

## **INEQUALITY OF DISTRIBUTION AND POVERTY INCIDENCE IN THE ADJUSTMENT PERIOD AND ANALYSIS OF ECONOMIC CRISIS IMPACT IN INDONESIA**

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### **ABSTRAK**

*Artikel ini menganalisis faktor-faktor yang mempengaruhi ketimpangan distribusi pendapatan di Indonesia selama awal pembangunan (adjustment period) dan sebagai dampak krisis ekonomi menggunakan unbalanced panel method untuk 26 propinsi di Indonesia (tidak termasuk Timor Timur, Bangka Belitung, Banten, dan Gorontalo) untuk periode 1980-2002.*

*Selama periode awal pembangunan (adjustment period), meskipun kemiskinan di Indonesia mengalami penurunan yang signifikan, namun ketimpangan distribusi cenderung konstan. Lebih jauh, isu ini menghangat sejak Indonesia mengalami keterpurukan akibat krisis ekonomi tahun 1997-1998.*

*Studi empiris ini memberikan hasil bahwa semua variabel sosial ekonomi, yaitu expenditure per capita, school enrolment, poor people, average household size, population density, dan revenue per capita, dan variabel yang menunjukkan krisis ekonomi signifikan mempengaruhi ketimpangan distribusi di Indonesia. Permasalahannya kemudian bukan saja ketimpangan distribusi, namun juga munculnya isu disintegrasi yang semakin marak. Oleh karena itu dalam artikel ini direkomendasikan bahwa kebijakan pemerintah seharusnya difokuskan kepada variabel kebijakan yang signifikan mempengaruhi ketimpangan distribusi di Indonesia termasuk di dalamnya implementasi desentralisasi yang masih merupakan tantangan besar dalam menjawab isu disintegrasi.*

**Kata kunci:** *Inequality, poverty, economic crises, adjustment period*

### **INTRODUCTION**

Theoretically, the fundamental aim of economic growth should be the improvement of people's living conditions, especially the betterment of living conditions for the poor. This goal should be highly related with reducing the gap between the 'rich' and the 'poor'. It means that economic growth should bring reduced of inequality of distribution as a welfare measurement of society.

During the 1980s and 1990s, there was rapid successful economic growth in Indonesia with more than a 7 percent average per year

(Akita and Alisjahbana 2002:201). In this period, Indonesia was remarkably successful with structural movement in trade and production (Akita and Alisjahbana 2002:201). This structural change was a significant movement from agriculture share to an increasing manufacturing and services share. There was an increasing trend in manufacturing employment and manufacturing GDP from 13 percent in 1983 to 22 percent in 1991 (Hill 1992; Manning 1997; World Bank 1996). Both latter sectors are taking over as the engines of economic growth.

This impressive experience was followed by success in reducing poverty in Indonesia. The trend of poverty incidence in the adjustment period dropped from 40 percent to around 11 percent over the period 1976-1996 (Asra 2000:94). The biggest fall occurred during 1976-81 of some 13 percentage points, followed by a drop of around 16 percentage points between 1981 and 1993 (Asra 2000:94). Although poverty reduction has occurred everywhere in Indonesia, its reduction in rural areas has been slightly larger than in urban areas. This rapid decline was mostly because there was an increase in wage income and expenditure of rural households during this period (Booth 1993). Therefore, such improvement in rural areas (agricultural sector) and the manufacturing industry has driven reductions in poverty incidence in Indonesia during this time period.

However, behind the success of poverty reduction, trends of income inequality increased during the 1990s, even though it had decreased in the 1980s (Central Bureau of Statistics, BPS, Indonesia, 1984a, 1987a, 1990a, 1996a, 1999a, and 2003). It seems that the structural change mentioned above that led reductions in poverty incidence did not bring a positive impact to income inequality. The persistence of this problem is clear if we have a look at the measurement of inequality of distribution using a Gini coefficient or a Gini index (in the case of Indonesia, the index is measured using consumption expenditure). Gini coefficients are an aggregate measurement of inequality and can vary between 0 (perfect equality) and 1 (perfect inequality). This index is known as the "Gini Concentration Ratio", named after Italian statistician C. Gini, who founded it in 1912 (Todaro 1989). In general, countries that experience high inequality of income distribution have the index between 0.50 to 0.70. The coefficients for moderately unequal distribution are between 0.20 to 0.35 and low inequality distribution are below 0.20 (Todaro

1989). Indonesia experienced a Gini index above 0.30 during the 1980s-1990s (Central Bureau of Statistics of Indonesia, BPS, 1984a, 1987a, 1990a, 1996a, 1999a, and 2003).

The increasing inequality of distribution during the 1990s might have been severely affected by external shocks and policy changes in the mid- and late 1980s due to declining oil prices. This caused a shrinking of government budgets which was followed by rapid domestic currency devaluation, monetary contraction, trade and regulatory reforms (World Bank 1989). These shocks led to lowering economic growth in the following years although in average, economic growth remained positive.

Furthermore, the crisis that began in mid-1997 caused a sudden negative shock to Indonesia's economic growth of 13 percent in 1998 (Akita and Alisjahbana 2002). This crisis brought very painful impacts not only in the financial sector but also in real sector. It also affected inequality of income distribution. The crisis caused decreased levels of trade transactions and reduced the revenue of Indonesia's central and regional governments.

Nevertheless, this discussion will not follow the debate of whether or not slower economic growth affects increasing inequality of distribution; it will centre on explaining the inequality between regions in Indonesia before and after the economic reforms and crisis. It will be an interesting point to look at inequality of distribution from revenue and expenditure sides for every region in Indonesia since the declining oil prices in the mid-1980s brought significant impacts on declining government revenues.

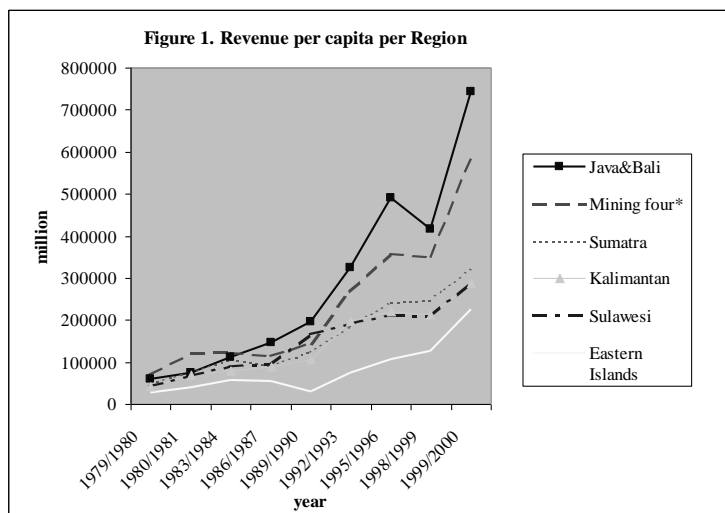
Besides that, Booth (1996) argues that there is a development gap between regions in Indonesia when seen from the variation of ratio of revenue to GDP. For instance, only 6.4 percent of GDP was produced in the Eastern Islands (including Sulawesi) where the population in 1993 was 12.1 percent of the total population of Indonesia. Meanwhile, in

the same year, four rich mining provinces (Aceh, Riau, East Kalimantan and Irian Jaya) with only 5.7 percent of Indonesia’s population were able to produce 18.1 percent of GDP. These conditions bring much attention to analysing the disparities between regions in Indonesia.

The development gap can also be seen through per-capita consumption expenditure. An extreme case is Irian Jaya province (now called Papua). It is the poorest province in Indonesia in terms of the number of people living below the poverty line with more than 20 percent of Irian Jaya’s population during 1993-1996 and more than 50 percent during the crisis period (Central Bureau of Statistics 1993 and 1996). This was mainly because the gap between exports from and imports to this province was over 60 percent of GDP in 1983-84 and 37 percent in 1991 (Booth 1996). It could be said that Irian Jaya has transferred most of its revenue to other regions in the country. The gap between exports from and imports to was even larger in one of the rich provinces, Aceh. Booth (1996) notes that the gap was over 60 percent during 1983-1990. In general, the condition is even worse if people in Aceh compare their prosperity with their

neighbours in Malaysia and Singapore. It might be the case that the development gap is one of the potential sources of independence issues in these provinces.

From these arguments, it becomes important to assess whether economic development can explain the development gap between regions (provinces) in Indonesia. The disparities of revenue and expenditure between regions therefore become an important issue in analysing the implementation of economic policy. For these purposes, this paper will discuss the development gap in terms of inequality of distribution and poverty incidence between regions in Indonesia for the last 20 years by examining the determinants of inequality of distribution. This paper also argues that the improvement of economic policy in Indonesia should be focused on more fundamental reforms between the centre and the regions. This will give more opportunity for poor people, especially indigenous people in the provinces, to participate in the economy. It will encourage the reduction of the poor-rich gap by raising the income of the poor closer to a higher level of income and finally reducing the inequality of economy distribution.

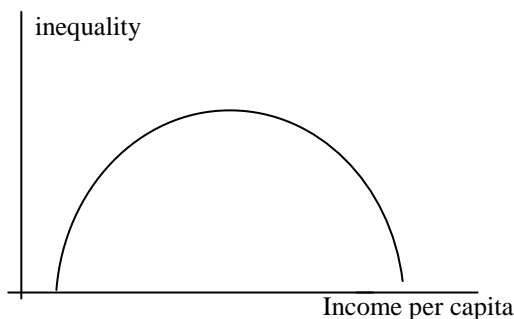


Source: Central Bureau of Statistics, Statistical Year Book of Indonesia, several years

## REVIEW OF LITERATURE

It has been commonly argued that economic growth has a distinctive effect on the level of inequality of development in the society. Theories that considered the idea of inequality have usually correlated with the productivity differences in the different areas, such as urban and rural (Goudie and Ladd 1999), metropolitan and non- metropolitan, “the rich” and “the poor” areas.

In the 1950s, the development of the theories about inequality and economic development was represented by Arthur Lewis and Simon Kuznets (Ferreira 1999). Lewis model emphasized the movement of a production factor from a low productivity sector to a higher productivity one. On the other side, Kuznets observed that the distribution of income could be drawn as an ‘inverted U curve’ in the process of economic development.



**Figure 2.** A Stylized Kuznets Curve

*Source: Ferreira (1999)*

This shows that inequality would first go up in the initial stages of development when people have started moving across sectors and improve after most people have stayed in the new stage of development (Ferreira 1999). This hypothesis is based evidence from time series data on England, Germany and the United States.

When considering the relationship between inequality and economic growth, the Harrod-Domar model observed that there is a positive relationship between inequality and growth. Greater inequality leads to increased growth (Goudie and Ladd 1999). Harrod -Domar theory also emphasized the relationship between capital stock and output where ‘any net additions to the capital stock in the form of new investment will bring about corresponding increases in the flow of national output’ (Todaro 1994:70).

Furthermore, considering the case of regional inequality, Williamson (1965) in his study supports the Kuznets hypothesis. He predicts that regional income inequality will follow three different stages as a country shifts from an early development stage to a maturity stage. He mentions that in the beginning of economic development, regional inequality will rise, mostly because of the disequilibrium impact of factor mobility. In the second stage, development will be more stable but there is a figure of high inequality between regions. Finally, inequality between regions will decline once the economy reaches a maturity period and equilibrium in factor movement.

Moreover, factor movement in the early stage of development creates major urbanisation. It impacts on increasing population density in the center of economy activities. The concentration of population in large cities usually is accompanied by high inequality of distribution (Akita and Lukman 1995). However, some researchers argue that high population density and inequality of distribution in large cities do not hinder the progress of economic development (Akita and Lukman 1995), and may in fact favor it, such as it is happening in most large cities in Indonesia, like Jakarta, Surabaya and Medan. Regarding this fact, there is still a considerable question about balanced regional development in Indonesia.

There have been many widely differing results in studying about inequality of

distribution. Some of them support Kuznets' hypothesis but some refute it. Jha (1996) has been studying using pooled cross-section and time series data and found that the results indicate the inverted U shaped of Kuznets' hypothesis even for developing countries. He concludes that inequality does not necessarily appear between developed and developing countries. It could be said that inequality appears within a country or between regions in a country.

On the other side, Anand and Kabur (1993) argue that a population moves from low average income, traditional sector and low inequality to high average income or modern sector. High inequality accompanied, in fact, by changing sectoral average income disparities and sectoral inequalities. Besides that, Oshima (1992, 1994) found that most Asian countries appear to have the Kuznets' curve of inequality distribution. However, it is reaching its peak when the economy is still in initial stages of development, i.e. predominantly agricultural sector. It could indicate that there is no simple model to present the Kuznets' hypothesis in reality of a country's economic development.

In Indonesia, there have been large studies about poverty and inequality of distribution. They are Esmara 1975; Islam and Khan 1986; Akita 1988; Hill and Weidemann 1989; Hill 1992; Akita and Lukman 1995; Akita, Lukman and Yamada 1999; Asra 2000; Akita and Alisjahbana 2002; and Kuncoro 2002. It reflects high interest and importance of the issue on poverty and inequality of distribution.

Asra (2000) suggests for disaggregating data where he emphasizes using appropriate price indices for different groups and provincial levels and also examines the position of those in the lowest class in the development process. Moreover, Akita and Lukman (1995) who used Williamson's weighted coefficient of variation to measure interregional inequalities for the period 1975-

1992 in Indonesia found that the disparities in provincial GDP were still very high.

In contrast, Akita, Lukman and Yamada (1999) who estimated the inequality of household expenditure for some socio-economic data in Indonesia for 1987, 1990, and 1993 found that inequality between provinces did not matter, it only contributed 17-18 percent of overall inequality of expenditure in Indonesia. They suggested that policymakers should focus more on inequality within provinces and prioritize on reducing urban-rural differences.

Meanwhile, Akita and Alisjahbana (2002) used a two-stage nested inequality decomposition method for district-level GDP data, concluding that there was increasing regional inequality in Indonesia between 1993-1997. It seems that declining poverty incidence during this period was not followed by decreasing inequality. However, the result shows that overall regional income inequality decreased in 1998 with the impact of the crisis. This was largely due to decreasing GDP per capita especially in the Java-Bali region where Jakarta is the hardest painful place in Java. As a result, the gap between Jakarta and other provinces especially outer Java-Bali, in terms of GDP per capita was narrowed. It is a reason they say that inequality declined in 1998.

## **THE EMPIRICAL MODEL AND DATA DESCRIPTION**

### **The Empirical Model**

Empirical model in this paper predicts the determinants of inequality of distribution in Indonesia for 26 provinces (not including East Timor and four other new provinces: Bangka Belitung, North Maluku, Banten, and Gorontalo) for the period 1980-2002 using an unbalanced panel method. One of empirical studies was studying the determinants of inequality of distribution in India for the state

level using variables: time, head count ratio, and real mean consumption (Jha 2002).

Our model in this study has been extended, including other variables that are suggested to influence the inequality of distribution in Indonesia. Formally the model is formulated as follows:

$$g_{it} = \alpha + \sum_{i=1}^k \beta_i X_{it} + d_{it} + u_{it} \quad (1)$$

where

$g_{it}$  = the Gini coefficient represents the inequality of distribution variable,  $g_{it}$ , in province  $i$  and time  $t$

$X_{it}$  = socio-economic variables i.e. monthly average per capita expenditure, school enrolment ratio, percentage of poor people, average household size, population density, and per capita government revenue.

$d_{it}$  = dummy variable that was zero for the period before the crisis (1980-1996) and one for period after the crisis (1999-2002) captures the impact of economic crisis in Indonesia during the 1997-1998 period.

The hypothesis in this study is whether each variable statistically gives a significant effect on the inequality of distribution or not. The estimation also answers the question on how much the independent variables have a role in determining inequality in Indonesia. Besides that, the magnitude of coefficients of parameters' estimated explains the behavior of socio-economic variables in the model.

Firstly, the coefficient of household per capita expenditure is expected to be positive. One of previous study underlines this hypothesis was Jha (2002) who used real consumption data (for Indonesia household expenditure is used in this model due to lack of consumption data). The positive coefficient of expenditure would indicate an increase in household expenditure leads to an increase in

inequality. As a household expenditure increases, especially for people in the highest class of expenditure, while the expenditure of lowest class decreased or almost constant, leading to the increase in the gaps between the highest and the lowest class. Secondly, the parameter of estimation for school enrolment ratio is expected to be negative. In particular, as the education of people from rural areas rises, there will be an opportunity to compete in getting better jobs or to increase their productivity in their current job. Then it potentially brings rising income and expectation of welfare improvement.

On the other hand, the estimated of percentage of poor people is expected to be positive. As the number of poor people increases in percentage, the inequality of distribution rises. Furthermore, the coefficient of population density parameter is also expected to be positive. The evidence (Akita and Lukman 1995; and Table 1) suggests that for areas with high density such as in capital cities and the capital city of a province, inequality tends to be higher than in areas with low population density. Another socio-economic variable that is expected to have a positive sign is average household size. As the theory suggests, increasing number of family members will increase the inequality of distribution (Lanjouw and Ravallion 1995).

For the variable government revenue, its coefficient is expected to be negative. It is suggested that as revenue rises especially for poor regions, the gap between poor and rich regions will decrease, then inequality will be reduced, vice versa (Booth 1996).

The dummy crisis variable tends to create a negative relationship with inequality in Indonesia since the crisis has an impact for rich and middle class people. This tends to push them to the lower level of income class as they become unemployed or move to an informal sector with lower income. Hence, it results in the gap between the poor and the middle or the rich people becoming closer than before the crisis.

**Table 1.** Indonesia's Gini Ratio 1978-2002

<i>Year</i>	<i>Urban</i>	<i>Rural</i>	<i>Urban+Rural</i>
1978	0.38	0.34	0.38
1980	0.36	0.31	0.34
1981	0.33	0.29	0.33
1984	0.32	0.28	0.33
1987	0.32	0.26	0.32
1990	0.34	0.25	0.32
1993	0.33	0.26	0.335
1996	-	-	0.356
1999	0.32	0.24	0.308
2002	0.33	0.25	0.329
2003	0.32	0.24	0.320

*Source: Central Bureau of Statistics, Expenditure for Consumption of Indonesia per Province, several years*

### Data Description

The data set includes 26 provinces in Indonesia (not including East Timor, Bangka Belitung, Gorontalo, North Maluku, and Banten). The estimation uses unbalanced panel method due to some unavailable values in the data set for period 1980-2002 (the data for

government revenue is from 1980 to 2000). Any regression package will do appropriate adjustment for unavailable values. The sources of data are Central Bureau of Statistics (Badan Pusat Statistik) Indonesia for many kinds of published resources. Table 2 describes some descriptive statistics for the data set.

**Table 2.** Descriptive Statistics, 1980 – 2002

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Gini ratio	0.29	0.035	0.20	0.42
Expenditure per capita	59486.45	68781.26	6239	481585
Senior high school enrolment ratio	0.013	0.006	0.002	0.033
Revenue per capita	40668.09	47999.12	4786.48	498514.1
Population density	676.20	2404.32	3	14531
Average household size	4.58	0.545	3.3	6.36
Percentage of poor people	17.214	8.88	2.48	54.75

*Source: Author's calculation based on raw data from Central Bureau of Statistics*

It can be seen from Table 2 above that the Gini ratio in Indonesia averages about 0.29 over the period and across provinces. This Gini ratio is calculated from monthly average per capita expenditure as a proxy of income since there is no reliable data available on income. Todaro (1989) mentions that countries with a Gini ratio between 0.50 and 0.70 have high inequality of distribution and countries with Gini ratio between 0.20 and 0.35 have relatively low inequality of distribution. It can be said that Indonesia has moderate inequality of distribution. In fact, all provinces in Java, eastern Indonesia and Aceh have a Gini ratio between 0.30 and 0.36.

The main variables in the estimate as independent variables include monthly average per capita expenditure that is on average 59486.45 rupiahs, senior high school enrolment ratio which is on average 0.013 points. Besides that, the estimation also includes demographic variables, i.e. population density that is on average 676.20 per km<sup>2</sup>, average household size that shows average number of people in a family is 5 and percentage of poor people which is on average 17.21 % from 26 provinces in Indonesia.

The data of expenditure, for some purposes, is a better indicator of the welfare level than other welfare indicators such as regional GDP (Akita and Lukman 1995). As

an indicator, the household expenditure per capita is more reliable than income per capita since this variable does not vary as much as income in the short term (Akita et al. 1999). Besides that, the distribution of expenditure is usually more equitable than distribution of income if people from the upper level of income class save more when their income increases.

The variable ratio of senior high school enrolments represents human capital indicator. As pointed out above that more highly educated people tend to have more opportunities to get good jobs, therefore the disparity on this variable shows the disparity in inequality of distribution through the differences in income and expenditure. The ratio is calculated from the number of students who are enrolled in high school divided by total population for each province.

Next, the data for revenue per capita comes from the data of government revenue of each province. From Table 3, it can be shown that the amount of revenue in rich provinces (mining four region, i.e. East Kalimantan, Aceh, Papua and Riau ) is in fact below the Java and Bali region, even though mining four region produce a large amount of revenue from oil and minerals. This indicates that the data can be used to analyse the inequality between regions.

**Table 3.** Revenue per capita per Region

Region	1979/ 1980	1980/ 1981	1983/ 1984	1986/ 1987	1989/ 1990	1992/ 1993	1995/ 1996	1998/ 1999	1999/ 2000
Java&Bali	625861	875336	1322283	1837191	2565977	4336959	6956903	4901947	7628772
Mining four*	104612	180928	220341	235401	358586	714976	1007390	1264976	1833304
Sumatra	181864	257095	399614	448934	630318	939772	1326587	1208155	1605516
Kalimantan	65116	108529	139754	179141	230216	466297	518080	556046	803381
Sulawesi	92621	151002	218300	207931	358108	481890	573535	644798	851678
Eastern Islands	57165	82749	131841	119124	76756	212555	313991	394260	532592
Indonesia	1127239	1655639	2432133	3027722	4219961	7152449	10696486	8970182	13255243

Sources: Central Bureau of Statistics, Statistical Year Book of Indonesia, several years.



Population density per square kilometers is suspected as being an independent variable that can explain inequality of distribution in Indonesia. Jakarta is the densest province in Indonesia, followed by other provinces in Indonesia, especially provinces in Java and Bali. And in fact, these provinces have a Gini ratio above the average in Indonesia. The variable poor people in percentage can be used to explain the fact that inequality persists in Indonesia and decreased after the crisis, even though the poverty incidence decreased before the crisis and increased during and just after the crisis.

### THE METHODOLOGY AND DIAGNOSTIC ANALYSIS

The estimation method in this study uses the unbalanced static panel method. It is called unbalanced panel method because some panel data sets have missing values for some cross sectional units in the sample. It is a static method since we do not need to consider past behaviour of the variables in the model. The equation being estimated is equation 1. The panel method itself consists of three methodologies, pooled OLS estimation, fixed effect estimation, and random effect estimation.

The panel method estimation in this study consists of the cross-sectional part and time series part. According the fixed effect model, since the study includes cross sectional components then it implies that the intercepts vary between individual countries. Therefore, testing for a heteroskedasticity problem due to heterogeneity between individuals is important.

In this paper, the Breusch-Pagan test is used to examine the problem of heteroskedasticity which is associated with a Lagrange Multiplier test for the null hypothesis, that there are no individual specific effects ( $\sigma^2_{\alpha} = 0$ ). The rejection of the null

hypothesis of this test in this study suggests that the individual specific effect matter in this case. Hence the Pooled OLS model can not be used in the model of this study. Then it is needed to transform the data to overcome the problem. However, estimation on transformed model needs to consider what model should be used, either the fixed effect or the random effect model.

### Fixed Effects or Random Effects?

The random effects model states that  $E\{g_{it}|x_{it}\} = x_{it}'\beta$ , while the estimation of the fixed effects model is  $E\{g_{it}|x_{it}\} = x_{it}'\beta + \alpha$  (Verbeek 2000:318). The  $\beta$  coefficient in these model are the same only if  $E\{\alpha_i|x_{it}\} = 0$ . Fixed effects estimator cover differences within individuals (within dimension of the data) (Verbeek 2000:318). Meanwhile, random effects estimator combine information from between and within dimensions of the data (Verbeek 2000:318).

The Hausman test covered a test for the uncorrelated between  $x_{it}$  and  $\alpha_i$  as a null hypothesis. The rejection of the null hypothesis implies that there is a significant difference between the two estimators. The Hausman test then tests whether the fixed effects and the random effects estimators are systematically different (Verbeek 2000:319). When there is a systematic difference between those two estimators, it use fixed effects model, and vice versa. The result of this test for the case in this study will be shown in the empirical result section.

### THE EMPIRICAL RESULT AND ANALYSIS

The empirical result comes from equation 1 estimating determinants of inequality of distribution for 26 provinces. Table 3 provides a summary of the empirical result.

Table 3. Estimation Result

Variable Dependent: Gini ratio

Variable Independent	FE	FE	FE	RE	RE
Constant	0.136 (4.10)	0.266 (6.55)	0.308 (48.13)	0.298 (28.02)	0.236 (6.80)
Expenditure per capita	6.14e-07 (8.96)	9.42e-07 (13.20)	9.23e-07 (13.37)	8.96e-07 (13.11)	9.56e-07 (12.89)
Average household size	0.029 (4.28)	0.0076 (1.04)			0.012 (1.91)
Junior High School Enrolment Ratio				0.199 (0.43)	
Senior High School Enrolment Ratio		-1.411 (-2.24)	-1.782 (-3.52)	-1.838 (-2.41)	-1.138 (-2.05)
Population density				5.69e-06 (2.58)	
Percentage of poor people					0.0005 (1.72)
Government revenue		-6.44e-07 (-8.41)	-6.50e-07 (-8.55)	-6.37e-07 (-8.52)	-5.89e-07 (-7.88)
Dummycrises	-0.09 (-9.11)	-0.113 (-12.77)	-0.114 (-12.93)	-0.112 (-12.75)	-0.123 (-11.75)
Within R <sup>2</sup>	0.3483	0.5392	0.5361	0.5361	0.5442
Between R <sup>2</sup>	0.0410	0.0003	0.0004	0.1159	0.0006
Overall R <sup>2</sup>	0.2371	0.3116	0.2978	0.3842	0.3364

Note: t- statistics are in brackets; FE = Fixed Effect ; RE = Random Effect

For some model specifications, the fixed effects model is rejected in favour of the random effects model. This implies random effects model are used in last two models. The study finds that for all model specifications, the coefficient of expenditure has significant positive sign in affecting inequality of distribution. This means that increasing expenditure per capita leads to increasing inequality of distribution. In fact, the data shows that there was decreasing percentage of distribution of expenditure in 20 percent high class of expenditure in the 1980s and a decreasing Gini ratio in the same period of time. Meanwhile, during the early 1990s before the crisis, there was an increasing percentage of distribution of expenditure in 20

percent high class of expenditure per capita from 41.94 percent in 1990 to 44.70 percent in 1996 (Expenditure for Consumption of Indonesia per Province, Central Bureau of Statistics several years). The distribution of expenditure from 40 percent of low class of expenditure was decreased less than increasing the expenditure from 20 percent high class of expenditure (Expenditure for Consumption of Indonesia per Province, Central Bureau of Statistics several years). The Gini ratio data seems consistent with the expenditure data behaviour in which it was increased between 0.321 in 1990 to 0.356 in 1996. The analysis is that when the distribution of expenditure in high class of expenditure decreased, the Gini ratio also decreased. While the Gini ratio will

increase since the distribution of expenditure from high class also rises. It can be indicated that increasing expenditure distribution in high class increases the domination of the rich in the economy. It then creates a rise in the gap between the poor and the rich. By contrast, when the distribution of expenditure from the 20 percent high class of expenditure is reduced, the rich come closer to the poor. As a result, the gap will decrease. This happened during and just after the crisis. The Gini ratio decreased significantly from 1996 to 1999, even though it increased in 2002. However, the ratio was still below the average of the 1980s and early 1990s. This will be explained in more detail in the discussion of the impact of the crises.

Nevertheless, the Gini ratio data shows that the ratio during the 1980s-1990s was relatively constant and it can be seen also from the empirical result that decreasing expenditure by 1 rupiah per capita only reduces inequality between 6.14e-07 and 9.56e-07 points. It could be said that the process in halving the expenditure gaps between provinces is relatively sluggish. This study has been supported by other empirical findings where the process of convergence seems to take a long time. Garcia and Soelistianingsih (1998) and Nazara (1999) argue that it would take approximately 40 years. Hence, it results in total inequality being roughly stable between 1980 and 2002.

The positive sign and significant coefficient of the average household size for the two model specifications suggests that increasing the number of family members tends to raise inequality of distribution. The points estimated vary between those two models. It is shown that increasing the size of a family by one member causes increasing inequality of distribution between 0.012 to 0.029 points. When we look at the data for each province in Indonesia, the number of family members in each province does not differ very much. Further, the number tends to

decline during the period 1980-2002. Even though the empirical results show a positive relationship between average household size and inequality, it is difficult to provide any judgment since only in two models are the points significant. In any particular instance, however, there is considerable evidence of a negative relationship between household size and consumption per person in developing countries (Visaria 1980; Sundrum 1990). It means that families with a large number of members are often typically poor families (Lanjouw and Ravallion 1995). Moreover, Akita, Lukman and Yamada (1999) argue that larger household expenditure is found in larger households. However, per capita household expenditure tends to decrease when the number of family members increases. The comparison therefore can be seen from inter-family inequality where generally each family member in rich families has more welfare in terms of higher utility than poor families' members. Hence, in general, when poor families have more and more children and rich families undermine their household size, it can be observed that there will be greater difference for each member's welfare. This has a place then in explaining the increase of inequality of distribution.

Another variable that significantly matters in explaining inequality of distribution is school enrolment ratio. Almost all model specifications predict that school 3 (meaning school enrolment ratio from senior high school) is more likely better in explaining the relationship between human capital investment in this case with inequality of distribution. The last two models are the best specifications in terms that more independent variables can explain inequality of distribution. The last two model specifications predict that if the ratio of school enrolment increases by one point of measurement, the inequality of distribution will be decreased by 1.138 to 1.838 points of measurement. The coefficient of school enrolment ratio is the largest among other

parameters. It can be concluded that human capital investment is highly significant in influencing inequality. As people get better education, the possibility to achieve better jobs is much higher than for uneducated people. In particular, more educated people tend to work more productively or know how to manage their work in more efficient ways that can produce output of finer quality. When more poor people have opportunity to be more educated, it is likely that their income will be increased through better jobs or higher productivity of work. Their expenditure for better consumption also can increase. This then narrows the poor-rich gap, which could in turn reduce inequality between the poor and the rich.

Empirical studies have in general seen linkages between education, labour productivity and growth. As a result, it is not surprising when the impact of education on income distribution and poverty incidence is largely important. Bhagwati (1973) argued that in many developing countries, educational systems tend to increase rather than decrease inequality. The basic reason is that there is a positive effect of a person's level of education and earnings. It means that people who complete senior high school or university will have much higher wages than people who only finish primary school. It can be in the order of 300 percent to 800 percent (Todaro 1989). Therefore, inequality will be large since the proportion of people from high and middle income groups dominate the students' attendance in higher education. Furthermore, Akita, Lukman and Yamada (1999) also found that 30-33 percent of between education contributes to total inequality in the 1990s. Households with university education have mean expenditure 3.5 times as large as households without formal education. Hence, it supports the first argument where increasing the opportunity for the poor in attending higher education levels will give opportunities for them to improve their earnings. This, in turn

can reduce the gap of inequality. For this purpose, it is necessary to have a better educational system that provides more opportunities for poor students to continue their study in the higher level of education.

For the purposes of explaining some aspects of economic development through inequality, it is important to examine the behaviour of revenue per capita in each province. People tend to spend less when their revenue is limited. The empirical results from almost all model specifications show that there is a negative relationship between government revenue per province and inequality distribution. Over the last 20 years, there was a large gap of revenue between provinces in Indonesia. For example, while Aceh is one of the richest provinces in Indonesia, it has the second lowest revenue of the 8 provinces in the region of Sumatra. Besides that, Papua province is also one of the richest provinces in Indonesia, but its revenue per capita is half of Jakarta, the capital city. This can indicate that there is inequality of resource output distribution among provinces in Indonesia. Booth (1996) mentions that the gap is due to large differences of over 60 percent between export from and import to the province.

In one of model specification, the population density is significant in explaining the inequality of distribution in Indonesia. As Lewis's model and Williamson's theory suggest, inequality will increase in the initial stage of development when there is movement from a lower productivity sector to a higher productivity sector. In Indonesia, during the adjustment period, there was structural change from the agricultural sector to the manufacturing sector. In this period of time, there was high mobility of factors of production from provinces outside the region of Java and Bali to this region, especially to the capital city, Jakarta. This led to increasing inequality of distribution in these areas. The inequality data shows that in the capital city Jakarta for instance, inequality increased

during 1980-1981 and 1984-1993. The structural change could be seen from an increasing trend in manufacturing employment and manufacturing GDP from 13 percent in 1983 to 22 percent in 1991 (Hill 1992; Manning 1997; World Bank 1996).

This study found that increasing population density by 1 person per square kilometres would increase inequality by  $5.69e-06$  points. The coefficient of the parameter is not that large because inequality in fact increased slightly during the adjustment period in Indonesia. The reason for increasing inequality is due to increasing population density for people who moved from the agricultural sector to the manufacturing sector. These people are usually unskilled labour with low educational background. Hence, their incomes are much lower than unskilled labour already in the urban sector. This difference in skills led to differences in income. However, the coefficient of the parameter is small enough to explain this difference. It might be better if the study uses another variable that can explain the mobility of factors of production during the adjustment period such as migration or urbanisation from rural to urban areas for each province in Indonesia. Unfortunately, it is very difficult to find such data since there is no available data for Indonesia.

When the study includes the percentage of poor people, the coefficient of the parameter is positively significant in determining inequality of distribution. The increasing percentage of poor people leads to inequality rise. The data for Indonesia shows that during the adjustment period there was very significant decreasing poverty incidence while inequality decreased only slightly. Many studies found that rapid economic growth results in decreasing poverty but not inequality (Ahluwalia et al. 1979; Fields 1980). In fact, this study finds that the coefficient of the parameter is only 0.0005. The decreasing percentage of poor people by 1 percentage point only decreases the inequality by 0.0005 point. This phenomenon becomes

the problem of economic development where the inequality in Indonesia is in fact persistently constant. This finding is supported by Akita and Lukman (1995) that using GDP per capita data, the provincial inequality still existed between provinces in Indonesia.

It is well known that the Southeast Asian crises during 1997-98 brought a very painful impact to the economy of the countries in the region. There was a dramatic increase in the percentage of poor people. However, the inequality of distribution decreased from 0.356 in 1996 to 0.308 in 1999, even though the index increased in 2002 to 0.329. Yet this number was on average below this figure during the 1980s and early 1990s. The decreasing trend of inequality of distribution during and after the crisis is consistent with the finding of this study where the crisis had a negative impact on inequality.

There are some arguments to explain this phenomenon. Firstly, during the economic crisis, the middle class had taken the burden of the crisis. Those young and well-educated people from the middle class suffered greater income reduction and many of them became unemployed (Booth 2000). The report of the World Bank estimation for January 1999 (Booth 2000) states that many well paid people would lose their jobs and be pushed down into less secure work such as jobs in informal sectors. This estimation became a reality and was followed by reduced income and expenditure for the highest and middle class of income or expenditure. It resulted in reducing the gap between the rich and the poor. Many people become poor and came to the lowest class of income or expenditure. For this reason, the trend in inequality decreased during the crisis and in the following year after the crisis. This reduced inequality did not bring positive economic development. The World Bank (2000) stated that in Indonesia, there were already 4.5 million people unemployed in 1996 and that 10 million would lose their jobs by early 1999 due to the crises. Nevertheless, it

was unlikely that they would be unemployed but would be moved into lower paying informal sector jobs.

This argument was supported by some scholars such as Skoufias et al. (1999) who drew attention to inter-regional inequality over the period 1996-1999. They found that inequality reflects the regionally concentrated nature of the crises in which urban areas in Java suffered very bad conditions. Furthermore, inequality could be analysed from the nature of regional endowments and industrialisation. That is to say, Tajoeddin et al. (2001) found that if the analysis excludes oil and gas production from the estimation of per capita regional GDP (the so-called 'enclaves'), the spatial disparity measured by the Gini index, decreased dramatically by 50 percent in 1998.

The second argument to explain the decreasing inequality during the crises is related to decreasing per capita GDP in most rich urban areas in each province. For example, in urban Java, the crisis caused declining per capita GDP in Jakarta, Tangerang, Bogor, and Bekasi (other west Java urban districts adjacent to Jakarta). These areas experienced around 20 percent of fall in GDP per capita. This also happened in other urban areas in central and east Java (Akita and Alisjahbana 2002). It can be concluded that the crisis hit urban areas significantly (Booth 2000). The crisis also afflicted other urban areas in various regions, especially Bali and Sumatra. It can be said that urban areas mainly concentrating on manufacturing industries suffered most from the crisis. The result was job losses in these industries. However, as people's skills in manufacturing industries could not be applied in rural areas, it was difficult for them to move to rural sectors. As a result, there was a large movement from this formal sector to the informal sector in urban areas and a lowering of labour earnings in urban areas. As the highest and middle class

earnings fell to lower class earnings, inequality declined.

## **CONCLUSION AND RECOMMENDATIONS**

Inequality of development distribution has become a very interesting issue of the development process in every country. The reason is that rapid economic growth is often followed by persistent inequality of distribution. In Indonesia, during the adjustment period, even though rapid growth brought success in reducing poverty incidence, inequality remained relatively constant. Moreover, the economic crisis during 1997-98 brought very much pain for society welfare in Indonesia. This study tries to answer the question of what determinants influence the inequality of distribution in Indonesia and how the crisis impacts on inequality.

The study that uses unbalanced panel estimates find that all socio-economic variables i.e. expenditure per capita, school enrolment ratio, average household size, population density, percentage of poor people, and revenue per capita are matters in the model specifications. Hence, during the adjustment period and the crisis, these variables contribute in the persistent inequality of distribution. In all model specifications, the crisis influences inequality in the reverse way. The crisis led to decreasing inequality. One reason is that there was a decline in the income of people from high classes of expenditure so that they formed a lower class of wage and expenditure. This forced such people into informal sector jobs. The crisis in fact hit the urban areas most, especially in Java and Bali, with a decline of 20 percent in per capita GDP. All of these outcomes resulted in undoubtedly increasing the number of poor people. This number reached 50 million in 1998 or 25 percent of the Indonesian population.

The problem then not only raised the number of poor, but also increased local

society's interest for disintegration. From this finding, it can be concluded that the disintegration issue came up from the feeling inequity, especially for local people from rich natural resource areas in distribution of income. Their understanding is that they got less welfare than they produced. This evidence happened when under the New Order, the central government pooled the revenue, most of which was collected from rich provinces, and distributed it to all provinces. In fact, the mechanism failed to respond to local preferences and conditions.

Since socio-economic matters determine inequality, the government should focus its public policies to support these policy variables. Firstly, the policy that increased school enrolments will hopefully create more opportunities for poor people to get a better education. For example, increasing share of government budget for education and encouraging incentives for educators. The government needs to apply policies that encourage successful family planning in reducing the number of children in the family. Furthermore, to reduce the population density most centred in urban areas, the government should build sufficient infrastructures in rural areas and empowering rural people that can encourage development in rural parts and then narrowing urban-rural gap of development.

Considering the issue of disintegration, the central government has arranged some policies and regulations. One such regulation is Law No. 25/1999 which considers fiscal decentralisation. This law applies under the 'Equalisation Fund'. It contains three components: (1) revenue sharing, (2) block grants, (3) special purpose grants (Islam, 2003). This law is part of the decentralisation agenda with the implementation target of 2001. Some commentators doubt the implementation of this law will help in terms of regional disparity. The reason is that it might create 'the bias of rich natural resources' in that part of the country (Islam, 2003). Despite the contra

arguments, the decentralisation agenda meets many challenges in reaching the goal to reduce the inequality of distribution within the country. The ability of local governments to manage sources is sometimes still a big question. Decentralisation cannot guarantee increased economic growth. Nevertheless, it is a one of the components that drives economic growth for the country, especially welfare in terms of improvement of indigenous and local societies.

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