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Evaluation of Resource Use in Selected Manufacturing Industries, 1954-1970

Our estimates of effective rates of protection and resource costs are summarized in Tables 10-1 and 10-2. The sample of industries is not small (see Table 8-1) but biased—large, modern public industries are overrepresented, while private enterprises are grossly underrepresented (in fact, included solely in the cotton textile industry). Discriminated against by the government in regard to commodity input and credit and foreign exchange allocations, these private enterprises have had, at the same time, more freedom (or, at least, more possibilities of evasion) in pricing. By virtue of their labor-intensive technology, they are often competitive at international prices and have succeeded in exporting part of their production. Apart from the omission of such firms, the estimates in the tables are also very uncertain for some of the industries that are covered. Great caution should therefore be exercised in generalizing on the basis of our findings.

We note first that, with the exception of cement, all industries have at some time enjoyed protection to varying degrees. For some industries the effective rates of protection have been very high: iron and steel and automobile assembly are the extreme examples, but paper and yarn (the latter in 1970) had high effective rates of protection, too. In an institutional setup like that of Egypt, particularly after 1961, high rates of protection in themselves do not necessarily indicate either inefficiency and lack of competitiveness or resource pull and misallocation of resources. Protection may have accompanied the establishment of a domestic monopoly; in that case, a high measured rate of protection would indicate not high costs but high monopoly profits, and production could quite well be efficient and competitive in foreign markets

TABLE 10-1
**Effective Rates of Protection (ERPs) in Ten
 Manufacturing Industries, Selected Years**
 (percent)

	1954	1957	1960	1962-63 to 1963-64	1964-65 to 1965-66	1969-70
Cement	-31	-45	-35	—	-28	—
Phosphates	15	34	—	—	7	—
Nitrates	25	48	—	—	12	—
Sugar	—	—	-5	—	—	14
Tires	—	—	240	262	—	—
Cotton						
Fabric	—	—	—	—	68	—
Yarn	—	31	62	—	—	213
Automobiles	—	—	—	305	—	—
Paper	—	—	—	240	—	—
Iron and steel	—	—	—	—	599	—

SOURCE: Hansen and Nashashibi, NBER Working Paper No. 48, 1975.

(the scale of production may even be too small). The tire industry offers an example of this kind of protection. In any case, since the beginning of the sixties, and to some extent even earlier, resource allocation has been determined by government decisions based on criteria other than private profitability. Hence, resource costs offer a better basis for discussing competitiveness and resource allocation.

The DRCs indicate a rather mixed situation at the end of the fifties. Two of the traditional industries—sugar and cement—were competitive or close to being so, while the important cotton textile industry was definitely noncompetitive at the then existing official exchange rate and given the ban on foreign cotton. But our estimates also indicate that, if foreign short staple cotton had been available as the raw material base, the production of yarn (and probably also of cloth) would have been almost competitive at the beginning of the sixties. If we add to these industries phosphate fertilizer, which was founded as a private venture prior to the Second World War, it could be said that all major industries established under the "ancien régime" had developed and maintained a comparative advantage and (with the above-mentioned qualification in regard to the cotton textile industry) were competitive at international prices. As could be expected, these industries are intensive in abundantly available domestic resources such as labor (sugar, textiles) or raw materials (cement, phosphate). In the case of textiles it was the compulsory use of

TABLE 10-2
**Domestic Resource Costs (DRCs) in Ten
 Manufacturing Industries, Selected Years**
 (piasters per U.S. dollar)

	1954	1957	1960	1962-63 to 1963-64	1964-65 to 1965-66	1969-70
Cement (f.o.b.)	20	21	28	—	31	—
Phosphates (c.i.f.)	38	36	—	—	33	—
(f.o.b.)	—	—	—	—	36	50
Nitrates (c.i.f.)	52	61	—	—	52	—
(f.o.b.)	—	—	—	—	62	—
Sugar, refined	—	—	34	—	—	54
Tires (c.i.f.)	—	—	59	59	—	—
(f.o.b.)	—	—	—	62	—	—
Cotton textiles Fabric (f.o.b.)	—	—	—	—	70	—
Yarn (f.o.b.)	—	47 ^a	56	—	—	86
Yarn ^b based on foreign cotton (f.o.b.)	—	36 ^a	38	—	—	54
Automobiles (c.i.f.)	—	—	—	113	—	—
Paper (c.i.f.)	—	—	—	208	—	—
Iron and steel (c.i.f.)	—	—	—	—	480	—
<i>Exchange rates</i> Official rate	35.2	35.2	35.2	43.5	43.5	43.5
"Realistic" rate (suggested by IMF, 1966)	—	—	—	—	61	—

SOURCE: Hansen and Nashashibi, NBER Working Paper No. 48, 1975.

a. 1956.

b. Hypothetical.

domestic raw materials that made the industry noncompetitive; the real strength of the industry stems from its labor intensity.

After World War II, an attempt was made to go beyond the agriculture-based industries and manufacture basic intermediate products and consumer durables as import substitutes: paper, tires, nitrates, iron and steel, and automobiles. Some of these are highly capital-intensive (nitrate and paper) and most have a rather high import content. These industries were all founded under a highly protective regime, first via tariffs, later via quantitative restrictions. An evaluation of the DRCs of these industries during the 1960s shows that none achieved competitiveness at the then existing exchange rates, although both nitrates and rubber tires appear to be successful infant industries that would become competitive with the currency devalued to the "realistic" level advocated by the IMF.

It is also remarkable that a number of industries fared as well as they actually did after the devaluation of 1962, despite the nationalizations, employment drive, wage increase, and permanent foreign exchange crises. Phosphates, nitrates, and tires showed falling or unchanged DRCs, and cement continued to be competitive at the old exchange rate—albeit with a small increase in its DRC. In the first two industries important technological innovations were introduced at this time, and the latter two were able to improve their efficiency within the given technology. The strong increase in the DRC for phosphate in 1970 was due to a fall in the international price for this commodity.

But other industries—probably the majority—fared less well. The two big old industries which should have passed the infant industry stage a long time ago—sugar processing and cotton textiles—suffered a serious setback in competitiveness. These two are probably typical of manufacturing, apart from the "good" industries mentioned above. And then there were the entirely unsuccessful new industries—the Helwan iron and steel plant, the automobile assembly plant, and perhaps paper and pulp.

All industries of both relatively and absolutely deteriorating competitiveness suffered, of course, from the cost inflation and other problems of the period, particularly from falling or at best stagnant international prices. International competition in basic intermediate commodities is quite keen and technological innovations are rapid. The central administration has distorted the pattern of imports and domestic production. Apart from the paper work involved in the administration of these multiple price structures, production has been shifted from the underpriced commodities (for example, construction steel or popular types of textiles) toward more profitable products. This, in turn, has brought shortages to black markets and has distorted the pattern of imports.¹ Certainly, if prices for certain commodities or labor are to be used for attaining social targets, an alternative set of accounting prices should govern decisions of

industrial firms as to production and use of resources. While resource flows have been diverted by the price structure, there are also instances where firms have suffered a distortion in their capital costs: some firms have reported paying higher prices than prevailing elsewhere for capital equipment imported from Eastern Europe, others have complained of being forced to finance the construction of social overhead (such as roads, electricity, water) in their location. But all this, along with the domestic inflation, affected the "good" industries as well.

The difference between the "good" and "bad" industries seems to be a matter of good or bad investment planning. For every one of the industries with declining competitiveness, it can be shown that inadequate investment planning by the authorities (i.e., the Ministry of Industry) was, if not the sole cause of the decline of competitiveness, certainly an important contributing factor.

The cotton textile industry was largely ignored by the Egyptian planners during a period when the developed countries and some underdeveloped ones modernized and rationalized this branch of manufacturing. Indeed, no overall modernization has taken place in the industry since the equipment replacement that occurred immediately after World War II. Moreover, the creation of additional capacity lagged behind demand, resulting in shortages and loss of exports. The sugar industry was expanded substantially during the sixties, and the immediate cause of the sharp decline in its competitiveness was the particularly strong increase of rural wages during the first half of the sixties. If the relative increase of rural wages turns out to be a temporary phenomenon that will be reversed once the armed forces are reduced again, the decline of competitiveness is also a temporary phenomenon. In that case, from a longer-term point of view, the sugar industry could be included among the "good" industries. But the prospect is different if the change in relative wages proves to be a permanent feature of the economy, which is quite possible since the gap between rural and urban wages usually diminishes during the process of development. From that standpoint, either the industry should not have been expanded at all, or a less labor-intensive technology should have been chosen (if it exists). The competitiveness of both the sugar and paper industries, incidentally, could have been somewhat improved had pulp production on the basis of bagasse been expanded. This technical process is relatively new, however, and it is not obvious that Egyptian planners lagged much behind on this score. The paper and pulp industry was clearly planned on a suboptimal scale, while the Helwan steel plant is ill-conceived in several other respects besides its obsolete technology. It is not clear, however, that steel production could not be a competitive activity if it were based on Western Desert ores, worked on the basis of up-to-date technology, and with more adequate planning in other respects. The new Soviet-built steel complex in Helwan will eventually have to deliver the proof.

The investments in the old Helwan steel plant and the automobile assembly plant were largely a waste of money (at least if any external learning effects are left out). They amounted to about one quarter of the investments made in the industries considered in this chapter. Thus, the losses from inadequate investment planning are very considerable. Apart from the automobile undertaking, there is no evidence to suggest that public investments were made in the wrong sectors. A better direction of the given volume of investments, with a more appropriate choice of technology in some sectors, could have probably saved the situation for those industries that actually suffered a loss of competitiveness. The wage increases would then have been an adjustment to increased labor productivity and not at all a cost inflation. In this indirect way, it may be argued that bad investment planning was the root cause of manufacturing industry's problems during the sixties.

There is an aspect of investment planning, generally neglected by the authorities, which has undoubtedly resulted in substantial losses in productivity: capital replacement. It is not so much a question of inadequate capital appropriations for replacement of equipment as reflected in the accounts of individual enterprises; indeed, these seem to conform with standard depreciation methods. Rather, it is the foreign exchange allocations and actual deliveries of equipment for this purpose that have fallen far short of demand from individual enterprises. The net profits realized in the fiscal year 1970-71 in industry by the public sector amounted to only 2.4 percent of the estimated value of invested capital.² Even if this is interpreted as retained earnings (after taxes, dividend payments, and debt servicing), it is much too low for self-financing and would place a heavy burden on the Treasury for financing capacity expansion. To be sure, industrial firms have no discretionary power over the disposal of their profits, which revert, in any case, to the state coffers.³ Moreover, the Treasury favors the more profitable firms when considering requests for capacity expansion or replacement, which—given the distortion introduced in the distribution of profits by the price structure—biases investments away from enterprises that are socially "loaded." With a general foreign exchange shortage and pressure to start new projects as well as completing ongoing projects with costs exceeding original estimates, capital replacements tend to be ignored. We have already mentioned the example of cotton textiles, where modernization and expansion as well as ordinary replacement were postponed during the sixties. As a consequence, overutilization of partly obsolete machinery and equipment became a serious problem already in 1965, aggravated after the 1967 War. The share of gross investment in GDP was steadily shrinking, reaching 11 percent in 1970-71, and much of it went into new capacity, particularly the construction of the steel complex and the expansion and relocation of the fertilizer industry. Sugar offers another striking illustration of entirely inadequate replacement during the years from 1967 to

1973. A survey of cotton ginning mills, railroads, and printing plants revealed that much of the equipment in these industries was in an acute state of obsolescence, indeed, in many cases in a state of outright decay, causing severe declines in productivity. The stepmotherly treatment of replacement needs is beyond a reasonable doubt closely related to the monopolization of foreign exchange resources and the concentration of decision making concerning industrial investment in the hands of the Ministry of Industry. There is sufficient evidence to conclude that a general worsening has taken place since 1965 in the financial position of industrial firms in the public sector, together with (what is even more serious) a deterioration in the overall state of the country's capital stock as a result of insufficient capital replacement.

Inadequate investment planning also affected the good industries in other ways. Insufficient attention was given to linkages and to demand, particularly export demand. Lags in capacity expansion were noteworthy in the case of cement, but occurred also in the case of phosphate fertilizers, where failure to develop the necessary transportation facilities hampered the growth of output in the early 1960s and caused imports to rise. The automobile industry was left without reliable domestic sources of inputs (with the exception of tires), and both cement and fertilizers had to use imported packing material for a long time when it could have been supplied domestically.

But in regard to linkages the Egyptian authorities seem to have learned from their past mistakes. After the first five-year plan and the foreign exchange crisis, an increasing awareness seems to have grown out of the need to "rationalize" investments by supporting them with the necessary infrastructure, optimizing their location, and exploiting their potential linkages; the integration of the new steel complex with the chemicals and engineering industries and the utilization of bagasse for kraft paper bags can be cited as examples. Moreover, greater concern seems to be shown for exports, and a number of recent investments, particularly in the fields of cement and fertilizers, are export-oriented. In addition, a more favorable treatment is being afforded small private enterprises which have succeeded in exporting part of their production; they have been receiving increasing foreign exchange quotas and their export procedures have been simplified.

On the other hand, in the particular industries under review we have found little to indicate that the foreign exchange situation and the exchange regimes per se either damaged competitiveness or seriously disrupted current production. It is true that there have been instances of production disruptions directly related to raw materials and other shortages, but they have been mainly temporary, although the distortive effects of quantitative trade restrictions may have had a permanent and cumulative impact on other sectors through their normal linkages. Thus, we have shown how the 1916 ban on foreign cotton increased the costs of the textile industry and limited textile

mills to using machinery adapted for long staple cotton, delaying the introduction of artificial fibers as well as short staple cotton. Another series of restrictions was necessary to ensure the textile mills of a sufficient supply of domestic cotton, which distorted the pattern of raw cotton production and exports. The ban on imports of phosphates in 1953, while increasing the capacity utilization of the industry, resulted in domestic excess demand that was satisfied neither by expansion of domestic capacity nor by imports. It was only after the effects of this measure were badly felt in agriculture that phosphate imports were resumed. In the post-1961 regime, with direct allocation of foreign exchange to various ministries, a more erratic pattern of trade developed, with wide fluctuations in the imports of certain commodities such as tires and paper. But these, as well as some abnormal inventory accumulations during the years 1964 to 1966, may be attributed as much to inadequate demand forecasting at the firm level as to inefficiency inherent in centralized trade administration. In any event, central planning did not improve the adjustment of supply to demand.

Finally, it is important to recall that the industries included in our study are mainly large public enterprises favored at the expense of small private enterprises. That the latter have suffered badly from shortages of raw materials, spare parts, capital goods, and credit is clear. Small private enterprises in industry and handicrafts, together with private consumers, were the main victims of the exchange regimes, but we have no data that can serve to measure, or even indicate, the loss of production in such enterprises or the loss of consumer satisfaction.

NOTES

1. "Report of the Committee on the Revelation of Truths on the Subject of the Rise in the Price of Steel and the Trade of Scrap Metal," and "The Public Sector . . . Where to?" *Al Talia*, August 1973, pp. 11-24 and pp. 66-72, respectively.

2. In the publicly owned industrial enterprises net profits were £E40.8 million on an estimated capital stock and circulating capital of £E1,700 million. It is not known how this figure has been estimated. *Ibid.*, p. 67.

3. This is perhaps the most urgent area of reform, since it seems to affect even the smallest capital expenditures on technical progress. For example, the sugar industry requested from the Treasury £E1 million in foreign exchange to purchase equipment which would allow it to reduce the proportion of sugar left in the discarded bagasse. By its estimates such a measure would result in a net addition of 10,000 tons of sugar annually. The request was rejected by the Treasury, which stated that the priorities in foreign exchange allocation were determined by the Ministry of Industry. *Ibid.*, pp. 56-57.