

## PRICING STRATEGY IN INTERNATIONAL MARKETING

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### ABSTRACT

Although interest in international marketing has been growing rapidly, little or no attention is given to a pricing strategy involving price discrimination under governmental import restrictions such as import quotas. The authors show using a theoretical model that developing nations enjoying quota protection may be able to export part of their output abroad and achieve maximum profit.

### INTRODUCTION

Many developing nations face potential decisions regarding the types of policies they will employ to enable them to most effectively support manufacturing operations in their economies. Germane to this decision is the consideration of permitting competitors to ship products in the same product categories as the host company manufactures. Obviously linked with this decision is another problem regarding the mechanism by which the price of the manufactured good will be established by the developing nation.

The purpose of this paper is to suggest that developing Pan-Pacific nations ought not to automatically ban the shipment of foreign-produced manufactured goods from their economy. Beyond the relatively important political consequences of restrictive regulation lies the notion that pricing strategies in two-way international marketing situations may well yield attractive profit levels for developing nations that might consider them. This paper describes the theoretical implications of pricing strategies in two-way marketing situations. The emphasis of the work is to identify and clarify the theoretical effects of two-way marketing on profits in a price discrimination scenario.

#### International Cross-hauling

Simultaneous exporting and importing of a single manufactured good constitutes two-way marketing and is commonly referred to as "cross-hauling." Cross-hauling is rarely observed in theoretical models because it makes little sense in a theoretical environment to ship a manufactured good from let us say the United States to Japan at the same time that the product might be shipped from Japan to the United States. This creates a theoretical wastefulness that is incomprehensible. In reality, however, there are many instances when permitting the importing of some competing manufactured goods from a competing country into a developing nation makes sense politically. The key to this situation is that the host country must establish a limit or a quota on the imported goods that assures a resulting profit to the developing nation.

When considering the position of a manufacturer in a country that is just developing its manufacturing capacity, it is relevant to consider the manufacturer as a local monopolist (there are no other manufacturers). This manufacturer has available to him the possible implementation of a price discrimination strategy as the mechanism for maximizing profits in a fixed quota situation. The remainder of this paper deals with the analysis of the selection of just such a strategy and the potential profit implications when investigated in a theoretical paradigm.

This analysis is relevant in the Pan-Pacific region given a classic example of the agricultural tractor manufacturing industry in India. In 1973, the Indian government banned all foreign imports of tractors into the country except those manufactured under the World Bank assistance scheme (Sweeney, 1980). Following this, cross-hauling was observed during the period 1974 through 1977. The resulting domestic price of tractors in India was, consequently, considerably higher than the world price for the commodity (Rieber, 1982; Sweeney, 1980). This resulted in profit levels acceptable to manufacturers in the region. Similar observations might be made regarding the pricing practices of the color television and electronic devices especially in developing nations.

#### The Theoretical Model

Let us consider a well-behaved, linear demand curve which results after an import quota has been established. This demand curve may be mathematically expressed as:

$$P = a - bQ, \text{ where } a > 0 \text{ and } b > 0 \quad (1)$$

Figure 1 shows this type of demand curve. In the figure  $Q_5$  is the total quantity of manufactured goods to be sold in the developing country. Quantity  $Q_5$  minus the import quota yields the net of quota quantity  $Q_4$  which is the quantity that will be sold by the indigenous manufacturer. The demand curve shown ( $a - bQ$ ) has an associate marginal revenue curve:

$$MR = a - 2bQ \quad (2)$$

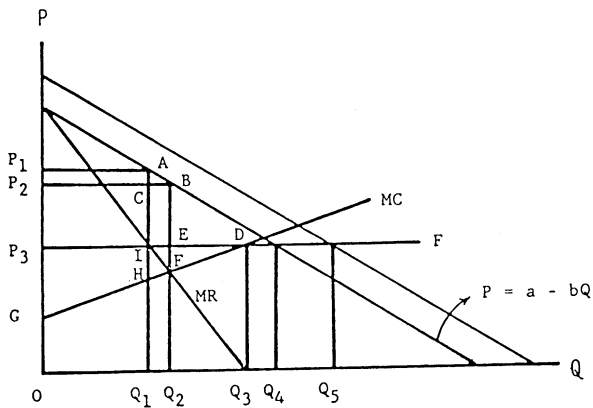
In equations (1) and (2)  $P$ ,  $Q$ , and  $MR$  denote price, quantity demanded, and marginal revenue of the manufactured good respectively. Marginal cost for the indigenous manufacturer is a function of the quantity of the goods produced.

The local monopolist now faces two choices with regard to potential pricing strategies. He may either price discriminate (charge a very high price for the product relying upon the import restriction to reduce competitive effect) or he may employ the more standard decision rule for profit-maximizing pricing wherein he prices at the level where marginal revenue equals marginal cost.

In **Figure 1**, price  $P_1$  represents the price that would be charged by the manufacturer who utilized a price discrimination strategy. At this price level quantity  $Q_1$  would be demanded in the host country while  $P_3 = P_f$  represents the foreign price charged in the world market. The quantity demanded in the foreign market would amount to  $Q_3 - Q_1$  where  $Q_3$  is established when  $MC = F$ .

FIGURE 1

Intra-Industry Trade with Linear Marginal Cost Curve



$$\text{Import quota} = Q_4 Q_5$$

$$\text{Export under the price discrimination} = Q_1 Q_3$$

$$\text{Domestic output} = OQ_3$$

$$\text{Domestic consumption net of quota} = OQ_1$$

$$\text{Foreign price} = OP_3$$

Using the standard pricing decision rule equating marginal revenue and marginal cost, quantity  $Q_2$  would be demanded in the domestic market with the price level being established at  $P_2$ . (Note that  $Q_5 - Q_4$  is the total import quota and this quantity reflects the horizontal distance between the two demand curves in both of the pricing decision rules.)

The total output, including both domestic and foreign markets, using price discrimination is  $Q_3$  and is determined, as stated above, where  $MC = F$ . The profit maximizing output under price discrimination can be determined to be the quantity where  $MR = F$ . The total export of the indigenous manufacturer to the foreign market is  $Q_3 - Q_1$

using price discrimination. Under the standard pricing decision rule, ( $MR = MC$ ) the total export quantity for the indigenous manufacturer is  $Q_3 - Q_2$ . For a more detailed description of this model, see (Reiber, 1982). The same type of analysis may be shown for the situation where the assumption that marginal cost are linear is relaxed. **Figure 2** illustrates this phenomenon graphically.

#### Profitability and Two-Way Trade

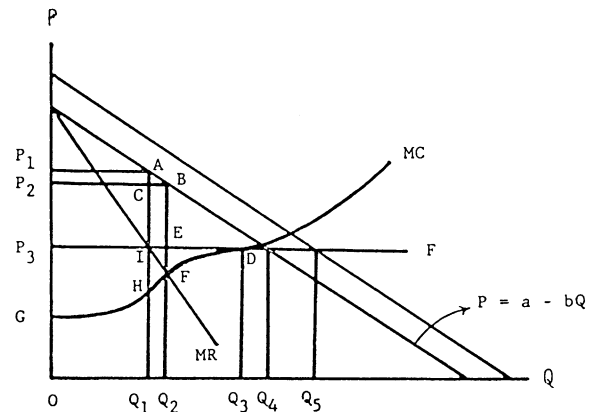
While the preceding analysis established in an equilibrium environment prices and quantities that would likely be relevant to the price discriminator or traditional profit maximizer, it does not speak to the issue of whether the prices and quantities involved generate profit. Nor does a review of the literature reveal much information concerning profitability in such an international marketing scenario (Finger, 1975; Lancaster, 1980).

Using **Figure 1** for support, it can be shown that the profit to be derived by the local monopolist who price discriminates may be developed as follows:

$$(\text{Profit})_{\text{Discr.}} = (P_1 * Q_1) + (P_3 * Q_3) - \text{Total Cost} \quad (3)$$

FIGURE 2

Intra-Industry Trade with A Nonlinear Marginal Cost Curve



$$\text{Import quota} = Q_4 Q_5$$

$$\text{Export under the price discrimination} = Q_1 Q_3$$

$$\text{Domestic consumption net of quota} = OQ_1$$

$$\text{Foreign price} = OP_3$$

Shown graphically this means:

$$(\text{Profit})_{\text{Discr.}} = OP_1AQ_1 + Q_1IDQ_3 - OGHQ_1 - Q_1HDQ_3 \quad (4)$$

$$= GP_1AH + HID \quad (5)$$

The profit derived under the MC = MR decision rule becomes:

$$(\text{Profit})_{\text{MCMR}} = OP_2BQ_2 - QGFQ_2 \quad (6)$$

$$= GP_2BF \quad (7)$$

If we subtract equation (7) from equation (5) we obtain the difference in profit level attributable to the different pricing strategies discussed:

$$\text{Profit Difference} = P_2P_1AC + FED - ICBE \quad (8)$$

Equation (8) yields a positive value as long as the constant foreign price intersects the marginal revenue curve before it intersects with the linear marginal cost curve (Yang, 1983).

Since the linear marginal cost curve is only a special case of the much more complex business environment taken as a whole, a natural question might follow this analysis. Does the price discrimination strategy necessarily lead to maximum profit for the local monopolist in the developing country? Referring to Figure 2, it is evident that the answer to the question depends upon the curvature of the marginal cost curve in the segment from F to D and the demand equation. If FD is very flat and the demand schedule is relatively elastic, it is therefore possible to have:

$$\text{Profit Difference} = P_2P_1AC + FED - ICBE \quad (9)$$

If this value is negative, the price discrimination strategy may well be less profitable than the MC = MR approach.

#### CONCLUSION

The literature regarding two-way international trade pays little attention to price discrimination policies that a local monopolist might pursue under governmental import restrictions like import quotas. It has, from time to time, been shown that such pricing practices do exist in the multinational marketing scheme. The authors' analysis shows that a domestic monopolist enjoying quota protection within his own country may be able to practice price discrimination and at the same time achieve maximum profit. The thrust of this paper has been to introduce a theoretical model which casts this issue in the context of two-way international marketing.

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