

# Factor Intensities in Manufacturing Industries in Pakistan

*by*

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## INTRODUCTION

The choice of technology in the developing countries has been a subject matter of considerable theoretical and empirical investigation. That labour-abundant economy like Pakistan should opt for labour-intensive technology in order to maximise income and employment has been widely recommended. There has, however, been long-standing controversy as to whether, and how far, the choice of labour-intensive technology slows down the rate of growth of income as against the maximisation of current income by increasing the share of wages in income which are assumed to be wholly or mostly consumed and by correspondingly reducing the share of profits which are assumed to add mainly to the investible surplus and thus to increase the rate of capital accumulation. This line of reasoning postulates that a developing economy has more or less free choice between alternative techniques, embodying different degrees of labour intensity and has, in addition, adequate instruments of policy at its disposal to regulate the choice of technology in the public and private sectors of the economy; it further seems to imply that it has very inadequate or ineffective instruments of policy at its disposal to alter the disposition of income between savings and investment, once the technology and its attendant distribution of income between wages and profits are given. The feasibility or the effectiveness of the various fiscal instruments for increasing the rate of saving in a developing economy has often been discussed, however, there is very little empirical analysis of the existing pattern of technology as well as of the limitations on the choice of technology in a country like Pakistan which imports technology mainly under foreign aid tied to the purchases in the individual aid-giving countries which happen to grant loan for individual, particular capital projects.

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The choice of technology relates not only to the choice of factor intensities within each industry but also to the choice between industries which differ in terms of main factor intensities. The theory of comparative advantage postulates that a labour-abundant country should specialise in the production of labour-intensive commodities, since labour is cheap and labour-intensive techniques yield the highest output for a given input of scarce factors. On the basis of this reasoning, a labour-abundant country should not only specialise in the production of labour-intensive commodities, but also adopt for each industry the relatively more labour-intensive technique. If the coefficients of production are fixed, the only choice in techniques is in terms of choice between industries. Even if the coefficients are variable and the labour-abundant country uses more labour in relation to capital in each of the industries, as compared to a labour-scarce country, there will still be interindustry variations in factor intensity. An important question is whether the ranking of different industries in terms of factor intensity varies in different countries. If the relative factor intensities of various industries are reverse among countries of different relative factor prices, factor intensities as criteria of international specialisation break down. In this case, it is possible for both the labour- and capital-abundant countries to specialise in and export the same commodity. If the coefficients of production are fixed in each industry, the identification or specification of industries by factor intensity is unambiguous; similarly, if the elasticity of substitution is the same for different industries at given levels of relative factor prices, again there will be no reversal of factor intensity between countries with different relative factor prices. In the labour-abundant country each industry will be more labour-intensive as compared to that in a labour-scarce country, but the ranking of industries by factor intensities will remain unchanged. If the elasticity of factor substitution with respect to factor prices is different for different industries, the ranking of industries by factor intensity would be different in countries with different relative factor prices.

This article seeks to analyse the existing factor intensities of the different large-scale manufacturing industries in Pakistan, the change in the relative factor intensities over time and the differences in factor intensities between East and West Pakistan. It also undertakes a few limited international comparisons of factor intensities.

#### **VALUE ADDED PER EMPLOYEE AS AN INDEX OF FACTOR INTENSITY**

The index of factor intensity used is that of H. B. Lary which is value added per employee [1] — a composite index for human and physical capital. An industry with a higher value added per employee uses either a large capital equipment per employee or a higher proportion of skilled employees, or both. As more physical equipment and/or skill is added to 'raw' or unskilled labour, value added per employee goes up. The US data reveal a strong correlation

between the wage value added and the proportion of skilled workers in total employment implying that an industry using a higher proportion of the skilled workers has a higher wage rate per employee. Similarly, a close correlation is found between the 'nonwage' component of the value added per industry and physical capital per employee. Therefore, the value added per employee seems to represent a composite index of the use of skill and physical capital per unit of employment. Lary finds no significant reversal of factor intensity, thus defined, between the countries as widely different in terms of factor endowment as the United States, Japan, India and the United Kingdom. The ranking of industry in terms of "value added per employee" is broadly similar in different countries.

An analysis of the factor intensities in terms of value added per employee is subject to a number of limitations, the relative importance of which in the Pakistan economy is a matter of conjecture in the absence of systematic investigation of the various factors mentioned below. Undoubtedly, the product market imperfections affect the nonwage component of the value added independently of the interindustry variations in the use of capital per employee. Similarly, imperfections in the labour market owing to the differences in the strength of organized labour as well as in the extent of the government intervention in the fixation of wages, affect the interindustry differences in the wage components of the value added, independently of the skill component of the labour force. It is assumed that these influences are not important enough to cause the interindustry differences in value added per employee to diverge from what is warranted by interindustry differences in respect of skill and physical capital per employee. Lack of data precludes an empirical test of the extent to which the interindustry differences in value added per employee in Pakistan are related to differences in capital intensity, including both human and material capital. Industry wise data on labour force, classified by skill, are not available; capital-stock data relate to the book-value of capital-stock. Moreover, to the extent the excess capacity is widespread in the manufacturing sector and varies significantly between industries, nonwage value added per employee is a more reliable index of the actual capital input; this is on the assumption that the degree of utilisation of capacity is directly proportional to the extent of employment and that value added per employee is not a function of the degree of utilisation of capacity. In spite of limitations of the data on capital stock, the rank correlation coefficients between nonwage value added and the book value of capital stock per employee for 1964/65, which are 0.603 for Pakistan, 0.38 for East Pakistan and 0.626 for West Pakistan, do indicate a positive relation between the nonwage value added and capital intensity.

While variations in the value added per employee are due to variations in its components, *i.e.*, wage and nonwage elements, the correlations between value added and its nonwage components are higher than that between value added

and its wage component. The rank correlation coefficients are 0.98 for the former and 0.63 for the latter, which rises to 0.73 with the exclusion of a few extreme values. The rank correlation coefficient between wage and nonwage value added per employee is 0.53 which increases to 0.57 with the exclusion of extreme values. This implies that an increase in skill intensity is not highly correlated with an increase in material capital intensity.

The ranking of the Pakistan manufacturing industries in terms of value added per employee has been compared with the ranking of the manufacturing industries in the United States, India and Japan<sup>1</sup>. The rank correlation coefficients between Pakistan, on the one hand, and India, United States and Japan on the other, are 0.69, 0.45 and 0.28, respectively. Excluding extreme items the corresponding coefficients are 0.75, 0.65 and 0.35<sup>2</sup>. There are a number of industries in which factor intensity reversal seems to have taken place as between the United States and Pakistan. The industries which are labour intensive in the United States but capital intensive in Pakistan, in the sense of having more than average value added per employee in Pakistan are the following:

- 1) paper and paper-board products
- 2) rubber footwear
- 3) edible oils
- 4) pens and pencils
- 5) matches
- 6) structural clay products, and
- 7) miscellaneous food preparations

whereas the industries which are capital intensive in the United States but labour intensive in Pakistan are the following:

- 1) plastic products
- 2) professional scientific and measuring equipment or instruments
- 3) fertilizer, and
- 4) salt manufacturing<sup>3</sup>

<sup>1</sup>The International comparisons have not been made for East and West Pakistan separately; if such comparisons were made, the conclusions might be different in so far as the ranking of industries in East and West Pakistan is not perfectly correlated. The Pakistan data relate to 1959/60 and for this year the separate ranking of industries for East and West Pakistan was not undertaken.

<sup>2</sup>The extreme cases are nine in number and their ranks differ very widely. They are rice mill, salt, saw milling, fertilizer, glassware and sheet glass, sanitary and plumbing equipment, motorcycles and cycles, photographic and optical equipment and rubber products. Some of these products in terms of their characteristics and composition are not strictly comparable between Pakistan, on the one hand, and the USA and Japan, on the other.

<sup>3</sup>It is to be remembered that comparison of factor intensity has been made not for all the manufacturing industries but only for those for whom a rough correspondence between the Pakistani and US industrial classification could be established on the basis of available data. However, in some cases, such as structural clay, scientific and professional equipment and even plastic products, the comparability of product between the US and Pakistan is considerably less than that in the case of rest of the industries.

The low rank correlation between Pakistan and Japan may indicate a corroboration of the hypothesis that the Japanese industries rely heavily on techniques evolved domestically or on techniques which, even when they are imported, undergo considerable adaptation in the hands of the Japanese technicians and entrepreneurs whereas Pakistan relies entirely on imported technology which tends, on the whole, to be the same as those of the developed countries.

### FACTOR INTENSITIES IN PAKISTAN

It is possible to indicate the overall factor intensity of the manufacturing industries in Pakistan by defining as labour intensive (capital intensive) all industries which have value added per employee less (more) than the average value added per employee for the manufacturing sector as a whole; similarly all industries having wage value added less (more) than the average may be assumed to have low (high) skill (human-capital) intensity and those with less (more) than average nonwage value added are assumed to have low (high) intensity of physical capital. It needs to be emphasized that this particular index of factor intensity does not provide any absolute measurement of capital or skill used per unit of labour, it only provides a relative measurement, *i.e.*, ranking of one industry compared to the average value added per employee for the entire manufacturing sector. Moreover, this measurement does not help one to evaluate whether the factor proportions chosen by the industries in Pakistan are optimum in the context of the prevailing factor endowments in Pakistan. Nor does it suggest any clue as to whether a particular industry, say the fertilizer industry, needs more or less capital per unit of labour in Pakistan as compared to the fertilizer industry in any other country [2].

The analysis of the factor intensities has been done for East and West Pakistan separately for the year 1964/65. The labour-intensive industries contribute 50 per cent of the total income originating from the large-scale manufacturing sector in both West and East Pakistan. However, industries which have less than average skill intensity contribute only 27 per cent of the total manufacturing output in East and 46 per cent of the total manufacturing output in West. Relatively to West Pakistan, a larger proportion of the manufacturing output is produced in industries which have higher than average skill intensity in East Pakistan<sup>4</sup>. Since the jute and cotton textiles constitute by far the greatest proportion of the manufactured output, they strongly influence any measure of factor intensity. In view of the rapid diversification of the manufactured output in Pakistan, it is very relevant to measure the relative factor intensity of the non-textile group of industries; it is in this group of industries that the main effort in

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<sup>4</sup>The data in the succeeding pages, unless otherwise specified, are derived from the Census of Manufacturing Industries, 1964/65, as compiled by the East and West Pakistan Governments, respectively.

TABLE I

**FACTOR INTENSITIES IN PAKISTAN: FACTOR INTENSITY OF MANUFACTURED INDUSTRIES (PERCENTAGE OF VALUE ADDED IN THE WHOLE MANUFACTURING SECTOR) 1964/65**

Index of factor intensity	East Pakistan	West Pakistan
Less than average value added per employee	50	50
Less than average wage value added per employee	27	46
Less than average nonwage value added per employee	50	51
<b>Factor Intensity of Industries excluding Jute and Cotton Textiles</b>		
Less than average value added per employee	18	30
Less than average wage value added per employee	36	45
Less than average nonwage value added per employee	18	18

industrialisation in the future is going to be concentrated. If all the nontextile industries are considered as a group, the relative importance of labour-intensive industries, in the sense defined above, declines. Only about 30 per cent of the nontextile manufactured output in West and 18 per cent in East originates in the industries which are labour intensive in the sense of having less than average value added per employee. In terms of skill intensity, however, percentage of nontextile manufactured output contributed to by the industries with less than average skill intensity is higher, *i.e.*, 45 per cent in West and 36 per cent in East.

It is usually held that there is a distinction between capital and intermediate goods on the one hand, and consumers goods on the other, in terms of factor intensity. There is a presumption that capital goods tend to be more intensive in terms of their requirements of skill and physical capital. It appears that capital-goods industries as a group in Pakistan have lower value added per employee than that of the whole manufacturing sector; furthermore, it has less than average nonwage value added per employee, *i.e.*, less than physical capital intensity and in both these cases it is significantly lower. This same conclusion holds true for the capital-goods industries separately for East and West Pakistan. However, the wage value added per employee for the capital-goods industries,

which is an index of skill intensity, is higher than the average for the entire manufacturing sector. This is true for the whole of Pakistan as well as for East and West Pakistan separately. However, the extent of skill requirement is only slightly higher than the average for the manufacturing sector as a whole.

The consumer-goods industries, on the other hand, for the country as a whole, have value added, wage value added and nonwage value added per employee just about the average for the whole manufacturing sector. In West Pakistan, all the indices are below the average, implying a bias towards labour intensity whereas in East Pakistan, the total and nonwage value added per employee are above the average, implying a bias towards capital intensity but they do not appear to be skill intensive, in view of their having less than average wage value added per employee. The intermediate goods in West Pakistan as well as in Pakistan as a whole are capital intensive in terms of both human and physical capital, whereas in East Pakistan they are labour intensive, the higher than average skill intensity is more than offset by lower than average physical capital intensity. It is also possible to test the relative skill intensity with reference to the proportion of skilled and professional personnel in the labour force. According to this criteria, capital-goods industries in West Pakistan (relevant data are only available for West Pakistan) have higher than average skill intensity and intermediate goods have lower than average skill intensity whereas the consumers goods have the average intensity.

#### INTERTEMPORAL AND INTERREGIONAL VARIATIONS IN FACTOR INTENSITIES

One pertinent question in respect of factor intensity of the Pakistan industries is whether the pattern of factor intensity has changed overtime. Has the interindustrial ranking of industries changed overtime? The rank correlation coefficients between 1959/60 and 1964/65 are 0.57, 0.53 and 0.54 in terms of value added, wage value added and nonwage value added per employee, respectively. Also between 1955 and 1959/60, the corresponding figures are 0.59, 0.52 and 0.67, respectively<sup>5</sup>. Thus, the pattern of factor intensity, as evidenced from the above indices, appears to have undergone some change. However, if consecutive years are taken, the rank-correlation coefficients in terms of value added per employee are higher, *i.e.*, 0.76 between 1957 and 1958 and 0.73 between

<sup>5</sup>The rank-correlation coefficients have been estimated for seventy-two industry groups. The industrial classification, as available in the 1959/60 Census of Manufacturing Industries, are not exactly the same as those in the censuses of manufacturing industries for 1964/65, which are available separately for East and West Pakistan. Moreover, the latter are available in terms of much more detailed industrial breakdowns. The classifications in the East and West Pakistan Censuses are also not the same. To make them comparable, in the first instance, only those industries which are common in the two regions in terms of their detailed breakdown have been selected and in the second place, they have been aggregated into a fewer number of industry groups in order to make them comparable with the industrial classifications of 1959/60 Census. In the process of reclassification one has to exercise some judgement and it is hoped that a comparable set of classifications has eventually been obtained for seventy-two industry groups.

1958 and 1959/60, respectively. The lower rank-correlation coefficients between distant years are most likely due to changes in the composition of industries in terms of products and size of firms, in view of the rapidly changing industrial structure in Pakistan. It is difficult to answer with confidence the question of changes in the interindustry variation in factor intensity.

The same factors may also explain at least partly the relatively low rank-correlation coefficients between the interindustry variations in factor intensity between East and West Pakistan. The rank-correlation coefficients between East and West Pakistan in terms of the various indices of factor intensity are as follows.

TABLE II  
INTERREGIONAL DIFFERENCES IN FACTOR INTENSITY

	Rank-correlation coefficients <sup>a</sup> (1964/65)
Value added per employee	0.46 (0.67)
Wage value added per employee	0.37 (0.48)
Nonwage value added per employee	0.38 (0.53)

<sup>a</sup>The figures in brackets exclude extreme values where ranks are very widely divergent.

### CONCLUSION

The above analysis based on the criterion of value added per employee as an index of factor intensity reveals that about 50 per cent of the total income of the large-scale manufacturing sector originates in the labour-intensive industries. Industries with less than average skill intensity produce between 27 per cent and 46 per cent of the total manufacturing output. Excluding jute and cotton textiles, the major proportion of the industrial output in the large-scale sector originates in capital-intensive industries in the sense of having more than average value added per employee; the relative importance of physical capital-intensive industries is greater than that of human capital-intensive industries in the nontextile manufacturing sector. The capital-goods industries are not particularly capital intensive; their physical capital requirements are significantly



below average whereas the skill intensity is slightly higher than the average. The consumer goods have average labour intensity whereas the intermediate goods have higher capital intensity, even though not so in East Pakistan. This conclusion need not necessarily be true for the future composition of capital-goods and intermediate-goods industries. Pakistan has as yet a relatively small nonconsumer-goods sector which produces comparatively very simple and unsophisticated products and intermediate goods; the future pattern of large-scale import substitution in this sector may have very different implications for factor intensity. The interindustry differences in factor intensity appear to have changed over time, specially if one compares distant years. This may, however, be largely accounted for by the rapidly changing structure of industrial output. This may also explain the relatively low rank-correlation coefficients between the factor intensities of industries in East and West Pakistan and more so, between the manufacturing industries in Pakistan and abroad. In the light of the limitations of the concept as well as of the available data, the criterion of value added per employee as an index of factor intensity should be used with caution and further work at a micro level in measuring the factor intensity of different industries including a closer look at the engineering data appears necessary.

## REFERENCES

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2. Khan, A. R., *Some Problems of Choice of Techniques in a Mixed Economy*. Paper presented at the Conference of Economic Development in South Asia. (Kandy, Ceylon: International Economic Association, June 1969).

# Appendix

TABLE 1

(ALL PAKISTAN)

COMPONENTS OF VALUE ADDED AND THEIR RANKS  
IN 1959/60 AND 1964/65

Sr. No.	Industry	1959/60			1964/65		
		Value added per employee	Wage value added per employee	Nonwage value- added per employee	Value added per employee	Wage value added per employee	Nonwage value added per employee
(..... in thousand rupees.....)							
1.	Fruits and vegetables	2.7 (42)	1.1 (35)	1.6 (40)	3.7 (49)	1.4 (30)	2.3 (49)
2.	Grain milling	4.6 (19)	1.4 (20)	3.2 (20)	6.8 (23)	1.6 (20)	5.2 (25)
3.	Rice milling	1.5 (70)	0.7 (71)	0.8 (67)	1.9 (67)	0.7 (68)	1.2 (66)
4.	Bakery products	3.2 (53)	0.9 (63)	2.4 (29)	3.6 (50)	1.1 (56)	2.5 (46)
5.	Sugar factories	3.8 (25)	1.2 (27)	2.6 (26)	10.7 (15)	1.2 (45)	9.5 (14)
6.	Edible oils and fats	4.6 (20)	1.1 (36)	3.5 (18)	13.2 (9)	1.8 (17)	11.4 (10)
7.	Tea	7.9 (7)	2.2 (2)	5.7 (8)	13.2 (10)	1.2 (46)	12.0 (8)
8.	Salt	2.1 (58)	1.3 (22)	0.8 (68)	9.5 (18)	1.2 (47)	8.3 (17)
9.	Food prep., n.e.c.	5.3 (16)	1.2 (28)	4.0 (15)	1.3 (72)	0.2 (70)	1.1 (67)
10.	Alcoholic beverages	3.8 (26)	1.1 (37)	2.7 (23)	17.2 (4)	2.2 (7)	15.0 (3)
11.	Nonalcoholic beverages	10.3 (4)	1.9 (4)	8.4 (4)	17.2 (5)	2.2 (8)	15.0 (4)
12.	Cigarettes	22.2 (1)	2.3 (1)	19.9 (1)	41.3 (1)	1.8 (18)	39.5 (1)
13.	Tobacco mfg.	6.6 (12)	1.8 (7)	4.8 (13)	17.6 (3)	4.8 (2)	12.8 (7)
14.	Cotton	2.8 (37)	1.1 (38)	1.7 (37)	4.5 (35)	1.2 (48)	3.3 (34)
15.	Wool	3.6 (29)	0.9 (64)	2.7 (24)	4.2 (37)	1.2 (49)	3.0 (38)

(Contd.)

TABLE 1—(Contd.)

Sr. No.	Industry	1959/60			1964/65		
		Value added per employee	Wage value added per employee	Non-wage value added per employee	Value added per employee	Wage value added per employee	Non-wage value added per employee
(.....in thousand rupees.....)							
16.	Jute	2.5 (49)	1.1 (39)	1.4 (47)	2.6 (64)	1.2 (50)	1.4 (63)
17.	Silk and artsilk	3.5 (31)	1.1 (40)	2.4 (30)	6.1 (26)	0.2 (71)	5.9 (23)
18.	Dying, printing, etc.	3.2 (34)	1.0 (50)	2.2 (34)	3.9 (45)	0.1 (72)	3.8 (30)
19.	Knitting	2.1 (59)	1.0 (51)	1.2 (53)	3.5 (53)	1.2 (51)	2.3 (50)
20.	Thread making	2.7 (43)	1.1 (41)	1.6 (41)	3.9 (46)	1.4 (31)	2.5 (47)
21.	Mfg. of textiles	2.1 (60)	1.0 (52)	1.1 (58)	6.5 (24)	1.4 (32)	5.1 (26)
22.	Mfg. of footwear	5.0 (18)	1.9 (5)	3.2 (21)	6.4 (25)	1.4 (33)	5.0 (27)
23.	Mfg. of wearing apparel	2.4 (51)	1.3 (23)	1.2 (54)	2.9 (61)	1.2 (52)	1.7 (60)
24.	Fabricated textile products	1.2 (72)	1.2 (42)	0.1 (72)	5.8 (28)	2.6 (3)	3.2 (36)
25.	Saw milling	2.8 (38)	1.3 (24)	1.5 (45)	1.8 (68)	1.1 (57)	0.7 (71)
26.	Cork and wood mfg.	2.4 (52)	1.2 (29)	1.2 (55)	3.9 (47)	1.7 (19)	2.2 (51)
27.	Wood furniture	2.1 (61)	1.1 (43)	1.0 (60)	3.4 (55)	1.5 (24)	1.9 (57)
28.	Metal furniture	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
29.	Fixture	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
30.	Mfg. of paper	5.4 (15)	1.6 (16)	3.7 (16)	12.0 (12)	2.2 (9)	9.8 (12)
31.	Articles of pulp and paper	7.6 (8)	1.8 (8)	5.8 (7)	10.0 (17)	2.3 (6)	7.7 (19)
32.	Publishing and printing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

(Contd.)

TABLE 1 — (Contd.)

Sr. No.	Industry	1959/60			1964/65		
		Value added per employee	Wage value added per employee	Non-wage value added per employee	Value added per employee	Wage value added per employee	Non-wage value added per employee
(.....in thousand rupees.....)							
33.	Printing industry, etc	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
34.	Tanning and leather tanning	2.8 (39)	1.1 (44)	1.6 (42)	4.6 (34)	1.3 (39)	3.3 (35)
35.	Leather products	2.1 (62)	1.0 (53)	1.0 (61)	2.9 (62)	1.1 (58)	1.8 (69)
36.	Tyres and tubes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
37.	Rubber prods. n.e.c.	2.3 (54)	0.8 (69)	1.5 (46)	3.2 (56)	1.2 (53)	2.0 (56)
38.	Mfg. of fertilizer	2.6 (47)	1.2 (30)	1.3 (49)	34.7 (2)	2.5 (4)	32.2 (2)
39.	Industrial chemical	7.1 (9)	1.8 (9)	5.2 (10)	9.1 (19)	2.4 (5)	6.7 (21)
40.	Paints, etc.	6.8 (11)	1.7 (12)	5.1 (11)	12.8 (11)	2.1 (10)	10.7 (11)
41.	Medicines	6.9 (10)	1.8 (10)	5.1 (12)	15.8 (6)	2.1 (11)	13.7 (5)
42.	Perfumes, etc.	9.9 (5)	1.6 (17)	7.7 (5)	8.9 (20)	1.1 (59)	7.8 (18)
43.	Matches	3.7 (27)	1.0 (54)	2.7 (25)	4.7 (33)	1.2 (54)	3.5 (33)
44.	Chemical prods., n.e.c.	12.5 (2)	1.9 (6)	10.1 (2)	8.3 (22)	1.5 (25)	6.8 (20)
45.	Glass products	1.6 (69)	0.9 (65)	0.7 (70)	2.2 (66)	0.9 (63)	1.3 (65)
46.	Poultry, china, and earthen-wares	1.3 (71)	0.6 (72)	0.6 (71)	3.0 (58)	0.9 (64)	2.1 (53)
47.	Cement	9.3 (6)	1.7 (13)	7.6 (6)	13.5 (8)	1.9 (15)	11.6 (9)

(Contd.)

TABLE 1 — (Contd.)

Sr. No.	Industry	1959/60			1964/65		
		Value added per employee	Wage value added per employee	Non-wage value added per employee	Value added per employee	Wage value added per employee	Non-wage value added per employee
(..... in thousand rupees .....							
48.	Concrete products	6.4 (14)	1.2 (31)	5.3 (9)	4.0 (42)	1.4 (34)	2.6 (43)
49.	Nonmetallic minerals	4.1 (23)	1.2 (32)	3.7 (17)	1.7 (70)	0.9 (65)	0.8 (69)
50.	Arms and acc.	1.8 (68)	1.0 (55)	0.8 (69)	4.2 (38)	1.6 (21)	2.6 (44)
51.	Plumber supply	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
52.	Heating, lighting app.	2.1 (63)	1.0 (56)	1.2 (56)	3.5 (54)	1.3 (40)	2.2 (52)
53.	Cutlery	2.5 (50)	1.2 (33)	1.2 (57)	5.2 (32)	1.5 (26)	3.7 (31)
54.	Hand edge tools	2.2 (57)	0.8 (70)	1.3 (50)	2.7 (63)	1.0 (62)	1.7 (61)
55.	Hardware	2.6 (48)	1.1 (45)	1.4 (48)	1.8 (69)	0.8 (67)	1.0 (68)
56.	Black smithing, welding and repairing workshop	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
57.	Utensils	2.8 (40)	1.0 (57)	1.7 (38)	1.6 (71)	0.9 (66)	0.7 (70)
58.	Metal containers	3.9 (24)	1.6 (18)	2.3 (31)	4.1 (40)	1.3 (41)	2.8 (40)
59.	Safes and vaults	1.9 (65)	1.0 (58)	0.9 (66)	2.6 (65)	1.2 (55)	1.4 (64)
60.	Metal prods., n.e.c.	2.4 (53)	1.1 (46)	1.3 (51)	4.2 (39)	1.3 (42)	2.9 (39)
61.	Agriocultural machinery and appliances	2.3 (55)	1.0 (59)	1.3 (52)	3.2 (57)	1.1 (60)	2.1 (54)
62.	Engines, turbines	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

(Contd.)

TABLE 1—(Contd.)

Sr. No.	Industry	1959/60			1964/65		
		Value added per employee	Wage value added per employee	Non-wage value added per employee	Value added per employee	Wage value added per employee	Non-wage value added per employee
( ..... in thousand rupees ..... )							
63.	Textile mach.	2.8 (41)	1.0 (60)	1.6 (43)	3.6 (51)	1.5 (27)	2.1 (55)
64.	Metal-work mach.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
65.	Pumps and compressors	11.1 (3)	1.2 (34)	10.0 (3)	4.1 (41)	1.4 (35)	2.7 (41)
66.	Ecroing mach.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
67.	Machines excl. electric	2.3 (56)	1.1 (47)	1.1 (59)	4.0 (43)	1.4 (36)	2.6 (45)
68.	Electrical appliances	2.7 (44)	0.9 (66)	1.8 (35)	8.5 (21)	2.1 (12)	6.4 (22)
69.	Electrical fans	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
70.	Electrical bulbs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
71.	Radio and related	5.2 (17)	1.7 (14)	3.5 (19)	5.5 (30)	1.6 (22)	3.9 (28)
72.	Electrical prods., n.e.c.	4.2 (22)	1.8 (11)	2.5 (27)	11.7 (13)	1.9 (16)	9.8 (13)
73.	Water transfer equip.	2.7 (45)	1.7 (15)	1.0 (62)	5.6 (29)	2.0 (14)	3.6 (32)
74.	Motor vehicles	6.6 (13)	2.1 (3)	4.5 (14)	10.8 (14)	2.1 (13)	8.7 (16)
75.	Repair of motor vehicle	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
76.	Cyoles	1.9 (66)	0.9 (67)	1.0 (63)	4.0 (44)	1.3 (43)	2.7 (42)
77.	Transport equip., n.e.c.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
78.	Professional scientific equip.	2.7 (46)	1.1 (48)	1.6 (44)	3.0 (59)	1.3 (44)	1.7 (62)
79.	Optical goods	2.0 (64)	1.0 (61)	1.0 (64)	30. (60)	1.1 (61)	1.9 (58)

(Contd.)

TABLE 1—(Concl'd.)

Sr. No.	Industry	1959/60			1964/65		
		value added per employee	Wage value added per employee	Non-wage value added per employee	value added per employee	Wage value added per employee	Non-wage value added per employee
( ..... in thousand rupees..... )							
80.	Plastic products	2.9 (36)	1.1 (49)	1.8 (36)	3.6 (52)	8.2 (1)	—4.6 (72)
81.	Sports goods	1.9 (67)	0.9 (68)	1.0 (65)	5.3 (31)	1.4 (37)	3.9 (29)
82.	Cotton ginning	3.3 (32)	1.0 (62)	2.3 (32)	6.1 (27)	0.6 (69)	5.5 (24)
83.	Jute pressing	3.6 (30)	1.4 (21)	2.3 (33)	14.8 (7)	1.6 (23)	13.2 (6)
84.	Ice making	3.7 (28)	1.3 (25)	2.5 (28)	3.9 (48)	1.5 (28)	2.4 (48)
85.	Pens, pencils	4.4 (21)	1.5 (19)	2.9 (22)	4.5 (36)	1.4 (38)	3.1 (37)
86.	Misc. manufactures	3.0 (35)	1.3 (26)	1.7 (39)	10.3 (16)	1.5 (29)	8.8 (15)

Note: Figures in parenthesis show ranks.

n.a. means not available.

**TABLE 2**  
**EAST PAKISTAN**  
**COMPONENTS OF VALUE ADDED IN 1964/65 AND THEIR RANKS**

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
1.	Fruits and vegetables	5791 (20)	2031 (11)	3760 (22)
2.	Fish and sea foods	3969 (34)	2263 (8)	1706 (46)
3.	Grain milling	15171 (7)	1671 (20)	13500 (7)
4.	Rice milling	2090 (58)	797 (77)	1293 (51)
5.	Bakery products	3168 (42)	1025 (59)	2143 (39)
6.	Sugar factories	9609 (10)	1441 (26)	8168 (10)
7.	Cocoa, chocolates, etc.	800 (84)	600 (83)	200 (77)
8.	Edible oils and fats	5464 (21)	1186 (40)	4278 (18)
9.	Tea blending	35064 (4)	1083 (53)	33981 (3)
10.	Soft drinks	33386 (5)	1795 (14)	31591 (5)
11.	Cigarettes	35171 (3)	1633 (21)	33538 (4)
12.	Cigars, etc.	1000 (83)	428 (84)	572 (72)
13.	Tobacco	3217 (41)	707 (80)	2510 (36)
14.	Cotton textiles	3925 (35)	1063 (54)	2862 (31)

(Contd.)



TABLE 2—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
15.	Silk and artsilk	1875 (63)	975 (64)	900 (62)
16.	Dying and bleaching textile	1464 (75)	866 (72)	598 (71)
17.	Narrow fabrics	2227 (56)	1029 (58)	1198 (54)
18.	Knitting	2018 (62)	875 (69)	1143 (56)
19.	Thread making	2405 (54)	1088 (51)	1317 (50)
20.	Textile mfg.	4777 (25)	1759 (17)	3018 (30)
21.	Footwear excl. rubber	14277 (8)	1513 (23)	12764 (8)
22.	Rubber footwear	5385 (22)	1114 (47)	4271 (19)
23.	Wearing apparel	1856 (64)	826 (75)	1030 (58)
24.	Made-up textile goods	2750 (47)	916 (67)	1834 (42)
25.	Saw milling	1763 (69)	1096 (50)	667 (70)
26.	Wood and plywood prods.	3818 (37)	1729 (18)	2089 (40)
27.	Wood furniture	2637 (49)	1423 (27)	1214 (53)
28.	Metal furniture	1802 (67)	958 (65)	844 (64)

(Contd.)

TABLE 2—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
( ..... in rupees ..... )				
29.	Paper products	3033 (44)	1250 (37)	1783 (44)
30.	Newspapers	2617 (50)	2759 (6)	—142 (84)
31.	Books, periodicals	2512 (53)	1369 (33)	1143 (57)
32.	Tanning, finishing	1463 (76)	1087 (52)	376 (74)
33.	Leather products	2741 (48)	1005 (61)	1736 (45)
34.	Misc. rubber products	2520 (52)	1270 (36)	1250 (52)
35.	Acids, alkalies, etc.	6464 (17)	3281 (3)	3183 (27)
36.	Fertilizers	59988 (2)	2931 (5)	57057 (2)
37.	Industrial chemicals	3031 (45)	1121 (46)	1910 (41)
38.	Nonedible oils	1122 (81)	763 (78)	359 (75)
39.	Paints, varnishes	6662 (15)	2156 (9)	4506 (16)
40.	Medicines, drugs	8585 (11)	1420 (28)	7165 (11)
41.	Perfumes	1416 (77)	653 (82)	763 (65)
42.	Soap, washing compounds	7608 (13)	1301 (34)	6307 (13)

( Contd. )

TABLE 2—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
( ..... in rupees ..... )				
43.	Disinfectants	3814 (38)	986 (63)	2828 (33)
44.	Other chem. products	4381 (31)	1000 (62)	3381 (25)
45.	Petroleum refinery	330500 (1)	5667 (1)	324833 (1)
46.	Clay products	4483 (29)	1394 (31)	3089 (28)
47.	Glass products	1304 (78)	873 (70)	431 (73)
48.	China pottery	1640 (71)	760 (79)	880 (63)
49.	Cement mfg.	6454 (18)	1884 (13)	4570 (15)
50.	Concrete, gypsum, etc.	7135 (14)	1282 (35)	5853 (14)
51.	Iron, steel, basic form	8113 (12)	1772 (16)	6341 (12)
52.	Metal products	4601 (27)	1532 (22)	3069 (29)
53.	Heating, lighting	2950 (46)	1165 (42)	1785 (43)
54.	Cutlery	2081 (59)	2016 (12)	65 (83)
55.	Hand edge tools	1152 (80)	1043 (57)	109 (82)
56.	Hardwares	1641 (70)	698 (81)	943 (61)

(Contd.)

TABLE 2—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
57.	Utensils	1066 (82)	873 (71)	193 (78)
58.	Barrels, etc.	3280 (40)	1107 (48)	2173 (38)
59.	Tin cans, tinware	3321 (39)	3205 (4)	116 (81)
60.	Safes, vaults	2027 (61)	1024 (60)	1003 (60)
61.	Bolts, nuts, etc.	5330 (23)	1150 (43)	4180 (20)
62.	Other fabricated mat.	1771 (68)	1047 (56)	724 (66)
63.	Agricultural machinery	5868 (19)	1404 (29)	4464 (17)
64.	Textile machinery	3975 (33)	1138 (44)	2837 (32)
65.	Printing machinery	2613 (51)	1180 (41)	1433 (49)
66.	Pumps and compressors	1810 (66)	1104 (49)	706 (67)
67.	General industrial machines	3067 (43)	1483 (24)	1584 (47)
68.	Service and household	4650 (26)	1050 (55)	3600 (23)
69.	Other machines	3856 (36)	1479 (25)	2377 (37)
70.	Electric fans	4516 (28)	1774 (15)	2742 (34)
(Contd.)				

TABLE 2—(Concl'd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
71.	Electric lamps	29732 (6)	4000 (2)	25732 (6)
72.	Communications equip.	10909 (9)	1398 (30)	9511 (9)
73.	Other elect. products	4440 (30)	1202 (38)	3238 (26)
74.	Shipbuilding, etc.	5170 (24)	1724 (19)	3446 (24)
75.	Vehicle mfg.	2197 (57)	2074 (10)	123 (80)
76.	Cycle and cycle rickshaws	4037 (32)	1375 (32)	2662 (35)
77.	Optical goods	1531 (73)	827 (74)	704 (69)
78.	Watches, clocks	1250 (79)	1125 (45)	125 (79)
79.	Plastic products	2340 (55)	828 (73)	1512 (48)
80.	Toys	1635 (72)	929 (66)	706 (68)
81.	Cotton ginning	6577 (16)	2688 (7)	3889 (21)
82.	Ice mfg.	1522 (74)	1201 (39)	321 (76)
83.	Pen, pencils, etc.	2049 (60)	898 (68)	1151 (55)
84.	Other misc. mfg. n.e.c.	1836 (65)	826 (76)	1010 (59)

Note : Figures in parantheses show ranks.

TABLE 3  
WEST PAKISTAN  
COMPONENTS OF VALUE ADDED IN 1964/65 AND THEIR RANKS

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(..... in rupees .....)				
1.	Fruits and vegetables	3318 (67)	1292 (57)	2026 (67)
2.	Fish and sea foods	6606 (28)	1261 (60)	5345 (26)
3.	Grain milling	6393 (31)	1604 (30)	4789 (31)
4.	Rice milling	1550 (82)	538 (81)	1012 (79)
5.	Bakery products	4011 (55)	1079 (69)	2932 (50)
6.	Sugar factories	11245 (17)	1024 (72)	10221 (14)
7.	Cocoa, chocolate, etc.	5686 (36)	1230 (64)	4456 (33)
8.	Edible and oil fats	14967 (7)	1900 (22)	13067 (8)
9.	Tea blending	14624 (8)	286 (82)	14338 (7)
10.	Soft drinks	13556 (10)	2232 (12)	11324 (11)
11.	Cigarettes	44085 (2)	1926 (21)	42159 (2)
12.	Cigars, etc.	384 (84)	233 (83)	151 (83)
13.	Tobacco mfg.	20203 (4)	5575 (2)	14628 (6)
14.	Cotton textiles	4504 (49)	1210 (67)	3294 (48)

(Contd.)

TABLE 3—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(..... in rupees .....)				
15.	Silk and artsilk	6464 (30)	138 (84)	6326 (20)
16.	Dyeing and bleaching text	4623 (48)	1264 (59)	3359 (44)
17.	Narrow fabrics	2334 (79)	1237 (63)	1097 (78)
18.	Knitting	3940 (59)	1326 (55)	2614 (56)
19.	Thread making	4386 (50)	1541 (39)	2845 (51)
20.	Textile mfg.	6928 (24)	1271 (58)	5657 (23)
21.	Footwear excl. rubber	3104 (72)	1346 (54)	1758 (72)
22.	Rubber footwear	10618 (19)	2384 (11)	8234 (19)
23.	Wearing apparel	5204 (42)	1868 (24)	3336 (46)
24.	Made-up textile goods	6005 (33)	2680 (8)	3325 (47)
25.	Saw milling	2150 (80)	1350 (53)	800 (81)
26.	Wood and plywood prods.	4007 (56)	1544 (36)	2463 (58)
27.	Wood furniture	3728 (63)	1606 (29)	2122 (64)
28.	Metal furniture	4846 (45)	1405 (47)	3441 (43)
(Contd.)				

TABLE 3—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
29.	Paper products	12339 (14)	2725 (7)	9614 (15)
30.	Newspapers	9021 (20)	2776 (6)	6245 (21)
31.	Books, periodicals	5505 (40)	1893 (23)	3612 (39)
32.	Tanning, finishing	6759 (27)	1464 (44)	5295 (28)
33.	Leather products	3222 (68)	1218 (66)	2004 (68)
34.	Misc. rubber products	3180 (70)	1220 (65)	1960 (69)
35.	Acids, alkalies, etc.	6881 (25)	1542 (37)	5339 (27)
36.	Fertilizers	19244 (6)	2168 (15)	17067 (5)
37.	Industrial chemicals	12226 (15)	3030 (5)	9196 (17)
38.	Nonedible oils	2891 (75)	718 (78)	2173 (63)
39.	Paints, varnishes	13492 (11)	2047 (17)	11445 (10)
40.	Medicines, drugs	20181 (5)	2525 (9)	17656 (4)
41.	Perfumes	21819 (3)	1128 (68)	20691 (3)
42.	Soap, washing compounds	6965 (23)	1244 (61)	5721 (22)
(Contd.)				



TABLE 3—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
43.	Disinfectants	8974 (21)	3431 (4)	5543 (24)
44.	Other chem. products	13112 (12)	2198 (14)	10914 (13)
45.	Petroleum refinery	84236 (1)	3873 (3)	80363 (1)
46.	Clay products	1535 (83)	994 (74)	541 (82)
47.	Glass products	2617 (76)	1026 (71)	1591 (74)
48.	China pottery	3022 (73)	913 (76)	2109 (65)
49.	Cement mfg.	14206 (9)	1928 (20)	12278 (9)
50.	Concrete, gypsum, etc.	3771 (61)	1365 (51)	2406 (60)
51.	Iron, steel, basic form	6858 (26)	1667 (27)	5191 (30)
52.	Metal products	3807 (60)	1589 (32)	2218 (62)
53.	Heating, lighting	3761 (62)	1384 (49)	2377 (61)
54.	Cutlery	5606 (38)	1397 (48)	4209 (35)
55.	Hand edge tools	2910 (74)	1006 (73)	1904 (71)
56.	Hardware	1835 (81)	857 (77)	978 (80)
(Contd.)				

TABLE 3—(Contd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
57.	Utensils	2465 (78)	975 (75)	1490 (75)
58.	Barrels, etc.	4741 (46)	1452 (45)	3289 (49)
59.	Tin cans, tinware	5990 (34)	2455 (10)	3535 (42)
60.	Safes, vaults	3117 (71)	1413 (46)	1704 (73)
61.	Bolts, nuts, etc.	5816 (35)	1569 (34)	4247 (34)
62.	Other fabricated mat.	5558 (39)	1542 (38)	4016 (36)
63.	Agriculture machinery	2522 (77)	1044 (70)	1478 (76)
64.	Textile machinery	3580 (65)	1504 (43)	2076 (66)
65.	Printing machinery	3198 (69)	1725 (26)	1473 (77)
66.	Pumps and compressors	5229 (41)	1538 (40)	3691 (38)
67.	General industrial machines	3530 (66)	1595 (31)	1935 (70)
68.	Service and household	6467 (29)	1815 (25)	4652 (32)
69.	Other machines	3986 (57)	1374 (50)	2612 (57)
70.	Electric fans	4051 (64)	1301 (56)	2750 (52)

(Contd.)

TABLE 3—(Concl'd.)

Sr. No.	Industry	Value added per employee	Wage value added per employee	Nonwage value added per employee
(.....in rupees.....)				
71.	Electric lamps	7450 (22)	2204 (13)	5246 (29)
72.	Communications equip.	4999 (44)	1662 (28)	3337 (45)
73.	Other electric. products	13017 (13)	2032 (18)	10985 (12)
74.	Shipbuilding, etc.	5633 (37)	2031 (19)	3602 (40)
75.	Vehicle mfg.	11666 (16)	2142 (16)	9524 (16)
76.	Cycle and cycle rickshaws	4791 (58)	1353 (52)	2618 (55)
77.	Optical goods	3689 (64)	1244 (62)	2445 (59)
78.	Watches, clocks	4214 (53)	1510 (42)	2704 (54)
79.	Plastic products	4237 (52)	11676 (1)	-7439 (84)
80.	Toys	4631 (47)	676 (79)	3955 (37)
81.	Cotton ginning	6146 (32)	626 (80)	5520 (25)
82.	Ice mfg.	4281 (51)	1574 (33)	2707 (53)
83.	Pens, pencils etc.	5078 (43)	1525 (41)	3553 (41)
84.	Other misc. mfg. n.e.c.	10634 (18)	1549 (35)	9085 (18)

Note: Figures in parentheses show ranks.