Toward a Framework for Analyzing Multimarket Contact and Multinational Competition

John Y. Ding

The possibility of noncompetitive behavior resulting from multimarket contact (i.e., mutual forbearance) has always been a source of concern among industrial organization economists and policy makers. The increasing global presence of multinational corporations has added a new dimension to the analysis of multimarket competition. Their growing influence on the world economy poses new questions about the effects of multinational competition on domestic welfare and the international competitiveness of domestic industries. Recent developments in the interface between industrial organization and international trade theories provide new research opportunities and may shed some light on the economic consequences of multinational competition and its policy implications. This paper outlines some of the major issues in the study of multinational competition and surveys recent theoretical and empirical studies of multinational and multimarket competition. It attempts to develop a conceptual framework whereby the nature of multinational competition in the food manufacturing sector can be analyzed. It is intended as a road map for on-going research.

Introduction

In recent years, the concept of global competition has become increasingly common both in academic literature as well as in the popular press. In reality, however, "global competition" really takes place in individual national markets, each separated from the rest by national boundaries, cultural differences, and artificial trade barriers. The global nature of this competition is reflected by the fact that a common set of major competitors compete against each other in each of these markets. Their collective strategy and behavior will have significant impacts on each country's domestic welfare and its international competitiveness as well as the nature of global competition. The situation poses an important question: does the presence of multinational corporations (MNCs) increase, decrease, or simply alter patterns of oligopoly interdependence in the world market (Caves 1982)? This paper surveys recent theoretical and empirical studies of multinational and multimarket competition and attempts to develop a conceptual framework whereby the strategic behaviors of MNCs can be analyzed and their public policy implications ascertained.

Global Competition and Multinational Corporations

The MNC has been in existence for well over a hundred years. Some studies have traced its origin to the international activities of the medieval bankers (Caves 1982). In the past twenty years, MNCs have gained increasing importance as a form of international production organization. In fact, the total assets of some of the world's leading MNCs exceed the GNPs of various countries (Hertner and Jones 1986). Unlike the traditional vertical MNCs designed to secure resource bases and export markets, the new breed of MNCs are mostly horizontal enterprises across several national markets. A distinct feature of the new dimension of international competition is the fact that many of the MNCs encounter each other in multiple national markets for the same or similar products. This kind of multimarket contact between MNCs has caused a great deal of concern among policy makers and economists about their potential effects on domestic/international welfare and on the competitiveness of domestic industries in international markets. The increasing

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The Author is a Post-Doctoral Researcher, Department of Agricultural Economics, The Ohio State University.

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global presence of MNCs poses new policy challenges to both home and host country governments. Unlike the problem of national sovereignty traditional MNCs posed to host countries in the past, the present wave of MNCs means that both home and host governments have to grapple with the effects of MNCs on domestic and global welfare and the competitiveness of domestic industries in international markets. In particular, researchers are beginning to wonder whether industrial policies should be used to further encourage domestic competition or should they be modified to breed "national champions" that are more likely to succeed in the increasingly brutal global competition (Henderson 1992).

The strategic trade policy literature reexamines some of the welfare issues arising from imperfect competition in international markets (Brander and Spencer 1985; Eaton and Grossman 1985; Krugman 1984; Thursby 1988). Traditional welfare economics stipulates that the rule for maximizing domestic welfare is for each firm to act competitively. To maximize national welfare in the context of imperfect international competition, however, each country would act like a monopolist to extract maximum rents from foreigners. The question for the domestic policy maker is how to encourage the domestic MNC to extract maximum monopoly rents from foreigners but act competitively in domestic markets? For all practical purposes, this is very difficult to achieve from the public policy standpoint. Even if this could be achieved through taxes, tariffs, subsidies, or other measures, it raises another question: Would such protective measures strengthen or reduce domestic MNCs' competitiveness in international markets? Recent evidence suggests that international competitiveness is positively correlated with domestic competitiveness (Porter 1990).

Multinational competition may take different forms, including licensing, joint ventures, and foreign subsidiaries, each representing increasing degrees of foreign involvement. Several factors contribute to the decision to operate in a foreign country: 1) the firm may possess some intangible assets it wants to protect, including patents, technological know-how, or managerial expertise (*e.g.*, marketing and promotion skills) which cannot be transacted at arm's length (Caves 1982); 2) production facilities may be located in a particular country to economize on transportation costs, to take advantage of lower production costs, or to overcome trade barriers such as import quotas and tariffs; 3) direct foreign operations may be carried out as a strategic move in anticipation of future trade restrictions (Bhagwati 1987) or to discipline other firms in the market (Caves 1982); 4) foreign direct involvement may reduce foreign exchange rate risk since most costs are denominated in the local currency (Cushman 1987); 5) when production facilities are located in the market where the final product is consumed, it is easier to tailor the product to local tastes; this is particularly important for many food products whose demand is heavily influenced by local factors (Reed 1991).

MNCs in the Food Manufacturing Sector

The food manufacturing sector represents a growing international market. In 1990, the value of international trade in manufactured foods and beverages was about three times the value of world trade in bulk agricultural commodities. While U.S. exports of manufactured foods have grown rapidly in recent years, most large food manufacturers rely more heavily on various forms of foreign direct investment as their strategy to access foreign markets. Between 1982 and 1989, sales of U.S. MNC affiliates grew from $39 billion to $69 billion and have continued to grow at an annual rate of about 10 to 11 percent. U.S. MNCs had 734 food manufacturing plants abroad in 1990 (Handy and Henderson 1992). Although the majority of these plants were located in developed countries in Europe, Canada, and Japan, developing countries, especially Eastern Europe and the Pacific Rim, represent potentially fast-growing market for U.S. food manufacturing MNCs. In some branded food markets, a small group of MNCs compete against each other and against non-MNC local firms in many national markets. Their ability to exercise market power is evidenced by the fact that they are able to price discriminate among different national markets even when these markets are within relatively close geographic proximity. An example is presented in Table 1.

Table 1
Pre-Tax Price Gap for Selected Products in the EC (March-April 1990)

Product	Lowest Price	Highest Price	Price Ratio
Coca-Cola	Amsterdam	Copenhagen	2.10
Heinz Ketchup	London	Madrid	1.98
Kelloggs Corn Flakes	Amsterdam	Cologne	1.72
Mars Bars	London	Copenhagen	2.04
Nescafé	Athens	Milan	2.26
Toblerone	Amsterdam	Lisbon	1.92

Source: De Jonquieres, 1990

Strategic Interactions among MNCs and the Strategic Group Concept

The potential existence of market power resulting from multimarket contact brings forward a frequently suggested, albeit rarely tested, economic concept: "mutual forbearance." The concept of mutual forbearance is hardly new. It has long been suspected that when the same set of firms compete in different markets, there is a tendency for them to engage in collusive behavior, *i.e.*, they tend to "pull their punches" realizing that all-out competition would hurt everyone. Instead, they can either put up token competition or compete in ways that benefit themselves (Clarke 1985). Edwards summarized the concerns succinctly in his 1964 testimony before the U.S. Senate when he stated:

> When one large conglomerate competes with another, the two are likely to encounter each other in a considerable number of markets. The multiplicity of their contact may blunt the edge of their competition. A prospect of advantage from vigorous competition in one market may be weighted against the danger of retaliatory forays by the competitor in other markets. Each conglomerate competitor may adopt a live-and-let-live policy designed to stabilize the whole structure of the competitive relationship. (1964, p. 45)

The concept of mutual forbearance applies to diversified firms that operate in different product markets or single-product firms that operate in several distinct geographic markets. Despite widespread multimarket contacts among firms, there has been relatively little research that examines its effects on economic performance. One of the obvious areas of application is the study of multinational competition. When MNCs encounter each other in several national markets, they have the incentive and opportunity to act strategically to maximize joint profits. In fact, there is evidence that some MNCs form foreign subsidiaries to preempt a rival or to punish one for an aggressive move undertaken elsewhere by an invading MNC (Caves 1982). Therefore, when used effectively, multimarket contact serves as a disciplinary mechanism in international oligopoly rivalry.

In recent years, the concept of strategic groups has been widely used in both industrial organization and business policy research and may prove to be a useful analytical device for studying strategic interactions among MNCs. The term "strategic groups" was first introduced by Hunt (1972) to describe intraindustry group stratification. The idea was to subdivide an industry into finer groupings such that it "minimised economic asymmetry within each group." This concept was popularized by Caves and Porter (1977) and Porter (1980). The most common criterion used to assign firms to strategic groups is according to the similarities of their strategies with group members and dissimilarities with nonmembers. Different strategic groups within an industry are separated by what is called "mobility barriers" which are simply group-specific entry barriers. Under such a classification, "firms within a group resemble one another closely and recognize their mutual dependence most sensitively" (Caves and Porter 1977). The idea of strategic groups, combined with the dominant-firm model of oligopoly, provides a useful tool for analyzing multinational competition in the food manufacturing sector. Casual observation shows that some branded food and beverages markets are dominated by a group of MNCs and a fringe of national and local manufacturers. The MNCs are often larger in size and form a powerful core of oligopolists followed by a larger number of small and competitive firms. MNCs and national firms are affected by different factors and react to strategic moves by group members and nonmembers differently. Furthermore, the core group of MNCs encounter each other in several national markets while firms on the competitive fringe only compete locally or in one national market.

A Stylized Model of Multimarket Competition

Most of the empirical studies of multimarket contacts are based on an extended version of the conventional single-market duopoly model widely used in the industrial organization literature. In a conventional single-market duopoly model with two firms competing in the same market, each firm chooses a strategy s_i from a set of strategies $S_i = \{s_1,\ldots,s_n\}$, $i = 1, 2$.

Total revenue for firm i: $R_i = (S_1, S_2)$
Total cost for firm i: $C_i = (S_i)$
Total profit for firm i: $\Pi_i = R_i - C_i$

The first-order condition for profit maximization requires:

$$\frac{\partial \Pi_1}{\partial S_1} = \frac{\partial R_1}{\partial S_1} + \frac{\partial R_1}{\partial S_2} \cdot \frac{dS_2}{dS_1} - \frac{\partial C_1}{\partial S_1} = 0 \qquad (4)$$

The choice of S depends on the nature of the competition. It may be output level in the case of Cournot competition or price in the Bertrand model or some other variable such as advertising, investment in fixed

costs, *etc.* Oligopoly interdependence is captured by the term:

$$\frac{\partial R_1}{\partial S_2} \cdot \frac{dS_2}{dS_1} \neq 0 \qquad (5)$$

Now suppose firm 1 operates in markets A and B, and firm 2 operates in markets A and C. Firm 1's strategy in market A will be affected by the basic demand/supply conditions and firm 2's strategy in market A, but not by what firm 2 does in market C. Neither is firm 2's strategy in market A affected by firm 1's strategy in market B. More generally:

$$\frac{\partial R_{1j}}{\partial S_{2k}} \cdot \frac{dS_{2k}}{dS_{1j}} \neq 0 \quad for\ j=k, \qquad (6)$$

$$and$$

$$\frac{\partial R_{1j}}{\partial S_{2k}} \cdot \frac{dS_{2k}}{dS_{1j}} = 0 \quad for\ j \neq k.$$

where, $j, k = 1.....n$ denote markets in which firms 1 and 2 operate.

In a multimarket duopoly model in which firms meet in more than one market, things will be different. Suppose firm 1 and firm 2 now both operate in n markets, then

Firm 1's total revenue in market j: $R_{j1} = R_{j1}(S_{j1}, S_{j2})$ $j = 1,....,n$.

Firm 1's total cost in market j: $C_{j1} = C_{j1}(S_{j1})$

Firm 1's total profits are equal to the sum of its profit in each of the n markets:

$$\Pi_1 = \Pi_{j1} +,....,+ \Pi_{n1} \qquad (7)$$

The first-order condition for profit maximization requires:

$$\frac{\partial \Pi_1}{\partial S_{j1}} = \frac{\partial R_{j1}}{\partial S_{j1}} + \frac{\partial R_{j1}}{\partial S_{j2}} \cdot \frac{dS_{j2}}{dS_{j1}} + \sum_{\substack{k=1 \\ j \neq k}}^{n} \frac{\partial R_{k1}}{\partial S_{k2}} \cdot \frac{\partial R_{k2}}{\partial S_{j1}} - \frac{\partial C_{j1}}{\partial S_{j1}} = 0 \qquad (8)$$

The theory of mutual forbearance suggests that, in choosing its strategy in each market, firm 1 must consider its own demand function and its conjecture of its rival's reaction in the market and in other markets where they meet. A threatening move by firm 1 in one market may prompt firm 2 to react in that market. Since they meet in multiple markets, firm 2 may also choose to retaliate against firm 1 in other markets where firm 2 is better positioned to counterattack. Therefore, in formulating a strategy for one market, firm 1 must take into consideration the consequence on its total revenue of all possible reactions by firm 2 in all markets where they meet. Recognizing the multimarket interdependence, the duopolists may wish to choose strategies that are mutually beneficial, those that reinforce their collective competitive positions against potential entry or against small, single-market firms on the competitive fringe. By avoiding direct confrontation, the duopolists maximize their combined multimarket profitability.

Evidence of Multinational Contact in Food Manufacturing

The primary objective of this research is to develop a conceptual framework whereby further evidence can be obtained and analyzed to ascertain the possibility that MNCs in the food manufacturing sector are acting strategically. As a first step toward achieving this objective, detailed case studies of a small group of target industries were conducted. These industries include beer, soft drinks, confectionery, ready-to-eat (RTE) breakfast cereals, and prepared soups. This investigation generated ample descriptive information concerning the structures of these industries and the behavior of MNCs in these industries. Data for the case studies come from a number of sources, including company annual reports and 10-K forms, news reports in *The Wall Street Journal* and *Business Week*, financial and market information published in *Euromonitor* and cited in Sutton (1991). These studies focused on the United States and four European markets: France, Germany, Italy, and the United Kingdom.

Three of the five industries were eliminated from the group. Both the U.S. and European beer markets are dominated by national firms. No foreign MNCs are in the top four market share bracket in any of the five markets. Most of these markets are highly concentrated with CR4 ranging from 55 percent in Italy to 83 percent in France. The exception is the German market which is highly fragmented, with CR4 less than 30 percent. The soft drink industry was eliminated because no MNC poses a credible competitive force against Coca-Cola in the European markets. Despite its intense rivalry with Coca-Cola in the U.S. market, Pepsi does not have a significant presence in most European markets where Coca-Cola enjoys a comfortable lead over most domestic producers. Coca-Cola's competitive strengths in Europe are

largely attributed to its first-mover advantage due to historical reasons. The confectionery market exhibits similar characteristics, where Mars is the only firm that has significant presence in both U.S. and European markets.

Two industries that appear to be good candidates for empirical analysis are RTE breakfast cereals and prepared soups. The RTE cereals markets are characterized by a leader-follower relationship between Kellogg and Quaker Oats in both the U.S. and European markets. Kellogg has 42 percent of the U.S. market and 50 percent or more in all the European markets surveyed. Quaker Oats is among the top four in all but the German market. In most cases, their competitors are national firms whose operations are limited to domestic markets. Of more interest is the prepared soups industry which is characterized by a "reciprocal leader-follower" relationship between Campbell Soup and Heinz in the U.S. and U.K. markets. The reciprocal relationship is evidenced not only by market shares with Campbell Soup controlling the U.S. market and Heinz dominating the U.K. market but also by the distinctly different strategies the two firms adopt in each market. In the United States, Campbell dominates the branded soup market while Heinz mainly supplies the private label market. In the United Kingdom the roles are reversed with Heinz controlling the branded soup market and Campbell selling primarily to the private label market. Although this particular market structure may have resulted from the fact that the host firms enjoyed first-mover advantage in the early days of the industry's development, it is interesting nevertheless to investigate how multimarket contact and interdependence have contributed to their selection of strategies in competing with one another and in competing with other non-MNC firms in the industry. Studies have shown that the reciprocal leader-follower relationship has been challenged by the follower in both markets (Sutton 1991). In the early years of the century, Heinz spent heavily on advertising and other promotional efforts in an attempt to break into the branded soups market in the United States. Selling costs exceeded one third of its sales revenue, but the company failed to significantly erode Campbell's market position. During the 1960s and early 1970s, Campbell began a foray into the branded soups market in the United Kingdom. Despite staggering advertising expenditure, Campbell's share remained stable at 12 percent. Since then the two firms have adopted a strategy to avoid direct confrontation, each focusing on the branded segment in the home market and the private label market in the other's home market. The lesson both firms appeared to have learned in the battle for market share is that life for both can be a lot easier if they learn to live with each other.

Summary and Future Research

This paper outlines some of the major issues and policy concerns arising from imperfect competition in international markets. Recent developments in the interface between industrial organization and international trade present new opportunities and challenges to researchers to reexamine the strategic interactions between MNCs who may be enticed by the potential payoffs to engage in tacit collusion in order to maximize joint profits. Insights into multinational competition may have significant implications for public policies toward MNCs.

Further analysis is needed to investigate the following aspects of multinational competition in these industries:

- Types of foreign investment strategies, *e.g.*, licensing, joint ventures, foreign subsidiaries.
- Pricing strategies and nonprice strategies used by MNCs and non-MNC firms.
- Industry conditions, *e.g.*, entry conditions, concentration, scale economies, *etc.*
- Government policy including incentives for and restrictions on foreign investment.

Such qualitative and quantitative data will provide more insight into the extent of multinational operations in these industries, their competitive practices, their impact on domestic and international welfare, and other aspects of multinational competition. Equipped with this information, the multimarket duopoly model can be expanded to analyze multinational competition and its economic consequences. There is an existing body of literature on estimating oligopoly power in domestic markets (Iwata 1974; Appelbaum 1982; Geroski 1988; Schroeter 1988; Azzam and Pagoulatos 1990). These models typically use conjectural elasticities, or variations of it, to estimate the degree of oligopoly interdependence and market power. These models can be modified to generate cross conjectural elasticities which measure oligopoly interdependence and market power across national markets. Such analysis will provide insights into the nature of multimarket contact and multinational competition.

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