Cartel: Pricing Under Joint Profit Maximization Cartel

A cartel is an organization created from a formal agreement between a group of producers of a good or service to regulate the supply or to regulate or manipulate prices. In other words, a cartel is a collection of otherwise independent businesses or countries that act together as if they were a single producer and thus can fix prices for the goods they produce and the services they render, without competition.

- A cartel is a collection of independent businesses or organizations that collude to manipulate the price of a product or service.
- Cartels are competitors in the same industry and seek to reduce that competition by controlling the price in agreement with one another.
- Tactics used by cartels include reduction of supply, price-fixing, collusive bidding, and market carving.
- In most regions, cartels are considered illegal and promoters of anti-competitive practices.
- The actions of cartels hurt consumers primarily through increased prices and lack of transparency.

The World's Biggest Cartel

The Organization of Petroleum Exporting Countries (OPEC) is the world's largest cartel. It is a group of 14 oil-producing countries whose mission is to coordinate and unify the petroleum policies of its member countries and ensure the stabilization of oil markets. OPEC's activities are legal because U.S. foreign trade laws protect it.

Amid the controversy in the mid-2000s, concerns over retaliation and potential negative effects on U.S. businesses led to the blocking of the U.S. Congress' attempt to penalize OPEC as an illegal cartel. Even though OPEC is considered by most to be a cartel, members of OPEC have maintained it is not a cartel at all but rather an international organization with a legal, permanent, and necessary mission.

Types of Cartel

Based on the performing functions for members, there are two types of the cartel as Joint profit Maximisation and Market-Sharing Cartel.

Joint Profit Maximization Cartel/Cartel Aiming at Joint Profit Maximization/Joint Profit Maximisation Cartel under Perfect Collusion

A joint profit maximization cartel is analyzed under a pure oligopoly market (the market situation in which firms produce homogeneous products). In this form of the cartel, the aim of the cartel is the maximization of the industry (joint) profit. The situation is identical to that of multiple monopolists who seek the maximization of their profit.

The individual firms surrender their price-output decisions to this central board or central cartel agency. The central cartel board determines for its members the output, the price to be charged, and the distribution of industry profits. The central board acts like a single monopoly whose main aim is to maximize the joint profits of the oligopolistic industry.

The oligopolist firms appoint the central cartel agency giving the following authorities.

- To determine the common price of the homogeneous products,
- To determine total industry output among the member firms,
- To allocate total industry output among the member firms,
- To distribute industry total profit among the member firms of the cartel

Assumptions

The analysis of joint profit maximization cartel is based on the following assumptions:

1. Only two firms A and B are assumed in the oligopolistic industry that forms the cartel.
2. Each firm produces and sells a homogeneous product that is a perfect substitute for each other.
3. The market demand curve for the product is given and is known to the cartel.
4. The number of buyers is large.
5. The price of the product determines the policy of the cartel.
6. The cost curves of the firms are different but are known to the cartel.
7. The cartel aims at joint profit maximization.

Joint profit maximization or industry profit maximization is possible when each firm can maximize profit. Thus, the conditions for joint profit maximization of a cartel with two member firms A and B can be expressed below.

1. $MC_A = MC_B = MR$

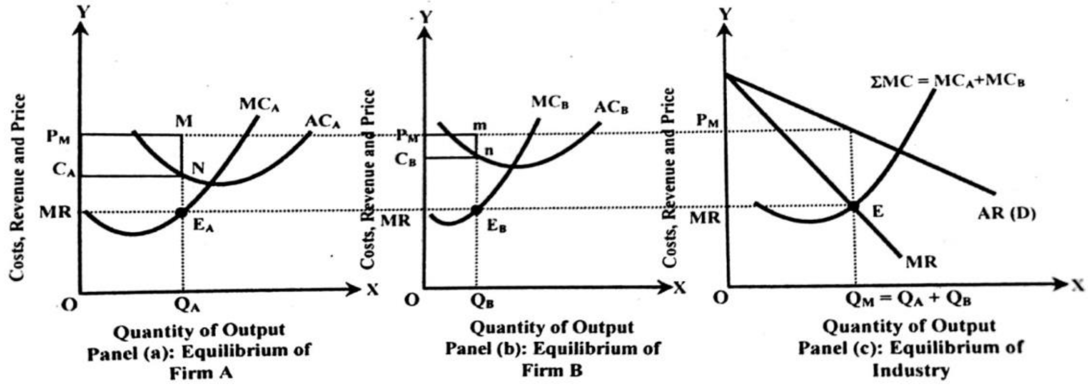
Where MC_A is the marginal cost of firm A; MC_B is the marginal cost of firm B, and MR is the marginal revenue of the industry.

2. $\sum$ MC curve must cut MR curve from below

Where $\sum$ MC the curve is the industry's marginal cost curve which is the horizontal summation of the marginal cost curve of individual firms A and B. MR curve is the industry's marginal revenue curve.

Given these assumptions, and the accomplishment of the above conditions, joint profits will be maximized, and the following figure explains the overall process.

Pricing under Joint Profit Maximization Cartel



The above figure shows how profit maximization under perfect collision is achieved. $\sum MC$ is MC_A+MC_B. The downward sloping AR and MR curves represent the industry's average and marginal revenue curves, respectively. The point E is the equilibrium point where MR=$\sum MC$ and $\sum MC$ curve cuts MR curve from below. The equilibrium output of the industry is QO_M, and cartel price is OP and is determined by the central cartel agency. The horizontal straight line drawn from point E is marginal revenue for all the firms in the industry and it is equal due to the common price of their product measured by cartel agency. MR line cuts MRA and MRB at point EA and EB respectively and establishes the equilibrium situation for both the firms.

At equilibrium, firm A produces OQ_A units of output, and firm B produces OQ_B units of output and the total output is $OQ_M=OQ_A+OQ_B$. Firm A is a low-cost firm, so the average cost is OC_A which is lower than the average cost of higher cost firm B that is OC_B. Since the cartel agency sets a common price in such a way that ensures certain profit to its oligopolistic firms. So, both the firms are earning profits, but firm A as a low-cost firm generates more profit than a high-cost firm B. Similarly, as a low-cost firm (firm A) produces higher output than that of high-cost firm B. The profit earned by low-cost firm A is P_MMNC_A and high-cost firm B is mnC_BP_M. These profits are collected by the central cartel board and distributed among member firms.

Advantages

Perfect collusion by oligopolistic firms in the form of a cartel has many advantages.

- It avoids price wars among rivals. The firms forming a cartel gain at the expense of customers who are charged a high price for the product.
- The cartel operates like a monopoly organization which maximizes the joint profit of firms. Generally, joint profits are higher than the total profits earned by them if they were to work independently.

Problems

The problems of cartels are stated below

1. It is difficult to make an accurate estimate of the market demand curve.

2. The estimation of the market MC curve may be inaccurate because of the supply of wrong data about their MC by individual firms to the cartel.

3. The formation of a cartel is a slow process that takes a long time for the agreement to arrive at by firms especially if their number is very large.

4. The larger the number of firms in a cartel, the less is its chances of survival for long because of the distrust. The cartel will, therefore, break down.

5. In theory, the cartel-members agree on joint profit maximization. But in practice, they seldom agree on profit distribution.

6. The price of the product fixed by the cartel cannot be changed even if the market conditions require it to be changed. This is because it takes a long time for the members to arrive at an agreed price.

7. Price tackiness gives rise to cheat who scarcely cut the price or violate the quota agreement.

Market-Sharing Cartel

Another type of perfect collusion in an oligopolistic market is found in practice which relates to market-sharing by the member firms of a cartel. There are two main methods of market-sharing and these methods are known as types of market sharing cartels. In the market sharing cartel, the member firms only agree on how to share the market and remain independent in the style of the products, selling activities, and other decisions.

a. *Non-price Competition*

The non-price competition agreement among oligopolistic firms is a loose form of the cartel. Under this type of cartel, the low-cost firms press for a low price and the high-cost firms for a high price. But ultimately, they agree upon a common price below which they will not sell. Such a price must allow them some profits. The firms can compete with one another on a non-price basis by varying the color, design, shape packing, etc. of their product and having their different advertising and other selling activities. Thus, each firm shares the market on a non-prices basis while selling the product at the agreed common price.

b. *Quota system.*

The second method of market sharing is the quota agreement among firms. All firms in an oligopolistic industry enter collusion for charging an agreed uniform price. But the main agreement relates to the sharing of the market among member firms based on a quota system so that each firm gets profits on its sales**.** There is not any uniform principle by which quota is fixed. In practice, the quota for each firm is determined based on the bargaining power of the firm and its relative importance in the industry, the relative sales or market share of the firm in the pre-cartel period, and the production capacity of the firm.

If all the firms have an identical average cost of production, then the whole market is divided equally to all firms to maximize profit. But if the cost situation is different the market share will also be different or unequal.

References and Suggested Readings

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