INDUSTRIAL CAPACITY UTILIZATION IN COLOMBIA: SOME EMPIRICAL FINDINGS

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I. The Issue of Industrial Capacity Utilization

It has traditionally been considered that the main problem of developing countries is to accumulate capital. As a result of this approach to development, factors constraining the accumulation of capital have been subject to a careful scrutiny by the economics profession. Since savings are needed to finance investment and since most capital goods are usually imported in less developed countries (LDCs), the two main constraints of development usually studied are savings and foreign exchange.

However, surprisingly little attention has been paid to the use of capital equipment that is so difficult to accumulate. In particular, there has not been much work done in LDCs on the problems of measuring capital utilization, of finding out what factors affect such utilization and of determining what is the optimum use of capital both in terms of the amount of variable factors applied to a fixed amount of capital at an instant of time and in terms of the percentage of time that fixed capital should be used.

Most references to capacity utilization in LDCs question the optimality of the present utilization which is considered too low and make some suggestions as to the causes of this low use of capital and as to the ways in which it could be increased. The causes of low capacity utilization most frequently mentioned are:

i) Uncertainties of demand, since they may lead to overinvestment in new industrial sectors and in infrastructure projects.[1]

ii) Competitive practices in oligopolistic markets tend to create excess capacity when firms producing for small protected domestic markets adopt new technologies in order to improve their competitive position. Since new technologies are developed for use in advanced countries, they don't take into account the market size restrictions of LDCs and usually require larger plant sizes which can lead to underutilization of capacity.[2]

iii) Scarcity of imported raw materials may cause underutilization of capacity when a country that follows an import substitution industrialization policy finds itself short of foreign exchange [16].

iv) Night shift wage differentials can cause capital to lie idle during the night hours when the process of production is labor intensive [15].[3]

v) Lack of qualified manpower needed by modern technologies [12].

vi) Lack of foremen who are willing to work the night shift.[4]

vii) Lack of financial capital in a country where producing firms have to finance sales and/or producers of inputs.[5]

viii) Import licensing policies in LDCs can also cause overinvestment for two reasons: First, when a firm applies for a license, it tends to ask for a larger than necessary amount since the license might be granted for a smaller quantity than the one applied for and since the firm is uncertain about the possibility of obtaining another license

in the future, when expansion of the fixed capital might be needed. Second, one of the criteria usually applied to decide whether to grant a license is the "ability of the country to satisfy its own needs" which in practice often means that if a firm can show that it is capable of satisfying the domestic demand for a product within a "reasonable" horizon, it can prevent the granting of a license to a new firm that wants to get established. This implies that one of the ways in which a monopolist protects his market is by showing excess capacity that will allow him to satisfy future needs of the country.

ix) It has also been argued that the use made of international loans can result in excess capacity when the private investors end up paying a negative interest rate due to the fact that they receive a loan in domestic currency which is used to import a specific capital item under conditions of international inflation and domestic devaluation.

x) Traditional economic theory indicates that since a monopolist maximizes profits at a point where average costs are not a minimum while a perfectly competitive producer does so, a monopolist will use his fixed factors less intensively than a competitive producer.[7]

Even though so many causes of excess capacity have been advanced, very little has been done both in building a theoretical framework that will allow the study of excess capacity and in the making of empirical studies that would throw some light as to which of the mentioned causes of underutilization

are relevant for each country.

Two recent studies have attempted to fill in this theoretical and empirical gap: R. Marris' model [15] and G. Winston's study of Pakistan [19].

Marris' model addresses itself to the subject of shift work and does not consider most of the ad hoc problems of developing economies. His model explains how a firm faced with higher night shift salaries (due to people's preferences for day work and to higher night legal minimum wages) chooses to work a day shift only or a multiple shift schedule. The choice of the firm is limited by the existing technology. Industries with labor intensive processes tend to work only one shift and thus avoid the higher night wages, while capital intensive industries will tend to work on a 24-hour basis. In industries where both capital and labor intensive processes are known, the firm selects the one that maximizes its profits, and in so doing also selects the number of shifts it will work. This selection depends upon the size of the night wage differential and the differences in labor productivity and in fixed capital costs between the different technologies.

Winston's work used multiple regression analysis to find out which variables among the ones mentioned by different authors as affecting industrial capacity utilization in LDCs were statistically significant in Pakistan's case. His study was made at a fairly aggregate level; he used cross-section data for 26 groups of industrial firms. Approximately 15 of these groups coincided with groups of the standard 2-digit industrial classification and the rest coincided with the 3- and 4-digit classifications. Winston's results were surprisingly "good" since four variables explained 80 percent of the variation in capacity utilization. These variables were:

i) Competing imports (CM) measured as a percentage of total supply.

ii) Export sales (X) measured as a proportion of total domestic production.

iii) Capital-income ratio (K/Y) .

iv) Average firm size (S) measured as average annual production by the reporting firms in each industrial group.

These variables affect utilization (U) in the following way:

$$\frac{\partial U}{\partial CM} < 0 \ , \quad \frac{\partial U}{\partial X} > 0 \ , \quad \frac{\partial U}{\partial K/Y} > 0 \quad \text{and} \quad \frac{\partial U}{\partial S} > 0$$

II. Capacity Utilization in Colombia

A. The study

The low capacity utilization of the Colombian industrial sector has been frequently mentioned [3], [4], [6], [8], but no systematic study of the subject has ever been developed. This paper is an attempt to find out:

i) What is the extent and meaning of excess-capacity in Colombia;

ii) Which factors are probably the most important ones in determining capacity utilization;

iii) Which policy measures could be taken to modify capacity utilization, and

iv) How does capacity utilization in Colombia compare to capacity utilization in other countries.

The method followed in this study was the following:

1. Two hundred ninety-one firms were interviewed to find out what was the degree of capacity utilization and which were, in the manager's opinion, their main problems.[5]

2. Quantitative information about these 291 firms was obtained from the

Ministry of Development and the National Department of Planning.[9]

3. Regression analysis was used to figure out which variables were the most significant ones in explaining capacity utilization.

This study differs from Winston's in two ways:

1. The analysis is at the firm level, while Winston's is at a fairly aggregate one.
2. Since each firm was interviewed, our measure of capacity utilization can be considered to be more accurate and the problems of the firms as defined by the managers could give insights into the problems that are impossible to obtain at an aggregate level.

Since there is not a consensus on the concept of capacity utilization of a plant, many measures can be adopted. It was decided to use a measure that would allow a comparison with other studies and that would also give an idea of the relationship between actual and maximum potential output of a plant. The measure of capacity utilization used was:

$$U = \frac{h \cdot u}{H}$$

where

h = number of hours actually worked in a day.

H = maximum possible number of daily hours that the plant could work under ideal conditions.[10]

u = output obtained during the hours worked as a percentage of the maximum output obtainable during this time. This percentage was fixed by the manager of the plant.

The measure of capacity utilization was subject to the following

restrictions:

i) In the case of unbalanced production processes the utilization of capacity was based upon the utilization of the machine or process that constituted the bottleneck.

ii) In the case of plants with continuous and noncontinuous processes the measure of utilization was based upon the noncontinuous process as long as the continuous process did not constitute a bottleneck.[11]

Therefore, under the assumption of constant returns between day and night shifts the measure of capacity utilization used is equal to the ratio of actual daily output to maximum potential daily output, given the present stock of fixed capital.

Notice that this measure does not make any allowance for the days of the year during which capital is totally idle (Sundays, holidays, etc.).

The explanatory variables for this study were chosen so that they could be used to test the importance of the different explanations of capacity underutilization in underdeveloped countries. However, it was impossible to obtain all the variables required by the different explanations and since some variables might reflect more than one explanation, a problem of identification can blur the results.

These explanatory variables were:

i) A proxy of the capital-labor ratio for each firm was needed since there is no data on capital. The proxy used was horsepower installed divided into the number of blue collar workers of the plant $\frac{HP}{L}$.[12]

ii) To test the importance of market structure upon capacity utilization, the market share (MS) of each firm was used. This was defined as the gross output of the firm divided into the gross output of the competing sector.[13]

iii) Since many industrial sectors of Colombia are new and since mistakes of overinvestment fade out with time as the economy grows, the age of every firm (A) was an explanatory variable. Notice that this variable can also reflect the advantages of older firms any time that the learning-by-doing process is important.

iv) The size of the industrial firm could also be important as an explanatory variable since it is believed that large firms have easier access to loans, good management and import licenses. Yearly value added (VA) was used as a measure of size.

v) To test the importance of imported raw materials as a limiting factor of capacity utilization the ratio of imported to total raw materials and intermediate goods (M) was used as an explanatory variable.[14]

vi) The quality of entrepreneurship (E) was introduced by using a dummy variable: <u>one</u> was assigned to firms in which the manager was a foreigner or a Colombian of Antioqueño or foreign decent; <u>zero</u> was assigned to the rest of the firms. (The reasons for including this variable are discussed later.)

vii) Since foreign capital (FC) is associated to know-how, the quality of having any foreign capital was introduced as a dummy variable.

viii) To test the importance of cheap loans (AID), the quality of having received a loan from a credit line of AID, the World Bank or the IDB was introduced as a dummy variable.

ix) Since in Colombia there have been complaints about the centralization of economic and political power, a location dummy (BM) was introduced. The value <u>one</u> was assigned to firms located in Bogotá or Medellin and the value <u>zero</u> to firms located in Cali, Barranquilla, Pereira or Manizales.

The expected effects of these variables upon capacity utilization were then:

$$\frac{\partial U}{\partial \frac{HP}{L}} > 0 \; ; \qquad \frac{\partial U}{\partial MS} \gtreqless 0 \; ; \qquad \frac{\partial U}{\partial A} > 0 \; ;$$

$$\frac{\partial U}{\partial VA} > 0 \; ; \qquad \frac{\partial U}{\partial M} < 0 \; ; \qquad \frac{\partial U}{\partial E} > 0 \; ;$$

$$\frac{\partial U}{\partial FC} > 0 \; ; \qquad \frac{\partial U}{\partial AID} > 0 \; ; \qquad \frac{\partial U}{\partial BM} > 0 \; .$$

B. The results

1. As expected, it was found that many firms were not producing at full capacity and that the variance of the measure of capacity utilization was large. The nonweighted average of capacity utilization was 51.33 percent while the variance was 27.24 percent which determines a wide range of variation in capacity utilization.

Even though the average use of capital equipment seems to be fairly low in Colombia, this level is not unusually low, and furthermore, it might be high for

underdeveloped countries.[15] Professor Winston [20] has recently compared capacity utilization in Pakistan and the United States. His measure of capacity utilization (U_W) is defined as:

$$U_W = \frac{h}{H}$$

where H is equal to 20 hours per day unless the firm was actually working more than 20 hours. This definition roughly corresponds to a 100-hour week of work. On this basis, his estimate for Pakistan is 33 percent which he compares with an estimate for the United States of 51.8 percent. This estimate was obtained by adjusting Foss' [7] so that it could be compared to Pakistan's.

Winston's measure differs from the one used in this study (U) in three ways:

i) Most Colombian firms were considered capable of working 24 hours a day.

ii) U takes into account the "intensity of utilization per hour worked" (u) which is not included in U_W

iii) U does not take into account the large number of religious and patriotic holidays granted in Colombia. However, since some Colombian firms worked part of Saturday, and other firms worked seven days a week, this will probably compensate for the larger number of holidays when comparing U with U_W which assumes a five-day week.

Even though, at the present level of knowledge about capacity utilization any results are tentative, it may be concluded that the capacity utilization rate in Colombia is similar to that of the United States and significantly higher than the one of Pakistan.

Although this study cannot explain the difference between Colombia's and Pakistan's capacity utilization rate, it might be the result of the very heavy investment in capital intensive and continuous process industries in Colombia during the sixties. For example, during the period 1962-1968 (last year for which data was available), the petrochemical sector's share of net investment in manufacture was approximately 25 percent [18].

2. In the Colombian case the explanatory power of the regression was much lower than Pakistan's. Four variables explain 50 percent of the variation in capacity utilization. These are: installed horsepower per worker, market share, entrepreneurship and age. The equation containing these four variables is:

$$U = 32.42 + \underset{(6.2163)}{0.3218}\ \frac{HP}{L} + \underset{(4.3407)}{0.2369}\ MS + \underset{(2.3847)}{0.1251}\ E + \underset{(2.0130)}{0.1104}\ A$$

$$\rho^2 = .499$$

(The numbers in parenthesis are the T values of the Beta coefficients.)

The coefficients of $\frac{HP}{L}$ and MS are significant at the 99.5 percent level; the coefficient E is significant at the 99 percent level and the coefficient of A at the 97.5 percent level. There are no multicollinearity problems. The variable with highest explanatory power is $\frac{HP}{L}$ which when run alone explains 36.8 percent of the variance of U . When run $\frac{MP}{L}$ and MS as the only explanatory variables, they explain 46.8 percent of the variance of U .

The importance of the capital-labor ratio as an explanatory variable suggests that night shift wage differentials are an important cause of capacity underutilization in Colombia. Since night shift wage differentials are due

to both labor laws and people's preferences for day work it is impossible to estimate, at this stage, the effect of labor legislation upon capacity utilization. However, given that urban unemployment in Colombia is high, it is very likely that labor legislation in Colombia is the main cause of capacity subutilization, at least in industries in which special characteristics of the labor force, i.e., female work, would not prevent the firms from working the night shift.

The importance of market share as an explanatory variable is quite interesting. First of all, the coefficient has the "wrong" sign since it is positive which implies that as market share increases capacity utilization also increases. Since the market for industrial products in Colombia is fairly small, and since most sectors usually have only a few firms, this result should be interpreted as a comparison between oligopoly and monopoly and not between perfect competition and monopoly. The empirical evidence presented gives some support to the argument that uncertainties of oligopolistic markets tend to cause excess capacity in underdeveloped countries. This also suggests that if the choice of an underdeveloped country is between oligopolistic and monopolistic markets, it might well be advisable to support a monopolistic industry and not one with few producing firms (as long as the monopolistic firms' product prices are controlled).[16]

Since the Colombian industrial development has proceeded by sectors, the importance of age suggests that uncertainties of demand in new sectors, and the requirements of a learning-by-doing process can also be a cause of excess capacity in Colombia.

It is interesting that the only important dummy variable is the origin of the entrepreneur. The importance of the Antioqueño and foreign entrepreneur in Colombian industrial development has been widely discussed [9].

[10], [14]. The results of this study show that entrepreneurship is indeed an important factor in the utilization of capacity in Colombia. Furthermore, since both location and having foreign capital are not important variables, this study suggests that what is important is to be an Antioqueño or a foreigner and not to be based in Bogotá or any other city or to have access to a foreign source of capital.

The low regression coefficient (0.499) indicates that there are some explanatory variables that were left out of the regression. Probably the most important one of these variables was the exports of the sector, since most problems of demand in a domestic protected market could be solved by exporting. However, due to the fact that at the time of the study we did not have data on exports, this variable was not used.

The low regression coefficient and the "bunching" of the residuals in some sectors suggested that these sectors could have some ad hoc variables that could affect capacity utilization. The sectors in which there was "bunching" of the residuals were: textiles, clothing (which includes leather shoes), wood furniture, electrical machinery and transportation equipment. All the firms in the textile sector used their capacity at a level higher than expected, while capacity utilization was below the expected level in the other sectors.

Looking at the results of our interviews, it was found that indeed these sectors had particular characteristics:

i) Textiles

This sector has a combination of all the characteristics that explain capacity utilization in Colombia. It is one of the oldest sectors, has the best entrepreneurship, few firms that

have known the market for many years, and is a capital intensive industry, so much so that it is more capital intensive than the European textile industry.[17] Furthermore, this industry is one of the few that has developed a consistent flow of exports.

ii) Clothing and shoes

The shoe industry has a problem in finding inputs since both quality and quantity are very inadequate because the best Colombian leather is exported. The clothing industry has a difficult problem in setting up night shifts due to the fact that their employees are mostly women.[18]

iii) Wood furniture

This sector has two problems: the difficulty in finding qualified workers and the scarcity of inputs, especially in firms that are not vertically integrated.[19]

iv) Electrical machinery

Most of the firms sampled produced home appliances. These firms face some particular problems: a) the producers of small appliances are some of the few industries that have to face up to foreign competition due to contraband; b) the producers of large appliances have some problems with inputs since they use the hot roll sheet produced by the domestic steel mill which is scarce and of low quality; c) most of the firms in this sector have to sell on credit, i.e., have to finance the consumers of their products -- this makes the firms' output very sensitive to changes in credit policies;

d) it seems that there was a large overinvestment during the early 1960s when the production of refrigerators, washing machines, etc. started. This overinvestment seems to be explained by entrepreneurs' lack of knowledge about the number and size of the firms that were entering the market since many firms complained that they had been the first to produce an article and then everybody else came along.[20]

v) Transport equipment

This sector is very special since output in most firms is controlled by the government who assigns import and assembly quotas to each producer. It seems that one way to get a larger quota is to prove that one has unused capacity[21] which leads to a large excess capacity built into the system.

In order to take into account the particular problems of these five sectors, each sector was included as a dummy variable: one was assigned to the firms belonging to the sector and zero to all the others.

The results of this regression were:

$$U = 40.8034 + \underset{(6.4011)}{0.3039}\ \frac{HP}{L} + \underset{(4.7689)}{0.2296}\ Tx + \underset{(3.8788)}{0.1895}\ MS - \underset{(4.6197)}{0.2238}\ C$$

$$- \underset{(3.6337)}{0.1668}\ EM - \underset{(3.1375)}{0.1442}\ Tr - \underset{(2.2275)}{0.1012}\ F + \underset{(2.1004)}{0.0971}\ E$$

$$\rho^2 = 0.643$$

where

Tx = Firms producing textiles

C = Firms in the clothing sector

EM = Firms in the electrical machinery sector

Tr = Firms in the transport equipment sector

F = Firms producing wood furniture

The coefficients of $\frac{HP}{L}$, MS, Tx, C, EM and Tr are significant at the 99.5 percent level; the coefficient of F is significant at the 97.5 percent level and the one for E at the 95 percent level.

The variable of age was dropped out of the regression because it lost all its explanatory power and the β coefficient was not significant at the 90 percent level. These results are expected since the textile industry is one of the oldest of the country while electrical machinery and transportation equipment are new industries.

The fact that the Tx industry has outstanding entrepreneurship while F and C are "traditional" sectors shows up in a loss of explanatory power of E.

The interesting result of this regression is the increase in ρ^2 by 15 points, which supports the hypothesis that a substantial part of excess capacity is explained by ad hoc problems of different sectors of the economy.

III. Conclusions

The data on capacity utilization in the Colombian industrial sector shows that few policy changes can alter capacity utilization in all sectors. The importance of the capital-labor ratio as an explanatory variable suggests that a change in labor laws that impose a night shift wage differential can increase capacity utilization in as much as the difference in wage ratio is caused by the law and not by the workers' preferences for daytime work.

The importance of the market share in the utilization of capacity suggests a change in policy that could be implemented in the long run. Due

to the small size of the domestic market it might be better to have a controlled monopoly than an oligopoly. Therefore, competition among few firms should not necessarily be preferred over monopoly when deciding the investment policies of the country.

This study lacks data on exports by the firm, but the importance of the sector dummy variables, especially textiles, suggests that a policy of fostering exports could result in an increase in capacity utilization.

The importance of the sectoral dummy variables suggests that in order to increase capacity utilization in Colombia, it is necessary to take policy measures at the sectoral level, after particular study of each sector.

The similarity of the rate of capacity utilization between the United States and Colombia and the difference between these two countries' rate with Pakistan's suggests that there might not be a systematic relationship between capacity utilization and economic development and that country studies are needed to determine the capacity utilization problems of different countries.

APPENDIX

The data used

1. The data on capacity utilization was obtained through personal interviews with either general managers or production managers of about 400 firms. These interviews took place during the last three months of 1970 and January, 1971. During the interviews of January, 1971 all questions were made in reference to November, 1970, therefore, our measure of capacity utilization is based on utilization during the months at which most industries' production is either maximum or normal. The only exception was found in a few plants in the food industry where outputs depend upon the seasonal character of some inputs.

The interviews usually included a visit to the plant which allowed the interviewers to check some of the information provided by the manager. The interviews were made by a team of economists and industrial engineers from the Division of Industry of the Departamento Nacional de Planeación and the Development Advisory Service of Harvard University. The interviewers had good knowledge of the Colombian industrial sector and were extensively briefed on the subject of excess capacity.

The firms interviewed were selected from the industrial directory published by DANE. The sample was stratified by size of the firm and by sector. The sectors chosen were the ones in which government employees thought there was excess capacity. A few sectors where they thought there was not excess capacity were also included after the importance of finding why some firms were at full capacity was discussed with them. It is then not believed that the sample used has a bias towards including high capacity utilization rate firms.

2. It was possible to collect quantitative information for 291 of the visited firms. This data was found on the industrial registry kept by the Ministry of Development. This data included yearly gross output, horsepower installed, yearly wages and salaries paid, yearly social security contributions, number of blue collar workers and number of white collar workers, age of the firm (not of the plant or machinery), net investment in the last year (buildings and machinery), yearly consumption of domestic and imported raw materials and intermediate goods, and location of the firm. It was impossible to obtain data for 1970, therefore, it was necessary to use the last complete registry available, which was the one taken in December, 1968. This date difference is probably not very important since the production structure of a firm is not about to change significantly in a couple of years.

The 109 firms for which there was not quantitative information were firms not included in the 1968 sample used to build the industrial registry. Since this sample varies from year to year and is randomly taken, there is no evidence that indicates that the firms for which quantitative information was not found should have higher or lower capacity utilization rates than the firms for which this information was found.

3. It was also possible to use some qualitative information available at the Division of Private Investments of the National Department of Planning. This information was used by introducing dummy variables which included:

i) Whether the firm had received a loan originated at AID, the World Bank or the IDB.

ii) Whether the firm had any foreign capital.

iii) The national origin of the firm's manager.

4. At DANE (Departamento Administrativo Nacional de Estadística) the aggregate data (3- and 4-digit) on gross output for each sector was found. The physical location of the plant was also found at DANE. This data was introduced as a dummy variable.

FOOTNOTES

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1. This argument has been advanced by Professor Hirschman [11] in relation to projects supported by the World Bank.

2. Professor Merhav has argued along this line [17] in order to explain low capacity utilization in Israel.

3. The Colombian wage legislation establishes a minimum night wage 35 percent higher than the minimum day wage.

4. Hadley [8] has mentioned this as a factor in the Colombian case.

5. This argument has been given a great importance in explaining underutilization in the Colombian industrial sectors [6]

6. For example, in Colombia it is possible to obtain a loan in pesos to import capital equipment from the AID or a World Bank credit line at about 15 percent yearly interest. Since the rate of devaluation of the peso is about 10 percent per year and since international prices rise at close to 5 percent per year, the actual interest rate is virtually zero. If, on top of this, one adds the tax breaks that the firm gets due to the payment of the 15 percent interest and the accountable depreciation of the machine, the cost of capital equipment to the firm is negative which implies that the firm can make money importing the machinery even if it does not use it.

7. This argument was used during the 1930s to explain why market imperfections will lead to excess capacity [2], [13]

8. A complete summary of these interviews is found in [5].

9. The appendix of this article explains how every variable was obtained.

10. No night wage differential, perfectly elastic supply of all inputs and demand for all products. Allowance was made, however, for the time spent in the maintenance and cleaning of the plant.

11. For example, if a plant included a high oven that would work 24 hours, and if the rest of the plant worked less than 24 hours, this number of hours was used to estimate the utilization rate, as long as the oven would not create a bottleneck if the rest of the plant were put on a 24-hour work basis.

12. This proxy measure of capital per worker introduces a bias since it underestimates the value of capital in firms where expensive capital equipment is not a substitute for muscles (e.g. electronic equipment). It is impossible to know how good a proxy of capital labor ratios for Colombia is H P/L , however, the fact that in the Mexican case [1] a correlation coefficient of .80 was found in between K/L and H P/L , suggests that H P/L is a good proxy for K/L in Colombia since the industrial sector is less developed in Colombia than in Mexico.

13. The definition of competing sector was a subjective one. In most cases it was defined as a 4-digit sector, however, both finer and more aggregate classifications were used when the author thought they were a better definition of competing sector. Notice that this definition excludes competing imports which in the Colombian case are negligible in most sectors.

14. This variable might not be a good measure of the importance of imports in production since:

    i) In the year that a firm runs into a bottleneck because it cannot get an import license, its imports are low. However, since the Colombian license granting policy has discriminated against imports that can be substituted by domestic production, this bias might not be important.

    ii) Since it was impossible to obtain time series, the measure used cannot be used to explain effects of fluctuation in foreign exchange availability upon capacity utilization.

15. This does not mean that capacity utilization in Colombia is optimum or that fixed capital should not be used longer hours.

16. This can be done by threatening to open up imports of similar products, by fixing a maximum allowed difference between domestic and international prices, etc.

17. See [5], pp. 75-76.

18. See [5], pp. 27-40.

19. See [5], pp. 41-43.

20. See [5], pp. 108-113.

21. For example, a car assembly plant that was working one shift in the assembly line and two shifts in the painting shop, proceeded to duplicate capacity when their quota was doubled. A more detailed discussion of the sector is found in [5], pp. 114-117.

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