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THE NEDA-WORLD BANK CAPITAL UTILIZATION SURVEY OF PHILIPPINE MANUFACTURING

by

Romeo M. Bautista

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I. Introduction and Background

Underutilization of installed machinery and equipment in typically capital-poor less developed countries (LDCs) is a widely-observed paradox which has planning and policy implications for output growth, employment and other LDC objectives. Policy efforts to increase the utilization of existing industrial capital, if successful, could raise productivity in the manufacturing sector, reduce average and incremental capital-output ratios, generate additional employment opportunities and expand more rapidly industrial output (hence, disinflationary) at low social costs (cf. [15]). The payoff assumes greater importance once

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industrial planning and promotion procedures seek constantly to improve the utilization of capital investments.

Benefits to be expected from increased capital utilization are premised on the recognition that the capital input in any production function constitutes a service flow which is determined by the amount of installed capital and its utilization rate. Thus increasing capital utilization is substitutable to capital accumulation. This may be illustrated using the standard two-factor Cobb-Douglas production function with a technological progress term,

$$(1) \qquad Y_t = e^{a_0 t} K_t^{a_1} L_t^{a_2}$$

where Y_t, K_t and L_t represent rates of flow at time t of output, capital services and labor services, respectively; a_0 is the (constant) rate of disembodied technical change; and a_1 and a_2 are the capital and labor service elasticities of output, respectively. Since K_t is the product of the capital stock $\bar{K}_t$ and utilization rate U_t, differentiating the logarithms of eqtn. (1) with respect to t yields an expression for the growth rate of output r_y as follows:

$$(2) \qquad r_y = a_0 + a_1 (r_u + r_{\bar{K}}) + a_2 r_e$$

where r_u, $r_{\bar{K}}$ and r_e denote rates of change in utilization, capital

stock and labor services, respectively.

Eqtn. (2) provides the basis of aggregative sources-of-growth studies pioneered by Solow and Denison, except that the effect of inter-temporal changes in the capital utilization rate is frequently left out in the analysis. That r_u might be an important consideration is well demonstrated in the work of Jorgenson and Griliches [8] on U.S. manufacturing, which obtained re-estimates of capital productivity challenging the Solow and Denison figures.

Similarly, studies of postwar Philippine economic growth, e.g. [10] and [14], have generally ignored the effect of possible changes in industrial capital utilization on the growth of manufacturing output. One notable exception is the Power-Sicat study on Philippine industrialization and trade policies, which hypothesized "that decontrol permitted a fuller utilization of resources" [12, p.57] accompanying the observed improvement in resource allocation. On the other hand, the present writer has tentatively concluded that excess industrial capacity increased from 1961 to 1969 [3], which conclusion however was based on certain restrictive assumptions and very aggregative data.

Recent empirical findings on levels and trends of industrial capital utilization in other countries appear to suggest two things: (1)

there is substantial underutilization of capital stock in both developed and developing countries; and (2) observed changes over time in the utilization level vary significantly from country to country. Foss [7] has estimated that existing industrial capital in the United States was being operated at about 21 per cent in the mid-1950s. In the LDCs, Winston [15] has recently given an estimate of 14 per cent for West Pakistan, Kim and Kwon [9] about 17 per cent for South Korea, and Thoumi [13] a relatively high estimate of 30 per cent for Colombia. In regard to changes in capital utilization rates, Foss' study indicates an increase for U.S. manufacturing from 15.2 per cent in 1939 to 20.9 per cent in 1954. The average utilization rate in South Korean manufacturing industries has been estimated to double over 1962-1971, while in India observed changes in the level of utilization from 1961 to 1970 have been insubstantial [11].

Although these estimates are not exactly comparable, they all purport to indicate the proportion of time that installed capital equipment and machinery were being operated on the average. This represents a departure from the usual measures of capacity utilization shaped by developed countries' concern with business fluctuations and national income forecasting. The utilization measures adopted (e.g. by McGraw-Hill and the Wharton School) reflect the deviation of actual utilization

from the desired (intended,expected) level -- without specifying the latter in absolute terms. If fuller use of existing capital is deemed socially desirable in the LDCs, development planning and policy should be concerned not only with correcting the divergence of actual from desired utilization but also with raising the latter by the removal of obstacles and/or provision of incentives so that intended capital idleness is minimized. Such distinction is significant in view of the emerging evidence that anticipated capital idleness represents the more important contribution to the observed excess capacity even in the LDCs.

There is at present no available information on the time utilization of capital equipment and machinery in Philippine manufacturing for any year. Indeed, apart from the survey for 1961 conducted by the present writer [2] several years ago, there has not been any comprehensive primary data-gathering and publication relating to industrial capital utilization (however measured) in the Philippines. In exploring the scope for economic policy in influencing capital utilization, it would seem necessary to establish first an adequate data base which may then be analyzed in the light of theory and prevailing policies. Such need for a capital utilization survey of Philippine manufacturing industries has been felt and expressed previously [4], but plans to undertake one have not materialized.

The NEDA-World Bank survey on Philippine manufacturing was one of the first full-scale attempts at collecting detailed capital utilization data by direct interviews with plant managers, which were done from mid-October 1973 to February 1974. Similar surveys were being conducted at about the same time in three other developing countries, viz., Colombia, Israel and Malaysia, in which the World Bank had also closely collaborated. Preparations are currently underway for the forthcoming publication of a World Bank monograph, "Capital Utilization in Manufacturing in Developing Countries," which will include chapter contributions from principal investigators in the four country studies analyzing the survey results and drawing implications for development policy.

When the study was being planned, no other studies had been done using the interview method to obtain comprehensive information on industrial capital utilization in the LDCs. Since then two other interview surveys have been undertaken. One was reported in a recently submitted Ph.D. dissertation at the Massachusetts Institute of Technology [17]; it covered 121 manufacturing firms in Kenya. The other study is still in progress, involving several countries in Latin America, under the direction of a research group headed by Professor Rosenstein-Rodan at the Center for Latin American Development of Boston University.

In comparison with the present investigation these two studies cover a narrower range of utilization-related variables.

The necessarily large budget entailed in survey interviews would seem to be the principal reason for the use of mailed questionnaire surveys and published data in all previous studies of capital utilization in the LDCs. The experience with mail surveys conducted in the LDCs has been that the questionnaire must be very brief to have any chance of being completed. Using a one-page questionnaire soliciting utilization-related data easily known to production managers, the above-mentioned survey on 1961 capacity utilization in Philippine manufacturing yielded a 35 per cent response rate despite the use of facilities of the Bureau of the Census and Statistics.

Reliance on published data in the study of industrial capital utilization is also subject to certain disadvantages. For one thing, information gathered by annual surveys of manufactures and periodic censuses do not really provide conceptually valid measures of the utilization of existing capital. The electricity-based measure, which is very popular, represents actually the extent of utilization of installed electric motors, recent evidence [5] suggesting that it substantially understates capital utilization. Moreover, published data are invariably presented in the aggregate by industry, limiting the scope for the

explanation of interplant variation in utilization rates.

Apart from overcoming these difficulties associated with the use of mail survey or published data, interview studies provide opportunities for collecting more reliable and detailed information that could meet the requirements of an acceptable measure of capital utilization, get at the important reasons for plant underutilization, and inform development policies intended to change firms' utilization practices. The practical knowledge and insights to be gained from visiting industrial plants and talking with production managers should serve to enrich any study of capital utilization.

II. Survey Methodology

A. Sampling

The population consists of manufacturing establishments employing 20 or more workers in 1972, the year for which survey data were solicited. There was simply no way of obtaining a complete list of establishments classified by the Bureau of the Census and Statistics in its annual surveys as "small" (employing less than 20 workers). Not much is lost, however, in concentrating on the "large" subsector of Philippine manufacturing since it accounts already for about 95 per cent of total value

added and value of fixed assets in "organized manufacturing", comprised of establishments with 5 or more workers.

From this population a stratified random sample of 400 establishments was selected. Stratification was done to the 4-digit ISIC level, the number of sampled establishments in each 4-digit industry determined by the industry's relative contribution to manufacturing value added in 1969 (the latest year for which value added figures are available to the 4-digit level). Sampling was random within each 4-digit industry with no limitations on firm size and geographical location. An additional feature of the sampling procedure was the random selection of "reserve" establishments equal in number to those in the main sample for each industry (if there existed sufficient establishments) to replace possible cases of non-response, preserving therefore randomness of the final sample. These reserves were drawn upon during the field work in the order of their selection as indicated in the reserve list for each 4-digit industry.

The allocation of a predetermined number (400) of sampled establishments to the different 4-digit industries according to the latter's value added contribution is of course inferior to having the industrial sample weights determined by the relative amounts of the industries' capital assets. After all, the intent of the study is to investigate the

utilization of industrial capital. But reliable capital figures were not available when the sampling was done, and use of value added was resorted to as a second-best solution.

Two difficulties were encountered in trying to apply the sampling procedure uniformly to all industries. Firstly, there were cases in which the stratification required less than three firms to be sampled in a given 3-digit sector (because the 4-digit industries within it were not sufficiently important contributors to total manufacturing value added). It was decided that the sample should be brought up arbitrarily to three for the sector to facilitate generalization to the population of that sector. Leather products (ISIC 323), pottery (ISIC 361) and scientific equipment (ISIC 385) were some such sectors.

The other extreme case, that of large-scale industries, presented another problem that was not anticipated in designing the sample. A few 4-digit industries (sugar milling, petroleum refining and cement manufacturing) were such heavy contributors of value added that the sampling procedure required more firms than the actual number of establishments in the population. This difficulty was handled by including all firms in the industry sample and then using the left-overs to "fill in" the small-scale sectors up to three as described above, any excess being distributed pro rata over the whole sample according to the original

procedure. Not all firms in these industry categories responded to the survey, resulting in our having even fewer sampled establishments compared to the required number for these industries.

B. Survey Questionnaire and Interviews

A common questionnaire was adopted with the three other survey studies in the countries involved. It was developed over a period of several months on a collaborative process among the principal investigators, including the pre-testing of a preliminary version in each country. The final survey questionnaire and instructions which form the basis of the interviews are reproduced in Appendices A and B below.

The measure of capital utilization agreed upon at the outset is one that would reflect the proportion of time and intensity of operation of installed machinery and equipment (cf. [4]). Items 2, 3 and 3* in the questionnaire are therefore the basic questions asked in the interviews with production managers and other officials in the sampled establishments. The computation of the plant's time and intensity capital utilization is based on the response to these questions (cf. last two pages of the questionnaire form). The rest of the questionnaire seeks detailed information on plant characteristics, seasonal pattern of utilization, work hours, labor payments and productivity, other inputs,

product demand variations, market structure, perceived excess capacity and reasons for plant idleness. These are intended to shed light on the influences on plant utilization in later analysis of survey findings.

The field work for the survey spanned a period of 4-1/2 months but most of the interviews were done from mid-October to mid-December 1973. The delay in completing the survey by the end of November (as planned) was caused by the increasing reluctance of plant managers to be disturbed for interviews as the holiday season was being approached. (One lesson for similar interview surveys in the future is that seasonal periods of peak production should be avoided.) Moreover, strenuous efforts, necessarily time-consuming, were being made to cover as many of the establishments as possible in industries that required full representation in the sample.

Although a large number of "reserve" establishments had to be used, there was a general willingness of firms to grant interviews. This could be attributed, perhaps in large part, to the martial law situation and the covering letter signed by the NEDA Director-General endorsing our survey which the president/general manager of each sampled firm received together with a copy of the questionnaire about two weeks in advance of the proposed interview date. A telephone call from the interviewer would follow up the letter to finalize the appointment with

the production manager.

What caused some inconvenience and delay in the survey was the high incidence of sampled establishments which (a) could not be reached due to incorrect address or that the firm had stopped operation (56 cases), or (b) were engaged in non-manufacturing activities, e.g. services, distribution and sales (15 cases). Six firms situated in troubled areas in South Mindanao were also dropped. From among those that we were able to contact, roughly 65 per cent agreed to grant the interview at the proposed date, 27 per cent asked for postponement and were interviewed eventually, and the remaining 8 per cent either refused outright or kept postponing the interview appointment until we gave up on them. Survey results for 9 establishments were discarded due to inaccuracy, inconsistency and/or incompleteness of information provided. It is difficult to judge whether the substitution of responsive firms for those in the original sample that in the end were not included had biased the results in any way.

The interview itself lasted approximately one hour in most cases, although in some visits interviewers had to stay longer for invited plant tours, or shorter due to demands on the interviewees' time. Usually, the production manager in large firms would not be in a position to provide information on sales, value of assets and value added, so

that the accountant had to be consulted too. Survey enumerators were instructed thoroughly on how to derive value added from the firm's profit-and-loss statement as it proved to be an unfamiliar concept generally to firm officials. Replacement value of capital is another elusive item in the questionnaire. Because of its importance to the study, extra efforts were made to get the estimates of knowledgeable firm officials; failing to do that in several cases, relevant plant data were obtained for the estimation of capital replacement values (assuming straight-line depreciation). Survey data on sales and book value of assets of sampled establishments included in the top 1000 corporations in 1972 as compiled by Business Day were checked against published information and found to be generally comparable. Other items in the questionnaire appeared to have been handled satisfactorily for the 400 establishments that made it to the final sample.

C. Coding and Punching

Questionnaire coding was done on the basis of the specifications agreed to (with some additions and slight revisions described below) in the January 1974 seminar at the World Bank among the principal investigators in the four countries involved. For each of the 400 establishments of the final sample, a total of 105 "bits" of information were coded, punched into six computer cards, verified, and transcribed in a magnetic tape

for data processing. Altogether, therefore, 42,000 "bits" of information on 2,400 cards served as basic data input to the analysis part of the Philippine study.

Columns 1 to 101 of the coding scheme shown in Appendix C are common to the four countries, revised only slightly according to individual country requirements. In the Philippine case, two things warrant specific mention. One is that quantitative information on fringe benefits of employees had not been obtained from the survey; entries for Column 76 were based on the ratio of fringe benefits to total payroll from the 1969 Annual Survey of Manufactures by 4-digit ISIC industry, which turned out to be very low (3 to 10 per cent) and were not used in the subsequent analysis. The other concerns the treatment of wage differentials in Columns 65-70. For plants that did not operate night shifts, overtime or weekend (Sunday) work, Columns 65, 67 and 69 were left blank as instructed; however, instead of leaving blank Columns 66, 68 and 70 also, average percentages of respective wage differentials to the basic daily wage rates in the 4-digit industries were entered. This facilitated the comparison of wage premia among plants -- on the assumption that the industry's average wage differentials apply to the establishments which could not furnish the information because they did not operate night shifts, overtime or on Sundays. Not making this adjustment would

have meant, in subsequent data analysis, that these plants were facing zero wage premia.

The remaining "bits" of information described in Columns 102-105 of Appendix C were added as supplementary data for use in the regression analysis of the determinants of capital utilization in Philippine manufacturing, which is reported in [6]. The estimation of the annual cost of owning capital (cf. Column 102) is discussed in the same paper. The entries in Columns 103-105 are self-explanatory.

III. Sample Characteristics and Other Summary Data

For purposes of intercountry comparison summary data tables have been prepared that aggregate most of the survey findings on the sampled establishments at the 4-digit and 3-digit ISIC levels and the entire manufacturing sector for each of the four countries. I have presented a small part of the summary data for the Philippine study in [6]. Since they comprise a bank of entirely original data on Philippine manufacturing industries which in complete form might also be of interest to others, the contents of these summary tables are described below. Any data given in these tables can be provided by the author on request.

DESCRIPTION OF SUMMARY TABLES

NOTE: Numbers in parentheses refer to the coding form columns. In most tables there are three sets of data -- at the 4-digit, 3-digit and country levels.

TABLE 1: Characteristics of the Sample

1. ISIC Number (6)
2. Number of establishments sampled, N.
3. City size (3) - mean; std. deviation
4. Quality of interview (5) - mean, std. dev.
5. Product concentration; percent sales represented by major product (7) - mean; std. dev.
6. Single product plants - count number of plants less multiple product plants (N - (9)).
7. Exports of major product (ISIC product above) as per cent - mean; std. dev.
8. Exports of second product as percent - mean; std. dev.
9. Total employees - count, report number for 4-digit, 3-digit, country.
10. Average employees/firm - compute 9./N, std. dev.
11. Total production employees - count.
12. Average production employees/firm - compute 11/N, std. dev.
13. Total sales - count.

14. Average sales/firm - compute 13/N, std. dev.

15. Total value added - count

16. Ave. value added/firm - compute 15/N, std. dev.

17. Total value of capital - count.

18. Value of capital/firm - compute 17/N, std. dev.

19. Average age - mean, std. dev.

20. Multi-plant firms - count those reporting more than 1.

21. Multi-plant firms - count those reporting more than 2.

TABLE II Utilization

1. Plant Utilization, capital weights - questionnaire Col. (47) weighted by questionnaire col. (18). Report mean, std. dev. and test on significance of the difference from the country mean.

2. Plant utilization, employment weights - questionnaire Col. (47) weighted by questionnaire col. (13). Mean, std. dev., significance of difference from country mean.

3. Plant utilization, value added weights - Col. (47) weighted by Col. (17). Mean, std. dev., significance of difference from country mean.

4. Plant utilization, unweighted - mean, standard deviation, significance of difference from country mean.

NOTE that the averaging from 4- to 3-digit industries is to be by value of capital, regardless of the method of aggregation into the 3-digit sectors.

TABLE III Ownership and Management

1. Ownership type - frequency (express each reported type as a percentage of total reporting).
2. Ownership nationality - frequency
3. Ownership legal form - frequency
4. Management nationality - frequency
5. Management ethnic groups - frequency

TABLE IV Time Patterns of Utilization

1. Hours/day typically operated - mean, std. dev.
2. Days/year typically operated - mean, std. dev.
3. Section schedules different over year - count Yes/No
4. Of those with uneven schedules (Yes to (48): ave. days/wk peak (50) - mean, std. dev.
5. Of those with uneven schedules (Yes to ave. days/wk trough (55) - mean, std. dev.
6. Of those with uneven schedules (Yes to ave. hours/day peak (51) - mean, std. dev.
7. Of those with uneven schedules (Yes to ave. hours/day trough (56) - mean, std. dev.
8. Peak month - frequency; count (49) in each of the twelve months.
9. Trough months - frequency; count (54) in each of twelve months.
10. How many shut down - count Yes/No (59)
11. How long shut down - mean, std. dev.

12. Shut-down costly - Yes/No count

TABLE V Labor

1. Average workday per worker (61) - mean, std. dev.

2. Average workweek per worker (62) - mean, std. dev.

3. Wage scheme (63) - frequency each type as % total.

4. Wage rate per hour computed (as in notes on Jan. meeting) in domestic currency - mean, std. dev.

5. Night shift premium (65) - Yes/No count

6. Night shift premium (66) as percent hourly wage rate (compute) - mean, std. dev. (computed only for Yes in (65), of course).

7. Weekend wage premium (67) - Yes/No count

8. Weekend wage premium (68) as percent hourly wage rate (compute) - mean, std. dev. [again, only for Yes in (67)]

9. Overtime wage premium (70) as percent - mean, std. dev. [for Yes in (69)]

10. Fringe benefits - count number Yes under each heading, Col. (72) to (75)

11. Fringe costs as percent hourly wage rate - mean, std. dev.

12. Crew size day/night, compute [(77) - (76)]/ (77) which gives the difference between day and night crew size as a percent of day crew - mean, std. dev.

13. Labor productivity (79) - frequencies, each category.

TABLE VI Factor Proportions

1. Factor proportions computed (18)/(77) - mean, std. dev.

TABLE VII Material Inputs

1. Imported inputs percent (80) - mean, std. dev.

2. Rhythms: input/price - count Yes (any non-zero entry in (81) or (83))/ No (zero entries).

3. Cost rhytms percent compute (81) times (82) - mean, std. dev.

4. Materials unavailable (85) - Yes/No count

5. Shut down when unavailable - of those who answered Yes to (85) count yes/no.

6. Inventory when unavailable - of those who answered Yes to (85) count yes/no.

TABLE VIII "Capacity"

1. Percent of "capacity" operated last year (88) - mean, std. dev.

2. Normal hours/wk of operation (89) - mean, std. dev.

3. Is "normal" same as full capacity (90) - Yes/No, count

4. If yes to (90), normal hours - mean, std. dev.

5. Expect to operate normal in future (91) - Yes/No count

6. If yes 91 and yes 90, average normal hours - mean, std. dev.

7. If operation less than normal, reason - these were to have been listed in order of importance, so take first three columns - most important three reasons - and do separate frequency counts for the seven possible reasons for each. So there will be three separate frequency distributions among the seven possible reasons - one showing the most important; the next showing second most important; the last showing third most important.

TABLE IX Product Demand Variations

1. Storage time in days (computed from (93)) - mean, std. dev.
2. Yearly demand stable (94) - Yes/No count
3. If (94) No, percent change - mean, std. dev.
4. If (94) No, is pattern regular - Yes/No count
5. If (94) No and (96) Yes (pattern regular), pattern - frequency each pattern.
6. Domestic demand more stable - frequency of four possibilities

TABLE X Market Structure

1. Number of firms compete with - mean, std. dev.
2. Position this firm, compute ratio (100)/(101) - mean, std. dev.

APPENDIX A

CAPITAL UTILIZATION SURVEY QUESTIONNAIRE

0. INTRODUCTION

Name of enterprise: _____

Address of plant visited: _____

Date: _____

Enumerator: _____

Respondent (s) Name (s) and Title (s) _____

_____

Telephone number: _____

We are doing a study of industrial capital utilization partly in collaboration with the World Bank which is conducting surveys in several countries. We are trying to learn more about patterns of production and production scheduling. Your firm has been selected as one of those in the study. The questionnaire should take about half an hour or so. Your answers will be entirely confidential; they will appear in the study only as statistics and without attribution. The list of firms interviewed will not be made public.

1. PLANT CHARACTERISTICS

1.1 Product (s):

Product _____ % Total Sales _____ (%) /ISIC No. _

% Sales Abroad _____

Product _____ % Total Sales _____ (%) /ISIC No. _

% Sales Abroad _____

Product _____ % Total Sales _____ (%) /ISIC No. _

% Sales Abroad _____

1.2 Size of Plant:

Total Employees _____ (number)
Book Value of Assets _____ (value)
Replacement Value of Assets _____ (value)
Annual Sales _____ (value)
Value dded _____ (value)

1.3 Age of Plant (making present products):

First built (date) _____

Last major expansion (date) _____ If none, is expansi
gradual? ___(Yes/N

1.4 How many other plants (in country) owned/operated by same firm? ___

Do they produce the same product (?) _____

1.5 Firm Ownership: public / private / mixed /

domestic / foreign / corporation / other/

1.6 Top Management of firm (in country): domestic / foreign /

2. THE LEVEL OF UTILIZATION - TIME

2.1 How many entire days was the entire plant idle during the last calendar year (365 days)? _____ (days) report all days idle including weekends, holidays, time for maintenance and repairs

2.2 So you operated at least a part of the plant during 365 minus the answer above days? _____ (yes/no)

2.3 During the typical operating day, how many hours was the entire plant idle on the average? _____ (hours)

2.4 So in the typical operating day, you ran some part of the plant for 24 minus the answer to 2.3 hours? _____ (yes/no)

2.5 During how many Saturdays did you operate at least part of the day? _____ (days)

2.6 How many hours did you typically operate when you operated on Saturdays? _____ (hours)

2.7 Did you have to shut down plant at least partly because of the July-August floods? If yes, for how long? _____ (days)

3. THE LEVEL OF UTILIZATION - INTENSITY

3.1 During operation, how much of the plant is typically in use? ____ (%)

3.2 Do you operate different parts of the plant ("sections") a different number of hours per day? _____ (yes/no)

3.3 Do you typically operate different parts of the plant a different number of days per year? _____ (yes/no)

IF THE ANSWER TO 3.2 OR 3.3 IS "YES" COMPLETE A SUPPLEMENTARY SHEET QUESTION 3* FOR EACH SECTION OF THE PLANT THAT OPERATES A DIFFERENT SCHEDULE

3* THE LEVEL OF UTILIZATION - SEPARATE PLANT SECTIONS

This sheet describes the _____ section

3*.1 How many days was the entire section idle during the past calendar year (365 days)? _____ (days)

3*.2 So at least part of the section operated during 365 minus the answer to 3*.1 days? _____ (yes/no)

3*.3 During the typical operating day, how many hours was the entire section idle on the average? _____ (hours)

3*.4 So in a typical operating day, some part of the section operated for 24 minus the answer to 3*.3 hours? _____ (yes/no)

Check question

3*.5 During operation, how much of the section is typically in use? _____ (%)

3*.6 What proportion of the plant does this section represent? _____ (%)

4. THE PATTERN OF UTILIZATION OVER THE YEAR

4.1 Are there periods during the year of more or less operation?
_____ (yes/no)

4.2 If "Yes", what is (are) the month(s) with the most operating time?
_____ (name of month). Why? _____

4.3 During that period, approximately how many days per week does the plant operate? _____(days/week)
How many hours per day? _____ (hours/day)

4.4 Does the plant operate at or near that peak level for more than one month of the year? _____ (yes/no). How many? _____ (number).

4.5 What is the period with the least time of operation? _____
_____ (name of month) Why? _____

4.6 During that period, approximately how many days per week does the plant operate? _____ (days/week)
How many hours per day? _____ (hours/day)

4.7 Does the plant operate at or near that level for more than one month of the year? _____ (yes/no). How many? _____ (number)

4.8 Does the plant have periods of full shut-down? _____ (yes/no)
How long? _____ (number)
When? _____ (brown outs)
Did you include that in estimating idle days above? _____

4.9 Is it difficult or expensive to shut the plant down and interrupt production for a short period, say 24 hours? _____ (yes/no)
Why? _____

5. HOURS OF WORK

5.1 How many hours per day does a production worker typically work? _____(hrs

5.2 How many hours per week does a production worker typically work? ____(hrs

6. LABOR PAYMENTS - WAGES AND SHIFT PREMIA

6.1 Are production workers' wages determined by

the number of hours they work? _____

the number of days they work ? _____

the number of months they work ? _____

the amount of output they produce (piece work) ? _____

6.2 For production workers what is (complete the ONE that is appropriate to 6.1): the average daytime wage rate _____ (₱____ per day) or

the average hourly wage rate _____ (_____ per hour) or

the average weekly wage _____ (_____ per week) or

the average monthly wage _____ (_____ per month).

6.3 Are production workers typically paid a higher wage for working (complete ALL that are appropriate):

during nights? _____ (amount or percentage),

during Sundays? _____ (amount or percentage),

overtime? _____ (amount or percentage).

6.4 Do you pay other costs for labor:

food? _____ (amount per worker or percentage of wage),

transport _____ (" " " "),

medical _____ (" " " "),

lay-off costs? _____ (amount per worker or percentage of wage)

other _____ (amount per worker or percentage of wage).

7. LABOR AND PRODUCTIVITY

7.1 How many production workers are at work in the plant during a typical day shift? _____ (number)

7.2 Is output per man-hour: (a) higher for day work? _____

(b) higher for night work? _____

(c) about the same for both? _____

8. OTHER INPUTS

8.1 Firms often use inputs and raw materials that are not produced domestically. Does your plant use any such inputs? Yes [ ] No [ ]

What _____ (name), % of total inputs _____ (%)
What _____ (name), % of total inputs _____ (%)

8.2 Firms often use things in production whose prices vary seasonally or monthly, even weekly. Does your plant use any such inputs?

What _____ (name) ; % price change _____ (%);
% total production cost _____ (%)

What _____ (name) ; % price change _____ (%);
% total production cost _____ (%)

8.3 Does the plant use any inputs that are regularly unavailable during parts of the year?

What? _____/_____/_____/ name(s)

8.31 Does the plant then shut down? _____(yes/no)

8.32 Does the plant then inventory that input _____(yes/no)

9. EXCESS CAPACITY

9.1 At what percent of full capacity did you operate last year _____ (%)

9.2 What would you consider to be a desirable "standard" or "normal" level in the future? _____

9.3 Was actual operation last year different from this desired level? ____ (yes/no)

Why? List reasons given (in order of importance): _____/
_____/_____/_____/_____

[After he's had time to respond on his own, offer this list for his comment: CAN'T SELL PRODUCT because of (a) recession (b) unexpected competition (c) price too high/quality too low (d) foreign competition; CAN'T GET INPUTS (ask which ones and why can't get).]

10. PRODUCT DEMAND VARIATIONS

10.1 How long can your product be stored without serious loss of value from deterioration? _____ (specify hours, days, weeks or yea

10.2 Is the demand for your product fairly steady throughout the year? _____ (yes/no)

10.3 If demand is not steady:

10.31 By how much does the best week of demand exceed the average week _____ (%)

10.32 Is there a pattern of demand changes; do you know when to expect peaks and troughs? _____ (yes/no)

10.33 If "yes", what is that pattern (describe) _____

_____

10.4 Is domestic demand more steady than export demand? _____ (yes/no) _____ (no difference).

11. MARKET STRUCTURE

11.1 How many domestic firms do you compete with in selling the product (s) _____ (number)

11.2 How many are larger than your firm? _____ (number); smaller _____ (number)

12 FREE ASSOCIATION

What are the reasons why the plant is not operated all the time? Days, nights, weekends, year round? _____

_____

_____

_____

W.1 WORKSHEET (To be completed immediately after interview)

ENUMERATOR'S COMMENTS:

W.2 COMPUTATION OF UTILIZATION RATE WHEN ALL OF PLANT OPERATES SAME SCHEDULE (FILL OUT W.2* WHEN DIFFERENT SECTIONS OPERATE DIFFERENT SCHEDULES)

a. Number of days per year IDLE (2.1) _____

a[1] Number of days operate per year 365 - (a) _____

b. Number of hours idle on typical day (2.3) _____

c. Number of Saturdays operated (2.5) _____

d. Hours of operation on Saturdays (2.6) _____

e. Yearly Saturday hours, (c) x (d) _____

f. Number of days operated _____

other than Saturdays (365 - a - c) _____

g. Hours of operation on typical day (24 - b) _____

h. Yearly non-Saturday hours (f) x (g) _____

i. TOTAL hours of operation per year (e) + (h) _____

j. Percent utilization (i) ÷ 8760 x 100 = _____

k. Check: does (a) + (c) + (f) = 365? _____

n. Intensity of use _____

o. Plant utilization -- (j) x (n) _____

W.3 CODE: A B C D F

W.4 CHECK LIST:

☐ Enter ISIC number (s) in (1.1) (If necessary, re-check with respondent.)

W.2* COMPUTATION OF UTILIZATION RATE WHEN DIFFERENT SECTIONS OPERATE DIFFERENT SCHEDULES

	Sect. 1	Sect. 2	Sect. 3	Plant
a. Number of days per year IDLE (3*.1)				
b. Number of hours idle on a typical day (3*.3)				
c. Number of Saturdays operated*(2.5)				
d. Hours of operation on Saturdays (2.6)				
e. Yearly Saturday hours, (c) x (d)				
f. Number of days operated other than Saturdays (365 - a - c)				
g. Hours of operation on typical day (24 - b)				
h. Yearly non-Saturday hours (f) x (g)				
i. TOTAL hours of operation per year (e) + (h)				
j. Percent utilization((i) ÷ 8760)x 100 =				
k. Check: does (a) + (c) + (f) = 365				
l. Proportion of the plant represented by this section (as %)				Σ = 100%
m. Average unadjusted utilization -- time (l) x (j)				Σ =
n. Intensity of use (3*.5)				
o. Plant utilization -- Time and intensity Intensity -- (m) x (n)				Σ =

* "Saturdays". If these part-day operations are not specifically mentioned as being different for the different sections, assume that all sections operate the same Saturday schedule -- answer (2.5).

Σ Represent sums of the separate sections.

APPENDIX B

INSTRUCTIONS TO INTERVIEWERS

CAPITAL UTILIZATION QUESTIONNAIRE

This commentary provides instructions to enumerators in the survey on capital utilization. The questionnaire has been tested locally and it look quite effective. It has taken between half an hour and ninety minutes, depe ing on the complications encountered. Most questions yielded clear and useful answers, but inevitably the enumerator will have to be sensitive to and very clear about the objectives of the study; it will never be possible to anticipate all problems with the questionnaire. This commentary is intended to: (1) provide specific instructions to the enumerators and supervisor, and (2) note the objectives of the question, ambiguities to look for, etc.;

0.0 HEADING

Instructions: Talk to man closest to production management possible. Note if shunted off to clerk-type without authority or to public relations-type who seems unknowledgeable. Be conscious of the timing of interviews. Try to avoid times when the plant is not operating (lunch-times, Saturdays etc.)

Introduction to the interview: Read the introduction exactly as it is written. It is important not to bias the responses by explaining too much about the aims of the study.

1. PLANT CHARACTERISTICS

1.1 Products:

Instructions: Fill in for the products produced by that plant (not firm). Fill in ISIC number later - don't ask respondent.

Note: Product information is needed to classify the output of the plant. It is rarely unambiguous. Note on the questionnaire enough information to be able, later, to fill in a four digit ISIC number for the major products of the plant. For many plants, there will be some

problem in knowing where to stop disaggregation. You should be familiar with the ISIC numbering system. See U.N., International Standard Industrial Classification (ISIC) of All Economic Activities, UN, ST/STAT/SER. M/4/Rev.2, Sales No. E.68. XVII. 8, New York, 1968, or the more detailed U.N., Indexes to the International Standard Industrial Classification (ISIC) of All Economic Activities, UN, ST/STAT/M.4/Rev. 2/Add. 1, Sales No. E.71. XVII.8, New York, 1971.

1.2 Size of Plant

Instruction: Complete as many of these measures as possible.

Note: It is essential that we have total employees of the plant. If it proves totally impossible, note why it's impossible. Do not count construction workers engaged in plant expansion on a temporary basis. If there are seasonal variations in employment ask for maximum and minimum employment at any one time.

Of the other items, the value of assets is the most useful single measure, but it may sometimes be very difficult to get. Replacement value of the plant is preferred. Take also the book value.

1.3 Age of plant producing present product

If a plant building-plus-site has converted to new products, we're interested in the date of that conversion as "first built". The "last major expansion" in many plants will have been "gradual" - they will have had no single major expansion, but by replacement and modernizing, the plant will have been significantly modified since it's first date. If so, note "gradual".

2. The Level of Utilization - TIME

This is the most important single question on the questionnaire. It will often not be easy to answer it first, but in a few minutes, the enumerator can get a very good sense of how it should be answered.

Instructions: There are, really, two questions and two CHECK QUESTIONS here that are designed simply to check the validity of the answer. So 2.1 asks how many days the entire plant was idle during the year while 2.2 subtracts that answer from 365 and confirms that

the first answer made sense.

In this and subsequent parts of question 2, "IDLE" describes idleness of ALL production in ALL PARTS of the plant. "OPERATION" describes operation of any part of the plant. So every day (and every hour) will either be a day (or hour) of operation OR idleness.

Looking at 2.1 and 2.2, a plant must either be idle during the entire day (hence the day is counted in 2.1) or else some part of it must be operated during the day (hence the day is counted in 2.2). So the days fully idle (2.1) plus the days of some production (2.2) MUST add up to 365. Either question may be answered first - the respondent may find it more natural to count days of operation (2.2) first; if so, use the days of idleness (2.1) as the check (Ans. 2.1 = 365 - Ans. 2.2). Be very sure this relationship is clear to the respondent.

The same check is done on the hours of idleness during the day. 2.3 asks how many hours the entire plant was idle. Question 2.4 asks how many hours some part of the plant was running. They MUST add up to twenty-four hours. (Ans. 2.3 + Ans. 2.4 = 24 hours).

Note: It may be necessary to help the respondent focus on the question - to help him realize that weekends, holidays and time idle for maintenance and repair are to be counted as IDLE time if there is no production activity.

Questions of variable intensity during operation (partial plant operation, some machines idle, etc.) are addressed in question 3 below. Maintenance, caretaking, clerical and stockroom activities are NOT to be counted as operation of production.

The assumption of this question is that the year is the longest period over which regular, anticipated rhythms will affect utilization.

The "number of Saturdays operated" (Fridays in some countries) (2.5), is already included in "total number of days operated in the year" (2.1 and 2.2). We ask this separately in case the number of hours worked on Saturdays (Fridays) is less than on a typical work day. Look over the questions in part 2 and the worksheet at the end of the questionnaire to make sure that you understand how these questions fit together.

3. The Level of Utilization - INTENSITY

If the respondent is confused about what's meant by "the plant", you can tell him it means "machines" or "equipment".

This is an important question for which there simply is no way to give an "accurate" answer, but the answers we do get will be very valuable. The answer must be a "hunch" or informed guess by the respondent. He may answer on the basis of the number of machines or the value of the capital stock or ... Even economic theory can't deal with capital aggregation in a precise way (Robinson/Solow, et al.), so managers won't be able to either. But, despite all those well known problems, something very useful can come from informed guesses - they will give us a rough and meaningful sense of what's happening.

3* The Level of Utilization - Separate Plant Sections

Notes: Here you have to use your judgment. If all parts of the plant operate on the same schedule with regard to days of operation and hours within the day, there will be no problems. But if different parts (sections) of the plant operate different days/hours, you will have to decide whether (a) to treat these as separate plants (select the most important plant to fill out the questionnaire) or (b) as separate sections within the plant (filling out questions 3*) reluctantly and rarely - (c) ignore the difference as being unimportant.

The criteria for these decisions rest on the relative importance, the number of such sections and how different are their schedules. Generally, if there are two or three large sections representing roughly equal proportions of the plant, operating on quite different schedules, then they must be described separately. If, at the other extreme, most of the plant operates on one schedule but five or six sections representing a small part of the plant operate differently, all should not be enumerated separately - probably a two part enumeration will have to do.

The last alternative - ignoring the differences - is to be avoided unless clearly justified. Information, once collected, can always be discarded later; but information not collected is lost. So ignore one or two workers who are out of phase with major plant sections (even if they are truly production workers), but don't ignore much more than that.

Instructions: Take along extra sheets for question 3* and fill in one for each separate plant section considered.

6. Labor Payments - Wages and Shift Premia

There may be no single pattern of wage payments (6.1) for the whole plant. If not, note the variations (with rough guess of percentage workers covered under each). You should be clear that, conceptually at least, "overtime" is different from extra pay for the time of day or week. Overtime applies to a single worker and is an extra payment for his working extra during a day or week. So a man will be paid overtime for working e.g. more than eight hours in a day; or more than 40 hours in a week. Quite different is the additional wage paid for working at an undesirable time of day or week - for working nights or for working on a holiday or weekends or Sunday or ... This has nothing to do with the amount of previous work the worker has put in. If you are clear on this, you will be able to sort out the response. You should note any additional variants on premium pay (like Sunday's with a 100% premium, for instance).

Comments should be made in the margins if other interesting information comes to light - for instance, if transportation is provided only for night workers; training costs are the largest costs of hiring and firing; etc; any information that would help explain why labor costs are higher at night and on weekends and/or why it's expensive to hire and fire workers.

8. Other Inputs

You will have to "lead" the respondent - using any information you may have about the industry and its inputs and asking "Doesn't ____ cost less in the winter?", etc. The manager will, typically, be so used to "what you 'have to' do" in purchasing, that he'll not see what's being asked without some help.

9. Excess Capacity

The purpose of this question, of course, is to try to tie into the "capacity survey" questions that are traditionally asked by the McGraw-Hill survey etc. You should refuse to clarify what is meant by "capacity" and leave its interpretation to the respondent. If necessary, you can simply ask the respondent to answer as he would "if that question were asked in a government survey of capacity utilization."

On 9.4, note any information that's useful. Try to retain a sense of which reasons he thinks are most important in explaining his failure to operate more. Don't lead him, except to suggest that he consider the list. If supply constraints affect his utilization, ask which ones and why.

10. Product Demand Variations

This could be the subject of a survey in itself so answers must be unsatisfying. Note if product loses value for reasons other than deterioration (e.g., obsolescense in products where style or technology is important). You might also note, if they mention, whether plant produces against specific orders or produce for storage if orders don't cover production.

12. Free Association

Use this if there are other things the manager wants to say about utilization - if he's got his own theories or reasons. Don't press him to respond, though.

W. Worksheet

On this sheet are things to be done immediately after the interview.

W.1 Comments

Your ideas or insights not captured on the questionnnaire. This is a very important part of the questionnaire. Do write out your impressions in full detail. They will be extremely useful to us later.

W.2. Compilation of the utilization rate.

W.3. Code

This is your evaluation of the solidity, trustworthiness and informedness of the respondent's answers, which may well be helpful in marginal or curious cases. Code should be:

APPENDIX C

CAPITAL UTILIZATION QUESTIONNAIRE CODING

Column 1: This describes the country in which the plant operates; a number is assigned to each country:

1 - Colombia
2 - Malaysia
3 - The Philippines
4 - Israel

Column 2: This column identifies the plant for which the data is obtained. A number beginning at 001 should be assigned to each plant interviewed. It is suggested that the plants be ordered by groups belonging to a four-digit ISIC entry and that these groups be ordered following the ascending ISIC numbers. This will simplify inter-country comparisons of the computer printouts.

Column 3: City coding. A number is assigned to the plant according to the size of the city in which it is located. The definition of city should be based on a "metropolitan area" concept and not on a political concept, i.e., municipality. The numbering given is the following:

1 - Large cities (1,000,000 population or more)
2 - Provincial cities (10,000 to 999,999 population)
3 - Rural (less than 10,000 population)

Column 4: Question number 0. Date.

Date of visit. Write the number of the month of the visit. (01, 06, 10, etc.)

Column 5: Question number 0. Grade.

Instead of the respondent's title and name, use the grading assigned to the interview. The following numbers should be given to the letter grade assigned:

A=1, B=2, C=3, D=4, F=5

Column 6: Question 1.1. ISIC.

Write ISIC four digit number of most important product.

Column 7: Question 1.1. Sales product 1.

Write percentage of sales represented by the most important products. Do not include decimals of a percentage point, i.e., 26.8% should be 27.

Column 8: Question 1.1. Exports product 1.

Write the percentage of output of the product described in Column 6 which is sold abroad. (Two spaces as in Column 7).

Column 9: Question 1.1 (as in Column 7 for second product)

Column 10: Question 1.1 (as in Column 8 for second product)

Column 11: Question 1.1 (as in Column 7 for third product)

Column 12: Question 1.1 (as in Column 8 for third product)

Do not code more than three products. If there are less than three products, leave the corresponding columns blank (when there is no data, the spaces assigned to the missing information should always be left in blank).

Column 13: Question 1.2. Total employees.

Write the total number of employees of the plant.

Column 14: Question 1.2. Production workers.

Write the number of total production workers of the plant.

Column 15: Question 1.2. Assets.

Write the book value of assets of the plant. This figure should be given in domestic currency and could be rounded out to the nearest

thousand, ten thousand, etc. The number written should not have more than seven digits. It is very important to define clearly the units in which the number is expressed. Extreme care should be taken to avoid mistakes in the magnitude of the values given.

Column 16: Question 1.2 - Sales

Annual sales volume. As in Column 15, but do not include more than six digits.

Column 17: Question 1.2 - Value added.

Annual value added. As in Column 16.

Column 18: Question 1.2 - Capital.

Capital value. Write the "best" figure you have obtained which reflects the replacement value of the plant. Follow the instructions of Column 15. (Do not exceed seven digits).

Column 19: Question 1.3 - Plant's age.

Date on which plant was built. Write the last two digits of the year in which the plant was built.

Column 20: Question 1.3 - Plant's expansion.

Use the last two digits of the year during which the last major expansion took place. When the expansion has been gradual, use the number 75.

Column 21: Question 1.4 - Plant's owned.

Write the number of other plants owned and/or operated by the same firm.

Column 22: Question 1.4 - Same products?

Write a 0 when the plants do not produce the same products, and a 1 when they do. Leave blank if figure in Column 21 is zero.

Column 23: Question 1.5 - Ownership.

Write the numbers 1, 2, 3, or 4 as indicated below:

1. Public ownership
2. Private ownership
3. Mixed ownership
4. Labor union owned
5. Kibbutz owned

Column 24: Question 1.5 - National ownership.

Write the numbers 1, 2 or 3 as indicated below:

1. Domestic ownership
2. Foreign ownership
3. Mixed ownership

Column 25: Question 1.5 - Legal Form.

Write the number 1 or 2 as indicated below:

1. Corporation
2. Other

Column 26: Question 1.6 - Management.

Write the number 1, 2 or 3 as indicated below:

1. Domestic
2. Foreign
3. Mixed

Column 27: This column is left to be used at the discretion of the person directing the country study. It could be used to identify the firms managed by an ethnic group relevant to an individual country. PHILIPPINES: 1 - Chinese, 2 - Filipino, 3 - American, 4 - others.

Column 28: Question 2 - Utilization percentage.

(From W.2 in the worksheet. To be estimated when all the plant sections work with the same annual schedule. Leave blank where there is sectional variation in capital utilization.)

Write the present utilization rate from j of W.2. This rate should include two decimals of a percent, i. e., 28.37.

Column 29: Question 2 - Hours/day.

(From W.2 in the worksheet.)

Write the hours of operation on a typical day from g of W.2. This number should include one decimal i.e., 8.0 or 7.5.

Column 30: Question 2 - Days operated.

(From W.2 in the worksheet)

Write the number of days operated per year (c plus f in W.2).

Column 31: Question 3.1 - Intensity.

Write the percentage of plant in use during operation from 3.1. (Do not use decimals of a percentage point.)

Column 32: Question 3.2 - Sections.

Write a 0 if answer is NO.
Write a 1 if answer is YES.

Column 33: Question 3.3 - Sections' schedule.

As in Column 32.

Column 34: Question 3* (For all coding of Question 3* use the worksheet W.2*)

Write the number of days operated per year in section 1 (c plus f in column 1 of W.2*).

Column 35: Question 3* Days operated Sec. 2.

As in Column 34 for section 2.

Column 36: Question 3* Days operated Sec. 3.

As in Column 34 for section 3.

Column 37: Question 3* Hours operated Sec. 1.

Write the hours of operation of section 1 on a typical day. (g first column in W.2*. Use one decimal).

Column 38: Question 3* Hours operated Sec. 2.

As in Column 37 for section 2.

Column 39: Question 3* Hours operated Sec. 3.

As in Column 37 for section 3.

Column 40: Question 3*

Percent utilization of section 1. As in Column 28, but use figure from j, first column, in W.2*.

Column 41: Question 3* Percent utilization Sec. 2.

As in Column 40, but for section 2.

Column 42: Question 3* Percent utilization Sec. 3.

As in Column 40, but for section 3.

Column 43: Question 3*

Average unadjusted utilization time. Write the figure in the fourth column of m in W.2*. Include two decimal points.

Column 44: Question 3*

Intensity of use in section. From W.2*, n first column. (No decimal.)

Column 45: Question 3* Intensity of use Sec. 2.

As in Column 44, but section 2.

Column 46: Question 3* Instensity Sec. 3.

As in Column 44, but section 3.

Column 47: Worksheet.

Time and intensity utilization rate. Write the figure in the fourth column of row 0 of W.2*. (Two decimals), or multiply the figure in column (28) times the figure in column (31).

Column 48: Question 4.1 - More/less operation.

Write a number as indicated below:

0 - No
1 - Yes

Column 49: Question 4.2 - More-Month. (Note: Columns 49-58 should be 00 if Column 48 is 0).

Write the number of the month of the year (01, 05, 11, etc.)

Column 50: Question 4.3 - Days/week

Write the number of days a week of work, including one decimal figure i.e., 5.0, 5.5, etc.

Column 51: Question 4.3 - Hours/day

Write the number of daily hours of work, including one decimal figure i.e., 7.5, 9.0, etc.

Column 52: Question 4.4 - More Months

Write 0 for NO
Write 1 for YES

Column 53: Question 4.4 - How many.

Write the number of months, 0, 2, etc.

Column 54: Question 4.5 - Less-Month.

As in Column 49

Column 55: Question 4.6 - Days/week

As in Column 50.

Column 56: Question 4.6 - Hours/day.

As in Column 51.

Column 57: Question 4.7 - More-Months

As in Column 52.

Column 58: Question 4.7 - How many.

As in Column 53.

Column 59: Question 4.8 - Shut down?

Write 0 if answer is NO
Write 1 if answer is YES

Column 60: Question 4.9 - Costly?

Write 0 if answer is NO
Write 1 if answer is YES

Column 61: Question 5.1 - Work day.

Write the number of hours of work per day. (One decimal.)

Column 62: Question 5.1 - Work week.

Write the number of hours of work per week (No decimals.)

Column 63: Question 6.1 - Wage payments.

Write a number 1, 2, 3, 4, or 5 if the workers are paid:

1 - by the hour
2 - by the day
3 - by the week
4 - by the month
5 - by picework

Column 64: Question 6.2 - Wage.

Write the wage-level in domestic currency. Round up to limit the figure to six digits. Write a dash and a number, 1, 2, 3, or 4 after the wage to indicate if this is an hourly, daily, weekly or monthly wage. For example, if the person makes $205 per week, it should read 2 0 5 - 3. (You can choose the number of decimals needed in each country, as long as you keep a consistent coding.)

Column 65: Question 6.3 - Night shift differential?

Write a 0 if answer is NO for night work, and a 1 for a positive answer.

Column 66: Question 6.3 - Amount.

If Column 65 is a 0, leave blank.

If Column 65 is a 1, write either the amount in domestic currency or the percentage. Do not exceed four digits. If night wage differential is expressed as a percentage, write a dash followed by a number 1. If it is expressed in currency, write a dash followed by a number 2. For example, a 35% night differential should read 35 - 1, while a ₱6.50 differential should read 6.50 - 2.

Column 67: Question 6.3 - Week-end work.

As in Column 65.

Column 68: Question 6.3 - Weekend work - Amount.

As in Column 66.

Column 69: Question 6.3 - Overtime

As in Column 65.

Column 70: Question 6.3 - Overtime - Amount.

As in Column 66.

Column 71: Question 6.4. Food?

Write a 0 if answer is no and a 1 for yes.

Column 72: Question 6.4 - Transport?

As in Column 71.

Column 73: Question 6.4 - Medical?

As in Column 71.

Column 74: Question 6.4 - Lay-off taxes or costs?

As in Column 71.

Column 75: Question 6.4 - Other?

As in Column 71.

Column 76: Question 6.4 - Fringe benefit costs.

Add all the costs. If they are expressed as a percentage of the wage rate, write a dash and a number 1; if they are expressed in currency, write a dash followed by a number 2.

Column 77: Question 7.1 - Day workers.

Write the number of workers during a typical day shift.

Column 78: Question 7.11 - Night workers.

Write the number of workers during a typical night shift.

Column 79: Question 7.2 - Shift output.

Write a number 1, 2, 3, or 4 if the output per man-hour is:

1 - higher during the day
2 - higher during the night
3 - about the same for both
4 - does not operate night shift.

Column 80: Question 8.1 - Imported inputs.

Add the percentage of total inputs and write it down in this column. Do not write decimals.

Column 81: Question 8.2 - Price change.

Write the percent price change of the first input. (No decimals.)

Column 82: Question 8.2 - Percent cost.

Write the percent of total production costs represented by the first input. (No decimals.)

Column 83: Question 8.2 - Price change.

As in Column 81 - second input.

Column 84: Question 8.2 - Percent cost.

As in Column 82 - second input.

NOTE: In Columns 81 - 84 write zeros when appropriate

Column 85: Question 8.3 - Unavailability?

Write a 0 if answer is NO and a 1 if YES.

Column 86: Question 8.31 - Shut down?

Leave blank if column 85 is zero. Write a 0 if answer is NO and 1 if answer is YES.

Column 87: Question 8.32 - Inventories?

As in column 86.

Column 88: Question 9.1 - Capacity.

Write the percentage of capacity. No decimals.

Column 89: Question 9.2 - Normal week.

Write the number of hours. (No decimals.)

Column 90: Question 9.21 - Full Capacity?

Write a 0 if NO, a 1 if YES.

Column 91: Question 9.3 - Expect desired?

As in Column 90.

Column 92: Question 9.4 - Causes.

If operation was 100% of the desired level do not write anything in this column. If production was different from the desired level, write up to four of the numbers 1, 2, 3, 4, 5, 6, and 7 assigned to the following possible causes:

1 - lack of demand.
2 - lack of imported inputs
3 - lack of domestic inputs
4 - lack of supervisers
5 - lack of skilled labor
6 - lack of working capital
7 - other

These numbers should be written in order of importance.

Column 93: Question 10.1 - Loss of value.

Write the number of hours, days, etc., followed by a dash, and a number from one to five according to the following list: 1 - hours, 2 - days, 3 - weeks, 4 - months, 5 - years. If the answer is "indefinitely" or "very long", write only a dash followed by a number six (-6).

Column 94: Question 10.2 - Demand stable?

Write a 1 if the demand is steady and a 0 if it is not steady.

Column 95: Question 10.31 - Demand change.

Write the percentage of change. Write a 0 if answer to 10.2 is "steady demand". Do not include decimals of a percentage point.

Column 96: Question 10.32 - Expect pattern?

Write a 0 if the answer to 10.2 is "not steady", and the answer to 10.32 is NO.

Write a 1 if the answer to 10.2 is "not steady", and the answer to 10.32 is YES.

Write a 2 if the answer to 10.2 is "steady".

Column 97: Question 10.33 - Time variations.

Write a 0 if answer to 10.32 is NO; leave blank if column 94 is 1;

Write
(1 - if variations are weekly
(2 - if variations are monthly
(3 - if variations are quarterly
(4 - if variations are annually
(5 - if other

Column 98: Question 10.4 - Domestic more stable?

Write
(0 - if answer is NO
(1 - if answer is Yes
(2 - if answer is "No difference"
(3 - if non-applicable

Column 99: Question 11.1 - Market structure.

Write
(1 - if answer is 0 (Monopoly)
(2 - if answer is 2 to 7 (Tight oligopoly)
(3 - if answer is 8 to 20 (Loose oligopoly)
(4 - if answer is 21 or more.

Column 100: Question 11.2 - Larger Firms.

Write the number of larger firms.

Column 101: Question 11.2 - Smaller Firms.

Write the number of smaller firms.

NOTE: In Columns 100 and 101, write the number 9999 when the answer is "many".

Column 102: Annual cost of owning capital (in pesos)
(30 - 34)

Column 103: Dummy variables on product-end use
(36 - 38)

X_1 = 1, if products are consumer goods
= 0, if not consumer goods

X_2 = 1, if intermediate goods
= 0, if not intermediate goods

X_3 = 1, if capital goods
= 0, if not capital goods

Column 104: Dummy variables on market structure
(40 - 43)

Y_1 = 1, if Column 99 is 1
= 0, if Column 99 is not 1

Y_2 = 1, if Column 99 is 2
= 0, if Column 99 is not 2

Y_3 = 1, if Column 99 is 3
= 0, if Column 99 is not 3

Y_4 = 1, if Column 99 is 4
= 0, if Column 99 is not 4

Column 105: Dummy variable on BOI firms
(45)
(

Z = 1, if BOI firms
Z = 0, if non-BOI firms

NOTE: Numbers in paretheses underneath Columns 102 - 105 indicate card column numbers in the sixth data card for each establishment. The format for Columns 1-101 also requires one blank card column separating each "bit" of information. All figures, except those in Column 92, are right justified.

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