Profitability and industrial concentration in Pakistan

Amjad, Rashid

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by Rashid Amjad*

Industrial concentration has been an important political issue in Pakistan. White [1974] recently established a relationship between concentration and the return on capital in a sample of company accounts. This study, based on census material, re-examines the problem with a wider coverage and using the price-cost margin, rather than the return on capital, as the measure of profitability. Concentration and a number of other variables are related to price-cost margins in twenty-five industries between 1965–70. Concentration emerges as the most important explanatory variable but the level of imports and capacity utilisation are also significant.

Industrial assets have shown concentrated ownership in several developing countries [see *Hazari, 1966; Mehrav, 1969*], especially in earlier industrialisation. However, in Pakistan, it became extreme; it was one of the most controversial aspects of Pakistan's rapid industrial growth in the sixties. Yet it received no detailed investigation.[1] The only basis for opinions about it was Haq's[2] famous statement that twenty-two families own eighty-seven per cent of the banking and insurance and sixty-six per cent of the industrial assets [*Dawn, 25th April, 1968*].

Recently, however, some attempts have been made to investigate this concentration [*Shibli, 1972; Amjad, 1974; White, 1974*] in both industry and finance, but only White has also looked into the impact of concentration on profitability by industries. My aim (like White's) is to examine the relationship between concentration and profitability, but instead of White's profitability measure based on balance sheets of quoted companies, I use the price-cost margin, based on the Census of Manufacturing Industries [*Central Statistical Office, Govt. of Pakistan*].

Part I assesses White's model and findings. He reads more into his results than his findings justify, and his industry profitability variable in certain cases applies to too few firms to be representative of that industry. Part II looks at the effect of concentration and other variables, such as competing imports and capacity utilisation on profitability as measured by price-cost margins.

PART I: WHITE'S MODEL AND EMPIRICAL FINDINGS
In his model [for details see *White, 1974a or 1974b*] White introduced

two other important variables which one would expect, *a priori,* in Pakistan, to have considerable effect on profitability, namely the dependence of an industry on imported raw materials and the protection given to the industry from foreign competition.

In the case of the former, profitability according to White would be affected both by the terms on which the firms could get imported raw materials as well as their ability to get them freely. If a high tariff was levied on imported raw materials it would lower the rate of effective protection. Similarly if licensing arrangements for imports of these raw materials were very stringent it would mean that output would be limited to a level below the profit maximising one. Since there was no direct measure available for these two effects, White used a proxy, the degree of capacity utilisation. This, however, cannot be a very good proxy for every industry or for all periods, as capacity utilisation of an industry is influenced by a number of other factors besides its dependence on imported raw material [see *Winston, 1968]* and applies much more to those industries with high dependence on imported raw materials. Also this variable would not be able to pick up the effect of the 'terms' on which these raw materials are made available.

The second important variable in White's model was competing imports. A number of studies on Pakistan *[Pal, 1964; Lewis, 1970]* have shown that the protection given to a domestic industry is determined not by the extent of the tariff but by the quantitative restriction on imports. For the variable measuring the stringency of licensing of competitive imports White used the figures given by Lewis and Guisinger *[1971]* to measure the difference between domestic price and the c.i.f. import price for the various industries for the year 1963/64.

Result of White's Model

White tested his model using cross-section data primarily from 1964 and 1965 and used a measure of industry profitability based on firms listed on the Karachi Stock Exchange. Because of the limitation of the type of firms listed on the Karachi Stock Exchange and the limited number of industries listed by Lewis and Guisinger the sample was restricted to 17 industries.[3]

The results of his regression analysis were as follows:

$$P = -0.37 + 0.16 \ C^c + 0.08 W^b + 1.19 \ CU - 0.81 \ CU^2$$
$$\quad (0.68) \ (1.74) \quad (2.25) \quad (0.73) \quad (0.70)$$
$$R^2 = 0.42$$

b: significant at the 5 per cent level.

c: significant at the 10 per cent level.

Note: Figures in parentheses are t-ratios.

Where P = industry profitability ratio, measured as the weighted average of net pre-tax profits to net worth for 1964 and 1965 for firms quoted on the Karachi Stock Exchange.

   C = Four-firm concentration ratio.

$\quad$ W = Average difference between domestic price and imported price.

and CU = capacity utilisation for each industry.

White concluded from his result 'that there seems to be a positive relationship between profit rates, industrial concentration and import licensing stringency'. According to him 'the sample is small, the data are spotty, the results are not wholly satisfactory, but the basic tendencies seem to be present' *[White, 1974b: 146]*.

Weaknesses of White's Results

Although White was cautious in the findings of his result, he seemed to have ignored the rather obvious fact that most of the coefficients in his regression equation were not significantly different from zero (the t-ratios were too low). Only the indicator showing the difference between domestic and world price (to measure the extent of protection given to the domestic industry) was significant at the five per cent level (and here its coefficient was very low indeed) and concentration was only significant at the ten per cent level. The capacity utilisation variable was not significant at all although White had interpreted the coefficients of this variable 'as most reasonable' *[White, 1974b: 146]* as they indicated that maximum profits were reached when capacity utilisation was between 70 and 75 per cent.

$\quad$ The major problem we found concerned White's indicator of profitability which appeared in a number of cases to be seriously unrepresentative of the industry. This problem arose because the number of quoted firms, on which his profitability indicator was based, were either too few to be representative of the industry or belonged to a specific industry which was unrepresentative of the industry group used by him. Cases where the sample of quoted firms was not representative of the industry group and also accounted for a very small portion of total production (between seven and twenty-five per cent) were metal products, non-metallic minerals except cement, electrical machinery, art and art silk industry, vegetable ghee and non-electrical machinery. In the case of six out of the seventeen industries covered in his sample, therefore, the profitability ratios could hardly be taken as representative of the industry in the large-scale manufacturing sector.

PART II: PRICE-COST MARGINS AND CONCENTRATION –
W. PAKISTAN 1965–70

Since the major drawback with White's study was its limited coverage of the profitability indicator we decided to use an alternative measure of profitability, the price-cost margin. This indicator (defined below) has been used in a number of studies to test the relationship between profitability and concentration *[See Schwartzmen, 1959; Collins & Preston, 1968; Holterman, 1973 and Khalizadeh, 1974; Sawhney and Sawhney, 1973.]*

$\quad$ The data on which the price-cost margin is based, the Census of Manufacturing Industries, were only available for W. Pakistan for the

years between 1965 and 1970 and this meant that the study had to be limited only to W. Pakistan. To take this factor into account jute, tea, paper and paper product industries were excluded, as the major portion of production in these industries was in E. Pakistan and W. Pakistan was dependent on inter-wing imports.[4]

Profit Measure
The price-cost margin was calculated by subtracting both direct and indirect costs from gross sales.

> PC = Gross Value of Output* – Employment Cost – Industrial Costs**– depreciation-rent-interest – advertising – other over-head costs/Gross Value of Output*

  * Less indirect taxes.
** Raw material and fuel and electricity costs.

Our measure of the price-cost margin by excluding fixed costs takes into account the criticism [see *Benishay, 1967; Ornstein, 1975]* that differences across industries of this measure could be due to differences in capital-output ratio alone.

The basic source from which the price-cost margins were calculated was the Census of Manufacturing Industries and these were available for 1965/66, 1966/67, 1967/68 and 1969/70. For each industry besides calculating the price-cost margin for each year we also took the average of all the four years.

Concentration Ratios
Our measure of concentration is the share of the four largest firms of total sales or output of the industry in 1968. The basic data used for the estimation of the concentration ratios of different industries was the Directory of Industrial Establishments *[Investment Promotion and Supplies Department, Govt. of Pakistan]*, together with Fazili, *[1969,]* and Jafri, *[1969]*.

Sample of Industries Covered
Our study covers 25 industries except for 1965/66 when the petroleum and petroleum products industry was not .in production. Each of these industries contributed at least one per cent of total value added in the large-scale manufacturing sector in 1969/70. The sample accounted for 80 per cent of the value added of the large-scale manufacturing sector of W. Pakistan in 1969/70.

Model
The relationship between price-cost margin and concentration was tested in both the linear and non-linear form as follows:

$$(1) \qquad (PC)_i = \alpha + b_1 \, (CR_4)_i + b_2 \, (K/O)_i + e$$

$$(2) \qquad Log \, (PC)_i = \alpha + b_1 \, log \, (CR_4)_i + b_2 \, log \, (K/O)_i + e$$

Where $(PC)_i$ = Measures of the price-cost margin in the ith industry.
$(CR_4)_i$ = Four-firm concentration ratio of the ith industry.
$(K/O)_i$ = Capital-output ratio of the ith industry.
e = error term.

The capital-output ratio was included in the model to see to what extent high absolute capital requirements, reflected in high capital-output ratios, would constitute barriers to entry and further strengthen the relationship between price-cost margins and concentration. The capital-output ratio was calculated by dividing the book value of fixed assets by the value of production.

TABLE 1

RESULT OF REGRESSION ANALYSIS: PRICE-COST MARGINS, CONCENTRATION AND CAPITAL-OUTPUT RATIOS*

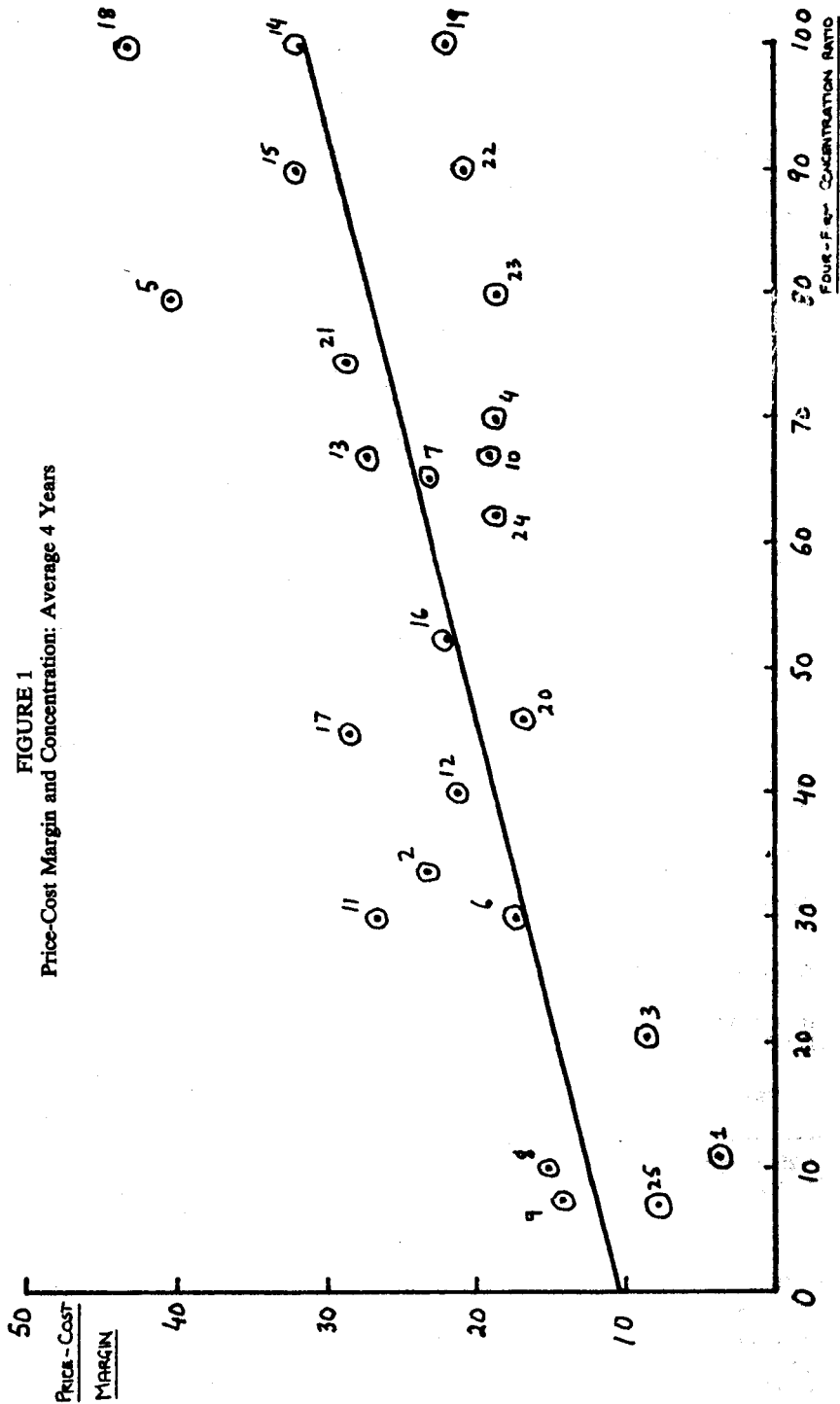| Dependent Variable	Concentration Ratio (CR_4)	Capital-Output Ratio (K/O)	Concentration Ratio Log (CR_4)	Capital-Output Ratio Log (K/O)	Constant Term	R^2
*1965/66***						
(1) PC	0·16ᵇ (2·091)	−1·94 (0·6663)			12·85	0·17
(2) Log PC			0·44ᵃ (2·815)	0·09 (0·6261)	1·23	0·36
1966/67						
(1) PC	0·18ᵇ (2·502)	−0·63 (0·217)			11·24	0·27
(2) Log PC			0·28ᵇ (2·151)	0·14 (1·155)	1·94	0·35
1967/68						
(1) PC	0·21ᵃ (3·087)	−4·04 (0·882)			11·94	0·31
(2) Log PC			0·41ᵃ (2·943)	0·06 (0·398)	1·42	0·36
1969/70						
(1) PC	0·33ᵃ (4·414)	−1·32 (0·346)			7·82	0·50
(2) Log PC			0·52ᵃ (4·216)	0·07 (0·6387)	1·19	0·51
Av: 4 Years						
(1) PC	0·22ᵃ (4·226)	−0·89 (0·322)			2·45	0·49
(2) Log PC			0·41ᵃ (4·131)	0·12 (1·180)	1·52	0·57

* 25 industries
** 24 industries (excludes petroleum)

Note: Figures in parentheses are t-ratios.
a: significant at the 1 per cent level.
b: significant at the 5 per cent level.
c: significant at the 10 per cent level.

Results

The results of the regression analysis are given in Table 1 for the individual years as well as for the average of the four years. There is a significant relationship between price-cost margins and concentration for the model tested. The regression coefficient of the concentration

FIGURE 1
Price-Cost Margin and Concentration: Average 4 Years

Key to Figure 1

1. Grain Milling
2. Sugar
3. Edible Oils
4. Drinks
5. Cigarettes
6. Cotton Spinning
7. Wool Spinning
8. Silk and Art Silk
9. Dyeing and Bleaching

10. Rubber Footwear
11. Books and Periodicals
12. Tanning and Leather
13. Cement
14. Tyres and Tubes
15. Fertiliser
16. Paints and Varnishes
17. Pharmaceuticals
18. Prod. of Petroleum

19. Acids, Alkalies and Salts
20. Iron and Steel
21. Motors, Generators and Transformers
22. Communication Equipment
23. Mechanical Vehicle
24. Engines and Turbines
25. Cotton Ginning

TABLE 2

RESULT OF SIMPLE REGRESSION ANALYSIS: PRICE-COST MARGINS WITH
CAPITAL OUTPUT RATIO

Dependent Variable	Regression Coefficient for K/O Variable	Constant Term	R^2
1965–66			
PC	0·49 (0·173)	19·48	0·001
1966–67			
PC	3·30 (1·210)	18·02	0·006
1967–68			
PC	2·40 (0·508)	20·2	0·01
1969–70			
PC	6·68 (1·240)	21·63	0·06
Av: 4 Years			
PC	4·56c (1·419)	19·1	0·08

c: significant at the 10 per cent level.   *Note:* Figures in parenthesis are t-ratios.

ratio variable is significant at less than the five per cent level for all years and at less than one per cent level for 1967/68 and 1969/70 and the average of the four years. Given the fact that in certain industries the price-cost margins were subject to wide fluctuations, the result for the average of the four years is the most representative of the relationship between price-cost margins and concentration, and here the regression coefficient is significant at the one per cent level (Fig. 1). Our results also further shows that using the non-linear log relationship does not significantly change the result or add greatly to the explanatory power of the model, with the exception of 1965/66 where the concentration ratio variable is slightly more significant.

The regression coefficient of the capital-output ratio was not significant for any of the four years or for the average of the four years. Given the fact that there does exist a slight correlation between capital-output ratio and concentration (simple correlation coefficient r is between 0·40 to 0·54 for the different years) we regressed PC with K/O ratio alone. The coefficient of the K/O ratio was positive but the result was not significant for any of the four years except at the ten per cent level for the average of the four years (see Table 2). This indicates that capital

intensity of the industry as reflected in the K/O ratio was not significantly related with the profitability measure which excludes fixed costs.

In order to see if there were any significant differences in the relationship between price-cost margins and concentration for the different years (i.e. whether the intercept or the slope changed significantly between the years) we pooled the data for the four years and ran the regression with dummy variables for the different years in the form given below:

$$PC = 12 \cdot 53 - 1 \cdot 311\alpha_2 - 1 \cdot 261\alpha_3 - 4 \cdot 906\alpha_4 + 0 \cdot 14 \ CR_4^b +$$
$$(3 \cdot 131) \ (0 \cdot 2334) \ (0 \cdot 2246) \ (0 \cdot 8737) \ (2 \cdot 083)$$

$$0 \cdot 03 \ CR_4\alpha_2 + 0 \cdot 05 \ CR_4\alpha_3 + 0 \cdot 09 \ CR_4\alpha_4^b$$
$$(0 \cdot 8401) \qquad (0 \cdot 5369) \qquad (1 \cdot 996)$$
$$R^2 = 0 \cdot 36$$

a: significant at the 1 per cent level.
b: significant at the 5 per cent level.
Note: Figures in parenthesis are t-ratios.
Where PC = Measures of the price-cost margin.
$\quad$ CR_4 = Four-firm concentration ratio
$\quad$ α_i = 1 for an observation in year i, i=2,3,4.
$\quad\quad$ = 0 otherwise.

The results show that there was no significant differences for the intercept in the different years for both our indicators of the price-cost margin. In the case of the slope only in the last year is the relationship significantly different at the five per cent level. One possible reason for this was that some of the capital goods and intermediate goods industries, where the concentration ratio was high and which had been suffering from low profit levels, were able to improve their performance either because of a slightly higher capacity utilisation or having overcome some of the initial problems in the running of these industries. (This was especially true for example of the chemical industry.)

Impact of Foreign Competition on Price-Cost Margins
In White's model, discussed earlier, the other key variable which influenced profitability was the degree of protection given to the domestic industry from foreign competition. In order to see the effect of foreign competition and the level of protection afforded to the domestic industry, on price-cost margins we tested the model in the following form:

$$PC = \alpha + b_1 \ CR_4 + b_2 \ P$$

where PC is the price-cost margin, CR_4 is the four-firm concentration ratio and P is the level of protection.

For the level of protection we used all three measures calculated for 1963/64 by Lewis and Guisinger *[1971]*, namely for each industry the

difference between the domestic and c.i.f. import price, the effective rate of protection and the effective rate of protection from all sources for 18 of the 25 industries for which they were given. Since protection would vary considerably with changes in government import policies (and these were very frequent) we ran the model only for 1965/66, the year nearest to their measure of protection. The results were not significant for any of the three measures of protection and the sign of the regression coefficient was negative.

There can be two main reasons for not expecting any association between Lewis and Guisinger's measurement of protection and domestic profitability. The first is that the measures of protection are extremely inaccurate. This could arise not only because of the inherent difficulties in measuring the rate of protection but also the lines followed by them make it extremely difficult to place much confidence in their calculations.[5] Secondly, effective protection need *not* be reflected in profitability differences amongst industries because the 'efficiency' of the domestic industry when compared with foreign competitors could show considerable variations. Therefore, a domestic industry may enjoy high protection relative to 'world prices' and still earn low profits, if industrial costs are high, because of technical inefficiencies like unskilled labour, low capacity utilisation and frequent stoppages (of which the chemical industry is the best example because of frequent electricity failures). This could also explain to some extent the negative sign of the regression coefficient.

Since there was no other study available besides Lewis which measures the rate of effective protection, and since in White's model the check on monopoly power is the amount of competitive imports as a proportion of domestic sales, we decided to test the relationship between price-cost margins and competing imports in the following two forms:

$$(PC)_i = \alpha + b_1 (CR_4)_i + b_2 (K/O)_i - b_3 (M)_i + e \qquad (1)$$

$$(PC)_i = \alpha + b_i (CR_4)_i + b_2 (K/O)_i - b_3 (M_D)_i + e \qquad (2)$$

Where $(PC)_i$ = Price-cost margin of the ith industry.

$(CR_4)_i$ = Four-Firm Concentration ratio of the ith industry.

$(K/O)_i$ = Capital-output ratio of the ith industry.

$(M)_i$ = Competing imports i.e. imports as a percentage of total domestic supply.

$(M_D)_i$ = Dummy variable for competing imports of the ith industry i.e. $M_D = 0$ when imports are less than 20 per cent of domestic sales otherwise $M_D = 1$.

e = error term.

The results are given in Table 3. In the first case the import variable has the negative sign for four of the five cases but is only significant in two cases—at the five per cent level for 1965/66 and at the ten per cent level for the average of the four years. However, when we use the dummy variable for competing imports, and divided the industries into two different categories—those where imports are less than twenty per

TABLE 3

RESULT OF REGRESSION ANALYSIS: IMPACT OF IMPORTS ON DOMESTIC PROFITABILITY

Dependent Variable (PC)	Concentration Ratio (CR_4)	Capital-Output Ratio (K/O)	Competing Imports (M)	Dummy for Imports (M_D)	Constant Term	R^2
1965/66						
(1)	0·20[a] (3·237)	−3·67 (1·327)	−0·23[b] (2·298)	—	11·53	0·35
(2)	0·24[a] (2·605)	−2·97 (1·018)	—	−7·58[c] (1·483)	12·11	0·26
1966/67						
(1)	0·21[a] (2·591)	−0·76 (0·259)	−0·08 (0·876)	—	10·89	0·29
(2)	0·23[a] (2·946)	−0·69 (0·243)	—	−6·31[c] (1·450)	10·46	0·33
1967/68						
(1)	0·21[a] (2·580)	−4·23 (0·895)	0·03 (0·122)	—	12·10	0·31
(2)	0·22[a] (2·780)	−3·84 (0·815)	—	−1·48 (0·514)	11·65	0·31
1969/70						
(1)	0·37[a] (4·226)	−1·36 (0·308)	−0·11 (0·973)	—	7·04	0·52
(2)	0·40[a] (4·639)	−1·18 (0·274)	—	−7·79[c] (1·501)	6·47	0·55
Av: 4 Years						
(1)	0·27[a] (4·629)	−0·81 (0·303)	−0·12[c] (1·669)	—	9·92	0·55
(2)	0·28[a] (5·104)	−1·03 (0·406)	—	−7·06[b] (2·251)	9·72	0·59

a: significant at the 1 per cent level.
b: significant at the 5 per cent level.
c: significant at the 10 per cent level.
Note: Figures in parentheses are t-ratios.

cent and those with more—the results are slightly improved compared to the first form of the model. The sign of the import variable is negative in all cases as the model predicts and is significant in four of the five cases.

It could, however, be possible that what one has to see is not just the level of imports, *per se,* but the amount of imports in combination with the level of concentration in the domestic industry. That is in those industries in which there was a higher level of concentration as well as a low level of imports, the price-cost margin was higher, compared to an industry in which the level of concentration was high but the existence of a large quantity of competing imports weakened the impact of concentration on domestic profitability.

To take into account this interaction, the relationship between price-cost margin, imports and concentration was tested in the following form:

$$(PC)_i = \alpha + b_1 (CR_4)_i + b_2 (K/O)_i + b_3 \, Md \, CR_4 + e$$

Where $(PC)_i$ = Price-cost margin of the ith industry.

$(CR_4)_i$ = Four-firm concentration ratio of the ith industry.
$(K/O)_i$ = Capital-output ratio of the ith industry.
Md = Dummy variable for competing imports i.e. $Md = 1$
when imports are less than 20 per cent of total
domestic sales, otherwise $Md = 0$.
e = error term.

TABLE 4

PRICE-COST MARGINS, CONCENTRATION AND FOREIGN COMPETITION

Dependent Variable (PC)	Concentration Ratio (CR_4)	Capital-Output Ratio (K/O)	Foreign Competition (Concentration X Dummy Variable)	Constant Term	R^2
1965/66	0·32[a] (3·394)	−2·86 (1·094)	0·17[b] (2·469)	9·74	0·31
1966/67	0·25[a] (3·120)	0·16 (0·005)	0·10[b] (1·712)	9·49	0·36
1967/68	0·24[a] (2·837)	−3·32 (0·686)	0·03 (0·514)	11·14	0·32
1969/70	0·39[a] (4·252)	−0·70 (0·158)	0·07 (1·104)	6·23	0·53
Av. 4 Years	0·30[a] (5·316)	−0·06 (0·032)	0·10[a] (2·520)	8·64	0·61

a: significant at the 1 per cent level.
b: significant at the 5 per cent level.
c: significant at the 10 per cent level.
Note: Figures in parentheses are t-ratios.

The results are given in Table 4 and the $(M_d\ CR_4)$ variable is significant in three of the five cases. It is significant at the five per cent level for 1965/66 and 1966/67 and at the one per cent level for the average of the four years. In testing the impact of competing imports on domestic profitability the best results are obtained when we combine the level of imports with the level of concentration existing in the domestic industry. However, our results on the whole suggest that although competing imports do have an inverse association with domestic profitability their impact is not as strong as we might have expected.

Imports and Domestic Profitability: An Alternative Explanation
One important reason for this could be the existence of a very strong linkage between the traders and the industrialists in Pakistan. It is well known that most of the industrialists especially the big industrial houses were originally traders who moved into industry following the collapse of the Korean boom and the imposition of tariffs on the imports of manufactured goods [see *Papanek, 1967; Amjad, 1974*]. Most of the industrialists in fact continued to have large interests in trade and the manner in which the import trade in Pakistan was regulated through entitlements to import licences on the basis of performance in the Korean boom i.e. 'category holders'[6] meant that they continued to have

virtual monopoly in the import trade. To quote from the Report of the Anti-Cartel Law Study Group *[1965; 55]*,

> The categorisation of imports is another important source of concentration of wealth and economic resources in a few hands in this country. Industrial category holders mostly got their categories fixed on the basis of an industrial survey carried out in 1955. As far as commercial category holders are concerned their entitlement is based on their performance during the Korean boom period. To the extent that our import trade is regulated in accordance with the entitlement of category holders on the basis of past performance, newcomers are kept away.

An idea of the position of category holders in the import trade[7] can be had from Table 5 showing the position in the period January–June 1963. (The figures are for actual imports).

TABLE 5

POSITION OF CATEGORY HOLDERS IN IMPORT TRADE JANUARY–JUNE 1963

	Import Values (Rs. Crores)	Percentage of Total
Category Holders (Total)		
(i) Commercial	16·87 ⎫ 57·08	23% ⎫ 79%
(ii) Industrial consumers	40·21 ⎭	56% ⎭
Open General Licence (O.G.L.)[8]	6·44	9%
Bonus Vouchers[9]	9·19	12%
TOTAL	72·7	100·0

Source: Chief Controller of Imports & Exports. *[Report of the Anti-Cartel Law Study Group 1965, pp. 56]*

It could be argued, however, that the influence of monopoly in the import trade was considerably reduced with the 'liberalisation'[10] of the import trade especially through the introduction of the 'Free List' in 1963/64 according to which items placed on this list could be imported without having to apply for an import licence. In 1963/64 imports on the free list accounted for only fifteen per cent of total regulated imports but by 1964/65 this had increased to almost fifty per cent *[see Report of the Working Group on Import Policy, 1967]*. This policy of import liberalisation, however, suffered a severe setback when, after the war with India in September 1965, the country faced a foreign exchange crisis (because of foreign aid suspension and increase in defence imports) and items on the free list were considerably reduced and those on it were also subject to varying and increasing degree of administrative restrictions. During the period covered by our study, therefore, governments' efforts to liberalise imports were severely curtailed.

Even during the period of import liberalisation, studies carried out to see its impact found that it had made very little difference to the domestic prices of imported goods. In his first study,[11] Pal had found that there was no significant difference in profit margins between items imported by category holders and those on the Open General Licence

[Pal, 1964: 605]. In his subsequent study he analysed price changes of commodities placed on the Free List and found that while prices of some had fallen, others had not been affected and some had in fact risen. On the weighted average of price of goods now placed on the Free List he found a very small decline *[Pal, 1965: 550]*. He also found that the increased supply effect of the Free List was insufficient to eliminate super normal profits[12] and he explained this as being either due to the 'existence of monopolistic elements in the market' *[Pal, 1965: 551]* or because of administrative and other restrictions.

It should be pointed out, however, that the discussion so far is not to suggest that supply restrictions on imports are not an important factor in determining domestic prices and hence influencing profitability amongst different industries. What I am suggesting is that in so far as there is monopoly in the import trade (a point which they also emphasise) as well as a linkage between traders and domestic producers of the same commodity, imports will not act as a check on domestic profits for these imports are not competitive. Also the greater the monopoly in the import trade and the closer the linkage between the importers and the producers the less would be its impact. That this linkage existed can be seen by the fact that almost all the major industrialists had very large trading interests and were active importers *[see Report of the Anti-Cartel Law Study Group, 1965, pp. 19]*.

An extreme example of this linkage and how it effected domestic profits is the sugar crises in the Winter of 1968. The extremely high profits in the sugar industry generated in the earlier years of the sixties was beginning to decline because of increased domestic production as well as new entrants into the industry *[see Haq & Baqai, 1967; Amjad, 1973]*. By 1968 overproduction became a distinct possibility and there is evidence that sugar producers deliberately cut back production in order to keep sugar scarce and maintain or even raise domestic prices *[see Pakistan Times, May 25, 1968]*. The government responded to the situation by allowing the imports of sugar into the country. This should have resulted in lowering the prices. But it so turned out that of the five main importers, three were sugar producers themselves.[13] This way, by holding the imported sugar back and not releasing it on to the market, they were able to keep sugar scarce and keep prices high.[14] So that for 1968/69 you would find that sugar industry profits were high although it was a year in which large amounts of imported sugar were entering the country. Any attempt to establish a negative relationship between imports and profits in this case would be highly unsuccessful.

Impact of Capacity Utilisation on Price-Cost Margins

To test the relationship between price-cost margins and concentration further we added capacity utilisation to our original model and tested it in the following form:

$$(PC)_i = \alpha + b_1 (CR_4)_i + b_2 (K/O)_i + b_3 (CU)_i + e$$

Where $(PC)_i$ = Price-cost margin of the ith industry.

$(CR_4)_i$ = Four-firm concentration ratio of the ith industry.

$(K/O)_i$ = Capital/output ratio of the ith industry.
$(CU)_i$ = Capacity utilisation of the ith industry.
      e = error term.

Theoretically we would expect there to be a strong and positive relationship between profitability and capacity utilisation. Other things remaining equal the higher the level of capacity utilisation the lower would be costs, especially the fixed cost component as it is spread over a greater number of units of production. Also to the extent that lower levels of capacity utilisation reflect a slackening of demand it could also be associated with lower prices in relation to costs at full capacity. Sawhney and Sawhney *[1973]* in their study on India had found capacity utilisation significantly and positively related to price-cost margins.

Islam *[1967]* in his study on Pakistan had however, come to quite the contrary result and had found 'excess profits'[15] amongst different industries to be negatively related with capacity utilisation.[16] He had explained his rather surprising result by arguing that with a larger output firms tend to charge a lower profit margin, since a lower profit margin on a larger output may still lead to larger absolute profits, and more important to a higher return on capital. However, Islam had cautioned that, because of the small magnitude of the correlation coefficient between excess profits and capacity utilisation, the fall in 'excess' profits in response to a given change or increase in capacity utilisation is very small *[Islam, 1967: 232]*.

The basic source of data used on capacity utilisation is the C.S.O. Survey *[1965]* and these figures were adjusted for certain industries from the World Bank Report *[I.B.R.D., 1970]* which gives more reliable estimates.

TABLE 6

PRICE-COST MARGINS, CONCENTRATION AND CAPACITY UTILISATION

Price-Cost Margins (PC) (Dependent Variable)	Concentration Ratio (CR_4)	Capital-Output Ratio (K/O)	Capacity Utilisation (CU)	Constant Term	R^2
1965/66	0·18[b] (2·205)	−2·99 (0·920)	0·07 (0·762)	7·21	0·20
1966/67	0·21[b] (2·732)	−1·27 (0·409)	0·14[b] (1·759)	−0·61	0·35
1967/68	0·22[a] (4·375)	−4·76 (0·998)	0·05 (0·598)	8·30	0·32
1969/70	0·37[a] (5·605)	−4·14 (1·054)	0·22[a] (2·894)	−8·73	0·64
Av. 4 Years	0·24[a] (4·813)	−2·38 (0·876)	0·11[b] (1·925)	2·45	0·57

a: significant at the 1 per cent level.
b: significant at the 5 per cent level.
c: significant at the 10 per cent level.
Note: Figure in parenthesis are t-ratios.

The results of our model showed that capacity utilisation was positively related with price-cost margins for all the years but was significant only in three cases – for 1969/70 at the one per cent level and for 1966/67 and the average of the four years at the five per cent level.

Our results therefore seem to support to some extent the hypothesis of a positive and significant relationship between price-cost margins and capacity utilisation and are contrary to Islam's *[1967]* findings of a negative relationship between these two variables which depends crucially on the assumption that firms with higher capacity utilisation tend to pass on reduction in costs in terms of lower prices and hence lower profit margins.

CONCLUSIONS

We set out in this paper to test the impact of concentration on profitability in the large-scale manufacturing sector in West Pakistan for the years between 1965 and 1970. Our sample comprised of twenty-five industries and covered over eighty per cent of the large-scale manufacturing sector. The main results were (a) When price-cost margins are used as an indicator of profitability, concentration was an important factor in explaining differences in profitability between different industries. (b) Profitability was not significantly related to capital-output ratios. (c) Although the impact of foreign competition on profitability is significant, it is not as strong as earlier studies on Pakistan might lead us to believe. This may originate from the linkage between the industrial and trading interests, a product of historical circumstances in the country. In fact it is interesting to note that imports worked best as an explanatory variable when it was specified in an interaction term with concentration, and suggests that a lot of arguments connecting imports and profitability cannot be carried out without taking into account the effects of concentration. (d) Price-cost margins in three of the five years studied was positively and significantly related to capacity utilisation.

NOTES

1. The Cartel Law Study Group *[1965]* set up in 1963 to investigate 'business malpractices, the higher prices charged and exploitation of consumers', submitted its report in 1965 but it was never made public and has only recently been made available for very limited circulation.

2. M. Haq was then Chief Economist of the Planning Commission.

3. These industries were cotton textiles, jute textiles, artificial silk textiles, sugar, vegetable ghee, tea blending, paper, leather tanning, motor vehicles, chemicals, petroleum products, cement, other non-metallic minerals, basic metals, metal products, non-electrical machinery and electrical machinery.

4. In the case of the jute industry in W. Pakistan production did not start till 1968/69 and was therefore completely left out. According to the Census of Manufacturing Industries 1964/65 (the last complete Census for both wings of the country available), 70 per cent of paper and paper products production was in E. Pakistan and 100 per cent for tea manufacturing. (Breakdown of tea blending production was not given because of problems of firms identification.)

5. For their calculation of the rates of protection Lewis & Guisinger relied heavily on Pal's two surveys carried out in 1963/4 and 1964/5. In his surveys Pal had collected data on domestic prices of commodities from wholesalers and purchasers of goods and the c.i.f. prices of identical commodities from custom records. This is an extremely difficult task

especially in trying to find 'identical' goods and differentiating for different grades or sizes of items. [For details of how this survey was carried out see *Pal, 1964 and 1965.*] In the case of a few other industries Lewis and Guisinger used direct comparisons between domestic and 'world' prices which again involves making a number of assumptions in finding identical goods. [See *Lewis & Guisinger, 1971, Appendix E: 362-3* for details of how their different rates of protection were worked out.]

6. After the collapse of the Korean boom and the cessation of imports on the open general licence system the government decided to distribute licences for future imports only to those firms who had been importers during the 2½ years i.e. July 1950 to November 1952 prior to the imposition of controls. These importers came to be called 'category holders' or 'established importers' and the policy was referred to as the 'category system' *see Thomas 1966].*

7. This is the total regulated import trade and accounts for about fifty per cent of the total imports into the country and about seventy per cent of total private imports. Other private imports not covered by this are either imports of machinery under foreign credits or imports under the Indus basin project.

8. The O.G.L. was introduced in 1961 and it applied to specific commodities and to specific group of commercial importers and provided for issue of licences of specified amount in each shipping period. Its purpose was to encourage new entrants in the import trade and to extend the value of licences issued in the commodities chosen.

9. Import licences were also issued under the Export Bonus Scheme on the basis of import bonus vouchers issued by the State Bank of Pakistan to exporters for a specified part of their foreign exchange earnings. Imports allowed under bonus voucher are specified in the 'bonus list' in the import policies *see Bruton & Rose, 1963].*

10. Import 'liberalisation in the Pakistan context has been defined by Thomas *[1966]* as 'changes in import policy placing greater reliance on market mechanism in allocating foreign exchange'.

11. The problems mentioned earlier in calculating the rates of protection by Lewis & Guisinger based on Pal's survey are not applicable here as in this case data regarding the change of prices of the same commodity was being collected from the same source.

12. Pal took the 'normal' mark-up as twelve per cent which was taken from the Tariff Commission. The weighted average of margins on items on the Free List was twenty-eight per cent *[Pal, 1965: 551].*

13. The then Commerce Minister Mr. Hoti (incidently also an owner of one of the largest sugar mill in the country) accused some manufacturers of having joined hands with 'importers'—in fact some of the principal importers were also manufacturers—to inflate sugar prices artificially to the detrement of consumers. Replying to a question the Minister said that the five big traders were the manipulators—Adamjee*, Bawany*, Haji Hashim, Mian Bashir* and Abed. [Reported in the *Pakistan Times—Dec. 16th, 1968].*(*owned sugar mills).

14. A report in the *Observer [6th Dec. 1968]* entitled 'Sugar Crisis' stated that, 'The crux of the matter is that mills took loans up to 75 per cent of stock value which helped them to hold back stocks.'

15. Excess profits was defined as the difference between the actual and 'normal' price expressed as a ratio of the actual price. It was used in the sense of an abnormal mark-up in the excess over the 'normal' or 'fair' mark up on ex-factory prices as used by the Tariff Commission *[Islam, 1967: 231].*

16. Islam's study was based on 115 industries and covered a fifteen year period 1951–66. However, it excluded certain important industries such as cotton textiles, jute textiles, woollen textiles, and fertiliser, machinery and transport equipment as they were not investigated by the Tariff Commission, the source of data for his study.

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APPENDIX

Industry	Price-Cost Margin* (Av. 4 years)	Four-Firm Concentration Ratios	Capital-Output Ratio* (Av. 4 years)	Capacity Utilisation
1. Grain Milling	3·8	11·0	0·12	100·0
2. Sugar	23·3	33·7	0·81	92·4
3. Edible oils	8·5	20·5	0·21	65·0
4. Drinks and carbonated water	18·7	70·0	0·89	100·0
5. Cigarettes	40·3	79·7	0·22	83·1
6. Cotton spinning	17·4	30·0	0·74	90·1
7. Wool spinning	23·1	65·2	0·84	100·0
8. Silk & Art silk	15·2	10·0	0·41	59·0
9. Dyeing & Bleaching	14·2	7·4	0·62	82·3
10. Rubber Footwear	19·1	67·1	0·31	79·6
11. Books & Periodicals	26·6	30·0	0·60	100·0
12. Tanning & Leather	21·3	40·0	0·12	56·9
13. Cotton Ginning	7·8	7·0	0·10	87·3
14. Cement	27·3	67·0	1·74	100·0
15. Tyres & Tubes	31·9	90·0	0·60	98·5
16. Fertiliser	31·7	100·0	2·5	77·6
17. Paints & Varnishes	22·0	52·4	0·27	40·0
18. Pharmaceuticals	28·5	44·8	0·30	53·8
19. Products of Petroleum & Coal	43·1	100·0	0·45	100·0
20. Acids, Alkalies & salts	22·0	100·0	1·69	53·4
21. Iron & steel	16·9	45·9	0·30	42·5
22. Motors, Generators & Transformers	28·7	74·5	0·38	55·0
23. Communication equipment	20·8	90·0	0·62	44·3
24. Mechanical vehicle	18·6	80·0	0·33	24·3
25. Engines & Turbines	18·6	62·3	0·59	29·1

Sources: (See text)

* Data for the individual years are available with the author and can be obtained from him on request.