Urban Inequality in Indonesia

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Abstract

According to an inequality decomposition analysis by urban and rural sectors in Indonesia, urban inequality's contribution to overall inequality in per capita household expenditure has been increasing steadily with widening urban inequality and urbanization proceeding following globalization and financial/trade liberalization. According to the Theil T index, the contribution rose from 54% to 63% during the 1996-2002 period. Urban inequality is expected to play a more important role in overall inequality. This paper explores the determinants of urban inequality in Indonesia using monthly household consumption expenditure data for 1999, 2002, and 2005 from the National Socio-Economic Survey (*Susenas*). It focuses on educational differences as the major determinant, since according to previous studies in Asian countries they account for around 20-40% of overall inequality.

Keywords: Urban Inequality, Urbanization, Education, Theil Decomposition Analysis, Indonesia

JEL classification: O15, O18

I. Introduction

Akita and Miyata (2008) analyzed the distribution of per capita household expenditure in Indonesia for the years 1996, 1999, and 2002 using the Theil decomposition method and found that urban inequality's contribution to overall inequality in per capita household expenditure has been increasing steadily with widening urban inequality and urbanization proceeding following globalization and financial/trade liberalization. According to the Theil T index, the contribution rose from 54% in 1996 to 63% in 2002. Urban inequality is expected to play a more important role in overall inter-household inequality.

The following question arises as a critical issue: What are the determinants of urban inequality in Indonesia? This study explores the determinants using monthly household consumption expenditure data for 1999, 2002, and 2005 from the National Socio-Economic Survey (*Susenas*).[1] We focus on educational differences as the major determinant, since according to previous studies in Asian countries, they account for around 20-40% of overall inter-household inequality: 20% of expenditure inequality in Sri Lanka (Glewwe, 1986), 20-30% of income inequality in the Philippines (Estudillo, 1997), 30-40% of income inequality in Singapore (Rao, Banerjee, and Mukhopadhaya, 2003), and 20% of expenditure inequality in Vietnam (Ha, 2006). In Indonesia, Akita, Lukman and Yamada (1999), based on household consumption expenditure for 1987, 1990 and 1993, found that educational differences contributed more than 30% of overall inter-household inequality as measured by the Theil indices.

Like previous studies on Indonesian inequality (Akita and Miyata, 2008), this

study uses consumption expenditure data rather than income data and measures inequality in the distribution of per capita household expenditure for the following reasons. First, *Susenas* collects data mainly on consumption expenditures rather than on incomes. Second, welfare levels at any point in time are likely to be better indicated by current consumption expenditure than by current income. Third, 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 does in the short term. It should be noted however that, since upper-income groups usually save a larger proportion of their incomes, the distribution of expenditure per capita is generally more equal than that of income per capita.

To measure inequality, we employ two Theil indices, which are usually termed the Theil indices T and L (Anand, 1983).[2] They belong to the generalized entropy class of inequality measures and are Lorenz-consistent, i.e., they satisfy several desirable properties as a measure of inequality, such as anonymity, mean independence, population-size independence, and the Pigou-Dalton condition.[3] They are also additively decomposable by population group (Bourguignon 1979; Shorrocks 1980).

This paper is organized as follows. Section II presents the two Theil indices as measures of inequality and their decomposition by population group, while section III describes the data set, which is used to conduct an analysis of the distribution of per capita household expenditure in Indonesia for the years 1999, 2002, and 2005. In section IV, the results are discussed with particular focus on the determinants of urban inequality. Section V provides a summary of findings and concluding remarks.

II. Inequality Measures

Suppose that *n* households in an economy are classified into *m* mutually exclusive and collectively exhaustive groups. Let $\mu, n_i,$ and y_{ij} be, respectively, the arithmetic mean per capita expenditure of the population, the number of households in group *i*, and the per capita expenditure of household *j* in group *i*. Then inequality in the distribution of per capita household expenditure is measured by the Theil indices T and L as follows:

$$T = \frac{1}{n}\sum_{i=1}^{m}\sum_{j=1}^{n_i}\left(\frac{y_{ij}}{\mu}\right)\log\left(\frac{y_{ij}}{\mu}\right) \quad \text{and} \tag{1}$$

$$L = \frac{1}{n}\sum_{i=1}^{m}\sum_{j=1}^{n_i}\log\left(\frac{\mu}{y_{ij}}\right) \tag{2}$$

These indices can be additively decomposed into the within-group and between-group components as follows:

$$T = \sum_{i=1}^{m}\frac{n_i}{n}\frac{\mu_i}{\mu}T_i + \sum_{i=1}^{m}\frac{n_i}{n}\frac{\mu_i}{\mu}\log\left(\frac{\mu_i}{\mu}\right) = T_W + T_B \tag{3}$$

$$L = \sum_{i=1}^{m}\frac{n_i}{n}L_i + \sum_{i=1}^{m}\frac{n_i}{n}\log\left(\frac{\mu}{\mu_i}\right) = L_W + L_B \tag{4}$$

where μ_i is the arithmetic mean per capita expenditure of group *i* and T_i and L_i are, respectively, the Theil indices T and L of group *i*.

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.

Let us now assume that an economy consists of two sectors: the urban and rural sectors, which are denoted, respectively, by sectors 1 and 2, and all households are classified into these two sectors. Let $\alpha = \frac{\mu_1}{\mu_2}$ be the urban-to-rural ratio of mean per capita expenditure and $x = \frac{n_1}{n}$ the share of urban households ($0 \le x \le 1$); then the Theil indices, T and L, can be written, respectively, as

$$T = T_W + T_B$$

$$= \left[T_2 + (T_1 - T_2)\frac{\alpha x}{\alpha x + (1-x)} \right] + \left[\frac{(\alpha \log \alpha)x}{\alpha x + (1-x)} - \log(\alpha x + (1-x)) \right] \qquad (5)$$

$$L = L_W + L_B$$

$$= \left[L_2 + (L_1 - L_2)x \right] + \left[\log(\alpha x + (1-x)) - (\log \alpha)x \right]. \qquad (6)$$

With constant $\alpha, T_1, T_2, L_1, \text{and } L_2$, the Theil indices in equations (5) and (6) can be viewed as a function of the share of urban households, x, i.e., $T = f(x; \alpha, T_1, T_2)$ and $L = g(x; \alpha, L_1, L_2)$.

Based on past empirical evidence on inequality in most developing countries, we can safely assume that $\alpha > 1$ and $T_1 > T_2$ ($L_1 > L_2$), i.e., mean per capita household expenditure and inequality are larger in the urban than in the rural sector. Under these assumptions, we can obtain an inverted-U relationship between urbanization and inequality, as described by the following proposition (Akita and Miyata, 2008):

Proposition

(a) Theil Index T

If $1 < \alpha \le 3.5$ and $T_1 > T_2$, then the Theil index T is strictly concave over

$0 \le x \le 1$. Furthermore, if $(\alpha - 1) - \log \alpha > T_1 - T_2 > 0$, then the Theil index T has a global maximum at

$$x^* = \frac{\alpha(T_1 - T_2) + \alpha \log \alpha - (\alpha - 1)}{(\alpha - 1)^2} \quad \text{where} \quad 0 < x^* < 1,$$

while if $T_1 - T_2 \ge (\alpha - 1) - \log \alpha > 0$, then the Theil index T has a global maximum at x* = 1. We should note that if α is greater than 3.6, then there is a range of x close to $x = 1$ in which the Theil T is strictly convex.

(b) Theil Index L

If $\alpha > 1$ and $L_1 > L_2$, then the Theil index L is strictly concave over $0 \le x \le 1$. Furthermore, if $\log \alpha - \frac{\alpha - 1}{\alpha} > L_1 - L_2 > 0$, then the Theil index L has a global maximum at

$$x^* = \frac{(L_1 - L_2) + (\alpha - 1) - \log \alpha}{(\alpha - 1)\left(\log \alpha - (L_1 - L_2)\right)} \quad \text{where} \quad 0 < x^* < 1;$$

but if $L_1 - L_2 \ge \log \alpha - \frac{\alpha - 1}{\alpha} > 0$, then the Theil index L has a global maximum at x* = 1.

This proposition delineates the Kuznets process for urbanization, which is described as follows (Kuznets, 1955; Anand and Kanbur, 1993). Suppose that mean per capita household expenditure and inequality are larger in the urban than in the rural sector. When all households are in the rural sector, overall inequality is equivalent to the inequality of the rural sector. But as more households live in the urban sector, it increases gradually. Under certain conditions, it reaches a peak before all households live in the urban sector, and then decreases as more households move

to the urban sector. When all households are in the urban sector, overall inequality becomes the inequality of the urban sector.

III. Data

In order to measure inter-household inequality for the years 1999, 2002, and 2005, we use monthly household consumption expenditure data from the consumption expenditure module of the National Socio-Economic Survey (*Susenas*), which has been conducted every three years by the Indonesian Central Bureau of Statistics (BPS). For the 1999, 2002, and 2005 expenditure data, the sample size is 60,591, 64,406, and 62,551 households, respectively. However, since the 2002 *Susenas* does not cover the provinces of Aceh, Maluku, and Papua, these provinces are excluded from the 1999 and 2005 *Susenas* data set for comparability reasons; hence the number of households included in the 1999 and 2005 data set is now 57,975 and 60,502, respectively. This study employs raw *Susenas* data to measure inequality in per capita household expenditure.

To see real changes, we deflated nominal household expenditures of *Susenas* food and non-food items using the provincial CPIs for 30 categories of goods and services.[4] We should note that expenditure items covered by the *Susenas* consumption expenditure module are classified into food and non-food categories. The food category consists of about 200 items, while the non-food category includes about 100 items. On the other hand, BPS has estimated the provincial CPIs for 30 categories of goods and services based on the prices of about 300-400 goods and services. Between 1996 and 2005, BPS had provided the provincial CPIs using 1996 as the base year. In order to deflate nominal household expenditures for 1999, 2002, and 2005, we first aggregated *Susenas* expenditure items into 30 CPI categories as

much as possible. However, there are some non-food *Susenas* expenditure items that cannot be placed in any of these 30 categories. Therefore, we created a separate category for these nonfood *Susenas* items and deflated the expenditures by using the overall provincial CPI.

IV. Empirical Results

This section presents the results for 1999, 2002, and 2005 and explores the determinants of urban inequality. Since the results do not differ very much qualitatively whether the Theil index T or L is used, we explain the results based on the Theil index T.

Table 1 presents the urban-rural ratio of mean monthly per capita household expenditure and the share of urban households. The urban share increased from 42% in 1999 to 46% in 2002, but it declined to 42% in 2005. According to Akita, Lukman, and Yamada (1999), the share was merely 26% in 1987, meaning that Indonesia underwent rapid urbanization in the 1990s, though the urbanization rate of 40-45% was still low compared tothat of developed countries.

Table 1

Table 2 presents the result of the decomposition analysis by location (i.e., rural vs. urban areas). Overall inequality, as measured by the Theil index T, was 0.25 in 1999, but jumped to 0.34 in 2002, due in part to increased urban-rural disparity. Indonesia had recovered from the crisis fully by 2000, and its real GDP growth rates became positive after 2000. Though the rates were not as high as the ones before the financial crisis, the positive growth rates seem to have increased urban-rural disparity, as indicated by the urban-rural ratio of mean per capita expenditure, which rose from 1.83 in 1999 to 2.16 in 2002 (see Table 1).[5] According to the Theil index T, the

contribution of the between-sector inequality component was 18% in 1999, but rose to 21% in 2002, corresponding to an increase in the urban-rural ratio of mean per capita expenditure.

Table 2

As shown in Table 2, the urban sector had a much larger intra-sectoral expenditure inequality than the rural sector. While inequality in the urban sector increased sharply from 0.25 to 0.33 in the period from 1999 to 2002, inequality in the rural sector remained constant at around 0.14-0.15, according to the Theil index T. Therefore, the difference between urban and rural inequalities widened from 0.10 to 0.19. The financial crisis in1997-8 seems to have had a favorable impact on the rural distribution of per capita household expenditure. Even after Indonesia recovered from the crisis and achieved a positive GDP growth rate in 2000, this tendency seems to have continued, at least until 2002. On the other hand, positive GDP growth rates after 2000 were associated with rising urban inequality. This, together with a widening urban-rural disparity, contributed to an increase in overall inequality in 2002. The contribution of urban inequality to overall inequality rose from 57% to 63% in 2002.

In 2005, overall inequality increased further to 0.37 by the Theil index T. Unlike the 1999-2002 period, the rural sector was mainly responsible for the increase. Rural inequality increased conspicuously to 0.18, and its contribution to overall inequality rose to 19% from 15%. Urban inequality increased also, from 0.33 to 0.37; but its contribution declined to 61% owing to the declining share of the urban sector (from 46% to 42%). On the other hand, the urban-rural ratio of mean monthly per capita expenditure, i.e., the between-sector inequality, remained constant; it

accounted for 20% of overall inequality in 2005.

It can be shown that $0 < T_1 - T_2 < (\alpha - 1) - \log \alpha$ in the study period.[6] Therefore, from the proposition in section II, under the condition that $\alpha, T_1, \text{and } T_2$ are constant (i.e., urban-rural ratio and urban and rural T are unchanged), overall inequality reaches the maximum when the share of urban households is less than 100%. Using the Theil T, figure 1 depicts the Kuznets process for urbanization for each year. Based on the proposition in section II, in 2005, the maximum inequality value would have been 0.39 if the urban share had been 67%. Since the 2005 urbanization rate of 42% was much lower than 67%, further urbanization would lead to a higher overall expenditure inequality *ceteris paribus*, i.e., if $\alpha, T_1, \text{and } T_2$ remained constant.

Figure 1

In order to examine the determinants of urban inequality, this study considers educational differences as the major determinant and classifies urban households into the primary, secondary, and tertiary educational groups. The primary educational group consists of households whose heads have either no formal education or only primary education, while the secondary educational group encompasses those households whose heads completed junior high school, general senior high school or vocational senior high school. The tertiary group includes households whose heads completed two-year junior college, three-year junior college, four-year university/college, or graduate school (master's or doctoral program).

Tables 3 and 4 present, respectively, mean per capita household expenditure for these three groups and the result of an inequality decomposition analysis by educational group. Mean per capita expenditure increases as we move from the

primary to the tertiary educational group. In 1999, the ratio of the tertiary to primary educational group in mean per capita expenditure was 2.4, while the ratio of the tertiary to secondary educational group was 1.5. This is translated into the between-group inequality of 0.04 by the Theil index T, which contributed 16% to urban inequality in 1999. Within-group inequality also increases as we move from the primary to the tertiary educational group; but the secondary group had the largest contribution to urban inequality due to its large expenditure share. In 1999, its contribution was 43%.

Tables 3 and 4

Urban inequality rose sharply to 0.33 in 2002. In urban areas, disparity in mean per capita expenditure between the tertiary educational group and the other two groups widened prominently, and the between-group inequality rose to 0.07 in 2002 by the Theil index T, accounting for 20% of urban inequality. This was associated with a rapid increase in the tertiary group's within-group inequality. Within-group inequality of the other educational groups also rose, but not as rapidly as in the tertiary group. In 2002, the contribution of the tertiary group's inequality to urban inequality increased to 26% from 18%, while the secondary group's contribution fell to 37%. Urban inequality increased further to 0.37 in 2005. But the trend pattern observed in the 1999-2002 period persisted in the 2002-2005 period, though to a lesser extent. In 2005, disparity between the tertiary group and the other two groups widened further, and the between-group inequality accounted for 22% of urban inequality, while the contribution of the tertiary group's inequality rose slightly to 27%. The tertiary educational group seems to have been playing an important role in urban inequality.

Table 5 shows expenditure shares of decile groups (from the poorest to the richest in terms of per capita household expenditure) for urban households by educational group. In both the primary/secondary and tertiary educational groups, the richest 10% raised its expenditure share at the expense of the bottom 80% in the study period. But the changes were more pronounced in the tertiary group. The expenditure share of the richest 10% rose by 7.0 percentage points in the tertiary group, while only 2.4% in the primary/secondary group in the study period.

Table 5

Table 6 presents the sectoral distribution of urban households in the primary/secondary and tertiary educational groups in 1999 and 2005. In the tertiary educational group, more than half of the households were engaged in the services sector. However, the services sector had lost its share in the study period, while the manufacturing, trade/hotel/restaurant, and finance sectors had gained their shares. It should be noted that the richest 10% had a quite different sectoral distribution in the tertiary group, where the manufacturing, trade/hotel/restaurant, and finance sectors had much larger shares. In 1999, their shares were, respectively, 11%, 22%, and 10%. However, in 2005, they increased to 14%, 25%, and 15%, in comparison, respectively, with 10%, 15%, and 9% in the tertiary group as a whole.

Table 6

The finance sector had the highest mean per capita expenditure at 416 thousand rupiah in 2005 in the urban tertiary group, which was followed by the construction and trade/hotel/restaurant sectors at 403 and 402 thousand rupiah, respectively, while the mean per capita expenditure of the urban tertiary group as a whole was only 309 thousand rupiah (see table 3). This indicates that the increased shares of the

trade/hotel/restaurant and finance sectors contributed to the increase in the expenditure share of the richest 10% in the urban tertiary group, which, in turn, brought about the rise in the tertiary group's inequality in urban areas (see table 4).

A surprising fact is that 44% of the richest 10% households in the urban tertiary educational group were in Jakarta in 2005, which is compared with only 14% of all households in the urban tertiary group (see table 7). Conversely, 32% of households in Jakarta's tertiary group were in this richest 10%. Furthermore, 14%, 24% and 20% of these richest 10% households were engaged, respectively, in the manufacturing, trade/hotel/restaurant and finance sectors in 2005.

Table 7

Tables 8 and 9 present, respectively, mean per capita household expenditure and the result of an inequality decomposition analysis by educational group for Jakarta. Both mean per capita expenditure and within-region inequality are much higher in Jakarta than in the urban sector as a whole (see tables 3 and 4). Furthermore, Jakarta had a wider disparity between the tertiary and primary/secondary groups in mean per capita expenditure, accounting for 32% of Jakarta's overall inequality in 2005. Jakarta's inequality increased rapidly in the study period, due to a rising inequality in the tertiary educational group and a widening disparity between the tertiary and primary/secondary educational groups. In 2005, the ratio of the tertiary to primary educational group in mean per capita expenditure was 4.2. Households in Jakarta's tertiary educational group seem to have played a crucial role in the rising urban inequality.

Tables 8 and 9

V. Conclusion

Indonesia recovered from the financial crisis in 2000, and since then, has registered positive growth rates in real GDP, with the annual average growth rate of 4.6% from 2000 to 2005. These positive growth rates were associated with rising urban inequality. This, together with a widening urban-rural disparity, contributed to an increase in overall inequality in per capita household expenditure. Urban households seem to have played an important role in overall inequality. With urbanization proceeding following globalization and economic liberalization, overall inequality would likely increase unless urban inequality and urban-rural disparity are reduced.

This paper has explored the determinants of urban inequality in Indonesia from 1999 to 2005 with particular focus on educational differences. A decomposition analysis by education indicates that households whose heads acquired a tertiary education played a prominent role in urban inequality. Their within-group inequality rose conspicuously in urban areas, from 0.27 in 1999 to 0.44 in 2005 by the Theil index T, and its contribution to urban inequality increased to 27% from 18%. At the same time, disparity in mean per capita expenditure between the tertiary group and the primary/secondary educational group widened, and in 2005 its contribution to urban inequality rose to 22%.

An interesting fact is that in urban areas, the richest 10% raised its expenditure share at the expense of the bottom 80%, and the changes were more pronounced in the tertiary educational group than in the primary/secondary group. Another interesting fact is that in the richest 10% of the tertiary group an increasing share of households engaged in the trade/hotel/restaurant and finance sectors. In 2005, 25%

and 15% of them were engaged in these two sectors, respectively, which were much larger than their shares in the tertiary group as a whole at 15% and 8%. Since households in the trade/hotel/restaurant and finance sectors had much higher mean per capita expenditure than those in other sectors in urban areas, the increased shares of these two sectors contributed to the increase in the expenditure share of the richest 10%, which, in turn, led to the rise in the tertiary group's inequality in urban areas.

A surprising fact is that 44% of the richest 10% of the urban tertiary educational group were in Jakarta in 2005. Jakarta's within-region inequality rapidly increased in the study period, due mainly to a rising inequality of the tertiary educational group and a widening disparity between the tertiary and primary/secondary educational groups. Households in Jakarta's tertiary group seem to have played a crucial role in the rising urban inequality. Unless some policies are introduced to mitigate Jakarta's intra-regional inequality, particularly inequality within its tertiary educational group and the disparity between the tertiary and primary/secondary groups, urban inequality may not be reduced.

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Table 1
Mean Monthly Per Capita Expenditure for Rural and Urban Households

	Mean Expenditure (1,000 Rp)			Population Share (%)		
Sectors	1999	2002	2005	1999	2002	2005
Rural (R)	52.7	60.3	68.6	58.4	54.5	58.3
Urban (U)	96.1	130.0	148.6	41.6	45.5	41.7
Total	70.8	92.0	102.0	100.0	100.0	100.0
Ratio (U/R)	1.83	2.16	2.17			

Table 2
Theil Decomposition by Location (Rural vs. Urban)

	Theil T			Theil L		
Sectors	1999	2002	2005	1999	2002	2005
W-Sectors						
Rural Sector	0.150	0.142	0.182	0.131	0.125	0.162
(% Contrib.)	(25.7)	(15.2)	(19.3)	(35.8)	(26.4)	(32.3)
Urban Sector	0.254	0.331	0.370	0.222	0.258	0.299
(% Contrib.)	(56.6)	(63.5)	(60.8)	(43.2)	(45.4)	(42.5)
W-Sectors	0.209	0.263	0.297	0.169	0.185	0.219
(% Contrib.)	(82.3)	(78.7)	(80.1)	(79.0)	(71.7)	(74.8)
B-Sectors	0.045	0.071	0.073	0.045	0.073	0.074
(% Contrib.)	(17.7)	(21.3)	(19.9)	(21.0)	(28.3)	(25.2)
Total	0.254	0.335	0.370	0.214	0.258	0.293
Peak Value						
Urban Share (%)	67.9	67.9	67.3	74.6	70.9	71.4
Inequality	0.266	0.348	0.388	0.230	0.273	0.314

(Note) % Contrib. is the percentage contribution of each component to total inequality.

Table 3
Mean Monthly Per Capita Expenditure for Urban Households

	Mean Expenditure (1,000 Rp)			Population Share (%)		
Education	1999	2002	2005	1999	2002	2005
Primary (P)	70.1	86.6	95.9	44.2	41.8	41.6
Secondary (S)	107.2	139.5	158.2	46.2	46.9	47.5
Tertiary (T)	165.1	251.5	309.3	9.6	11.3	10.9
Urban Total	96.1	130.0	148.6	100.0	100.0	100.0
Ratio (T/P)	2.36	2.90	3.22			
Ratio (T/S)	1.54	1.80	1.96			

Table 4
Theil Decomposition by Education for Urban Households

	Theil T			Theil L		
Education	1999	2002	2005	1999	2002	2005
W-Educational Groups						
Primary Education	0.183	0.196	0.215	0.162	0.163	0.186
(% Contrib.)	(23.5)	(16.4)	(15.7)	(32.6)	(26.5)	(26.1)
Secondary Education	0.213	0.244	0.263	0.191	0.197	0.230
(% Contrib.)	(42.8)	(37.1)	(35.6)	(39.4)	(35.9)	(36.3)
Tertiary Education	0.272	0.401	0.441	0.233	0.304	0.352
(% Contrib.)	(17.5)	(26.4)	(27.1)	(10.0)	(13.3)	(12.9)
Decomposition						
W-Educational Groups	0.213	0.265	0.291	0.182	0.195	0.225
(% Contrib.)	(83.8)	(80.0)	(78.5)	(82.1)	(75.8)	(75.3)
B-Educational Groups	0.041	0.066	0.080	0.040	0.062	0.074
(% Contrib.)	(16.2)	(20.0)	(21.5)	(17.9)	(24.2)	(24.7)
Urban Total	0.254	0.331	0.370	0.222	0.258	0.299

(Note) % Contrib. is the percentage contribution of each component to urban total inequality.

Table 5
Expenditure Shares of Decile Groups for Urban Households by Educational Group (in %)

	Primary/Secondary Education			Tertiary Education		
Decile	1999	2002	2005	1999	2002	2005
1	3.3	3.2	2.9	3.1	2.6	2.3
2	4.4	4.4	4.1	4.2	3.7	3.4
3	5.3	5.3	5.0	5.1	4.5	4.3
4	6.3	6.2	5.9	6.1	5.4	5.1
5	7.2	7.2	6.9	7.0	6.4	6.0
6	8.4	8.4	8.2	8.0	7.6	7.0
7	9.9	9.9	9.8	9.5	9.2	8.5
8	12.0	11.9	11.8	11.6	11.3	10.8
9	15.5	15.3	15.4	15.1	15.0	15.0
10	27.7	28.2	30.1	30.4	34.3	37.5

Table 6
Sectoral Distribution of Urban Households (in %)

	1999			2005		
Sector	Primary Secondary	Tertiary	Tertiary Richest 10%	Primary Secondary	Tertiary	Tertiary Richest 10%
Agriculture	12.0	1.9	0.5	15.1	2.1	0.8
Mining/quarrying	1.5	0.8	0.5	1.6	1.3	2.0
Manufacturing	12.9	7.7	10.6	16.5	9.9	14.2
Electricity/gas/water	0.6	0.7	0.5	0.5	0.7	0.8
Construction	7.8	4.9	6.5	9.5	4.4	6.7
Trade/hotel/restaurant	29.2	12.1	22.1	27.4	15.3	25.2
Transport/communication	11.3	3.4	5.5	11.7	4.5	8.3
Finance	1.7	5.7	10.1	2.4	8.7	15.0
Services	22.8	62.9	43.7	15.1	52.9	27.2
Others	0.2	0.0	0.0	0.2	0.2	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7
Regional Distribution of Urban Households (in %)

	1999			2005		
	Primary Secondary	Tertiary	Tertiary Richest 10%	Primary Secondary	Tertiary	Tertiary Richest 10%
Sumatra	20.7	17.5	6.5	16.8	19.6	12.9
Jakarta	11.7	18.0	58.0	11.9	14.0	44.2
Other Java-Bali	45.3	34.5	22.5	52.9	47.8	37.8
Kalimantan	8.7	11.0	9.1	8.1	7.5	3.6
Other	13.6	19.0	3.9	10.3	11.1	1.4
Total	100	100.0	100.0	100.0	100.0	100.0

Table 8
Mean Monthly Per Capita Expenditure for Jakarta

	Mean Expenditure (1,000 Rp)			Population Share (%)		
Education	1999	2002	2005	1999	2002	2005
Primary (P)	115.6	142.8	157.4	31.6	27.9	30.5
Secondary (S)	160.6	193.4	216.7	54.3	56.5	56.8
Tertiary (T)	297.4	400.6	663.6	14.0	15.7	12.6
Urban Total	165.6	211.8	255.0	100.0	100.0	100.0
Ratio (T/P)	2.57	2.80	4.22			
Ratio (T/S)	1.85	2.07	3.06			

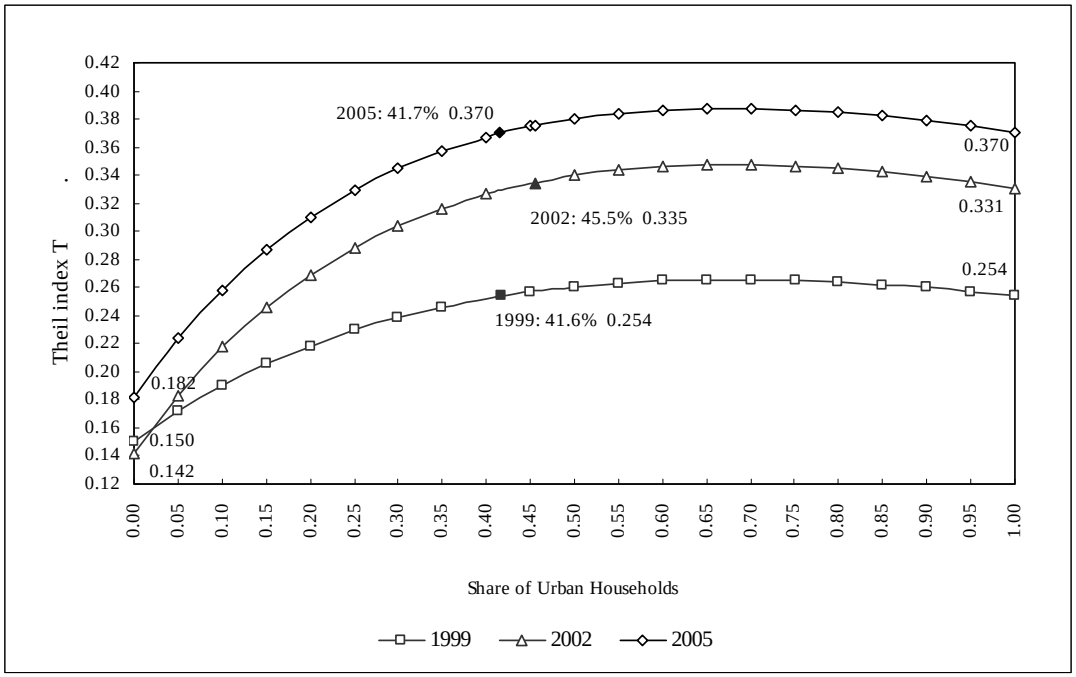
Table 9
Theil Decomposition by Education for Jakarta

	Theil T			Theil L		
Education	1999	2002	2005	1999	2002	2005
W-Educational Groups						
Primary Education	0.161	0.221	0.144	0.140	0.156	0.126
(% Contrib.)	(12.9)	(10.3)	(5.9)	(19.3)	(16.0)	(11.8)
Secondary Education	0.223	0.301	0.254	0.188	0.201	0.194
(% Contrib.)	(42.6)	(38.5)	(26.8)	(44.5)	(41.9)	(33.9)
Tertiary Education	0.280	0.467	0.499	0.250	0.339	0.456
(% Contrib.)	(25.6)	(34.3)	(35.7)	(15.3)	(19.6)	(17.7)
Decomposition						
W-Educational Groups	0.223	0.335	0.314	0.181	0.210	0.206
(% Contrib.)	(81.0)	(83.1)	(68.4)	(79.1)	(77.5)	(63.4)
B-Educational Groups	0.052	0.068	0.145	0.048	0.061	0.119
(% Contrib.)	(18.9)	(16.9)	(31.6)	(20.9)	(22.5)	(36.6)
Total	0.276	0.403	0.458	0.229	0.271	0.326

(Note) % Contrib. is the percentage contribution of each component to Jakarta's overall inequality.

Figure 1

Kuznets Process for Urbanization in Indonesia Based on Theil Index T



[1] There have been numerous studies on expenditure or income inequality in Indonesia, reflecting continued interest in how development benefits are distributed among different population subgroups. Among the studies using *Susenas* data are Sundrum (1979), Booth and Sundrum (1981), Hughes and Islam (1981), Yoneda (1985), Islam and Khan (1986), Asra (1989), Booth (1995), Akita and Lukman (1999), Akita, Lukman and Yamada (1999), Akita and Szeto (2000), Asra (2000), Cameron (2000), Friedman and Levinsohn (2001), Skoufias (2001) and Akita and Miyata (2008)

[2] The Theil index L is also termed the Theil's second measure or the mean logarithmic deviation.

[3] An inequality index is said to be additively decomposable if total inequality can be described as the sum of the between-group and within-group components. 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. 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.

[4] For detail, see Alit (2006).

[5] According to Eastwood and Lipton (2004), the urban-rural ratio of mean income or expenditure per capita ranges from 1.2 to 2.8 in Asia, meaning that Indonesia's ratio represents the median value in Asia.

[6] We also have $0 < L_1 - L_2 < \log\alpha - \frac{\alpha - 1}{\alpha}$.