# Employment Aspects of Industrial Growth in West Pakistan

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Employment has been one of the major explicit objectives of all development plans in Pakistan. The Third Five Year Plan estimated [3] that at least 255,000 additional employment opportunities would be created in West Pakistan in large-scale manufacturing sector. Although complete reliance on the date reported about employment in the C.M.I. is not recommended, the orders of magnitude can easily be seen. It appears from the statistics available that employment in this sector has increased by approximately 90,000-100,000 only during these eight years. The average annual rate of growth of employment between 1954-1959/60 was 16.8%, slightly higher than 15.6% annual rate of output growth but this rate declined to 3.1% between 1959/60 and 1967/68 while output at factor cost rose by about 11.4%. The output elasticity of demand for labour thus works out to be 0.27 for this period. Implicit in these growth rates is the fact that labour productivity was increasing at an average of 8% per year.

In view of such a wide gap between employment growth and output growth, it becomes important to inquire whether the objective of the Plan regarding labour absorption using the strategy of rapid industrial development of the kind pursued so far are realistic and attainable. Secondly, it is also interesting to explore as to what have been the major constraints in the way of industrial employment generation. This note focusses on one particular aspect of the employment problem in large-scale manufacturing industries in West Pakistan. Section I attempts to measure the degree of displacement of labour due to the adoption of more capital-intensive techniques. Section II discusses the causes of increased capital-intensity and tests the hypothesis that labour displacement has been due to increase in wage rates.

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I

Table I presents the comparative data for West Pakistan employment by major sectors for various intervals of time. It can be seen that employment in manufacturing sector (including small scale industries) declined from 15.0% of total employment in 1955 to 14.3% in 1965. On the other hand, the contribution of manufacturing to GNP rose from 11.1% to 15% in the same period. These figures for employment do not isolate the share of large-scale manufacturing which, in our view, has declined more than what is implied in the aggregate data for the sector as a whole. An index of factor intensity used in this study is the capital-labour ratio and changes in these ratios which have taken place during this period have been computed. The aggregate capital-labour ratio for the whole large scale manufacturing sector was 4531 in 1959/60 and had risen to 9558 by 1967/68. However, taking the deflated figures of capital for these years we find that capital-labour ratios were 4531 and 6479 respectively for 1959/60 and 1967/68. The largest increase in industry capital-labour ratios appear to have taken place in electrical machinery, rubber, beverage, food manufacturing, chemical and chemical products, printing and publishing, while tobacco, paper and paper products, leather and leather products appear to have recorded relative declines. This raises the possibility that factor substitution between capital and labour was taking place during this period. Following Williamson and Sicat's technique [5], the labour displacement effects have been

Table I

*West Pakistan Employment in Major Sectors*

(thousand workers)

| Sectors | 1951 | 1955 | 1959 | 1961 | 1963/64 | 1965 |
|---|---|---|---|---|---|---|
| Agriculture | 7499 | 7092 | 7929 | 8970 | 9887 | 10210 |
| Mining | 11 | 19 | 4 | 30 | 15 | 20 |
| Manufacturing | 1111 | 1939 | 2021 | 2003 | 2209 | 2540 |
| Construction | 56 | 553 | 414 | 299 | 235 | 510 |
| Public Utilities | 43 | 25 | 35 | 30 | 57 | 30 |
| Transport and Comm. | 133 | 299 | 379 | 389 | 334 | 800 |
| Trade | 786 | 1070 | 1514 | 1032 | 1243 | 1570 |
| Services | 994 | 1802 | 1726 | 1973 | 2160 | 1640 |
| Others | 865 | 157 | 250 | 224 | 350 | 375 |
| Total | 11478 | 12950 | 14271 | 14950 | 16490 | 17685 |
| Employment in Mfg. as %of total employment | 9.6 | 15 | 13.4 | 13.4 | 11.5 | 14.3 |

*Source:* 1951 and 1961 figures from the Census of Pakistan: 1955, 1963/64 and 1965 figures from Manpower Surveys, Government of Pakistan.

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computed and are presented in Table II. These displacement effects have taken place due to a movement away from the 1959/60 factor combinations determined by 1959/60 factor prices, which are being used as basis of comparison. If the 1959/60 capital-labour ratio had prevailed in 1967/68, which it has not in large part due to policy induced factor price distortions, employment would have increased in proportion to increase in capital stock. However, due to a change in factor prices and subsequent substitution of capital for labour, total employment generated in 1967/68 is less than it would have been, had the capital-labour ratio remained the same as of 1959/60. Then the optimum level of 1968 employment (L*i68) can be compared with actual employment levels (Li68). The difference between the two can be termed as the labour displacement effect for manufacturing as a whole. The labour displacement effect is about 44% of the present level of employment. In other words, if the 1959/60 capital-labour ratios were in operation about 175494 additional employment opportunities could have been generated by 1967/68. The largest displacement effects have occured in rubber products, beverage industries, transport equipment, printing and publishing, basic metal industries and food manufacturing.

## II

What has been the cause of these increasing capital-labour ratios? One obvious possibility is the existence of relative price distortions in the economy. It is quite widely established empirically [2] that economic policies pursued during this period, such as accelerated depreciation allowances, tax rebates and tax holidays, have given rise to artificial incentives to promote capital-intensive industries, which explains, in part, the failure of employment to grow.

Besides factor price distortions, the second and equally important obstacle to employment growth was non-availability of appropriate technology to complement the resource endowment of LDC's. Modern capital-intensive production techniques originating in the advanced countries were imported liberally and at times under pressure from aid-giving agencies.

Third, the under-utilization of the existing capital stock in large scale manufacturing in West Pakistan reduced the potential level of employment even further. Gordon Winston [6] who investigated the phenomenon for the year 1965 reported that only 33% of existing capacity was being used (on the basis of 2-1/2 shift per day). If policies had been pursued to keep the relative prices of capital and labour equal to their true scarcity values, industrial employment would have probably been 70-95% higher than the levels of employment actually experienced, as the use of second shift would have been much more widespread [7].

Fourth and very relevant in the context of Pakistan are the effects of the prevailing distribution of income. It has been argued [4] that the distribution of income, by determining the structure of demand, in large part dictates the overall capital-output ratios in the economy and therefore for a given aggregate level of domestic output and the existing set of production technologies the

[1]The percentage change for each variable was computed as follows. The base year values (1959/60 and 1963/64) were averaged, the terminal year values were averaged (1967/68 and 1969/70) and the difference between these two average values, taken as a percentage of the base year was used in the regressions.

pattern of demand dictates the level of employment. Where, the rich display a consumption pattern heavily biased towards capital intensive goods, employment suffers and at the expense of the poor, not the rich. Exacerbating the maldistribution of personal income are the inequitable government policies that govern rural-urban distribution of income, for as much as production in the rural sector is characteristically more labour intensive than production in urban area and government pursuing policies for agricultural and industrial goods often redistribute income towards the urban sector, employment again suffers.

Finally, the influence of wages on employment growth and labour productivity seems to have drawn much attention as an explanatory variable. Lagging employment is attributed to rising wage levels which either reduce the substitution of capital for labour or cause management to make more efficient use of labour. The components of the employment lag written large scale manufacturing are analysed below with the rate of growth of labour productivity being taken as an indicator of employment lag....the higher the growth of productivity, the more sluggish is the growth of employment, the aggregate level of output being held constant. Using the Harris-Todaro model [1] the function relating productivity to wages and output can be written as

$$\log v = a + b \log w + c \log Q \ldots\ldots\ldots (1)$$

where $v$ is percentage change in labour productivity, $w$ is percentage change in wages/labour Q and is percentage change in output (value added at factor costs). 'a', measures the rates of increase in labour productivity due to technological change, 'b' estimates the elasticity of substitution between labour and all other factors and 'c' measures the effects of output growth on labour productivity. The above function says that the rate of increase of labour productivity will depend on the rate of growth of wages and the rates of growth of output.

Time series data for the variables is not available but it was possible to calculate the annual average rates of growth for the variable for each of the 20 industries from the CMI for early and late 1960s. The average of 1959/60 and 1963/64 figures for all these variables was taken and substracted from the average of 1967/68 and 1969/70 figures; the use of average of two census years eliminate business fluctuation and provides a better measure of long term trend than can be obtained from any pair of census observations. The output figures are estimates of value added at factor costs (excluding indirect taxes and subsidies) in current price; wages are the aggregate earnings per worker in each industry, also in current prices. As the only index available for deflation of prices was the wholesale price index for all manufactures and as this index will affect all industries uniformly, the regression coefficients of the cross section regressions are not affected by using undeflated data. Equation [1] was estimated for a cross section of 18 industries. Two observations were deleted because of negative values. The estimated relationship was

$$\text{Log } v = 0.55 + \underset{(3.357)}{0.73} \log w + \underset{(1.157)}{0.24} \log Q \quad \ldots\ldots (2)$$

$$R^2 = .56 \qquad F = 9.48 \qquad d = 2.098$$

The output variable was tried in both log and unlogged form and was not significant in either. The important result is that the regression coefficients for

W/L i.e.w is significantly different from zero at the five per cent level and is less than unity. The elasticity of substitution of value added per labor (V/L) with respect to W/L is 0.73. Thus if output is held constant, then 1% relative change in wages (W/L) causes a 0.73 change in value added per worker (V/L). The implication of this regression is that significant substitution between capital and labour does exist. As a consequence, for any given level of output, an increase in wages leads to an increase in productivity and therefore a decline in employment. By the same token, for any given growth in output, the employment effect will be greater, the smaller is the increase in wages per worker. $R^2$ indicates that about 56% of variation in labour productivity is explained by variations in wages and output levels.

## CONCLUSION

The consequence of rapid industrial growth on employment generation in West Pakistan has been very disappointing. Employment growth during the sixties lagged behind output by 8.1% on an aggregate basis. Distortions in relative factor prices seem to have been aggravated during this period. If the industries had followed the same labour-capital ratios of 1959/60 at least an additional 44% of the present level of employment would have been generated. Liberal provisions of imported capital goods and raw materials at official exchange rate and under foreign aid agreements, easy availability of institutional credit at low interest rates, tax exemptions and rebates on investment, increasing money wage rates seemed to have induced substitution of capital for labour in almost all the industries studied and biased choice of techniques in favour of relative capital intensive technologies. The influence of money wages on employment was quite effective and an increase in wages was found to be positively associated with considerable decline in employment corroborating similar evidence adduced for Latin America, Kenya, Jamaica and other developing countries. The existence of 'a shelf of labour-intensive or appropriate technologies', alternative modes of production with the same end-product quality and economic efficiency is hardly known with any amount of clarity or certainty at the present stage of our knowledge but there seems to be much flexibility in choosing the kind of product, considerable choice in the auxiliary or subsidiary services around the main production and processing unit and the proportion of time installed capacity is used. It is, therefore, pertinent to suggest that all such incentives which artificially result in making labour more expensive should be reconsidered and re-examined in the light of accumulated evidence on the tendency of substitution of capital for labour in a number of developing countries. It is quite possible that policies which make capital-intensive goods cheaper than the equilibrium prices may also be encouraging a consumption pattern biased toward capital-intensive goods. If this is true, reversal of these policies may also have some implications for income distribution patterns.

## Table II

*Labour Displacement Effects*

(Value in 000 rupees)

| Industries | K 1959 | L 1959 | L/K 1959/60 | K (At current prices) 1967/68 | K (Deflated) 1967/68 | $L^*_{68}$ | $L_{68}$ | $L^*_{68}-L_{68}$ | $\frac{L^*_{68}-L_{68}}{L_{68}}$ % |
|---|---|---|---|---|---|---|---|---|---|
| Food Manufactures | 95405 | 15080 | 0.1581 | 603165 | 424614.5 | 67112 | 35525 | 31587 | 89 |
| Beverage Industries | 2839 | 775 | 0.2730 | 23752 | 16720.8 | 4565 | 1325 | 3240 | 244.5 |
| Tobacco Manufactures | 21176 | 1380 | 0.0652 | 66750 | 46990.4 | 3062 | 8114 | -5052 | 62.3 |
| Manufactures of Textiles | 344990 | 104343 | 0.3024 | 1182251 | 832278.0 | 251748 | 184713 | 67035 | 36.29 |
| Manufactures of Footwear | 6815 | 3845 | 0.5642 | 26318 | 18527.2 | 10456 | 7186 | 3270 | 45.5 |
| Manufactures of Wood & Cork | — | — | — | 3618 | 2546.2 | — | — | — | — |
| Furniture & Fixtures | 1316 | 494 | 0.3751 | 7419 | 5222.8 | 1961 | 1572 | 389 | 25.0 |
| Paper & Paper Products | 30391 | 2045 | 0.0673 | 48972 | 34475.2 | 2319 | 3847 | -1528 | -39.7 |
| Printing & Publishing | 12202 | 4935 | 0.4044 | 57404 | 40411.1 | 16341 | 7799 | 8542 | 109.5 |
| Leather & Leather Prod. | 9638 | 2401 | 0.2491 | 18212 | 12820.8 | 3194 | 4111 | - 917 | -22.3 |
| Manufacture of Rubber Prod. | 1446 | 760 | 0.5256 | 36820 | 25920.4 | 13621 | 2555 | 11066 | 433.9 |
| Chemical & Chemical Prod. | 120517 | 8175 | 0.0678 | 682135 | 480207.6 | 32574 | 25388 | 7186 | 28.7 |
| Products of Petroleum & Coal | — | — | — | 172615 | 121517.1 | — | — | — | — |
| Non Metallic Mineral Prod. | 76081 | 8092 | 0.1064 | 265097 | 186622.3 | 19849 | 15091 | 4758 | 31.5 |
| Basic Metal Industries | 18874 | 8098 | 0.4291 | 64899 | 45687.4 | 19600 | 9955 | 9645 | 96.9 |
| Manufactures of Metal Prod. | 19310 | 10216 | 0.5291 | 75941 | 52052.7 | 27541 | 16268 | 11273 | 69.3 |
| Machinery except Electrical | 20552 | 8318 | 0.4047 | 66500 | 46814.6 | 18946 | 11845 | 7101 | 59.9 |
| Electrical Machinery | 19365 | 4489 | 0.2318 | 107152 | 75432.5 | 17486 | 17311 | 175 | 1.0 |
| Manufactures of Transport Equipment | 12172 | 5103 | 0.4192 | 143142 | 100768.7 | 42251 | 17384 | 24867 | 143.1 |
| Misc. Manuf. Industries | 105622 | 17156 | 0.1624 | 153949 | 10837.1 | 17602 | 24745 | -7143 | 289.0 |
| All Industries | 918711 | 205705 | 0.2239 | 3806111 | 2580467.4 | 570228 | 394734 | 175494 | 44.0 |

*Sources:* $K_{67-68}$, $L_{68}$ from C.M.I. 1967/68.

$\frac{L}{K_{59-60}}$ ——Computed from C.M.I. 1959/60.

Table III

*Capital, Labour, Wages & Value-Added in Large-Scale Manufacturing Industries (West Pakistan)*

(1959-60) (Value in 000 rupees)

| Industries | K | L | W | V | $\frac{K}{L}$ | $\frac{VA}{L}$ | $\frac{W}{V}$ |
|---|---|---|---|---|---|---|---|
| All Industries | 918711 | 205705 | 241857 | 693103 | 4584 | 3339 | .35 |
| Food Manufacturing | 95405 | 15080 | 19661 | 64453 | 6327 | 4274 | .31 |
| Beverage Industries | 2839 | 775 | 916 | 4513 | 3663 | 5823 | .20 |
| Tobacco Manufactures | 21176 | 1380 | 2757 | 20652 | 15345 | 14965 | .13 |
| Manufacture of Textiles | 344990 | 104343 | 110358 | 272767 | 3306 | 2614 | .41 |
| Manufacture of Footwear | 6815 | 3845 | 8748 | 25233 | 1772 | 6563 | .35 |
| Manufacture of Wood & Cork | — | — | — | — | — | — | — |
| Furniture and Fixture | 1316 | 494 | 464 | 959 | 2664 | 1941 | .48 |
| Paper and Paper Products | 30391 | 2045 | 4064 | 18310 | 14861 | 8954 | .22 |
| Printing and Publishing | 12202 | 4935 | 6879 | 10239 | 2473 | 2075 | .67 |
| Leather and Leather Products | 9638 | 2401 | 2538 | 6781 | 4014 | 2824 | .37 |
| Manufacture of Rubber Products | 1446 | 760 | 565 | 1681 | 1903 | 2212 | .34 |
| Chemical and Chemical Products | 120517 | 8175 | 13262 | 53342 | 14742 | 6525 | .25 |
| Products of Petroleum and Coal | — | — | — | — | — | — | — |
| Non Metallic Mineral Products | 76081 | 8092 | 10431 | 51074 | 9402 | 6312 | .20 |
| Basic Metal Industries | 18874 | 8098 | 10029 | 29061 | 2331 | 3589 | .35 |
| Manufacture of Metal Products | 19310 | 10216 | 11087 | 21605 | 1890 | 2115 | .51 |
| Machinery except Electrical | 20552 | 8318 | 8424 | 21766 | 2471 | 2671 | .39 |
| Electrical Machinery | 19365 | 4489 | 5941 | 14593 | 4314 | 3251 | .41 |
| Transport Equipment | 12172 | 5103 | 5441 | 8690 | 2385 | 170 | .63 |
| Misc. Manufacturing Industries | 105622 | 17156 | 17173 | 52488 | 6157 | 3060 | .24 |

*Source:* C.M.I. 1959-60.

Table IV

*Capital, Labour, Wages & Value-Added in Large-Scale Manufacturing Industries (West Pakistan)*

(1963-64) (Value in 000 Rupees)

| Industries | K | L | W | VA | K/L | VA/L | W/V | W/L |
|---|---|---|---|---|---|---|---|---|
| All Industries | 2533348 | 330529 | 504442 | 2029509 | 7665 | 6140 | .249 | 1526 |
| Food Manufacturing | 259322 | 23976 | 42830 | 271387 | 10816 | 11319 | .16 | 1786 |
| Beverage Industries | 10174 | 1634 | 2474 | 18600 | 6226 | 11383 | .133 | 1514 |
| Tobacco Manufactures | 80926 | 9084 | 17935 | 175568 | 8909 | 19327 | .102 | 1974 |
| Manufactures of Textiles | 1028012 | 173604 | 225495 | 696145 | 5922 | 4010 | .32 | 1299 |
| Manufactures of Footwear | 25358 | 6264 | 13917 | 37520 | 4048 | 5990 | .37 | 2222 |
| Manufactures of Wood and Cork | — | — | — | — | — | — | — | — |
| Furniture and Fixtures | 3269 | 1568 | 2239 | 4712 | 2085 | 3005 | .48 | 1428 |
| Paper and Paper Products | 37369 | 2881 | 6243 | 36008 | 12971 | 12498 | .17 | 2167 |
| Printing and Publishing | 31372 | 6023 | 12204 | 32460 | 5209 | 5389 | .38 | 2026 |
| Leather and Leather Products | 12183 | 3767 | 5382 | 33288 | 3234 | 8837 | .16 | 1429 |
| Manufactures of Rubber Products | 6420 | 1522 | 3189 | 11337 | 4218 | 7449 | .28 | 2095 |
| Chemicals and Chemical Products | 460229 | 17489 | 36057 | 239394 | 26302 | 13681 | .15 | 2061 |
| Products of Petroleum and Coal | — | — | — | — | — | — | — | — |
| Non Metallic Mineral Products | 169980 | 10289 | 16506 | 73443 | 1652 | 7138 | .23 | 1604 |
| Basic Metal Industries | 71765 | 13399 | 22881 | 72788 | 5356 | 5432 | .31 | 1708 |
| Manuf. of Metal Products | 55684 | 13658 | 22250 | 48842 | 4077 | 3576 | .46 | 1629 |
| Machinery except Electrical | 52350 | 11099 | 15475 | 37415 | 4717 | 3371 | .41 | 1394 |
| Electrical Machinery | 77945 | 12574 | 23044 | 73839 | 6199 | 5872 | .312 | 1833 |
| Manufacture of Transport Equip. | 55670 | 10407 | 27833 | 94153 | 5349 | 9047 | .30 | 2675 |
| Misc. Manufacture Industries | 108288 | 15999 | 25467 | 118437 | 6768 | 7403 | .215 | 1592 |

*Source:* C.M.I. 1963-64.

Table VI

*Capital, Labour, Wages & Value-Added in Large-Scale Manufacturing Industries (West Pakistan)*

(1969-70) (Value in 000 Rupees)

| Industries | K | L | W | VA | K/L | VA/L | Wages/VA | W/L |
|---|---|---|---|---|---|---|---|---|
| All Industries | 4852949 | 318360 | 987020 | 481130 | 11600 | 11500 | .21 | 2359 |
| Food Industries | 681270 | 34103 | 91438 | 710755 | 19977 | 20841 | .129 | 2681 |
| Beverage Industries | 30848 | 1784 | 4020 | 28833 | 17292 | 16162 | .139 | 2253 |
| Tobacco Manufacturing | 67167 | 10655 | 26339 | 383314 | 6304 | 35975 | .069 | 2472 |
| Manufacture of Textiles | 1670884 | 197902 | 395721 | 1554115 | 8443 | 7853 | .255 | 2000 |
| Manufactures of Footwear | 25438 | 7434 | 20002 | 67549 | 3422 | 9086 | .0296 | 2691 |
| Wood Cork and Allied | 7816 | 943 | 1704 | 3981 | 8288 | 4222 | .043 | 1807 |
| Furniture and Fixtures | 8201 | 1688 | 5049 | 7443 | 4858 | 4409 | .68 | 2991 |
| Paper and Paper Products | 166309 | 6298 | 18851 | 62558 | 26407 | 9933 | .0301 | 2993 |
| Printing and Publishing | 62446 | 8844 | 24799 | 71180 | 7061 | 8048 | .35 | 2804 |
| Leather Manufacturing | 31243 | 5291 | 10777 | 94416 | 6075 | 17845 | .11 | 2037 |
| Rubber Products | 25495 | 2611 | 6555 | 41844 | 9765 | 16026 | .157 | 2511 |
| Chemical and Chemical Products | 647470 | 22340 | 82403 | 428723 | 28983 | 19191 | .192 | 3689 |
| Products of Petroleum and Coal | 157162 | 2340 | 16181 | 383836 | 67163 | 164033 | .0422 | 6915 |
| Non Metallic Mineral Products | 545474 | 16876 | 39714 | 207764 | 32323 | 12311 | .191 | 2353 |
| Basic Metal Industries | 125753 | 13765 | 34130 | 116131 | 9136 | 8437 | .29 | 2480 |
| Metal Products | 94224 | 17879 | 37692 | 86131 | 5270 | 4817 | .44 | 2108 |
| Machinery except Electrical | 72332 | 12786 | 24182 | 57645 | 5657 | 4508 | .42 | 1891 |
| Electrical Machinery | 140706 | 16197 | 48311 | 160401 | 8687 | 9903 | .301 | 2983 |
| Transport Equipment | 128798 | 17238 | 45794 | 67353 | 7472 | 3907 | .68 | 2657 |
| Misc. Manufactures Industries | 163013 | 21386 | 53358 | 277337 | 7622 | 12968 | .192 | 2495 |

*Source:* C.M.I. 1969-70.

## REFERENCES

[1] Harris and Todaro. "Wages, Industrial Employment and Labour Productivity: The Kenyan Experience." *East African Economic Review.* (June 1969).

[2] Lewis, Jr, S.R. *Economic Policy and Industrial Growth in Pakistan.* A PIDE publication, Publishers George Allen and Unwin Ltd. (London) 1969.

[3] Pakistan Planning Commission. *Third Five Year Plan.* (1965-70).

[4] Weck, J. "Employment, Growth and Foreign Domination in Underdeveloped Countries." *The Review of Radical Political Economists.* Vol. 4 No. 1.

[5] Williamson J. and G.P. Sicat. "Technical Change and Resource Allocation in Philippines Manufacturing." IEDR discussion paper 68-21, University of Philippines. June (1968).

[6] Winston, G. "Capital Utilization in Economic Development." *Economic Journal.* Page 36-60, March 1971.

[7] Winston, G. "Capital Utilization and Employment: a neoclassical model of optimum shift work (mimeographed). Karachi, 1971.