INEQUALITY IN THE DISTRIBUTION OF HOUSEHOLD EXPENDITURES IN INDONESIA: A THEIL DECOMPOSITION ANALYSIS

Takahiro AKITA
Rizal Affandi LUKMAN
Yukino YAMADA

I. INTRODUCTION

IN his seminal article on economic growth and income inequality, Kuznets (1955) advanced the hypothesis that income inequality first increases and then decreases in relation to economic development, i.e., there is an inverted U-shaped relationship between income inequality and the level of economic development.[1] Since then a number of studies have been conducted to analyze the Kuznets hypothesis theoretically and empirically, with most empirical analyses using cross-country data due to the lack of time-series data of sufficient duration to test the hypothesis for an individual country.[2] While there exists a data comparability problem, especially when using cross-country data due to differences in the choice of recipient units, income concept, geographic coverage, etc., most studies generally confirmed the Kuznets hypothesis.

According to the recent study by Jha (1996), which is based on a large, pooled cross-section and time-series data set from the World Bank, the hypothesis seems to hold even for a sample which included only developing countries, thus indicating that the inverted U-shaped relationship between development and inequality is not necessarily due to intergroup differences between developed and developing countries. However, based on an empirical investigation of formalized models with

---

[1] According to Oshima (1992), it was not Kuznets, but others who designated the relationship as the inverted U curve. Kuznets himself thought of inequality trends as long swings.

[2] See, for example, Ahluwaria (1976a, 1976b), Robinson (1976), Braulke (1983), Saith (1983), Mizoguchi (1985), Papanek and Kyn (1986), Campano and Salvatore (1988), Ram (1988), Oshima (1992), Anand and Kanbur (1993), Ram (1995), Jha (1996).

six income inequality indices, Anand and Kanbur (1993) pointed out that a population shift from the low-mean income, low-inequality, and traditional (rural) sector to the high-mean income, high inequality, and modern (urban) sector, which is the basis for the Kuznets model together with a constant differential in sectoral mean incomes and constant sectoral inequalities, appeared to be, in fact, accompanied by changing sectoral mean income differential and sectoral inequalities. According to Oshima (1992, 1994), most Asian countries seem to follow the Kuznets curve in income inequality, but the peak appears to have been reached when the economy was still predominantly agricultural with per capita incomes much lower than in the West. These findings suggest that factors and forces underlying the Kuznets process are so diverse that one cannot expect to explain the process by a simple model.

The purpose of this paper is to explore the factors and forces underlying income inequality in Indonesia. This will be done using the Theil inequality decomposition technique with household expenditure data from the 1987, 1990, and 1993 National Socio-Economic Survey (Survei Sosial Ekonomi Nasional, Susenas).[3] There are several factors that are considered as having affected income inequality. Since urban inequality is generally larger than rural inequality, a higher level of urbanization is likely to lead to a higher level of overall income inequality. Also, the urban-rural disparity should have a significant bearing on income inequality. For a similar reason, a higher proportion of better-educated groups would also lead to a higher level of overall income inequality, assuming that the income inequalities in these better-educated groups were higher than those of other groups. A larger income disparity between the better-educated groups and the other groups would also raise the overall level of inequality. Besides these factors, age distribution, interregional income disparity, and gender inequality should also influence the overall level of inequality. In this decomposition analysis, these factors are examined in turn; in addition, this study also considers household size as a determinant of overall inequality since it uses households as the unit of analysis and examines the extent of inequality among households by using household expenditure levels.

In order to analyze the factors and forces influencing income inequality, it would be instructive to examine the economic conditions of the period that is being analyzed (1987–93). Indonesia underwent substantial structural changes during the 1987–93 period, which was also characterized by rapid and steady economic growth. A series of reform measures that have been introduced since the middle of the 1980s—including the 1986 devaluation, trade liberalization measures, and in-

---

[3] Anand (1983) presented an overview of decomposable inequality indices. Recent inequality decomposition studies include Mookherjee and Shorrocks (1982), Ikemoto (1985), Glewwe (1986), Ikemoto (1991), Ching (1991), Tsakloglou (1993), Tsui (1993), Jenkins (1995), and Estudillo (1997).

vestment reforms—have been quite effective in shifting the Indonesian economy toward a more export-oriented structure based on non-oil exports. Real annual GDP growth averaged 6.5 per cent between 1987 and 1993, approaching that of the rapid growth period of 1971–81, but this was achieved without the benefit of extensive oil revenue windfalls. Non-oil exports have increased substantially during the period and reached U.S.$27 billion in 1993, accounting for 74 per cent of total exports. The manufacturing sector (including oil/gas manufacturing) led the economy by accounting for almost 30 per cent of GDP growth. Its GDP share grew steadily and reached 21 per cent in 1991, thus surpassing, for the first time, the GDP share of agriculture.

It should be noted that Susenas collects data mainly on consumption expenditures rather than on incomes. However, welfare levels at any point in time are likely to be better indicated by current consumption expenditure than by current income. Furthermore, consumption expenditure is more reliable than income as an indicator of a household's "permanent" income because it does not vary as much as income in the short term. However, since upper-income groups usually save a larger proportion of their incomes, the distribution of consumption expenditure is generally more equitable than the distribution of income.

As to the estimation of inequality indices (Gini and two Theil indices), we rely on decile information, not on the raw Susenas data, since we did not have access to the original data set. As a result, we consider all the households in a particular decile group as if they had the same mean expenditure of the group, thus ignoring the expenditure distribution within the group. This procedure yields a lower bound for the inequality indices. It should be noted also that our study uses current price expenditure data, rather than constant price data (i.e., expenditure data adjusted for the differential impact of inflation on different expenditure groups and sectors), and thus, care should be taken to interpret the changes in inequality. As Asra (1989) noted, price adjustments will not only affect the magnitude of inequality values in any one period, but they may also reverse the trend of inequality indicated by current price data.

There have been numerous studies on poverty and income inequality in Indonesia, reflecting continued interest in how development benefits are distributed among different population subgroups and regions.[4] Among them, Hughes and Islam (1981) conducted a decomposition analysis using several inequality indices (Atkinson, Theil, and Log-Variance) with per capita monthly expenditure data

---

[4] See, for example, Esmara (1975), Sundrum (1979), Dapice (1980), Booth and Sundrum (1981), Hughes and Islam (1981), Sigit (1985), Yoneda (1985), Islam and Khan (1986), Rietveld (1986), Uppal and Budiono Sri Handoko (1986), Kameo and Rietveld (1987), Akita (1988), Ravallion (1988), Asra (1989), Azis (1990), Thorbecke (1991), Booth (1992), Ravallion and Huppi (1991), Akita and Lukman (1995), and Hill (1996).

from the 1970 and 1976 Susenas. Our study, on the other hand, uses household monthly expenditure data from the 1987, 1990, and 1993 Susenas, and decomposes household expenditure inequality into within-group and between-group components according to age, education, household size, gender, province, and location (urban-rural). It attempts to compare the results with those by Hughes and Islam, though the comparison is made only for the decomposition by location (urban-rural) and region since their analysis was confined to these two factors. It should be noted that since Hughes and Islam investigated the distribution of households by per capita household expenditure, our results are not directly comparable with theirs.

Drawing on the 1984 and 1987 Susenas consumption data, adjusting the data for inflation by using the consumer price index, and assuming a 10 per cent (or 50 per cent) cost-of-living differential between urban and rural sectors, Ravallion and Huppi (1991) estimated the level of poverty in 1984 and 1987. According to their study, there was a significant decrease in aggregate poverty over the 1984–87 period for both urban and rural sectors. Our study is regarded as a continuation of Ravallion and Huppi (1991), in the sense that it uses the Susenas consumption data for 1987, 1990, and 1993. However, our study differs from theirs in that we examined inequality rather than poverty, based on the distribution of households by household expenditures, and we investigated the factors of inequality using the Theil inequality decomposition method.

This paper consists of five sections, including this introductory section. Section II describes the characteristics of the data set used. Section III provides an overview of trends in the distribution of household expenditures over the past three decades. Section IV conducts an inequality decomposition analysis to investigate the factors and forces of expenditure inequality. The final section summarizes the findings and provides policy implications and conclusions.

II. THE DATA: NATIONAL SOCIO-ECONOMIC SURVEY (SUSENAS)

This study relies extensively on household expenditure data collected by the National Socio-Economic Surveys (Susenas) which have been conducted regularly by the Central Bureau of Statistics (Biro Pusat Statistik, BPS), and thus our results are subject to the reliability of the Susenas data.[5] In the surveys, however, it is widely believed that, nonfood expenditures are progressively understated by larger-income households, especially in urban areas, and thus expenditure inequalities are underestimated if they are measured based on the Susenas data. Secondly, it is reported that there is a wide discrepancy between the total household expenditure estimated based on the Susenas data and the total private consumption expenditure

---

[5] Regarding the reliability of the Susenas data, see, for example, Booth (1992) and Hill (1996).

from the national accounts.[6] Thirdly, it is said that the survey months covered in the Susenas are different from one survey to another, and thus care should be taken when interpreting the Susenas time-series data of consumption expenditure. Nonetheless, this study uses the Susenas, as these surveys are the only source of information on household expenditures which cover the whole of Indonesia.

The BPS conducted a Susenas for the first time in 1963 in order to collect data on the demographic and socioeconomic characteristics of household members, which include education, age, employment status, consumption expenditure and living condition.[7] Since then, these surveys have been undertaken regularly. The Susenas was intended to cover all Indonesia, but the early surveys did not include all provinces. It was not until 1982 that all provinces including East Timor were covered. The first Susenas in 1963 covered only five Java provinces and selected 16,000 households as a sample. But the sample size increased gradually, and for the 1987, 1990, and 1993 Susenas, the sample size was 49,200, 49,000, and 65,600 households, respectively.[8]

Since 1986, Susenas have used a combined stratified/two-stage random sampling technique with the main sampling frame consisting of a list of enumeration areas which are formed by breaking down every village into smaller geographical units with about 200 to 300 homogeneous households. The selection of a sample of households is made by classifying enumeration areas into strata, choosing several enumeration areas from each stratum, and then selecting households from each of the selected enumeration areas. In the Susenas, province, urban/rural, and expenditure categories are regarded as strata.

Since their inception, Susenas have placed an emphasis on collecting household consumption data in order to estimate the incidence of poverty and the degree of inequality. There are two kinds of consumption items in the questionnaire: food and nonfood items. There are altogether 203 items in the food category and a total of 103 items in the nonfood category. The Central Bureau of Statistics has also been trying to collect household income data in the Susenas, but due to the relative inaccuracy of the data, it has not published the results regularly.

---

[6] The estimated total annual household consumption expenditure for 1987, 1990, and 1993 was, respectively, 68, 61, and 66 per cent of the national private consumption expenditure indicated in the National Income Statistics. This rather large discrepancy is also considered to be due to progressively greater understatement of nonfood expenditures by richer households.

[7] Surbakti (1995) gives a detailed account of the National Socio-Economic Survey since 1963.

[8] There are now three Susenas modules around the core questionnaire in order to gather more detailed household information: the first module collects data on household consumption expenditures and incomes; the second module collects data on welfare, socio-cultural variables, criminality, and tourism; and the third module collects data on health, nutrition, education, and living conditions. Since 1984, the consumption expenditure module of the Susenas has been conducted every three years together with the core questionnaire.

III.   TRENDS IN THE DISTRIBUTION OF HOUSEHOLD EXPENDI-
TURES OVER THE LAST THREE DECADES

The Susenas data on consumption expenditures have been used to measure not only the inequality in the distribution of household expenditures but also the incidence of poverty. Indonesia has been quite successful in poverty alleviation, as exemplified by a steady decline in the percentage of the population under the poverty line. According to the BPS estimates based on the Susenas data, as much as 40.3 per cent of the population was under the poverty line in 1976, but the percentage had fallen significantly to 13.5 per cent by 1993. The factors which explain the decline in the incidence of poverty are, among others: increases in agricultural employment and real wages due to a diversification of production toward non-rice food crops and nonfood farm activities together with the acceleration of rice production in rural areas; a rapid growth of labor-intensive, export-oriented, small-scale manufacturing activities following a series of deregulation and liberalization policies accompanied by a real depreciation of the exchange rate; and public expenditure policies favoring the poor such as central government transfers to the local governments which are designed to finance small-scale construction projects.

Table I presents the trends in the distribution of household expenditures from 1964/65 to 1993 according to the Gini coefficient. It should be noted that the estimates of the Gini coefficient in the table are based on the distribution of individuals by per capita household expenditures, rather than the distribution of households by household expenditures on which our study is based. Assuming that no data comparability problem exists over time, a slight, though not significant, declining trend

TABLE I

TRENDS IN THE GINI COEFFICIENT BY PER CAPITA
HOUSEHOLD CONSUMPTION EXPENDITURE

Year	Urban	Rural	Total
1964/65	0.34	0.35	0.35
1969/70	0.33	0.34	0.35
1976	0.35	0.31	0.34
1978	0.39	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	0.34

Sources: Booth (1992, p. 335) for 1964/65 to 1987 and Hill (1996, p. 193) for 1990 and 1993, based on Susenas data.

TABLE II

EXPENDITURE SHARES

								(% of total)
	Quintile						Decile	
	1	2	3	4	5	T20/B20	1	10
1969/70	7.5	11.5	15.9	22.5	42.6	5.7	3.0	27.3
1976	8.0	11.5	16.0	22.0	42.5	5.3	3.5	27.3
1978	7.3	10.8	14.8	21.8	45.3	6.2	2.8	30.5
1980	7.7	11.8	16.0	22.2	42.3	5.5	3.3	27.8
1981	8.3	12.2	15.6	21.8	42.1	5.1	3.5	27.6
1984	8.0	12.8	15.3	22.0	42.0	5.3	3.4	27.1
1987	9.2	11.7	15.6	21.8	41.7	4.5	3.7	27.0
1990	8.9	12.4	16.2	20.6	42.0	4.7	4.0	26.8
1993	8.9	11.5	15.5	21.4	42.8	4.8	3.7	28.1

Sources: Hill (1996, p. 193), based on Susenas data.
Note: T20/B20 is the ratio for the share of expenditure of the top 20 per cent quintile to the bottom 20 per cent quintile.

is observed over the last three decades, especially after 1978, for the whole country. There was an increase in the Gini coefficient in 1978 at the height of the oil boom that started in 1973. According to Booth (1992), an increase in the relative price of non-traded goods resulting from the oil boom-induced real appreciation induced a shift of factors away from traditional, labor-intensive activities into sectors producing non-traded goods, and this not only widened urban-rural income disparities in favor of urban households but also raised urban inequality because most of the non-traded goods are produced in urban areas. While these factors seem to have caused a significant increase in the Gini coefficient, we should not ignore the fact that the 1978 estimate was based on a much smaller sample size compared to the other Susenas (only 6,300 households for the 1978 Susenas).[9]

While the urban Gini coefficient has been quite stable over the period except 1978, the rural coefficient exhibits a clear decreasing trend, from 0.35 in 1964/65 to 0.26 in 1993. According to Table II, the expenditure share of the bottom 20 per cent household group has risen gradually, thus causing the rural Gini coefficient to decrease since most of the poorest households are in rural areas. This, together with high economic growth, explains Indonesia's success story in poverty alleviation, especially in rural areas. It should be noted that except for the first two years (1964/65 and 1969), rural inequality was consistently smaller than urban inequality.

---

[9] The sample size for the 1969, 1976, and 1980 Susenas was 19,000, 17,000, and 58,000 households, respectively. According to Akita and Lukman (1995), the 1978 value of the weighted coefficient of variation based on per capita GDP excluding mining (at current prices) was the smallest between 1975 and 1983.

IV.   INEQUALITY DECOMPOSITION BY POPULATION SUBGROUPS

A.   *Method*

This study uses the two Theil indices (T and L) to measure inequality in the distribution of household expenditures as they are additively decomposable and satisfy several desirable properties as a measure of inequality in welfare, i.e., mean independence (or income-zero-homogeneity), the principle of population replication (or population-size independence), and the Pigou-Dalton principle of transfers (Bourguignon 1979; Shorrocks 1980). An inequality index is said to be additively decomposable if total inequality can be written as the sum of between-group and within-group inequality. Mean independence implies that the index remains unchanged if everyone's expenditure is changed by the same proportion, while population-size independence means that the index remains unchanged if the number of households at each expenditure level is changed by the same proportion, i.e., the index depends only on the relative population frequencies at each expenditure level, not the absolute population frequencies. Finally, the Pigou-Dalton principle of transfers implies that any expenditure transfer from a richer to a poorer household that does not reverse their relative ranks in expenditures reduces the value of the index.

Suppose that the population of all households is grouped into mutually exclusive and collectively exhaustive socioeconomic groups (different age groups, different education groups, etc.). Since we are working with aggregated expenditure data (decile data), the Theil indices, T and L, are defined, respectively, as:

$$T = \sum_i \sum_j \left(\frac{Y_{ij}}{Y} \right) \log \left(\frac{Y_{ij}/Y}{n_{ij}/n} \right),$$

and

$$L = \sum_i \sum_j \left(\frac{n_{ij}}{n} \right) \log \left(\frac{n_{ij}/n}{Y_{ij}/Y} \right), \tag{1}$$

where Y_{ij} is the total expenditure of households in expenditure class j in group i, Y is the total expenditure of all households ($= \sum_i \sum_j Y_{ij}$), n_{ij} is the total number of households in expenditure class j in group i, and n is the total number of all households ($= \sum_i \sum_j n_{ij}$).

Since n_{ij}/n is the population share of households in expenditure class j in group i and Y_{ij}/Y is the expenditure share of households in expenditure class j in group i, these indices compare population shares and expenditure shares for each cell (i, j) and thereby measure the extent of inequality in the distribution of household expenditures. It should be noted that the Theil index T uses expenditure shares as

weights, while the Theil index L uses population shares as weights. Therefore, the former is sensitive to changes in the upper-expenditure categories while the latter to changes in the lower-expenditure categories.

According to Anand (1983, Appendix C), the Theil indices given in equation (1) can be decomposed into within-group and between-group components as follows:

$$T = \sum_i \left(\frac{Y_i}{Y}\right) T_i + \sum_i \left(\frac{Y_i}{Y}\right) \log \left(\frac{Y_i/Y}{n_i/n}\right) = T_W + T_B,$$

and

$$L = \sum_i \left(\frac{n_i}{n}\right) L_i + \sum_i \left(\frac{n_i}{n}\right) \log \left(\frac{n_i/n}{Y_i/Y}\right) = L_W + L_B, \tag{2}$$

where

$$T_i = \sum_j \left(\frac{Y_{ij}}{Y_i}\right) \log \left(\frac{Y_{ij}/Y_i}{n_{ij}/n_i}\right),$$
$$L_i = \sum_j \left(\frac{n_{ij}}{n_i}\right) \log \left(\frac{n_{ij}/n_i}{Y_{ij}/Y_i}\right),$$

Y_i is the total expenditure of households in group i ($= \sum_j Y_{ij}$), and n_i is the total number of households in group i ($= \sum_j n_{ij}$). T_w is the within-group component of the Theil index T and is defined by a weighted average of within-group Theil indices T_i with the weights being the expenditure shares of the groups Y_i/Y, whereas T_B is the between-group component of the Theil index T and measures the extent of inequality due solely to differences in the group mean expenditures $y_i = Y_i/n_i$. On the other hand, L_w is the within-group component of the Theil index L and is defined by a weighted average of within-group Theil indices L_i with the weights being the population shares of the groups n_i/n, whereas L_B is the between-group component of the Theil index L and measures the extent of inequality due solely to differences in the group mean expenditures y_i. If we define $v_i = n_i/n$ and $w_i = Y_i/Y$, equation (2) can be written simply as:

$$T = \sum_i w_i T_i + \sum_i w_i \log(w_i/v_i),$$
$$L = \sum_i v_i L_i + \sum_i v_i \log(v_i/w_i). \tag{3}$$

As pointed out by Bourguignon (1979), these Theil indices are in a sense dual measures, i.e., they are essentially the same except that the roles of the v_i's and w_i's are inverted. It should be noted that the Theil index T is "weakly" additively decomposable, i.e., the elimination of between-group inequality affects the value of the within-group component since the expenditure shares used as weights in the index do change. But the Theil index L is "strictly" additively decomposable, i.e., the elimination of between-group inequality does not affect the value of the within-group component since the population shares used as weights do not change.

In addition to these two Theil indices, this paper uses the Gini coefficient as another measure of inequality in the distribution of household expenditures. Though it is not additively decomposable (i.e., cannot be decomposed into within- and between-group components), it satisfies the properties of mean independence, population-size independence, and the Pigou-Dalton condition. The estimation of the Gini coefficient in this paper is based on the following formula:

$$G = 1 - \sum_{i=0}^{m-1}(F_{i+1} - F_i)(H_{i+1} + H_i), \qquad (4)$$

where F_i is the cumulative population share of households up to expenditure class i; H_i is the cumulative expenditure share of households up to expenditure class i; $F_0 = H_0 = 0$; and m is the number of expenditure classes.

B. *Results*

Using the decomposition equations [equation (2)] described in subsection A above, total inequality is decomposed into within-group and between-group components according to several socioeconomic variables taken one at a time. The variables include location (rural-urban), region (province), age, education, household size, and gender, and the classification of households into population subgroups is made based on the attributes of the household heads. It should be noted that we measure inequality in the distribution of households by household expenditures, not in the distribution of households by per capita household expenditures nor in the distribution of individuals by per capita household expenditures. Since the decomposition is made by using aggregated decile data and not by original household data, estimates of total inequality vary slightly from decomposition to decomposition. In the following tables which present the results of the decomposition analysis, figures within parentheses are percentage contributions to total expenditure inequality.

Since households in upper expenditure classes tend to have a bigger household size, the level of inequality as measured by household expenditures is usually larger than by per capita household expenditures. According to the Gini coefficient, our estimates of inequality for 1987, 1990, and 1993 were, respectively, 0.372, 0.361, and 0.378 (see Table IV), which were significantly larger than the BPS estimates of 0.32, 0.32, and 0.34. The BPS used data based on the distribution of individuals by per capita household expenditures to estimate the Gini coefficient.[10]

1. *Decomposition by location* (*rural-urban*)
As is widely observed, mean household expenditure was larger for urban households than for rural households (Tables III and IV). Mean urban household expenditure was almost twice as large as mean rural household expenditure, though there

[10] See Indonesia, BPS (1994).

TABLE III

MEAN MONTHLY EXPENDITURE FOR URBAN AND RURAL HOUSHOLDS

Location	Mean Expenditure (1,000 Rp)			No. of Households (% Share)		
	1987	1990	1993	1987	1990	1993
Urban	164	211	294	25.8	28.8	32.1
Rural	82	108	143	74.2	71.2	67.9
All	103	138	192	100.0	100.0	100.0
Ratio (U/R)	2.00	1.95	2.06			

TABLE IV

INEQUALITY DECOMPOSITION BY LOCATION

Location	Theil T			Theil L			Gini		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
Urban	0.221	0.232	0.235	0.222	0.232	0.233	0.364	0.372	0.373
	(37.6)	(43.0)	(45.2)	(25.2)	(29.9)	(31.3)			
Rural	0.162	0.150	0.153	0.161	0.151	0.153	0.313	0.302	0.304
	(39.6)	(35.3)	(30.3)	(52.5)	(48.1)	(43.5)			
All groups	0.241	0.238	0.257	0.228	0.223	0.239	0.372	0.361	0.378
Within-group	0.186	0.186	0.194	0.177	0.174	0.179			
	(77.2)	(78.2)	(75.4)	(77.7)	(76.4)	(74.8)			
Between-group	0.055	0.052	0.063	0.051	0.049	0.060			
	(22.8)	(21.8)	(24.5)	(22.3)	(21.5)	(25.2)			

Note: Figures in parentheses are percentages.

were some fluctuations between 1987 and 1993.[11] Due to the large rural-urban disparity relative to within-group inequalities, the between-group component accounted for 22–24 per cent of total inequality according to the Theil index T (Table IV).

Urban inequality was larger than rural inequality and increased between 1987 and 1993. Combined with the shift of households from rural to urban areas, this raised the contribution of urban inequality to total inequality from 37.6 to 45.2 per cent, as measured by the Theil index T (and from 25.2 to 31.3 per cent as measured by the Theil index L), i.e., urban inequality has been playing an increasingly important role in overall expenditure inequality. On the other hand, rural inequality became less prominent as its contribution to total inequality fell from 39.6 to 30.3 per

[11] Akita and Lukman (1999) presented some factors that would explain this rural-urban expenditure disparity.

cent as measured by the Theil index T.[12] According to Hughes and Islam (1981), the contribution of urban inequality rose very sharply between 1970 and 1976: from 19.6 to 31.1 per cent as measured by the Theil index T and from 14.8 to 20.1 per cent as measured by the Theil index L. Though the increase has slowed down slightly, this tendency seems to have continued in the 1990s.[13]

2. *Decomposition by province*

Indonesia consists of twenty-seven provinces, including the Special Capital Region of Jakarta (DKI Jakarta) and the Special Region of Yogyakarta (DI Yogyakarta), which are usually classified into five regions: Sumatra, Java, Kalimantan, Sulawesi, and the other islands. Indonesia has a very distinct spatial distribution of population and economic activities. One of the most interesting features is that the island of Java, constituting merely 6.9 per cent of total land area, accommodated 60 per cent of the total population and accounted for 56 per cent of total gross domestic product (GDP) in 1990. With a total population of 179 million people and a total GDP of 196 trillion rupiahs in 1990, the vast majority of land area is still underdeveloped. It is not surprising, therefore, that the Indonesian government considers the reduction of interregional disparities in economic activities as its major national policy objective, in conjunction with promoting national economic growth.

According to the decomposition results (Table V), inter-provincial disparity accounted for 17–19 per cent of total inequality when measured by the Theil index T and 15–17 per cent when measured by the Theil index L.[14] However, inter-provincial disparity reflects, to some extent, urban-rural expenditure disparity, because the share of urban households varies among provinces, e.g., in 1993 households in Jakarta were all classified as urban households while in East Timor only 7.4 per cent of households were in urban areas. Since urban mean household expenditure is usually larger than rural mean household expenditure, provincial mean household expenditure tends to be larger for provinces with a larger share of urban households; conversely, it tends to be smaller for provinces with a smaller share of urban households.

Figure 1 presents the relationship between provincial mean household expenditures and provincial expenditure inequalities in 1993. Based on the Theil index T, the simple correlation coefficient (−0.23) indicates that no significant relationship exists between them. For example, Riau, with the third highest mean household

---

[12] The corresponding figures as measured by the Theil index L are a decrease from 52.5 to 43.5 per cent.

[13] It needs to be reminded that Hughes and Islam (1981) used per-capita expenditure data rather than household expenditure data, on which our study are based. Therefore, care should be taken when comparing our results with theirs.

[14] Since there are high correlations between the three indices (Theil T, Theil L, and Gini) in intra-provincial inequalities (about 0.99), we will use the Theil index T exclusively hereafter.
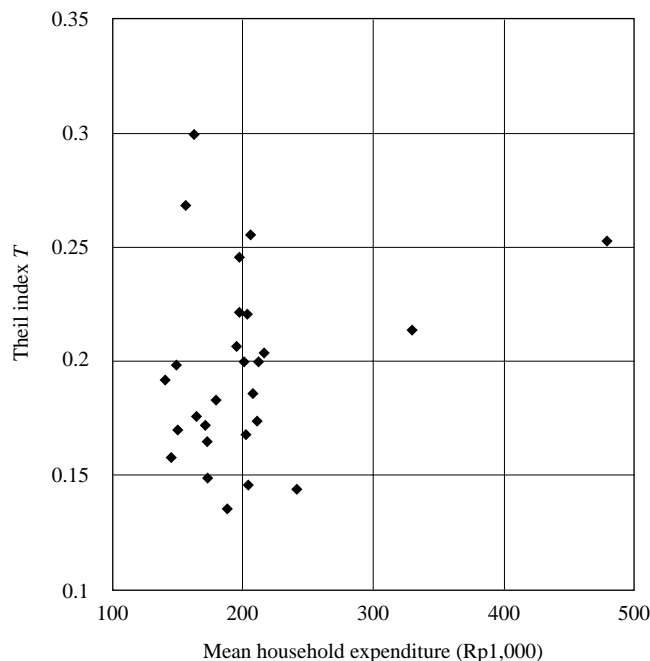
TABLE V

INEQUALITY DECOMPOSITION BY PROVINCE

Province	Theil T			Theil L			Gini		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
Aceh	0.182	0.129	0.200	0.178	0.128	0.196	0.333	0.279	0.344
N. Sumatra	0.183	0.142	0.174	0.177	0.142	0.165	0.327	0.293	0.313
W. Sumatra	0.160	0.178	0.222	0.164	0.182	0.214	0.312	0.328	0.355
Riau	0.142	0.147	0.144	0.140	0.145	0.142	0.291	0.296	0.296
Jambi	0.127	0.112	0.135	0.124	0.113	0.130	0.277	0.262	0.285
S. Sumatra	0.182	0.180	0.207	0.172	0.167	0.192	0.322	0.313	0.341
Bengkulu	0.120	0.147	0.149	0.112	0.139	0.138	0.261	0.293	0.290
Lampung	0.184	0.173	0.158	0.175	0.166	0.153	0.329	0.319	0.307
Jakarta	0.188	0.210	0.253	0.181	0.201	0.235	0.333	0.352	0.379
W. Java	0.223	0.246	0.221	0.215	0.223	0.214	0.360	0.358	0.359
C. Java	0.183	0.194	0.198	0.179	0.189	0.189	0.330	0.336	0.340
Yogyakarta	0.226	0.317	0.256	0.220	0.275	0.243	0.363	0.378	0.378
E. Java	0.267	0.227	0.269	0.241	0.207	0.238	0.381	0.351	0.379
Bali	0.222	0.198	0.204	0.209	0.189	0.197	0.356	0.342	0.347
W. Nusa Teng.	0.202	0.234	0.192	0.197	0.208	0.183	0.345	0.354	0.337
E. Nusa Teng.	0.205	0.203	0.170	0.183	0.187	0.158	0.342	0.344	0.314
E. Timor	0.106	0.233	0.300	0.111	0.217	0.264	0.258	0.367	0.404
W. Kalimantan	0.166	0.177	0.200	0.153	0.166	0.184	0.310	0.319	0.337
C. Kalimantan	0.137	0.141	0.146	0.132	0.138	0.137	0.288	0.296	0.290
S. Kalimantan	0.178	0.148	0.168	0.169	0.145	0.166	0.321	0.295	0.318
E. Kalimantan	0.164	0.163	0.214	0.162	0.161	0.211	0.306	0.312	0.354
N. Sulawesi	0.171	0.141	0.165	0.170	0.141	0.160	0.322	0.294	0.311
C. Sulawesi	0.172	0.158	0.183	0.166	0.150	0.175	0.326	0.305	0.331
S. Sulawesi	0.169	0.201	0.172	0.164	0.199	0.173	0.318	0.348	0.321
S. E. Sulawesi	0.205	0.212	0.176	0.197	0.195	0.168	0.349	0.350	0.318
Maluku	0.212	0.123	0.186	0.196	0.119	0.181	0.350	0.277	0.334
Irian Jaya	0.306	0.225	0.246	0.302	0.225	0.249	0.426	0.371	0.389
All groups	0.247	0.245	0.266	0.232	0.227	0.243	0.372	0.361	0.378
W-group	0.205	0.204	0.216	0.197	0.193	0.201			
(% share)	(83.0)	(83.3)	(81.2)	(84.9)	(85.0)	(82.7)			
B-group	0.042	0.041	0.05	0.035	0.034	0.042			
(% share)	(17.0)	(16.7)	(18.8)	(15.1)	(15.0)	(17.3)			

expenditure, after Jakarta and East Kalimantan, registered smaller-than-average inequality values, whereas West Nusa Tenggara with the lowest mean household expenditure had larger-than-average inequality values.[15] The relatively high inequality provinces are West Java, East Java, Yogyakarta, Jakarta, East Timor, and Irian Jaya. The relatively low inequality provinces are Riau, Jambi, Bengkulu, and Central Kalimantan. Generally speaking, the Java provinces, Bali, and Irian Jaya registered relatively large intra-provincial inequality, whereas Sumatra, Sulawesi,

---

[15] "Average" here refers to the simple average of provincial expenditure inequalities.

Fig. 1.   Mean Household Expenditure and Expenditure Inequality
(Theil Index *T*) by Province in 1993

and Kalimantan provinces had relatively low intra-provincial inequality. It should
be noted that East Timor registered an increase in the level of inequality from a
mere 0.106 in 1987 to 0.233 in 1990 and 0.300 in 1993. But this is attributable
mostly to the fact that the Susenas sample from East Timor did not include urban
households in 1987 but did so in 1990 and 1993. East Timor was, in fact, the prov-
ince with the highest level of inequality in 1993.[16] Considering its small urban
household share, East Timor seems to have suffered from a high level of inequality
in rural areas.

3.   *Decomposition by age*

Household income usually increases gradually with the age of the household
head, but this is only up to a certain age. After reaching a peak, it starts to decrease
as labor productivity falls. Table VI presents the relationship between age and the
mean household expenditure for all households (rural and urban). Reflecting to
some extent the age-income relationship, the mean monthly household expenditure
increases as the household heads become older, and it reaches a peak at between
ages 45 to 49. Thereafter, it decreases. One of the main factors is that household

[16] East Timor seems to have a sampling problem.

TABLE VI

MEAN MONTHLY HOUSEHOLD EXPENDITURE BY AGE

Age Group	Mean Expenditure (1,000 Rp)			Urban-Rural Ratio in Mean Expenditure			Share of Urban Households (%)		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
≤ 19	60	88	114	1.14	1.40	1.11	42.8	54.3	48.4
20–24	72	97	134	1.58	1.55	1.58	27.1	29.2	33.6
25–29	86	114	155	1.72	1.78	1.71	26.7	28.2	31.8
30–34	102	133	183	1.85	1.82	1.83	27.9	30.3	33.1
35–39	111	150	203	1.98	1.92	1.95	24.8	30.3	33.7
40–44	120	158	225	2.12	1.98	2.10	26.0	27.5	33.3
45–49	124	161	233	2.11	2.13	2.23	27.4	29.0	33.0
50–54	109	150	215	2.19	2.05	2.31	24.8	28.7	32.6
55–59	106	138	196	2.13	2.00	2.26	25.0	28.8	29.8
60–64	94	123	165	2.07	1.90	2.08	24.1	26.8	28.6
65 +	80	109	146	2.06	1.90	2.15	21.9	26.5	29.2
All groups	103	138	192	2.00	1.95	2.06	25.8	28.8	32.1

size becomes larger as the household head gets older; but after the children become independent, it becomes smaller; as shown below, there is a positive association between household size and household expenditure.

The same pattern is observed for urban and rural households with the peak at age 45 to 49, but the increase was much larger for urban as opposed to rural households. This is indicated by the ratio of the mean household expenditure between urban and rural households—there is an increasing trend until around ages 45–54. The peak mean household expenditure was 3.1 times as large as the smallest for urban households (Rp 369,000 at ages 45–49 versus Rp 119,000 at ages less than or equal to 19), while it was 1.6 for rural households in 1993 (Rp 172,000 at ages 45–49 versus Rp 106,000 at ages less than or equal to 19). For the households whose heads are less than or equal to 19 years old, the ratio in the mean household expenditure between urban and rural households was only 1.1 in 1993. But, for those whose heads are 45 to 49 years old, the ratio was 2.2. These observations suggest that labor mobility between the rural and urban sectors is higher for younger generations.

According to Table VII, which presents the decomposition results, the between-group component accounted for 4 to 5 per cent of total inequality as measured by the Theil index T, thus indicating that disparities between age groups were not significant in the overall expenditure inequality. Within-age-group inequality appears to increase with the age of household heads. In 1993, it started at 0.166 for ages less than or equal to 19. After dropping to 0.135 at ages 20 to 24, it started to rise and peaked at ages 65 and over at 0.314.

TABLE VII

INEQUALITY DECOMPOSITION BY AGE

Age Group	Theil T			Theil L			Gini		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
≤ 19	0.136	0.183	0.166	0.136	0.172	0.159	0.292	0.325	0.315
20–24	0.137	0.124	0.135	0.131	0.120	0.130	0.286	0.273	0.284
25–29	0.159	0.161	0.156	0.154	0.153	0.148	0.309	0.309	0.304
30–34	0.186	0.180	0.186	0.176	0.171	0.174	0.330	0.326	0.329
35–39	0.202	0.195	0.201	0.193	0.185	0.190	0.345	0.337	0.343
40–44	0.233	0.203	0.232	0.224	0.196	0.221	0.370	0.346	0.368
45–49	0.243	0.235	0.268	0.237	0.229	0.252	0.379	0.373	0.391
50–54	0.265	0.242	0.281	0.255	0.240	0.269	0.391	0.379	0.401
55–59	0.279	0.253	0.293	0.267	0.248	0.281	0.401	0.385	0.410
60–64	0.296	0.247	0.275	0.283	0.248	0.266	0.411	0.383	0.398
65 +	0.293	0.266	0.314	0.286	0.267	0.301	0.413	0.397	0.422
All groups	0.240	0.223	0.251	0.231	0.218	0.238	0.372	0.361	0.378
W-group (% share)	0.229 (95.5)	0.214 (95.7)	0.238 (95.0)	0.219 (95.1)	0.208 (95.4)	0.225 (94.5)			
B-group (% share)	0.011 (4.5)	0.010 (4.3)	0.013 (5.1)	0.011 (4.9)	0.010 (4.6)	0.013 (5.5)			

4.   *Decomposition by education*

Households in Indonesia can be classified into the following categories in terms of the final educational attainment of household heads: (1) no formal education, (2) elementary school, (3) general junior high school, (4) vocational junior high school, (5) general senior high school, (6) vocational senior high school, (7) two-year junior college, (8) three-year junior college, and (9) university. In these categories, (3) and (4) are considered to be in the same attainment level with nine years of education. Also, (5) and (6) are considered to be in the same attainment level with twelve years of education.

Since one's labor productivity is affected by the amount of knowledge, information, and skills acquired, education is considered to be one of the key determinants of income inequality. Table VIII presents the relationship between the educational attainment of household heads and the mean household expenditure. As expected, the mean monthly household expenditure is shown to increase with educational attainment. The mean expenditure for households with university education is 5 and 3.5 times as large as for those with no formal education and for those with only elementary education, respectively.[17] It should be noted that while in 1987 and

---

[17] To simplify the discussion, we will use, hereafter, "households with a certain level of education" instead of "households whose heads completed a certain level of education."

TABLE VIII

MEAN MONTHLY HOUSEHOLD EXPENDITURE BY EDUCATION

Education	Mean Expenditure (1,000 Rp)			Urban-Rural Ratio in Mean Expenditure			Share of Urban Households (%)		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
No formal education	63	86	113	1.59	1.48	1.47	12.3	15.7	16.2
Elementary school	85	110	161	1.52	1.42	1.60	15.8	18.9	24.3
General Jr. HS	106	132	240	1.63	1.53	1.70	26.7	26.1	49.8
Vocational Jr. HS	152	190	234	1.68	1.63	1.70	51.9	51.9	45.2
General Sr. HS	147	199	341	1.45	1.55	1.82	47.7	50.8	69.1
Vocational Sr. HS	212	270	289	1.58	1.91	1.48	74.0	72.2	56.2
College (two-year)	174	229	364	1.36	1.53	1.58	53.2	53.7	59.0
College (three-year)	217	309	507	1.42	2.10	1.64	57.4	63.1	79.4
University	290	435	585	1.53	1.91	1.57	75.1	82.3	85.0
All groups	103	138	192	2.00	1.95	2.06	25.8	28.8	32.1

1990 the mean expenditure was larger for households with vocational high school education than for households with general high school education, the order was reversed in 1993. Possible factors for this anomaly include: an increase in the urban share of households with general high school education in conjunction with a decrease in the urban share of households with vocational high school education in the Susenas sample (see Table VIII), an increase in the sample size (from 49,000 in 1987 and 1990 to 65,000 in 1993), or a change in the definition of general and vocational high schools.

According to Table VIII, the urban-to-rural ratio in the mean household expenditure is very stable across the educational levels of household heads, with the value ranging from 1.47 to 1.82 in 1993, indicating that location and education have no significant interaction effects on mean expenditure. In other words, households whose heads have higher education are likely to have higher expenditures relative to those in the same location (rural or urban). It is also apparent from the table that the share of urban households increases with the level of education, i.e., households with higher education are more likely to live in urban areas. In 1993, 85 per cent of households with university education were in urban areas, whereas only 24 per cent of households with elementary school education were in urban areas. Urban areas offer jobs that require higher skills and knowledge.

Table IX provides the results of the Theil decomposition analysis with respect to education. The between-group component accounted for 30–33 per cent of total inequality as measured by the Theil index T, thus suggesting that if there had been no disparities between educational levels in the mean expenditure, total expenditure inequality would have been much smaller. In other words, raising general educational levels would have a significant bearing on the reduction of overall inequal-

TABLE IX

INEQUALITY DECOMPOSITION BY EDUCATION

Education	Theil T			Theil L			Gini		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
No formal education	0.160	0.151	0.180	0.163	0.157	0.183	0.313	0.306	0.331
Elementary school	0.142	0.140	0.156	0.139	0.138	0.151	0.293	0.292	0.305
General Jr. HS	0.167	0.147	0.182	0.161	0.144	0.177	0.315	0.298	0.330
Vocational Jr. HS	0.201	0.181	0.177	0.200	0.178	0.169	0.347	0.330	0.324
General Sr. HS	0.181	0.158	0.231	0.176	0.160	0.230	0.329	0.312	0.371
Vocational Sr. HS	0.189	0.206	0.170	0.194	0.208	0.170	0.340	0.353	0.321
College (two-year)	0.157	0.158	0.174	0.157	0.159	0.173	0.307	0.311	0.325
College (three-year)	0.180	0.229	0.244	0.187	0.233	0.247	0.329	0.371	0.379
University	0.170	0.225	0.248	0.177	0.232	0.261	0.326	0.369	0.388
All groups	0.235	0.234	0.265	0.224	0.219	0.244	0.372	0.361	0.378
W-group	0.164	0.160	0.179	0.158	0.153	0.168			
(% share)	(69.9)	(68.4)	(67.4)	(70.8)	(69.9)	(68.9)			
B-group	0.071	0.074	0.086	0.065	0.066	0.076			
(% share)	(30.1)	(31.6)	(32.6)	(29.2)	(30.1)	(31.1)			

ity in Indonesia, ceteris paribus. Within-group inequalities for households with higher education increased over the study period, while those for households with elementary school or junior high school education remained rather stable. Export-oriented industrialization based on non-oil exports, such as textiles and plywood, under a series of trade liberalization and deregulation policies seems to have facilitated income and expenditure inequalities among people with higher education, especially those with three-year college education or university education. On the other hand, the effects have been negligible among households with elementary school or junior high school education, i.e., the majority of the people in Indonesia.

5. *Decomposition by gender*

   The ratio of the mean expenditures of male-headed households versus female-headed households was approximately 1.5 (Table X), thus indicating that gender inequality is not very large in Indonesia with regard to expenditure inequality. There are several factors that account for the inequality that does exist. First, male heads of households have higher educational attainments than female heads of households. According to the 1990 Population Census, 31 per cent of males completed at least junior high school; the corresponding figure was 22 per cent for females. Secondly, there is a difference in the types of occupations of male and female workers. Thirdly, male-headed households have a larger household size than female-headed households.

TABLE X

MEAN MONTHLY HOUSEHOLD EXPENDITURE BY GENDER

Gender	Mean Expenditure (1,000 Rp)			Urban-Rural Ratio in Mean Expenditure			Share of Urban Households (%)		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
Male	108	144	200	1.98	1.93	2.03	25.9	28.7	32.0
Female	71	94	133	2.16	2.11	2.33	25.1	29.6	32.7
All groups	103	138	192	2.00	1.95	2.06	25.8	28.8	32.1

TABLE XI

INEQUALITY DECOMPOSITION BY GENDER

Gender	Theil T			Theil L			Gini		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
Male	0.222	0.207	0.232	0.211	0.198	0.217	0.359	0.349	0.365
Female	0.302	0.281	0.326	0.290	0.279	0.314	0.417	0.407	0.432
All groups	0.238	0.221	0.248	0.230	0.217	0.238	0.372	0.361	0.378
W-group (% share)	0.229 (96.5)	0.213 (96.4)	0.240 (97.0)	0.221 (96.0)	0.208 (95.9)	0.229 (96.5)			
B-group (% share)	0.008 (3.5)	0.008 (3.5)	0.007 (3.0)	0.009 (4.0)	0.009 (4.1)	0.008 (3.5)			

According to Table XI, which presents the decomposition results, gender inequality is not a prominent factor in overall expenditure inequality, as the between-group component constituted only 3–4 per cent of total inequality. In other words, the elimination of gender inequality will not reduce total expenditure inequality by very much. It is also apparent in the table that within-group inequality was larger for the female-headed households than male-headed households.

6. *Decomposition by household size*

Larger households tend to have a higher level of household expenditures. However, "per capita" household expenditure decreases as household size increases. This pattern seems to hold for Indonesia (Table XII). In 1993, "per capita" expenditure was Rp 63,000 for households of one person, but it gradually decreased to Rp 36,000 for nine-person households.

Table XII also shows that the share of urban households increased gradually with household size. In 1993, 29 per cent of single-member households were in urban areas, but the urban share increased gradually with size and reached 43 per

TABLE XII

MEAN MONTHLY HOUSEHOLD EXPENDITURE BY HOUSEHOLD SIZE

Household Size (Persons)	Mean Expenditure (1,000 Rp)			Urban-Rural Ratio in Mean Expenditure			Share of Urban Households (%)		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
1	36	47	63	1.73	1.87	1.90	24.8	23.8	28.8
2	58	77	107	1.78	1.68	1.86	22.4	26.2	28.3
3	77	100	146	1.91	1.69	1.81	23.2	25.5	29.2
4	95	125	179	1.91	1.87	1.93	24.2	26.4	30.5
5	109	149	217	1.90	1.88	2.02	25.8	29.7	34.4
6	127	169	254	1.99	1.85	2.12	27.3	30.6	35.9
7	140	196	278	1.93	1.91	2.05	28.4	33.8	35.9
8	158	215	308	1.87	1.80	1.92	31.2	33.9	37.0
9	185	246	325	1.94	1.77	1.89	33.5	39.5	38.0
10 +	229	310	399	1.76	1.81	1.81	40.0	44.9	42.7
All groups	103	138	192	2.00	1.95	2.06	25.8	28.8	32.1

TABLE XIII

INEQUALITY DECOMPOSITION BY HOUSEHOLD SIZE

Household Size (Persons)	Theil T			Theil L			Gini		
	1987	1990	1993	1987	1990	1993	1987	1990	1993
1	0.184	0.178	0.196	0.173	0.169	0.180	0.329	0.325	0.336
2	0.169	0.154	0.185	0.158	0.146	0.170	0.315	0.303	0.326
3	0.173	0.142	0.167	0.160	0.135	0.155	0.316	0.291	0.312
4	0.182	0.164	0.181	0.169	0.154	0.167	0.324	0.310	0.323
5	0.174	0.169	0.200	0.161	0.159	0.182	0.318	0.315	0.337
6	0.186	0.173	0.219	0.172	0.161	0.198	0.328	0.316	0.351
7	0.169	0.175	0.217	0.157	0.163	0.196	0.313	0.319	0.349
8	0.163	0.164	0.184	0.155	0.156	0.173	0.311	0.313	0.329
9	0.182	0.158	0.186	0.170	0.150	0.168	0.327	0.306	0.324
10 +	0.175	0.193	0.199	0.170	0.183	0.185	0.325	0.337	0.340
All groups	0.241	0.229	0.254	0.232	0.220	0.241	0.372	0.361	0.378
W-group (% share)	0.176 (73.0)	0.165 (72.2)	0.194 (76.1)	0.164 (70.5)	0.153 (69.5)	0.175 (72.5)			
B-group (% share)	0.065 (27.0)	0.064 (27.8)	0.061 (23.9)	0.069 (29.5)	0.067 (30.5)	0.066 (27.5)			

cent for households with ten people or more. Since this study measures the degree of inequality in the distribution of households by household expenditures, and not by per capita household expenditures, the contribution of the between-group component was rather large (Table XIII).

V. CONCLUSIONS

The distributional consequences of economic growth have been one of the main policy issues in Indonesia, and these will continue to be important given Indonesia's extensive and far-flung archipelago, the large population size, the presence of different ethnic and religious groups, and the variety of natural resources scattered over the country. Despite the fact that Indonesia recorded an average real GDP growth rate of more than 5 per cent per annum, expenditure inequality, as measured by the Gini coefficient, has been remarkably stable at least until 1993. Indonesia has also been quite successful in poverty alleviation, as the percentage of the population under the poverty line had decreased significantly from almost 40 per cent in 1976 to 13.5 per cent by 1993.

This study attempted to provide an update on expenditure inequality and to investigate its factors and forces. This was done through the Theil decomposition technique using household expenditure data from the 1987, 1990, and 1993 National Socio-Economic Survey (Susenas). One of the main findings is that inter-provincial inequality has not been a major factor in overall national inequality as it contributed 17–18 per cent to total inequality. Thus, policymakers should focus more on within-province inequality rather than between-province inequality in order to reduce overall national inequality. Since urban-rural expenditure inequality accounted for 22–24 per cent of total inequality, reducing urban-rural disparities should be given higher priority. Since urban inequality is likely to play an increasingly important role in the determination of overall inequality, reducing urban inequality is another key factor in reducing overall inequality.

Another important finding is that education is a significant determinant of expenditure inequality, as the between-education component accounted for 30–33 per cent of total inequality. Mean expenditure for households with university education is 5 and 3.5 times as large as for those with no formal education and for those with elementary education, respectively. Considering the fact that more than 60 per cent of household heads had only elementary education or less, raising general educational levels would have a significant bearing on the reduction of overall inequality in Indonesia, ceteris paribus. However, we must recognize that the educational systems of developing countries may cause an increase in the level of inequality since the opportunity costs of elementary education is usually higher for poor students than for better-off students. Furthermore, the expected benefits of elementary education tend to be lower for poor students than for better-off students; thus, the poor are more likely to drop out during the early years of schooling (Todaro 1992). This argument comes from the fact that children of poor families are usually needed to work on their family farms or business, and even if they are able to complete their elementary education, they are likely to have more difficulties in competing with the rich for jobs.

In contrast to education, gender inequality appeared to be insignificant in Indonesia, as the ratio of mean household expenditure between male-headed and female-headed households was only 1.5. The between-group component accounted for merely 3 per cent of total inequality. Hence, the elimination of gender inequality in mean household expenditure will not reduce total inequality by very much. However, this seems to be an exception, since, in many developing countries, female-headed households are usually among the poorest due to the lack of access to better employment opportunities and capital.

There was a distinct pattern in the relationship between age and expenditure: the mean household expenditure increases as household heads became older until the ages of forty-five to forty-nine; thereafter, it decreases. However, expenditure disparities between age groups were not significant in the overall level of inequality as the between-age-group component accounted for 4–5 per cent of total expenditure inequality. Household size tends to increase as the household head grows older, but after the children become independent, the household size becomes smaller. Thus, adjusting household inequalities for household size should further reduce the contribution of the between-age-group component. It should be noted that within-age-group inequality tended to increase with the age of household heads, indicating that as household heads get older, those having better employment opportunities and jobs become richer, while others remain the same or become poorer. Finally, larger households tended to have higher household expenditure, as expected; but per capita household expenditure tended to decrease as household size increased.

This study has several limitations. First, our study used current price expenditure data, rather than constant price data. Therefore, care should be taken in analyzing inter-temporal inequality changes. Secondly, our study did not adjust the data for the cost-of-living differentials between urban and rural sectors, and thus urban-rural expenditure disparities are exaggerated. Thirdly, our study used aggregated expenditure data, rather than the raw Susenas household data. Therefore, expenditure inequalities are likely to be underestimated.

REFERENCES

Ahluwaria, Montek S. 1976a. "Inequality, Poverty and Development." *Journal of Development Economics* 3, no. 4: 307–42.

———. 1976b. "Income Distribution and Development: Some Stylized Facts." *American Economic Review* 66, no. 2: 128–35.

Akita, Takahiro. 1988. "Regional Development and Income Disparities in Indonesia." *Asian Economic Journal* 2, no. 2: 165–91.

Akita, Takahiro, and Rizal Affandi Lukman. 1995. "Interregional Inequalities in Indonesia: A Sectoral Decomposition Analysis for 1975–92." *Bulletin of Indonesian Economic Studies* 31, no. 2: 61–81.

———. 1999. "Spatial Patterns of Expenditure Inequalities in Indonesia: 1987, 1990, and 1993." *Bulletin of Indonesian Economic Studies*. Forthcoming.

Anand, Sudhir. 1983. *Inequality and Poverty in Malaysia: Measurement and Decomposition*. New York: Oxford University Press.

Anand, Sudhir, and S. M. R. Kanbur. 1993. "The Kuznets Process and the Inequality-Development Relationship." *Journal of Development Economics* 40, no. 1: 25–52.

Asra, Abuzar. 1989. "Inequality Trends in Indonesia, 1969–1981: A Re-examination." *Bulletin of Indonesian Economic Studies* 25, no. 2: 100–110.

Azis, Iwan Jaya. 1990. "'Inpres' Role in the Reduction of Interregional Disparity." *Asian Economic Journal* 4, no. 2: 1–26.

Booth, Anne. 1992. "Income Distribution and Poverty." In *The Oil Boom and After: Indonesian Economic Policy and Performance in the Soeharto Era*, ed. Anne Booth. Singapore: Oxford University Press.

Booth, Anne, and R. M. Sundrum. 1981. "Income Distribution." In *The Indonesian Economy during the Suharto Era*, ed. Anne Booth and Peter McCawley. Kuala Lumpur: Oxford University Press.

Bourguignon, Francois. 1979. "Decomposable Income Inequality Measures." *Econometrica* 47, no. 4: 901–20.

Braulke, Michael. 1983. "A Note on Kuznets' U." *Review of Economics and Statistics* 65, no. 1: 135–39.

Campano, Fred, and Dominick Salvatore. 1988. "Economic Development, Income Inequality and Kuznets' U-Shaped Hypothesis." *Journal of Policy Modeling* 10, no. 2: 265–80.

Ching, Panfila. 1991. "Size Distribution of Income in the Philippines." In *Making Economies More Efficient and More Equitable: Factors Determining Income Distribution*, ed. Toshiyuki Mizoguchi. Tokyo: Kinokuniya Company.

Dapice, David. 1980. "Income Distribution 1970–77: A Comment." *Bulletin of Indonesian Economic Studies* 16, no. 1: 86–91.

Esmara, Hendra. 1975. "Regional Income Disparities." *Bulletin of Indonesian Economic Studies* 11, no. 1: 41–57.

Estudillo, Jonna P. 1997. "Income Inequality in the Philippines, 1961–91." *Developing Economies* 35, no. 1: 68–95.

Glewwe, Paul. 1986. "The Distribution of Income in Sri Lanka in 1969–70 and 1980–81: A Decomposition Analysis." *Journal of Development Economics* 24, no. 2: 255–74.

Hill, Hal. 1996. *The Indonesian Economy since 1966: Southeast Asia's Emerging Giant*. Cambridge: Cambridge University Press.

Hughes, G. A., and I. Islam. 1981. "Inequality in Indonesia: A Decomposition Analysis." *Bulletin of Indonesian Economic Studies* 17, no. 2: 42–71.

Ikemoto, Yukio. 1985. "Income Distribution in Malaysia: 1957–80." *Developing Economics* 23, no. 4: 347–67.

———. 1991. *Income Distribution in Thailand: Its Changes, Causes, and Structure*. I.D.E. Occasional Papers Series no. 25. Tokyo: Institute of Developing Economies.

Indonesia, Central Bureau of Statistics (BPS). 1994. *Expenditure for Consumption of Indonesia 1993*. Jakarta: Central Bureau of Statistics.

Islam, Iyanatul. and Habibullah Khan. 1986. "Spatial Patterns of Inequality and Poverty in Indonesia." *Bulletin of Indonesian Economic Studies* 22, no. 2: 80–102.

Jenkins, Stephen P. 1995. "Accounting for Inequality Trends: Decomposition Analyses for the UK, 1971–86." *Economica* 62, no. 246: 29–63.

Jha, Sailesh K. 1996. "The Kuznets Curve: A Reassessment." *World Development* 24, no. 4: 773–80.

Kameo, Daniel, and Piet Rietveld. 1987. "Regional Income Disparities in Indonesia: A Comment." *Ekonomi dan Keuangan Indonesia* 35, no. 4: 451–59.

Kuznets, Simon Smith. 1955. "Economic Growth and Income Inequality." *American Economic Review* 45, no. 1: 1–28.

Mizoguchi, Toshiyuki. 1985. "Economic Development Policy and Income Distribution: The Experience in East and Southeast Asia." *Developing Economies* 23, no. 4: 307–24.

Mookherjee, Dilip, and Anthong Shorrocks. 1982. "A Decomposition Analysis of the Trend in UK Income Inequality." *Economic Journal* 92, no. 367: 886–902.

Oshima, Harry T. 1992. "Kuznets' Curve and Asian Income Distribution Trends." *Hitotsubashi Journal of Economics* 33, no. 1: 95–111.

———. 1994. "The Impact of Technological Transformation on Historical Trends in Income Distribution of Asia and the West." *Developing Economies* 32, no. 3: 237–55.

Papanek, Gustav F., and Oldrich Kyn. 1986. "The Effect on Income Distribution of Development, The Growth Rate and Economic Strategy." *Journal of Development Economics* 23, no. 1: 55–65.

Ram, Rati. 1988. "Economic Development and Income Inequality: Further Evidence on the U-Curve Hypothesis." *World Development* 16, no. 11: 1371–76.

———. 1995. "Economic Development and Income Inequality: An Overlooked Regression Constraint." *Economic Development and Cultural Change* 43, no. 2: 425–34.

Ravallion, Martin. 1988. "*Inpres* and Inequality: A Distributional Perspective on the Centre's Regional Disbursements." *Bulletin of Indonesian Economic Studies* 24, no. 3: 53–71.

Ravallion, Martin, and Monika Huppi. 1991. "Measuring Changes in Poverty: A Methodological Case Study of Indonesia during an Adjustment Period." *World Bank Economic Review* 5, no. 1: 57–82.

Rietveld, Piet. 1986. "Non-Agricultural Activities and Income Distribution in Rural Java." *Bulletin of Indonesian Economic Studies* 22, no. 3: 106–17.

Robinson, Sherman. 1976. "A Note on the U Hypothesis Relating Income Inequality and Economic Development." *American Economic Review* 66, no. 3: 437–40.

Saith, Ashwani. 1983. "Development and Distribution: A Critique of the Cross-Country U-Hypothesis." *Journal of Development Economics* 13, no. 3: 367–82.

Shorrocks, A. F. 1980. "The Class of Additively Decomposable Inequality Measures." *Econometrica* 48, no. 3: 613–25.

Sigit, Hananto. 1985. "Income Distribution and Household Characteristics." *Bulletin of Indonesian Economic Studies* 21, no. 3: 51–68.

Sundrum, R. M. 1979. "Income Distribution, 1970–76." *Bulletin of Indonesian Economic Studies* 15, no. 1: 137–41.

Surbakti, Pajung. 1995. *Indonesia's National Socio-Economic Survey: A Continual Data Source for Analysis on Welfare Development*. Jakarta: Central Bureau of Statistics.

Thorbecke, Erik. 1991. "Adjustment, Growth and Income Distribution in Indonesia." *World Development* 19, no. 12: 1595–614.

Todaro, Michael P. 1992. *Economics for a Developing World: An Introduction to Principles, Problems and Policies for Development*, 3rd ed. London and New York: Longman Publishing.

Tsakloglou, Panos. 1993. "Aspects of Inequality in Greece: Measurement, Decomposition

and Intertemporal Change, 1974, 1982." *Journal of Development Economics* 40, no. 1: 53–74.

Tsui, Kai Yueh. 1993. "Decomposition of China's Regional Inequalities." *Journal of Comparative Economics* 17, no. 3: 600–627.

Uppal, J. S., and Budiono Sri Handoko. 1986. "Regional Income Disparities in Indonesia." *Ekonomi dan Keuangan Indonesia* 34, no. 3: 287–304.

Yoneda, Kimimaru. 1985. "A Note on Income Distribution in Indonesia." *Developing Economies* 23, no. 4: 414–22.