. First, they suffer

loss for preparing the seed, fertilizer, operational cost, and other endogenous factors in agricultural production and then they also suffer from paying the rent of land used for farming. To overcome this problem Indonesian government applies land reform policies since Sukarno's leadership in the early 1960s until Soeharto's era. Under Soekarno, the land reform was part of a larger and more successful effort to modernize the colonial legal system of landownership[21]. Besides, this policy was implemented to redistribute population from dense area in Java to sparse area outside Java. But this policy, under Soeharto's era, was shifted to policies which support an increasing in agricultural productions. By the 1980s, Indonesia had achieved success in increasing rice production, but the distribution of benefits among villagers was still debated.

Another things doing by Indonesian government for helping farmers due to increase their production is through subsidizing inputs of productions. Rice is the most import-competing agricultural sector; that is inputs for its production have been subsidized, even though the amount of subsidies are vary depending on availability of foreign exchange (Fane and Warr 2008).

In the health sectors, Indonesia has made significant progress. For instance, the rate of infant mortality declined from 118 deaths per thousand births in 1970 to 35 in 2003, and life expectancy increased from 48 years to 66 years over the same period[22]. Family planning policy implemented in Indonesia and other health policies during 1970s and 1980s has much contributed to these improvements.

However, in this time, health problems in Indonesia become more complex. Besides emerging several numbers of diseases and performance of public health service should be taken into account when the government creates the policies. For instance, even though government spending in health sectors has been increasing in 2004 comparing with 2000 budgeting year, it is still lower comparing with international allocation and among countries in the region. In 2004 the real per capita public spending on health was 47.8% higher than in 2000; this amount only spends 3.8% of total government expenditures[23].

Government should invest more in health sectors particularly for the poor. The poor needs health policies which take side with them. Healthier people benefit for creating efficiency in production activities.

Even though all of those things have already been done by the government, it only help for a while, when the financial crisis happened in the late of 1997 number of poor increased. Said and Widyanti in 2001 conducted one study about trends, changes, socio-economic and demographic characteristics of poverty and inequality as the results of financial crisis. How the characteristics of household head[24] contribute to the rate of poverty incidences in Indonesia can be seen in Table 4. Poverty incidences were highest among those who work in agricultural sector, self-employed with unpaid workers, and in based on their educational level, they did not completed primary and illiterate; while the lowest was to whom work in the financial sector, with occupational status was wage employee, and had already completed tertiary in educational level (Said and Widyanti 2001).

Enabling the poor to education is other way for government due to reduce poverty incidences in Indonesia. Poverty incidences explained in the previous chapter happens mostly in the low educated people which are working in agricultural sectors. Why it happens because low educated people cannot access better job in other sectors which need more skilled people for doing their jobs. Agricultural sectors can absorb a large number of people even though they are unskilled or only have low educational levels.

Table 3
Poverty by Characteristics of Household Head

Household characteristics	February 1996			February 1999		
	% poor	% share of poor to total poor	% of population	% poor	% share of poor to total poor	% of population
Sector of household income						
Agriculture	25.31	63.74	41.04	31.65	55.55	39.71
Mining and quarrying	14.9	0.95	1.03	23.32	0.94	0.91
Manufacturing Industry	12.26	6.32	8.4	19.9	8.05	9.16
Electricity, gas, and water	7.86	0.2	0.42	13.58	0.19	0.32
Construction	14.85	5.54	6.08	25.26	5.78	5.18
Trade, hotel, and restaurant	9.38	9.21	16	15.86	12.04	17.18
Transport and communication	11.11	4.02	5.9	21.82	6.09	6.32
Finance, insurance, and leasing	1.94	0.1	0.83	5.52	0.29	1.19
Civil, social and private services	7.87	7.6	15.73	11.81	7.92	15.18
Others	16.8	0.12	0.12	29.02	0.3	0.23
Receiving transfer	8.05	2.2	4.45	13.94	2.85	4.62
Occupation status of household head						
Self-employed without help	17.13	24.38	23.2	24.04	25.57	24.07
Self-employed with unpaid workers	20.78	44.93	35.22	25.59	35.59	31.3
Wage employee	11.17	21.82	31.81	19.83	30.03	34.27
Unpaid workers or not working	14.81	8.88	9.76	19.67	9	10.36
Educational level of household head						
Not completed primary and illiterate	30.22	25.86	13.94	38.25	18.74	11.09
Not completed primary but literate	21.32	33.4	25.53	29.95	31.21	23.59
Completed primary	15.92	30.84	31.56	24.58	35.19	32.4
Completed Junior secondary	9.44	6.21	10.72	16.02	8.68	12.27
Completed senior secondary	3.96	3.43	14.13	8.24	5.8	15.94
Completed tertiary	1	0.25	4.11	1.78	0.37	4.72

Source: Said and Widyanti (2001)

Since 1960s, Indonesian government has improved educational levels. People have access to primary, secondary even post-secondary education levels. However, increasing in number of schools cannot follow Indonesian population growth. Government should prepare extra budget to accommodate this condition. World Bank has lent $1.5 billion of education lending to Indonesia, for 25 projects since 1969, is its largest education portfolio[25]. Recently, the government spending in education is increasing. For instance, between 2000 and 2003 there is 49% increasing from Rp 63.6 trillion to Rp

62.6 trillion[26]. Increasing in government spending in the educational sector to build appropriate school buildings even in the remote area in Indonesia, improve the quality of education especially for the poor, increase quality of the teachers and their salaries to give an incentive for them and keep the efficiency and effectiveness in teaching, invest in books and other school materials.

According to Indonesian education minister, Bambang Sudibyo, the objective of educational policies is education for all, long-life education, and education for ongoing development[27]. The idea of education for all is Indonesia consists of multicultural background, such as religion, faith, ethnicity, and ability which create diversity in opportunities to access educations. The government should consider those varieties when creating educational policies.

Besides, the government should pay attention about growing number of child laborers caused children have to support their families hand in hand with their parents. Children enter to labor forces because of some reasons. Firstly, their parents cannot afford school's fee and it is better for the parents use available money to fulfill their basic needs to extend their lives. Secondly, children want to help their parents to finance their daily lives. Even though there is possibility for some cases parents insist their children to do that.

3.2 How change in inequality may affect the poor

Besides economic growth, there is one more factor that also plays an important role on poverty reduction, a change in inequality. Previously, the author has already mentioned about Kuznet's hypothesis. According to his analysis, in the short run economic development emphasising on an improvement on economic growth leads wider gap on income distribution among classes. However, after several times, in the long run, this gap will be narrower and at the end income distribution will be more equal for every income classes comparing to the condition when it starts.

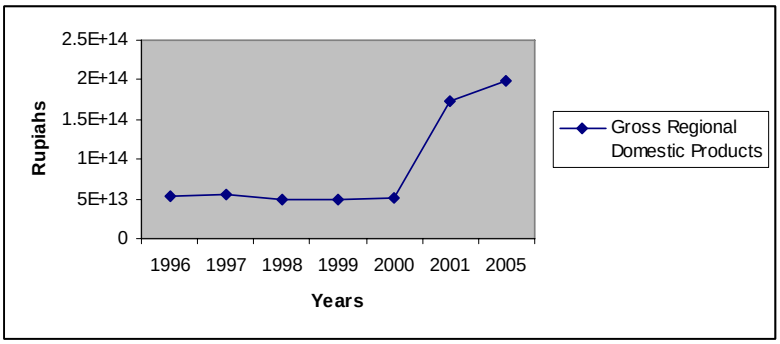
This analysis was supported by empirical evidences finding in the United States, the United Kingdom, and Germany. But, it does not happen in Indonesia. Before I explain why it cannot be happened in Indonesia, following table illustrates GRDP for 25 provinces in Indonesia during 1996-2005. Using the average value of Gini ratio and GRDP from Table 3 and 4, I draw graphs showing the movement those two (see Figure 2 and 3). From those two figures we can see that an increase in GRDP is associated with a decrease in the Gini ratio, even it only changes in a small amount. That is we can say, Kuznet's hypothesis cannot be used to explain the linkage between economic growth and inequality.

Table 3
Poverty by Characteristics of Household Head

No.	Province	Gross Regional Domestic Products						
		1996	1997	1998	1999	2000	2001	2005
1	Sumatera Utara	6.8285E+13	7.2174E+13	6.4305E+13	6.5968E+13	6.9154E+13	1.9912E+14	2.3994E+14
2	Sumatera Barat	2.2137E+13	2.3275E+13	2.1698E+13	2.2042E+13	2.289E+13	6.6589E+13	8.0228E+13
3	Riau	8.6763E+13	8.9504E+13	8.6046E+13	8.8955E+13	9.4758E+13	4.1506E+14	3.2946E+14
4	Jambi	8.9351E+12	9.2848E+12	8.7822E+12	9.0373E+12	9.5692E+12	2.7184E+13	3.3958E+13
5	Sumatera Selatan	4.4367E+13	4.6619E+13	4.3442E+13	4.4817E+13	4.1318E+13	1.3558E+14	1.5535E+14
6	Bengkulu	4.7132E+12	4.8579E+12	4.5531E+12	4.684E+12	4.8681E+12	1.3587E+13	1.6456E+13
7	Lampung	2.2422E+13	2.3353E+13	2.1731E+13	2.2501E+13	2.3265E+13	7.5447E+13	9.1651E+13
8	DKI Jakarta	2.5263E+14	2.6553E+14	2.1909E+14	2.1846E+14	2.2792E+14	8.7026E+14	1.0635E+15
9	Jawa Barat	2.404E+14	2.5212E+14	2.073E+14	2.1207E+14	1.9575E+14	6.8958E+14	8.21E+14
10	Jawa Tengah	1.1728E+14	1.2083E+14	1.0664E+14	1.1037E+14	1.147E+14	3.2134E+14	3.8043E+14
11	Dista Yogyakarta	1.3719E+13	1.4202E+13	1.2834E+13	1.2961E+13	1.3481E+13	3.6217E+13	4.3379E+13
12	Jawa Timur	2.203E+14	2.2955E+14	1.9406E+14	1.9642E+14	2.0283E+14	7.2358E+14	8.6413E+14
13	Bali	1.6396E+13	1.7348E+13	1.6646E+13	1.6758E+13	1.7268E+13	3.9643E+13	4.5831E+13
14	Kalimantan Barat	1.7832E+13	1.9175E+13	1.8271E+13	1.8766E+13	1.9319E+13	5.1311E+13	5.9496E+13
15	Kalimantan Tengah	1.0821E+13	1.1502E+13	1.0705E+13	1.0806E+13	1.0981E+13	2.9438E+13	3.5342E+13
16	Kalimantan Selatan	1.6066E+13	1.68E+13	1.5889E+13	1.661E+13	1.7215E+13	4.6435E+13	5.526E+13
17	Kalimantan Timur	7.2913E+13	7.6156E+13	7.5574E+13	7.9277E+13	8.2447E+13	3.0373E+14	3.3542E+14
18	Sulawesi Utara	1.1726E+13	1.2357E+13	1.2065E+13	1.2835E+13	1.0565E+13	3.4656E+13	3.9854E+13
19	Sulawesi Tengah	8.0286E+12	8.4067E+12	8.0739E+12	8.2997E+12	8.6492E+12	3.1383E+13	3.9643E+13
20	Sulawesi Selatan	2.8887E+13	3.0128E+13	2.8523E+13	2.9329E+13	3.0763E+13	9.3683E+13	1.1356E+14
21	Sulawesi Tenggara	5.3907E+12	5.6774E+12	5.3493E+12	5.4855E+12	5.7747E+12	1.9942E+13	2.5832E+13
22	Nusa Tenggara Barat	8.6297E+12	9.0833E+12	8.8044E+12	9.0803E+12	1.2182E+13	3.2901E+13	4.0385E+13
23	Nusa Tenggara Timur	7.1544E+12	7.5561E+12	7.3498E+12	7.5504E+12	7.8506E+12	2.0914E+13	2.5167E+13
24	Maluku	6.3629E+12	6.5859E+12	6.1954E+12	4.7922E+12	2.7693E+12	5.9104E+12	6.6206E+12
25	Irian Jaya	1.8662E+13	2.0048E+13	2.2598E+13	2.1812E+13	2.2283E+13	5.9548E+13	4.3514E+13
Summary								
Minimum		4.7132E+12	4.8579E+12	4.5531E+12	4.684E+12	2.7693E+12	5.9104E+12	6.6206E+12
Median		1.7832E+13	1.9175E+13	1.8271E+13	1.8766E+13	1.9319E+13	5.1311E+13	5.526E+13
Maximum		2.5263E+14	2.6553E+14	2.1909E+14	2.1846E+14	2.2792E+14	8.7026E+14	1.0635E+15
Average		5.3233E+13	5.5685E+13	4.9061E+13	4.9987E+13	5.0743E+13	1.7372E+14	1.9941E+14
St. Dev		7.5376E+13	7.8863E+13	6.5475E+13	6.6333E+13	6.6705E+13	2.4697E+14	2.9255E+14

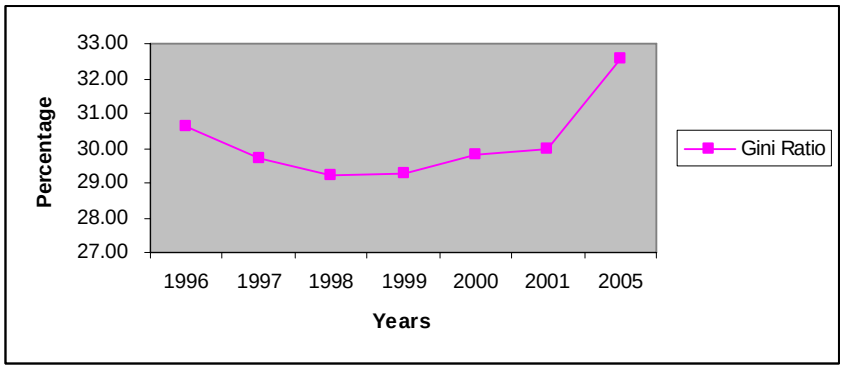
Source: Data from Statistics Indonesia (2006) and my calculation

Figure 2
Average GRDP movements during 1996-2005



Source: Data from Statistics Indonesia (2006) and other sources and my calculation

Figure 3
Average Gini Ratio movements during 1996-2005



Source: Data from Statistics Indonesia (2006) and other sources and my calculation

After doing economic development emphasising on improving economic growth for several decades, the structure of income distribution in those countries becomes more unequal; it is the real fact happening in Indonesia; improvement in economic growth does not mean income distribution among population will be equalized (Susanto 2006a). Quoting from what one of Indonesian economists, Thee Kian Wee, said that at the end economic development in developing countries are not concerned on economic growth, but on how to fulfil their basic needs; This approach is known as basic needs approach (Susanto 2006a).

we can analyze how inequality trends for urban and rural area among regions in Indonesia before and after the crisis, as already done by Said and Widyani (2001). Based on their study there is the variation of Gini ratio between urban and rural areas among regions in Indonesia as a result of financial crisis shown in Table 4. They found that before the crisis the variation is only happened between urban and rural areas; but after the crisis, the variation is happened not only between urban and rural areas but also among regions. Before the financial crisis, more developed provinces they are, higher the Gini ratio it is. We can say this possibility as a result of more variation on income sources. That is income distribution inside that region more fluctuate comparing to less developed regions. It also happens between urban and rural areas. In urban areas job opportunities are many rather than in rural areas. There is one exceptional, in that table, other islands have a higher Gini ratio comparing to Kalimantan, Sulawesi and Sumatera; it does not mean those islands are more developed, but it is because the value is coming from accumulating total Gini ratio for those islands outside Java, Bali, Sumatera, Kalimantan, and Sulawesi.

Table 4
Gini Index among Region between Urban and Rural in Indonesia

Region	February 1996			February 1999		
	Urban	Rural	Urban+Rural	Urban	Rural	Urban+Rural
Java-Bali	0.3895	0.2887	0.3835	0.3461	0.2493	0.3344
Sumatera	0.3074	0.2604	0.3048	0.2829	0.2436	0.2738
Kalimantan	0.3020	0.2666	0.2774	0.2723	0.2347	0.2629
Sulawesi	0.3239	0.2928	0.3010	0.3020	0.2754	0.2989
Other Islands	0.3357	0.2590	0.3207	0.2944	0.2594	0.2856

Source: Said and Widyanti (2001)

After the crisis, the value of Gini ratio was declined. But it does not mean that income distribution become more equal than that before the crisis. There is possibility the distribution for the poorest remains the same but the richest becomes poorer than before; or there is also possibility the middle class has changed. That is, we cannot determine precisely the crisis reduces inequality using the change on the value of Gini ratio because as already mentioned before, the value of gini ratio is withdrawn from the proportion of areas between Lorenz curve and total area below the equal line.

If we compare Indonesia Gini ratio with other South-East Asian countries such as Malaysia, Philippines, and Thailand, the value is relative lower than those (see Figure 4). Indonesia is a country with a lower inequality rate, that is to reduce number of poor in Indonesia the most important thing should do is improve pro-poor economic growth emphasizing on its strong policy for keeping inequality stay low (Ravallion 2005).

In the New Order, inequality among Indonesian population related to several factors, such as opportunities of the poor for accessing the available and proper job for whole Indonesian people. During 1976 – 1996 increase on the number of labour force cannot be followed by increasing on the number of job activities which may absorb them. Lower level of labour force absorption is caused by many factors, such as 1) limited area for agriculture sector; the limited was caused by the distortion of agricultural area into other sectors; 2) the appearance of industrial sector have not been enough to absorb the abundance of labour force. This obstruction was caused by less skilled and education or inappropriate level of education of those labour force.

Still related to education level, inequality in Indonesia related to income distribution among population. This unequal condition is a result of different level of education, occupational status, and type of occupations (Susanto 2006a). According to the study done by Booth in year 2000, it can be seen that educational levels has a role to determine incomes (see Table 5) (Susanto 2006a). There is sharp differential income among people because of their educational levels. People who only have lower education will receive less income compare to people who have higher educations. Even though over two decades there is an improvement on their incomes, at the end this unequal on income distribution will affect either absolute or relative number of the poor.

Table 5
Wage of labourers based on their educational levels during 1976-1996

Level of Educations	Monthly Wages		
	1976	1986	1996
uneducated	7.5	35.4	92.1
unfinished elementary school	n.a	n.a	122.4
finished elementary school	12.7	51.3	145.7
junior high school	22.4	77.7	186.7
Vocational junior high school	21.4	76.4	209.3
senior high school	31.3	99	256.3
Vocational senior high school	24.9	93.6	263.4
diploma non degree	n.a	105.7	333.2
bachelor degree	57.6	152.4	487.5

Source: Susanto (2006a: 71)
Notes: n.a: not available

Said and Widyanti also looked at inequality level among population below the poverty line in urban and rural Indonesia (see Table 6). During the crisis, overall inequality level was decline, but there would not be when they looked at how the inequality among population below the poverty line in urban and rural area. They found that the inequality was increase for both urban and rural area during the crisis and increasing in rural was higher than that in urban area (Said and Widyanti 2001).

Table 6
Gini Index among population

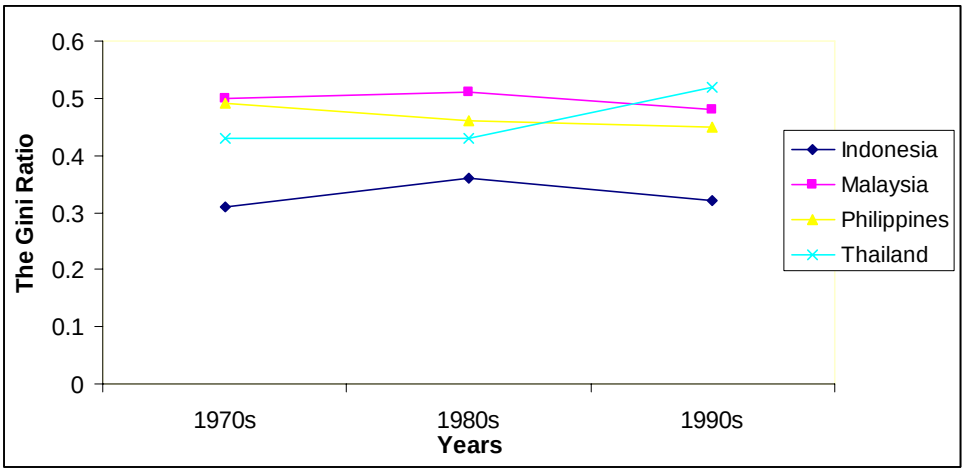
Year	Gini Index		
	Urban	Rural	U+R
in general			
1996	0.362	0.274	0.356
1998	0.332	0.256	0.319
1999	0.344	0.264	0.334
Living below the poverty line			
1996	0.0886	0.0856	0.0868
1998	0.0909	0.1027	0.0983
1999	0.0937	0.0918	0.0926

Source: Said and Widyanti (2001)

Those illustrations may give a general insight about how poverty and inequality in Indonesia related to its economic growth over the years. One study done by Hill (1996) shows that Indonesian Gini Ratio over the year is fluctuate. Even though per capita income has already increased the Gini ratio did not show certain trends. For instance, in 1976 when per capita income reached Rp 99,700.00 a year, the Gini ratio was 0.34; in 1984, the Gini ratio declined to 0.33 and per capita income increased to Rp 466,800.00 a year; but in 1993 when per capita income had already increased to Rp 1,523,800.00 a year, the Gini ratio also increased to 0.34. According to Yustika (2007), these

conditions happened because in 1980s Indonesian government applied some policy deregulations such as banking deregulation policies.

Figure 4
Performance of Indonesian Gini ratio comparing to some neighbouring countries



Source: Yustika (2007)

But this fact is still argued by several researchers. They still doubt about accuracy of the data. There is a rumour widely spread that Indonesia government in the New Era period sometimes manipulated the data adjusted to what the purposes they wanted to achieve. But one important fact that faced by Indonesian people is income inequality is still higher and worse even though economic development has already been done for forty five years. Increasing per capita income cannot adjust this condition. Income gap among Indonesia people which happened in the New Era is worsen by a monopoly by several people or groups for several assets of productions. According to the PDBI data, in 1988, ten Indonesian richest dominated 13% of national GDP and this had been increased to 32% in 1993.

Previously, the author already mentioned about several policies which have been implemented to improve Indonesia economy, particularly to adjust farmers' empowerments. But, it has not been reached yet. For instance, In agricultural sectors, although the land reform policy implemented since Soekarno's era still remained, government in Soeharto's era preferred its emphasis on increasing production policies. Even though through these policies only rich farmers were benefited because these policies related to introduce new technology, on the late 1980s, these policies were increasing rice production and furthermore were giving the advantage for people particularly the poor because higher production output will create job opportunities not only in agriculture sector but also outside it even for the landless people.

Knowing the linkage between change in growth and inequality and their determination are important to design what the pro-poor growth strategies is suitable for it (Cord 2007). He says that:

> Households can participate in economic growth through three main channels: employment, transfers (from public and private sources), and return on investment. Focusing in employment because the most successful experiences in pro=poor growth occurred when government policy , combined with favourable exogenous events, supported creation of attractive jobs accessible to poor households.

It means, the most important things should be considered from the policy makers point of view is how to produce kinds of policies that can improve poor accessibility to growth itself.

For example, data shows us that most of the poor are engaged in agricultural sector; Indonesian government should create several policies that can improve agriculture productions: 1) starting to strengthen land property right, 2) subsidies and protection, 3) expanding the technology, 4) act as a buffer for the poor farmers when they face the problems (Cord 2007).

In health sectors, among provinces in Indonesia, people might face different the health system. It is possible; Indonesia consists of 33 provinces, 349 regencies and 91 municipalities. Those have different kind of difficulties to be reached. That is why for several areas such as eastern part in Indonesia has different rate of infant mortality and life expectancy even worse comparing with western part of Indonesia.

The policies suitable for this issue for example are giving extra budget to remote areas to improve their public health service's performance and utilizations. Another policy is allocating medical employees to the remote areas for certain periods as an obligatory after they complete their education. In Soeharto's era this policy was implemented as a matter to redistribute health development. Another option, through decentralization local governments have authority to determine their budgets. They may increase their share in total public health spending.

Chapter 4
Data and Methodology

4.1 Data

There are three important measures used throughout the analysis. First, a measure of poverty i.e. head count ratio, secondly, a measure of provincial economic growth i.e. normal logarithmic of per capita provincial gross regional domestic product, and third, a measure of inequality i.e. Gini ratio. The arguments for the choice of measure are presented below.

In this study, I used head count ratio as poverty measure for provincial level in Indonesia. The reason why I use it because estimating the poor under absolute term may mislead the analysis. In absolute term number of poor people may be stable, particularly for the area having fast rates of population growth, despite the decrease in the percentage of the population living under poverty line (Kanbur 2004). Next, to represent economic growth economists usually use normal logarithmic of per capita income derived from household survey. However, because the unit analysis is not household but sub-national (or at provincial) level, I decided to employ a more macroeconomic measure which is the normal logarithmic of per capita provincial gross regional domestic product (GRDP). Then, the Gini ratio is used to illustrate income inequality within province, as it is the most reliable quantitative measure of income distribution.

All data were retrieved from the Statistics Indonesia[28] for twenty five provinces in Indonesia for two points of years, 2001 and 2005. Besides data availability there is another reason why I choose year 2001 and 2005 as years of observations. Firstly, I assumed during that period Indonesian economy has already been more stable because it was 4 years after the crisis and the new government has implemented several programmes and some of the results can be seen. Secondly, starting 2001 fiscal decentralization policies has been applied and I think its impacts can be seen in year 2005. The reason why twenty five provinces are treated as the objects of observations is data uniformity. Formerly, Indonesia consists of twenty six provinces, but I exclude one province, Nangroe Aceh Darussalam because I cannot calculate its per capita GRDP and the headcount ratio because of there is incomplete data for number of population.

4.2 Methodology

In attempt to explain the relationship between poverty, growth and inequality in Indonesia during 2001 to 2005, the author proposes several econometric equations to be tested. In principal, these equations are built upon the elasticity of poverty formula proposed by Besley and Burgess (2003) on how economic growth is channelled to poverty reduction by taking into account the differences of income inequality among provinces in Indonesia (Besley and Burgess 2003,Kakwani et al. 2004).

The first equation is developed based on the general explanations in the previous chapter which state that we can estimate the change on poverty associated to the change on average income while holding the inequality (here the Gini ratio) constant. In other words poverty is a function of per capita GRDP (see Equation 2).

$$H = H(G) \tag{2}$$

where H and G represent the provincial headcount ratio and per capita provincial GRDP respectively.

For flexibility of empirical testing, Equation 2 is expanded into several different specifications, taking into account different possible conditions on growth-poverty elasticity. For equation 3 and 4, I use the simplest approach disregarding the space and time dimensions of the pooled data known as the usual OLS regression (Gujarati 2003b). The author just stacks 25 observations for each year one on top of the other, giving in 50 observations for each variable on it.

$$Ln\,H_i = \alpha_0 + \alpha_1 Ln\,G_i + \varepsilon_i \tag{3}$$

The model is built within log-log specification. The reason for applying this specification is because the author wants to capture the elasticity of poverty with respect to regional income growth. The elasticity of poverty is shown by the value of α_1 while the value of α_0 is capturing provinces' characteristic fixed effect.

According to several previous studies by Ravallion and Chen and Besley and Burgess (Besley and Burgess 2003,Ravallion 2004,Ravallion and Chen 2005), the value of α_1 is expected to be negative implying that that every percentage increase in per capita provincial GRDP will reduce the rate of poverty by α_1%.

Next equation, I relax the assumption of constant Gini ratio by allowing dynamic of value of the Gini ratio. In this specification, the change in the Gini ratio is included into the equation (see Equation 4).

$$Ln\,H_i = \beta_0 + \beta_1 Ln\,G_i + \beta_2 Ln\,L_i + \omega_i \tag{4}$$

where β_1 and β_2 are capturing the elasticity of poverty to growth and the inequality respectively.

However this kind of estimation might not give the true effect of per capita GRDP and the Gini ratio on the poverty headcount ratio because those two equations are built over cross time and provinces.

Considering there might be time specification taking into account on this linkage, the author let the intercept to vary for each time and assume the slope coefficient constant. That is Equation 3 and 4 are extended to equation 5 and equation 6 respectively. The specifications are as follow:

$$Ln\,H_i = \delta_0 + \delta_1 DY_1 + \delta_2 DY_2 + \delta_3 Ln\,G_i + \sigma_i \quad (5)$$

$$Ln\,H_i = \lambda_0 + \lambda_1 DY_1 + \lambda_2 DY_2 + \lambda_3 Ln\,G_i + \lambda_4 Ln\,L_i + \theta_i \quad (6)$$

Equation 5 and 6 are known as the LSDV model (Least Square Dummy Variable). DY_1 is equal to one if the observation belongs to year 2001 and zero otherwise; alternately, the value of DY_2 is equal to one if the data belongs to year 2005 and zero otherwise. Since the author only observes two year data, on the regression, it only needs one variable dummy. The choice is arbitrary; it depends on my preference; what year to be treated as the comparison year either 2001 or 2005.

The LSDV model is applied because the author wants to estimate whether the time has a role on reducing poverty or not, after taking into account the variation of regional growth (Equation 5) or variation of regional growth and inequality together (Equation 6). To decide which model between the usual OLS and the LSDV is better represent the data, besides comparing their statistical significance of the estimated coefficients and R-squared, the author also does a formal F test. The test is done using F-test formula which is comparing the value of the estimated F with the value of the F table. Equation 7 is the formula to do the F-test (Gujarati 2003b).

$$F = \frac{\left(R^2_{ur} - R^2_r\right) / m}{\left(1 - R^2_{ur}\right) / (n-k)} \quad (7)$$

where R^2_{ur} and R^2_r is the value of R-squared obtained from the unrestricted and restricted model respectively. The unrestricted model is the model which contains the dummy variable for the year; that is the value of R^2_{ur} is the value of the R-squared either coming from Equation 5 or 6. And, the restricted model is the model which does not contain the dummy variable, and then the value of R^2_r coming from the value of R-squared obtained either from Equation 3 or 4. I do the F-test twice, the first test is done for testing Equation 3 and 5 and the second test is done for testing Equation 4 and 6.

The null hypothesis implied from the Equation 7 that the time does not have a role for reducing poverty and the alternative hypothesis is the time has a role on it. The null hypothesis will be rejected if the value coming from Equation 7 is higher than the value coming from the F table (Gujarati 2003b).

Furthermore I want to estimate the trade off between growth and the inequality. It means I will estimate how much growth should be achieved to compensate an increase in the Gini ratio (Wodon 1999). For that purpose, I estimate the elasticity of poverty to the value of Gini ratio. In this step, I do a regression on the headcount ratio to the Gini ratio. After finding the estimated coefficient of the Gini ratio, I apply the following equation to estimate the trade off (see Equation 8).

$$Trade\ off\ = -\frac{The\ estimated\ coefficient\ of\ \ poverty\ elasticity\ to\ inequality}{The\ estimated\ coefficient\ of\ \ poverty\ elasticity\ to\ growth} \quad (8)$$

Knowing the value of trade off will give us an information about how much growth should be achieved to compensate 1% increase in the Gini ratio (Wodon 1999). The results from all those equations can be seen in the next chapter, results and Analysis chapter.

Chapter 5
Results and Analysis

In the first part of this chapter, I will describe the data explained previously; what the data say about the behaviour of provinces' per capita GRDP, poverty headcount ratio, and Gini coefficient. Then, in the second part, I will present the results of applying the methodology from the fourth chapter.

5.1 Data Descriptions

Shown in Table 7, per capita GRDP of twenty five provinces in Indonesia from year 2001 to 2005 had a wide gap. In year 2001 minimum value of per capita GRDP was Rp 4,871,685 belong to Maluku Province; and the maximum point was Rp 117,000,000 belong to Kalimantan Timur Province. This province has abundant oil resources. That is its per capita income is higher. About Maluku province, since December 1999 until mid 2001 conflicts between Christians and Muslims blew up in this province[29]. Unsecured condition will slow down its economic development. Additionally, in year 2005, DKI Jakarta Province was the province having the highest per capita GRDP; even though Kalimantan Timur Province had increased its per capita GRDP to Rp 119,000,000, this increase cannot surpass DKI Jakarta Province which had Rp 122,000,000 per capita GRDP.

Further, for the headcount ratio. In both years 2001 and 2005 the gap between minimum and maximum value was also wide. In both years, the minimum values were belong to DKI Jakarta which respectively were 2.6573% and 3.6342%; and maximum headcount ratios were belong to Irian Jaya Province which were respectively 45.1277% and 40.8275%. The different between those two provinces is in Irian Jaya Province in four years the headcount ratio was declined but in DKI Jakarta had different experience. In DKI Jakrat, in four years the headcount ratio was also increased by 0.9769%

Lastly is the Gini ratio. In year 2001, Both Sumatera Selatan and Bengkulu Provinces had the same Gini ratio, 26.00%; and the maximum value was belong to DI Yogyakarta, 40.00%. Then, in year 2005, the minimum value was belong to Jawa Barat Province, 26.90% and the maximum value was belong to Jawa Timur Province, 41.50%.

Conclusions that can be retrieved from those data are high increase in per capita GRDP followed by small change in the Gini ratio, the headcount rate will reduce faster which is in line with the study done by Ravallion that explained that in low inequality level, given the same growth rate, the poverty reduction will be faster (Ravallion 2005). For instance, take Kalimantan Selatan and Sumatera Utara Provinces as examples. During 2001-2005 per capita GRDP had been changed by around Rp 550,000 (in average change); how ever Kalimantan Selatan Provinces had lower change in inequality than Sumatera Province, 0.08% for Kalimatan Selatan Province and 1.43% for Sumatera Utara Province. The headcount poverty in Kalimantan Selatan had been reduced from 11.43% to 7.27%; alternately for Sumatera Utara Province, the headcount ratio increased from 11.72% to 14.78%.

Table 7
Per capita GRDP, Poverty Headcount Ratio and Gini Ratio for 25 Provinces in Indonesia in 2001 and 2005

No.	Province	Per Capita GRDP			Poverty Headcount Ratio			The Gini Ratio		
		2001 (Rp)	2005 (Rp)	Change (Rp/year)	2001 (%)	2005 (%)	Change (% / year)	2001 (%)	2005 (%)	Change (% / year)
1	Sumatera Utara	17,200,000	19,300,000	525,000	11.7169	14.7773	0.7651	27.00	32.70	1.43
2	Sumatera Barat	15,000,000	18,200,000	800,000	14.4897	10.9676	-0.8805	29.00	30.30	0.33
3	Riau	83,700,000	53,900,000	-7,450,000	9.9178	12.2520	0.5835	33.00	28.30	-1.18
4	Jambi	10,900,000	12,800,000	475,000	19.2563	11.9610	-1.8238	27.00	31.10	1.03
5	Sumatera Selatan	21,100,000	20,100,000	-250,000	19.2905	19.7266	0.1090	26.00	31.10	1.28
6	Bengkulu	9,137,200	10,200,000	265,700	20.7471	22.3320	0.3962	26.00	35.30	2.33
7	Lampung	10,900,000	12,600,000	425,000	24.1052	21.5677	-0.6344	27.00	37.50	2.63
8	DKI Jakarta	93,400,000	122,000,000	7,150,000	2.6573	3.6342	0.2442	33.00	27.40	-1.40
9	Jawa Barat	18,600,000	17,000,000	-400,000	18.8030	12.3369	-1.6165	29.00	26.90	-0.53
10	Jawa Tengah	10,300,000	11,900,000	400,000	22.0361	20.4894	-0.3867	28.00	33.60	1.40
11	DI Yogyakarta	11,500,000	13,200,000	425,000	24.3244	19.0784	-1.3115	40.00	30.60	-2.35
12	Jawa Timur	20,400,000	24,300,000	975,000	21.1421	20.0839	-0.2645	31.00	41.50	2.63
13	Bali	12,200,000	13,600,000	350,000	7.6203	6.7604	-0.2150	32.00	35.80	0.95
14	Kalimantan Barat	13,400,000	13,500,000	25,000	18.9672	14.3327	-1.1586	30.00	33.00	0.75
15	Kalimantan Tengah	15,500,000	16,500,000	250,000	11.3435	10.7987	-0.1362	27.00	31.00	1.00
16	Kalimantan Selatan	14,800,000	17,100,000	575,000	11.4279	7.2743	-0.0384	28.00	28.30	0.08
17	Kalimantan Timur	117,000,000	119,000,000	500,000	13.4293	10.6418	-0.6969	27.00	27.90	0.23
18	Sulawesi Utara	17,700,000	13,200,000	-1,125,000	23.7591	15.1436	-2.1539	31.00	31.80	0.20
19	Sulawesi Tengah	14,800,000	16,500,000	425,000	25.0634	21.9435	-0.7800	34.00	32.30	-0.43
20	Sulawesi Selatan	11,800,000	13,400,000	400,000	16.2923	15.0772	-0.3038	27.00	30.10	0.78
21	Sulawesi Tenggara	11,000,000	12,400,000	350,000	25.1938	21.5956	-0.8996	29.00	35.30	1.58
22	Nusa Tenggara Barat	8,340,420	9,272,188	232,942	29.7994	26.0928	-0.9267	30.00	36.40	1.60
23	Nusa Tenggara Timur	5,451,048	6,097,577	161,632	34.3389	28.3770	-1.4905	30.00	31.80	0.45
24	Maluku	4,871,685	3,070,207	-450,370	43.5947	24.5823	-4.7531	31.00	35.10	1.03
25	Irian Jaya	29,800,000	17,300,000	-3,125,000	45.1277	40.8275	-1.0751	38.00	38.90	0.23
Summary										
Average		23,952,014	24,257,599	76,396	20.5778	17.3062	-0.8179	30.00	32.56	0.64
Median		14,800,000	13,600,000	350,000	19.2905	15.1436	-0.7800	29.00	31.80	0.78
Minimum		4,871,685	3,070,207	-7,450,000	2.6573	3.6342	-4.7531	26.00	26.90	-2.35
Maximum		117,000,000	122,000,000	7,150,000	45.1277	40.8275	0.7651	40.00	41.50	2.63
St. dev		28,834,805	30,353,955	2,253,970	10.1103	8.0248	1.1075	3.55	3.72	1.20

Source: Data from Statistics Indonesia (2006) and other sources and my calculation

5.2 Statistical Analyses

All results presenting in this part are regressed using the data of twenty five provinces in Indonesia observed in two year, year 2001 and 2005. The following table is presenting the result of applying equation 3 (see table).

Table 8
The Change of Headcount Ratio to The Change of per capita GRDP

Variables	Coefficients	P-value
Per capita GRDP	-0.4256	0.000
Intercept	9.8832	0.000
Statistical Significances		
Number of Observations	50	
Prob > F	0.0000	
R-Squared	0.3491	
Adj. R-Squared	0.3355	

Source: My Calculation

Note: All variables are formed into natural logarithmic

Statistically, Equation 2 is already suitable to explain the relation between the change on headcount poverty and per capita income; Based on the value of adjusted R-Squared, 33.55% the linkage can be explained using this equation. All estimated coefficients are significant at all levels. It means, it is true that there is negative relationship between those two. For 1% increase in per capita income is associated with reducing 0.4256% of the headcount ratio for each province in Indonesia, holding the Gini ratio or the proportional changing constant. This result is already in line to what several researchers have already mentioned, holding income inequality constant, through improvement on per capita income the rate of poverty can be reduced.

When I assumed that the value of Gini ratio may not be constant, I was applying Equation 4 for the next regression; and the result as follows (see Table 9).

Table 9
The Lingkage of Poverty Headcount Ratio, percapita GRDP, and Gini Ratio

Variables	Coefficients	P-value
Per capita GRDP	-0.4052	0.000
The Gini Ratio	0.8999	0.104
Intercept	6.4523	0.012
Statistical Significance		
Number of Observations	50	
Prob > F	0.0000	
R-Squared	0.3851	
Adj. R-Squared	0.3589	

Source: My Calculation

Note: All variables are formed into natural logarithmic

The result is showing us that the model including the change in inequality as one of variables significantly at 1% level is better model to capture the linkage poverty, growth and inequality than the previous model. It is emphasized by the value of adjusted R-squared. Based on that value, 38.51% the linkage can be explained using this model.

All the estimated coefficients have the signs what I have already expected which is in line with the study done by Besley and Burgess (2003); the signs indicate that for each percentage increase in the per capita GRDP will be associated with certain amount of percentage decreasing in the headcount ratio depending on the amount of estimated coefficient we get from that regression. In this study, I may say that for each 1% increase in per capita GRDP in each province will be associated with 0.4052% decrease in the value of headcount ratio. Particularly, the effect of change in per capita GRDP on the change of headcount ratio is significant at 1% level.

Based on the study done by Ravallion which explains about the change in inequality may give differences to the rate of poverty, but it cannot determine its rate (Ravallion 2005). That is, from my regression, we can see that an increase on the inequality may be associated to an increase the headcount ratio because the sign is positive which means there is positive relationship between the change in headcount ratio and the Gini ratio. But still based on that result, this relationship is insignificant. There are two possibilities it can be happened. First possibility is number of observations. In this study, I only do the regression for fifty observations. Secondly, this might be because those two variables, the headcount ratio and the Gini ratio, are correlated. According to econometric literature, if the coefficient regressions are correlated it may cause multicollinearity problems; if the correlation is not perfect, we can still determine the coefficient of regression but it will have higher standard error, and at the end will reduce the accuracy of estimation, it means the significance will decrease (Gujarati 2003a: 344-348). That is, to check whether there is multicollinearity problem in this regression, I do pairwise correlation test for those two variables, the headcount and Gini ratio. The result shows that in year 2001 that there was positive correlation between them, but it does not matter because this correlation less than perfect, 0.1089, and the correlation is insignificant at 5% level. However, for year 2005, the correlation between them is increase to 0.6195 and significant at 5% level. Increasing correlation between the headcount and Gini ratio is high but still imperfect that is the coefficient of regression can be determined even though the estimated coefficient of the change in Gini ratio in Equation 4 is insignificant because this correlation caused an increase in the standard error.

For the next regression, I estimate the elasticity poverty to inequality. The aim of doing this regression is to find the value of estimated coefficient and using it to find the value of trade off between economic growth and inequality. The result is presenting in the following table (see Table 10).

Table 10
Poverty elasticity to inequality

Variables	Coefficients	P-value
The Gini Ratio	1.288998	0.053
Intercept	-1.617287	0.473
Statistical Significance		
Number of Observations	50	
Prob > F	0.0534	
R-Squared	0.0755	
Adj. R-Squared	0.0563	

Source: My Calculation

Note: All variables are formed into natural logarithmic

Estimated coefficient of poverty elasticity to the change in Gini ratio is significant at 6% level. And according to the Adj. R-squared value the model only explains 5.63% of the linkage between the headcount ratio and the Gini ratio. Because of the reason which has already mentioned previously in this part, I may not interpret the result as usual. The estimated coefficient will use for calculating the value of trade off based on the formula presenting as Equation 8 in the fourth chapter which is used by Wodon (1999). The idea why it is important for us for calculating how much the value of trade off between them is following. Increasing the value of Gini ratio can indicate that income distribution among population has changed becoming more unequal than before because the area of Lorenz curve is wider than previously. It means there may be changes on the income proportion among population's classes. The change in this distribution should be compensated because it might reduce the gain getting from increase in economic growth. Finding from the calculation, I can conclude for each 1% increase in the Gino ratio should be compensated by 3.029% increase in per capita GRDP.

Furthermore by adding the year dummy variable into the equation (Equation 5 and 6), I assume that it might be a role of time in the linkage of poverty, economic growth, and inequality. The result will be presented as follows:

Table 11
The Poverty, Economic Growth, and Inequality Linkage with the Year Dummy Variable

Variables	Coefficients	P-value
Equation 5: Ln H = H(DY_1,LnG)		
DY_1	0.1414	0.274
Per capita GRDP	-0.4244	0.000
Intercept	9.7924	0.000
Statistical Significance		
Number of Observations	50	
Prob > F	0.0001	
R-Squared	0.3656	
Adj. R-Squared	0.3386	
m	1	
k	3	
Equation 6: Ln H= H(DY_1, Ln G, Ln L)		
DY_1	0.2468	0.066
Per capita GRDP	-0.3945	0.0000
The Gini Ratio	1.2785	0.028
Intercept	-1.493	0.065
Statistical Significance		
Number of Observations	50	
Prob > F	0.0000	
R-Squared	0.4291	
Adj. R-Squared	0.3919	
m	1	
k	4	

Source: My Calculation

Note: All variables are formed into natural logarithmic

Both Equation 5 and 6 show that additional the year dummy variable is acceptable indicated by the value significance model which is significant at 1% level. Even though only dummy variable coming from Equation 6 is significant

at 7% level, meaning before analyze using F test we can conclude that there might be a role of time specification in the relationship between the change in headcount ratio, per capita GRDP and Gini ratio. In Equation 5, adding the year dummy variable can explain 33.86% of the change in headcount ratio and per capita GRDP. Further, additional the year dummy variable into Equation 6 will increase the value of adjusted R-squared which means the capability of that model to explain the relationship among the change in headcount ratio, per capita GRDP, and the Gini ratio is higher than without the dummy; with the dummy the model can explain 39.19% of the linkage.

Overall, the estimated coefficients and their statistical significance seem not change so much. But, I should determine whether the usual OLS or LSDV model is appropriate to capture the relationship among them. Henceforth, I was applying Equation 7, F test formula, for comparing Equation 3 and 5 (named as Test 1) and Equation 4 and 6 (named as Test 2).

After doing Test 1 and 2, I accept the null hypotheses for those two tests, because the value that I got is lower than the F table at 5% level of significance. I found that the time specification effect does not play a role on the linkage of the change in headcount ratio, Gini ratio, and per capita GRDP for twenty five provinces in Indonesia in year 2001 and 2005.

Chapter 6
Summary and Conclusions

6.1 Summary

Economic growth is important to reduce poverty even though its effect are varies across countries. Two factors that can affect it are the initial level of inequality and the change in inequality; if a country has high inequality, poverty reduces slowly rather than a country which has low inequality given the same growth rate; on the other hands, economic growth may be related by an increase or decrease in inequality, in which case, changes in inequality play an important role in explaining the interrelation between growth and poverty.

Even though inequality might have direct negative effects on growth because it might reduce investment opportunities, worsens borrowers' incentives, and generate macro-economic volatility, it might help the poor share in the benefits of growth. Low inequality may expose them to the costs of contraction. Reducing inequality may give triple effective. For instance, it may reduce poverty for given level of income, accelerate the poverty reduction impact from economic growth, and base on cross-country growth regressions; it may contribute to a larger rate of growth.

In order to reduce an absolute poverty, it needs strongly country-specific combinations of growth and distribution policies. In other words, an increase in income is not necessarily a contradiction to a reduction in inequality. It implies besides only focusing on growth to reduce poverty, policy makers can focus on inequality and growth at the same time.

The link between those two is given by redistributive policies. In less equal societies, more redistributive is sought by the majority of population, thus in turn will reduce growth through economic distortion.

Before 1966, economy was ruled to be closed for foreign investments and more nationalist, irrational management, less controls, and ruled with unclear economic concept. As the results, production and investment levels had been declined since 1950, per capita income in 1966 was lower than that in 1938, industrial level only gave 10% shares to GDP, there were serious unemployment problem, and during 1964-1966 Indonesia suffered hyperinflation which smashed up the economy. At the beginning of 1966 budget deficit reached 50% of total expenditures, incomes coming from export were decreasing.

Many revolts happened before 1966, government's oriented and target which is only for political purposes, international relationship conditions, and so much intervention from Indonesian government hampered production activities even caused scarce of food and other things for supporting daily life

During 1966-1996 Indonesian government has tried to improve Indonesian economy. Their focused on how to fulfil people's basic needs immediately, reduce the inflation, and built the infrastructures to support economic developments. Implementing several new fiscal and monetary policies can control the inflation. Indonesian economic growth experiences

since 1966 until 1997 was improving rapidly. This high economic growth was followed by an improvement in people welfare, an increase in life expectancy from 56 years old to 71 years old, and the most important was a reduction on the absolute poverty from 60% in 1966 to 14% in 1990 (Hadi 2004).

Even though poverty has become a crucial issue and a matter of public concern in Indonesia in the middle of 1992, income inequality problems which might have close relationship with poverty have been openly discussed for over two decades since 1978 (Asra 2000).

Several studies for Indonesian and resulting empirical evidences that holding its inequality level constant or the change in inequality relative constant, economic growth will lead an improvement on poverty reduction. In this study, the author also finds there is negative relationship between the value of headcount ratio and per capita income. For 1% increase in per capita income is associated with reducing 0.399% of the headcount ratio for each province in Indonesia, holding the Gini ratio value or the proportional changing in income distribution relative constant.

Using the model developed by Besley and Burgess (2003) significantly can explain the linkage between the headcount ratio and per capita income when the value of Gini ratio cannot be assumed as a constant. The result shows that poverty reduction in Indonesia is lead by two factors having an opposite direction. Increasing per capita income will lead on reducing of the headcount ratio contrarily an increase on the Gini ratio will lead an increase on the headcount ratio; even though the linkage between the Gini ratio and the headcount ratio is unreal because from the regression, statistically the estimated coefficient of the Gini ratio is insignificant.

At country level, Indonesia is one of the countries which has lower value of Gini ratio. But, among regions in Indonesia the Gini ratio of incomes is fluctuate even between urban and rural areas. Before the financial crisis, trends of inequality is only happened between urban and rural areas; but after the crisis, the variation is happened not only between urban and rural areas but also among regions; In general we can say that more developed provinces they are, higher the Gini ratio it is. That is income distribution inside that region more fluctuate comparing to less developed regions. The structure of income distribution in Indonesia becomes more unequal; improvement in economic growth does not mean income distribution among population will be equalized (Susanto 2006a).

In line with what Susanto already mentioned, the crisis seems giving a contribution to reduce the value of Gini ratio. Using the data of year 2001 and 2005, the author has found that 1% increase in per capita income is associated with reduction in the value of Gini ratio. It shows that distribution income on those periods unstable. There is possibility the distribution for the poorest remains the same but the richest becomes poorer than before; or there is also possibility the middle class has changed. That is, we cannot determine precisely the crisis reduces inequality using the change on the value of Gini ratio because as already mentioned before, the value of Gini ratio is withdrawn from the proportion of areas between Lorenz curve and total area below the equal line.

The idea why the author estimates the value of poverty elasticity to growth is to calculate how much trade off between inequality and growth is. Then, the author finds that if the Gini ratio increases by 1%, it should be compensated by certain value of percentage increase in the change of per capita GRDP otherwise increasing in inequality level will harm the poor because increasing inequality will reduce the share of gain from the growth for the poor.

6.2 Conclusions

The strong relation among economic growth, change in inequality, and the rate of poverty reduction particularly for Indonesia has been examined by many scholars for almost half century and it obviously cannot be questionable because the evidence of it already comes up. However, across regions and over times, the value of the growth and the level of change in inequality that can affect the pace of poverty reduction are different. It depends on several factors, such as what are the resources of the growth, whether the growth is pro-poor or not, and how much government intervention in policy-making decisions.

Having consideration about the important role of economic growth as a robust tool to combat poverty, since Indonesia still find what the appropriate tool for reducing poverty, I do this study using data retrieved from twenty five provinces in Indonesia for year 2001 and 2005. The first conclusion that can be retrieved from those data are high increase in per capita GRDP followed by small change in the Gini ratio will affect faster reduction on the headcount ratio. Secondly, the time specification effect does not give any impact on the linkage of the change in headcount ratio, Gini ratio, and per capita GRDP for twenty five provinces in Indonesia in year 2001 and 2005. And, the last, if the value of Gini ratio increase by 1%, it should be compensated by 3.418% of the change in per capita GRDP otherwise, that increasing will harm the poor because they will receive less the gain from economic growth.

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Notes

[1] The lecture was given on The Development Studies Course (2101 Course) in Session 12 year 2007/2008 at ISS

[2] Redistribution in Benabou's studies refers to taxes on capital income

[3] See http://www.eoearth.org/article/Inequity_and_growth

[4] He assumes that growth occurs by shifting labourers from rural areas which have a low inequality and low mean rural sector to urban areas which are richer and higher inequality (Bruno et al. 1996)

[5] More explanation about it can be seen on http://it.stlawu.edu/~pomo/mike/kuznet.html).

[6] Solow's model of production functions is a complete theory of growth assuming a standard neoclassical production function with decreasing return to capital (Mankiw et al. 1992)

[7] See Rodriguez, F., 2000, Inequality, Economic Growth, and Economic Performance, *A Background Note for the World Development Report*

[8] Clearly explanation can also be read from http://www.ucd.ie/economic/staff/dmadden/Topic%205%20_Inequality%20&%20Poverty_%20-%202005-2006%20version.pdf

[9] See http://en.wikipedia.org/wiki/Lorenz_curve

[10] Quality of growth in this term related to the sustainability of growth.

[11] In this term, exogenous factors are factors that affect production output such as the land ownership of factor productions and the level of exports of an import-competing sector.

[12] This term has bias meaning, whether growth for every poor group must have exceeded average growth or only true in average

[13] The poverty line is chosen to ensure that predetermined nutritional requirement are met, given prevailing diets (Ravallion 2004)

[14] Darul Islam (Islamic State) was an Islamic group in Indonesia. The group recognized only *Shari'a* as a valid source of law. Each region has its own leader. For instance in Madiun, started in 1942, it is coordinated by S.M. Kartosoewirjo; in Aceh this group is coordinated by Daud Beureuh, and Kahar Mudzakar lead in Sulawei.

[15]: Republik Maluku Selatan (RMS) was established in 25 April 1950 by disbanding KNIL (the air arm of the Royal Netherlands East Indies Army in Indonesia during 1939-1950 separate from the Dutch Air Force; see http://en.wikipedia.org/wiki/Royal_Netherlands_East_Indies_Army_Air_Force) army and people pro-Dutch crown; such as Chr. Soumokil and J.H. Manuhutu (see http://en.wikipedia.org/wiki/South_Moluccas).

[16] **Permesta**, an acronym of *Piagam Perjuangan* Semesta (Universal Struggle Charter) was a rebel movement in Indonesia established on March 2nd, 1957 by civil and military leaders of east Indonesian in Manado, one city part of Sulawesi Province. This movement was lead by Colonel Ventje Sumual. The aim of this movement was to fight against Indonesian central government troops due to resist their power which is given during the Liberal democracy Era in Indonesia (1950-1957). See http://en.wikipedia.org/wiki/Permesta

[17] This movement is also known as the thirtieth of September movement associated with the Indonesian Communist party. See http://en.wikipedia.org/wiki/30_September_Movement

[18] This crisis was started when Thailand depreciated its bath because there was the capital outflow from that country, and the crisis spread out to other countries in Asia, such as Indonesia, Malaysia, and South Korea.
[19] In this programme, poor family can buy 20 kg of rice with Rp 1000 for each kilogram. Through this program the poor families still have possibility to get cooking oil, milk, and soybean for free.
[20] In 1999-2000 budget years, food security has been changed into fishery and poultry activities.
[21] See http://www.country-studies.com/indonesia/land-use-and-ownership.html
[22] See http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/INDONESIAEXTN/0,,contentMDK:20365449~menuPK:287102~pagePK:1497618~piPK:217854~theSitePK:226309,00.html
[23] See http://indopov.org/newindonesia.pdf : page 129-130
[24] The characteristics of household head in this term include the sector of household income, the occupation status of household head, and educational level of household head.
[25] See http://lnweb18.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/EE3D0493F2A4FED9852567F5005D8273
[26] See http://indopov.org/newindonesia.pdf : page 121
[27] See http://www.thejakartapost.com/news/2008/06/07/challenges-implementing-inclusive-education.html
28 Previously is known as The Central Bureau of Statistic Indonesia.
[29] See http://www.globalsecurity.org/military/world/war/maluku.htm