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INCOME DISTRIBUTION IN MALAYSIA: 1957–80

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I. INTRODUCTION

MALAYSIA'S New Economic Policy (NEP) was introduced after the riot in 1969 in order to achieve more national unity. The cause of the riot was considered to be the inequalization among ethnic groups in the 1960s and NEP was aimed to redirect Malaysia's development policy from one of economic growth to one of equal income distribution; though in a limited sense, which will be clarified below.

NEP is composed of two prongs. Prong 1 is "eradicating poverty by raising income levels and increasing employment opportunities for all Malaysians, irrespective of race" and Prong 2 is "accelerating the process of restructuring Malaysian society to correct economic imbalance, so as to reduce and eventually eliminate the identification of race with economic function" (*Mid-term Review of the Second Malaysia Plan, 1971–1975*). Prong 1 requires that every household[1] earns income above the poverty line and Prong 2 requires that all races distribute equally as the population share in any field in the economy, which implies the equal distribution of income between races.

It must be noted that these two prongs do not mean equal distribution of income. "Equal distribution of income" means that every household has the same amount of income irrespective of race, location, etc. But Prong 2 does not imply "equal distribution" in this sense, but in the limited sense that the distribution of income within the race is the same for each race however unequal the distribution is. In Figure 1, A and B show two distributions of income with no household below the poverty line. If the distribution of income within a race is the same for each race, then the prong does not make any difference between the distributions A and B.

Since the distribution of Malay income had been located to the left of other races as shown in Figure 2, the objective of Prong 2 was set to increase Malay income at every level of income, higher or lower, because it precluded other races becoming worse off. To increase the income of rich Malay, however, has been considered to increase inequality within race and NEP has been criticized on this point. To quote an example: "the NEP embodies the economic interests of the then-emerging Malay capitalist class" [6].[2] However, I will show that NEP was

[1] In this paper we confine our analysis to West Malaysia and the household, which does not necessarily reflect the welfare of individuals.

[2] This can be expressed in terms of relative poverty. Since the relative poverty arises from the feeling of inequality, it has been said that NEP does not take relative poverty into

Fig. 1. Distribution of Income

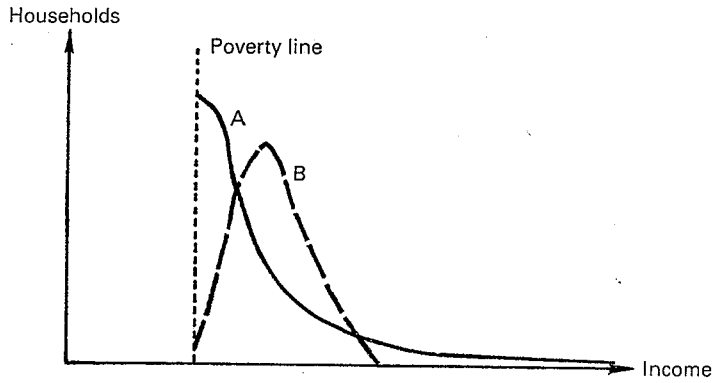
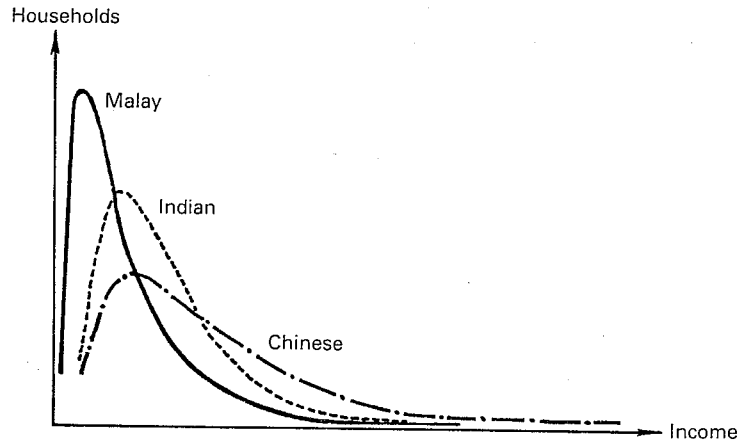


Fig. 2. Distribution of Income by Race



successful in its original sense, that is, that the incidence of poverty and income inequality decreased in the 1970s.

This paper is organized as follows: Section II analyzes the structure and trend of income distribution and the incidence of poverty in 1957/58, 1970, and 1979. In Section III, the inequality of income distribution between races is analyzed with regard to the imbalance in the allocation of labor among races by industry and occupation. Section IV summarizes the main findings of the paper.

II. INCOME INEQUALITY AND POVERTY: 1957–79

This section examines the income distribution and poverty between 1957 and 1979. In Section IIA, data to be used in this section are presented, and the

consideration. But the *Mid-term Review of the Fourth Malaysia Plan, 1981–1985* emphasizes the relative poverty in the argument of poverty line. "Perceptions of being poor or non-poor, therefore, would to a large extent depend on the relative position of households in terms of their real income levels in relation to other households" (p. 76).

inequality of income distribution and the incidence of poverty are analyzed in Sections IIB and IIC, respectively.

A. *Data*

Three income distribution data are used: 1957/58 Household Budget Survey (HBS), 1970 Post Enumeration Survey (PES), and 1980 Labour Force/Household Income Survey (LFS) that compiled the distribution of income in 1979. All these data seem to include income in kind in its income concept.

HBS 1957/58 gives the distribution of income by race and location (rural and urban), but does not cover households with income M$1,000 and more and it must be adjusted to include those households. We adjusted it using the data given in McLure [5].

PES 1970 is not published yet but is available in Anand [2] and the *Mid-term Review of the Second Malaysia Plan, 1971–75*. With these two sources, income distribution data by race and location are obtained.

LFS 1979 is not published yet either but mean and median income of the whole household and mean income of the lowest 40 per cent are available in the Fourth Malaysia Plan and its Mid-term Review. If we assume the income of households is lognormally distributed, we can estimate the distribution of income using these mean and median.[3] Values of mean income of the lowest 40 per cent can be used to check our estimation of the distribution. The mean income of the lowest 40 per cent calculated with our estimate of the distribution and those given in the Malaysia Plan are as follows:

(M$ per month)

	Our Estimate	Malaysia Plan
All races	189.12	189.19
Malay	147.27	140.35
Chinese	278.15	280.11
Indian	242.30	263.43

Our estimates for all races and Chinese are surprisingly close to those of the plan while that for Malay is slightly higher and that for Indian is a bit lower. If we use our estimate of the distribution it will be safe for all races and Chinese, but we may underestimate the inequality of Malay and overestimate that of Indian. Since the detailed survey results are not published yet we will use our estimate, though indisputably crude, in the following.

[3] The lognormal distribution is expressed as:

$$P=\int_0^y \frac{1}{\sqrt{2\pi}\sigma t}\mathrm{Exp}\left\{\frac{(\ln t-m)^2}{2\sigma^2}\right\}dt,$$

where P is the proportion of households below income y and m and σ are parameters. And

$$\text{Mean}=\mathrm{Exp}\{m+\sigma^2/2\},$$
$$\text{Median}=\mathrm{Exp}\{m\},$$
$$\text{Mode}=\mathrm{Exp}\{m-\sigma^2\}.$$

See Aitchison and Brown [1].

TABLE I

MEAN INCOME BY INCOME GROUP OF HOUSEHOLDS

(M$)

Decile	Malay		Chinese		Indian	
	Rural	Urban	Rural	Urban	Rural	Urban
			1957/58			
Bottom	24.4	48.2	46.7	50.5	52.3	40.2
2nd	55.9	109.3	108.3	117.9	116.4	91.3
3rd	69.3	133.6	138.6	150.6	138.2	112.0
4th	82.1	156.5	167.5	182.6	158.1	131.5
5th	95.5	180.2	198.6	217.0	178.3	151.9
6th	110.6	215.8	234.1	256.5	200.4	174.6
7th	128.9	258.0	277.7	305.1	226.1	214.6
8th	153.0	302.7	336.7	371.0	259.0	280.6
9th	196.1	419.9	464.8	537.9	331.5	430.8
Top	340.1	853.3	968.3	1,330.7	554.1	801.5
All	125.6	267.8	294.1	352.0	221.5	242.9
			1970			
Bottom	18.4	34.9	46.9	49.5	41.6	49.1
2nd	45.0	86.1	111.9	122.1	95.8	114.5
3rd	61.1	118.6	147.2	168.3	119.7	145.7
4th	77.8	152.7	182.6	216.8	142.6	176.1
5th	96.6	191.7	221.6	272.1	166.9	202.2
6th	119.2	239.0	267.3	339.1	194.2	248.4
7th	148.3	300.5	324.7	426.4	227.4	335.4
8th	189.8	389.1	404.4	552.1	271.6	471.1
9th	260.5	545.1	540.2	791.3	369.4	771.4
Top	495.1	1,074.4	1,042.3	1,737.1	711.4	1,902.3
All	151.2	313.2	328.9	467.5	234.1	441.6

	1979			
	All	Malay	Chinese	Indian
Bottom	63.6	51.3	96.6	86.6
2nd	160.8	127.7	240.8	213.1
3rd	229.0	178.2	336.6	292.9
4th	303.1	231.8	438.7	376.6
5th	389.7	293.5	556.3	471.8
6th	497.4	369.1	700.6	587.2
7th	641.0	468.3	890.2	736.9
8th	853.5	612.6	1,166.7	952.2
9th	1,242.1	870.7	1,662.3	1,331.5
Top	2,549.8	1,716.7	3,291.3	2,511.2
All	693.0	492.0	938.0	756.0

Source: Calculated by the author based on the data referred in the text.
Note: Monthly household income (M$).

TABLE II

DISTRIBUTION OF INCOME BY INCOME GROUP

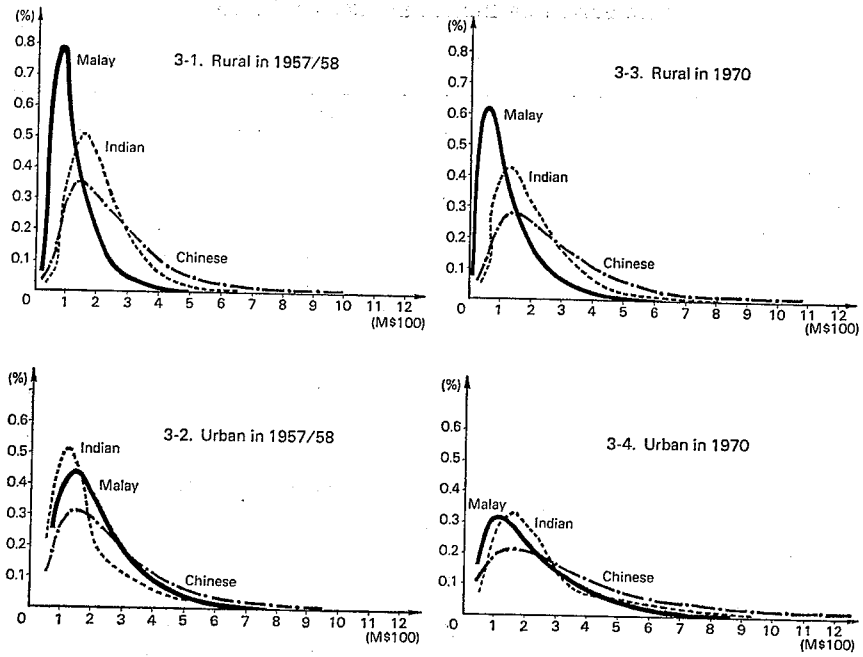
(%)

Decile	Malay		Chinese		Indian	
	Rural	Urban	Rural	Urban	Rural	Urban
			1957/58			
Bottom	1.9	1.8	1.6	1.4	2.4	1.7
2nd	4.5	4.1	3.7	3.3	5.3	3.8
3rd	5.5	5.0	4.7	4.3	6.2	4.6
4th	6.5	5.8	5.7	5.2	7.1	5.4
5th	7.6	6.7	6.8	6.2	8.1	6.3
6th	8.8	8.1	8.0	7.3	9.0	7.2
7th	10.3	9.6	9.4	8.7	10.2	8.8
8th	12.2	11.3	11.4	10.5	11.7	11.5
9th	15.6	15.7	15.8	15.3	15.0	17.7
Top	27.1	31.9	32.9	37.8	25.0	33.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
			1970			
Bottom	1.2	1.1	1.4	1.1	1.8	1.1
2nd	3.0	2.8	3.4	2.6	4.1	2.6
3rd	4.0	3.8	4.5	3.6	5.1	3.3
4th	5.1	4.9	5.6	4.6	6.1	4.0
5th	6.4	6.1	6.7	5.8	7.1	4.6
6th	7.9	7.6	8.1	7.3	8.3	5.6
7th	9.8	9.6	9.9	9.1	9.7	7.6
8th	12.6	12.4	12.3	11.8	11.6	10.7
9th	17.2	17.4	16.4	16.9	15.8	17.4
Top	32.8	34.3	31.7	37.2	30.4	43.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

	1979			
	All	Malay	Chinese	Indian
Bottom	0.9	1.0	1.0	1.2
2nd	2.3	2.6	2.6	2.8
3rd	3.3	3.6	3.6	3.9
4th	4.4	4.7	4.7	5.0
5th	5.6	6.0	5.9	6.2
6th	7.2	7.5	7.5	7.8
7th	9.3	9.5	9.5	9.7
8th	12.3	12.5	12.4	12.6
9th	17.9	17.7	17.7	17.6
Top	36.8	34.9	35.1	33.2
Total	100.0	100.0	100.0	100.0

Source: Table I.

Fig. 3. Density Distribution of Income



The 1979 estimates are given only by race, not by rural-urban area, which limits the comparison between 1979 and the earlier years. The distributions of income in these three years are shown in Tables I and II.

B. *Income Inequality*

Since the distributions in 1957/58 and 1970 are given by race and location, while the distribution in 1979 is given only by race, we first compare the distribution in the former two periods.

Figures 3 and 4 show the density distribution of households by income level in 1957/58 and 1970 which are drawn on the assumption that they are log-normally distributed. In those figures the horizontal axis is the income level and the vertical axis is the proportion of households at the income level.

Figure 3 shows the racial structure of income distribution in each year and location. In the rural area the structure of the distribution of income did not change within the period. In both years, the mode of the distribution of Malay income is lower than the other races whose modes are similar to each other and the distribution of Malay income concentrates to a narrower range of income than the other races. On the other hand, the distribution of Chinese income has the largest variance. All these facts suggest that the mean income of Malay is the lowest and the Chinese is the highest among the three races. Actually rural Malay mean is M$125.6 and M$151.2, Chinese is M$294.1 and M$328.9, and Indian is M$221.5 and M$234.1 in 1957//58 and 1970, respectively. But with only these facts we cannot conclude anything about income inequality. Even though the variance of Malay income seems to be the lowest, its inequality is

TABLE III

GINI COEFFICIENT

	All	Malay		Chinese		Indian	
		Rural	Urban	Rural	Urban	Rural	Urban
1957/58	0.449	0.350	0.396	0.413	0.454	0.309	0.426
1970	0.505	0.442	0.460	0.417	0.481	0.384	0.531
1979	0.493	0.470		0.473		0.452	

Source: Calculated from Table II.

not necessarily the lowest. In terms of Gini coefficient, the distribution of Indian income is the most equal in both 1957/58 and 1970 while the Chinese and the Malay is the most unequal in 1957/58 and 1970, respectively. In this period the degree of inequality among Chinese increased from 0.413 to 0.417 but the degree among Malay increased much faster than the Chinese, that is, from 0.350 to 0.442. (Gini coefficient is shown in Table III.)

The way this inequalization within each race occurred can be seen in Figure 4, which shows the change in the distribution of income by race and location from 1957/58 to 1970. Generally the variance of the distribution seems to be bigger in 1970 and what is worth noticing is that this larger variance was caused by the increase in the proportion of both the lowest and the highest income class, which means that the "poor" became poorer in the period and the "rich" became richer. This can also be seen in Table I. The mean income of the bottom decile decreased with the exceptions of the rural Chinese and urban Indian. In the rural area the mean income of Malay and Indian decreased from M$24.4 to M$18.4 and from M$52.3 to M$41.6, respectively.

In the urban area, the racial structure of the distribution is different from that in the rural area. In 1957/58 the position of Malay and Indians reversed from that in the rural area, that is, the mode of the distribution of Malay income is as high as the Chinese and higher than the Indian, though they are close to each other. In terms of the mean income, the lowest is the Indian, M$242.9, and the highest is the Chinese, M$352.0, while the Malay is M$267.8. But the difference in the mean income between races is not as large as in the rural area. This difference or inequality can be measured by Theil index[4] which is shown in Table IV.

[4] Theil index is expressed as:

$$T=\sum_i \sum_j \frac{y_{ij}}{Y} \ln \frac{y_{ij}/Y}{n_{ij}/N},$$

where

i=income class,

j=group,

y_{ij}=income of jth group in ith income class,

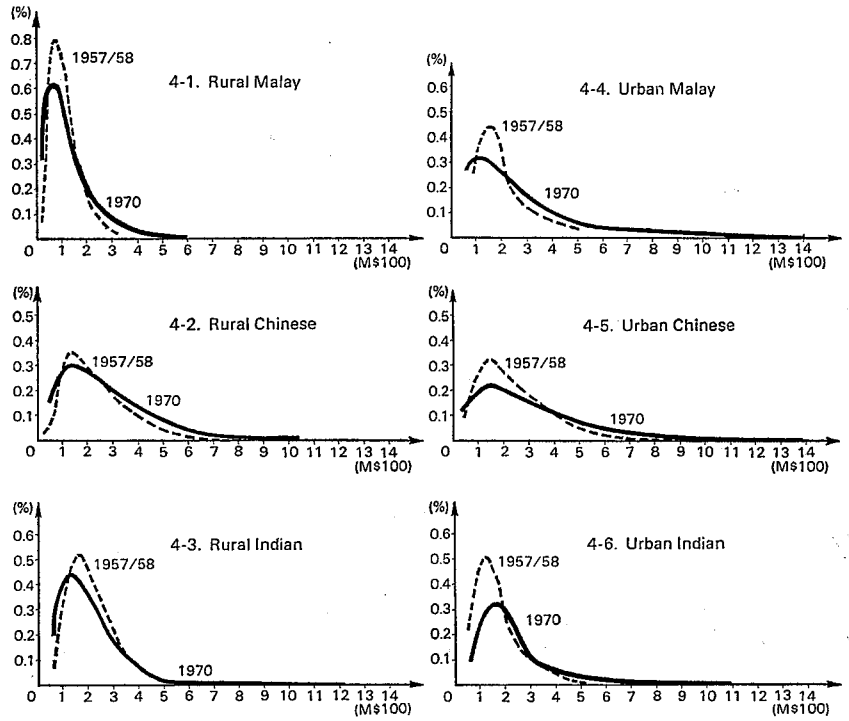
n_{ij}=number of households of jth group and ith income class,

$Y=\sum_i \sum_j y_{ij}$,

$N=\sum_i \sum_j n_{ij}$.

The lower the Theil index is, the more equal the distribution is. And it is decomposed as follows:

Fig. 4. Density Distribution of Income



Theil index of inequality between races in 1957/58 is 0.0109 in the urban area and 0.0772 in the rural area, which means that the inequality between races is negligible in the urban area and lower than in the rural area where the interracial component of inequality is as much as one-fourth. These findings show that the income inequality between races is much smaller in the urban area than in the rural area in 1957/58, though the total inequality in the urban area is higher than in the rural area reflecting the larger inequality within races in the urban

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$$T=T_W+T_B,$$

where T_W is the component of within-group inequality

$$T_W=\sum_i \frac{Y_i}{Y} T_i,$$

where

$$Y_i=\sum_j y_{ij},$$

$$T_i=\sum_j \frac{y_{ij}}{Y_i} \ln \frac{y_{ij}/Y_i}{n_{ij}/N_i},$$

$$N_i=\sum_j n_{ij},$$

and T_B is the component of between-group inequality

$$T_B=\sum_i \frac{Y_i}{Y} \ln \frac{Y_i/Y}{N_i/N}.$$

TABLE IV

A. THEIL INDEX

	Malay		Chinese		Indian	
	Rural	Urban	Rural	Urban	Rural	Urban
1957/58	0.2056	0.2727	0.2961	0.3730	0.1625	0.3127
1970	0.3291	0.3598	0.2946	0.4021	0.2530	0.5117

B. THEIL INDEX BY RACE AND ITS RURAL-URBAN COMPONENT

	Malay	Chinese	Indian
1957/58	0.2577	0.3409	0.2140
R-U	0.0389 (15.1%)	0.0040 (1.2%)	0.0009 (0.4%)
1970	0.3806	0.3744	0.4350
R-U	0.0438 (11.5%)	0.0152 (4.1%)	0.0497 (11.4%)
1979	0.3765	0.3806	0.3440

Note: "R-U" means the rural-urban component of Theil index T_B.

C. THEIL INDEX BY LOCATION AND ITS RACIAL COMPONENT

	Rural	Urban
1957/58	0.3122	0.3583
Race	0.0772 (24.7%)	0.0109 (3.0%)
1970	0.3699	0.4233
Race	0.0623 (16.8%)	0.0137 (3.2%)

Note: "Race" means the racial component of Theil index T_B.

D. THEIL INDEX AND ITS DECOMPOSITION IN WEST MALAYSIA

	All	Race	R-U
1957/58	0.3692	0.0748 (20.3%)	0.0394 (10.7%)
1970	0.4693	0.0845 (18.0%)	0.0753 (16.0%)
1979	0.4176	0.0467 (11.1%)	0.0405 (9.7%)

Note: "All" means Theil index in West Malaysia. "Race" and "R-U" mean the racial and rural-urban components of Theil index T_B in West Malaysia.

Source: Calculated from Table II and the distribution of household shown below:

	Malay		Chinese		Indian	
	Rural	Urban	Rural	Urban	Rural	Urban
1957/58	48.3	5.6	17.0	15.9	8.0	3.7
1970	48.8	7.9	15.2	16.1	7.2	4.0
1980	58.5		31.2		9.6	
	63.2 (rural)			36.2 (urban)		

Note: The distribution in 1980 is used for 1979.

area. That is, the distribution of income in the urban area is more unequal than in the rural area within each race. For example, the Theil index of Malay which is the most equal in the urban area is 0.2056 in the rural area and 0.2727 in the urban area. And the total inequality in the rural area is 0.3122 and lower than in the urban area, 0.3583, measured by the Theil index.

In 1970 the structure of the income distribution in the urban area looks like that in the rural area, though the variance of the Malay income is much larger than in the rural area. The change in the urban area from 1957/58 to 1970 is the increase in the mode of Indian income and the decrease in the mode of Malay income. And the Malay mean income decreased relatively to other races, that is, it is only about 70 per cent of other races. Though the order of the mean income by race changed, the difference between them remained smaller than in the rural area. The interracial component in the urban area increased only a bit from 0.0109 in 1957/58 to 0.0137 in 1970 which is still smaller than 0.0623 in the rural area. In spite of the increase in the interracial inequality, its share in total inequality in the urban area remained unchanged because the intra-racial component of the Theil index increased at the same rate. On the other hand, in the rural area the interracial component did not increase and its share decreased from 24.7 per cent to 16.8 per cent.

The level of total inequality in the urban area is still higher because of the higher inequality within race. In the urban area the income inequality among Malay remained the lowest; on the other hand, the inequality among Indian whose mean income increased nearly twice (the most rapidly) is the highest in 1970, and their Gini coefficient rose from 0.426 in 1957/58 to 0.531. Generally, inequality within each race increased rapidly as in the rural area, and the way of inequalization is similar to those in the rural area stated above (see Figure 4), that is, the "poor" became absolutely poorer and the "rich" became richer. In the period 1957/70, the average income increased and this "economic growth" accompanied an absolute decrease in income at the lowest income class as well as an absolute increase in income at the highest income class.

Now we analyze the trend and structure of income distribution by race in combined rural and urban areas from 1957 to 1979. The Theil index by race in Table IV shows that income inequality within race increased rapidly from 1957/58 to 1970, for example, the inequality in Malay increased from 0.2577 to 0.3806. But from 1970 to 1979 the inequality was stable or decreased. Since our estimates of income inequality in Malay may be underestimated in 1979 (see Section IIA), the inequality of Malay may not decrease. On the other hand, the inequality among Indian may be still lower since our estimate may be over-estimated for Indian. The most unequal is Chinese in 1957/58 and 1979 and Indian in 1970. In striking contrast, the most equal is Indian in 1957/58 and 1979 and Chinese in 1970. Whenever Chinese is the most unequal (equal), Indian is the most equal (unequal), and Malay always lies between them. This pattern may be caused by the exceptionally high inequality of urban Indian in 1970, whose Theil index is 0.5117.

The rural-urban inequality and its share in the inequality within each race are

seen for 1957/58 and 1970. The inequality between rural and urban areas is negligible for Chinese and Indian in 1957/58. The indices are 0.0040 for Chinese and 0.0009 for Indian. Alternately, it is rather high for Malay, that is, 0.0389 which is 15.1 per cent of the inequality of Malay. Between 1957/58 and 1970 the rural-urban component increased for all races. Especially among Indian, the rural-urban gap increased to as high as the Malay.

Finally, we examine the inequality in West Malaysia combined both race and location. Gini coefficient changed from 0.449 in 1957/58, to 0.505 in 1970 and 0.493 in 1979. This means that income inequality increased from 1957/58 to 1970 and then slightly decreased towards 1979 in West Malaysia. The value in 1957/58 is higher than those in the earlier works, for example, 0.3705 in Anand [2], 0.4137 in Zin and Shari [11], 0.421 in Lim [4], 0.412 in Snodgrass [7], etc. The difference in Gini coefficient is mainly due to the difference in the adjustment stated in Section IIA. Since Gini coefficient in 1970 in those works are similar to ours, around 0.5,[5] our results show that the inequalization between 1957 and 1970 was not so rapid as those works have shown, even though the level of inequality in 1970 is about the same between ours and those works.

The inequality between races in West Malaysia was stable between 1957/58 and 1970 at around 0.08 and its share decreased from 20 per cent to 18 per cent because of the increase in the intra-racial component. In the 1970s it decreased to 0.0467, that is, the gap in interracial income decreased.

The inequality between rural and urban areas increased from 0.0394 in 1957/58 to 0.0753 in 1970 faster than the total inequality, so its share also increased. But the inequality decreased to 0.0405 in 1979, which can be regarded as the same thing as an equalization between races in the 1970s since Malay holds the majority in the rural area.

The findings in this section may allow us to say that the period 1957–70 is a period of inequalization both within race and between rural and urban areas accompanying an absolute decrease in income of the "poor," leaving the inequality between races unchanged while the period 1970–79 is a period of equalization both between races and between rural and urban areas, leaving total inequality

[5] But there is a wide variance in Gini coefficient in 1967/68, which is based on the Malaysian Socio-economic Sample Survey of Households, 1967/68 (MSSH). The income concept in MSSH is only the cash income and does not cover income in kind. When we make a comparison between MSSH and others, it is inevitable to adjust MSSH to include income in kind. Lim [4] made the adjustment. The inequality of cash income is higher than that of total income including income in kind and Lim's Gini coefficient in 1967/68, 0.483, is lower than Anand's 0.5624 which uses the cash income. We make the adjustment in a different way than Lim. First we estimate the distribution of cash income in 1970 using the same method as the one used to estimate the distribution of income in 1979 (see Section IIA). Then the ratio of cash income to total income in 1970 by decile is calculated and is used to adjust the distribution of cash income in 1967/68. The Gini coefficient of our estimate is 0.4983 which is very close to the value in 1970.

Wong and Arief [10] show Gini coefficient in 1973 as 0.443 but this seems to be Gini coefficient of the distribution of expenditure, not income, since the distribution of expenditure is more equal than that of income whose Gini coefficient in 1973 is 0.518 in Visaria [9] and 0.4982, our estimate.

TABLE V

INCIDENCE OF POVERTY

(%)

	All	Rural	Urban	Malay	Chinese	Indian
1957/58	51.2	59.6	29.7	70.5	27.4	35.7
1970	49.3	58.7	21.3	65.9	27.5	40.2
1979/80	29.0	37.4*	12.6*	39.3	16.5	20.5

* Figures for 1980 from *Mid-term Review of the Fourth Malaysia Plan, 1981–1985.*

(%)

	Malay		Chinese		Indian	
	Rural	Urban	Rural	Urban	Rural	Urban
1957/58	74.9	32.7	29.4	25.2	31.5	44.8
1970	70.3	38.8	30.5	24.6	44.9	31.8

Source: Calculated by the author.

unchanged. This is the reason why NEP's Prong 2 can be considered to be successful though only in its limited original sense, that is, equalization between races, neglecting inequality within each race.

C. *Poverty*

Another measure of income inequality is the so-called poverty incidence, or the proportion of households below the poverty line. A poverty line is an income level below which a household is considered to be "poor." Since we are not interested in the level of "poverty" itself but in the inequality, we use a somewhat ambiguous poverty line which is close to the one used in the Malaysia plans. First, we estimate the poverty line in 1970 and 1979 with the incidence of poverty in West Malaysia shown in the Malaysia plans and the distribution of income used in Section IIA. The result is that the poverty line is M$166.1 in 1970 and M$256.0 in 1979. The increase in the poverty line is 54 per cent and is less than the increase in the consumer price index. This means that the poverty line in constant prices decreased, which may reflect the downward revision of the official poverty line. The poverty line in 1957/58 is derived by deflating the one in 1970 with the consumer price index. The result is M$151.2. With these poverty lines and the distribution of income estimated in Section IIA we calculated the incidence of poverty as is shown in Table V.

The incidence of poverty is high in the rural area and among Malay. In 1957/58 the incidence is 59.6 per cent in the rural area and 70.5 per cent among Malay. Since Malay is the majority in the rural area, these things mean the same. From 1957/58 to 1970 the incidence changed slightly. But once we remind ourselves of the increase in the proportion of households at the lowest income class or the fact that the "poor" became poorer in this period, the incidence of poverty may be thought to be more serious in 1970, meaning that the extent of poverty is worse than the figures of poverty incidence indicate.

The changes in the incidence of poverty by race and location can be divided

TABLE VI
INCIDENCE OF POVERTY BY INDUSTRY

(%)

	1970	1975	1980	1983
Rural:				
Agriculture	68.3	63.0	45.7	54.9
Rubber smallholders	64.7	59.0	41.3	61.1
Oil palm smallholders	30.0	9.1	7.7	6.5
Coconut smallholders	52.8	50.9	38.9	32.7
Padi farmers	88.1	77.0	52.7	54.0
Other agriculture	64.9*	64.6*	64.2	54.0
Estate workers	—	—	35.1	54.6
Fishermen	73.2	63.0	45.3	44.7
Other industries	35.2	27.8	22.8	20.9
Subtotal	58.7	54.1	37.4	41.6
Urban:				
Mining	33.3	38.5	33.0	41.0
Manufacturing	23.5	30.6	13.4	12.6
Construction	30.2	23.9	17.4	13.7
Transport & utilities	30.9	21.4	19.2	15.6
Trade & services	18.1	18.5	10.5	9.2
Subtotal	21.3	19.0	12.6	11.1
Total	49.3	43.9	29.0	30.3

Sources: Malaysia Plans and Mid-term Reviews.
* Includes estate workers.

into two types. One is an increase in the urban area and a decrease in the rural area (Malay belongs to this type), and the other is a decrease in the urban area and an increase in the rural area (to which Chinese and Indian belong). Since the majority is in the rural area, the trend of the incidence of each race is determined mainly by the trend in the rural area. So, for example, the incidence of Malay decreased in accordance with the decrease in the rural area, not with the increase in the urban area.

In the 1970s the incidence decreased rapidly. In West Malaysia the incidence decreased from 50 per cent in 1970 to 29 per cent in 1979, and in rural areas it decreased from 59 per cent to 37 per cent. Among Malay it decreased from 66 per cent to 39 per cent which shows the similar trend in the rural area because the majority of Malay is in the rural area and the majority in the rural area is Malay. Since the incidence decreased rapidly in every race and location, still the incidence in the rural area and among Malay is relatively higher and the poverty is still a phenomenon in the rural area and in the same way, among Malay.

This trend in the 1970s can be also seen in the incidence of poverty by industry which is shown in Table VI. The incidence in the rural sector except for "oil palm smallholders" and "other industries" is higher than the average. In the urban sector "mining" is the only one whose incidence is above the average in 1980 and 1983. The incidence of poverty of "padi farmers" and "rubber smallholders" is among the highest. These sectors which are dominated by Malay

hold the majority in the rural sector so that their incidence has a big impact on the incidence in the rural area. The incidenec of poverty of "padi farmers" decreased from 88.1 per cent in 1970 to 52.7 per cent in 1980 and that of "rubber smallholders" decreased from 64.7 per cent to 41.3 per cent in the same period. It is worthwhile to mention here that the incidence of poverty of "rubber smallholders" increased to as high as 60 per cent in 1983, while that of "padi farmers" was stable, which may be attributed to the difference in the agricultural policy.

The aim of Prong 1 of NEP, the eradication of poverty, may be considered to have been successful judging by our analysis, though the incidence of poverty is still high, especially in the rural sector, and not eradicated.

The findings in this section can be summarized as follows:

(1) Income inequality, 1957–70: The distribution of income inequalized. The inequalization accompanies the decrease in income at the lowest income class as well as the increase in income at the highest income class. The inequality between rural and urban areas increased, the inequality between races being unchanged.

(2) Income inequality, 1970–79: The inequality between races as well as between rural and urban areas decreased, though the total inequality did not change much.

(3) Poverty: The incidence of poverty did not change in the period 1957–70, but its extent in 1970 may be more serious than in 1957/58. The incidence of poverty decreased rapidly in the 1970s. Since Malay is the majority in the rural area, their trend of the incidence of poverty is similar to the trend in the rural area.

In the next section we analyze the inequality in allocation of labor among races because of the inequality in the labor allocation which has been considered to be a cause of inequality of income distribution.

III. INEQUALITY IN ALLOCATION OF LABOR

Income inequality between races is often attributed to the difference in the productivity of industries they dominate. For example, Lim argues that "in the Malay dominated industries (where Malays formed more than half the labor force—agriculture and livestock, fishing, coconuts and copra, rubber planting, public administration and defence, and education) income per worker averaged $1,659 per annum, which was seriously below the national average income per worker. In contrast, industries which were dominated by non-Malay showed earnings per worker averaging about $3,500 per annum or, in other words, more than twice the earnings in the Malay-dominated industries" [3, p. 61]. Thus the income inequality between races is attributed to both the difference in productivity of the industries and the difference in allocation of labor (Malay-dominated or non-Malay-dominated). In this section we examine the income inequality between races from the latter point of view, that is, the difference in allocation of labor. The equality in allocation of labor among races in each industry implies the equality in wage income between races, neglecting the income differential in the industry but not the equality within race, which is similar to the view in NEP. In this section it is shown that the inequality in allocation of labor among races

by industry is decreasing in the 1970s but that the inequality in allocation of labor by occupation did not decrease in the same period.

A. *Measurement of Inequality in Allocation of Labor*

Exact equality in allocation of labor among races by industry or occupation means that the racial composition of labor is the same in every industry or occupation so that it is also equal to the racial composition of the labor force as a whole. So in this section we define the equality in allocation of labor as the state in which the racial composition in an industry or occupation is equal to the racial composition in the labor force as a whole. We measure the inequality in allocation of labor in an industry or occupation as a deviation from the racial composition in the labor force as a whole. One such measure is the one proposed by Theil [8] which was used to measure inequality of the distribution of income in Section IIB. Here it is expressed as follows:

$$T_j = \sum_i \frac{n_{ij}}{n_j} \ln \frac{n_{ij}/n_j}{n_i/n} ,$$

where

i = race,

j = industry,

T_j = Theil index in the jth industry,

n_{ij} = number of labor of the ith race in the jth industry,

n_i = number of labor of the ith race ($n_i = \sum_j n_{ij}$),

n_j = number of labor in the jth industry ($n_j = \sum_i n_{ij}$),

n = total number of labor ($n = \sum_i \sum_j n_{ij}$).

The numerator and the weight (n_{ij}/n_j) is the share of the ith race in the jth industry and the denominator (n_i/n) is the share of the ith race in the total labor. The higher the Theil index is, the more unequal the allocation of labor among races is.

The data used is the Population and Housing Census of Malaysia, 1970 and 1980, which compile the distribution of labor force by race and industry and by race and occupation in 1957/58, 1970, and 1980. The data by industry and by occupation are shown in Tables VII and IX, respectively. The races are divided into four, that is, Malay, Chinese, Indian, and other which is defined and calculated as the residual. (The distribution by occupation in 1957/58 does not cover "the other.") The Theil index is shown in Tables VIII and X.

B. *Inequality in Allocation of Labor by Industry*

The industries with high Theil index in 1957/58 are "agriculture, forestry, hunting & fishing" (0.27), "mining & quarrying" (0.24), "manufacturing" (0.27), "electricity, gas, water & sanitary services" (0.16), and "commerce" (0.24) (Theil index is in parentheses). Of these, "agriculture, forestry, hunting & fishing" is dominated by Malay while "electricity, gas, water & sanitary services" is domi-

TABLE VII

DISTRIBUTION OF THE EXPERIENCED LABOR FORCE AGED 10 AND OVER BY SECTOR AND GROUP: PENINSULAR MALAYSIA

	All (1,000)	Malay (%)	Chinese (%)	Indian (%)
	1957/58			
Agriculture sector:	1,244.8	60.2	24.9	14.0
Agriculture, forestry, hunting & fishing	572.8	80.3	17.6	0.8
Agricultural products requiring substantial processing	672.0	43.1	31.2	25.3
Industrial sector:	348.4	25.7	58.1	14.2
Mining & quarrying	58.5	17.6	68.4	11.6
Manufacturing	135.4	19.6	72.0	7.5
Construction	68.1	32.0	47.9	18.1
Transport, storage & communication	74.8	36.0	39.0	21.5
Electricity, gas, water & sanitary services	11.6	33.6	25.9	36.2
Service sector:	514.9	31.0	46.0	15.7
Commerce	195.2	16.4	65.1	16.8
Services	319.7	39.9	34.4	15.0
Industry not adequately described or not known	32.4	35.8	46.3	15.7
Total	2,140.5	47.2	35.7	14.5
	1970			
Agriculture sector:	1,359.1	67.9	21.9	9.8
Agriculture, forestry, hunting & fishing	611.3	81.0	17.0	1.0
Agricultural products requiring substantial processing	747.8	57.0	26.0	17.0
Industrial sector:	484.9	30.9	59.1	8.9
Mining & quarrying	55.3	24.0	67.0	8.0
Manufacturing	251.9	29.0	65.0	5.0
Construction	59.9	22.0	72.0	6.0
Transport, storage & communication	98.0	42.0	40.0	17.0
Electricity, gas, water & sanitary services	19.8	48.0	18.0	32.0
Service sector:	747.2	38.2	47.3	12.9
Commerce	274.6	23.0	65.0	11.0
Services	472.6	47.0	37.0	14.0
Industry not adequately described or not known	145.2	51.0	38.0	10.0
Total	2,736.4	52.3	36.3	10.5
	1980			
Agriculture sector:	1,413.7	67.4	20.0	11.1
Agriculture, forestry, hunting & fishing	591.8	75.0	20.0	3.0
Agricultural products requiring substantial processing	821.9	62.0	20.0	17.0
Industrial sector:	965.4	38.8	50.3	10.6
Mining & quarrying	44.7	30.0	57.0	12.0
Manufacturing	565.7	40.0	50.0	10.0
Construction	185.9	32.0	59.0	8.0
Transport, storage & communication	144.8	42.0	44.0	14.0
Electricity, gas, water & sanitary services	24.3	61.0	17.0	22.0

TABLE VII (Continued)

	All (1,000)	Malay (%)	Chinese (%)	Indian (%)
Service sector:	1,323.5	50.8	38.3	10.3
Commerce	465.0	30.0	61.0	9.0
Services	858.5	62.0	26.0	11.0
Industry not adequately described or not known	90.5	35.0	55.0	10.0
Total	3,793.1	53.6	34.9	10.7

Sources: *Population and Housing Census of Malaysia,* 1970 and 1980.

TABLE VIII

THEIL INDEX OF LABOR ALLOCATION BY INDUSTRY

	1957/58	1970	1980
Agriculture sector:	0.0427	0.0564	0.0563
Agriculture, forestry, hunting & fishing	0.2700	0.2032	0.1207
Agricultural products requiring substantial processing	0.0515	0.0440	0.0601
Industrial sector:	0.1180	0.1123	0.0551
Mining & quarrying	0.2427	0.2029	0.1210
Manufacturing	0.2735	0.1716	0.0559
Construction	0.0508	0.2687	0.1232
Transport, storage & communication	0.0321	0.0296	0.0372
Electricity, gas, water & sanitary services	0.1558	0.2052	0.1158
Service sector:	0.0735	0.0412	0.0026
Commerce	0.2352	0.1958	0.1507
Services	0.0758	0.0133	0.0191
Industry not adequately described or not known	0.0302	0.0008	0.0941

Source: Calculated from Table VII.

nated by Indian and the other industries are dominated by Chinese. Those industries dominated by Chinese and Indian are high productivity sectors and the other is a low productivity sector. This difference in productivity is considered to be a cause of income differential between races as well as between rural and urban areas as suggested in Lim [3].

In 1970 the Theil index of these industries decreased except for "electricity, gas, water & sanitary services." In "agriculture, forestry, hunting & fishing" the racial composition in 1970 is almost the same as in 1957/58 but its Theil index decreased because the racial composition in the total labor changed. In other industries which are considered to be urban, the decrease in the Theil index is due to the increase in Malay share. In the previous section we have seen that in the period 1957–70, the income inequality between rural and urban areas increased while the inequality between races was unchanged. Since Malay dominates in the rural area, the increase in income inequality between rural and urban areas also increases the inequality between races if the racial composition in each area does not change. The results in this section imply that the increase

TABLE IX

DISTRIBUTION OF THE EXPERIENCED LABOR FORCE AGED 10 AND OVER BY OCCUPATIONAL GROUP AND ETHNIC GROUP

	All (1,000)	Malay (%)	Chinese (%)	Indian (%)
	1957/58			
Professional, technical, and related workers	54.5	39.5	46.7	13.8
Administrative and managerial workers	22.7	18.1	68.1	13.8
Clerical and related workers	59.3	29.4	49.5	12.1
Sales workers	183.7	16.2	66.8	17.0
Service workers	160.3	46.6	38.5	14.9
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters	1,212.4	62.6	24.4	13.0
Production and related workers, transport equipment operators and laborers	404.0	26.9	54.1	19.0
Occupation not adequately described or not stated	11.8	68.8	25.9	5.3
Total	2,108.7	48.5	36.6	14.9
	1970			
Professional, technical, and related workers	129.4	46.0	39.0	13.0
Administrative and managerial workers	20.3	23.2	65.0	7.9
Clerical and related workers	133.3	36.0	48.0	15.0
Sales workers	236.7	23.0	66.0	11.0
Service workers	225.4	46.0	39.0	13.0
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters	1,322.1	69.0	21.0	9.0
Production and related workers, transport equipment operators and laborers	542.8	34.0	55.0	11.0
Occupation not adequately described or not stated	126.3	56.0	33.0	10.0
Total	2,736.3	52.0	36.0	10.0
	1980			
Professional, technical, and related workers	261.9	55.0	34.0	10.0
Administrative and managerial workers	38.2	25.9	63.9	6.0
Clerical and related workers	304.5	50.0	39.0	10.0
Sales workers	357.3	29.0	63.0	8.0
Service workers	331.2	59.0	29.0	12.0
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters	1,256.3	70.0	18.0	11.0
Production and related workers, transport equipment operators and laborers	993.5	42.0	46.0	12.0
Occupation not adequately described or not stated	250.2	54.0	35.0	10.0
Total	3,793.1	54.0	35.0	11.0

Sources: *Population and Housing Census of Malaysia,* 1970 and 1980.

TABLE X

THEIL INDEX OF LABOR ALLOCATION BY OCCUPATION

	1957/58	1970	1980
Professional, technical, and related workers	0.0224	0.0133	0.0018
Administrative and managerial workers	0.2345	0.2276	0.2435
Clerical and related workers	0.0765	0.0556	0.0048
Sales workers	0.2475	0.2111	0.1694
Service workers	0.0009	0.0132	0.0133
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters	0.0432	0.0623	0.0735
Production and related workers, transport equipment operators and laborers	0.0997	0.0884	0.0364
Occupation not adequately described or not stated	0.0960	0.0027	0.0014

Source: Calculated from Table IX.

in Malay share in the "urban" industries kept the income inequality between races unchanged though the income inequality between rural and urban areas increased.

In the period 1970–80, the Theil index decreased rapidly except for "agricultural products requiring substantial processing," "transport, storage & communication," and "services" whose Theil index are all low. Especially the decrease in "manufacturing" is so big that it is as low as 0.056 in 1980. But still the Theil index of "agriculture, forestry, hunting & fishing," "mining & quarrying," and "commerce" are relatively high and the dominance by Malay and Chinese is the same as in 1957/58 except for "electricity, gas, water & sanitary services." "Construction" is also the industry with relatively high Theil index. The Theil index of "construction" increased steeply from 0.05 in 1957/58 to 0.27 in 1970 because of the concentration of Chinese in the industry in 1970. The increase was so steep that the Theil index in 1980 is still higher than that in 1957/58.

In the period 1970–80, the income inequality both between races and between rural and urban areas decreased as shown in the previous section. The results in this section supports the equalization of income between races but it is not enough to show the equalization between rural and urban areas which needs further studies on other factors such as shown in the next section, that is, agricultural development policies.

C. *Inequality in Allocation of Labor by Occupation*

The occupations with high Theil index are "administrative and managerial workers" and "sales workers" whose Theil index are 0.23 and 0.25, respectively, in 1957/58. These occupations are dominated by Chinese, for example, 67 per cent of sales workers are Chinese. In 1970 and 1980 these occupations are still dominated by Chinese and their Theil index is as high as in 1957/58. On the other hand, the occupations whose Theil index decreased in the period are "professional, technical, and related workers," "clerical and related workers," and "production and related workers, transport equipment operators and laborers"

but their inequality is already very low in 1970. These facts show that the "restructuring" in this field did not make any progress in the period.

Occupationally the Theil index of agriculture is very low. The Theil index of "agricultural, animal husbandry, and forestry workers, fishermen, and hunters" is 0.04, 0.06, and 0.07 in 1957/58, 1970, and 1980, respectively. The difference in the Theil index between groups defined by industry and by occupation is due to the people who are engaged in the "agriculture sector" but whose occupation is not "agricultural, animal husbandry, and forestry workers, fishermen, and hunters."

The findings in this section are summarized as follows:

(1) The Theil index of inequality in labor allocation among races by industry is high in "agriculture, forestry, hunting & fishing" which Malay dominates and in "mining & quarrying," "manufacturing," and "commerce" which Chinese dominates. Generally the inequality in these industries decreased gradually from 1957 to 1980 though even in 1980 they are relatively unequal except for "manufacturing."

(2) The stability in income inequality between races and the increase in income inequality between rural and urban areas in the period 1957–70 correspond to the increase in Malay share in the labor force of the "urban" industries. And the decrease in income inequality both between races and between rural and urban areas is compatible with the decrease in the inequality in allocation of labor among races by industry.

(3) The Theil index of inequality in labor allocation among races by occupation is high in "administrative and managerial workers" and "sales workers" which are dominated by Chinese. The Theil index in these occupation did not decrease in the whole period.

IV. CONCLUSION

The two prongs of NEP originally aimed for equality between races with all households above the poverty line and did not necessarily mean equality within each race. NEP has been criticized because it increased the income inequality. But this paper shows that NEP was successful in its original sense. That is, the income inequality between races decreased though the total inequality remained unchanged, and the incidence of poverty also decreased.

The change in the income inequality corresponds to the change in the allocation of labor among races by industry. In the period 1957–70 when the inequality between rural and urban areas increased while the inequality between races remained unchanged, the share of Malay increased in the "urban" industries. And in the period 1970–80 when the inequality both between races and between rural and urban areas decreased, the inequality in the allocation of labor decreased rapidly.

Though NEP might be successful in its original sense, it neglected the inequality within each race and the total inequality in 1979 is still as high as in 1970. Thus the inequality within races is becoming more and more important.

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