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Globalization of the Food Industry

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Now, perhaps more than ever, the structure and behavior of firms in the food sector are not bound by, nor classifiable according to, country boundaries. Indeed, the food sector is rapidly evolving into a global system. Within this global system firms develop, pursue, revise and refine a variety of strategies designed to profitably expand the scope of their commercial activities both at home and abroad.

At one time, economists viewed international commerce primarily within the context of trade in goods. Even today, trade pervades much of the interest in international markets and appears to be the dominant concern of many legislators, government officials and leaders in farm organizations. Yet, trade is only part of the fabric of international business in the food sector and a relatively minor part at that. When measured in terms of the value of sales, direct investment in foreign affiliates is larger than direct trade in food and related goods by an order of several magnitudes. As a result of foreign investments, firms often loose their national identities. For example, many Europeans are surprised to learn that Kellogg's is a U.S. firm; many Americans are equally surprised to learn that Pillsbury is a British firm.

But, even foreign direct investment does not tell all. Firms engage in a wide array of other international activities such as licensing, joint ventures and strategic alliances. The result is, growing international rivalry, interdependence and cooperation. All firms, whether large or small, domestic or multinational, feel the effects and pressures of this globalization process. This alters the competitive environment for firms, governments and consumers. It also presents great challenges for agricultural economists who monitor, evaluate and project the behavior and performance of the agricultural marketing system.

The purposes of this paper are to describe the global dimensions of the agricultural and food marketing system; to identify key factors that are impacting on the international organization and behavior of firms in the sector; and to identify analytical, methodological, conceptual and empirical challenges facing both marketing economists and policymakers that arise as firms in the food sector operate increasingly within a global, rather than local or national, market setting.

The first section of this paper focuses primarily on international trade, the second portion on foreign direct investment and the third part on multinational firms. Issues and challenges are taken up in the concluding section.

Trade

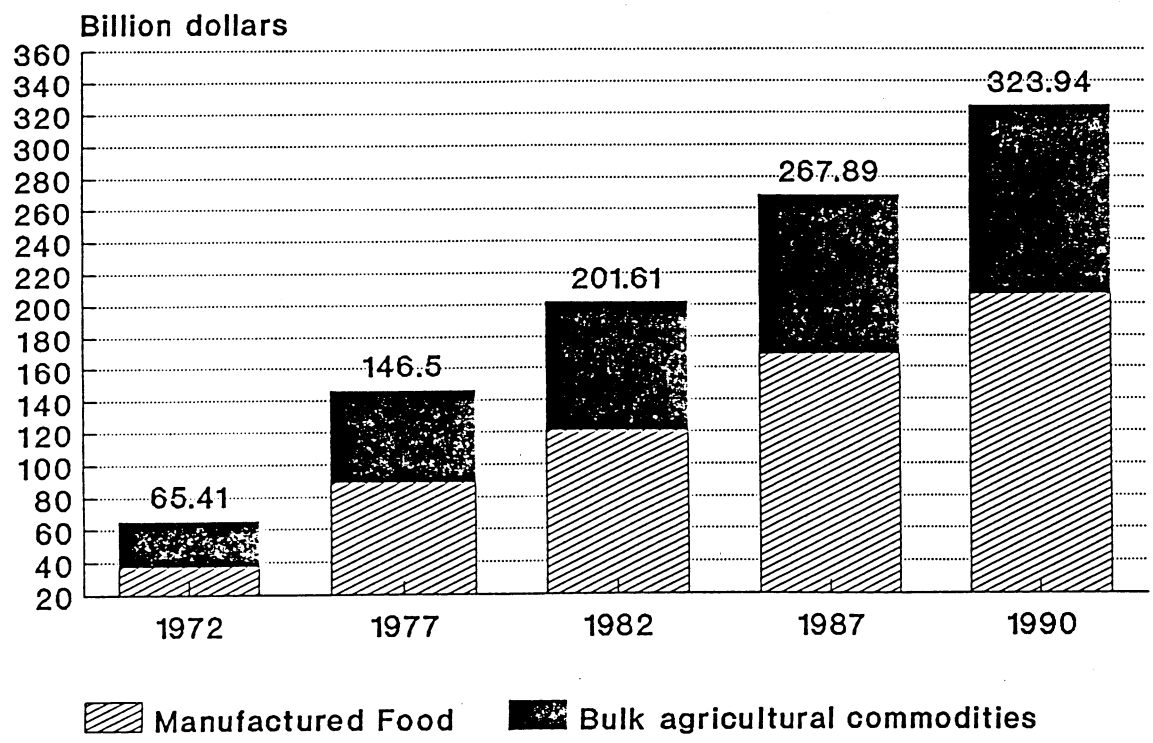
Data in this section come from the United Nations annual D-series trade statistics. The North Central Regional Project NC-194 extracts trade data on agricultural commodities and on processed foods at the four-digit Standard Industrial Classification (SIC) used by the U.S. Census Bureau to define food manufacturing industries (Dayton and Henderson). This section provides an overview of world trade in both raw agricultural commodities and manufactured food products (SIC 20).

The combined value of world trade in agricultural commodities and processed food products grew from $65.4 billion in 1972 to $323.9 billion in 1990 (Figure 1). This represents an average annual growth rate of 9.3 percent. Total agricultural trade can be divided into two categories: 1) bulk agricultural commodities, including fresh fruits and vegetables and live animals, and 2) manufactured food and beverage products including fresh meat, fish and seafood, and distilled liquor.

Global trade in bulk agricultural commodities grew from $27 billion in 1972 to $118 billion in 1990. The average annual growth rate was 8.4 percent. In contrast, global trade in manufactured food products grew at a faster annual rate of 9.8 percent, from $38 billion in 1972 to $206 billion in 1990. As a result, manufactured food's share of total agricultural trade has increased from 58 percent in 1972 to 64 percent in 1990.

Trade in manufactured food and beverages is highly concentrated among a few countries. Only nineteen countries accounted for 89 percent of world-wide imports of processed food in 1990. Japan is the largest importer accounting for 12

Figure 1. World Trade in Agricultural Commodities and Manufactured Food



percent of the world total, followed by West Germany (11.8 percent) and the United States (11.7 percent). There is somewhat greater diversity among the leading export countries with twenty-four countries accounting for 80 percent of all international shipments (Table 1).

In 1990, France was the largest supplier of processed foods followed closely by The Netherlands and the United States. All the European Community (EC) countries except Denmark increased their share of world exports since the early 1960's. In contrast, Australia, New Zealand, Brazil, Argentina and Columbia experienced a large decline in their world share. The U.S. share of world exports declined slightly to 8.5 percent, but its share appears to have increased since 1990 according to recent Bureau of Census trade data. Table 2 shows that U.S. exports of manufactured foods increased 8 percent in 1991 and another 12 percent in 1992 to an estimated $22.5 billion. With imports growing at a much slower rate, the United States will record a trade surplus in 1992 for the first time in recent years.

Table 1: Leading Suppliers of Manufactured Foods and Beverages to International Markets[1]

Country	Share of World Total 1990 (percent)	Share of World Total 1962 (percent)
France	9.8	3.9
Netherlands	8.9	5.7
United States	8.5	8.8
Germany (West)	6.7	1.5
United Kingdom	4.3	3.3
Belgium/Luxembourg	4.1	1.3
Denmark	3.9	5.1
Brazil	3.5	6.2
Italy	3.5	2.2
Canada	2.8	3.6
Australia	2.7	4.9
Thailand	2.7	1.3
China	2.6	1.2
Spain	2.1	1.7
Ireland	2.1	1.2
New Zealand	1.7	3.7
Argentina	1.7	4.0
Taiwan	1.6	1.1
Malaysia	1.3	0.7
Indonesia	1.1	1.0
Norway	1.1	1.3
Korea	0.9	0.1
Columbia	0.9	2.5
Mexico	0.9	1.8
Total of Above	79.7	68.0

Table 2: US Exports and Imports of Manufactured Foods, 1988 - 1992.

Year	Exports ($ million)	Imports ($ million)
1988	16,414.2	19,399.9
1989	17,111.7	19,681.8
1990	18,585.5	20,876.7
1991	20,084.4	20,806.7
1992E	22,500.0	21,100.0

Intra-Industry Trade

There is growing theoretical and empirical literature on two-way intra-industry trade, defined as the simultaneous importation and exportation of similar goods. The theoretical literature explaining intra-industry trade (See, for example, Krugman; Helpman), emphasizes the role of imperfect market structures, economics of scale and product differentiation.

In a recent empirical study, Hartman, Henderson and Sheldon conducted a cross-section analysis of intra-industry trade in U.S. manufactured foods. This study utilized cross-section data from thirty-six food processing industries to analyze the extent and determinants of intra-industry trade. Using an index developed by Grubel and Lloyd, they found that intra-industry trade accounts for as much as 90 percent of total U.S. trade in some industries, and averages about 33 percent across all thirty-six industries.

Using regression analysis, that study

found intra-industry trade to be positively and significantly related to: total volume of U.S. trade; similarity of tariff barriers between the United States and its trading partners; and economies of scope. The estimated coefficients of seller concentration were found to be negative and significant. Finally, this study found that the estimated coefficients for product differentiation and economies of scale were not significant in explaining differences in intra-industry trade.

Apparently intra-industry trade in food manufacturing is as likely to occur for homogeneous products as it is for differentiated products. In addition to two-way trade in differentiated branded products such as beer and wine, substantial two-way trade occurs in processed fruit and vegetable products (mostly as bulk product in institutional size containers). For example, during the first nine months of 1992, U.S. exports of canned tomatoes increased 64 percent from the year earlier period to 20 million pounds. Most of this product went to Canada, Japan, The Netherlands and Mexico. But U.S. imports of canned tomatoes were also up 21 percent during the same period to 55 million pounds. Italy, Chile and Turkey were the largest suppliers. More detailed empirical analysis is needed to more fully understand the forces driving intra-industry trade, especially for homogeneous processed products.

Foreign Direct Investment

In addition to trade in manufactured food products, there is a much larger volume of trade in capital and technology – often referred to as "trade in headquarter services." Most large food manufacturers rely much more heavily on a variety of foreign direct investment strategies than on exports to access foreign markets. Unfortunately, consistent data on foreign direct investment (FDI) for all countries, or even for all developed countries, are not available. Therefore, we use only U.S. in-bound and out-bound FDI data for the food processing (SIC 20) sector from the U.S. Department of Commerce.

Figure 2 shows that sales from U.S.-owned food processing affiliates abroad are much larger than sales from foreign-owned affiliates in the United States. Sales from foreign-owned firms in the U.S., however, are growing at a faster rate. From 1982 to 1990 (latest data available), sales from U.S.-owned affiliates abroad grew from $39 billion to $75 billion. The average annual growth rate for this eight-year period was 8.5 percent. During this same period, sales from foreign-owned affiliates in the U.S. grew from $15 billion to $45 billion--an average annual growth rate of 14.6 percent. However, annual in-bound FDI outlays have declined since 1990. About 90 percent of all in-bound FDI goes to acquiring existing U.S. food processing plants rather than for building new facilities.

Both the source and destination of FDI are heavily concentrated in developed countries. Europe alone accounts for $44 billion or 58 percent of the total U.S. affiliate sales abroad (Table 3). Adding Canada and Japan brings the total share for these countries to 75 percent. After a decline in the mid-1980's, sales from U.S.-owned affiliates in Mexico have been growing rapidly and now exceeds U.S. affiliate sales in Japan. Mexico now ranks as the eighth largest host country for U.S. affiliates. Among the top ten host countries for U.S. affiliates, Mexico is the

Figure 2. Sales from Food Processing Affiliates Abroad in the U.S.

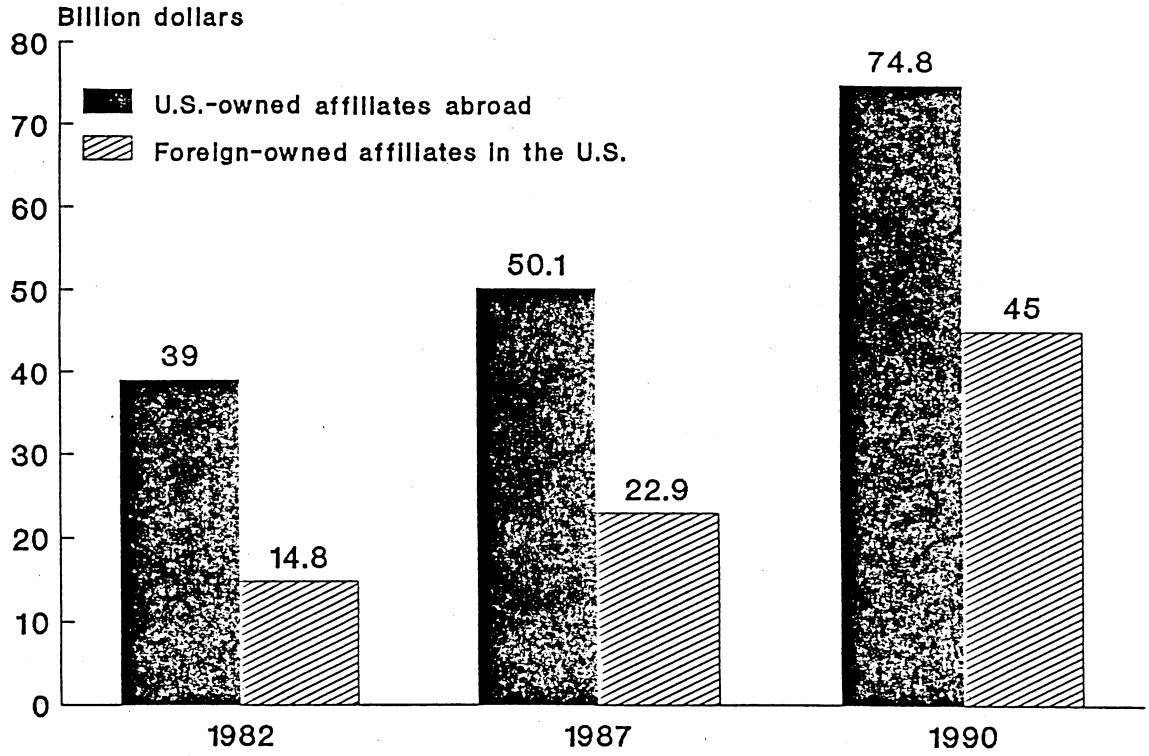


Table 3. Sales from U.S.-Owned Food Manufacturing Affiliates Abroad.

	1982	1987	1990	Average Annual Change, 1982-1990
		--Million dollars--		
Total, all countries	39,023	50,067	74,813	8.5
Europe	18,974	29,044	43,560	10.9
Canada	5,258	5,522	9,089	7.1
Japan	2,363	4,442	3,136	3.9
Mexico	2,556	1,596	3,220	2.9

Source: U.S. Department of Commerce, 1992a

only developing economy. We estimate that sales from U.S. affiliates in Mexico are now well over $4 billion.

Europe also dominates inbound FDI into the United States, accounting for 74 percent of all foreign-owned firm sales in 1990 (Table 4). Europe, Canada and Japan together account for 94 percent of sales of all foreign-owned food processing

Table 4. Sales from Foreign-Owned Food Manufacturing Affiliates in the United States.

	1982	1987	1990	Average Annual Change, 1982-1990
		--Million dollars--		
Total, all countries	14,847	22,862	44,120	14.6
Europe	10,527	17,967	32,833	15.3
Canada	2,218	3,174	6,041	13.3
Japan	564	612	2,546	20.7

Source: U.S. Department of Commerce, 1992b

affiliates in the United States. From a small base, sales from Japanese-owned affiliates rose to $2.5 billion in 1990 – a 55 percent increase over 1989.

We can draw several generalizations from aggregate data on FDI in food manufacturing. First, most FDI is horizontal rather than vertical. That is, food manufacturers primarily invest in other food manufacturing facilities rather than in up-stream or down-stream operations. Second, most FDI outlays are for acquiring existing firms rather than for greenfield investments. Third, most foreign affiliates sales go to the domestic market in the host country. Only a small percent of affiliate sales are typically exported to the home country. And, finally, as noted above, most FDI is concentrated in developed countries.

While these generalizations are strongly supported by empirical evidence, there are many exceptions. Kyotaru Oregon, Inc. is an example of inward FDI that runs counter to three of the four generalizations listed above. Kyotaru Oregon is a specialty meat and seafood processing plant built in Salem, Oregon in 1990 by Kabusiki-kaisha Kyotaru, one of Japan's largest restaurant chains. The plant makes imitation crab meat from Alaska pollack; flaked salmon; and portion cuts of beef from Oregon additive-free cattle. Almost all the output from the Kyotaru Oregon plant is exported to Japan to serve the parent company restaurants. Thus, this plant is an example of 1) vertical up-stream FDI, 2) greenfield investment, with 3) almost 100 percent of sales exported to the parent company rather than serving the host country market.

Another counter trend is the rapidly growing number of foreign-owned affiliates in developing countries. The U.S. Department of Agriculture's Economic Research Service (ERS) maintains a data base on all large U.S. multinational food manufacturing firms. These forty-two firms in 1991 had more than 800 food processing plants located in foreign countries. Of these 800 plants, roughly one-third, or more than 280, are in developing countries. Most of the plants (about 190) are located in Latin America; more than fifty are located in Asia and the Middle East;

and another twenty-three are in Africa. Several non-U.S. firms are also actively investing in developing countries. Nestlé, for example, owns forty-nine affiliates in developing countries: twenty-nine in Latin America; seventeen in Asia and the Middle East; and thirteen in Africa.

While data are difficult to obtain, it is also clear that FDI is rapidly growing in Eastern and Central Europe and in China. At least ten separate U.S. firms have at least forty-four food processing affiliates in these countries. Of this total, twenty-two affiliates are in Eastern Europe; thirteen in the former U.S.S.R.; and nine are located in China. One of the ten U.S. firms is Gerber which recently acquired Alima S.A., Poland's largest baby food and juice company. Gerber plans to modernize Alima and greatly expand production capacity to serve the entire northern and central European region. The other nine U.S. firms with affiliates in this region are: PepsiCo, Coca-Cola, Sara Lee, CPC International, H.J. Heinz, Kellogg, William Wrigley, Borden and Lifeway Foods.

Global Sourcing of Technology

In addition to trade in agricultural commodities and manufactured food products, trade and investment flows, in what we here broadly call technology, is widespread and rapidly growing. Both domestic and multinational food firms are developing global sourcing networks not only for ingredients, but also for engineering and plant construction services, food processing equipment and packaging systems, and product formulations and development services.

Specialized ingredient firms are playing an increasingly important role in the globalization of the food system. Ingredient firms are themselves becoming multinational through mergers and joint ventures. They are forging longer-term contracts and alliances as they attempt to develop partnerships with food processors to formulate new products and production techniques. Pfizer, Genecor, Rhone Poulenc, Quest International, Haarman and Reimer, and Van Den Bergh are all examples of multinational ingredient firms. They provide pilot plants and a variety of R&D and technical services to assist food processors worldwide with product formulation problems, thereby greatly facilitating technology transfer.

The globalization process also means having nearly instant access to world-class firms specializing in engineering design, plant construction, processing and packaging equipment, and management information systems. Firms such as The Austin Company and Fluor Daniel assemble teams to design and construct state-of-the-art food processing plants anywhere in the world. The important point is that technology in the food system is not country- or firm-based. These specialized firms make technology readily available and mobile across national boundaries.

Indiana Packers Co., a pork packing and fabricating plant built in 1991 in Delphi, Indiana, is a good example of global sourcing of technology. Indiana Packers is a joint venture between Central Soya Co. and Mitsubishi Corp. It was designed and built to meet the product and sanitary standards of all countries including the EC, and incorporates advanced meat processing and packaging technologies from eleven different countries.

Another example illustrates how quickly

state-of-the-art technology and new production capacity can be transferred to a firm and country with no previous experience in producing a product. A local producer of wine and soft drinks in Malta wanted to enter the brewing business. This firm had extensive marketing and distribution know-how but no experience in manufacturing beer. The solution was to develop a joint-venture partnership with Lowenbrau International which supplied the technical know-how. The result was a new state-of-the-art brewery finished in 1991 incorporating the latest brewing and packaging technology from around the world. The plant received *Food Engineering's* International Plant of the Year Award. Again, the point is that by sourcing technology and ingredients globally, a country with little or no previous experience can become a world-class producer. This highly automated brewery supplies not only the Malta market, but also provides potential import competition to southern Europe.

The implication of this increased trade in capital, technology, ingredients and "headquarter services" is that food marketing systems are becoming much more dynamic – that is, response time to perceived opportunities is becoming shorter. As resources become more mobile, firms in any market in any country may face increased actual or potential competition from incumbents as well as new entrants.

Multinational Firms

A predominant form of organization for conducting international business in the food-related industries is the multinational company (MNC). For purposes herein, an MNC is considered to be a firm with headquarters located in one country and some operating affiliates located in at least one other country. MNC's are considered to be parent firms; foreign entities operated by the parent, in which the parent holds a substantial (but not necessarily majority) interest, are considered to be foreign affiliates. The headquarters country is referred to as the home country; the location of a foreign affiliate is the host country.

While MNC's operate throughout the agricultural and food system (e.g., manufactured farm inputs, food distribution, quick-service restaurants), a significant share are involved primarily in food manufacturing or processing. Through various financial data services (see Hirschberg, *et al.*) we have identified more than 600 such firms with food manufacturing operations. For a panel of about 200 of these, we have been able to compile information on geographic operations. Circa 1990, these firms sold more than $447 billion in food products, accounting for about one-third of the estimated total value of worldwide manufactured food production. The subsequent discussion of MNC's in the food sector is based largely on this panel.

The leading fifty firms in the panel are listed in Table 5. Of these, twenty-two are U.S. firms and eighteen are headquartered in Western Europe, thirteen of which are British. Another seven are Japanese. For the entire group, eighty firms are American, thirty-one British, sixteen Japanese, eleven Canadian, nine each from France, The Netherlands and Australia, twenty-four from other Western European countries and the remainder from South Africa, Singapore, New Zealand, Hong Kong, India and Mexico. Most firms are predominately food firms; food product

Table 5: World's Leading Food Manufacturing Firms (circa 1990).

	Company	Head Quarters	Food Sales (US$ Mil)	Food as a Percent of Total Sales	Foreign as a Percent of Total Sales
1.	Philip Morris Cos. Inc.	United States	30,432.3	70.6	27.3
2.	Nestle S.A.	Switzerland	28,103.7	96.0	98.1
3.	Unilever N.V.	Neth/UK	18,128.0	50.0	NA
4.	IBP	United States	10,185.3	100.0	NA
5.	Pepsico Inc.	United States	9,991.7	65.6	17.9
6.	Grand Metropolitan	United Kingdom	9,528.1	60.8	49.8
7.	Anheuser-Busch, Inc.	United States	9,208.7	97.1	0
8.	Kirin Brewery Co., Ltd.	Japan	8,946.2	95.0	NA
9.	Coca-Cola Co.	United States	8,908.2	99.4	55.1
10.	Allied-Lyons	United Kingdom	7,969.8	100.0	40.4
11.	Con-Agra, Inc.	United States	7,084.9	62.5	0
12.	Archer Daniels Midland Co.	United States	6,977.4	88.0	NA
13.	BSN Groupe	France	6,859.1	90.5	36.9
14.	MM/Mars	United States	6,750.0	90.0	NA
15.	Eridania Gruppo Ferruzzi	Italy	6,438.1	100.0	79.8
16.	Sara Lee Corp.	United States	6,424.0	45.1	32.5
17.	The H.J. Heinz Company	United States	5,800.9	100.0	40.1
18.	RJR/Nabisco Inc.	United States	5,783.0	45.3	13.4
19.	CPC International, Inc.	United States	5,781.0	100.0	55.5
20.	Campbell Soup Co.	United States	5,672.1	100.0	25.4
21.	Borden, Inc.	United States	5,660.6	74.6	24.0
22.	Guiness PLC	United Kingdom	5,063.9	97.7	66.7
23.	Bass PLC	United Kingdom	4,969.6	73.1	9.7
24.	Hillsdown Holdings PLC	United Kingdom	4,956.6	79.8	30.0
25.	Nippon Meat Packers, Inc.	Japan	4,930.7	100.0	12.9
26.	Asahi Breweries, Ltd.	Japan	4,855.8	98.9	96.1
27.	Cadbury Schweppes PLC	United Kingdom	4,789.7	100.0	55.0
28.	Quaker Oats Co.	United States	4,789.4	83.7	28.8
29.	Associated British Foods PLC	United Kingdom	4,674.3	100.0	37.7
30.	Kellogg Co.	United States	4,651.7	100.0	36.8
31.	John Labatt	Canada	4,633.3	100.0	28.0
32.	Dalgety PLC	United Kingdom	4,609.1	57.5	63.8
33.	United Biscuits PLC	United Kingdom	4,588.3	100.0	39.6
34.	Seagram Company Ltd.	Canada	4,436.1	100.0	95.4
35.	Ralston Purina Co.	United States	4,131.9	62.1	27.5
36.	Tate & Lyle PLC	United Kingdom	4,082.6	72.1	80.2
37.	General Mills Inc.	United States	3,998.7	71.1	9.8
38.	Chiquita Brands International	United States	3,822.8	100.0	NA
39.	Taiyo Fishery Co., Ltd.	Japan	3,804.3	45.3	NA
40.	Elders IXL Ltd.	Australia	3,620.1	25.3	37.1
41.	Heineken N.V.	Netherlands	3,558.5	97.2	76.8
42.	Booker PLC	United Kingdom	3,477.7	82.2	8.3
43.	Proctor and Gamble	United States	3,318.0	13.8	44.7
44.	Itoham Foods Inc.	Japan	3,292.1	100.0	NA
45.	Unigate PLC	United Kingdom	3,012.1	73.2	18.0
46.	Yamazaki Baking Co.	Japan	3,008.8	100.0	NA
47.	Ranks Hovis McDougall PLC	United Kingdom	2,942.3	97.8	22.1
48.	Ajinomoto Co., Inc.	Japan	2,616.1	76.3	NA
49.	Castle & Cook, Inc.	United States	2,546.0	93.7	26.8
50.	Tyson Foods, Inc.	United States	2,538.2	100.0	4.9

sales account for more than 60 percent of total sales for all firms in the panel and range from a low of less than 14 percent for the U.S. consumer goods giant Proctor and Gamble to 100 percent for nearly two-fifths of the firms. The share of a firm's total shipments originating with foreign affiliates ranges from zero for several firms to a reported 98 percent for the Swiss food manufacturing behemoth Nestlé.

To an unknown extent, the distribution of firms by nationality, and observations drawn therefrom, are artifacts of the data; more firm-level data appear to be published on firms in the developed countries in general and in English-speaking countries specifically than in the rest of the world. Yet, as the panel includes most of the firms known to be major players in international markets for processed foods, it probably yields reasonable insights into what motivates food-sector MNC's and how they behave.

Foreign Investment and Trade

International operations of the panel firms are characterized in Table 6. Shipments from plants located outside the firms' headquarters country (foreign direct investment or FDI), if any, can be separated from total sales for 142 of the firms. For these, an average of 29.7 percent of their total shipments originate with foreign affiliates. Such plants are operated by 83 percent of the companies; for this subsample, foreign affiliates originate 35.7 percent of total sales.

Of the firms with foreign affiliates, 71 percent are non-U.S. firms, i.e. have headquarters in countries other than the United States. These non-U.S. MNC's originate an average of 38.9 percent of total shipments in foreign plants. By comparison, foreign affiliates originate an average of 27.7 percent of all shipments by the U.S.-based multinationals.

Table 6. Foreign Operations of World's Leading Food Manufacturing Firms (circa 1990).

	Average	Range	
		Low	High
Shipments from Foreign Affiliates/Total Sales, All Firms (%)	29.7	0	98.1
Firms with Foreign Affiliates (%)	35.7	0.1	98.1
Non-US Firms (%)	38.9	0.1	98.1
US-based Firms (%)	27.7	1.9	69.2
Exports/Total Sales, All Firms (%)	5.8	0	43.5
Non-US Firms (%)	14.6	2.4	43.5
US-based Firms (%)	3.2	0	28.6
Multinational Firms (%)	7.0	1.3	41.3
Non-US Firms (%)	12.6	2.4	41.3
US-based Firms (%)	3.9	0.2	28.6

Exports from the country hosting the originating plant can be tracked for about half of the firms in the panel. For this group, exports as a percent of total sales (export propensity) average 5.8 percent; 14.6 percent for non-U.S. firms compared to 3.2 percent for U.S.-based firms.[1] The disparity in export propensity between U.S. and non-U.S. firms seems large, but is consistent with data reported elsewhere (Handy and MacDonald; Handy and Henderson) and reflects what has come be accepted as conventional wisdom or a stylized fact, i.e., U.S. food manufacturing firms are less export-oriented than are those of other nationalities.

About one-third of the firms in the panel report both exports and shipments from foreign affiliates, yielding some insight into the interaction between foreign investment and trade. For these firms as a group, exports account for an average of 7 percent of total shipments; this contrasts with nearly 30 percent of their total shipments originating in foreign plants. Thus, as an international marketing strategy for food manufacturing firms world-wide, direct foreign investment is about four times more important than is direct product trade.

Again, there is a sharp distinction between U.S.-based and foreign-headquartered multinationals; export propensity is about three times higher for the latter group. However, data compiled by the ERS (Table 7) show that in recent years many U.S.-based MNC's have registered large export gains. For the thirty-four U.S.-based MNC's tracked, exports increased from $2.9 billion in 1988 to $4.6 billion in 1990 and $5.8 billion in 1991.

The average export propensity for this group of firms rose from 2.6 percent in 1988 to 4.1 percent in 1991. Thus, the size of the trade gap between U.S. and foreign-based MNC's may be shrinking.

Among the firms in the panel, non-U.S. based food firms have larger relative commitments to the international market than do U.S. firms when measured either in direct trade or shipments from foreign affiliates (Figure 3). Yet, the U.S.-based MNC's appear to be somewhat more export oriented than are the U.S. firms with no foreign operations, i.e., export propensity for U.S. MNC's averages 3.9 percent compared to 3.2 percent for all of the U.S. firms in the panel (Figure 4). By contrast, the non-U.S. multinationals appear to be somewhat less export oriented than are their counterpart firms with no foreign affiliates; export propensities for these MNC's, at 12.6 percent, average 2 percentage points lower than for all non-U.S. food manufacturers.

Export behavior, however, appears to be more a function of the geographic location of production facilities than of either the nationality or the organization of the firm. U.S. Commerce Department data show, for example, that foreign affiliates of U.S. food manufacturing firms are more export oriented than are their home operations; U.S. parent firms as a group export about 3.5 percent of the output from their U.S. facilities whereas exports average 19 percent of the output of their foreign affiliates (U.S. Department of Commerce 1992a). Further, export propensities vary widely among foreign affiliates of U.S. firms. Those located in Canada, for example, export an average of about 5 percent of their output, paralleling all Canadian food manufacturers, while those located in EC countries register

Table 7: Food and Beverage Exports of US Firms with Foreign Affiliates, 1988 and 1991

	1988		1991		
	Exports ($ Mil)	Share of US Food Sales (%)	Exports ($ Mil)	Share of US Food Sales (%)	% Change, 1988 - 1991
Philip Morris/Kraft-GenFood	264	1.5	1,325	5.8	401.9
Archer Daniels Midland	979	16.5	925	14.0	-5.5
Con Agra	215	3.0	726	4.5	237.7
Anheuser Busch	282	3.5	561	5.9	98.9
Chiquita Brands	86	3.6	223	10.6	159.3
Tyson	153	4.4	187	4.9	22.2
Coca Cola	94	2.6	163	4.0	73.4
General Mills	74	2.2	148	2.3	100.0
Proctor & Gamble	124	4.3	142	4.0	14.5
Hershey's	39	2.0	128	5.0	228.2
Universal Foods	36	5.5	127	17.1	252.8
Heinz	61	2.0	121	3.3	98.4
MM/Mars	45	1.0	120	2.0	66.7
PepsiCo	21	0.4	111	1.2	428.6
Sara Lee	38	0.7	104	2.2	173.7
Ralston Purina	40	1.1	76	2.2	90.0
Kellogg's	43	1.7	68	2.0	58.1
McCormick	62	6.4	64	6.2	3.2
Brown Forman	51	6.5	56	7.8	9.8
C P C International	31	1.5	52	2.2	67.7
American Brands	14	3.5	49	5.0	250.0
Castle & Cooke/Dole	1	0.1	49	3.2	4,800.0
Borden	22	0.6	48	1.2	118.2
Campbell Soup	30	0.7	35	0.8	16.7
Pet Inc.	24	1.3	35	2.3	45.8
American Home Products	12	2.0	34	4.2	183.3
International Multifoods	12	1.0	28	1.7	133.3
Quaker Oats	15	0.5	25	0.7	66.7
RJR/Nabisco	14	0.2	24	0.4	71.4
Curtice-Burns	11	1.8	18	2.0	63.6
Smucker's	7	2.1	14	3.4	100.0
Gerber Foods	5	1.1	11	1.8	120.0
Wm. Wrigley	5	0.9	11	1.8	120.0
Clorox	1	0.6	3	0.9	200.0
Total	2,912	2.6	5,810	4.1	99.5

Figure 3: Foreign Sales of Leading Multinational Food Manufacturing Firms, Circa 1990

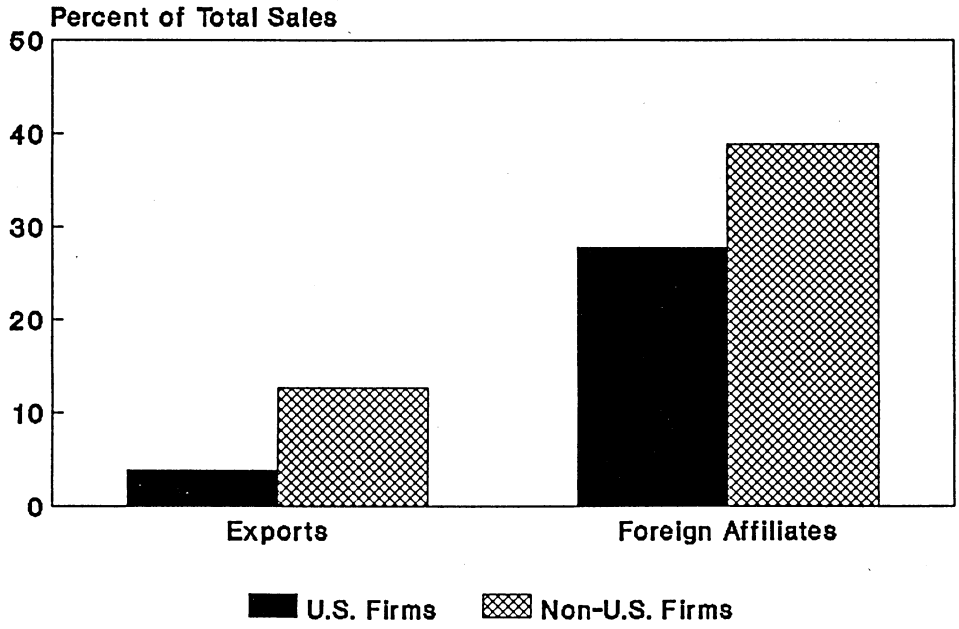


Figure 4: Export Propensities of Leading Food Manufacturing Firms, Circa 1990

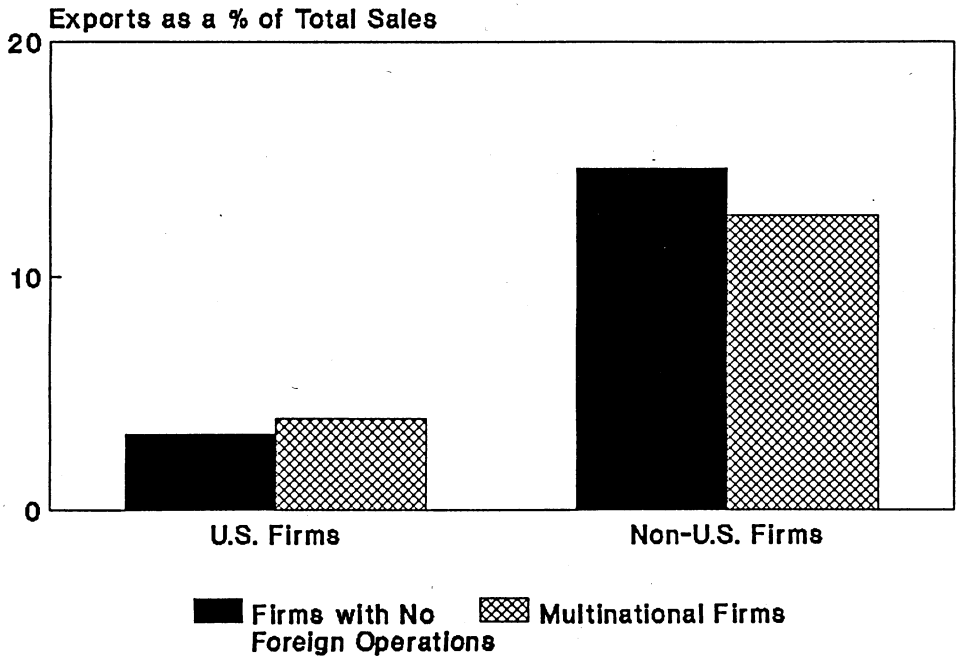
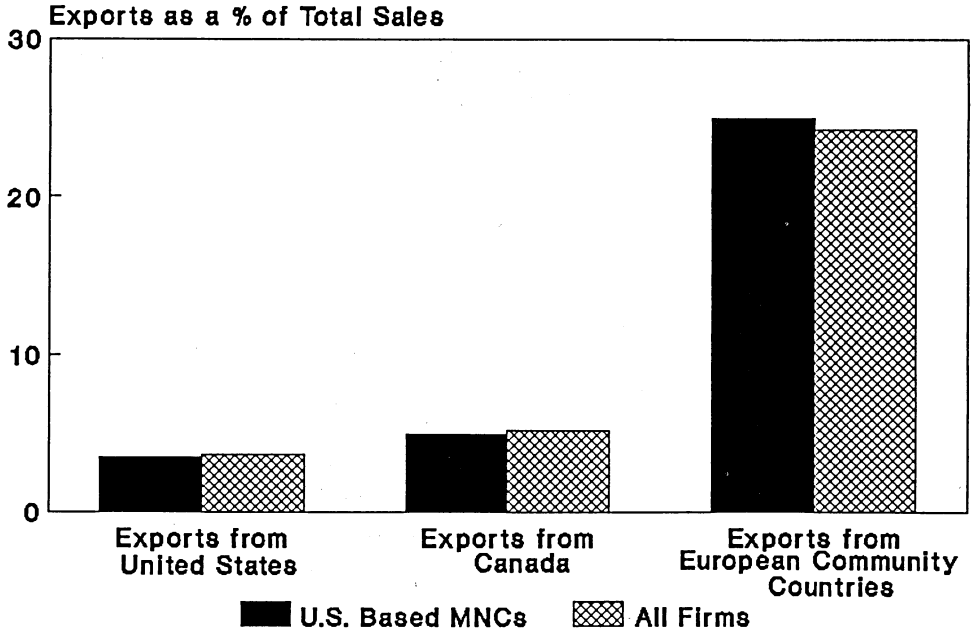


Figure 5. 1989 Exports of U.S. Multinational Food Manufacturers and Their Foreign Affiliates



export propensities averaging 25 percent, again similar to the export performance of all EC-located food manufacturers (Figure 5).

By like token, export propensities of U.S. affiliates of foreign-based food manufacturers average about 5 percent, only marginally higher than for the home operations of U.S.-based MNC's and 60 percent less than the average for operations of non-U.S. multinationals in all geographic areas. Further, much of the trade by U.S. affiliates of foreign MNC's is intra-firm; 48 percent of their exports is shipped to foreign parents and foreign parents originate 58 percent of the imports received by their affiliate operations in the U.S. (U.S. Department of Commerce 1992b).

Determinants of Trade and Investment

A fairly robust literature is emerging that addresses factors that, theoretically or empirically, influence a firm's decision to engage in international commerce either by direct foreign investment or direct product trade. Some of this is specific to the food sector (See Connor; Henderson and Frank; and Voros for examples). Overall, this literature suggests that:

1. As firm size increases, firms tend toward foreign investment and away from product trade.

2. As firm dominance in its home market increases, the same trend toward foreign investment and away from trade is evident.

3. The same tendencies in international commerce are evident as the diversity of food products produced by a firm increases.

4. A firm's investment in intangibles, i.e., firm-specific assets such as brand names and research and

Table 8. Characteristics Associated with International Behavior of Food Manufacturing Firms.

	Exports	Foreign Direct Investment
Firm Size	-	+
Home Market Share	-	+
Range of Food Products	-	+
Intangible Assets	0	+
Specialization in Food	+	+
Multinationality	-	*
US Headquarters	-	-

* Positive by definition.

development, is positively associated with its investment in foreign operations but has no significant impact on product trade.

5. The greater a firm's specialization in food, the greater its tendency for foreign sales through both exports and overseas operations.

Drawing on both the published findings and observations on international operations from our panel of the world's leading food manufacturing firms, a summary of the key factors that appear to influence a firm's involvement in exporting and operation of foreign affiliates is presented in Table 8.

Several other international commercial strategies are also used by food sector firms. These include:

1. Licensing, in which the use of either or both production technology and product brand name is licensed by one firm to another firm located in a foreign market.

2. Joint ventures, in which two firms of different nationalities but with similar product lines develop a jointly-owned and operated facility, often in a third country market in which neither parent previously operated.

3. Strategic alliances wherein a firm develops a working partnership with a foreign upstream supplier or downstream customer to jointly coordinate product and information flow to the mutual advantage of both parties (Sporleder).

These strategies appear with some regularity in the domestic marketing literature, but have received scant attention in an international context.

Quantitative information is scarce on the extent to which such strategies are used and the amount of international commerce thus generated. Nonetheless, some insights are possible.

Table 9. North American Examples of International Food Brand Licensing.

Outbound	Inbound
"Ocean Spray"	Hershey Foods
Ricard Pernod, France	"Cadbury"
Pokka, Japan	"Kit-Kat"
Ranks Hovis McDougall, UK	"Almond Joy"
	"Skor"
"Spam"	"York"
Newforge Foods, UK	
KR Darling Downs, Australia	Miller Brewing Company
	"Lowenbrau Pils"
"Budweiser"	
United Breweries, Denmark	Molson Companies
Guiness, Ireland	"Corona"
Suntory, Japan	"Kirin"
Oriental Brewery, Korea	"Lowenbrau Pils"
"Kraft"	Sanborn Hermanos
Epic Oil Mills, S. Africa	"Milka"
	"Sugus"
"Sunkist"	"Toblerone"
Morinaga, Japan	"Suchard"
Rickertson, Germany	
Cadbury-Schweppes, UK	Adolph Coors Company
Haitai Beverages, Korea	"Killian's Red"

Licensing

Perhaps the most is known about international brand name licensing. In a survey of 120 of the world's largest food manufacturing corporations, Henderson and Sheldon found that at least half of those with international operations engaged in some form of international product or brand-name licensing. Based on anecdotal evidence, they suggest that the total value of international sales of licensed food products exceeds that of direct product trade.

Table 10. Examples of International Food Brand Licensing.

Licensor/Product Brand Name	Licensee
Arla, Sweden	
"L+L Dairy Spread"	Morinaga, Japan
Bond, Australia	
"Castlemaine XXXX"	Allied Lyons, UK
"Swan Premium"	Allied Lyons, UK
Brasserie Artois, Belgium	
"Stella Artois"	Whitbread, UK
BSN, France	
"Kronenbourg"	Courage, UK
Elders, Australia	
"Fosters"	Beamish & Crawford, Ireland
	Pripps, Sweden
Guinness, Ireland	
"Guinness Stout"	Elders, Australia
Lutz, Germany	
"Lutz Ham and Sausage"	Nichieri, Japan
Morinaga, Japan	
"Bifidus Yogurt"	St. Hubert, France
	Südmilch, Germany
Oetker, Germany	
"Oetker Baked Goods"	Podravka, Yugoslavia
Unilever, Netherlands/UK	
"Lipton"	Morinaga, Japan
United Breweries, Denmark	
"Carlsberg"	Photos Photiades, Cyprus
	Tou, Norway
"Tuborg"	Frydenlund Ringes, Norway
	Unicer, Portugal

A representation of outbound and inbound food brand licensing involving North American firms is shown in Table 9 and a sampling of international licenses not involving North American firms is shown in Table 10.

Interviews with executives of firms engaged in international licensing reveal that this strategy is often used in situations in which a substantial investment in firm-specific intangible assets exists – heavily advertised brand name (e.g., Budweiser), unique and well-accepted product characteristic (e.g., Coca-Cola), but where direct trade is constrained by such things as bulky (e.g., water) or highly perishable (e.g., milk) ingredients or trade restrictions (e.g., tied distributors, quotas). Licensors view it as a means of geographic market extension; licensees as a means of product line extension. Often such licenses are linked to product-specific technology (e.g., caramelized chocolate bars, cold-filtered draft beer) as a means for the product developer/licensor to maintain an equity position in the product once the licensee masters the technology.

Licensing may be linked to other international strategies. Marketing executives frequently discuss it as an intermediate strategy between direct product trade and direct investment; empirically, however, we have found no situation in which that has been the case. Often, licenses do provide for the supply of critical ingredients by the licensor (e.g., cola syrup, chocolate paste), thus facilitating trade in such intermediates. To the extent that such intermediates are agriculturally-based (e.g., juice concentrate, hops), outbound licenses would be trade-enhancing for the agricultural sector as a whole.

Joint Ventures

International joint ventures are currently receiving considerable interest in the general press. Formation of a joint venture by General Mills and Nestlé to produce and market ready-to-eat breakfast cereals in Western Europe and other non-U.S. markets in direct competition with market leader Kellogg has generated substantial notice. Yet, few examples of long-standing joint ventures in the food sector can be found. A study of joint ventures across all industries involving U.S. firms found the average life of such ventures was just 3.5 years (Harrigan).

Specific to the food industries, a study of joint ventures in the Canadian food manufacturing sector found that of 110 such entities in existence sometime between 1981 and 1988, 33 percent were created and 38 percent were dissolved during that period (Geringer).

In a dynamic setting, a variant on game theory may help explain this short life. Following initial formation, there may be an externality inherent in joint ventures, i.e. one firm delays subsequent investment needed by the joint venture to remain profitable, given the expectation of investment by the partner. If so, this would appear to generate a prisoner's dilemma; underinvestment by both parties results. Assuming one partner is more innovative, the dilemma creates an incentive for that firm to withdraw from the partnership and go it alone. Reportedly, it is common for joint venture agreements to include a "standstill" period of perhaps two to four years[2], during which the original investment ratio is maintained. At the end of the standstill, a "shotgun" acquisition

may be made by one of the partners; alternatively the joint entity is dissolved. It will be interesting to see if General Mills and Nestlé have found a longer-standing formula.

Strategic Alliances

The literature on strategic alliances is still in its formative stage. At this point, it would be incorrect to assume that there is general agreement as to what constitutes such an alliance. Some authors, particularly some of those of a business school persuasion, consider strategic alliances to include virtually *any* form of operating agreement between two firms, including *inter alia* licenses and joint ventures. We find such a concept too broad to be of any analytical value. Rather, Sporleder's characterization of a strategic alliance as a vertical coordination mechanism intermediate between vertical integration and spot market transactions allows it to be viewed as a vertical tie in which both the upstream and downstream firms are joint stakeholders in the outcome of strategic behavior (Sporleder, p. 10).

It can be shown that vertical ties are efficiency enhancing under imperfectly competition conditions that could be observed in vertical international markets, e.g. successive monopoly (This follows Carlton and Perloff, pp. 525-529). Therefore, to the extent that strategic alliances emerge under such conditions as effective vertical ties between an upstream firm in one country and a downstream firm in another, they may become an enduring part of the international food and agricultural marketing system. Because of the vagueness with which the term has been used, however, it not yet possible to characterize either their relative importance or their performance implications.

Issues and Challenges

There are numerous issues and challenges for marketing economists that are associated with the globalization of the food system. Based on our experiences in attempting to document and explain the structure and behavior of international commerce in the sector, we can identify several.

Conceptualization of Global Markets

A precise concept of a global market is not yet clear. Specifically, do firms pursue optimizing behavior in each of the several national markets in which they participate or do they optimize across an entire array of actual and potential national markets? While the former seems analytically appealing, it may be naive to the point that it is analytically meaningless. The latter, while perhaps intuitively appealing, presents complex methodological challenges, e.g., how is a firm's average revenue function specified, how can a firm's reaction function be estimated when it meets different mixes of competitors in different countries.

International Strategy Complementarities

With foreign direct investment, the apparent dominant strategy used by food sector firms to participate in international markets, and with public policy generally endorsing an export enhancement objective, at the least a perception of private-public incongruity exists. To what extent are these competitive strategies, e.g., is FDI trade diverting? Contrariwise, is FDI evidence of the law of comparative advantage at work and, thus, most properly

viewed in the context of the structure of trade, e.g., trade in headquarter services and capital.

Foreign Investment, Economic Growth

It is sometimes argued that the principal role of MNC's in less developed countries is exploitation of labor and natural resources. A more contemporary view recognizes the potential for inbound investment to be an engine for economic growth, as multinational firms bring badly needed organizational and technical skills along with capital. Yet, MNC's use a variety of strategies for commercial activities in developing, as well as developed nations. To what extent do different international strategies (e.g., direct investment, joint ventures, licensing) have different implications for economic growth in the host country? How does this vary, depending upon the host country's stage of economic development?

International Vertical Ties

Vertical foreign investment at one time was viewed largely in the context of expropriation of the resource base of poorly-developed countries by behemoth corporations from the developed world. Now our understanding of vertical ties has been much enlightened by contributions such as those from game theory and the transactions costs literature. Such ties can often be shown to be efficient forms of economic organization. At least casual observation suggests that many such ties cross national boundaries; not only vertical FDI but a wide variety of contractual arrangements that might generally be classified as strategic alliances. Both conceptual and empirical work is needed to enhance our knowledge of such ties; where they exist and in what form, what gives them rise and their implications for economic performance.

Dynamics of Competition

Multinational firms interact with one another in a variety of markets, under a variety of structural, regulatory and legal conditions. This raises a host of questions regarding the dynamics of competitive interaction, e.g., how does globalization affect the dynamics of competition, rivalry and cooperation among firms in the food sector? To what extent does this multi-market intercourse enhance or diminish the disciplining force of competition, encourage mutual forbearance, enhance market power or stimulate price leadership? Do firms that share a market in a nation with strong industrial policies develop symbiotic operating procedures that carry over into markets in other nations with strong antitrust policies?

Data

We could wax eloquent about the inadequacies in data available to describe industrial organization and market behavior in an international context. While problems such as the lack of line-of-business reporting are well articulated in domestic market work, such problems are modest by international comparison. For example, there is no broadly-based accountancy standard regarding how firms report international activities: some firms report earnings from majority-held foreign affiliates; some report operating information on some or, rarely, all such affiliates; some report exports which may be from home country, the host country of a foreign affiliate, or corporate-wide but often with no point of origin identified;

some report no international operating information at all. Different countries used different industry classifications for compiling different sets of industrial statistics; even as closely-tied an international organization as the EC has not been successful in imposing uniform procedures or nomenclature on its member countries. Even where uniformity eventually prevails, it is virtually impossible to bring historic data into accord. The list of problems is virtually endless. The need for uniformity is essential if ambiguity in our empirical analyses is to be contained.

But prevail we must. National boundaries do not confine firms in the food sector. To act as if trade in products captures all, or even the predominant share, of transnational commerce is wrong. Worse yet, to accept as a policy objective increasing a country's share of international trade in the name of competitiveness is a prescription for disaster; even elementary logic shows that no country can long export more of everything. To presume that firms react only to strategic moves by their domestic rivals is to assume away both the disciplining effects of foreign competitors in the home market *and* the very economic gains that are coveted when export enhancement is made an objective of public policy.

ENDNOTES

1. Compared to the sample of U.S. firms included in this panel of the world's leading food manufacturing firms, U.S. Census Bureau data suggest that, for the U.S. food manufacturing sector as a whole, exports accounted for about 4 percent of total shipments (U.S. Department of Commerce 1993).

2. The length of this period may correspond with the expected life of the original technology; subsequent investment being required for the joint venture to again earn non-zero profits.

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