MANAGERIAL ECONOMICS

Prof. Trupti Mishra
Shailesh J. Mehta School of Management,
IIT Bombay

Lecture No - 37 : Application of Game Theory and Product Pricing

Session Outline

Application of Game Theory in Economics
Product Pricing

Application of Game theory in Economics

Market Entry Game

•Game of entry of potential firm in an industry which already has a monopoly firm.

•The incumbent has to decide whether to enter the market or stay our.

•Monopolist has two options, colludes or fights with entrant firm.

Application of Game theory in Economics

Market Entry Game

- What should be the strategy of a rational monopolist?
- **Nash equilibrium occurs when the entrant enters and the incumbent firm colludes with it.**

Application of Game theory in Economics

Cournot's Model

•The Cournot's game is a simultaneous move game where the firms strategically choose outputs such as to maximize profit..

•The firm knows that their choice of quantity is dependent on what the rival firms choose.

Application of Game theory in Economics

Cournot's Model

- If both firms fight with each other , than they earn duopoly profit.
- If they form a cartel, each firm earns a greater profit but given the structure of game and the player's rivalry, they end up in suboptimal equilibrium.

Application of Game theory in Economics

Stackelberg's Model

- Sequential move game different from the cournot's game.
- One firm known as the leader chooses his output, second firm chooses after observing first's quantity – Follower's Firm
- Follower – Leader game.

Application of Game theory in Economics

Stackelberg's Model

- Leader firm sets a higher quantity of output and earns more profits than follower's firm

- First Mover Advantages

Application of Game theory in Economics

Stackelberg's Model

- Equilibrium – backward induction in the game theory.

•The technique first considers the optimal strategy of the player and its best response which takes moves that are last in the game.

Application of Game theory in Economics

Stackelberg’s Model

Predicting future action of last player , the second last player proceeds taking the best move and the process continues backward in time determining for each player best response, until the beginning of the game is reached.

Product Pricing

Product Pricing

Price

-Revenue to Seller

-Perceived Value of the goods or services to the buyer

-What is the right price for a product.

-All economic agent maximize their objectives.

Product Pricing

Price

-When a firm need to decide about the price of its product?

-Seller of new product

-Seller of modified/improved product

-Seller entering into new market /market segment

Product Pricing

Basic Determinant of Price

-Supply and demand
-Objective of the firm
-Cost of production
-Market structure
-Competitor's strategy
-Elasticity of Demand
- Government policy

Multi Product Pricing

Most modern firms produces a variety of product rather than single product.

Demand for various products are separable but the costs are not quite divisible product wise.

Multi Product Pricing

Separate demand function, one cost function.

Profit maximizing price will be given by the point at which the combined marginal revenue for the products equals the marginal cost.

Price Discrimination

It is the act of charging different prices to different consumers in order to capture consumer surplus.

Price Discrimination

- A firm must have market power or some control over price
- The firm must be able to distinguish between consumers/ markets on the basis of elasticity of demand
- The firm must be able to prevent resale – market must be separable

Price Discrimination

- Discrimination owing to consumer's peculiarities
- Discrimination owing to nature of goods
- Discrimination owing to distance and front barrier.

Types of Price Discrimination

- First Degree
- Second Degree
- Third Degree

First Degree Price Discrimination

- In first degree price discrimination, the monopolist charges each consumer their maximum willingness to pay.
- First Degree Price Discrimination eliminates consumer surplus (each consumer pays their maximum amount)

First Degree Price Discrimination

- It charges maximum possible price for each units of output.
- First Degree Price Discrimination eliminates deadweight loss (monopolists are able to provide goods to more consumers)

Second Degree Price Discrimination

Instead of setting different prices for each unit, pricing is done on the basis on quantities of output purchased by individual consumer.

Example: Metered services like electricity, telephone.

Third Degree Price Discrimination

This is most common type

It separates markets on the basis of the price elasticity of demand

Segmentation is based on geographic separation of markets, nature of use, personal characteristics of consumer.

Session References

Micro Economics :ICFAI University Press
Managerial economics – Geetika, Ghosh and Choudhury
Managerial Economics – Dr Atamanand