Contribution Of Human Development Index On Per Capita Income Growth And Poverty Alleviation In Indonesia

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Abstract: The development of a country usually determined by the human development index (HDI). Per capita income, education and health are the three most important components of human development index. The purpose of this research is to understand the relationship among human development index to income per capita growth and poverty alleviation in Indonesia with cross-section data from 30 provinces period 2002 – 2011 year. The result of this research were (a) income per capita growth was not significant effected to poverty headcount, poverty gap dan poverty severity, (b) income per capita has a negative effect and statiscally significant on poverty headcount, poverty gap and poverty severity, (c) inflation has positive effect and statistically significant on poverty headcount but did not have any effect on poverty gap and poverty severity, (d) education has a positive effect on poverty headcount, poverty gap and poverty severity, and (e) health only has a positive effect on poverty severity but did not have any effect on poverty headcount and poverty gap.

Keywords: Human development index, income per capita, income per capita growth, Indonesia and poverty

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A. Introduction

Poverty is not only become a problem in developing countries but also in developed countries, it could not be disputed that the largest percentage of poverty was in developing countries. From 1990 to 2005, in general poverty was declined, only in some countries, poverty was increasing as in the countries of the CIS and Asia from 6% to 19%, in West Asian from 2% to 6% and the countries of Southeast Europe from 0.1% to 1%. The greatest poverty reduction occurred in East Asian countries by an average of 2.93% and the lowest in the CIS countries, in Europe countries, the average was 0.11% , it was the largest improvement in the CIS countries, and Asia's average was 0.87% and the lowest in Eastern Europe's transition countries on average was 0.06% (UNDP, 2010). In Indonesia, the phenomenon of poverty and inequality was becoming a serious issue especially for policy makers with two reasons. *First*, over the past few decades (1970s-1990s) or the Government of the New Order, Indonesia recorded an average economic growth rate of 6%-7% per year, which made it one of the few countries that were able to achieve a relatively high growth rate. But the high rate of economic growth was not followed by an improvement in income distribution, and patterns of inequality in Indonesia were not much declined. Gini coefficient if allowed as a measure of the distribution of income, then for over 30 years, the Gini coefficient did not change in Indonesia. In 1965, the Gini coefficient of Indonesia was 0.35, then escalated in 1978 to be 0.37, and in 1999 decreased to 0.33 (UNDP, 2001). Meanwhile, according to the Statistics Agency (BPS), Indonesia in 2003 to 2012 income inequality tend to increase from 0.28 to 0,41. *Second*, before the economic crisis hit Indonesia in mid-1997, Indonesia made great progress in combating absolute poverty as measured from the level of consumption. If in 1976, the percentage of

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the poor population reached 38.8% of the total population, then in 1990 to 16.8%, in 1993 to 13.4% and in 1996 became a 17.47% with a systematic pattern of decline. But the economic crisis which occurred in 1997 showed that how vulnerable Indonesia has achieved progress. This caused the number of poor population increases were sharp and millions of residents falled back into the abyss of poverty. In 1999, the number of poor population increased more than doubled from 1996 amounting to 22.5 million became 49.50 million (24,23%) (Statistic Agency, 2006). Likewise, if it was seen from the number of poor population has decreased from 1976 up to the year 2012, in 1998 the number of poor population increased from 25.78 million (1997) became 49.50 million (1998) due to the economic crisis and in 2006 an increase in the number of poor population from 35.1 million (2005) becoming 39.3 billion in 2006 since the onset of the global crisis. However the World Bank in its report entitled *Indonesia Constructing a New Strategy for Poverty Reduction* (2001) stated that: *First*, up to the economic crisis, Indonesia gained tremendous success or spectacular in poverty reduction. Based on the country's development programmes succeeded in raising the standard of a better life. The late 1990s economic crisis afflicting Indonesia was causing millions of people to be poor again. Poverty is defined as relevant to current conditions and extended humanism dimensions, such as similarities in food, housing and security, reduce the causes of poverty against pressures from the outside, ease in the education, health and basic infrastructure, and a chance to participate in social and political life in common other community. *Second*, it was estimated that the poverty levels of spending during the economic crisis lasts, at least doubled from August 1997 before the crisis amounted to 12.7% (SUSENAS, February 1997) and reached its peak of about 28% at the end of 1998. This indicated that since poverty declined dramatically as the decline in rice prices and rising wages. While official sources stated that poverty was spending for February 1999 from the SUSENAS, when poverty increased 27 per cent – poverty in February showed healing back from the top of a temporary crisis. *Third*, despite the encouraging news on poverty reduction since the peak of the crisis, most people continued to face a wide

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range of Indonesia deprivation or loss, including vulnerability to high poverty, job loss, unexpected illness, family emergency is one of several factors that can deal with the relative vulnerability. His final analysis report explained that about half of the residents of Indonesia faced problems that were greater than 50% chance of experiencing episodes of poverty every three years. *Fourth*, the previous approach is too much emphasis on numerical targets. Poverty line, for example, focus on a number of expenditure items. Numerical targets, combined with top-down approach to development of the country, left with some important things, but it is difficult to measure the dimensions of poverty and well-being are not clear. *Fifth*, but if giving up on the goal of numerical already going too far, to obtain progress measurement is impossible. To help assure that continuity is made into the reality of poverty is more complex, this report suggest some new goals, but emphasized on the objectives that should be designed as part of the process of creating a strategy for poverty reduction. It can be started from the indicators of the International Development Goals that were made by the representatives of the international community, including Indonesia in various meetings. Indonesia can adopt similar goals for poverty reduction that includes some indicators. These indicators can be adjusted with the potential that exists in Indonesia. Government programs to alleviate poverty by increasing people's income through economic growth is high and stable, the allocation of government spending provides a minimum of 20% for education and public health through the cost of free medical treatment for the poor. It is supported by Kefela and Rena opinion that human development is the beginning of economic growth (Kefela and Rena, 2007, p. 1)

B. Literature Review

B.1 Relationship between Growth and Poverty.
Studies on the linkages between growth and poverty undertaken by some economic experts with diverse opinions among others:

1. *First*, the Ravallion (2001), in his research, entitled "Growth, Inequality and Poverty: Looking Beyond the Average" conducted in developing countries, with the result that there was evidence that poverty in specific developing countries benefit or profit from the growing prosperity of aggregate and suffered losses in a declining economy. But there is a big difference between those countries, how big the poor people to have a share in the growth and impact of poverty among the assortment in the country. The correlation between diredupkan countries in matters of data and no doubt hide the impact of well-being; it can be beguiling development policy. It takes efforts on the growth and changes in the distribution of income. Only with a strong basis for identifying policy and program-specific programs are needed to fine-tune policies growh-oriented.

2. *Second,* Asep Suryahadi et al (2009), about the relationship between the components of economic growth on location and sectoral in Indonesia by using time series data in 1984 – 2002 by dividing into three sectors, namely agriculture, industry and services by rural and urban locations. Obtained results that the growth component location and sectors had the impact of economic growth on a decline in poverty, but not all components of the sector's economic growth contributed to the same against a decline in poverty. Like that most of the poor population in Indonesia located in urban areas, identify sectoral growth that will reduce poverty significantly urban is a top priority. The results of this study indicate that growth in the service sector had the most impact to urban poverty reduction, followed by growth in the agricultural sector in rural areas.

3. *Third,* Gelaw (2010) used the data panel covers 18 towns in Ethiopia and time-series from 1994 until 2004, with the result that the decline in poverty has been ruled out by the objective of development policies. The result was that overall poverty decreased 12.6% in 10 years. But instead, this decline was the result of a one time decreased drastically (40%) in the observation in 1995-1997. In addition to the increased poverty and inequality were also quite high. Variation between areas of inequality and poverty were not only great but also there was no tendency to decrease. 3/4 of the entire inequality occurred in rural inequalities and the remaining 1/4 between rural imbalances occured. The consequences of the allocation of the pure and inequality largely due to changes in inequality, while due to the distribution of income are highly marginal.

4. *Fourth*, Pradhan (2010) with time-series data in 1951- 2008 with the result that economic growth was considered as policy variables to align the financial development and both could be used as a variable policies to reduce poverty in the economy.

B.2. Relationship between Inflation, Growth and Poverty
Several studies on the relationship between inflation, economic growth and poverty, among others:

1. Shammim Ahmed and Md. Golam Mortaza (2005) in his article entitled "Inflation and Economic Growth in Bangladesh: 1981-2005", with a method of Ordinary Least Squares (OLS) and errors correction models, the data obtained from the Bangladesh Bureau of Statistics (BBS) of 1981 - 2005 with the results of the study that there was a negative relationship between inflation and long-term economic growth in Bangladesh.

2. Robert J. Barro (2013) in his article entitled "Inflation and Economic Growth", made up of 100 countries from 1960 - 1990. The study was divided into three decades, namely 1960-70, 1970-80 and 1980-90, the regression method can be concluded that the impact of rising inflation 10 percent per year would result in reduced revenue per capita from 0.2 to 0.3 percent per year and a decrease in the ratio of investment to GDP from 0.4 to 0.6 percent.

3. Vikesh Gokal and Subrina Hanif (2004) in his article entitled "Relation Inflation and Economic Growth", made up of 140 countries from the year

1960 to 1998, using the linear regression method with the conclusion that there was a weak negative correlation between inflation and economic growth.

4. Girijasankar Mallik and Anis Chowdhury (2001) in his article entitled "Inflation and Economic Growth: Evidence from four south Asian Countries", consists of four countries with different periods such as Bangladeh (1974-1997), India (1961 - 1997), Pakistan (1957 to 1997) and Sri Lanka (1966-1997), using the linear regression method. In this study discovered two interesting things: (i) inflation and economic growth has a positive relationship and (ii) the sensitivity of inflation to change the growth rate greater than the growth rate of inflation change.

5. Eliana Cardoso (1992) in his article entitled "Inflation and Poverty", with the area of research in seven Latin American countries (Argentina, Colombia, Costa Rica, Chile, Mexico, Peru and Uruguay) with the data from the years 1977 to 1989, using linear regression method, the conclusion that inflation causes poverty generally through real wages (real wages), empirical evidence showed that rising wages more slowly than the price for inflation increased in Latin America.

6. Muhammad Irfan Chani et al (2011) with his writing entitled "Poverty, Inflation and Economic Growth: Empirical Evidence From Pakistan," the study period from 1972 to 2008, using the linear regression method we concluded that economic growth has negative impact and has inflation impact positive on poverty, where as the role of investment and trade openness in poverty reduction was not significant.

7. Iman Sugema et al (2010) with a research entitled "The Impact of Inflation on Rural Poverty in Indonesia: an Econometric Approach", the study period, 2001 -2009, using the linear regression

method they concluded that rural poverty was more vulnerable to pressure-economic pressures of the urban poverty, especially inflation and inflation foodstuffs have a higher impact of material non-food inflation.

C. Research Methodology

Object Research
The object of this study includes three main points, namely: human development index, economic growth and poverty in Indonesia from 2002 to 2011. In this study, poverty used three indicators, that are poverty headcount, poverty gap and poverty severity. And the uman Development Index (HDI) represents by per capita income, level of education and life expextion.

D. Types and Sources of Data
This study used secondary data in the form of annual time series covering the period 2002 to 2011 and cross-sectional data for the 30 provinces in Indonesia, because the necessary data in this study is the macroeconomic data that include among others:

1. Per capita income, percentage of high school graduates (educaton) and life expectation (health) for 30 provinces in Indonesia.
2. Data of the number of poverty headcount, poverty gap, and poverty severity for the 30 provinces in Indonesia.
3. Data of per capita income growth and inflation for 30 provinces in Indonesia.

E. Framework of The Research
The framework to be used in this research is relationship among four independent and two dependent variables. The independent variables consist of per capita income, education, health and inflation and the dependent are per capita income growth and poverty.

Figure 1. *The frame of the research*
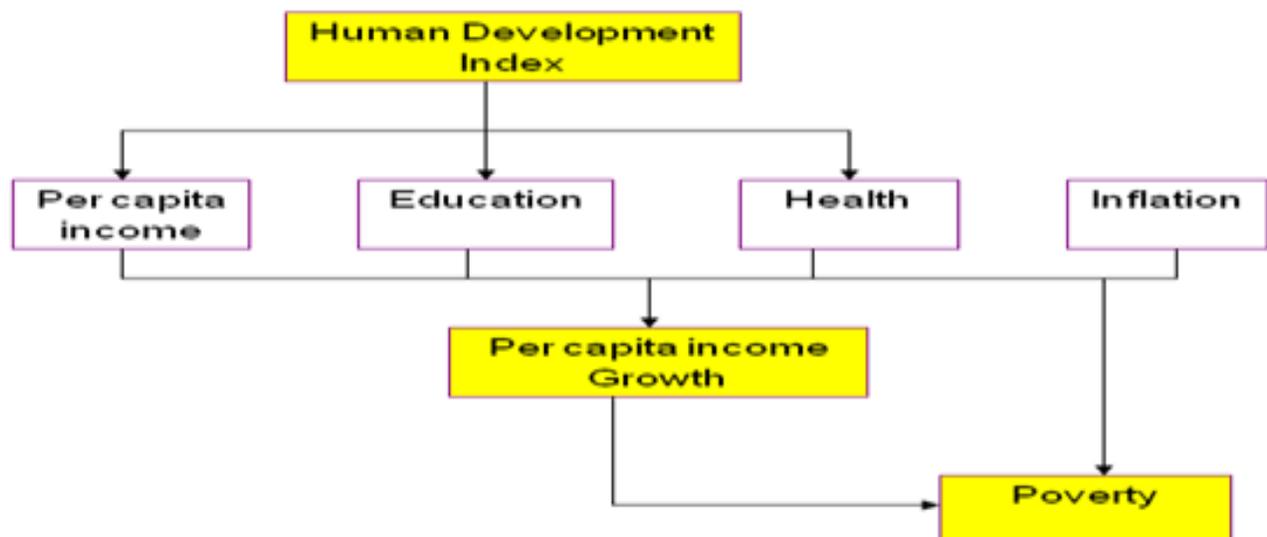
F. Model Analysis

In this research, we use ordinary least square (OLS) to see direct relationship between the per capita income, education, health against per capita income growth and poverty. Thus, the general specifications structural equation model used in this study are:

YP   = f_1(Income, Educ, Health, Inf)…………….(1)
P   = f_2(YP, Educ, Health,Inf)…………..……..(2)
Where:

YP = per capita income growth
Income = per capita income
P = poverty
Educ = level of education (high school graduate ratio to total population)
Health = health level (the average age of the population)
Inf = rate of inflation

G. Effect of Human Developent Index to Economic Growth

In this study, that the human development index consisting of per capita income, education and health and inflation effect on economic growth as measured by per capita income growth.

Table 1. Per capita income growth equation model

Variable	Coefficient	t-Statistic	Prob.
Intercept	6.858207	1.439358	0.1512
LOG(INC?)	-0.318249	-0.923205	0.3567
EDUC?	0.033980	1.183512	0.2377
HEALTH?	0.028252	0.432623	0.6656
INF?	-0.058028	-1.738606	0.0833
R-squared	0.014397	Mean dependent var	11.19486
Adjusted R^2	-0.000593	S.D. dependent var	10.18947
S.E. of regression	7.724961	Sum squared resid	15694.53
F-statistic	0.960451	Durbin-Watson stat	1.904412
Prob(F-statistic)	0.429717		

Four independent variables used in the per capita income growth equation model are per capita income, education, health and inflation. Only inflation has a negative effect on the growth of per capita income, while the other three variables are not affected significantly on the growth of per capita income in Indonesia. This means that the rising rate of inflation or high-level inflation cause worsening of economic growth as measured by per capita income growth in Indonesia, it is supported by the opinion of Barro (2013) that inflation would reduce growth and investment with the data of 100 countries and from the 1960s 1990, as well as the opinion of Ahmed and Mortaza (2005) that inflation also affected negatively on economic growth in Bangladesh. But unlike the research conducted by Mallik and Chowdhury (2001) with case studies of four South Asian countries, concluded that the relationship of inflation and growth was positive.

H. Effect of Human Development Index to Poverty

Poverty, in this study grouped into three measures of poverty, these are poverty headcount, poverty gap and poverty severity, and the independent variables used in this equation are the growth of per capita income, per capita income, education, health and inflation.

I. Effect of Human Development Index to Poverty Headcount

The result of data processing for poverty headcount equation model is in the following:

Table 2. Poverty headcount equation model

Variable	Coefficient	t-Statistic	Prob.
Intercept	131.8749	21.99887	0.0000
YP?	-0.001957	-0.086851	0.9309
LOG(INC?)	-7.804381	-18.47861	0.0000
EDUC?	0.123488	3.541554	0.0005
HEALTH?	0.037283	0.450231	0.6529
INF?	0.036860	0.944571	0.3457
Weighted Statistics			
R-squared	0.729743	Mean dependent var	20.70490
Adjusted R^2	0.724586	S.D. dependent var	14.98259
S.E. of regression	5.181260	Sum squared resid	7033.509
F-statistic	141.4897	Durbin-Watson stat	0.150145
Prob(F-statistic)	0.000000		

From the five independent variables used in this research that the growth of per capita income, per capita income, education, health and inflation, only two independent variables that affect on the poverty headcount, namely per capita income and education, while the other three independent variables do not effect significantly on poverty headcount. The per capita income has effected negatively on the poverty headcount otherwise the education has positive effect on the poverty headcount. Income per capita variable has a negative impact on the poor, which means that the higher the per capita income will reduce poverty headcount. The level of education has a positive effect on the poor, it means that the higher of the level of education will lead to increase numbers of poor people, it is contrary to the opinion of Arimah (2004: 14) that the increase in education and health will reduce poverty.

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J. Effect of Human Development Index to Poverty Gap

As in the equation model of poverty headcount, poverty gap in this equation model has only two independent variables that significantly affected on the poverty gap, these are per capita income and education variables. Otherwise the other three variables do not affect significantly on the poverty gap. Per capita income variable has a negative effect on poverty gap, meanwhile education variable has positive effect on poverty gap. This means that the higher people's income will reduce the number of people who are in poverty gap and higher education will increase the number of people who are in poverty gap.

Table 3. Poverty gap equation model

Variable	Coefficient	t-Statistic	Prob.
Intercept	23.08680	17.03469	0.0000
YP?	-0.002649	-0.494500	0.6214
LOG(INC?)	-1.465769	-15.17114	0.0000
EDUC?	0.021269	2.702233	0.0073
HEALTH?	0.028409	1.464859	0.1442
INF?	0.006284	0.689853	0.4909

Weighted Statistics			
R-squared	0.647532	Mean dependent var	3.523622
Adjusted R^2	0.640806	S.D. dependent var	2.346227
S.E. of regression	1.150827	Sum squared resid	346.9934
F-statistic	96.26614	Durbin-Watson stat	0.318577
Prob(F-statistic)	0.000000		

K. Effect of Human Development Index to Poverty Severity

Poverty severity equation model shows that two of five independent variables used are variables significantly to poverty severity. Per capita income a negative effect on poverty severity, which means that with increasing per capita income will reduce the number of people who are in poverty severity. While education has positive effect on poverty severity, higher education will increase the number of poverty severity, it is contrary to the opinion of Arimah (2004: 14) that the increases in education and health will reduce poverty.

Table 4. Poverty severity equation model

Variable	Coefficient	t-Statistic	Prob.
Intercept	6.792352	14.63799	0.0000
YP?	-0.000786	-0.437542	0.6621
LOG(INC?)	-0.449210	-14.30492	0.0000
EDUC?	0.006070	2.406823	0.0168
HEALTH?	0.011497	1.861489	0.0638
INF?	0.004332	1.424647	0.1554

Weighted Statistics			
R-squared	0.568893	Mean dependent var	0.982581
Adjusted R-squared	0.560665	S.D. dependent var	0.681769
S.E. of regression	0.365531	Sum squared resid	35.00659
F-statistic	69.14746	Durbin-Watson stat	0.393809
Prob(F-statistic)	0.000000		

L. Conclusion

From the discussion above it could be concluded that:
1. The rate of inflation has a negative and significant effect on economic growth as measured by per capita income growth. So that the obligation of the government to suppress the rate of inflation and high economic growth in Indonesia.
2. The economic growth as measured by per capita income growth has no effect on the three measures of poverty (poverty headcount, poverty gap and poverty severity), this shows that the government's policy to boost per capita income had no impact on poverty. This means that only economic growth enjoyed by some small group of high-income people.
3. Per capita income has a significant and negative effect on the three measures of poverty (poverty headcount, poverty gap and poverty severity). This is in line with government policy that the increased per capita income would reduce poverty.
4. Inflation has a positive and significant impact on the poverty headcount and no effect on the poverty gap and poverty severity.
5. Education has positive effect on the three measures of poverty, namely poverty headcount, poverty gap and poverty severity.
6. Health only has a positive effect on poverty severity, otherwise it has no effect on the poverty headcount and poverty gap.

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