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WP: 182

Working Paper

विद्याविनियोगाद्धिकास:
IIM
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INDIAN INSTITUTE OF MANAGEMENT AHMEDABAD

OCCUPATIONAL WAGE STRUCTURE IN INDIA

by

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W P No. 182
Oct. 1977

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Introduction

Both description and analysis of occupational wage structure are significant from the viewpoint of wage behaviour; for, the edifice of wage trend and wage structure in any economy is based on the myried wage rates obtaining at shop-floor level. A portrait of such wage rates, though diffused over plants, industries and regions, may give us an insight into the wage behaviour, as determined by the market and institutional forces. But such a description surely needs analysis at various levels -- the plant, the industry, the region -- with a view to fathoming the inter-connections between the occupational wage structures on one hand and industrial/regional wages on the other. It is contended here that occupational wage rates, industrial wage rates and regional wage rates are inter-dependent in significant ways. One hypothesis in this regard will be that the job content -- technologically determined -- would be the basis for occupational rates which in turn would be reflected in the average rate of a plant or industry and the balance between high wage industries and low wage industries in a region would then determine the regional wage structure. Starting with a technological base, the occupational, industrial or regional wages get determined. The other, equally tenable argument, could be that institutional factors -- influence of unions, government regulation, managerial practices -- differ significantly at each level of aggregation and thus affect

occupational, industrial and regional wage structures. An eclectic view could be that technological variables, economic factors and institutional forces shape the wage structures — but the primacy of technologically determined wage differentials as the base of wage structures still remains to be reckoned with.

It is important to distinguish between two related phenomena in the context of occupational wage differentials.[1] The problem of occupational wage structure relates to the "spread" of wage rates according to occupations in a department, unit, industry, region or economy. Such a phenomenon can be measured through the Lorenz curve, concentration ratios, or coefficient of variation. These measures suggest the extent to which deviations exist around the mean; such that wider the deviation, the more "dispersed" is the wage "population" around the mean, and vice-versa. It is in this sense that the structure may be seen as widening or narrowing in comparative-static frame of reference. The other phenomenon is referred to as skill-differential. Here an attempt is made to measure the extent to which the wage rate of the highly skilled exceeds the wage rate of the unskilled. This is accomplished by constructing an index of the ratio of highly skilled to unskilled wage rate, expressed in percentage terms. Over a period of time, this index may show an increasing or declining trend. These two phenomena — the occupational wage structure and skill differentials — although not exclusive of each other, need not move in the same direction.

In the competitive model, wage differentials are a temporary phenomenon. The demand for and supply of skills would ultimately, under the conditions of free mobility and stationary state, lead to "equalizing" tendencies. Even under these circumstances, pure differentials are "permissible" due to the nature of job content, direct and indirect costs associated with training, and changes in the rate of return on capital in general (return on alternative investment). With passage of time, the pure differentials are minimized; an efficient labour market results in an equitable wage structure.[2]

In operational terms, the model focusses on the delimitation of a 'market'. Thus, an underlying assumption of the model is that 'knowledge' of economic opportunities is available to the buyers and sellers and that these opportunities are effectively utilized. Under the Indian circumstances this may not be even theoretically available to all sections of the workforce. The crux of the problem is: How does one identify the market? Unlike product or capital market, spatial and institutional considerations play a crucial role in the identification of a labour market. Clark Kerr takes the view that 'institutional forces in the labour market establish more boundaries between labour markets and make them more specific and harder to cross. They define the points of competition, the groups which they compete, and the grounds on which they compete.'[3] It is thus a matter of judgement about the extent of disaggregation which may be required to delimit a local labour market.

It has also been recognised that the static competitive hypothesis is subject to serious limitations; for, the skill differentials are significantly affected by the level and speed of industrialization; migration of unskilled workers from agriculture to industry; barriers, whether social, economic, or personal, which affect ability or opportunity to acquire skills; government measures; and, finally, trade union concerns for equalization of skill differentials.

These non-competitive variables create pulls and pressures on the skill differentials. It has been noted that technological developments have the effect of widening wage differentials. As new techniques are introduced or new industries are set up, there is an upward pressure on demand for skill. Since there is usually a time-lag in the response of supply to excess demand, the price for such a skill tends to rise. Instantaneous adjustments in the labour market are almost impossible everywhere; but the required speed of this adjustment is even more difficult to attain under the socio-economic structure of a less developed economy. As the economy reaches a stage of development where economic and social barriers to skill formation are progressively removed, the adjustment process becomes much more speedier than in the early stages of development.[4]

The wage fixing institutions also contribute substantially to the problem of wage differentials. In the early stages of development, managements may want to reward highly skilled labour for its contribution to output and its ability to work with more sophisticated machinery. The unions on the contrary may be concerned with the social equity

issues: they may in fact want to raise the wage rate of unskilled workers. The government measures, in the form of minimum wage legislation, may also help in stabilising wage differentials.

In view of the complexity of variables discussed in the preceding paragraphs, it may not be possible to develop a comprehensive model of occupational wage differentials. An approximation may, nevertheless, be suggested:

$$W_d = f(S, M, G, U)$$

Where W_d = Ratio of highly skilled wages to unskilled wages;

S = Ratio of skilled workers to all workers;

M = Management practices in regard to wage payment systems;

G = Government policies as reflected in Plan documents, minimum wage legislation, wage board awards, and judicial pronouncements.

U = Union -- its policies and impact.

The model hypothesises that wage differentials are positively correlated with skill mix (proportion of skilled to all workers) and management practices (payment by result system); but they are negatively associated with minimum wage legislation and extent of unionization. While the model has been proposed here, no definite results ought to be expected due to the paucity of relevant data, adequate for statistical purposes. We would therefore seek general confirmation of the hypothesis rather than provide statistical validation.

To examine the relevance of our hypothesis, we first present findings of some recent local labour market studies, and then an analysis of the data on occupational wages. Policy implications are raised in the last section.

Labour Market Studies

In this section we cite the results of a few labour market studies which throw light on the wage behaviour in specific situations and analyse the factors which affect occupational wage structure and skill differentials in these markets.

1. Delhi Study

Johri and Misra[5] conducted a labour market study for the union territory of Delhi, Western U.P (Meerut District) and Haryana (Faridabad and Sonepat). This study was based on cross section data for 1971-72 obtained for 2,138 randomly selected workers of five industries: cotton textile, metal products, machinery, electrical machinery and transport equipments. Twenty-nine factories were covered.

The authors of the study had postulated that variables, such as age, skill and experience, regulated the supply of labour, and had therefore a significant impact on the wage determination process. The authors had also distinguished seven wage payment systems prevalent for the sample. These were monthly rate with basic, monthly rate with

merged DA, daily rate with basic, daily rate with merged DA, monthly consolidated, daily consolidated, and piece rate. The percentage of sample covered by these wage payment systems were: 47.8, 2.5, 14.2, 1.5, 13.0, 4.8, and 16.1 respectively.

The computed results for monthly rate with basic, accounting for 47.8 per cent of the sample, are reproduced in Table 1. The relation between higher wage rate and higher skills has been established for almost all wage payment systems. Age, did not have the expected level of significance; this might have been due to the multi-collinearity between age and experience. Consequently, the variable of age was subsequently dropped. Experience, on the other hand, was found to be a significant variable.

The authors stated that labour market variables, skill, age and experience, together explained nearly 85 per cent of the expected variance. The model therefore had a high explanatory value. It was concluded by the authors:

> Wage behaviour is explainable to a substantial extent, in this apparently highly erratic and ill-structured labour market, with the aid of supply variables, such as age, skill and seniority of workers. These variables, themselves reflecting the long-run forces of socio-economic structure and the technological base of industry, manifest their stable though imperceptible influences of the process of wage determination.[6]

2. Ahmedabad study

A study by Papola and Subrahmanian[7] covered a total of 1000 workers employed in 100 factories in Ahmedabad. Conducted during 1971-72, the study was focussed on the issues relating to wage structure

Table 1

Comparison of regression analysis results for earnings on monthly rate with basic in five industries

Industry	Equation No.	Constant term	Regression coefficients: Age (X_1)	Skill (X_2)	Experience (X_3)	R^2	F	DF
Cotton Textile	(1)	258.730	0.027 (0.385)	-17.295** (2.279)	1.386** (0.403)	0.272	56.233**	451
	(2)	259.270	—	-17.284** (2.271)	1.410** (0.195)	0.272	84.533	452
Metal Products	(1)	139.523	0.875 (1.837)	-6.259* (8.235)	4.637* (2.326)	0.417	8.124**	34
	(2)	158.026	—	-6.741 (8.082)	5.568** (1.251)	0.413	12.345**	35
Machinery	(1)	244.310	0.723 (0.514)	-33.744** (3.125)	4.584** (0.848)	0.517	102.683**	287
	(2)	258.002	—	-34.356** (3.120)	5.363** (0.645)	0.514	152.517**	288
Electrical Machinery	(1)	213.012	1.794* (0.875)	-38.512** (4.205)	1.749 (1.471)	0.695	69.268**	91
	(2)	249.768	—	-38.695** (4.277)	3.436** (1.240)	0.681	98.36**	92
Transport Equipment	(1)	311.684	1.811*** (1.043)	-52.829** (5.235)	-0.834 (1.259)	0.500	43.805**	131
	(2)	344.751	—	-51.276** (5.218)	1.045 (0.646)	0.489	63.236**	132

*Significant at 5 per cent probability level

**Significant at 1 per cent probability level

***Significant at 10 per cent probability level

Figures in parentheses indicate the standard errors of the regression coefficients

Source: C.K. Johri with V.N. Misra, op. cit., page 64.

and labour market. Among other hypotheses, those relating to occupational wage structure were:

(a) The wage rates of common occupations vary significantly among industries in accordance with the size of units and paying capacity.

(b) The rank structure of occupational wage rates has a strong similarity among units due to a technologically determined cluster of jobs with a skill structure common among units engaged in the same production process.

(c) Occupational wage differentials reflect the requirements of skills in terms of the investment and time required to acquire them and the relative labour market situation.

These hypotheses were sought to be tested in the study.

It was shown that there were wage differences for the same occupations across industries. It was argued that non-competitive factors were, to some extent, responsible for this phenomenon; data confirmed the hypothesis that demand related variables could jointly provide a good explanation of wage variations across the industries, but no single variable was found to be consistently significant for all the selected occupations. A more definite conclusion was reached in regard to the comparability of occupational wage structure across the units. It was found that a unit with high wage leval was paying a higher wage rate to each of its occupations than the one with a low wage level.

According to the authors, the tendency of stable ranking of occupational wage rates among units also suggests that the occupational differentials have some definite bases in terms of the characteristics

of the jobs, skill, education training and workload. Table 2 reproduces the statistical findings. The results show that occupational wage differentials were associated with education and training in six out of nine industry groups, with vacancies in none, with open market employment in one, and minimum qualification in one. Thus, the predominant influence was that of education and training. It was stated that while the occupational differentials were predominantly correlated with educational and training requirements, and therefore the skills in various occupations, in some cases the labour market situation also seems to have some impact in making an occupation a high or low wage one.

3. Poona study

A study of wage differentials in Poona[8] was conducted by Rabindra Nath for the year 1968. This study sought to analyse the extent of wage dispersion and wage differentials in 20 industries located at Poona.

The author found that the concentration ratio for wage incomes showed marked inequality from one industry to another. The skill differentials were substantial for various occupations in the same industry, but the extent of differential within individual occupations was not that considerable. The data for wage differentials are reproduced in Table 3.

The study concluded that in Poona region job content attached to various occupations were not defined and this differed from industry to industry and in the same industry from unit to unit. As a result, wage differential was substantial in Poona industries. The study emphasized that the

Table 2

Wage Structure in Ahmedabad

Inter-industry wage variation: Selected occupations

Occupations	1	2	3	4	5	6	7	8
Relative variation	38.50	35.00	14.16	21.17	14.64	17.71	24.54	21.86

Occupational wage structure: Selected plants

Plants	1	2	3	4	5	6	7	8	9	10
Coefficient of variation	30.93	50.43	4.62	38.28	57.91	19.82	61.14	49.68	13.58	43.86

Explanation Occupational wage differentials: Correlation coefficients between occupational wages and labour market variables.

Labour Market Variables	Industries 1	2	3	4
Education and training	0.673***	0.544**	0.520**	0.610*
Vacancies		-0.251	0.082	0.281
Open market employment		0.480**	0.030	0.340

*Significant at 1y.

**Significant at 5y.

***Significant at 10 per cent level

Source: Papola and Subrahmanian, op. cit.

Table 5

Wage Differentials in Poona Industries

Indicators	Industries					
	Cotton Textiles	Electric Fans	Drugs & Pharma-ceuticals	Oil Engines	Machine Tools	Auto-mobiles & scooters
	1	2	3	4	5	6
Concentration ratios for income distribution	.1833	.2959	.2964	.3697	.3532	.3867
Wage differentials by occupations (in Rs.)	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max
Turner	130-130	128-309	224-270	124-334	127-214	123-171
Fitter	130-169	128-309	168-406	124-376	127-268	123-221
Machinist	--	--	--	124-268	127-127	123-123
Welder	130-130	128-171	168-371	124-220	127-127	123-171
Electrician	130-169	128-272	224-270	124-220	127-268	123-345
Operator	--	171-215	131-371	124-334	127-127	123-345
Carpenter	130-169	215-215	131-224	124-268	127-127	123-171
Helper	--	128-171	131-371	86-172	--	75-75
Mazdoor	78-169	75-128	73-224	86-269	80-127	75-171

Source: Rabindra Nath, op. cit., tables 5.10 and 7.4.

size of the industrial units and the techniques of production employed were important factors influencing this differential. It was argued that the trade union movement was not well developed and that the influence of unionism was only nominal due to the existence of a large number of small units. The wage differentials, the study said, can be narrowed down with the expansion of smaller units, improvements in the techniques of production and an effective trade union movement.

4. Kanpur study

In a study conducted for the Kanpur textile mills during the 1960s, VB Singh[9] sought to analyse the internal wage structure of the mills. He focussed his attention on intra-departmental differentials and comparison of wage rates in occupations between mills. His analysis also suggests the reasons for wage differentials as perceived by both workers and managements.

The study found wide difference between wages in different departments in all the mills. It was found that the mill-wise disparity on the wage rates was not significant at five per cent level of significance, but the department-wise disparity was found significant even at 0.1 per cent. The intra-departmental differentials showed varying coefficients of variation. The evidence reproduced in Table 4 indicates:

1. There were wide differences in wages of the different categories of workers in the same department of the same mill.

Table 4

Wage structure in K npur textile industry
(coefficients of variation)

I. Inter-departmental differentials

Mills:	1	2	3	4	5	6	7	8	9	10
	6.8	10.4	8.5	7.7	1.9	11.8	8.7	6.9	4.9	8.7

Departments:	1	2	3	4	5	6
	6.2	4.3	5.3	4.5	9.8	4.9

II. Intra-departmental differentials (coefficients of variations)

Mills	Spinning	Weaving	Finishing
1	18.68	50.58	11.85
2	14.61	48.56	14.65
3	40.68	—	21.73
4	104.89	64.87	8.09
5	99.98	70.16	55.14
6	28.57	46.25	20.28
7	42.77	61.54	21.08
8	40.25	28.46	36.68

III. Occupational wage differentials, (coefficients of variation) Across the mills.

Occupations:												
1	2	3	4	5	6	7	8	9	10	11	12
2781	13.59	14.90	10.67	36.09	22.62	19.42	13.03	56.63	17.06	13.35	37.52

Source: V.B. Singh, op. cit., Chapter V.

2. The average wage rates in a department do not show such marked variations between different mills, as pointed in (1) above.

3. Average wage rates in the different departments of a mill also do not show as marked variations as pointed out in (1) above.

4. The degree of wage variation differs significantly from mill to mill and department to department.

The conclusion arrived at was that the wage disparities among mills was not significant, but among occupations and departments they were highly significant even at one per cent level of significance.

It was also found that there were wide variations in wage rates in the same occupations between different mills. These variations were more marked in the case of some occupations, while less marked in others. There was a wider variation in the case of occupations with higher wages.

The reasons for wage differentials as explained by the workers and managements showed that labour supply variables were predominant. The workers, for example, attributed these differentials to degree of skill and responsibility, degree of strain, experience, training and fatigue. The managements on the other hand thought that the differentials were based on degree of skill, strain, experience, training responsibility and hazardous work. The study concluded that the views of workers and managements were similar as on skill, strain, responsibility and to some extent fatigue but different on experience, training and hazardous work. If the views of the workers and the management are relied upon, the wage differentials in the Kanpur cotton mills seem to have been based on the job content.

Macro Analysis

Evidence for a cross section of industries supports the view that while the occupational wage structure has narrowed during the recent past, the differential between skilled and unskilled wages has widened. The data for this analysis (Tables 5,6, & 7) are drawn from Labour Bureau's Occupational Wage Surveys conducted for 1958-59 and 1963-65.[10]

A comparative view of columns 2 and 3 of Table 5 shows that the structure has indeed compressed during the five years. The coefficient of variation for the two columns was computed as 93.37 and 63.39 respectively, which would tend to support the contention. This picture emerges even more sharply from the Lorenz curves depicted in Figures 1 and 2. The curve in figure 2 is found to be closer to the line of equality than the curve in figure 1.

This narrowing trend is further reflected in the intra-occupational disparity ratios shown in Table 6. Bhatia calculated two ratios in this context.

1. Average Minimum Wage Rate : The ratio between the highest and the lowest rate of minimum wage rate in different occupations.

2. Average Maximum Wage Rate : The ratio between the highest and the lowest rate of maximum wage rate in different occupations.

These ratios narrowed in industries such as match factories and articificial manures industry. On the contrary, these ratios widened in aircraft building and repairing industry.

Table 5

Distribution of workers by levels of average dailing earnings

Average Earnings (Rs.)	Percentage of workers	
	1958-59	1963-65
(1)	(2)	(3)
Upto 2.00	21.7	17.1
2.01 to 3.00	21.2	15.3
3.01 to 4.00	23.9	17.4
4.01 to 5.00	16.8	16.8
5.01 to 6.00	9.5	13.0
6.01 to 7.00	3.3	9.4
7.01 to 8.00	1.4	3.8
8.01 to 9.00	0.9	2.4
9.01 to 10.00	0.5	1.6
10.01 and above	0.8	3.2
Average daily earnings (Rs.)	3.51	5.41

Source : KK Bhatia, op. cit., page 119.

Figure 1

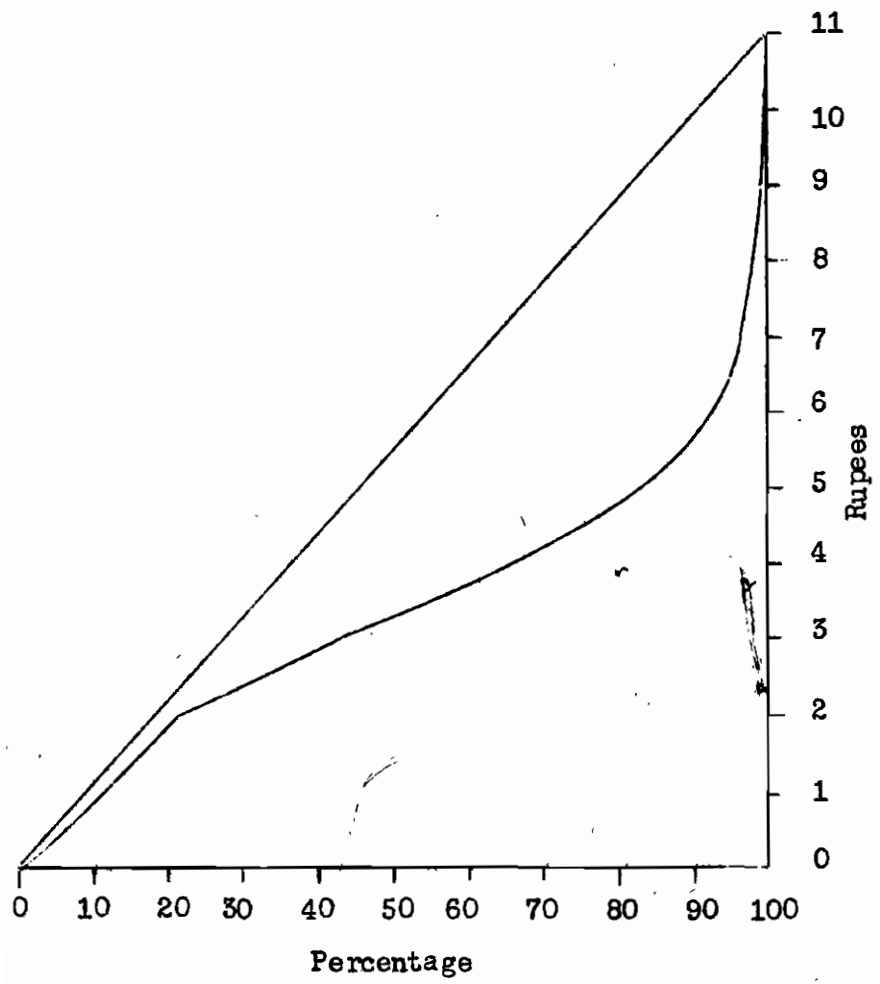

Figure 2

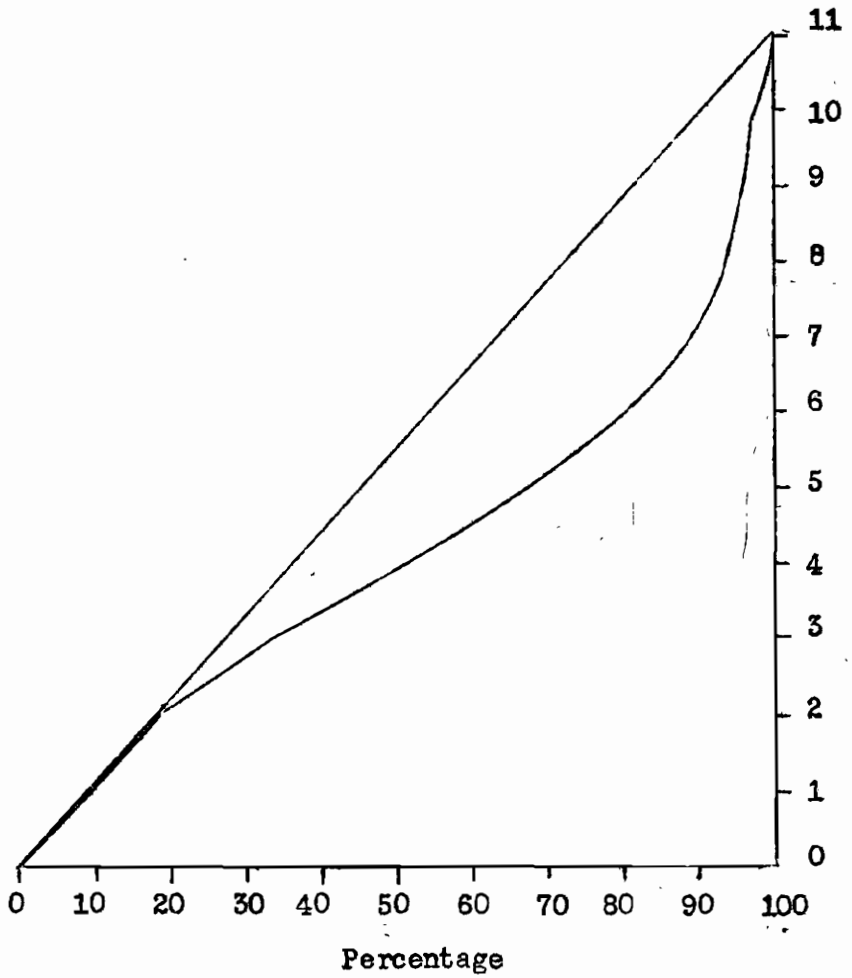

Table 6

Ratios of wage rate variations
(intra-occupational)

Sl. no.	Industry	Ratio between the highest & lowest wage rate in			
		Average minimum rates		Average maximum rates	
		First survey	Second survey	First survey	Second survey
(1)	(2)	(3)	(4)	(5)	(6)
1.	Cotton Textile	2.3:1	2.1:1	2.8:1	6.1:1
2.	Jute Textile	1.3:1	2.1:1	2.0:1	2.3:1
3.	Silk Textile	5.3:1	6.1:1	5.7:1	9.8:1
4.	Woollen Textile	3.0:1	2.1:1	3.2:1	2.6:1
5.	Metal Extracting & Refining	13.2:1	2.4:1	14.1:1	3.5:1
6.	Metal Rolling	2.4:1	3.3:1	3.1:1	4.6:1
7.	Rough Casting & Forgings	2.4:1	2.0:1	2.5:2	2.5:1
8.	Manufacture of Bolts, Nuts, etc.	2.3:1	2.5:1	2.2:1	3.7:1
9.	Agricultural Implements	3.5:1	3.4:1	3.5:1	5.6:1
10.	Manufacture of Machine Tools	11.1:1	5.3:1	11.0:1	5.2:1
11.	Manufacture of Electrical Machinery & Appliances	2.8:1	4.2:1	3.1:1	5.2:1
12.	Manufacture of Textile Machinery & Accessories	4.8:1	4.6:1	7.2:1	5.6:1
13.	Ship Building & Repairing	1.9:1	3.6:1	2.5:1	4.2:1
14.	Railway Workshops	3.1:1	2.0:1	4.3:1	3.9:1
15.	Manufacture of Motor Vehicles	3.3:1	3.0:1	3.8:1	3.7:1
16.	Aircraft Building & Repairing	1.9:1	8.1:1	2.4:1	7.6:1

Table 6 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
17.	Bicycle Manufacturing & Repairing	3.0:1	2.7:1	4.0:1	3.4:1
18.	Tramway Workshops	1.9:1	1.9:1	1.9:1	2.7:1
19.	Hydrogenated Oil	3.4:1	3.3:1	4.8:1	8.4:1
20.	Bidi Factories	2.8:1	3.1:1	2.3:1	2.3:1
21.	Cigarette Factories	2.7:1	2.6:1	3.7:1	5.5:1
22.	Paper & Paper Products	2.0:1	2.6:1	2.5:1	4.4:1
23.	Cement	2.3:1	1.9:1	4.3:1	4.5:1
24.	Sugar	2.3:1	2.9:1	3.3:1	4.5:1
25.	Tanneries	2.5:1	1.9:1	2.8:1	2.3:1
26.	Heavy Chemicals	6.2:1	2.4:1	5.5:1	5.4:1
27.	Fine Chemicals	—	5.8:1	—	13.7:1
28.	Glass Factories	3.1:1	3.6:1	3.9:1	6.7:1
29.	Match Factories	31.9:1	15.5:1	4.5:1	13.0:1
30.	Cashewnut Factories	7.4:1	4.8:1	3.5:1	3.0:1
31.	Tobacco Curing Works	2.9:1	6.2:1	3.2:1	5.8:1
32.	Footwear Manufacturing	3.9:1	1.9:1	3.9:1	2.1:1
33.	Clothing Manufacturing	2.9:1	4.9:1	4.4:1	6.0:1
34.	Printing Presses	2.8:1	2.9:1	3.9:1	3.5:1
35.	Artificial Manures	18.8:1	6.1:1	25.3:1	10.4:1
36.	Soap Factories	2.6:1	2.4:1	3.6:1	2.7:1
37.	Petroleum Refineries	6.4:1	5.7:1	7.6:1	5.0:1
38.	Electric Light and Power Stations	2.8:1	3.2:1	3.3:1	4.7:1

Source: KK Bhatia, op. cit.

Apart from the total occupational wage structure and intra-occupational wage structure, it is of crucial importance to understand the behaviour of skill differentials. An attempt was therefore made to compute an index of wage differential:

$$W_d = \frac{\overline{W}_o}{W_u} \times 100$$

Where W_d refers to wage differential index, W_o to maximum wage rate in all occupations, and W_u to minimum wage rate in unskilled occupations.

Thus the wage differential index reflects the assumption that the ceiling of wage rates is reached by the highly skilled category (maximum) in all occupations and the floor by the lowest unskilled category (minimum). The computed W_d indices are shown in Table 7. The average skill differential was 1.826 for 1963-65. The notable industries with above average skill differentials were: aircraft building and repairs, metal extracting, petroleum refining, electric light and power stations, cigarettee factories, manufacture of machine tools, glass factories, and ship building and repairing. There were, on the contrary, two industries where the unskilled minimum was greater than the average minimum of all occupations: cashew nut factories and tobacco curing works. It may be worthwhile to note that the average skill differential for manufacturing industries and electric light and power stations went up from 1.5 in 1958-59 to 1.8 in 1963-65.

Table 7

Average Daily Minimum and Maximum Wage Rates in Different Industries

Sl. no.	Industry	Wage Differentials in 1958-59			Wage Differentials in 1963-65		
		Maximum for all occupations (Rs.)	Minimum for unskilled workers (Rs.)	Index of skill differential {(2÷3)x 100} (%)	Maximum for all occupations (Rs)	Minimum for unskilled workers (Rs)	Index of skill differential {(5÷6)x 100} (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Cotton Textile	4.13	3.45	119.71	6.91	4.65	143.60
2	Jute Textile	3.75	2.62	143.13	4.46	3.04	146.71
3	Silk Textile	4.48	3.27	137.0	5.61	3.77	148.81
4	Woollen Textile	4.05	2.90	139.66	6.57	4.21	156.10
5	Metal Extracting & Refining	5.23	2.89	180.97	9.12	3.09	295.15
6	Metal Rolling	3.54	2.05	172.68	6.05	3.35	180.60
7	Rough Casting & Forging	3.84	2.34	164.10	4.77	2.34	203.85
8	Manufacture of Bolts, Nuts, etc.	3.66	2.14	171.02	5.41	2.70	200.37
9	Manufacture of Agricultural Implements	3.77	1.63	231.29	5.02	2.21	227.15
10	Manufacture of Machine Tools	4.71	2.12	222.17	5.68	2.32	244.83
11	Manufacture of Electrical Machinery & Appliances	4.57	2.67	171.16	6.63	2.95	224.75
12	Manufacture of Textile Machinery & Accessories	5.64	3.11	181.35	6.32	3.06	206.54
13	Ship Building & Repairing	5.78	3.38	171.0	8.24	3.54	232.77
14	Railway Workshops	5.42	2.80	193.57	7.44	3.26	228.22
15	Manufacture & Repair of Motor Vehicles	4.30	2.97	144.78	6.30	2.96	212.84
16	Air Craft Building & Repairing	5.67	2.73	207.69	17.06	3.48	490.23

(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bicycle Manufacturing	5.55	3.88	143.04	6.26	3.44	181.98
Tramway Workshops	4.31	3.41	126.39	5.71	3.88	147.16
Hydrogenated oil	4.03	2.70	149.26	6.28	3.20	196.25
Bidi Factories	2.89	1.29	224.03	3.20	2.02	158.42
Cigarettee Factories	7.05	4.16	169.47	8.10	3.08	266.99
Paper and Paper Products	3.55	2.69	131.97	5.24	2.70	194.07
Cement	3.88	2.30	168.70	6.01	3.74	160.69
Sugar	2.74	2.13	128.64	4.75	2.86	166.08
Tanneries	2.42	2.01	120.40	3.12	2.45	127.34
Heavy Chemicals	4.27	2.69	158.74	6.23	3.61	172.58
Fine Chemicals	4.27	2.69	158.74	7.35	3.18	231.13
Glass Factories	3.19	1.81	176.24	4.82	1.98	243.43
Match Factories	2.34	3.18	73.58	4.48	3.45	129.86
Cashew Nut Factories	1.57	1.67	94.01	2.02	2.13	94.84
Tobacco Curing Works	2.24	1.95	~~144.87~~	2.28	2.51	90.84
Footwear Manufacturing	5.17	3.05	169.57	8.24	4.85	169.90
Clothing Manufacturing	3.79	2.36	160.59	6.00	3.03	198.02
Printing Presses	4.38	2.19	200.00	5.49	2.64	207.96
Artificial Manures	5.67	2.21	256.56	6.71	2.92	229.80
Soap Factories	5.49	3.30	166.36	6.38	3.65	174.79
Petroleum Refineries	5.55	4.05	137.04	13.73	5.06	271.34
Electric Light & Power Stations	4.53	2.40	188.75	7.42	2.92	254.11

Indian Labour Statistics 1973.

Thus the data analysed above reflect three tendencies: (a) occupational wage structure has narrowed during the period under consideration; (b) the intra-occupational wage structure narrowed, and (c) the skill differential widened during the period.

An explanation for these tendencies could be found in the changing occupational structure in manufacturing industries. The occupational pattern over the period 1960-66 underwent a definite change. The data are provided in Table 8. It may be inferred that a marked tendency of increased demand for the technical staff and definite decline for unskilled labour as a proportion of total increase in employment over the period. Thus, in relative terms, while the expost demand for highly skilled increased, that for unskilled declined. This, therefore, meant a tendency for skill wage differentials to widen. On the contrary, because of moderate changes in the proportion of skilled and semi-skilled, it is likely that wage rates might have been evenly spread.

Table 8

	Private Sector (i)		Public Sector (ii)	
	1961	1965	1960	1966
Professional, Technical and Related Workers	4.6%	6.6%	9.1%	10.9%
Craftsmen and Production Process Workers	37.8%	37.9%	7.6%	8.8%
Unskilled Workers (Production and clerical)	40.8%	37.6%	37.4%	27.3%

Source: (i) DGET, Occupational Pattern in India (Private Sector), 1965.
(ii) DGET, Occupational - Educational Pattern in India (Public Sector), 1966.

An attempt was made to test the following model:

$$W_d = \alpha + \beta S$$

Where W_d refers to the proportion of skilled wages to unskilled wages and S to proportion of skilled workers to unskilled workers.

Strictly speaking, the two indices (Table 9) are not comparable. Nevertheless, a cross section of 15 industries was included in the exercise. The following results were obtained:

$$\log W_d = \underset{(2.489)}{2.89} + .474^{**} \log S$$

$\bar{R}^2 = .219$; $F = 6.20$; $D.W. = .614$;

** Significant at five per cent level.

Although the coefficient of determination is low, regression coefficient is significant at five per cent level and it has the expected sign. This result indicates that the industries with high skill content tend to pay higher skill differentials. A confirmation of this hypothesis was also found by computing the Spearman rank correlation coefficient ($R = .721$). This analysis is further strengthened by the conclusions reached by Dholakia[11] in his statistical study of inter-industry wage structure for 1964. The author found that differences in skill-mix (measured as a proportion of skilled to all occupations) between industries were associated with differences in average wage rates between industries. It may be inferred that high wage industries would also be found to have a wider skill differential, through the changes in occupational wage struct

Table 9

Wage Differentials and Occupational Structure, 1965.

Industries	Wage Differential Index (w_d)	Rank	Occupational Structure Index (S)	Rank
(1)	(2)	(3)	(4)	(5)
Petroleum Refineries	271.34	1	174.83	4
Fertilizers	229.86	2	221.23	2
Metal industries	226.53	3	160.83	5
Electrical Machinery	224.75	4	127.90	8
Bolts, nuts, machine tools	222.60	5	151.65	6
Agricultural implements & textile machinery	216.84	6	128.01	7
Motor Vehicles	212.84	7	125.03	10
Chemicals	201.85	8	194.05	3
Paper and paper products	194.07	9	228.74	1
Footwear	169.90	10	127.16	9
Bidi factories	158.42	11	108.51	15
Woollen textiles	156.10	12	124.45	11
Silk textile	148.81	13	122.15	13
Cotton textile	148.60	14	118.53	14
Jute textile	146.71	15	122.78	12

Source: Column 2 -- Table 7; Column 3 -- Same as for Table 8.

Management practices by way of introducing job evaluation, incentive schemes or payment by results may not have really affected the wage differentials. While it may not be possible to provide exact data on these issues, it is widely believed that these systems have yet to be fully accepted by the managements in this country. Barring a few instances, the managements have adopted the concept of industry-cum-region through bargaining, adjudication awards or wage board recommendations. In other words, occupational wage structures have been evolved on the basis of customary payments rather than job evaluation. There is, however, some progress in the implementation of incentive schemes. Although no comprehensive study on the subject is available, it may be surmised from experience with these schemes that the objective of achieving some correlation between effort and reward has not been fulfilled. In a like manner, the system of payment by result has not really found deep roots in industry, except perhaps in textiles. The second occupational wage survey report indicates that less than a third of workers in the manufacturing sector are covered by piece-rate payment system. On the whole, management practices as reflected in payment systems do not appear to have crucially influenced the wage differential situation.

The hypothesised negative effect of the government and trade unions did not also significantly affect the differentials. Both case law on wages as well as reports of the wage boards have de-emphasized the attainment of need-based wages, with the consequence that unskilled rates have been left to the vagaries of local labour markets. By the same token, the principles like capacity to pay and industry-cum-region, have virtually supported the wage-widening forces of excess demand for skilled labour.

It is certainly difficult to measure the impact of unionism on wage differentials. Theoretically, one would expect that trade unions with their equalising philosophy are in a position to narrow the skill differentials. There is, however, little data to shed light on this proposition. Nevertheless, it may be fair to say that the failure of unions to get the wage boards, judiciary or managements to accept the concept of need-based wages has certainly militated against their objective of reduction in skill differentials.

Policy Implications

The evidence presented here may now be briefly summarized:

(a) The labour market studies again emphasized the diversity of wage rates but this was explainable in terms of skill, age and experience. There was also some evidence on the compression of occupational wage structure. On the whole these studies point toward the need for positive manpower policies to accelerate skill formation in the economy.

(b) Some broad trends were sought to be identified on the basis of data contained in occupational wage surveys. It was found that while the occupational wage structure tended to compress, the skill differential had widened. This evidence confirmed the view that technological factors had indeed led to both compression of structure and widening of skill differentials. Apparently, the government through its minimum wage policy and the unions through their negotiations had not appreciably affected the wage differentials. On the contrary, wage boards seemed to have contributed to wage widening forces.

These findings draw our attention to the following policy issues: How could the state ensure an appropriate correlation between effort and reward? How could the skill differentials be reduced without affecting the process of skill formation? What should be the guidelines for evolving occupational wage structures conducive to stable industrial relations? We now turn to these policy implications.

Managerial experience suggests that wage structures based on job evaluation ensure both equity and efficiency. From the viewpoint of management, the principle of pay according to contribution to output is safeguarded under the job evaluation based wage rates. On the other hand, the workers also perceive such wage rates as being equitable, since reward is based on efforts. While the need for job evaluation is generally acceptable, there are certain basic problems which need to be solved. While in a new or a growing organisation, the management may not like to be dictated in its employment of skilled workers by a rigid system of technologically determined wage rates (which is what job evaluation purports to achieve), the problem becomes still more intractable in an established firm due to the customary differentials generally accepted by the workforce but considered by managements as unresponsive to efficiency requirements. A further problem arises in the application of job evaluation system, since the management cannot unilaterally impose a wage structure based on the job evaluation points. Union involvements in and workers' acceptance of the modernization of wage administration seems to be a pre-requisite for the successful implementation of job evaluation plans. While attempts may be made to develop standardized job evaluation plans for specific industries, the application of such plans at the local level may be left to managements and unions.

The application of wage incentives in industry should lead to strengthening the correlation between effort and reward. There have been attempts in several organisations to introduce incentive schemes. Many of these have floundered due to two basic reasons: the schemes rewarded for effort even before the optimum efficiency level could be reached, for which the person had to be paid his minimum; and that managements substituted these schemes for effective supervision at the shop level. As a conseauence, incentive schemes did not have the desired result. There are, however, other reasons for a disenchantment with incentive payment systems. These are (a) the loss in quality of output; (b) dis-satisfaction in the setting up of "norms"; and (c) more than proportionate increase in labour cost relative to incremental output. Nevertheless, the incentive schemes, if applied with some care, may result in occupational wage structure which is based on job content.

It is sometimes argued that quasi-rents ~~earned~~ by skilled category of workers induces semi-skilled to invest in training, leading to skill formation. This argument is partly misleading, because the ability to invest in training is determined by the distribution of income, which is loaded heavily against the majority of workers found in semi-skilled and unskilled categories of workers. While some personal initiative may be required, the effort has to be at the societal level. Thus, a positive manpower development policy which may provide for need based industrial training programmes could at least

partially alleviate chronic shortage of certain skilled categories. While the State may pursue such a policy, the wage rate of unskilled labour need not be left to atomistic decision-making. The case for a state administered "fair wage", if not need based, policy cannot be too strongly reiterated; for, left to market forces the trend will certainly be for the establishment of a wage rate nearer to starvation level. Such a wage policy is necessary for low wage industries, where the unions may be weak and the managements may be unilaterally setting up the wage rates.

We may finally refer to the phenomen of "high-wage islands" -- some occupations in some industries in some regions getting a much higher wage rates than others.[12] This paradox of "class within a class" creates pressures for competitive coercive comparisons in industrial centres, whether articulated by the unions and expressed through protest or remaining latent as potential protest points. A considerable extent of protest movement is centered around wage structure issues at the plant level. As we have indicated above, state policy with regard to wages needs to have certain ingredients to create conditions for efficiency and productivity, help in the process of skill formation, and induce better industrial relations. The policy prescription suggested here consists of job evaluation and incentive schemes, positive manpower policies, and the extension of fair wage principle. It is believed that a frontal attack on the issues relating to occupational wage structures would, in a large measure, contain the chaotic nature of wage structures in the economy.

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