Recent Industrial Development in Pakistan: Structural Patterns and Problem Areas

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Introduction

Pakistan has throughout its history been an aid-dependent country. Inter alia due to external political events (Afghanistan conflict) and the resulting front country status of Pakistan, even larger amounts of foreign aid than originally requested have recently been committed to the country by the World Bank led Aid-to-Pakistan Consortium. Hence it does not seem unlikely that the Government's objective will materialize to have 80% of its roughly US $ 10 bn foreign financing requirements under the Sixth Five-Year Plan (1983-88) provided by the Consortium. In the years 1983-85 net foreign aid has financed already 22% of Pakistan's public sector development outlays.

Every effort should thus be made to effectively use these high foreign aid inflows (which may not last forever) to build up domestic capacities for sustaining the growth momentum in the future. There can be no doubt that the efficient production of manufactured goods is an essential precondition in this regard. This, in turn, requires more, however, than the mere adoption of modern technologies in e.g. selected engineering branches. A more balanced approach is called for, among others aiming at building-up an efficient well-educated human resource base for the country's industrialization process as well as at reducing the pronounced regional income disparities and the underlying disparities in the dispersal of industries.

The following section provides a general overview of the structure of Pakistan's manufacturing sector serving as a starting point for the subsequent analysis of its major constraints and bottlenecks.

The Manufacturing Sector in Pakistan: Taking Stock

1. An Overview

The manufacturing sector as a whole was among the fastest growing segments of the economy during the fifties and sixties resulting in a doubling of its GDP share from 6 to

16% within these two decades. In the fifties, the predominant source of growth was the import-substitution segment of industry, whereas in the sixties it was domestic demand which took the lead. In the early seventies, a number of factors were responsible for a considerable slowing down of industrial growth. Among the most influential determinants are to be mentioned(1): exhaustion of the import-substitution potential in consumer industries (which held a share of about 80% in the large-scale industries' value added by the end of the sixties); their excessive protection resulting in inefficient production; overcapitalization and overcapacities due to capital-cheapening policy measures as well as major infrastructural and energy bottlenecks.

As a combined effect of all these detrimental factors, some traditional industries like textiles stagnated or even declined. This decline, however, was partly compensated for by the emergence of new-nontraditional industries, above all phosphatic and nitrogenous fertilizers, and by the momentum which in particular small-scale industries gained in the seventies. The latter's annual growth rate over the whole decade has been projected at 7.3% (2) as compared to only 3.3% of large-scale manufacturing units. As a result, small-scale manufacturing accounted for more than three quarters of total manufacturing employment at the end of the seventies.

Although some progress in diversification has been achieved in recent years, the manufacturing sector is still dominated by a small number of key branches: food products, tobacco and textiles together generate more than half of total manufacturing value added (MVA), and the textile sector alone provides half of all manufacturing employment. In order to further diversify the country's industrial structure highest priority has been accorded to the steel-based engineering goods industries which are facing rapidly increasing domestic demand. This industrial branch has to be seen in connection with the recent completion of Pakistan's first integrated steel mill (at Bin Qasim near Karachi) which has started commercial production of hot rolled sheet and galvanised sheet by the end of 1984. The promotion of steel-using downstream acivities, e.g., in transport equipment, electrical equipment and machinery for domestic industrialization is thus particularly emphasized in the current Sixth Five-year Plan 1983-88. Further priority sectors are the processing of agricultural goods (cotton textiles, sugar) with a view to strengthening their competitiveness in export markets as well as those indu-

stries producing agricultural machinery (e.g. assembly of tractors) both contributing to more closely linking agriculture and industry.

Growth and structural changes of value added in manufacturing

In the recent past, Pakistan's manufacturing sector which in 1982 contributed some 18% to GDP has continued to be the economy's most dynamic segment and has shown high growth rates considerably above those of total GDP. According to data published by the Ministry of Industries the real growth rate of MVA surged up from 1.9% in 1976/77 to 9.9% in 1977/78. After having peaked at 13.2% in 1981/82, it declined again to 8.9% in 1982/83 and finally to 7.7% in 1983/84 which is still high by international standards.

The most recent slowing down of growth was mainly due to a reduction in the growth rate of value added in large-scale industries (7% in 1983/84) whereas value added in small-scale industries is estimated to have grown by 10%. Output data indicate production gains above all in such items as vegetable ghee, refined sugar, cement, fertilizers, chemicals, paper board and chip board, safety matches, jute goods, cycle rubber tyres and tubes, cigarettes and mild steel products. Despite continuing energy shortages as well as rising prices for imported inputs the manufacturing sector was thus basically able to sustain its momentum in 1983/84 thereby partly offsetting the drastic shortfall in agricultural growth.

Looking at the composition of MVA according to the three broad categories of end use (consumer, intermediate and capital goods), considerable structural changes occurred as early as in the beginning of the sixties.(3) The share of consumer goods in value added generated by large-scale industries fell from 60% (1959/60) to 55% (1963/64) while the share of capital goods increased from 17% to an impressive 24% in the same period.

The following years up to 1970 showed, however, that this fairly advanced industrial structure stood on the fragile basis of continuing high foreign aid inflows. The slowing down of foreign aid after the Indo-Pakistan War of

Table 1: Structural changes in MVA according to categories of end use, 1973, 1977 and 1981/81 (based on current prices).

Category of end use	Share in total MVA (in % of total)		
	1973	1977	1980/81
Mainly consumer goods (a)	65.3	62.8	57.1
Mainly intermediate goods (b)	22.8	62.1	34.1
Mainly capital goods (c)	8.8	10.1	9.1

(a) ISIC 311, 313, 314, 321, 322, 324, 332, 342, 361, 390.
(b) ISIC 323, 331, 341, 351, 352, 353, 354, 355, 356, 362, 369, 371, 372.
(c) ISIC 381, 382, 383, 384, 385; includes also some consumer durables.
Source: Calculated from the UNIDO data base, information supplied by the UN Statistical Office with estimates by the UNIDO Secretariat; Government of Pakistan, Federal Bureau of Statistics: Census of Manufacturing Industries 1980-81.

1965 immediately resulted in the Government's rescheduling of the Third Plan and the downscaling of the capital goods sector with its high dependence on foreign exchange availability. Consequently, a structural retrogression took place leading to a value added share of 80% (1969/70) for consumer goods and of 13% for capital goods.

In Table 1, corresponding figures have been calculated for the recent past.(4) The latest available figures show that the share of consumer industries in total MVA has been constantly declining, the share of intermediate goods has risen substantially to more than one third, while capital goods have only been able to keep a share of about 10% with a decreasing tendency again in the late seventies. It is to be expected, however, that the process of building-up domestic capital goods industries will be accelerated once the Karachi steel mill expands into commercial production on a large scale and downstream acitivies are actively encouraged.

An analysis of MVA distribution at the branch level (Table 2) reveals that by and large major structural chan-

Table 2: Distribution of value-added in manufacturing by branch, 1973, 1977 and 1980/81 (at current prices in PRs)

Description (ISIC)	Value added in 1,000 PRs			Value added in % of total		
	1973	1977	1980/81	1973	1977	1983/84
Total Manufacturing (300)	7,495,000	14,001,603	28,692,120	100.0	100,0	100,0
Food products (311)	936,000	3,324,399	5,771,927	12.5	23.1	20.1
Beverages (313)	67,000	216,988	523,203	0.9	1.5	1.8
Tabacco (314)	781,000	1,688,436	3,804,984	10.4	12.1	13.3
Textiles (321)	2,835,000	3,207,616	5,335,322	37.8	22.9	18.6
Wearing apparel, except footwear (322)	27,000	52,983	254,530	0.4	0.4	0.9
Leather products (323)	128,000	159,146	305,080	1.7	1.1	1.1
Footwear, exc. rubber or plastic (324)	35,000	20,306	227,702	0.5	0.1	0.8
Wood products, exc. furniture (331)	5,000	23,860	78,662	0.1	0.2	0.3
Furniture, exc. metal (332)	12,000	9,577	44,432	0.2	0.1	0.2
Paper & products (341)	177,000	197,013	424,925	2.4	1.4	1.5
Printing & publishing (342)	83,000	148,747	215,739	1.1	1.1	0.8
Industrial chemicals (351)	435,000	798,398	1,589,437	5.8	5.7	5.5
Other chemicals (352)	519,000	761,724	1,942,581	6.9	5.4	6.8
Petroleum refineries (353)	242,000	668,537	1,972,112	3.2	4.8	6.9
Misc. petroleum & coal products (354)	2,000	4,984	146,142	0.0	0.0	0.5
Rubber products (355)	69,000	250,469	277,317	0.9	1.8	1.0
Plastic products (356)	16,000	43,498	85,790	0.2	0.3	0.3
Pottery, china, earthenware (361)	13,000	33,310	55,285	0.2	0.2	0.2
Glass & products (362)	17,000	41,856	95,707	0.2	0.3	0.3
Other non-metallic mineral products (369)	223,000	312,664	1,696,963	3.0	2.2	5.9
Iron and steel (371)	106,000	542,461	1,143,101	1.4	3.9	4.0
Non-ferrous metals (371)	3,000	6,512	13,656	0.0	0.0	0.0
Fabricated metal products (381)	115,000	281,655	303,089	1.5	2.0	1.1
Machinery, exc. electrical (382)	85,000	309,272	491,348	1.1	2.2	1.7
Machinery electric (383)	211,000	445,417	994,980	2.8	3.2	3.5
Transport equipment (384)	216,000	331,295	708,142	2.9	2.4	2.5
Profess. & scientific equipment (385)	41,000	42,104	84,387	0.5	0.3	0.3
Other manufactured products (390)	96,000	167,576	105,577	1.3	1.2	0.4

Source: UNIDO data base, information supplied by the UN Statistical Office with estimates by the UNIDO Secretariat; Government of Pakistan, Federal Bureau of Statistics: Census of Manufacturing Industries, 1980-81.

ges in the period 1973-1980/81 have been confined to a limited number of branches. What can be mainly observed is a striking reduction in the share of textiles which has been halved within less than a decade.(5) On the other hand, those industries relying heavily on agricultural inputs accounted for more than one third of total MVA in 1980/81, whereas in 1973 their share was somewhat less than one quarter. Taken together this implies that substantially more than half of all MVA is concentrated in the agro-based and textile branches on the industrial sector.

A particularly high share increment was achieved by petroleum refineries which, together with industrial and other chemicals accounted for almost 20% of MVA in 1980/81. Other sectors showing above average increases in their relative position were non-metallic mineral products as well as iron and steel.

Excluding food products (ISIC 311), tobacco (314) and textiles (321) it can be seen that the remaining MVA is spread over a wide range of industrial branches with a high rank correlation between 1973 and 1980/81. It thus seems that changes in industrial policy which have occured during that period have more affected industrial growth than structural changes within industry.

3. Exports and imports of manufactured goods

Pakistan does not belong to those developing countries with a particular high dependence on foreign trade. The share of exports in GNP has been floating around roughly 10%, and that of imports around 20%, both with a declining tendency recently.

A closer look at the geographical structure of Pakistan's trade in manufactured goods reveals that 56% of total manufactured exports and 43% of their more narrowly defined segment (SITC 5-8 less 68) are directed towards other developing countries which in terms of international comparison is a remarkably high share of 'South-South-trade'. Manufactured imports, on the other hand, are much more concentrated on developed country sources with an overwhelming dominance of developed market economies which provide, e.g. 87% of non-electrical machinery imports and 91% of transport equipment imports of Pakistan.

The main driving force behind Pakistan's geographical export diversification starting in the early seventies has been the increasing role of the Gulf countries(6) in gene-

ral and of Saudi Arabia and the United Arab Emirates (UAE) in particular as rapidly growing markets for Pakistan's exported goods. In 1982/83 the Gulf countries' share in Pakistan's total exports (imports) increased to 22% (29%) with Saudi Arabia alone accounting for 9% of all exports. Although rice has been the most important single item in value terms, also 40% of readymade garments, 39% of footwear and 21% of machinery exports have been directed to this region.

Whereas, on the one hand, Pakistan has obviously been partly successful in opening up non-traditional export arkets, this regional diversification contrasts with a still high commodity concentration of manufactured exports: textiles, clothing and leather goods taken together still account for more than four fifths of all manufactured exports (narrowly defined), leaving only small shares for some rapidly growing non-traditional exports like chemical fertilizers and some engineering products.

Based on a broad economic classification of exports into primary, semi-manufactured and manufactured goods, Pakistan's export structure has witnessed major changes within the last 10 years. Both primary and semi-manufactured exports have lost ground while the share of manufactured exports in total exports went up to 57% (Table 3). This increasing degree of domestic processing is confirmed by Table 4 revealing a doubling of the export share of processed goods for final use between 1970 and 1982.

The respective structural changes on the import side have been less pronounced with the share of processed goods for final use having declined from 67% to 55%. The doubling of the import share of non-processed goods for further processing is hardly surprising bearing in mind that the period covered by these figures includes the structural upheavals of two drastic oil price increases. Mineral fuels, being the most important import item, accounted for almost one third of all imports in 1982/83, followed by machinery and transport equipment (25%).

Pakistan's terms of trade, which had reached a peak level of 126 in 1978/79 (1975 = 100), have since then been constantly declining to a level of 89 in 1982/83 but increased again to a level of 94 in 1983/84.

The Sixth Five-Year Plan assumes an annual export value growth rate of 15% implying that in 1987/88 exports would slightly exceed US $ 5 billion. Considering, however, that during the first year of the current Plan exports have

Table 3: Summary economic classification of exports, 1973/74-1983/84 (in %)

	Primary Commodities	Semi-Manufactured Goods	Manufactured Goods	Total Exports
1973/74	39.4	22.6	38.0	100.0
1974/75	48.0	12.7	39.3	100.0
1975/76	43.7	18.4	37.9	100.0
1976/77	40.0	16.7	42.4	100.0
1977/78	35.7	14.7	49.6	100.0
1975/79	32.3	20.6	47.1	100.0
1979/80	42.0	15.0	43.0	100.0
1980/81	43.8	11.3	44.9	100.0
1981/82	34.7	13.3	52.0	100.0
1982/83	30.0	13.4	56.6	100.0
1983/84	29.1	14.0	56.9	100.0

Source: Government of Pakistan, Federal Bureau of Statistics: Pakistan Statistical Yearbook 1984; Information supplied by: the Ministry of Industries Industries (for 1983/84).

fallen short of target by some 5 percentage points and the target for the second year is set at an ambitious 21%, a questionmark may be put behind this assumption. Of course, the future export performance will not only be determined by the aspirations of Pakistan's policy-makers to increase production efficiency in order to capture new markets but to a large extent also by recessional or expansive conditions in the world market as well as by protective policy measures taken in the developed countries. The crucial role of textiles and clothing in Pakistan's manufactured exports has been mentioned. In this context, it should be noted that both the EEC countries and the USA have erected comprehensive barriers against textile imports from Pakistan whereas Canada and Sweden maintain restrictions on certain clothing items imported from Pakistan. Chemical exports are likely to come under severe pressure as several petrochemical plants in the Gulf area come on stream. Expanding engineering exports is also not likely to be easy because of the high cost of most engineering products manufactured in

Table 4: Shares of exports and imports classified according to level of processing 1979, and 1982, and trend growth rates, 1970-1975 and 1975-1982

	Exports				Imports			
	Class Share of Total		Class Growth Rate		Class Share of Total		Class Growth Rate	
	(Percentages)				(Percentages)			
Classes	1970	1982	1970 - 1975	1975 - 1982	1970	1982	1970 - 1975	1975 - 1982
A: Non Processed goods for further processing	32.44	15.00	-4.52	20.08	13.60	26.07	24.45	16.16
B: Processed goods for further processing	39.69	31.57	4.43	15.04	17.14	13.74	15.51	16.44
C: Non-processed goods for final use	3.50	4.96	3.32	18.58	2.07	4.97	29.50	15.83
D: Processed goods for final use	24.36	48.47	31.63	17.32	67.20	55.22	10.40	17.25
Sum of Classes A+B+C+D in 1000 current US$	1970 675316		1982 2346176		1970 1119839		1982 5095393	
Total trade SITC 0-9 in 1000 Current US$	695343		2347754		1170895		5232787	

Source: UNIDO data base: Information supplied by the United Nations Statistical Office with estimates by the UNIDO Secretariat.

Note: Calculations are based on current US $ prices. Sum of classes and total trade figures should be identical. Discrepancies or zero values are due to lack of country's trade reporting in general, but especially at the 3-, 4- and 5-digit SITC level.

Pakistan, reflecting in part the high cost of domestically manufactured steel.

4. Ownership and investment patterns in manufacturing

The distribution of manufacturing investment in terms of private vs. public sources of capital formation has in the recent past undergone substantial structural changes. Although it should not be disregarded that both private and public fixed capital formation started to decline in absolute terms in the very beginning of the seventies, the year 1972 has to be taken as major turning point for the change in ownership patterns. In that year a policy shift involving nationalization of major industries became effective and the trend occurring in subsequent years showed a consistent decline in the private sector's share in manufacturing fixed capital formation from around 90% to only 26% in 1977/78 (Table 5). In the following years this trend was, however, reversed; on the one hand, major public sector industrial projects had been completed leaving new room for agricultural, energy and infrastructural investments, and, on the other hand, economic policy came to be based on a renewed emphasis and encouragement of a leading role of private industrial investors.

Nevertheless, it was not before 1980/81 that private investment in manufacturing for the first time surpassed the level it had reached already in 1972/73 (measured at constant 1970 prices). With a real growth rate of 5.6 % in 1972/83 private investment for the first time in five years overcompensated the real decline of public investment resulting in a slight real increase (0.5%) of total manufacturing investment during that year. The substantial public expenditure decline relating to the Karachi Steel Mill, which in previous years had accounted for some 50% to 60% of public manufacturing investment, was primarily responsible for the decrease occurring again in total investment in 1983/84 even at current prices as well as for a major upswing of the private sector's share from 49 to 59%.

Looking at the sectoral distribution of private large- and medium-scale investment in manufacturing, the period between 1972/73 and 1982/83 was characterized by a significant decline in the share of textiles, a roughly constant share of the food sector and considerable increases in the share of footwear and wearing apparel, tobacco, paper and paper products, rubber products as well as chemical pro-

Table 5: Private and public fixed capital formation in manufacturing, 1969/70-1983/84

Year	Total At Current Prices (in Mio PRs)	Private Sector: At Current Prices (in Mio PRs)	Private Sector: Share in Total (percentage)	Public Sector: At Current Prices (in Mio PRs)	Public Sector: Share in Total (percentage)
1969/70	1,575	1,396	88.6	179	11.4
1970/71	1,494	1,426	95.4	68	4.6
1971/72	1,334	1,235	92.6	99	7.4
1972/73	1,130	1,019	90.2	111	9.8
1973/74	1,405	1,023	72.8	382	27.2
1974/75	2,502	1,437	57.4	1,065	42.6
1975/76	5,001	1,819	36.4	3,182	63.6
1976/77	6,625	2,111	31.9	4,514	68.1
1977/78	8,263	2,120	25.7	6,143	74.3
1978/79	9,147	2,487	27.2	6,660	72.8
1979/80	10,104	3,511	34.8	6,593	65.2
1980/81	9,195	4,360	47.4	4,835	52.6
1981/82	9,157	4,473	48.8	4,684	51.2
1982/83a)	10,041	4,910	48.9	5,131	51.1
1983/84b)	9,248	5,442	58.8	3,806	41.2

(a) Revised; (b) Provisional

Sources: Government of Pakistan, Federal Bureau of Statistics: Pakistan Statistical Yearbook 1984; Ahrens, H. and Zingel, W.-P.: Towards Reducing the Dependence on Capital Imports. A Planning Model for Pakistan's Policy of Self-Reliance. Wiesbaden 1982, p.97

ducts, basic metal industries and electrical machinery and appliances.

Data on branch-wise investment in private small-scale industries(7) are being published regularly by the Statistical Division, but as they are calculated on the assumption of constant shares of various industry groups, they essentially ignore any structural changes that may have occurred. At the aggregate level it may be quite safely stated that slightly less than 30% of manufacturing capital formation is attributable to the small-scale sector.

A further important aspect of ownership patterns concerns the role played by foreign investors. Tables 6 & 7 give an overview on the scope and structure of foreign investment during the period 1973-1982. From these data the following major conclusions can be drawn:

- Pakistan does not belong to those countries which have been attracting foreign investment on a large scale. The cumulative inflows within the 10 years under consideration amount to roughly PRs 2.8 bn of which almost two

Table 6: Net inflow of foreign investment 1973-1982

Year	Net Inflow (in million PRs)	Cumulative Net Inflow (in million PRs)
1973	23.6	23.6
1974	112.0	135.6
1975	103.1	238.7
1976	366.4	605.1
1977	446.8	1,051.9
1978	133.3	1,185.2
1979	432.6	1,617.8
1980	293.3	1,911.1
1981	432.8	2,343.9
1982	458.3	2,802.2

Source: State Bank of Pakistan, Statistics Department: Foreign Liabilities Assets and Foreign Investment in Pakistan 1982.

Table 7: Net inflow of foreign investment by economic sectors, 1973-1982

Economic Sector	Cumulative Net Inflow	Net Inflow 1981	Net Inflow 1982
	(in % of total)		
Manufacturing	60.3	60.3	74.6
Mining and quarrying	23.6	28.9	24.5
Transportation, storage and communication	0.8	1.3	0.3
Construction	6.9	0.5	0.4
Commerce	1.4	-3.8	-1.1
Other	7.0	22.9	1.3
Total	100.0	100.0	100.0

Source: See Table 6

thirds were accounted for by the period 1978-82. Annual inflows in these more recent years have, however, also been subjected to large fluctuations without a clear growth trend.

- The lion's share of foreign investment was attracted by the manufacturing sector to which 60% of cumulative net inflows and even 75% of the 1982 net inflow were directed. The whole industrial sector (manufacturing plus mining & quarrying plus construction) accounted for as much as 91% of cumulative net inflows. Despite this strong concentration on industry, the contribution of foreign investment to total industrial investment remained fairly low at approximately 6-7% in 1982.

5. Size and geographical distribution of manufacturing enterprises

The analysis presented in this section relies on the figures given in the most recent Census of Manufacuring Industries 1980/81. It is thus based on a total of only 3,815 reporting units which, although including many small-scale units, reveal basically the size and regional structure of large- and medium-scale manufacturing. It should therefore

be borne in mind that the small-scale sector as a whole contributes some three quarters to total manufacturing employment, around 30% to manufacturing value added and almost 20% to total exports.

A breakdown of manufacturing industries by Provinces (Table 8) reveals that as much as 95% of all enterprises included in the latest Census, which generated 91% of value added, are located within Punjab and Sind which taken together account for almost four fifths of Pakistan's population. At the other end Baluchistan with an area share of

Table 8: Distribution of population, area and manufacturing industries by provinces, 1970/81 (percentage shares)

Province	Population (1981)	Area	Manufacturing Establishments (1981/81)	Manufacturing Value Added (1980/81)
Punjab	56.5	25.9	54.3	42.8
Sind (of which Karachi)	22.6 (26.8)	17.9	40.8 (80.0)	48.1 (67.2)
Sub-total	79.1	43.6	95.1	90.9
N.W.F.P. (of which Peshawar)	15.7 (5.0)	12.8 ...	4.3 (44.5)	8.5 (56.6)
Baluchistan	5.1	43.6	0.6	0.6
Total	100	100	100	100

Sources: Calculated from Government of Pakistan, Federal Bureau of Statistics: Pakistan Statistical Yearbook 1984; Government of Pakistan, Federal Bureau of Statistics: Census of Manufacturing Industries 1980-81.

44% shows an almost total lack of manufacturing activities (share below 1%). These regional disparities become even more pronounced at the district level: In North West Frontier Province (NWFP) 57% of MVA (45% of manufacturing establishments) originate form Peshawar alone; in Sind Karachi is the source of two thirds of the Province's MVA as well as of 80% of its manufacturing establishments. Moreover, it

may be calculated that 71% of all manufacturing industries in 1981/81 were concentrated in just 8 districts of Pakistan. As the respective figure for 1975/76 already stood at 70% it can be concluded that attempts to reduce these strong regional imbalances and to distribute economic activity more equally have not been successful. A rapid expansion of productive employment in the relatively backward regions, the development potential of which is furthermore being reduced by internal and external migration, has thus to be regarded as a priority issue on the policy agenda.

Turning now from regional to size distribution of manufacturing industries a highly dualistic structural pattern emerges. Almost half of all establishments employ less than 20 persons, for nearly three quarters the employment size is below 50 persons and for as much as 90% of establishments it is below 250 persons. This overwhelming majority of manufacturing units holds a share of only 27% in total manufacturing employment and an equally high share in value added. The remaining 10% of establishments employing more than 250 persons consequently generate slightly less than three quarters (73%) of all manufacturing value added and employment.

Following this synopsis of the role and structure of Pakistan's manufacturing sector we will now consider its major weaknesses and constraints. Before this will be elaborated in more detail, some overall indicators of the sector's performance will be presented.

Constraints to Industrial Development: Some Critical Issues

1. Selected indicators of performance and efficiency

The share of the manufacturing sector in total GDP has basically remained constant since 1970 at a level of around 17-18%. Manufacturing employment which stood at 3.8 million in 1982/83 has throughout the seventies (no exact figures after 1978/79 are available) maintained a share of around 14% of total employment (14.5% in 1978/79). This implies that during the seventies there have been no major deviations between the development of labour productivity in the manufacturing sector on the one hand and overall changes in labour productivity on the other.

According to the latest Census of Manufacturing Industries, it is still the textiles sector which holds a predominant position supplying 44% of all manufacturing em-

Table 9: Selected industrial indicators, distribution by branch of manufacturing, 1973 and 1980/81 (at current prices in PRs)

Description (ISIC)	Employment Share in total (percentage)		Wages & salaries Share in total (percentages)		Share of value added in gross output (percentage)		Share of wages & salaries in value added (percentage)	
	1973	1980/81	1973	1980/81	1973	1970/81	1973	1980/81
Total Manufacturing	100.0	100.0	100.0	100.0	41.4	34.0	22.6	19.6
Food products (311)	10.0	11.6	10.1	12.9	26.1	32.9	18.4	12.6
Beverages (313)	0.6	0.9	0.5	1.0	54.5	52.7	13.4	10.6
Tobacco (314)	2.2.	2.9	2.9	2.4	79.0	78.5	6.3	3.6
Textiles (321)	50.0	44.3	40.8	33.0	40.1	26.3	24.4	34.8
Wearing apparel, exc. footwear(322)	0.3	0.9	0.5	1.1	37.5	41.9	33.3	23.7
Leather products (323	0.7	1.0	0.6	0.7	26.1	25.5	8.6	13.4
Footwear, exc. rubber or plastic (324)	0.6	1.1	0.6	1.2	34.0	40.8	28.6	29.2
Wood products, exc. furniture (331)	0.2	0.4	0.1	0.3	33.3	39.4	40.0	23.7
Furniture, exc. metal (332)	0.3	0.2	0.4	0.2	44.4	52.0	50.0	28.0
Paper & products(341)	1.5	1.8	1.8	2.3	59.0	38.3	16.9	30.4
Printing & publishing (342)	1.3	1.9	1.5	1.5	66.9	38.9	30.1	39.5
Industrial chemicals (351)	2.0	2.8	3.6	5.4	65.7	48.3	14.0	19.2
Other chemicals (352)	5.5	4.5	5.3	6.6	52.8	41.8	17.3	19.1
Petroleum refineries (353)	0.5	0.6	1.2	1.1	61.0	15.8	8.7	3.3
Misc. petroleum & coal products (354)	0.0	0.2	0.1	0.2	20.0	30.4	50.0	8.6
Rubber products (355)	1.4	1.2	1.2	1.2	32.4	35.2	30.4	24.5
Plastic products (356)	0.2	0.4	0.6	0.5	26.7	38.1	68.8	33.9
Pottery, china, earthenware (361)	0.4	0.4	0.3	0.4	68.4	54.3	38.5	38.5
Glass & products (362)	0.8	0.7	0.6	0.6	42.5	48.8	58.8	35.0
Other non-metallic mineral products (369)	3.4	2.6	3.0	3.7	49.6	62.0	22.9	12.1
Iron and steel (371)	2.9	4.0	2.7	4.6	24.7	34.5	43.4	22.5
Non-ferrous metals (372)	0.1	0.1	0.1	0.1	27.3	24.6	66.7	50.8
Fabricated metal products (381)	3.2	2.3	3.3	2.3	38.7	32.8	48.7	42.3
Machinery, exc. electrical (382)	2.2	3.0	2.4	3.6	39.0	34.5	47.1	41.0
Machinery electric (383)	3.7	3.7	6.1	4.5	47.8	37.5	48.8	25.6
Transport equipment (384)	3.7	5.0	5.8	7.3	37.3	29.3	45.8	58.3
Professional & scient. equipment(385)	1.4	0.6	1.7	0.5	40.6	38.3	68.3	35.9
Other manufactured products (390)	1.1	0.6	2.1	0.6	32.3	35.0	36.5	31.2

Source: UNIDO data base, information supplied by the UN Statistical Office with estimates by the UNIDO Secretariat; Government of Pakistan, Federal Bureau of Statistics: Census of Manufacturing Industries 1980/81.

ployment as against 50% in 1973 (Table 9). The only other sector with a two-digit share is food products which has increased its relative share from 10% in 1973 to 11.6% in 1980/81. These two sectors are followed in descending order of magnitude, by transport equipment (5%), non-industrial chemicals (4.5%), iron and steel (4%), electric machinery (3.7%) and non-electrical machinery (3%), all other sectors ranging below a share of 3% each.

A comparison of the branch shares in total manufacturing employment with those in wages and salaries suggests that in the case of textiles the wage level is far below the manufacturing average whereas in particular in the chemical branches as well as in transport equipment an above-average wage level can be assumed.

Taking the share of wages and salaries in value added as a proxy for labour-intensity of production(8), it follows that between 1973 and 1980/81 overall production in the manufacturing sector has become more capital intensive. The share of wages and salaries went down from 22.6% to 19.6% of value added. The highest capital-intensity applies to petroleum refineries, tobacco and miscellaneous petroleum and coal products whereas transport equipment, non-ferrous metals and fabricated metal products turn out to be particularly labour-intensive sectors.

Between 1973 and 1980/81, the share of value added in gross output fell from 41.4% to 34.0% being highest in the production of tobacco (78.5%), followed by other non-metallic mineral products (62.0%) and pottery, china and earthenware (54.3%).

Reliable and precise judgements on the economic efficiency of a country's whole manufacturing sector as well as on the efficiency of individual branches are generally rather difficult to obtain. A useful indicator of the relative efficiency achived in production can be presented, however, by using the domestic resource cost (DRC) criterion. By evaluating both inputs and outputs of production at world market prices, the DRC measures the efficiency of domestic production in terms of the excess domestic cost of saving foreign exchange.(9) Applying this approach a recent study for 1980/81 has shown(10) that out of a total of 90 industry groups only 13 industries can be classified as being efficient users of domestic resources (DRC å 1). In descending order of efficiency the ten most efficient industries are (DRC values in brackets): hydrogenated and vegetable oils (0.28), other non-electrical machinery (0.35), surgical instruments (0.37), optical goods (0.41), petro-

leum products (0.46), soaps and detergents (0.64), animal feeds (0.69), fish and sea food (0.77), electric fans (0.79) and bakery products (0.82).

The following ten industry groups have, on the other hand, been calculated as being the most inefficient-ones yielding negative value added at world market prices: spinning of cotton, leather tanning, tobacco stemming, made-up texile goods, weaving of cotton, matches, processing and canning of fruits and vegetables, wood furniture, sewing machines and wearing apparel.

It is noteworthy that precisely the same ranking of industries emerges when calculating the branch-wise Implicit Effective Protection Rates (IEPR)(11): The most ineffective industries turn out to be those enjoying the highest effective protection from international competition.

The average IEPR for the manufacturing sector as a whole was 60% in 1980/81 and average DRC stood at 2.65. This means that - when compared with other developing countries - the average effective protection of manufacturing activities in Pakistan is rather moderate; it has gone down sharply from 271% in 1963/64 and still 125% in 1968/69. The DRC figure of 2.65, on the other hand, indicates that in aggregate terms the manufacturing sector is inefficient in the use of domestic resources. Excluding, however, only two extreme cases, the average DRC decreases to 1.35 which points to a considerably lower degree of inefficiency.

Two interesting results of a more disaggregated analysis should finally be mentioned. First, the study quoted above has shown the unconventional result that export-oriented industries are far more heavily protected and producing less efficiently than import-competing as well as import non-competing industries. This means that obviously many industry groups have in the past been 'subsidized' into export markets. Secondly, analysing industries by size(12) reveals that medium-sized industries contain the smallest percentage of inefficient units whereas the corresponding percentage is highest in the case of large-scale industries.

2. Main Overall Constraints to Industrial Development

Apart from specific problems of individual manufacturing branches (see below), general constraints to industrial development are to a large extent to be found in the infra-

structural and macro-economic environment which the industrial sector has been facing. This fact points to the need to closely link industrial policy with broader economic policy measures geared to removing basic development bottlenecks.

In the case of Pakistan above all infrastructural deficiencies can be identified as major impediment for industrial production and efficiency relating essentially to the fields of energy, transport and communication(13):

- Pakistan still is an energy-deficit country with a degree of self-sufficiency of roughly three quarters (74% in 1982). The remaining quarter of commercial primary energy consumption has to be imported, which is almost exclusively done in the form of crude petroleum and petroleum products. Natural gas is the dominant source of primary energy accounting for 62% of domestic production as well as for 39% of commercial consumption. In recent winters, shortages of energy supply have frequently occurred resulting in cost-increasing production breaks caused by load shedding. This problem has even been exacerbated in late 1984 and early 1985 leading to a three-day-a-week closure of factories in many parts of Punjab so that power shortages may result in halving the Province's industrial production and may create severe shortages in the supply of manufactured goods and thus additional inflationary pressure. The Government's decision to attach top priority to the energy sector within the Sixth Plan 1983-88 (34% of public expenditure as compared to 24% in the Fifth Plan) is thus not to be interpreted as preemptying resources available for industry but as an effort to establish the preconditions for more efficient industrial development in the future. Nevertheless, even assuming full implementation of the Sixth Plan's energy programme, shortages and bottlenecks will not be completely removed during the plan period. The gap between energy supply and energy demand is estimated to reach some 1,000 MW in 1985.
- The transport system can be identified as further priority field for the removal of infrastructural bottlenecks. This applies both to the railway system and to the road system. The Sixth Plan aims at significantly shifting freightage from roads towards railways in order to achieve optimal capacity utilization. The railway system is, however, in need of modernization and would also require deregulation of its management to increase operational efficiency. As far as roads are concerned, major

parts of the existing road system need to be upgraded to meet the demands of modern highway traffic. Moreover, the whole system has to be expanded substantially. The average road density of 0.16 km per square km of area(14) is clearly insufficient and amounts to only approximately one third of the standard density for developing countries with similar topography and a comparable level of economic development. The Sixth Plan proposes to launch a large programme to build up a farm-to-market road network in rural areas which must indeed be regarded as a necessary prerequisite for any attempt at reducing regional development disparities.

- A third aspect of infrastructural constraints relates to communication facilities. The telephone network with a density of around five phones per thousand persons has continued to be inadequate and the Fifth Plan's target to install 200,000 additional connections could only be met to some 60%. Demand for telephone services is far in excess of supply. In addition, existing services are of poor quality and characterized by heavy network congestion.

Industrial development is not only constrained by deficits in physical infrastructure but also by the poor performance concerning the educational infrastructure. The literacy rate of total population (26% in 1981) must be considered extremely low as compared with other developing countries and is in fact among the lowest in the world.(15) Accelerated human capital development is thus to be considered as one of the crucial areas determining the future potential for industrial development in Pakistan. This applies to basic education as well as to technical education. Due to an insufficiently developed vocational training system and due to the long-term exodus of skilled workers to the Arab region the country suffers from a deficit of adequately trained technicians and mechanics required to efficiently operate modern industrial enterprises.

Another important macro-economic constraint to industrial development is the very low ratio of gross domestic savings which amounts to only about 6-7% of GDP. The resulting gap between savings and investment has in the past increasingly been closed by remittances of foreign workers which are, however, expected to considerably decline in the future: Worker remittances (which over the past decade contributed more to foreign exchange earnings than did total exports) peaked in 1982/83 at a level of US $ 2.89 bn, declined by 5% to US $ 2.74 bn in 1983/84 and have even

decreased by 14% during the first five months (July-November) of fiscal year 1984/85(16). The Sixth Plan has projected the net migration for 1983-88 to reach 550,000 workers. According to an ILO-ARTEP forecast(17) it may, however, be substantially lower (240-310,000) implying that during that period only some 6-8% of the labour force increase may be 'exported'.(18)

Whereas the generation of foreign exchange earnings through worker remittances has in the past been at the center of attention it is important not to dismiss further potentially negative repercussions on the domestic economy. A considerable part of migrants have belonged to the category of skilled workers (nearly one third of the total) with mechanics, carpenters, electricians, masons and engineers alone accounting for some 20%. As shortages of skilled production workers are already foreseen as a major bottleneck for the implementation of the current five Year Plan the continuing outflow may aggravate the resulting problems and counteract the Government's skill development programme.(19)

Finally, mention must be made of policy-induced factors which are detrimental to achieving higher efficiency of industrial production. This refers for example to the government-administered price system, known as "cost-plus"-system(20), which is applied in the case of the majority of public enterprises and partly as well in the private sector (incl. branches such as cement, fertilizers, petroleum procucts, vegetable ghee, motor vehicles). Although the Government within its overall approach at deregulating industrial activities and rationalizing the incentives structure has announced to replace the "cost-plus"-system by a more efficiency-oriented pricing formula, it is the former which still serves as pricing basis.(21)

3. Deficit Areas within the Manufacturing Sector

Within the scope of this article it is only possible to mention some of the main internal deficits and bottlenecks that characterize Pakistan's manufacturing industries and, unless removed, will seriously affect their frture development potential. Among these, the generally still low productivity of many public sector enterprises figures prominently. Even the recently completed Pakistan Steel Mills - the first integrated iron and steel work in the country and the main factor behind the Plan emphasis on

downstream engineering products - is a case in point. It has an existing production capacity of 1.1 million tonnes per annum of raw steel with a built-in potential to expand to 2 million and is relying upon imported iron ore, coaking coal and manganese ore. Meanwhile it has become obvious that steel production will at least in the short to medium run need to be substantially subsidized. Given its reliance on imported inputs and on an already outdated production technology units costs are likely to remain significantly higher than respective world prices. There is thus an urgent need to search for appropriate modifications in product mix and production technology in order to increase capacity utilization and operational efficiency.

In general terms, and this applies to a wide range of manufacturing branches be they agro-based or engineering, there are serious bottlenecks in the final stages of industrial production. Throughout the various branches urgent requirements persist to establish and/or improve systems of quality control and standardization as well as to introduce a modern market-oriented approach towards industrial design and packaging techniques all of which are among the major non-price determinants of export competitiveness.

Moreover, there is a definite need to modernize the machinery equipment currently in use in many branches of industry, as e.g. witnessed by the case of textiles manufacturing. The Textile Industry Research & Development Centre has calculated that 77% of the spindles in use in 1979 were installed before 1970; and 44% had been installed even before 1960.(22) This relative obsolescence of equipment has persisted despite Government incentives for modernization - including abolishing of duty on textile machinery imports. It cannot be surprising, then, that labour productivity in spinning, weaving and finishing in Pakistan is only about 15-20% of the level achieved in Western Europe according to World Bank estimates.(23) Recent data indicate a declining productivity trend during the period 1971/72 to 1980/81 when yarn production went down from 18.25 to 17.87 kg per 1,000 spindle hours and cloth production from 83.74 to 78.95 sq meters per loom day. It is noteworthy, however, that the downward trend has been reversed recently in the case of yarn production which in 1982/83 reached 24.27 kg per 1,000 spindle hours (provisional figure).(24)

When it comes to industrial policy priorities there seems to be a certain degree of overemphasis on the engineering sector (e.g. as compared to agro-based industrial

branches) and at the same time on large-scale industrial enterprises. This tremendous potential of Pakistan's small-scale industries has remained largely untapped if one excludes a rather small segment with specialized export-oriented production like e.g. surgical instruments or sports goods, leather articles or textiles.

The high development potential of small-scale industry is officially recognized, as e.g. expressed in the Ministry of Industries' Industrial Policy Statement of June 1984: "The development of small scale industries has a strong socio-economic imperative for the country...Small industries have shown a remarkable resilience even in adversity. It is envisaged that the small industry route will accelerate the export-led growth of the economy." Indeed, small scale industries have in the past generally shown to create a number of distinct advantages which in view of Pakistan's underemployment problem, the markedly low domestic savings rate as well as the country's extremely high regional industrial disparities should lead to their receiving particular attention in the future. Among the most significant impacts of small scale industries on basic development policy objectives are to be mentioned: a strong contribution to absorbing a rapidly growing labour force by their using labour-intensive technologies; the mobilization of private savings and their productive channeling into domestic capital-formation; a positive influence on income distribution both functionally (wages/profits relation) and regionally and a contribution to decentralizing industry and accelerating rural development, e.g. through linking agricultural and industrial production.

To be sure, there is a well developed institutional framework of both financial and technical support for small enterprises(25) in Pakistan so that the main problem is not the building-up of appropriate institutions but rather the strengthening and coordination of an already existing network, including sufficient funding: "The meagre resources allocated to the various programmes seem to explain their limited impact.(26)

Given a stronger political will to actively promote the further development of small-scale industries of which the granting of a number of special incentives under the current Five Year Plan may be indicative, it should be feasible to increase their productivity and overall role within the manufacturing sector. This could in turn contribute to a higher degree of integration and specialization between large-scale and small-scale enterprises which in particular

in the engineering branches are essentially unrelated in their activities leaving a tremendous scope for an enhancement of industrial subcontracting.

Notes

* United Nations Industrial Development Organization, Vienna. The views expressed in this article are those of the author and do not necessarily reflect the views of the United Nations.

(1) Cf. Sarmad, K.: A Review of Pakistan's Development Experience (1949-50 to 1979-80), Pakistan Institute of Development Economics, Islamabad 1984, pp.20 ff.

(2) Estimated figure based on the Statistics Divisions's Survey of Small and Household Manufacturing (1969/70) and the Punjab Small and Household Manufacturing Industries Survey (1975/76). Concerning the paucity of exact data on the small-scale sector, see Amjad, R.: Small-scale Industries and Rural Development: Implications for Rural Industrialization in Pakistan, in: Chuta, E./Sethuraman, S.V. (eds.): Rural Small-scale Industries and Employment in Africa and Asia, Geneva 1984, pp.93 f.

(3) Cf. for the following section Khan, O.A.: Critical Perspectives on Industrial Growth in Pakistan, in: Pakistan Economic and Social Review, Spring-Summer 1980, pp.1 ff.

(4) It should be noted, however, that the figures presented in Table 1 are not strictly comparable to those mentioned for the fifties and sixties, due to variations in the definitions used. This partly explains the drastic changes in comparing the 1969/70 and 1973 figures. The considerable reduction in the MVA share of consumer goods was, however, to a large extent also the consequence of the country's break up in 1971. The former East Pakistan was characterized by an above-average share of consumer goods production.

(5) The analysis presented here is, however, based on current prices so that the picture is to some extent influenced by shifts in relative prices.

(6) Comprising Abu Dhabi, Bahrain, Dubai, Kuwait, Oman, Qatar and Saudi Arabia.

(7) Being officially defined now as including all enterprises having fixed assets, excluding the cost of

land, up to PRs 10 million.

(8) This methodical approach has to be based on the assumption of constant real wages; its correctness is thus essentially dependent on the degree to which real wages may have changed during the seventies. No data are, however, available on this aspect.

(9) DRC is defined as the sum of return on capital, employment cost at shadow wages and cost of primary inputs into the production of non-traded inputs divided by net value added at world market prices. Thus, DRC ; 1 indicates that an industry is inefficient (at the current exchange rate).

(10) Cf. for the following Naqvi, S.N.H./Kemal, A.R.: The Structure of Protection in Pakistan: 1980-81. Pakistan Institute of Development Economics, Islamabad 1984.

(11) The IEPR expresses the percentage differential between the value added at domestic prices and at world market prices thus indicating the combined effects of various protective policy measures (tariffs, quotas, susidies, etc.).

(12) The following definitions have been used: small-scale employing 10-50 persons; medium-scale employing 51-100 persons and large-scale employing more than 100 persons.

(13) Cf. Canadian International Development Agency: Pakistan Sectoral Profile Industry, February 1984, p.27.

(14) Cf. Government of Pakistan, Plannig Commission: The Sixth Five Year Plan, 1983-88, p.265.

(15) For a detailed comparison, see Luthra, K.L.: Human Resource Development in Asia: Achievements and Tasks Ahead, in: Asian Development Review, Vol. 2 (1984), No. 1, pp.52 ff.

(16) Data supplied by the Planning Commission.

(17) Cf. ILO-ARTEP: Impact of Return Migration on Domestic Employment in Pakistan - A Preliminary Analysis, April 1984.

(18) In order to enhance migration flows the Government in mid-1984 has decided to remove the previously applied regulations on minimum wages abroad.

(19) Cf. also Zafar Iqbal, M.: Vocational Training in Pakistan, in: Pakistan Manpower Review, Vol, 9 (1983), pp.1-8.

(20) Cf. World Bank: Pakistan Review of the Sixth Five-Year Plan, Report No. 4706-PAK, October 20, 1983, pp.61-62.

(21) Measures that have meanwhile been taken to increase the operational efficiency of public enterprises in-

clude the introduction of a Management Bonus System within the so-called Signaling System. For details cf. UNIDO: Industrial Development Review Series, Pakistan, Doc. IS. 535, 3 June 1985, p. 43.

(22) Cf. Textile Industry Research & Development Centre: Pakistan Textiles Statistics (1rst edition), Karachi 1982, p.36.

(23) Cf. De Vries: Restructuring of Manufacturing Industry: The Experience of the Textile Industry. World Bank Staff Working Paper No. 558, Washington 1983, p.39.

(24) For these figures cf. Textile Industry Research & Development Centre: Pakistan Textiles Statistics (2nd edition), Karachi 1984.

(25) Comprising inter alia the Small Industries Corporations at the provincial level, a Small Loans Scheme introduced by the State Bank, the Pakistan Industrial Technical Assistance Centre, the Appropriate Technology Development Organization or the Pakistan Council for Scientific and Industrial Research.

(26) Amjad: op. cit., p.107.

Summary

Throughout its history Pakistan has received considerable foreign financial aid. The country has to make efforts to use these means in order to build up the capacities for a steady economic growth in the future. This article reviews structural patterns and the main constraints to the development of Pakistan's industry.

A breakdown of the manufacturing industry reveals that as much as 95% of all enterprises are located within only Punjab and Sind, which account for almost 80% of Pakistan's population. The remaining area shows an almost total lack of manufacturing activities. Additionally, there prevails a highly dualistic structural pattern with respect to the size of manufacturing industries. 10% of all industrial establishments employing more than 250 persons generate more than three quarters of all manufacturing value added and employment.

Among the constraints to industrial development are bottlenecks in the field of physical infrastructure. Pakistan is still an energy-deficit country with a degree of

self-sufficiency of some 75%. The road network - the average road density amounts to only 0.16 km per sqaure km of area - is clearly insufficient. In the Sixth Plan a large programme is included which is e.g. to provide for a farm-to-market road network in rural areas which could help reducing regional disparities. The communication facilities are inadequate too, and the demand for telephone services is far in excess of supply. Besides of these physical constraints, there exist deficits in the educational system, particularly in the vocational training system. The migration of skilled workers to the Arab region enhanced the difficulties in the human capital sector though the remittances of these workers somewhat closed the gap between savings and investments.

With respect to industry policy priorities there seems to be some overemphasis on the engineering sector and the large-scale industrial enterprises. The tremendous potential of the small-scale industries has remained largely untapped. With government schemes it would be feasible to increase both the productivity and the overall role within the manufacturing sector of the small-scale enterprises which could, in turn, play a stimulating role in the industrial development process of the country.

(Die Red.)