

A NOTE ON INCOME DISTRIBUTION IN INDONESIA

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I. INTRODUCTION

INDONESIA has experienced remarkable economic progress since the 1970s. This development is mainly attributable to the relevant economic measures of the government in initiating and supporting the reconstruction and rehabilitation of the economy. At the same time the world environment has been quite favorable toward Indonesia. Indonesia enjoyed two oil bonanzas as a member of OPEC and achieved somewhat higher rates of economic growth, in contrast to the oil-importing Asian countries. As for income distribution, the results have been viewed as controversial, and skewed income distribution and other forms of inequality appear to have persisted and ever worsened with the growth of GNP.

This paper intends to identify income inequality by regional and sectoral bases and to pay special attention to the manufacturing industries, examining the correlation between various variables affecting income distribution in the manufacturing sector as a case study. The relationship between trade policy and income distribution is also examined. The analysis is, however, restricted by the availability and quality of data. The main source of data are the *National Socio Economic Survey* [4] [5] on income distribution and consumption patterns, the *National Labor Force Survey* [3], and the *Survey of Manufacturing Industries* [2] collected by the Central Bureau of Statistics. From the trough of 1975, the economy recovered well in 1976, 1977, and 1978. Due to the availability of adequate data and a favorable economic environment, our study focuses on the above three years.

II. INCOME DISTRIBUTION: EMPIRICAL EVIDENCE

One of the most reliable sources of data for the analysis of income distribution in Indonesia is the *National Socio Economic Survey*. The data of consumption expenditures by per capita and by household in the survey divide Indonesia into two geographical regions, Java and the Outer Islands, and urban areas and rural areas. Based on the data from the consumption expenditure surveys, Tables I and II show per capita monthly expenditure and per household monthly expenditure by main regions as a percentage of the average expenditure of Indonesia as a whole.

In 1970, per capita monthly expenditure in the urban areas of the Outer Islands was 20 per cent higher than that of the urban areas in Java. In 1976 and 1978, the situation was reversed and consumption expenditure of the urban areas in

TABLE I
PER CAPITA MONTHLY EXPENDITURE (MARKET PRICE)

	1970		1976		1978	
	Rp.	% to the Average	Rp.	% to the Average	Rp.	% to the Average
Java:						
Urban	1,714	127	6,966	157	10,122	182
Rural	1,029	76	3,444	78	3,992	72
Total	1,144	85	4,082	92	5,113	92
Outer Islands:						
Urban	2,070	153	6,443	146	7,729	139
Rural	1,712	127	4,705	106	6,036	108
Total	1,759	130	5,015	113	6,358	114
Indonesia:						
Urban	1,819	135	6,775	153	9,222	166
Rural	1,272	94	3,910	88	4,734	85
Total	1,351	100	4,426	100	5,568	100

Sources: For 1970, [8, p. 138]; for 1976 and 1978, computed from [5, 1976 edition] and [5, 1978 edition] respectively.

TABLE II
HOUSEHOLD MONTHLY EXPENDITURE (MARKET PRICE)

	1976		1978	
	Rp.	% to the Average	Rp.	% to the Average
Java:				
Urban	35,787	168	52,900	197
Rural	15,564	73	18,119	67
Total	18,863	88	23,776	88
Other Islands:				
Urban	35,389	166	43,505	162
Rural	24,310	114	30,724	114
Total	26,188	123	32,976	123
Indonesia:				
Urban	35,648	167	49,532	184
Rural	18,529	87	22,359	83
Total	21,359	100	26,907	100

Sources: Computed from [4, 1976 edition] [4, 1978 edition].

Java was 31 per cent higher in 1978. As for the rural areas, consumption expenditure in Java was comparatively low and the difference between urban and rural areas widened. Consumption expenditure in the rural areas of the Outer Islands was 51 per cent higher than in the rural areas of Java in 1978. Consumption expenditure in the urban areas increased much faster than in rural areas, and household monthly expenditure manifested the same pattern.

The Gini coefficients for "per capita" monthly expenditure in 1976 and 1978 show the following typical tendency (Tables III and IV). Inequality increased in the urban and rural areas except in the urban areas of the Outer Islands. Main

TABLE III
 PERCENTAGE DISTRIBUTION OF POPULATION BY MONTHLY PER CAPITA
 EXPENDITURE CLASSES, 1976

	(%)					
	Urban			Rural		
	Java	Outer Islands	Indonesia	Java	Outer Islands	Indonesia
0- 999 Rp.	0.19	0.10	0.16	1.45	1.26	1.38
1,000- 1,999	3.13	3.18	3.15	20.80	9.06	16.46
2,000- 2,999	12.05	9.90	11.27	30.66	19.40	26.50
3,000- 3,999	16.14	16.54	16.28	20.12	20.40	20.22
4,000- 4,999	14.45	16.46	15.18	11.67	16.06	13.29
5,000- 5,999	11.56	13.43	12.24	6.22	11.18	8.06
6,000- 7,999	16.08	17.90	16.74	5.32	12.08	7.82
8,000- 9,999	9.41	9.38	9.40	1.87	5.24	3.12
10,000-14,999	10.03	8.75	9.56	1.49	4.18	2.48
15,000 and over	6.96	4.37	6.01	0.39	1.18	0.67
Average						
expenditure (Rp.)	6,966	6,443	6,775	3,444	4,705	3,910
Gini coefficient	0.3589	0.3181	0.3456	0.3004	0.3093	0.3163

Source: Computed from [5, 1976 edition].

TABLE IV
 PERCENTAGE DISTRIBUTION OF POPULATION BY MONTHLY PER CAPITA
 EXPENDITURE CLASSES, 1978

	(%)					
	Urban			Rural		
	Java	Outer Islands	Indonesia	Java	Outer Islands	Indonesia
0- 1,999 Rp.	2.13	0.54	1.53	16.67	4.25	12.17
2,000- 2,999	7.53	4.39	6.35	28.15	12.10	22.33
3,000- 3,999	12.15	11.56	11.93	20.52	16.93	19.22
4,000- 4,999	9.30	14.82	11.37	12.67	16.72	14.14
5,000- 5,999	9.67	13.67	11.17	7.66	12.89	9.55
6,000- 7,999	16.63	22.18	18.72	7.82	16.73	11.05
8,000- 9,999	10.48	12.72	11.32	3.12	9.11	5.29
10,000-14,999	15.47	13.62	14.78	2.29	8.10	4.40
15,000 and over	16.64	6.50	12.83	1.10	3.17	1.85
Average						
expenditure (Rp.)	10,122	7,729	9,222	3,992	6,036	4,734
Gini coefficient	0.4082	0.3006	0.3808	0.3588	0.3273	0.3612

Source: Computed from [5, 1978 edition].

factors of change may have been the increase in expenditure for housing, fuel, light, and durable goods in the upper income groups. In the urban areas of the Outer Islands, the average expenditure per month increased to 7,729 rupiahs in 1978 from 6,443 rupiahs in 1976 and the mode's value lay in 6,000-7,999 rupiahs. The Gini coefficient of urban areas in Java increased from 0.3589 in 1976 to 0.4082 in 1978. The Gini coefficient of rural areas in Java also increased

TABLE V
PERCENTAGE DISTRIBUTION OF POPULATION BY MONTHLY HOUSEHOLD
EXPENDITURE CLASSES, 1976

(%)

	Urban			Rural		
	Java	Outer	Indonesia	Java	Outer	Indonesia
		Islands			Islands	
0- 4,999 Rp.	1.30	0.59	1.05	6.90	2.41	5.38
5,000- 9,999	8.24	4.29	6.86	26.93	10.59	21.39
10,000-14,999	12.46	10.53	11.78	26.67	16.93	23.37
15,000-19,999	13.35	13.29	13.33	17.24	18.77	17.76
20,000-24,999	12.71	13.01	12.81	9.31	14.82	11.18
25,000-29,999	10.16	12.17	10.87	5.02	10.82	7.00
30,000-39,999	14.11	18.02	15.48	4.48	12.94	7.35
40,000-49,999	8.55	10.36	9.18	1.74	6.20	3.25
50,000-74,999	10.57	11.22	10.80	1.24	4.65	2.39
75,000 and over	8.55	6.52	7.84	0.47	1.83	0.93
Average expenditure (Rp.)	35,787	35,389	35,648	15,564	24,310	18,529
Gini coefficient	0.4112	0.3572	0.3915	0.3445	0.3336	0.3608

Source: Computed from [4, 1976 edition].

TABLE VI
PERCENTAGE DISTRIBUTION OF POPULATION BY MONTHLY HOUSEHOLD
EXPENDITURE CLASSES, 1978

(%)

	Urban			Rural		
	Java	Outer	Indonesia	Java	Outer	Indonesia
		Islands			Islands	
0- 9,999 Rp.	6.46	1.94	4.84	27.76	7.64	20.99
10,000-14,999	10.52	5.17	8.61	26.81	11.96	21.82
15,000-19,999	11.37	9.19	10.59	16.69	14.41	15.92
20,000-24,999	10.19	10.92	10.45	10.15	13.70	11.34
25,000-29,999	7.57	10.87	8.75	6.47	12.27	8.42
30,000-39,999	13.07	19.64	15.42	6.00	17.52	9.88
40,000-49,999	8.72	15.43	11.12	2.73	9.91	5.14
50,000-74,999	13.69	17.10	14.92	2.29	9.01	4.55
75,000 and over	18.41	9.74	15.30	1.10	3.58	1.94
Average expenditure (Rp.)	52,900	43,505	49,532	18,119	30,724	22,359
Gini coefficient	0.4684	0.3312	0.4312	0.4089	0.3422	0.4099

Source: Computed from [4, 1978 edition].

from 0.3004 in 1976 to 0.3588 in 1978. In the urban areas of the Outer Islands, it slightly improved from 0.3181 in 1976 to 0.3006 in 1978. In the whole country, both urban and rural areas deteriorated from 0.3456 to 0.3808 and from 0.3163 to 0.3612 respectively for 1976 and 1978. The degree of deterioration is higher in the rural areas than in urban areas.

The Gini coefficients for "household" expenditure in 1976 and 1978 are shown in Tables V and VI. These tables show an increasing inequality in the urban and

rural areas in Java and in the rural areas in the Outer Islands, and decreasing inequality in the urban areas of the Outer Islands. The change of Gini coefficient from 0.4112 in 1976 to 0.4684 in 1978 in the urban areas in Java gives the impression that urban distribution has become worse, leading to further exploration. Did these phenomena occur as a consequence of the industrialization process in the urban areas?

Other data on the income distribution by industrial sector are obtained in the *National Labor Force Survey: Labor Force Situation in Indonesia* [3]. We use the data of 1976 and 1977. But the coverage of data on income distribution is very limited. Out of the total employed persons in 1977, 48.3 million, only 17.2 million employees or 36 per cent are covered in this income distribution data. By employment status, the 1977 data shows that there were 9.5 million employers, 9.7 millions self-employed workers, and 11.9 million unpaid family workers. In the manufacturing sector, the total number of employed persons were 4.2 million in which 2.4 million were employees and 46,000 were employers. The agricultural sector absorbed 29.7 million employed persons, but only 7.6 million were employees who were actually covered in this income distribution data.

Apart from the employment status, the number of employed persons by hours worked by industry show a wide range of variation. Weekly hours worked in most industries were more than thirty-five hours but the financing, construction and community sectors showed wide dispersion of working hours from zero to eighty. Cross check between employment and income distribution data show some inconsistency, mainly because of the definition of terms and the data-processing technique. To get some proxy of income distribution by sector in Indonesia, we use the data of employees in 1976 and 1977. The data are collected by only two regions, urban areas and rural areas, by major industrial sector, and by sex. Table VII shows Gini coefficients in 1976 and 1977 by sector, area, and sex.

A wide dispersion of incomes is inherent in the structure of an enterprise system and also in all other kinds of economies. Major sources of dispersion are age, sex, education and training, the hours worked, and the size of community. These factors are very important over time, but for comparison within a short period, age, sex, education and training, and size of community are not vital factors for dispersion. Actually, the following change in dispersion arose mainly from the change of the time worked within industries.

The Gini coefficient in Indonesia as a whole increased from 0.4887 in 1976 to 0.5079 in 1977. The inequality increased very slightly in the urban areas but in the rural areas it increased from 0.4466 in 1976 to 0.4810 in 1977. Agriculture, manufacturing, trade, and community services sectors absorbed more of shorter-working-time workers in 1977, and therefore low-income employees increased. The inequality by sex shows that the Gini coefficient of male workers changed very slightly from 0.4516 in 1976 to 0.4657 in 1977, whereas the distribution of income of female workers became more unequal, from 0.4527 in 1976 to 0.5062 in 1977. Female inequality in the rural areas increased more than in the urban areas.

The total workers' inequality by sector generally increased from 1976 to 1977

TABLE VII
GINI COEFFICIENTS BY SELECTED INDUSTRY, REGION, AND SEX, 1976 AND 1977

Sectors	Sex	Total		Urban		Rural	
		1976	1977	1976	1977	1976	1977
Indonesia	Total	0.4887	0.5079	0.4373	0.4397	0.4466	0.4810
	Male	0.4516	0.4657	0.4048	0.4039	0.4097	0.4395
	Female	0.4527	0.5062	0.4667	0.4938	0.3721	0.4511
Agriculture, forestry, hunting, and fishing	Total	0.3608	0.4089	—	—	0.3526	0.4030
	Male	0.3345	0.3691	—	—	0.3251	0.3623
	Female	0.2892	0.3794	—	—	0.2834	0.3743
Manufacturing	Total	0.4500	0.4382	0.4335	0.4195	0.4165	0.4077
	Male	0.3851	0.3726	0.3812	0.3642	0.3467	0.3394
	Female	0.3764	0.3980	0.4073	0.4187	0.3155	0.3587
Trade, restaurants, and hotels	Total	0.4610	0.4882	0.4370	0.4420	0.4099	0.4227
	Male	0.4355	0.4339	0.4231	0.4054	0.3774	0.3426
	Female	0.4551	0.5567	—	—	0.3352	0.5001
Construction	Total	0.3368	0.3323	0.3174	0.2943	0.3231	0.3390
	Male	0.3339	0.3306	0.3145	0.2932	0.3205	0.3376
	Female	0.4597	0.2726	—	—	—	—
Community, social, and personal services	Total	0.4416	0.4509	0.4304	0.4369	0.4323	0.4541
	Male	0.4056	0.4079	0.3879	0.3907	0.3955	0.4097
	Female	0.4740	0.5030	0.4512	0.4733	0.4780	0.5209
Transport, storage, and communication	Total	0.3661	0.3837	0.3561	0.3769	0.3513	0.3582
	Male	0.3645	0.3792	0.3557	0.3781	0.3495	0.3497
	Female	0.4508	0.4842	—	—	—	—

Sources: Computed from [2, 1976 edition] [2, 1977 edition].

Note: "—" indicates the number of employees is negligible.

with the exception of the manufacturing industry. Even though the Gini coefficient in this sector was comparatively high (0.4500 in 1976), inequality improved slightly to 0.4382 in 1977. However, the inequality of female workers increased in both urban and rural areas. As for the agricultural sector, inequality increased from 0.3608 in 1976 to 0.4089 in 1977 due to the deterioration in the income distribution of female workers. The Gini coefficient of total female workers was 0.2892 in 1976, and jumped to 0.3794 in 1977. Forty-five per cent of total Indonesian workers were engaged in the agricultural sector in 1977. The community services sector absorbed 25 per cent of total workers in 1977, one-third of whom were female. The inequality among female workers increased from 0.4740 in 1976 to 0.5030 in 1977 especially in the rural areas. In the trade sector, the number of female workers as around 2 million and engaged in business in the rural areas. The average working hours per week was more than sixty but in 1977 average hours worked decreased around thirty-five hours, thus resulting in a greater deterioration of equality in 1977 than 1976, from 0.3352 to 0.5001.

The outcome of these figures shows that, on the whole, inequality increased more in the rural areas and only slightly in the urban areas from 1976 to 1977. Thus, results of the Gini coefficients based on the two different national surveys show no contradiction even though the size of samples were different. The latter included the urban areas of Java and the Outer Islands.

III. CAPITAL INTENSITY, WAGE RATES, AND WAGE SHARES

The manufacturing sector in 1976 and 1977 showed rather good performance in the Gini coefficient. Next, we intend to analyze income distribution in large- and medium-scale manufacturing industry. The source of data is the *Survey of Manufacturing Industries* [2]. The variables we use here are the wage rate, wage share, capital-labor ratio, and the effective rate of protection, where the wage rate is (total wage and salary bills)/(total numbers of person engaged), the wage share is (total wage and salary bills)/(value added at market prices), and the capital-labor ratio is (value of fixed capital)/(total number of persons engaged). The notion of effective rate of protection is explained below. Total number of industries are 114.

As for the value of fixed capital, the survey gives us the value of new and second-hand purchases, and construction, major repairs and improvements as the value of transactions in fixed capital. We use the ratio as a proxy for the capital-labor ratio. The results of the rank correlation coefficient between variables are as follows:

(1) The rank correlation coefficient between the capital-labor ratio and the wage rate is 0.5995 and 0.6561 in 1976 and 1978 respectively. There are significant correlations at a level of significance of 0.01. Capital-intensive industries pay higher wage rates than labor-intensive industries.

(2) The rank correlation coefficient between the capital-labor ratio and the wage share is -0.3534 and -0.4720 in 1976 and 1978 respectively. There are significant correlations at a level of significance of 0.05.

(3) The rank correlation coefficient between the wage rate and the wage share is -0.3252 and -0.4524 in 1976 and 1978 respectively. There are significant correlations at a level of significance of 0.05.

Indonesia has adopted a highly protectionist industrial policy since the 1960s. Import substitution as a strategy for industrialization burst onto the scene in the late 1960s. The government prohibited or restricted imports through high tariffs, foreign exchange controls, import quotas, and similar measures and thereby encouraged the promotion of domestic industries.

The effects of trade policies on economic activities, especially the protection of value added are summarized in indices of the effective rate of protection. The notion of effective protection was developed largely through the efforts of W. M. Corden [1] and H. G. Johnson [6] during the 1960s.

The definition of effective rate of protection is

$$g_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}}$$

where t_j is the tariff rate on the final good j , a_{ij} is the coefficient measuring the input of the intermediate product i per unit of output of j , and t_i is the tariff rate on the input i . Value added under free trade (international price) is $V = 1 - \sum_i a_{ij}$ and protected value added is $V' = (1 + t_j) - \sum_i a_{ij}(1 + t_i)$. The rates of effective protection can be highly useful as a rough indicator of the sectoral incentives created by the trade policy.

Indonesia has high levels of effective protection across industries. The structure of protection affects not only the relative prices of labor and capital but also the patterns of production and trade. The trade regime of Indonesia draws considerable domestic resources into suboptimal conditions, inducing industries and firms to adopt irrelevant techniques of production that employ factors in proportions that do not make the most efficient use of domestic resources. From a policy perspective, the distributional effects of protection among factors, sectors, firms, industries, and persons are important as static effects of these distortion on the productivity of domestic resources and on economic growth. In spite of these effects, protection may be needed to promote industries in which domestic costs of production are higher than elsewhere. If protection exceeds the cost margin, this excess effective protection should be distributed with quasi-rents accruing to factors in the industry concerned.

The empirical objective of this study is modest. It is to estimate the relationship between wage rates and the effective rates of protection and thereby shed some light on how the quasi-rents generated or sustained by protection are distributed among factors of production.

Out of 114 manufacturing industries, only 59 industries are selected. The main reason is the availability of the rates of projection.¹ Industrial growth through high protection leads to the social return being less than the private return.

¹ See M. Pitt, National Bureau of Economic Research Project Paper, 1975, quoted from [7].

The rank correlation coefficients between the capital-labor ratio and the effective rate of protection are 0.2474 and 0.3854 in 1976 and 1978 respectively. The rank correlation coefficients between the wage rate and the effective rate of protection are 0.3228 and 0.6546 in 1976 and 1978 respectively. The above correlation coefficients are all significant at a level of significance of 0.05.

We could not find any significant correlation coefficient between the wage share and the effective rate of protection. The structure of protection is supposed to be a manifestation of balance struck between the private business interest groups and the developmental goals of a society. But actually, it is not clear what economic and social consequences would follow from the protection. As for the distributional consequences of protection, it seems reasonable to conclude that the Indonesian trade regime may have favored capital-intensive industries and increased the returns to both labor and capital in the more protected industries. But the proportionate gains for employers may have exceeded those received by employees, and the absolute gains may have been even more skewed toward employers. The structure of protection in Indonesia in 1976 and 1978 increased the inequality in personal income distribution even though it widened the opportunity of employment.

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