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UNDER-UTILIZATION AND UNDER-DEVELOPMENT

1. Introduction :

Capacity has been defined in a number of ways in economic literature. At the level of the firm, it is often defined as that output rate at which short-run average costs are minimum. It has also been defined as the output rate associated with the minimum point of long run average cost or the point where average and marginal cost curves become vertical. Whichever of the above three concepts we may use, complications arise when it is recognized that the firms are multiproduct and the quality of the commodity is subject to variation. It should further be realized that production capacity of an unit is not independent of the production rates of other units. Thus capacity of an industry is not mere summation of the capacity of individual firms. Rather following Nourse one may define it as outputs which could be realized 'under conditions of sustained simultaneous operation'. Under-utilization obviously involves an output rate below 'capacity'.

Irrespective of the differences in the definition used, most of the empirical studies on under-utilization point towards significant under-utilization in under developed countries. Thus Patnaik in his capacity utilization study on eight Indian industries finds that the rate of utilization ranges between 30.9 per cent (band saw blades) to 67.1 per cent (type-writers). Similarly NCAER in its study for the Indian manufacturing section finds that during 1955-64, the rate of under utilization of capacity varied between 9 percent and 15 percent. Studies on other under-developed economies bring out similar results. Estimates for Chile, for example, average out at about 77 percent utilization of normal sales expectancy capacity, 57 percent of 'theoretical capacity (i. e. three shifts) and 65 percent of practical i. e. manager's preferred) capacity.

2. **Effects on development process :**

Under-development is characterized by paucity of capital. This lack of capital restricts the amount of output that such economies can produce at a point of time and as this in turn restricts investment rates, it also restricts the growth in capital and output over time. When seen against this background under utilization becomes a major developmental problem. For it involves waste of that resource which the country lacks most; and greater the degree of scarcity more crucial is such an waste.

Almost all developing economies lack the ability to produce domestically the capital goods required for initiating modern industrial methods of production. These capital goods, which embody the much needed advanced technology, have to be imported. Thus because of under-utilization, the economy loses on two grounds— (a) it uses its scarce foreign exchange to import goods that are not completely used and (b) by not using machines full capacity economy loses the foreign exchange earning that could have been obtained by directing such extra capacity to export.

The life of capital goods depends on the intensity of their use and obsolescence. Under-utilizations tends to prolong the physical life of machinery and thereby hinders the rate of renewal of obsolete equipment and in production of advanced production methods.

It should also be noted that rate of technological progress is not uniform over various components of the production system. Thus advance might be faster in some equipments and slow in others. A slow rate of replacement under such situations may result in a production structure in which the potential output from some of the equipments is not realizable because complementary facilities are incapable of the same degree of performance.

It is important to note here the inter-relationship between the above arguments. The inability of the country to divert its capacity to export in most cases is attributed to the competitive weakness which turn reflects low technological standards. Thus we finally land up with a vicious cycle—backward technology causes low competitive strength, low competitive strength prevents the economy from fully exploiting the export market, hence resulting in excess capacity and this, as noted above, hinders technological progress.

3. **Factors causing under-utilization :**

The reasons behind under-utilization may be classified into following three broad groups (a) indivisibility of plant and equipment (b) supply bottlenecks of complementary inputs and (c) monopolistic and oligopolistic market structure. These three points are discussed below :

Indivisibilities :

As pointed out above an under-developed country typically buys all its capital goods from the developed countries. But together such purchases of under-developed countries form a small proportion of total machinery sales. Thus much of the demand before the machine manufacturers of the developed countries are from the firms in the developed nations. This factor along with economies of scale in machine manufacturing often forces the machine makers to produce machines of that type which are suited to the factor prices and market size prevailing in developed countries and not necessarily suited to the conditions prevailing in under-developed countries. In some cases there is absolutely no choice before the entrepreneurs with regard to the technique to be used. Imported machinery involving a specific technology and a specific market size has to be used if that commodity has to be produced at all. Under such situation a very small local market vis-a-vis the size to which the machine is suited may result in under utilization. Alternatively indigeneous techniques might be available which is suited to the market size. But the imported machine may have such a technical advantage that the entrepreneurs find it more profitable to use the latter below capacity. On this issue Gouverneur writes—

“If the optimal technique is not available to the entrepreneur in the less developed country, he is compelled to choose, from among the various sub-optimal techniques available. His dilemma may be stated as follows : It is better to adopt a modern technique, even if it is unsuited to local market and on relative cost conditions, than an older technique which may be better suited to the local conditions”.

Indivisibility of capital may lead to under-utilization in yet another way. If the demand for the products of the firm is growing sooner or later, a situation will come when demand will out-strip

the capacity of the existing plant, but will not be sufficient to utilize fully both the existing and the new (to be invested) plant. This happens because of indivisibility, so that capacity expansion is not possible below a minimize size. A firm facing such a situation is likely to invest into the new plant and run it below capacity rather than wait for the time when extra demand will be large enough to fully utilize the new plant. Alternatively it may be argued that as cost of machines do not rise proportionately with their capacity a firm might find it profitable to invest into a big machine to-day run it below capacity and enjoy economies of scale later, rather than invest into a small machine.

Some of the empirical works talk about lack of demand as being an important reason for under-utilization. It is needless to point out that lack of demand is just the other side of indivisibility problem. It should be noted that so far we discussed planned under-utilization resulting from insufficient demand. Under utilization need not, however, be always planned. It may emerge, for example from errors in demand estimation. Thus consider the case of a meat processing plant in Bolivia as pointed out by Em Seluck. The design of the plant was good and the equipments were of high quality. The firm was amply supplied with storage and repair facilities, working capital, management, labour and raw material. Yet the plant had to operate below capacity at a loss (before it was finally closed down) because of lack of demand. An impressive feasibility study was done for this plant on the basis of import data which showed substantial import of canned and other processed meat. The substantial gap between anticipated and actual demand is explained by the fact that in reality these imports represented hundreds of variety of specialized products, most of which could not have been produced in Bolivia.

Lack of complementary inputs :

Here under utilization is seen as a result of shortages. The shortage may be there in one or more of the following factors— raw material, power, skilled labour, good management and complementary capital. Economic literature has generally focussed on the first. The inability of the industrial firms to obtain sufficient raw material so

that plants could be run full capacity arises from—

- (i) foreign exchange shortage, so that import of raw materials is restricted and
- (ii) poor quality of raw materials so that (a) they cannot be used in manufacturing process or (b) they produce goods of sub-standard quality which the manufacturers find difficult to export.

We may consider here the interesting case of a raisin-cleaning plant in Afganistan. It was a joint venture of Afganistan government, private Afgan capital and American capital. The design capacity on a three shift basis operating about 180 days a year was about 8000 tons of cleaned product. Annual average raisin production of Afganistan was about 35,000 tons. In actual operation however, the plant had to run below capacity as it could not get enough raisin of the type it could process. Although on paper production of uncleaned raisin was very large, this supply was made up of over two dozen major varieties of which only about half could be processed at that plant. And only five varieties of this lot could be exported in a commercial quantity.

In a study on the causes of under-utilization of industrial capacity in India conducted by the Gokhale institute of politics and economics, the responding firms to their questionnaire were requested to state the reasons for unutilized capacity in order of their importance. The questionnaire specified two reasons—lack of demand and shortage of materials'. All other reasons were grouped into 'others'. The study revealed that there were 56 products in which lack of demand was the only reason for under-utilization. The corresponding figures for shortage of raw materials and 'others' were respectively 53 and 45. In 19 products both lack of demand and shortage, of raw material affected simultaneously. The relative position of lack of demand and shortages changes when we consider the number of products affects whether wholly or partly. Thus 81 products are affected by shortage of raw materials whether wholly or partly. The corresponding figure for lack of demand is 77.

It is interesting to note that in some cases within same industry some companies report lack of demand while others report shortage of raw material. The fact that some companies face lack of demand while others do not indicates product differentiation. Similarly

differances in the experience of the companies in securing raw materials reveal differences in their ability to procure raw materials.

The importance of the shortage problem has also been noted in the NCAER study. Out of 129 returns to their questionair 103 units (nearly 80%) have reported raw materials as their major bottleneck in the production. This problem was studied in greater detail. The specific difficulties associated with raw materials are listed below.

<i>Type of Problem</i>	<i>Number of units reporting:</i>
1. Import restriction on raw materials	60
2. Uncertain deliveries of materials	49
3. High cost of materials.	45
4. Poor quality of materials.	41
5. Variation in quality of materials.	36
6. Inadequate supply of indogeneous materials.	31
7. Certain materials not available indogeneously.	10
8. High Cost of transport.	3

Source : NCAER-Uder-utilization of Industrial capacity p 45

Lack of power, skilled labour and good management are also important causes of under utilization. Even lack of particular type of capital may lead to under-utilization of some other type, Complementary social capital in the form of roads or communication system may be vital for efficient working of industries. Similarly, adequate working capital may enable the firm to take care of raw materials shortage through stockpiling or to overcome the lake of demand through aggressive sales campaign. Similarly hiring skilled labour or competent management may be possible only with a larger capital.

Market structure

Because of the small size of market, the introduction of modern production methods in under-developed countries immediately creates a highly concentrated market structure. Thus in these counties monopoly and obgopoly emerges from the very beginning of the process of growth and not, as in industrially developed countries, as the end result of a long process of competition which leads a high

level of technical efficiency. Once such a structure has emerged under-utilization tend to perpetuate. The growth in demand over time is small. And the market structure assures that the firms share the increment with their rivals. Accordingly every firms has to choose from the following three alternatives (a) it may invest in a suboptimal size plant in order to maintain its present share : (b) it may invest in an optimal size plant but run it below capacity; or (c) it may postpone the investment until the extra demand is adequate for an optimal plant. Uncertainties and danger of losing the relative market share discourage firms from adopting (c) Similarly choice of alternative (a) is not appropriate because this perpetuates low technical efficiency and reduces the chances of breaking through the barriers of market size by obtaining access to the foreign market. Thus in most cases alternative (b) is choosen with the result that excess capacity is continuously recreated through investment.

It has also been pointed out that such oligopolistic rivalry may lead to the creation of excess capacity even when an individual enterprise attempts to expand its scale with a view to selling in foreigh market. As soon as one oligopolist expands his capacity others are likely to expand proportionately. The reason for this is that the additional capacity though originally destined for export market may be directed to home and thus upset the balance of power.

REFERENCES

1. Industrialization and Productivity vol. 15, 1970.
2. NCAER—Under—Utilization of Industrial Capacity.
3. Gouverneur, J.—Productivity and Factor Proportions in Less Developed Countries.

