INTERNATIONAL TRADE, INTERNATIONAL INVESTMENT, AND THE INDUSTRIAL PERFORMANCE OF U.S. MANUFACTURING

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INTERNATIONAL TRADE, INTERNATIONAL INVESTMENT, AND THE INDUSTRIAL PERFORMANCE OF U.S. MANUFACTURING

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During the last two decades empirical research has provided some useful insights into the relationship between industrial structure and performance. A common element among these studies, however, has been the implicit assumption that the economy is closed.[1] The growing volume of international trade, coupled with the emergence of the multinational corporation, would seem to suggest that factors related to foreign trade and investment have become increasingly more important in the U.S. economy and may significantly affect the conduct and performance of U.S. industries. A few recent studies have incorporated foreign competition variables and found them to have significant impact on resulting industry performance, but, with the exception of a paper by Esposito and Esposito [11], these studies have involved countries other than the U.S.[2]

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[1]An excellent survey of these studies was recently published by Weiss [28, pp. 362-411].

[2]These include a study by McFetridge [20], and Jones Laudadio and Percy [17] on Canada, Khalilzadeh-Shirazi [18] on the United Kingdom, and House [14] on Kenya.

In this paper we provide some further empirical evidence concerning the structure-performance relationship by investigating the role of international trade and investment in affecting price cost margin differentials, utilizing data for 88 Standard International Trade Classification (SITC) U.S. manufacturing industries.

I. Analytical Framework and Variables

Economic theory predicts that in long-run competitive equilibrium resources will be allocated efficiently, so that the prices of all goods will be equalized to their marginal cost and producers will earn only normal rates of return. Since departures from the competitive norm lead to inefficient allocation of resources and result in producers earning greater than normal returns, it has been the objective of industrial organization research to determine what particular departures from competitive structures can be identified with the earning of excess economic profits. Traditionally, this type of analysis has compared industry profitability with dimensions of market structure, such as the degree of seller concentration, the growth and elasticity of demand, and the conditions of entry. In what follows, we investigate the role of these traditional factors on industry performance, and extend the analysis to include the impact of foreign factors such as the degree of protection and import competition, exports, and the extent of foreign investment and multi-national activity.

Price Cost Margins

The measure of profitability used was the price cost margin, defined as the gross return before taxes as a percentage of industry

sales.[3] More specifically, the margin is equal to an industry's value of output minus direct cost as a percentage of sales. Utilizing Census data the margin was determined as:[4]

$$(1) \quad \text{Price cost margin} = \frac{\text{Value added - Payroll - Rentals}}{\text{Value of shipments}}$$

The resulting figure approximates profits before taxes plus interest plus depreciation as a percentage of sales.[5]

The inclusion of capital cost in the formulation of the profit margin implies that ceteris paribus, margins will be greater in capital intensive industries. In order to account for differences in margins arising from differing capital intensities the capital-labor ratio (K/L) was included as an explanatory variable.[6]

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[3]Under the assumption of constant average cost this approximates the Lerner index of monopoly power: $\frac{\text{price - marginal cost}}{\text{price}}$

[4]Value added is obtained by the Census by subtracting from value of shipments the following costs--materials, supplies and containers, fuel, purchased electricity, and contract cost. In order to obtain the margin, payroll and rental cost are subtracted from value added. Figures for these were found in [25, 26].

[5]Margins will also be affected by differences in elasticity of demand. For a fuller discussion of this point see: Collins and Preston [8, p. 9-10].

[6]The capital-labor ratio has been estimated by Hufbauer [15].

Since we are utilizing cross-section data, it may be that the observed price cost margins are high or low for a particular industry due to short run changes in demand or cost conditions. To the extent that these factors have operated, the observed price cost margins will not accurately reflect the impact of structure variables. In addition no account can be made of the extent to which reported profits differ from potential profits because of non-profit maximizing behavior on the parts of the firms.

Seller Concentration

Oligopoly theory suggests that the ability of firms to collude (tacitly or overtly) in order to maintain prices above long-run average cost of production, is greater in industries in which there are few sellers which dominate the market. Hence, profit margins should be positively related to some measure of the degree of seller concentration. Two measures were utilized in our analysis to capture the effects of concentration. The first was a weighted four-firm concentration ratio (CR) with the weights being value of shipments.[7] Since weighted concentration ratios have come under attack as being representative of actual industry concentration [2], an entropy measure (E), which could be constructed more directly, was also utilized. Entropy, a measure borrowed from information theory, indicates the degree of uncertainty of securing a random buyer. The greater the entropy, the greater is the uncertainty and hence the more competitive

[7] The concentration ratios were obtained from [24].

is the industry. High levels of entropy are, thus, associated with low degrees of concentration and low levels of entropy associated with high degrees of concentration.[8] Correspondingly, entropy should be negatively related to profit margins.

Barriers to Entry

The ability of established firms to maintain prices above long-run average cost of production will also depend upon the conditions of entry into the industry. The higher are the barriers to entry, the higher is the "limit price" which established producers can charge without inducing entry. Profit margins should, thus, be positively related to the height of barriers to entry. We introduce two variables into the model to account for barriers to entry.

In order to approximate the economies of scale barrier (ES), we adopted a measure of scale economies constructed by Hufbauer [15]. This variable reflects cross industry differentials in the achievement of increases in value added per worker as the size of plant increases.

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[8]Definitionally, entropy (E) = $- \Sigma q_i \log_2 q_i$ where q_i equals the share of employment in the ith firm. In monopoly situations there is no uncertainty and q_i equals 1, thus E assumes a value of 0. Entropy increases with either an increase in the number of firms or an increase in equality of firm size. This measure was calculated along the lines suggested by Horowitz [13]. For a more complete discussion of the merits of entropy vs other concentration measures see: [12, 16]. The data utilized to construct this variable was found in [24].

Industries capable of achieving increases in productivity as the size of plant increases, are considered to possess scale advantages and evidence higher scale coefficients.[9]

Product differentiation is very difficult to quantify. It may represent genuine differences in physical characteristics, distribution, or customer service between competing products, or may simply reflect differences created in the minds of buyers through sales promotion techniques such as advertising. Bain [1] has suggested that the most important source of differentiation is advertising.[10] Since this form of differentiation is more likely to occur in consumer as opposed to producer goods, we adopted the consumer good ratio (CGR), constructed by Hufbauer [15], as a proxy for the degree of product differentiation. This is a measure which is developed through input-output analysis, and reflects the percentage of total industry sales appearing as consumer goods directly and indirectly after the first

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[9] This measure is subject to some bias, since plants may differ in product mix, quality of labor employed, age of equipment, etc. Empirically it appears to give lower estimates of economies of scale than engineering methods have provided. While "survivor" estimates may have been preferable, they could not be developed with existing data.

[10] While one might prefer to use a more standard measure, such as the advertising to sales ratio, figures for this could not be obtained at our level of aggregation. Furthermore, it may be unreliable to compare this ratio to profit margins since the advertising to sales ratio should be determined in part by the profit margin if a profit maximizing advertising policy is being pursued. See Dorfman and Steiner [10] on this point.

and second rounds.[11] Because advertising and product differentiation is an important barrier to entry primarily in consumer goods industries, price cost margins will be higher, the higher the consumer goods ratio.

Growth Rate in Demand

It has been suggested that the growth rate of demand will also affect industry profit margins [11, 23] and some empirical evidence exists which tends to support this proposition. When an industry experiences high growth in demand, firms may feel compelled to behave in a competitive fashion and secure temporary profits. When growth is slow, or declining, (especially in industries in which fixed cost are high) firms may find it necessary to squeeze profit margins in order to maintain adequate levels of sales. Furthermore, slow growth may lead to breakdowns in collusive agreements among oligopolists. This reasoning would assert that growth in demand would exert a positive influence upon profit margins.

On the other hand, Caves [5, pp. 30-31] has suggested that changes in demand may have differential effects upon oligopoly and competitive industries. In oligopolistic industries, especially those characterized by product differentiation, rapid growth may lead firms to behave more competitively by cutting margins in order to increase their market shares and gain a larger share of expected future profits, even if it reduces

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[11] More specifically the consumer goods ratio (CGR) = $\frac{S^{kh} + \Sigma\, S^{kn} \cdot S^{nh}/S^{n}}{S^{k}}$

where: S^{kh} and S^{kn} equal sales by industry to k to households and industry n respectively, S^{nh} represents sales by industry n to households, and S^{k} and S^{n} represent total sales of industry k and n respectively.

current profits. When demand is constant or declining, however, oligopoly firms can only increase their shares at the expense of their rivals. Since attempts to increase shares by cutting prices in this situation may well lead to retaliation and further price cuts, incentives arise for firms to avoid these more competitive policies.

To estimate growth of demand (GD), we have calculated the percentage change in value of shipments between 1963-67. In addition we formulate a test of the asymmetry in the effect of demand growth in oligopolistic and competitive industries.

Mean Distance Shipped

The geographic extent of the market is well recognized as an important element of industry structure. Since concentration ratios are based upon the assumption of national markets, they may fail to depict accurately the true level of concentration when markets are less than national in scope. In order to account for the geographic extent of the market we included in our analysis a variable which represents the mean distance shipped (MDS) of the products within an industry. This measure was developed by Weiss [29] and is calculated in miles by dividing ton miles shipped by total tons shipped.

Foreign Trade and Investment

If the U.S. economy were closed, then the variables cited above would be sufficient to describe the major determinants of differentials in price-cost margins. Since industries differ with respect to the degree of international trading and foreign investment activity, it is

necessary to account for these factors within the framework of our model.

One factor which we would expect to significantly affect the behavior of domestic producers is the degree of actual and potential import competition. While domestic industries may be characterized by oligopoly or monopoly power, the ability of firms to maintain prices above long-run average cost of production should be dampened by both existing levels of import competition and potential entry by foreign producers. When import levels are high, reported concentration ratios will tend to overstate the actual degree of monopoly power enjoyed by domestic producers and their ability to maintain high price cost margins will be reduced.

What may be of even greater importance is the potential of new or increased entry into domestic markets by foreign competitors. Although established producers may enjoy barriers to entry from other domestic producers, these same barriers may not adequately obstruct the entry of foreign producers. For example, a domestic producer who considers of selling only in the home market may have to enter at a scale sufficiently large to lower the post-entry industry price and thus make the actual entry unprofitable. Established foreign producers, however, which already sell their product at home or in world markets, will not face this "scale economy barrier" and could enter at a smaller and, thus, more profitable scale. Furthermore, the time lag associated with entry of foreign competitors may

be shorter than that of domestic entry, since established foreign producers would already possess plant facilities capable of producing the product.[12]

While it is possible to hypothesize about the likely consequences of actual and potential import competition, finding empirical counterparts to the analytical arguments is a difficult task. One approach would be to include barriers to entry facing foreign producers, such as tariff (T) and non-tariff barriers (NTB), in our model. Since tariff and non-tariff barriers reduce the ability of foreign producers to enter U.S. markets, this would allow the protected domestic producer to maintain prices above long-run average cost. The a priori prediction is that the price cost margin will be higher when the degree of tariff and non-tariff protection is high. Non-tariff barriers, like quotas or other administrative and technical controls, are expected to directly affect profit margins by de facto restricting imports. Nominal tariff rates, though, should influence domestic price levels but not necessarily price cost margins, which should more be affected by the

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[12] Obviously, this would depend upon the current capacity utilization of the foreign producers. But even at full capacity, the speed at which foreigners enter the new market could well be faster than domestic entrants, since they already have accumulated experience and the knowledge of the technologies necessary to produce the product. Furthermore it would be possible for these firms to shift some of their output from less profitable world markets if they desired.

degree of effective tariff protection [20, p. 346].[13] Furthermore, the relationship between tariff and non-tariff protection and price cost margins may not be as direct as hypothesized, because these barriers may have been established at any point in time to achieve certain policy goals. For example, industries characterized by sub-optimal capacity or excessive cost may seek protection from foreign competition from government authorities. High tariff or non-tariff barriers may then be associated with inefficient industries characterized by low price cost margins.

A second approach would be to use the current share of imports as a proxy for actual and potential foreign competition, with the expectation that this variable would be negatively related to price cost margins since the higher the import share the greater the degree of foreign competition. This approach has been utilized by Esposito and Esposito [11]. The use of such a proxy is subject to several limitations. First, it does not describe potential competition, since as Caves [6] has pointed out, potential competition is not related to the current share of the market held by foreigners, but rather the elasticity of foreign supply with respect to price cost margins. Second, this variable does not provide any information concerning

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[13] While effective tariffs would be a more appropriate variable for use in determining profitability, we could not get estimates of these at our level of industry aggregation. The data for nominal tariff rates were obtained from [9], and those for non-tariff barriers have been estimated by Walter [27, pp. 341-342]. The non-tariff barrier proxy was defined as the percent of commodities subject to non-tariff barriers within each SITC commodity group.

the dynamics of the situation. For example, a high current import share may cause domestic firms to become more efficient in production methods thus leading to higher price cost margins or increases in income may lead to increased demand for both domestic and foreign produced goods and higher profit margins. Finally, it has been observed [19] that in some U.S. industries (particularly those characterized by oligopoly) that firms have readily yielded up a share of the domestic market rather than reduce prices and margins. The explanation for this phenomenon is that the firms, at least in the short run, would rather give up some portion of the market to foreigners than engage in price cutting which, if misinterpreted by rivals, could destroy their agreed upon price structure. This suggests that a threshold effect may exist, under which margins are maintained for low volumes of imports and are reduced only after some critical share of the market is being taken by foreign suppliers.

Accepting these limitations, we nonetheless included in one formulation of the model imports as a percentage of domestic value of shipments (MVS) as an explanatory variable. In addition, we included as an explanatory variable the percentage increase in imports between 1963-67 (GM). The hypothesis to be tested is that the behavior and reaction of domestic producers to foreign competition will more likely be predicated upon the growth of imports, rather than the current level of imports. While the current share of the market held by foreigners may be small in a particular industry, a rapid increase in import competition may force domestic producers to initiate actions, like a price reduction, for the protection of their market shares. The

expectation, therefore, is that price cost margins will be lower in industries faced with fast growing imports.

While it has been generally recognized that import competition could improve domestic market performance, Caves and Jones [7, pp. 206-210] have recently argued that exporting firms may display symmetrical effects. A profit-maximizing monopolist that takes advantage of export opportunities, and who is both unable to price discriminate between domestic and foreign markets and faces non-decreasing marginal cost, will expand total output and reduce the domestic price. Caves [6] has argued also that this result is equally plausible under conditions of oligopoly, in that, the presence of export markets may render sellers less conscious of their mutual independence in the domestic market. Under these conditions one might expect price cost margins to be negatively related to exports. On the other hand, if the firm is able to engage in price discrimination (dumping) and the world demand curve is more elastic than the domestic one, the expansion of exports may cause the domestic price to rise and hence price cost margins, in this case, are likely to be positively related to exports.[14] To test for these hypotheses we have included in our model as an explanatory variable exports as a percentage of domestic value of shipments (XVS).[15]

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[14]Khalilzadeh-Shirazi [18] found a positive and significant relationship between price cost margins and exports in the United Kingdom. He suggests as an explanation that the greater riskiness of foreign trade, due to information costs, competing with foreign firms, etc., drives up the supply price of capital and firms must, thus, be paid a risk premium for exporting.

[15]These figures were obtained from [21, 22] and [24].

A final consideration of the impact of foreign factors on domestic profitability is the extent to which an industry is characterized by multi-national activity. While other studies have primarily been interested in what the impact of foreign investment might be on the host country's industrial performance, here we are interested in what effects multi-national activity might have on the performance of the parent country's industry. This type of analysis seems more appropriate for the U.S. case, since the U.S. has invested much more abroad than foreigners have invested in the U.S.

The theoretical links between the degree of multi-nationalism within an industry and its profit performance in the domestic market are too complex to allow us to make a priori predictions, but we can suggest some of the more likely consequences.

One hypothesis which has been offered [6], is that when firms expand across national boundaries, their recognition and worry about their mutual interdependence in the domestic market is reduced. To the extent that this leads to less collusively determined prices and more independent pricing behavior on the parts of the firms, we would expect multi-national activity to be negatively related to profitability.

There are, however, several reasons to suspect that multi-national activity will be related to higher domestic profitability. A good deal of foreign direct investment is vertical in nature. Vertical investment, which results in lower input costs, via importation of semi-finished goods and raw materials, from a foreign subsidiary, may lead to higher profitability in the domestic market. A corollary to this is that vertical investment, which allows firms to gain command

over some natural resource in foreign countries, may result in barriers to entry into the domestic market and result in higher profits. Finally, it has been speculated [4, p. 9] that foreign investment may arise because domestic firms have excess profits beyond those necessary for expansion purposes in the domestic market. To the extent that foreign investment arises from pools of excess profits a positive relationship between multi-national activity and profitability would be expected.

In order to test the relationship between multi-national activity and domestic profitability we included in our model a variable defined as the median percentage foreign content of an industry's total activity (MN).[16]

II. The Empirical Results

The empirical investigation of the relationship between industry price cost margins, domestic market structure and foreign trade and investment consists of multiple regression analysis. The sample includes 88 Standard International Trade Classification (S.I.T.C.) industry groups of the U.S. manufacturing sector.[17] The results of multiple

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[16] These figures were obtained from [3]. Foreign content was measured by either one or a combination of the following factors: sales, earnings, employment, or production abroad.

[17] If it were possible to locate comparable figures in the Standard Industrial Classification (S.I.C.) system to those in the S.I.T.C. system, the industry was included in our sample. In this regard, heavy reliance was placed upon a concordance between the two systems developed by Hufbauer [15].

regression equations relating the dependent variable, the price cost margin for 1967, to various combinations of the structural variables discussed in the previous section, are presented in Table 1.[18]

Equations I.1 and I.2 formulate the foreign factors in term of tariff and non-tariff barriers to entry, while equations I.3 and I.4 utilize the current import share to capture the impact of foreign competition. In both formulations of the model the traditional domestic market structure variables have the hypothesized sign. Profit margins increase significantly with increases in concentration, whether measured by the weighted concentration ratio or entropy. Barriers to entry, such as economies of scale and the consumer goods ratio were also positive and significantly related to profit margins. The coefficient of the capital-labor ratio was significant and possessed the expected positive sign. The coefficient for growth rate in demand was also positively related to profit margins, although it was not statistically significant.

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[18] Two statistical problems are frequently encountered in this type of analysis: multicollinearity and heteroscedasticity. Inspection of the correlation matrix indicated that multicollinearity was probably not a severe problem. The highest intercorrelation among independent variables was .31 between the concentration ratio and the capital-labor ratio. Since it would not be unreasonable to suspect that the variability of profit rates would differ between large vs small industries or highly concentrated vs unconcentrated industries, heteroscedasticity may pose problems. We tested for this possibility by means of a Quant-Goldfield test and were unable to accept a hypothesis of heteroscedasticity. The F values generated were 1.9 and 1.6 below the critical level of 2.3.

TABLE 1: Regression Equations Relating Price-Cost Margins to Domestic Market Structure Characteristics and Foreign Trade and Investment, 1967.

(t-values in parentheses)

Equation Number	Constant	CR	E	K/L	ES	MDS	CGR	GD	MN	GM	XVS	MVS	T	NTB	R^2	F
(I.1)	104.80	.764[c] (1.47)		1.96[b] (2.19)	.158[c] (1.56)	.006 (.118)	92.24[a] (2.77)	.586 (1.06)	5.19[a] (4.25)	-.204 (1.05)	-.087 (.742)		1.01 (.982)	.533[b] (1.81)	.390	4.43[a]
(I.2)	186.69		-8.99[b] (1.68)	1.86[b] (2.07)	.160[c] (1.60)	.005 (.105)	89.32[a] (2.74)	.504 (.912)	5.49[a] (4.56)	-.159 (.811)	-.133 (1.09)		1.13 (1.12)	.511[b] (1.74)	.396	4.52[a]
(I.3)	132.20	.797[c] (1.51)		2.05[b] (2.25)	.208[b] (1.95)	.020 (.384)	86.48[a] (2.70)	.293 (.534)	4.52[a] (3.77)	-.099 (.514)	-.128 (.902)	.015 (.165)			.359	4.32[a]
(I.4)	223.94		-9.92[b] (1.72)	1.86[b] (2.01)	.199[b] (1.87)	.021 (.397)	84.77[a] (2.69)	.175 (.316)	4.81[a] (4.08)	-.567 (.295)	-.156 (1.10)	-.011 (.120)			.365	4.42[a]

The significance of the coefficients was tested using a one-tail t test.
a indicates that the coefficient is significant at the 1% level while b and c indicate significance at the 5% and 10% level respectively. The independent variables are:

CR = weighted average 4-firm concentration ratio
E = employment entropy measure of concentration
K/L = capital-labor ratio
ES = scale economies
MDS = mean distance shipped
CGR = consumer good ratio
GD = percentage growth of sales from 1963 to 1967
MN = index of multinational activity
GM = percentage growth of imports from 1963 to 1967
XVS = exports as a percent of value of shipments
MVS = imports as a percent of value of shipments
T = nominal tariff rate
MTB = non-tariff barriers

While the results of the traditional variables confirm the importance of domestic market structure in affecting profit margins, perhaps more interesting are the results obtained for the foreign factors. Both tariff and non-tariff barriers to entry exerted a positive influence on price cost margins. As might be expected, non-tariff barriers were of greater significance, as they represent more direct restrictions to the entry of foreign goods. Also, as hypothesized, the growth rate of imports was negatively related to profit margins. Although the coefficient was not statistically significant, its negative sign does suggest that growing levels of imports reduce domestic profit margins.

Exports as a percentage of value of shipments were negatively related to profit margins. This result provides some support to the Caves and Jones proposition that export opportunities can lead to improvements in domestic performance. The variable, however, was not significant in any formulation of the model.

The variable representing foreign competition, designed as imports as a percentage of value of shipments, yielded conflicting results. In equations using the concentration ratio it had a positive coefficient, while in the equations utilizing entropy the coefficient was negative. Given the qualifications cited earlier concerning this variable, this result is not surprising.

Finally, the degree of multi-national activity had a statistically strong and positive association with domestic profit margins. Whether this is due to multi-nationals posing barriers to entry by controlling foreign supplies, their enjoying lower input costs through purchase of materials from subsidiaries, or simply a relationship between excess profits and investment abroad, cannot be determined with the evidence

at hand. However, this strong relationship indicates that further study of the effects of multi-national activities on industrial markets of the parent country is certainly warranted.

Earlier we had speculated that growth in demand may have asymmetrical effects upon profit margins, depending upon whether the industry were competitive or oligopolistic. Furthermore we suggested that the import share variable may display a threshold effect, i.e., profit margins are maintained when the import share is low, but fall as import levels reach some critical level. In order to test for these possibilities, a dummy variable was first constructed to test for slope differentials between the effects of growth in highly concentrated industries and unconcentrated industries. In addition, slope dummies were constructed in order to test for differential effects of high import share vs low import share, and high growth of imports vs low growth of imports.[19]

The results of this analysis are presented in Table 2, which follows the format of Table 1. As can be observed, the traditional domestic market structure variables perform in the same manner as in Table 1. With respect to the growth in demand variable, however, some support is provided for the Caves hypothesis of assymmetry

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[19] Mean values of each variable for the total 88 industry sample were utilized to distinguish between the high and low groups. If within an industry the variable had a value above the mean, it was included in the high group, it it were below the mean, it was placed in the low group. The mean for the concentration ratio was 40%, which yielded a sample of 38 highly concentrated industries and 50 unconcentrated industries. Import share had a 6% mean value, and yielded a sample of 42 high import share industries and 48 low import share industries. Finally, the mean value for growth of imports was 60% which yielded 27 high growth industries and 61 low growth industries. Each high group dummy was given a value of 1 and each low, a value of 0. Each dummy was then multiplied with the original variable and then added as an independent variable in the equations.

TABLE 2: Multiple Regression Estimates of Alternative Models of Manufacturing Price-Cost Margins, 1967

(t-values in parentheses)

Equation Number	Constant	CR	E	K/L	ES	MDS	CGR	GDC	GDU	MN	HGM	LGM	XVS	HMVS	LMVS	T	NTB	R^2	F
(II.1)	84.78	.991[c]		1.95[b]	.154[c]	.011	90.86[a]	-.288	.794	5.23[a]	-.494[c]	.303	-.804			.962	.504[b]	.409	3.95[a]
		(1.31)		(2.16)	(1.52)	(.213)	(2.72)	(.416)	(1.24)	(4.24)	(1.49)	(.787)	(.642)			(.925)	(1.71)		
(II.2)	181.64		-10.06[c]	1.79[b]	.159[c]	.008	86.83[a]	-.074	.608	5.61[a]	-.541[c]	.387	-.117			1.13	.484[c]	.417	4.06[a]
			(1.63)	(1.98)	(1.59)	(.160)	(2.68)	(.135)	(1.01)	(4.67)	(1.63)	(.994)	(.903)			(1.13)	(1.65)		
(II.3)	103.51	1.20[c]		2.01[b]	.189[b]	.025	86.61[a]	-.454	.575	4.52[a]	-.525[c]	.434	-.103	-.096	.087			.382	3.52[a]
		(1.54)		(2.18)	(1.74)	(.451)	(2.67)	(.636)	(.896)	(3.72)	(1.54)	(1.12)	(.702)	(.171)	(.147)				
(II.4)	227.09		-12.52[b]	1.73[b]	.184[b]	.024	83.24[a]	-.198	.316	4.96[a]	-.592[b]	.541[c]	-.124	-.075	.036			.390	3.63[a]
			(1.82)	(1.84)	(1.70)	(.440)	(2.61)	(.348)	(.523)	(4.19)	(1.73)	(1.37)	(.847)	(.134)	(.061)				

The significance of the coefficients was tested by using a one-tail t test.
a indicates that the coefficient is significant at the 1% level.
b indicates that the coefficient is significant at the 5% level.
c indicates that the coefficient is significant at the 10% level.
Most independent variables were defined in the note to Table 1. Additional independent variables used here are:

GDC = the growth of demand variable in concentrated industries
GDU = the growth of demand variable in unconcentrated industries
HGM = high growth of imports dummy
LGM = low growth of imports dummy
HMVS = high import as a percent of value of shipments dummy
LMVS = low import as a percent of value of shipments dummy

between competitive and oligopolistic industries. In concentrated industries, growth in demand was negatively related to profit margins, while in unconcentrated industries growth in demand had a positive association with profit margins.

These results also provide some support of threshold effects for both the current share and growth rate of imports. In industries experiencing low import shares, a positive but non-significant relationship existed between import share and profit margins, while a negative relationship existed in industries with high import shares. The same pattern emerged for the growth rate of imports variable. In industries with low growth a positive but non-significant coefficient was obtained, while a positive and significant coefficient was obtained for industries experiencing high rates of import growth. This evidence, taken with that provided earlier, would suggest that the reaction of domestic producers and the effect on profit margins, is predicated more upon the growth of imports rather than the current share, and that some threshold effect appears to be operating.

III. Summary and Conclusions

The purpose of this paper has been to examine the influence of foreign trade and investment on one dimension of industry performance: price cost margins. Several conclusions emerge from this study. First, our empirical results reconfirm the notion that domestic market structure influences industry profitability. In particular, fewness of sellers as measured either by concentration or entropy exerts a statistically significant and positive effect upon industry price

cost margins. Second, our results suggest that foreign factors represent a fruitful addition to conventional structure variables in explaining inter-industry differentials in price cost margins. Although the relationship appears to be complex, the greater the degree of actual or potential foreign competition the lower the price cost margins. In this regard it appears that non-tarrif barriers and the growth rate of imports have the most significant effects upon industry profitability. Furthermore, industries which have become more multi-national exhibit significantly higher domestic price cost margins. The theoretical linkages by which this result occurs, certainly needs more attention. Finally, some support was found for the hypothesis that the exploitation of exporting opportunities may improve domestic industry performance by reducing price cost margins.

While the measurement of many of the variables is crude and more work needs to be done in devising more satisfactory dependent and independent variables, nonetheless, some tentative policy conclusions can be drawn. Our results would suggest that the relaxation of barriers to foreign competition (especially those of a non-tariff nature) could lead to an improvement in domestic industrial performance. However, since it appears that this improvement is predicated upon foreign competition reaching a threshold level, considerations of the balance of trade and balance of payments should be made before such policies are adopted.

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