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“Sweat Labor” and Wages in Malaysian Manufacturing*

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References have often been made to the presence of “sweat labor” in manufacturing in less developed countries (LDCs) and of the need to introduce minimum-wage legislation to protect the interests of such employees. However, the data on the wages paid to such workers are almost nonexistent, and the discussion so far has been couched in general terms. I shall attempt to provide some of the empirical basis for the discussion in Malaysia.

I

Data on the basic and the gross hourly wage rates for production workers, W_b and W_g , and on other variables were collected for 350 West Malaysian manufacturing establishments by industry group for 1972. This number represented about 10% of the total number of manufacturing establishments, and the criterion for deciding on the number to include in each of the 28 industry groups at the three-digit Malaysian Industrial Classification (MIC)/U.N. International Standard Industrial Classification (ISIC) level was the share of each industry group in the total value-added of the manufacturing sector. The selection at the establishment level was, however, carried out randomly, and of the 350 establishments 291, or 83%, were incorporated private and public limited companies, while 59, or 17%, were unincorporated sole proprietorships and partnerships. The distinction was made along legal lines, as incorporated establishments either tend to separate ownership from management or are required by law to submit financial returns to the Registry of Companies and are thus more likely to be run along more professional or “open” lines than unincor-

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porated establishments. If exploitation of workers does take place, it is more likely to be found in those establishments which are less exposed to professional and public scrutiny.

Table 1 shows that incorporated establishments paid higher hourly wage rates than unincorporated establishments in 1972 in every one of the 19 industry groups common to the two categories of establishments. The biggest differences were found in the textiles, tobacco, food, and wood and wood products industries. For the 291 incorporated establishments as a whole the basic hourly wage rate, W_b , was M\$1.00, compared to the M\$0.73 for the 59 unincorporated establishments. When fringe benefits are included in the comparison, the respective figures for W_g are M\$1.06 and M\$0.77. When the comparison is limited to the 19 industry groups common to the two categories of establishments, the respective values are M\$0.98 and M\$0.73 for W_b and M\$1.07 and M\$0.77 for W_g .

TABLE 1
BASIC AND GROSS HOURLY WAGE RATES, W_b AND W_g , BY LEGAL STATUS AND INDUSTRY GROUP: WEST MALAYSIAN MANUFACTURING, 1972

MIC/ ISIC	DESCRIPTION	N		W_b (M\$)		W_g (M\$)	
		I	UI	I	UI	I	UI
311...	Food	36	6	1.99	.94	2.06	1.01
312...	Other food	6	0	.79	...	.82	...
313...	Beverages	10	0	.96	...	1.04	...
314...	Tobacco	8	5	1.48	.60	1.57	.61
321...	Textiles	17	1	.57	.21	.60	.21
322...	Wearing apparel	4	0	.61	...	.64	...
323...	Leather and leather products	1	2	.83	.56	.85	.59
324...	Footwear	2	1	1.27	.84	1.33	.85
331...	Wood and wood products	22	9	1.54	.90	1.59	.93
332...	Furniture and fixtures	3	0	.88	...	.90	...
341...	Paper and paper products	4	0	1.17	...	1.33	...
342...	Printing, publishing, etc.	12	8	1.42	1.34	1.50	1.50
351...	Industrial chemicals	7	0	.64	...	.71	...
352...	Other chemical products	17	1	1.15	.79	1.27	.85
353...	Petroleum refining	5	0	2.11	...	2.24	...
355...	Rubber products	42	6	.79	.56	.84	.62
356...	Plastic products	9	1	.62	.50	.69	.50
361...	Pottery, china, etc.	1	2	.63	.61	.70	.64
362...	Glass and glass products	2	1	.96	.86	1.04	.88
369...	Nonmetallic mineral products	20	3	.89	.81	.98	.96
371...	Iron and steel products	9	2	1.01	.92	1.08	.94
372...	Nonferrous metal products	3	0	1.05	...	1.19	...
381...	Fabricated metal products	14	2	.94	.84	.98	.86
382...	Machinery	8	4	.91	.86	.94	.89
383...	Electrical machinery	12	1	.63	.57	.63	.60
384...	Transport equipment	9	3	.94	.62	.98	.64
385...	Professional equipment	2	1	.61	.60	.66	.60
390...	Other manufacturing	3	0	.52	...	.63	...
3	Total ¹	291	59	1.00	.73	1.06	.77
	Total ²	246	59	.98	.73	1.07	.77

NOTE.—I = incorporated establishments and UI = unincorporated establishments; Total¹ = all establishments; Total² = establishments in industry groups common to both categories of establishments.

It would seem that incorporated establishments paid significantly higher wage rates than unincorporated establishments in 1972. Was this due to exploitation, as advocates for the introduction of minimum-wage legislation would suggest? Or was it due to the fact that sole proprietorships and partnerships operated at a smaller and a less efficient scale and employed workers with lower skills, factors which might in any case have accounted for lower wage rates regardless of the legal status? If the reason lies with the latter suggestion, then the remedy for increasing the wage rates in unincorporated establishments may rest in increasing the efficiency of their operation and not in government intervention in the form of, say, minimum-wage legislation. Clearly, then, any program to improve the economic welfare of the workers in the unincorporated sector would be helped by answers to the questions posed.

II

The first step taken in an attempt to answer these questions for Malaysian manufacturing was to obtain the determinants of W_b and W_g for the sample as a whole. Step-wise regression analysis was used in order to find out, also, the relative importance of these determinants. The analysis was carried out at the four-digit MIC/ISIC level where there are 59 industry groups. A variable, *INC*, which measures the percentage of sampled production workers in an industry group employed in incorporated establishments was entered as one of the independent variables. If this variable appeared with a positive and a statistically significant regression coefficient, then it would suggest, *ceteris paribus*, that being an incorporated private or public limited company by itself would have resulted in a higher hourly wage rate being paid. Incorporation carried with it, of course, certain characteristics such as capital intensity which may have produced higher wage rates by themselves and independently of the exploitation element. The second step taken, then, was to examine the relative importance to the incorporated and the unincorporated establishments of each of the other determinants of wage rates and then to infer from this their combined net effect on the wage rates paid by the two categories of establishments. Suppose, for example, that union membership (*U*) and scale of operation (*S*) were found to be the two most important of these other determinants and that they had favorable effects on wage rates. Suppose, further, that the percentage of female workers in the labor force (*FE*) was another but much less important determinant and that this relationship was a negative one. If incorporated establishments had more of their employees in trade unions and operated on a bigger scale, and unincorporated establishments employed more females, then the presence and the relative importance of *U*, *S*, and *FE* as determinants would have provided conditions that favored the payment of higher wage rates by incorporated establishments.

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The linear form of step-wise regression analysis produced the better results, and the equations obtained for W_b and W_g were:

$$\begin{aligned}
 W_b &= 0.71 + 0.0004 K/L - 0.3977 MW - 0.0008 X \\
 &\quad (4.0000)** \quad (4.8103)** \quad (8.0001)** \\
 &\quad (0.3053) \quad (0.5089) \quad (0.5146) \\
 \bar{R}^2 &= .5048 \quad F = 19.4391 \quad N = 59, \\
 W_g &= 0.02 - 0.0612 MW + 0.0354 FO + 0.0003 K/L \\
 &\quad (4.7839)** \quad (2.7927)** \quad (2.9996)** \\
 &\quad (0.3309) \quad (0.4056) \quad (0.4179) \\
 &- 0.0002 M \\
 &\quad (2.0000)* \\
 &\quad (0.4317) \\
 \bar{R}^2 &= .4033 \quad F = 10.2576 \quad N = 59,
 \end{aligned}$$

where K/L is capital intensity, MW the percentage of sampled workers in an industry group paid on a monthly basis, X the percentage of output exported, FO the percentage of sampled workers in an industry group employed in foreign establishments, and M the percentage of total domestic gross sales imported. The figures in the first row of the parentheses are the t values of the regression coefficients and the asterisks * and ** denote statistical significance at the .01 and .0005 levels of confidence, respectively. The figures in the second row of the parentheses are the unadjusted successive coefficients of determination.

The variable K/L is fixed assets at historical costs divided by the number of production workers on the biggest shift,¹ and its presence with a positive sign may be explained by a couple of hypotheses. The efficiency in the use of nonlabor inputs may differ from industry to industry without the difference being offset completely by variations in the prices of these inputs. Capital-intensive methods of production tend to use less capital per unit of output than labor-intensive ones.² They tend also to be operated on a larger scale, thereby enabling their capital equipment to be obtained at lower costs. One direct consequence of this is the ability of more capital-intensive industries to pay higher wage rates than the less capital-intensive ones. If some of the benefits of the greater efficiency of the more capital-intensive industries were passed on to their workers,³ this could explain

¹ The fixed assets (K) is divided by the number of production workers on the biggest shift, as the emphasis should be on the amount of capital equipment that a production worker has to handle while at work regardless of the fact that the same equipment may be used by another worker on another shift. The biggest shift is chosen because it best reflects the underlying economic and technological relationships between the capital input and the output it helps to generate.

² See Francis Stewart and Paul Streeten, "Conflicts between Output and Employment Objectives in Developing Countries," *Oxford Economic Papers* 23 (July 1971): 146-47.

³ That firms do pass on some of these benefits can be seen from examples given by L. G. Reynolds, "The Impact of Collective Bargaining on the Wage Structure in the

the positive relationship obtained between wage rates and capital intensity. It should also be noted that more highly skilled and trained workers tend to be hired in the capital-intensive industries in order to ensure the smooth operation of sophisticated machinery. As skill content and wages are generally positively related,⁴ one would then expect capital intensity and wage rates to be also positively correlated.

Production workers in West Malaysian manufacturing are paid by the hour, day, week, fortnight, and month,⁵ and it is possible that differences in the length of the payment period might have accounted for some of the interindustry differences in the wage rate. On the one hand, it may be argued that the security of employment varies positively with the length of the payment period, and, if a premium is provided for the insecurity of employment, then industries which pay their workers by the hour may have to offer a higher hourly wage rate than industries which pay their workers by the month. Thus a negative relationship can be expected between W_b or W_o and MW . On the other hand, it may be argued that workers paid by the month are either those who are perceived by the management to be the good workers or those who are the more highly skilled, in which case a positive relationship would have been expected between W_b or W_o and MW . Thus it is impossible to say on a priori grounds what the relationship between W_b or W_o and MW will be. The empirical finding of a negative relationship between the hourly wage rate and MW suggests that the insecurity element is the more dominant of the two opposing factors in West Malaysian manufacturing.

The LDCs that have abundant labor but scarce capital resources have a comparative advantage in the production of labor-intensive goods. It could therefore be expected that labor-intensive industries in LDCs would be in a better position to export a larger proportion of their products than the capital-intensive ones. Given our finding that labor-intensive industries pay lower wage rates and given that the Heckscher-Ohlin explanation of international trade is valid for West Malaysian manufacturing,⁶ the negative relationship obtained between the hourly wage rate and success in exporting was as expected.

It has often been claimed that foreign companies operating in LDCs

United States," in *The Theory of Wage Determination*, ed. J. T. Dunlop (London: Macmillan Co., 1957), p. 211.

⁴ See H. B. Lary, *Imports of Manufactures from Less Developed Countries* (New York: National Bureau of Economic Research, 1968) for a general discussion of this relationship; and D. Lim, *Economic Growth and Development in West Malaysia* (Kuala Lumpur: Oxford University Press, 1973), pp. 284–85, for a discussion of the relationship for West Malaysian manufacturing.

⁵ Payment by piece rate is rare for production workers in the formal West Malaysian manufacturing sector. It is more commonly found in the informal sector and in the payment for transport personnel in the formal sector. As such, the percentage of sampled workers in an industry paid on a monthly basis (MW) may be useful as a proxy for measuring the security of employment.

⁶ Lim, pp. 286–87.

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are generally expected to pay wage rates that are commensurate with the wage rates they pay at home and also that are considered to be compatible with their international status.⁷ Such expectations may thus result in foreign owned or controlled companies paying higher hourly wage rates than their local counterparts. The presence of *FO* with a positive sign seems to suggest that wage remuneration in West Malaysian manufacturing is affected by such a demonstration effect.

Imports compete with locally produced products and reduce the demand for them. Thus, industries which face more competition from foreign sources of supply will be less able to accommodate upward pressures on labor costs by passing such increases on to the consuming public in the form of higher prices for their products. Such a mechanism seemed to have operated in West Malaysian manufacturing with the appearance of *M* with a negative sign as a determinant in the step-wise regression analysis.

The variable for incorporation, *INC*, did not appear as a determinant in either of the two equations, to suggest that wage rate differentials between incorporated and unincorporated establishments in West Malaysian manufacturing in 1972 were due to factors other than the presence of exploitation and sweat labor per se. These other factors were capital intensity, security of employment, success in exporting, the degree of foreign ownership, and competition from imported goods, the combined effects of which were to provide conditions that led to the payment of higher wage rates by incorporated establishments.

The incorporated establishments were far more capital intensive than the unincorporated ones, so that the positive effect of greater capital intensity (*K/L*) on wage rates would mean that incorporated establishments were more likely to pay higher wage rates than their unincorporated counterparts. The same directional impact could have been expected from the presence of *FO* with a positive sign, as the unincorporated sector is almost wholly Malaysian owned while there is a large degree of foreign ownership in the incorporated sector. A neutral effect could have been expected from the presence of *MW* and *M* as determinants, as there was no significant difference in the methods of wage payment and in the competition from imported goods between the two categories of establishments. The only determinant whose appearance would have resulted in the payment of higher wage rates among unincorporated establishments was *X*, the percentage of output exported, as unincorporated establishments exported a much smaller percentage of their produce. However, it would

⁷ Hans S. Singer, "Dualism Revisited: A New Approach to the Problems of the Dual Society in Developing Countries," *Journal of Development Studies* 7 (October 1970): 65; T. S. Papola and V. P. Bharadwaj, "Dynamics of Industrial Wage Structure: An Inter-Country Analysis," *Economic Journal* 80 (March 1970): 89; and Asian Development Bank, *Southeast Asia's Economy in the 1970s* (London: Longman, 1972), p. 224.

probably be fair to say that, on balance, the incorporated establishments possessed more of the characteristics that encouraged the payment of high hourly wage rates.

III

Two conclusions have been established. The first is that incorporated establishments paid higher basic and gross hourly wage rates than their unincorporated counterparts. The second is that this difference was due to the greater degree of capital intensity and foreign ownership among incorporated establishments and not to the presence of sweat labor in the unincorporated establishments per se. It would appear that best efforts to increase the wage rates in the unincorporated sector might not lie in introducing minimum-wage legislation. To do so without changing the technology adopted by the unincorporated establishments would probably mean forcing most of these establishments out of business and thereby exacerbate what is already a serious urban unemployment problem in West Malaysia.

It would be prudent to end by pointing out the more important limitations of this study. First, the findings would have been more significant if the sample had included the really small-scale producing units in the "informal" manufacturing sector. Exploitation might have been more prevalent in these "back-yard factories," whose activities are very much out of the public's eye and very much more difficult to regulate. In defense of our sample, it could be said that the collection of any data, let alone reliable data, on these small-scale producing units is extremely difficult. The second weakness of our study is that the step-wise regression analysis was carried out at an aggregative level so that important variations at the establishment level might not have been captured. However, it might be argued that what we are after is not the pattern of behavior of the individual establishment but, rather, that of the industry group as a whole.