CHANGES IN MARKET CONCENTRATION IN
PHILIPPINE MANUFACTURING: 1960 - 1970

By

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The existence of a competitive environment is an important ingredient in an economic development process that relies to a considerable extent on market signals to direct entrepreneural activity. We have previously investigated the level of plant concentration in Philippine manufacturing industries for 1970.[1] The three establishment employment and value added concentration ratios varied over the 18 two-digit ISIC industries examined. We suggested, however, that the average level of concentration (25 per cent for employment and 36 per cent for value added) was sufficiently high to indicate that the manufacturing sector of the Philippine economy could be characterized as monopolistic.

In examining the determinants of the level of concentration, the most important relationship was between the level of concentration and the relative size of the industry (roughly, the size of the industry relative to the size of the average plant). In addition value added per worker was significantly associated with value added concentration. We also found that a significant part of the inter-industry differences in price-cost margins was explained by value added concentration.

Statistics were presented for 1960 and were found to be similar to those for 1970. This led us to conclude that the pattern of influence of the factors affecting the level of concentration on concentration itself was roughly stable. This does not imply that there was no movement, however, for concentration changed in the manufacturing industries at different rates and in both directions. In this article, we shall examine those changes.

As in the analysis of concentration in 1970, the petroleum and miscellaneous industries will not be included; all totals and averages

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[1] "Market Concentration in Philippine Manufacturing, 1970" (unpublished).

will refer to the remaining eighteen two-digit ISIC industries and t establishments employing twenty or more workers. Logarithms the variables will be used in correlation and regression analysis.

We shall first look at the range of changes in concentration and th average movement. Second, the association of changes in concentr tion with changes in the relative size of the market and in inequalit of establishment size will be examined. Next the determinants changes in concentration will be analyzed. Finally we will look at th relationship between changing structure and changing performan

Average and Range of Changes in Concentration

Changes in employment and value added concentration are giv in Table 1. There was a reduction in employment concentration in a but two industries; value added concentration, on the other han increased in almost one-half of the industries. The range of chang in employment concentration was much smaller than that of valu added: 25 as opposed to almost 50 percentage points. Apart fro the three industries which had the largest decrease in concentratio by both measures, there is no correlation between changes i employment and changes in value added concentration. It should b borne in mind that the identity of the largest plants in each industr need not be the same in the two years for which the comparison being made.

The average change in the level of concentration is presented i Table 2. The choice of a weighting scheme affects the results onl marginally. The larger value of the average of the absolute changes i value added concentration relative to the other formulations reflec the substantial amount of offsetting changes in levels of value adde concentration in the different industries.

A slightly different approach looks at the change in the averag level of concentration (rather than the average change). This allo changes in the size of the various industries to be separated fro changing concentration within each industry. That is,

$$\text{Change in the Average Level of Concentration} = \Sigma(\Delta S) \cdot CR_{60} + \Sigma S_{60} \cdot (\Delta CR) + \Sigma(\Delta S) \cdot$$

where CR is the concentration ratio, S is the relative size of th industry, the subscript is the year, and ΔS and ΔCR are the chang between 1960 and 1970. Using 1960 as the basis for comparison, th

TABLE 1

Change in Three-Establishment Concentration Ratios: 1960-1970

Industry Number	Industry	Change in Concentration (%pts.)	
		Employment	Value Added
80.	Food, manufactured	−3.21(7)	−6.13(12)
81.	Beverages	−8.17(13)	−2.96(10)
82.	Tobacco products	−4.05(9)	−8.35(13)
83.	Textiles	−3.36(8)	1.79(8)
84.	Footwear, other wearing apparel, and made-up textile goods	8.79(1)	6.16(4)
85.	Wood, cane, and cork products, except furniture	−2.05(3)	3.56(6)
86.	Furniture and fixtures	−3.17(6)	−4.71(11)
87.	Paper and paper products	2.09(2)	3.18(7)
88.	Painting, publishing, and allied industries	−2.24(4)	14.54(2)
89.	Leather and leather products, except footwear and other wearing apparel	−11.10(15)	5.42(5)
90.	Rubber products	−9.94(14)	−0.33(9)
91.	Chemicals and chemical prod.	−2.81(5)	−8.44(14)
93.	Non-metallic mineral prod., except products of petroleum and coal	−8.03(11)	−16.16(15)
94.	Basic metal industries	−14.60(16)	−18.74(17)
95.	Metal products, except machinery, and transp. equip.	−15.01(17)	−17.06(16)
96.	Machinery, except elect.	−16.23(18)	−27.72(18)
97.	Electrical machinery, apparatus, appliances and supplies	−4.37(10)	9.79(3)
98.	Transport equipment	−8.08(12)	20.78(1)

Note: Ranks are in parentheses.

TABLE 2

Average Change in the Levels of Concentration

	Average Change	
Weights	Employment (%pts.)	Value Add (%pts.)
1970 Size	−4.22	−3.99
1960 Size	−3.91	−3.95
Unweighted	−5.86	−2.52
Unweighted, absolute change	7.07	9.77

Source: Same as Table 1.

first term on the right is the average change in the relative size manufacturing industries, and the second term is the average chan in the level of concentration. The last term is generally small. S Table 3. The negative change in average concentration can be att buted entirely to changes in the level of concentration within e industry. The change in relative size of the industries, both in ter of employment and value added, was a movement toward the m concentrated industries; therefore, its effect was to increase aver concentration.

Changes in Industry Size, Establishment Size, and Concentration

The change in concentration can be factored into compone which reflect changes in relative industry size, changes in the equality of size among establishments, and an interaction term. T number ratio, $3/(N-3)$, where N is the number of establishment the industry, is used to reflect the size of the industry relative technology in use. Inequality in size is measured by the size ratio, average size of the largest three establishments divided by the aver size of the remaining establishments.

Changes in the size and number ratios for both employment value added concentration are given in Table 4 along with the rank concentration ratios. The values in the table are relative changes: 1970 value as a proportion of the 1960 value. A comparison of

TABLE 3

Change in the Average Level of Concentration

	Total (%pts.)	Contributions to Chg. in Average Concentration		
		Chg. in relative Industry Size (%pts.)	Chg. in indus. Concentration (%pts.)	Interaction Term (%pts.)
Employment	−3.51	0.71	−3.91	−0.30
Value Added	−2.60	1.39	−3.95	−0.04

Source: Same as Table 1.

changes in concentration can be made with those listed in Table 1 which constitute the differences in the 1960 and 1970 levels of concentration, measured in percentage points. It will be recalled that the range of differences in value added concentration was approximately twice that of employment. When the change is measured in terms of proportionate change, the range is about one hundred ten to one hundred twenty percentage points for both measures. However, if the industry with the greatest proportionate increase in employment concentration is excluded, the range of changes in employment concentration is halved.

In the analysis of the level of concentration in 1970, the level of concentration was found to be closely associated with the number ratio of an industry, while large size ratios were associated with both the most and the least concentrated industries. Significant inequality in establishment size between the largest plants within an industry and the rest occurred throughout the manufacturing sector. No doubt differences in inequality contribute to differences in the level of concentration but not in a systematic fashion. On the other hand, the smallness of the relative market size is systematically related to concentration and, consequently, to monopoly.

When we observe the relationship between changes in concentration and changes in the number and size ratios, a different pattern is observed. See Table 5. There is only a moderate correlation between

TABLE 4

Ranked Changes in Concentration Ratios, Size Ratios, and Number Ratio: 1960-1970[a]

	Employment				Value Added		
Indus. Number	Conc. Ratio	Size Ratio[b]	Number Ratio[c]	Indus. Number	Conc. Ratio	Size Ratio[b]	Num R.
24	1.644	1.107	1.654	28	1.763	3.128	0.
27	1.098	1.336	0.844	38	1.737	4.184	0.
28	0.917	1.296	0.687	24	1.487	0.967	1.
22	0.896	0.773	1.087	37	1.369	2.575	0.
25	0.893	1.053	0.827	25	1.198	1.514	0.
26	0.884	1.055	0.803	29	1.125	1.659	0.
23	0.873	1.114	0.750	27	1.104	1.371	0.
31	0.866	1.127	0.660	23	1.083	1.478	0.
37	0.862	1.321	0.613	30	0.995	1.713	0.
20	0.835	0.795	1.009	21	0.947	0.963	0.
38	0.761	1.161	0.584	26	0.867	1.007	0.
30	0.754	1.125	0.575	22	0.860	0.656	1.
34	0.730	1.385	0.400	31	0.761	1.019	0.
33	0.725	0.780	0.835	20	0.735	0.674	1.
21	0.723	0.703	0.922	34	0.700	1.167	0.
29	0.713	0.805	0.750	33	0.649	0.598	0.
36	0.621	0.741	0.650	36	0.610	0.479	0.
35	0.516	0.560	0.757	35	0.551	0.570	0.

[a] Changes are ratios of 1970 to 1960 values.

$$\text{[b] Size Ratio} = \frac{\sum\limits_{n=1}^{3} X_n/3}{\sum\limits_{n=4}^{N} X_n/(N-3)}$$, where X_n is the size (employment

or value added) of the nth largest establishment, and N is the number of establishments in the industry.

[c] Number Ratio = $3/(N-3)$.

Source: Same as Table 1.

114

changes in the number ratio and employment concentration, and one between the former and changes in value added concentration. On the other hand, there is a high correlation between the value added concentration ratio and size ratio. The large differences in relative size of industries in 1970 contributed to the high correlation between concentration and the number ratio. However, variations in changes in the value added size ratio are much more pronounced than those of the number ratio; therefore, the correlation between the former and changes in concentration is high.

The range of the relative size of ISIC two-digit industries will not be substantially reduced in the foreseeable future. Consequently, the number ratio should continue to remain highly associated with the level of concentration. On the other hand, there is no particular reason for the range of change in either the number or size ratios to be considerably larger than the other, so the strength of the association of either with the concentration ratios may vary considerably. During the decade of the 1960s, it was the changes in the value added size ratio, i.e., changes in the inequality of establishment size within industries, that were most closely associated with changes in concentration.

TABLE 5

Correlations Among Changes in Concentration, Size, and Number Ratios[a]

	Correlation Coefficient	
Variables[b]	Employment	Value Added
Concentration and number ratio	0.5838	0.1192
Concentration and size ratio	0.5459	0.8580
Number ratio and size ratio	−0.3494	−0.3705

[a] Change is ratio of 1970 value to 1960 value. Correlations are of logarithms of ratios.

[b] Concentration is the three-establishment concentration ratio. For definitions of number and size ratios, see Table 4.

Source: Same as Table 1.

Determinants of the Changes in Concentration

Economic activity induced by an initial market structure an changes in the size of the market and in the technology being u have an impact on the level of industry concentration: the init level of concentration, industry size, and capital-labor ratio, t industry growth rate, the change in average establishment size, an the change in importance of imports affect the magnitude and dir tion of change in concentration. Each of these is discussed belo and their combined effect on concentration is examined.

1960 Level of Concentration. Highly concentrated industri *ceteris paribus,* should attract new entrants, and the market shar the leading firms should fall. Mueller and Hamm argue that th would be the expected outcome if traditional price theory were u In addition, if the general conditions of entry were changing, t same result would follow from Bain's theory of "entry forestalli pricing."[2]

The theoretical association is between the level and the chang firm concentration, while our ratios are for establishment concentr tion. Nevertheless, the same result should hold. For single plant fir it would follow directly. If the firm losing market shares wer multiplant firm, it might respond by increasing production in one more plants, while cutting production significantly in others. But t more general case would be to reduce production all around; th plant concentration would fall.

Many manufacturing industries in the Philippines, including so that were highly concentrated in 1960, are newly developing. would be expected that these industries would attract new entra and that the market share of the largest establishments would f

The coefficient of the 1960 level of concentration should negative.

1960 Size of Industry. The larger the size of an industry, the mo difficult it is for any one firm to maintain a dominant position. there is a condition of equilibrium, size of industry should have

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[2] Willard F. Mueller and Larry G. Hamm, "Trends in Industrial Concentratio 1947 to 1970," *Review of Economics and Statistics,* 56 (November, 1974), 514.

ffect. But Mueller and Hamm suggest that equilibrium is an inappro-
priate assumption. A large industry, *ceteris paribus,* would have
lower entry barriers; therefore, concentration should fall.[3] On the
other hand, the existence of a large market could allow the intro-
duction of new, large-scale technology. The result would be increas-
ing concentration. However, the negative association should be more
prevalent.

1960 Capital-Labor Ratio. This is a barrier-to-entry variable: the
higher the average capital-labor ratio, the more difficult the entry,
the coefficient of the capital-labor ratio should be positive.

Industry Growth Rate. There have been several studies attempting
to relate market growth to changes in concentration. One view is that
it is easier for new producers to enter and old producers to expand in
rapidly growing industries. They do not have to erode the markets of
other producers to obtain new customers.[4] However, this argument
implies that new or smaller producers can attract new customers
more easily than the already dominant producers. There is no basis
for this assumption. In fact, the dominant producers may be in a
much stronger position to take advantage of the growth of the indus-
try. Also, increased market size resulting from rapid growth may
induce entrants with technology far superior to that of existing
producers. The result could be that the new producer is able to
acquire a significant part of the old market, as well as much of the
new business. In either of these cases, increasing concentration would
tend to be associated with rapid growth. Therefore, we cannot
predict the direction of association between growth and changes in
concentration.

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[3] Willard F. Mueller and Larry G. Hamm, p. 514.

[4] Mueller and Hamm found a significant negative association between market
growth and change in concentration. William G. Shepherd reported that both he
and Ralph L. Nelson found significant associations between growth and declin-
ing concentration. However, their R^2s were quite low and the coefficients small.
Shepherd concluded that growth is of minor influence on concentration.
Kamerschen, on the other hand, found no support for the thesis that growth is
related to decreasing concentration. See Mueller and Hamm, p. 514; William G.
Shepherd in U.S., Congress, Senate Subcommittee on Antitrust and Monopoly,
Economic Concentration, 88th Cong., 2d Sess., 1964 (Washington, D.C.: U.S.
Government Printing Office, 1964), Part 2, p. 639; and D.R. Kamerschen,
"Market Growth and Industry Concentration," *Journal of the American Statis-
tical Association,* 63 (March, 1968), pp. 228-241.

Change in Average Size of Establishment. As new and mo
productive technology is introduced into an industry, produc
using the older technology may find themselves in a situation wh
they can no longer profitably compete in the industry. They m
adapt their production process or leave the industry. The newer te
nology is generally more capital intensive, requiring a larger scale
output for efficient operation than the older technology. The co
sequence, over time, of its introduction will be an increase in t
average size of establishments. Fewer establishments are needed
satisfy the market, and, as a result, concentration increases.
should expect a positive association between changes in the aver
size of establishment and changes in concentration.

Change in Import Ratio. A reduction in the proportion of t
market served by imports opens new possibilities for dome
producers. An inverse relation between changes in the import ra
and changes in concentration should result.

Data on imports by industrial origin were not easy to acquire.
1970, data were obtained for imports plus duties, taxes, and oth
charges for 1969, and an assumption was made that imports as a p
cent of the market in each industry was the same for both years. T
same procedure was used for 1960. Data on imports plus dut
taxes, and other charges were obtained from the 1961 Input-Outp
Accounts of the National Economic Council.[5] Since there wa
Survey of Manufacturers in 1961 the average of the 1960 and 19
values was taken and the results of which became the basis for t
estimated 1961 manufacturing receipts. In addition it was assum
that imports were the same fraction of domestic production in bo
1960 and 1961.

Table 6 presents the results of our estimations. The coefficien
for 1960 employment concentration are significant at the 0.05 lev
as are the coefficients of value added concentration in two of t
formulations. In the first, it is significant at the 0.10 level. T
coefficient of the 1960 size variable is significant at the 0.1 level
equation six. Both of these variables are negatively related to chan

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[5] R.P., Office of Statistical Coordination and Standards, National Econo
Council, *The 1961 Interindustry (Input-Output) Accounts of the Philippi*
(Manila: Bureau of Printing, 1969), Table 2, "1961 Transactions at Produc
Prices."

in concentration, as was predicted. High levels of concentration and large market size induce activity that tends to decrease concentration. Total explanatory power is significant at the 0.05 level for all equations except the one for value added concentration which includes all six explanatory variables.

Multicollinearity plagues our estimation attempts in this model as it did our analysis of the determinants of the 1970 level of concentration. There is a particular problem of collinearity with the change in average size of establishment and growth rate variables. We argued there that rapid growth of an industry might be positively associated with changes in concentration if growth is associated with increasing establishment size. This seems to be the case.[6] Since these two variables are so highly correlated, the model is estimated including only one of them at a time. In the employment equations the coefficients of both the growth rate and average size of establishment are significant when they are entered separately into the model. When both variables are included, neither coefficient is significant. In the value added equations, the average size of establishment coefficient is near-

TABLE 6

Regression Equations for Change in Concentration

Equa. No.	1960 Concentration	1960 Industry Size	1960 Cap.-Labor Ratio	Industry Gr. Rate	Change in Average Per Est.	Change in Im. Ratio	R^2	Sd. Error	F-Test	D.F.
				Employment						
1.	−0.6798 (0.2239)	−0.1062 (0.0620)	−0.1493 (0.0838)	4.5117 (3.4474)	0.0196 (0.3215)	−0.1247 (0.0992)	0.7012	0.0709	4.3031	11
2.	−0.6334 (0.1654)	−0.0904 (0.0636)	−0.1477 (0.0815)	4.2980 (2.3065)			0.6152	0.0740	5.1959	13
3.	−0.4503 (0.1581)	−0.0993 (0.0618)	−0.0809 (0.0585)		0.3914 (0.1785)		0.6441	0.0712	5.8815	13
				Value Added						
4.	−0.3563 (0.1918)	−0.1584 (0.0948)	−0.1182 (0.1145)	−0.5754 (3.2926)	0.3642 (0.4090)	0.0888 (0.1983)	0.5545	0.1255	2.2822	11
5.	−0.4436 (0.1493)	−0.1086 (0.0744)	−0.1155 (0.1095)	1.8463 (1.6831)			0.5171	0.1202	3.4802	13
6.	−0.3918 (0.1438)	−0.1441 (0.0789)	−0.1096 (0.1015)		0.2555 (0.1771)		0.5452	0.1166	3.8960	13

Notes: Data in logarithms.

Standard errors of coefficients are in parentheses.

Source: Same as Table 1.

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[6] The partial correlation coefficient between the industry growth rate and changes in the average size of establishments is 0.7651 for employment and 0.8444 for value added when the other exogenous variables in the model are held constant.

ly significant. Increases in the average size of establishment an employment growth rate tend to have a positive impact on change in concentration.

The import ratio was not included for it seems to have no explana tory value. Imports should have an effect upon concentration an monopoly, but our formulation does not reflect it. It would be u ful to have concentration information in terms of shipments so th imports could be included directly. Finally, the coefficient of t capital-labor ratio is negative. This is unexpected and is similar to t relationship between the level of concentration and the capital-lab ratio. The existence of excess capacity might be part of the explana tion. In addition, the choice of technology might be more capit intensive in the larger industries, which are less concentrated.

In interpreting the coefficients, we must keep in mind that so of the variables are logarithms of levels and others are logarithms o ratios. A small movement in the dependent variable, in the change average size of establishment variable, or in the change in the impo ratio can be viewed as the difference in the decade change as proportion of the (initial) 1970 value. A change in the logarithm o 1960 level of concentration, industry size, or capital-labor ratio is th difference in the two values as a proportion of the initial one. Th growth rate variable is of the form $\log(1 + g)$, where g is the averag annual growth rate. Assuming g is small, the change in the logarith is approximately equal to a percentage point change.[7]

On average, there was a decrease in the level of industry concentr tion between 1960 and 1970. Employment concentration decrease at an average of 5.86 percentage points (almost 20 per cent). This substantial reduction. The influence of the 1960 level of concentr tion, industry size, and capital-labor ratio was toward decreasi concentration, while positive growth rates and increases in th average size of industry establishments were associated with increa ing concentration. Imports had no appreciable effect.

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[7] $\Delta \log X = (X' - X)/X = \Delta X/X$, if the change in X is small. The interpretati of the change in the 1960 level of concentration, industry size, or capital-lab ratio follows from this. $\Delta \log(1 + g) = \Delta g/(1 + g)$. This is approximately equal Δg if $g \ll 1$. Finally $\Delta \log(X_7/X_6) = \Delta \log X_7 - \Delta \log X_6 = \Delta X_7/X_7 - \Delta X_6/X$ Assuming $\Delta X_6 = 0$, then $\Delta X_7 = X_7' - X_7 = (X_7' - X_6') - (x_7 - X_6)$. Let X_7 b the 1970 level of concentration, average establishment size, or import ratio, an in a like manner, let X_6 be the 1960 values. Our interpretations follow.

The average change in value added concentration was much less: 4.52 percentage points (about 4.5 per cent). The explanatory variables affected changes in value added concentration in the same direction as they did employment concentration, except that neither the capital-labor ratio nor the growth rate is statistically significant.

Our analysis of the level of concentration in 1970 led us to conclude that the Philippine manufacturing sector in 1970 could be generally characterized as monopolistic. There were variations in the level of concentration, but we argued that the statistics support the generalization. Inasmuch as concentration decreased from 1960 to 1970, the same argument would hold for 1960. But since concentration did decrease over the decade, would this imply that as the economy develops, monopoly will continue to decrease?

The negative association between changes in concentration and the initial level of concentration is a result of the attractiveness of highly concentrated industries, with their high profits, to new producers. The consequence of the entry is that the industry leaders lose market shares, and the establishment concentration ratio falls. Concomitantly, either the market must be growing in size at least in proportion to the increasing capacity of producers, or the existing plants (and possibly the new ones) must operate with increasing excess capacity. The latter could persist if there remains a substantial degree of monopoly in which the producers are willing to restrict production to maintain a higher profit per unit sold. However, if the entry process reduces the degree of monopoly sufficiently, it would not seem reasonable to expect producers to be content with considerable excess capacity; the resulting competition for additional customers would drive out the inefficient. There would be a return to the earlier monopolistic situation.

An ongoing reduction in concentration, therefore, depends upon the growth of the market relative to the technology being used. Manufacturing has not been a leading sector in the economy during the 1960s. It has just kept pace with the overall growth of the economy, accounting for between 17.5 and 19.1 per cent of net domestic product.[8] One report characterized the sixties "as a period

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[8] The *Statistical Reporter*, 13 (Manila: Office of Statistical Coordination and Standards, National Economic Council, R.P., April-June, 1969), p. 59; and R.P., National Economic and Development Authority, *The National Income Accounts, 1967 to 1972* (Manila, 1973), p. 31.

of relative stagnation in industrial growth."[9] In addition, industry growth rates have contributed to increasing concentration, as have changes in average establishment size, and the two were highly correlated in the 1960s.

We argued in our analysis of the level of concentration that growth, even in an economy with a newly developing industrial sector, can best be viewed from the demand size. This is particularly true for growth of the domestic market. And here the investment decisions of the capitalists are of primary importance. They will not invest unless they believe there is a demand for increased output at profitable prices, but the demand will not be there unless they spend. Their importance is diminished somewhat by the need to import most capital goods, but the point still holds. The one area where the supply side should be stressed is in the generation of a greater market through increased exports. But here too, the capitalist in the Philippines plays a key role.

The prospect for continued reduction in technologically determined concentration does not seem bright. And, if the level of concentration remains high, it will no doubt have a retarding effect on the performance of the industrial sector. The stagnation thesis remains relevant.

Changes in Price-Cost Margins and Concentration

As concentration changes within an industry, it would be expected that the profit rate that the firms could achieve would also change. Therefore, we would expect the price-cost margin to change in the same direction as establishment concentration.

Again, there are other factors which would affect the ability of a firm to achieve a high markup other than the change in concentration at the plant level. In addition, it would be expected that the time necessary for adjustments to take place would vary from one situation to another. Nevertheless, changes in concentration should have a significant effect.

A regression of the logarithm of the change in the price-cost margin (ΔPCM) on the logarithm of the change in value added

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[9] International Labour Office, *Sharing in Development: A Programme of Employment, Equity and Growth for the Philippines* (Geneva: International Labour Office, 1974), p. 15.

concentration (ΔVACR) shows that a significant amount of the varia-
tion of the former can be explained by the latter.[10]

$$\Delta PCM = -0.0205 + 0.3067 \cdot \Delta VACR, \quad R^2 = 0.3490,$$
$$(0.1047)$$

$$s_e = 0.0629, \quad F = 8.5790, \quad d.f. = 16.$$

Changing concentration does affect the degree of monopoly power within an industry.

Conclusion

Size of industry and size of establishment were the important variables in the analysis of the level of concentration in 1970 and of the movement in concentration during the 1960s. The small size of industrial markets relative to the technology in use creates conditions where monopoly is likely to prevail. For 1970 the high correlation between the number ratio — reflecting relative market size — and concentration gives support to this hypothesis, as does the similar magnitude but opposite signs of the coefficients of industry size and of average establishment size in the regression model. Large inequali- ties in establishment size within industries, however, is not system- atically associated with concentration.

Inequality is much more important in the analysis of changes in concentration between 1960 and 1970. The change in inequality of the size of the largest plants in an industry relative to the others — i.e., changes in the size ratio — are positively correlated with changes in concentration. In addition, changes in average establishment size have significant explanatory power in the regression model.

Initial industry size is negatively associated with changes in con- centration; however, changing size — industry growth rate — is

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[10] Changes are ratios of 1970 to 1960 values. A separate regression included changes in the capital-output ratio (ΔKOR). Changes in concentration still have a significant effect on changes in the price-cost margin.

$$\Delta PCM = -0.0189 + 0.2522 \cdot \Delta VACR - 0.1476 \cdot \Delta KOR,$$
$$(0.1073) \qquad\qquad (0.0989)$$

$$R^2 = 0.4332, \quad s_e = 0.0625, \quad F = 5.7317, \quad \text{and d.f.} = 15.$$

important only in explaining changes in employment concentration and the coefficient of this variable is positive. Important also is the large coefficient of partial correlation between growth rate and changes in average establishment size for both employment and value added.

Average concentration fell over the decade of the sixties only slightly in terms of value added, but more so in terms of employment. Almost one-half of the industries had increases in value added concentration. Although both concentration ratios are important in understanding the structure of manufacturing, the value added ratio is more reflective of the existence of economic power in the market.

Initial levels of concentration and industry size are associated with decreasing concentration, while the influence of the dynamic variables — growth and changing establishment size — is toward increasing concentration. Our analysis suggests that the future overall movement in establishment concentration will depend on the relative importance increasing industry size and increasing use of large-scale plant and equipment in the development of the manufacturing sector. There is no *a priori* reason for either to dominate the process. Growth however, is primarily a response to the growth of domestic demand. If this remains true in the future, the effect of concentration will be most probably in the direction of limiting the pace of growth. Hence, the prognosis, however hesitantly put forth, is for continued high establishment concentration.

The performance of the manufacturing sector, as indicated by the price-cost margin, or degree of monopoly, is significantly related to both the level of value added concentration and decade changes in the level. High profits can act as a stimulus to economic activity, both responding to and generating increases in demand. However, if increasing demand is not present, high profits can as easily be the explanation of stagnation. And it is this side that seems to be the most relevant to the Philippine situation in the 1960s.

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