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Niche Changes and Population Strategies:
Foreign Competition Revisited

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Abstract

This paper explores the impact of foreign competition on domestic industry performance. The population ecology perspective borrowed from biology is used for this purpose. Basic concepts are introduced and modified to capture essential characteristics of markets. The market niche resource is conceived as its exchange potential. A distinction is made between two sets of populations inhabiting the same niche, i.e., serving and client populations, both necessary for exchanges to take place. Impact of potential changes in niche size and niche shape is discussed and examined in an exploratory study. The findings indicate that decreasing niche size may be more important in explaining domestic industry decline than is foreign competition. The ability to adapt to foreign competition and to compensate by entering outside niches was found to differ across the industries examined.

INTRODUCTION

Business is becoming increasingly more international. By relating exports and imports to GNP it is found that these fractions for most countries have been increasing during the last decades. This development indicates increasing dependence of international markets and stiffer international competition as well. From a narrow, ethnocentric perspective, increasing internationalization is not always appreciated. Rise in trade deficit and declining domestic industries are often attributed to foreign competition (cf. Lawrence and Dyer 1983; Thurrow 1983) as exemplified by the following newspaper line: "... the time has come to say goodbye to floppy disks made in USA" (USA Today, July 31, 1985).

Here the population ecology perspective will be applied to examine influences of foreign competition on domestic industries' performance. The reason for this choice is that it (the perspective) allows for considering changes in and among populations of industries at the aggregate (macro) level beyond the perspective of the single firm. In order to be useful, however, the population ecology perspective and its major concepts have to be modified to grasp the specifics of markets and industries.

Populations and Niches

The population perspective has received considerable attention among organizational theorists (cf. Aldrich 1979; Carroll 1985; Hannan and Freeman 1977; McKelvey and Aldrich 1983). As borrowed from biology, the population ecology perspective is a metaphor. Metaphors are frequently used by social scientists. They serve as perspectives

or paradigms. Metaphors are powerful tools, they guide and direct. A good example is Tofler's (1980) use of the wave-metaphor as basis for his penetrating and eye-opening book, The Third Wave on changes in human life.

In disciplines such as organization theory, marketing and corporate strategy, the open system image of organization also deriving from a biological metaphor (cf. Chrisholm 1986) has heavily influenced teaching and research. At the individual organization level the open system perspective implies that the organization imports, transforms and exports "energy" (i.e., raw material, labor, information, etc.) and is influenced by as well as it (the organization) influences its ever-changing environment (cf. Katz and Kahn 1966). At the aggregate level the focus is on population(s) of organizations, or as termed by Hannan and Freeman (1977), the population ecology of organizations. This perspective implies that organizations can be classified so that members of a population can be distinguished from non-members. In order to do so, adequate classification criteria have to be established (cf. McKelvey 1982). Moreover, as the individual organization so is also the population of organizations depending on resources ("energy," cf. Pfeffer and Salancik 1978). Resources are assumed scarce as they often are found to be in nature.

The concept of environmental (ecological) niche is of crucial importance in the present context. A niche can be thought of as resource space within which a population can exist (Carroll 1985). It is important to note that a niche cannot be seen isolated from the population, but rather as its (the population's) adaption to environmental forces (cf. McKelvey 1982).

Any niche is thought of as having a carrying capacity, i.e., given capacity to support a population at any point in time, which may be conceived as niche size. Organizations may differ in their ability to benefit from a given niche. Some organizations, or more correctly organizational forms (i.e., "specific configurations of goals, boundaries, and activities--," Aldrich 1979, p. 28) are assumed more suited than others to benefit from the niche and survive. In addition to niche size, the shape of the niche is also of importance. The shape of the niche can be thought of as "the type of organizational activity the niche will support" (cf. Zammuto and Cameron 1985, p. 229). In the following these concepts will be adjusted to capture the specifics of markets and industry competition.

MARKETS AS NICHES

Markets are often thought of as niches. This analogy, however, implies several ambiguities and clarifications are needed.

A first question is related to what constitutes the resources of a market niche? A market per se implies exchanges of goods/services and money between actors.¹ The open system implies exchange of output for continued supply of input as emphasized by Thompson (1967) in his "loop-model." When considering markets as niches, the resources are related to the exchanges taking place. One may distinguish between realized exchanges and potential exchanges. Realized exchanges may be considered equivalent to "realized niches," i.e., the niche resources exploited, while potential exchanges may be considered coinciding with the niche's carrying capacity. Thus the resources of a market niche

are directly related to its exchange-potential. This makes the market niche different from a biological niche.

Exchange implies at least two parties, sellers (producers), and buyers (clients). Realized market niches may be conceived comparable to realized outcomes of market exchange processes. The exchange-perspective also implies the presence of two different classes of populations in any active market niche, client-population(s) and the seller (producer)-population(s). Thus the presence of two classes of populations are necessary to create and realize niche resources, which represent an important modification of the underlying niche metaphor from biology.

The members of the two classes of populations are usually assumed to exhibit purposeful behavior. Customers (clients) purchase to get need satisfaction. Products and services offered are evaluated by the customers (clients) according to their inherent benefits. In a similar vein, sellers (producers) are assumed to exhibit purposeful behavior and may--to some extent--succeed in their attempts to benefit from the niche, i.e., complete transactions. From this follows that sellers (and buyers) are assumed trying to adapt to changes--even though they will not always succeed in doing so. This may be seen as purposeful or intended variation (cf. McKelvey and Aldrich 1983, p. 115). To exhibit purposeful behavior may be conceived as being in concordance with "struggle for life" (which is one of the basic principles underlying the metaphor of "natural selection" used in population biology studies, see McKelvey and Aldrich 1983).

Variations in realized and potential market niche size may occur due to several reasons. Number of exchange partners may change and so

may the realized and potential exchange value per client. Durability and uniqueness of the products offered are also of crucial importance in explaining variations in niche size over time. In assuming infinite durability and extreme uniqueness (i.e., absence of substitutes) of the products offered and a stationary population of clients, and that each client is buying only one (or a fixed number of units), the niche will inevitably be exhausted. It is also evident that creation of new product offerings may influence niche size as well as niche form. The fact that introduction of new product offerings may create new market niches and lead to the decline of others, also make market niches very different from biological niches.

Organizations operate in task environments usually assumed to include clients/customers of the organizational output, suppliers, regulatory forces and competitors. In the following we will look away from suppliers and regulatory forces and take competitors into account only. Competition between members belonging to the same population can be conceived as intratype competition. An example is firms within an industry offering similar products to the same customers. When members of different populations are serving the same population of clients, this can be seen as intertype competition (cf. Palamountain 1955). If we conceive firms within the same industries, but from different countries as separate populations, intertype competition is taking place when these firms are offering their very similar products to the same client population.

When making exchanges the client population often evaluates offerings from more than one serving organization. In assuming that clients

can discriminate between variations in offerings, it follows from the assumption of purposeful behavior that the offerings perceived the "best" will be preferred. The niche shape may thus be influenced by the product/service offerings. New intended variations (e.g., product-development) may thus change the shape of the niche. Complementary to being selected in the population ecology model is being effective as emphasized in the resource dependence perspective (cf. Pfeffer and Salancik 1978), i.e., being selected by the client population due to superior performance.² Distribution of realized exchanges across populations serving organizations reflect activities supported by the client population (cf. Zammuto and Cameron 1985).

Strategic Responses

Niche changes may influence the population of organizations inhabiting the niche in several ways, depending on direction, degree and speed of changes. Increasing niche size is often assumed to be positive, as reflected in the well-known BCG-matrix. Increasing niches are often associated with "opportunities," which may allow present inhabitants to grow as well as entrance of others, i.e., new competitors, to benefit from the niche.

Declining niche size on the other hand is often associated with decreasing amount of resources. The struggle for existence may take different forms. One, very heroic assumption in the economists' model of pure competition, is that organizations immediately may move from one niche to serving and benefiting from another niche. Although a useful assumption for specific purposes, most organizations do not

possess this complete resource mobility, thus most organizations face mobility barriers (Porter 1980). Such barriers may be due to sunk costs, investments needed to create new exchange relationships, and time and resource requirements to change the organizational competence to fit a new niche.³

The more dramatic are the niche changes, i.e., the larger and the more rapid they are, the more the organizations inhabiting the niche will be influenced. The speed of change is of crucial importance. Continuous, but slow and modest niche reductions will allow organizations time to reallocate their resources, such as divesting and/or moving to another niche. Dramatic and unexpected changes may impose too limited time for adequate reallocation due to constrained mobility of resources and non-survival may be the case.

Organizations vary in their repertoire of strategic responses. In borrowing from the underlying biological metaphor, some general strategic responses are evident. One type of strategic response is to adapt, i.e., reduce activities when niche resources are scarce and expand activities when surplus resources are available. Another type of strategic response is to move to new and richer niches when experiencing limited and decreasing resources. Whether the one or the other or combinations of the two general strategies are applied, will depend on speed of niche changes as well as on options available to perform the various strategies. In a similar vein changes in niche shape may influence organizations. Reductions in available resources due to changes in niche shape may stimulate the organization to reduce activity, to adapt to the changing niche, or to move to another niche.⁴

It is also evident that organizations may create new niches through new product/service offerings, which represents an important deviation from strategies in nature.

NATIONAL MARKETS AND FOREIGN COMPETITION

Country borders are often used to classify markets. The "domestic" market niche plays a predominant role for most nations. Here national borders and industry belongingness are used as criteria for classifying serving populations. In addition a distinction is made between serving and client populations.

[Insert Figure 1 about here]

Cell (a) represents the domestic market niche, inhabited by domestic clients and domestic producers. Foreign producers (cell b) may find the domestic client niche attractive (imports), as well as domestic producers may find foreign client niches attractive (cell c; exports). In order to apply the population ecology analogy to markets, the serving and client populations have to be classified according to exchanges of defined products or services. Thus type of product/service represents a crucial classification criterion (cf. McKelvey 1982).

When comparing domestic and foreign populations, the following emerges: Client populations are classified on basis of similarities in needs, while producer populations are grouped according to similarities in their products and service offerings. The spatial criterion is separating domestic and foreign organizations serving the same client

population. Producers of similar products offerings from different countries may be conceived as similar populations inhabiting geographically separated niches. However, due to the separation in space, they should be considered as different populations (cf. McKelvey 1982).

The various producer populations may differ with regard to intended as well as unintended changes, i.e., variations. When a specific serving population increases its share of the exchanges in a given niche this may be viewed as successful variation. According to our above discussion this can be regarded as change in niche shape. Successful variations may also influence niche size as improved performance (cf. variations) may initiate exchanges otherwise not being performed.

AN EXPLORATORY STUDY

In order to examine the above ideas empirically, an exploratory study was conducted. Below are reported the methodology and findings.

Methodology

Design: An exploratory study was found appropriate in the present case. The preceding theory-based discussion serves the purpose of guiding gathering and interpretation of data. Due to the emphasis on change observations at more than one point in time are needed. Here annual data covering the years 1976-1982 are used. Changes are captured by comparing descriptions at different points in time (i.e., comparative, static analysis is used).

Observations from two industries as defined at the four digit level by the SIC-classification were included; SIC 3523. Farm Machinery

and Equipment, and 3711. Motor Vehicles and Car Bodies. The two industries were selected due to differences in niche size and niche shape changes. Thus the basic dimensions assumed to influence population strategies as emphasized in the above discussion guide the sample selection. This is in concordance with "strategic sampling" as proposed by Glaser and Strauss (1967) and Campbell's (1975) quest for "degrees of freedom" to benefit the most from small-scale, exploratory research. Inclusion of industries at the four-digit level as measured by the SIC-classification is also consistent with the recommendation of selecting homogeneous samples of organizations for more valid research (cf. McKelvey and Aldrich 1983, p. 118) due to the reduced influence of non-examined factors. The producer-populations inhabiting the niche represent the focal point in our analysis.

Data: A variety of secondary sources is used for the present purpose, i.e., mapping of niche size and niche shape changes, strategic actions to adapt to such changes, and performance measures of the focal populations. Appendix A summarizes the data used in this study.

Measurement: The basic concepts were operationalized in the following way:

(1) Niche size, SIZE, is estimated as domestic producers (P_D) and foreign producers (P_F) exchanges with the domestic client population (see Figure 1, cell a).

(2) Changes in niche size, CSIZE, are observed by comparing niche size at different points in time. Increasing niche size is assumed to reflect situations where the potential niche is not fully exploited.

Zero or negative growth is assumed to reflect the limit of a niche's carrying capacity, i.e., the limit with present products offerings. (As emphasized above, growth in market niches may be created due to new product offerings).

(3) Niche shape is mapped by the fractions of exchanges completed by the inhabiting serving population, P_D , and non-habiting serving populations, P_F , respectively.

(4) Changes in niche shape are observed by comparing niche shape at different points in time.

(5) The following indicators of strategic actions are used:

- The adapt-strategy is captured as changes in labor, ADAPTL and capital expenditures, ADAPTC.
- The move-strategy, CEXP, is measured as changes in exports.

(6) Value added is used as proxy for acquisition of resources, RES, and changes in resource acquisition, CRES, are measured by comparing value added at different points in time. These very crude measures are conceived adequate for the present exploratory purpose.

In order to compare values measured at different points in time, all values are deflated by the consumer price index (1976 = 100). Choice of index may influence the actual numbers as measured in fixed prices. Here it is believed that the index chosen adequately reflects value changes. Thus the deflated values are assumed to capture "real" niche changes.

FINDINGS

Niche size: Table 1 shows domestic niche size development in the two industries studied (i.e., exchanges made with the domestic client

[Insert Table 1 about here]

populations). Table 1 reflects niche size at various points in time in percent of the niche size by 1976. (The calculations are based on fixed prices, 1976 = 100.) Inspection of Table 1 reveals that the sizes of the two niches have changed dramatically during the period studied. The declining niche sizes--as measured in fixed prices, indicate reduced carrying capacity in both industries.

Niche shape: Below are reported measures of niche shape for the two industries during the years 1976-1982.

[Insert Table 2 about here]

Inspection of Table 2 reveals some very interesting patterns. For the farm machinery industry the relative importance of foreign supply, P_F , has remained relatively stable throughout the period. In fact, the results indicate that the domestic suppliers, P_D , are performing relatively better the last few years, as the P_D -share increases. The findings for the motor vehicle industry, however, indicate that dramatic changes in niche shape are taking place as the P_F -share of domestic niche supply increases, indicating that their products/services are evaluated more favorably by the client population inhabiting the niche. A recent forecast also predicts dramatic changes

in niche shape in the years to come as the P_D -share is assumed to decline (USA Today, February 3, 1986).

Strategic actions: How do the inhabiting serving populations respond to niche changes? In order to explore use of the assumed adaption (reduce/expand) and move strategies the following information may prove useful.

[Insert Table 3 about here]

Table 3 shows annual changes in niche size (CSIZE), employment (ADAPTL), capital expenditure (ADAPTC) and exports (CEXP) and changes in value added (CRES). All value changes are in mill. \$ as measured in fixed prices (1976 = 100). Changes in employment are measured in 1000 employees.

Inspection of Table 3 reveals that when CSIZE is positive ADAPTL is positive, and when CSIZE is negative ADAPTL is negative. This pattern is observed in 11 of 12 cases. In calculating the by chance probability of such a result, it is found that $B(b \geq 11) = .0002$ ($p=.5$, $n=12$), indicating that this is a significant result, i.e., a result indicating that populations are pursuing the adaption strategy. For changes in capital expenditure the same pattern is observed in eight of 12 cases ($P(b \leq 4) = .073$; $p=.5$, $n=12$), i.e., a "weaker" results for the ADAPTC-indicator compared to the findings for the ADAPTL-indicator regarding the adaption strategy.

Table 3 also reveals dramatic increase in ADAPTC during 1980/81 in the motor vehicle industry, followed by modest increases in the CSIZE

and CRES indicators. This observation may be interpreted as an aggressive attempt among population members to bring back the competitive edge. The negative changes in CSIZE and CRES during the 1981/1982 period demonstrate, however, that the domestic serving population members failed in their effort to achieve sustainable advantages.

Inspection of the move-strategy indicator, CEXP, shows mixed results. In the farm machinery industry positive changes in CEXP are found both for positive and negative changes in CSIZE. For both industries the positive changes in CEXP are by far the highest when the changes in CSIZE are positive and large. The "disappointing" findings regarding move strategies do not tell, however, that the populations are not pursuing such strategies. A possible explanation may be that the two serving domestic populations are trying to move out--in particular when the niche potential is modest and declining as reflected in Table 1, but that such attempts not always are successful. In borrowing from the biological metaphor once more, struggle for life takes place; but not everyone is a winner. In other words, the failing move-strategy may partly be explained by superior performance of serving populations inhabiting the niches the domestic populations have been trying to enter.

In contrasting the two sets of strategies, adapt and move, the two populations studied are seemingly more successful in pursuing the former. However, a note of caution is required: At the population level, reductions may be due to reduced activity of individual organizations, exit of organizations, and transformation of organizations from one industry (niche) to another. There is no doubt that reduction

in organizational activities is taking place as reflected in easily observable lay-off data (cf. Table 3). Exits do also occur, as well as industry transformations. The present data do not, however, capture such changes, neither other strategies used by organizations such as creation of new market niches through new product offerings, investments in production facilities abroad and so on. Here only the two major classes of strategies directly from the underlying biological metaphor have been examined.

Number of firms in the farm machinery industry decreased by approximately 4 percent from 1977 till 1982; number of employees decreased by 26.7 percent (cf. Appendix A), and value of shipment as measured in fixed prices decreased by 34 percent. During the same period, number of firms in the motor vehicle and car body industry increased by almost 12 percent, in spite of number of employees decreased by almost 31 percent and value of shipment went down by more than 40 percent (as measured in fixed prices). These changes may indicate that different reduction strategies are applied. The present data, however, do not allow for any detailed examination of the relative importance of the various reduction strategies. It should also be noted that changes in number of firms as reported above represent net changes, i.e., they reflect the aggregate number of industry exists, transformations, and entries.⁵

DISCUSSION

The findings reported above deserve some further comments. Dramatic changes in niche size were observed in both industries. From Table 1 it is observed that the carrying capacity in both industries

decreased during the second half of the period studied. In the farm machinery equipment industry, the niche shape remained almost constant. In the motor vehicle industry dramatic changes in niche shape are observed. Table 2 shows that domestic producers in this industry are losing market share at the domestic, declining market.

In order to make comparisons between the two industries, Table 4 may serve as a point of departure.

[Insert Table 4 about here]

Table 4 compares development in niche size (SIZE), acquired resources (RES), fraction of the domestic niche served by the domestic population, and exports (move) as measured in percentage of domestic niche size. The SIZE- and RES-indices are based on fixed prices (1976=100).

When comparing developments in SIZE across the two industries, it is observed that the discrepancies between the highest and lowest number are rather similar in the two industries (117-67=50 versus 122-75=47). For the last four year-bracket the relative decline in the farm machinery industry is even steeper than it is in the motor vehicle industry. The decline in acquired resources (RES) is, however, by far the highest in the motor vehicle industry. In 1982 the retained resources was 58 percent of the resources retained in 1976 in this industry as measured in fixed prices, compared to 75 percent in the farm industry. This tendency is also reflected in value added as measured in percentage of value of shipment. In the farm machinery industry the fraction value added/value of shipment was 46.6 percent in 1976 versus 49.0 percent in 1982, while 25.3 percent versus 21.9 percent were observed in the motor

vehicle industry. Inspection of exports as measured in percent of domestic niche size, EXP/SIZE, shows that the farm machinery industry has gradually moved into outside niches with their product offerings. This has not been the case for the motor vehicle industry. Table 4 shows that the EXP/SIZE measures have remained almost constant in this industry during the period studied.

The reported findings offer some insights to our understanding of the impact of foreign competition. Increasing shares of domestic market niches served by foreign firms may indicate that domestic firms are being confronted with stiffer competition and that they are losing to their foreign competitors as reflected in reported data on the motor vehicle industry. Industry decline may also occur due to shrinking niches as reflected in Table 1. When contrasting the influences of shrinking niche and foreign competition the following emerge:

[Insert Table 5 about here]

Table 5 shows size changes in the two domestic niches (1), impact of foreign competition (2), and net changes for domestic producers at the domestic markets (3). In addition is shown change in exports (4), total changes in shipment (5), and changes in value added (6) for domestic producers.

Inspection of Table 5 reveals some very interesting findings. Foreign competition has not attributed to the declining sales for the farm machinery and equipment industry at the domestic market. The domestic industry has even gained a little bit during the period studied. This industry (farm machinery and equipment) has also gained

from moving to other niches (exports). The total change in exchanges as measured in fixed prices is -26.1 percent, while the drop in acquired resources is somewhat lower, -25 percent.

For the motor vehicle and car body industry it is also observed that reduction in domestic niche size contributes more than foreign competition to industry decline. 70.4 percent of the reduction in exchanges at the domestic market can be attributed to decline in niche size. Table 5 shows that decline in retained resources has been higher (42 percent) than decline in value of exchanges (35.1 percent), indicating stiffer competition throughout the period studied.

The idea of exchange potential as the niche resource is important as exchanges imply two types of populations, serving and client populations respectively. In economics consumers' need satisfaction is assumed to be the ultimate goal for economic activity. When changes in niche shape is taking place, this reflects that some (subsets of) serving populations are more effective, they are more successful in their variations, and they are in a true sense appreciated by client populations. Thus even decline due to foreign competition is evaluated positively by the target groups for economic activities, the client populations.

Choice of perspective is important as it guides and directs research, and influences gathering and interpretation of data. Here the population ecology of organization perspective, i.e., a metaphor borrowed from biology has been used to explore impact of foreign competition. From the above discussion follows that important differences between natural

niches and market niches exists. Moreover, as the focus is on populations when applying this perspective, important aspects of individual actors are left out. On the other hand, this perspective is useful to grasp specifics at the aggregate (macro) level not captured when focusing on the individual organization.⁶

FOOTNOTES

¹Markets may be thought of as a steering device. Incentives and information are conveyed through the price-system contributing to coordination of specialized activities. The outcomes of these processes are exchanges (transactions).

²For detailed comparison of the population ecology and the resource-dependence perspectives, see Pfeffer (1982, pp. 204-207) and Ulrich and Barney (1984).

³For an enlightening discussion of the role of organizational competence, see McKelvey and Aldrich (1983).

⁴For detailed discussion of organizational forms most successful in adapting to various niche changes, see Zammuto and Cameron (1985).

⁵Many organizations are represented in several industries. If the number of employees in an organization remains constant over time, but the distribution of employees allocated to various industries changes, this will be reflected as decreases and increases in employment in the industries covered by the organization as reflected in the SIC-data.

⁶For a detailed discussion on properties captured at the individual (micro) and the aggregate (macro) levels respectively see Hernes (1976).

REFERENCES

- Aldrich, H. E. (1979), Organizations and Environments, New Jersey, Prentice-Hall Inc., Englewood Cliffs.
- Bureau of the Census, Census of the Manufacturers, Washington, D.C. U.S. Department of Commerce (1976-1982).
- Campbell, D. T. (1975), "'Degrees of Freedom' and the Case Study," Comparative Political Studies, Vol. 8, No. 2 (July), 178-93.
- Carroll, G. R. (1985), "Concentration and Specialization: Dynamics of Niche Width in Population of Organizations," American Journal of Sociology, Vol. 90, No. 6 (May), 1262-83.
- Chisholm, D. (1986), "Organizational Adaption to Environmental Change," Working Paper, No. 86-1, Berkeley, Cal., Institute of Governmental Studies.
- Economic Report of the President (1985), Washington, D.C., U.S. Government Printing Office.
- Glaser, B. G. and Strauss, A. L. (1967), The Discovery of Grounded Theory, Chicago, Aldine Publishing Co.
- Hannan, M. and Freeman, J. (1977), "The Population Ecology of Organizations," American Journal of Sociology, Vol. 82 (March), 929-64.
- Hernes, G. (1976), "Structural Change in Social Processes," Am. J. of Sociology, Vol. 82, No. 3 (Nov.), 513-47.
- Katz, D. and Kahn, R. L. (1966), The Social Psychology of Organizations, New York, John Wiley and Sons.
- Lawrence, P. R. and Dyer, D. (1983), Renewing American Industry, New York, The Free Press.
- McKelvey, B. (1982), Organizational Systematics: Taxonomy, Evaluation, Classification, Berkeley, University of California Press.
- McKelvey, B. and Aldrich, H. (1983), "Populations, Natural Selection, and Applied Organizational Science," Administrative Science Quarterly, Vol. 28 (March), 101-128.
- Palamountain, J. C. (1955), The Politics of Distribution, Cambridge, Mass.: Harvard University Press.

- Pfeffer, J. (1982), Organization and Organization Theory, Boston, Pitman.
- Pfeffer, J. and Salancik, G. R. (1978), The External Control of Organizations, New York, Harper and Row.
- Porter, M. E. (1980), Competitive Strategy, New York, The Free Press.
- Thompson, J. D. (1967), Organizations in Action, New York, McGraw-Hill.
- Thurow, L. (1984), "Revitalizing American Industry: Managing in a Competitive World," California Management Review, Vol. XXVII, No. 1 (Fall), 9-41.
- Toffler, A. (1980), The Third Wave, London, Pan Books Ltd.
- Ulrich, D. and Barney, J. B., "Perspectives in Organizations: Resource Dependence, Efficiency, and Population," Academy of Management Review, Vol. 9, No. 3, 471-481.
- U.S. Department of Commerce, Census of Manufacturers: Subject Series--General Summary, Bureau of the Census.
- U.S. Department of Commerce, U.S. Industrial Outlook, Washington, D.C., U.S. Government Printing Office.
- USA Today (1985), "USA Sold on Japan's User Disks," USA Today, July 1985, p. B1.
- USA Today (1986), "Carmakers Race for Lead," USA Today, February 3, p. E1.
- Zammuto, R. F. and Cameron, K. S. (1985), "Environmental Decline and Organizational Response," in L. Cummings and B. Staw (eds.), Research in Organizational Behavior, Greenwich, Conn., JAI Press, 223-262.

Niches:	1976	1977	1978	1979	1980	1981	1982
1) Farm Machinery and Equipment	100	106	98	117	96	91	67
2) Motor Vehicles and Car Bodies	100	115	122	114	82	82	75

Table 1. Development in Niche Size 1976-1982
 (Based on deflated values. 1976=100)

Industry:

	Supply	1976	1977	1978	1979	1980	1981	1982
Farm Machinery and Equipment	P _D	87.9%	90.1%	87.7%	85.2%	85.2%	87.7%	87.8%
	P _F	12.1	9.1	12.3	14.8	14.8	12.3	12.2
Motor Vehicles and Car Bodies	P _D	90.8	90.7	88.2	86.5	80.4	81.1	80.3
	P _F	9.2	9.3	11.8	13.5	19.6	18.2	19.7
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2. Niche Shape 1976-1982 (%)

Industry:	Changes	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82
Machinery Equipment	Csize (mill \$)	499	-679	1.675	-1.842	-450	-2.034
	ADAPTL (1000)	4.0	-10.3	19.3	-6.8	-8.0	-28.8
	ADAPTC (mill \$)	69	-44	9	29	12	-123
	CEXP (mill \$)	-111	-38	360	73	29	-418
	CRES (mill \$)	312	-355	607	-602	-251	-736
Trucks or Vehicles Car Bodies	Csize (mill \$)	10.050	4.848	-5.699	-21.120	98	-5.018
	ADAPTL (1000)	19.3	15.1	-10.6	-74.3	-2.3	-32.9
	ADAPTC (mill \$)	555	42	-123	60	1.372	-1.587
	CEXP (mill \$)	45	188	-70	-530	-4	-13
	CRES (mill \$)	1765	360	-1.386	-7.017	25.5	-679

Table 3. Niche Changes and Strategic Actions (fixed prices, 1972=100)

Industry	Variables	1976	1977	1978	1979	1980	1981	1982
Farm Machinery and Equipment	SIZE-index	100	106	98	117	96	91	67
	RES-index	100	107	99	113	99	93	75
	P _D	89.9	90.1	87.7	85.2	85.2	87.7	87.7
	EXP/SIZE	17.8	15.6	16.4	17.2	21.9	23.4	24.6
Motor Vehicle and Car Bodies	SIZE	100	115	122	114	82	82	75
	RES	100	111	113	105	60	62	58
	P _D	90.8	90.7	88.2	86.5	80.4	81.8	80.3
	EXP/SIZE	3.6	3.2	3.3	3.3	3.7	3.7	4.0

Table 4. Niche Size, Aquired Resources, Domestic Supply and Export/Domestic Niche 1976-1982 (%)

Industry	Domestic Market			Exports (4)	Total industry change (5)	Changes in value added (6)
	Niche size (1)	Foreign comp. (2)	Total domestic change (3)			
Farm Mach. and Equipm.	-33	.1	-32.9	6.8	-26.1	-25
Motor Vehicle and Car Bodies	-25	-10.5	-35.5	.4	-35.1	-42

Table 5. Industry Changes 1976-1982 (%)

APPENDIX A: DATA^a

Industry	Information	1976	1977	1978	1979	1980	1981	1982
SIC 3523. Farm Machinery and Equipment	Value of ship ¹ (mill \$)	9.133	10.286	10.054	12.998	12.845	13.949	10.856
	Exports ¹ (mill \$)	1.537	1.518	1.583	2.187	2.631	2.942	2.378
	Imports ¹ (mill \$)	1.050	.969	1.183	1.880	1.773	1.550	1.180
	Total employees ¹ (1000)	127.3	131.3	121.0	140.0	133.4	125.0	96.2
	Capital expenses ¹ (mill \$)	254	342	318	361	459	523	342
	Value added ² (mill \$)	4.249	4.854	4.796	6.023	6.057	6.271	5.324
	Number of firms ³	...	1.868	...	...	...	...	1.787
SIC 3711. Motor Vehicles and Car Bodies	Value of ship ¹ (mill \$)	62.717	76.518	84.901	85.147	66.257	74.273	70.732
	Exports ¹ (mill \$)	2.372	2.572	3.022	3.172	2.896	3.183	3.360
	Imports ¹ (mill \$)	6.140	7.602	10.926	12.741	15.453	15.858	16.529
	Total employees ¹ (1000)	324.3	343.6	359.1	348.5	274.2	271.9	239.0
	Capital expenses ¹ (mill \$)	1.047	1.706	1.877	1.906	2.290	4.697	230.8
	Value added ² (mill \$)	15.844	18.724	20.491	20.753	13.817	15.621	15.450
	Number of firms ³	...	254	...	...	...	...	284
Consumer Price Index ⁴		171	182	195	214	247	272	289

a) All values in current prices

¹U.S. Department of Commerce, U.S. Industrial Outlook

²U.S. Department of Commerce, Census of Manufacturers

³U.S. Department of Commerce, Census of Manufacturers

⁴Economic Report of the President (1985)

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