Chapter 4:- Product Selection, Quality, and Advertising

(function)

→ One of the production system in is to select the commodities that are produced & sold. This selection involves real economic choices; owing in particular to increasing returns to scale, only some of the potentially producible goods are actually manufactured.

. Relax the assumption that by letting the monopolist choose a position in a "product space." (Section 2.1)

. Depending on the application, the monopolist may offer too high or too low a quality and too much or too little product variety relative to the social optimum. (Section 2.2)

. Sections 2.3, 2.4 consider goods whose characteristics are learned by the consumers only after purchase "experience Goods."

2.1) The Notion of Product space:-

- Hard to come up with a satisfactory definition of the notion of an industry or a market. On the one hand, two goods are almost never perfect substitutes. Goods are always almost differentiated by some characteristics.
- On the other hand, a group of products (an "industry") always interacts to some extent with other goods in the economy.; the pricing of goods outside the industry enters into the demand for the goods in the industry not only through income effects but also through substitution effects. → industry is an idealization or limit case.

- A good can be described as a bundle of characteristics : quality, location, time, availability, consumers, information about its existence & quality and so, on.

→ The concept of a "product space" is often used to describe the set of all possible products or goods that can be produced in an economy. It represents the multidimensional space where each dimension corresponds to a characteristic or feature of the products.

→ In economics, product spaces are used to model markets with multiple goods and services, for example, market for cars, can be modeled as a product space with three sets : the set of brands, set of models, & set of colors.

2.1.1) Vertical Differentiation:- In a vertically differentiated product space, all consumers agree over the most preferred mix of characteristics and more generally, over the preference ordering. A typical example is quality.

- Most agree that higher quality is preferrable.
- At equal prices there is a natural ordering over the characteristics space

→ Vertical differentiation refers to the differentiation of products based on their quality or features along a continuum, where some products are perceived as superior or higher in quality than others.

→ In the context of product space framework, vertical differentiation can be analyzed by considering the positioning of products along a quality or feature dimension.

→ Vertical differentiation is a type of product differentiation in which products are ranked on a scale of quality. Consumers have different preferences for quality, and they will be willing to pay more for a product that is higher quality.

→ In the product space, products that are vertically differentiated are typically represented as points that vary in their vertical position along the quality or feature axis. Higher quality products are positioned higher in product space, while lower quality products are positioned lower.

→ 1) Consumer Preference 2) Market Segmentation
3) Pricing & Profitability 4) Entry Barriers
5) Product Evolution & Innovation

Examples

- Luxury cars vs economy cars
- Premium ice cream vs store brand ice cream
- Five star hotels vs budget hotels

Example

→ Goods value '0 to 1' consumes zero to one units of goods, quality index 5

2.1.2) Horizontal Differentiation:-

For some characteristics, the optimal choice (at equal prices) depends on the particular consumer. Tastes vary in the population.

Example, Color, location etc

- Prefer to go to a shop or a supermarket that is nearby. In such cases of horizontal or 'spatial' differentiation, there are no "goods" or "bads".

→ Example Hotelling 1929.

- Horizontal differentiation refers to the differentiation of products based on non-quality attributes or features. Unlike vertical differentiation, which focuses on differences in quality or performance, horizontal differentiation emphasizes distinctions in characteristics that do not necessarily reflect superior or inferior quality.
  ↳ Non quality attributes, design, style, color, brand image, packaging, convenience, & other subjective factors

- Horizontal differentiation can be analyzed by considering the positioning of products along dimensions other than quality.
  ↳ 1) Consumer preferences 2) Market segmentation
  3) Branding & Image 4) Pricing strategies
  5) Product Development & Innovation

- Horizontal differentiation is a type of product differentiation in which products are different in terms of their attributes but they are not ranked on a scale of quality. Consumers have different preferences for attributes, and they will be willing to pay more for a product that has the attributes that they prefer.

· Hotelling's model of spatial competition is an example of horizontal differentiation. It involves two competing firms choosing their locations along a linear space, considering consumer preference for convenience and proximity. The model shows that firms tend to position themselves closer together to capture the largest market share. This illustrates how spatial positioning & horizontal differentiation play a role in competition in industries where location is important, such as fast-food restaurants along a beach board walk.

21.3) "Goods-Characteristics" Approach :-

→ Goods are defined as bundles of characteristics, and the consumers have preferences over characteristics. The consumers may have heterogeneous preferences over characteristics.

→ In the vertical & horizontal differentiation approaches, it was assumed that consumers purchase only one good - in other words, that they do not get extra utility from consuming a variety of goods.

→ In contrast, one could assume that consumers can consume several goods, and furthermore, that all they care about in a good is its characteristics.

→ The goods-characteristics approach makes sense in a number of cases, for instance, when buying light bulbs, the consumer certainly cares mainly about the total number of hours of lighting provided by bundle of bulbs. The key to the approach is to be able to sum up the characteristics.

→ The goods characteristics approach is a theory of consumer demand that views goods as bundles of characteristics that provide utility to consumers.

- Consumers are motivated by utility, which is a measure of satisfaction.
- Consumers can obtain utility from the characteristics of goods, rather than from the goods themselves
- Consumers have different preferences for different characteristics
- Consumers can choose from a variety of goods that offer different combinations of characteristics.

· The Goods Characteristics approach is a framework used in economics to analyze consumer preferences and market behavior based on the characteristics or attributes of goods. It focuses on how consumers make choice and evaluate products based on the specific features & qualities they possess. This approach emphasizes that the characteristics of goods play a crucial role in shaping consumer demand & market outcomes.

↳ 1) Attributes & Characteristics
2) Utility & consumer Preference
3) Hedonic Pricing
4) Product Differentiation
5) Market Equilibrium
6) Product Innovation

2.1.4) Traditional Consumer Theory Approach :-

- In its extreme form, the Lancasterian approach ignores the notion of good to focus on that characteristics; goods are here only to provide characteristics.
- Conversely one can ignore the notion of characteristics and focus on that of good.
  ↳ Approach by General equilibrium theory.
- Both production functions & utility functions are defined as functions of the quantities of the various goods.

- The approach in terms of goods rather than characteristics is very general → but industrial orga— → it may have some drawbacks.

→ Industrial organization economists generally feel that a new product does not compete as closely with each and every other product.

→ Contrast with the horizontal and vertical differentiation approaches as well as with the goods-characteristics approach, in that there is no notion of 'remoteness' or 'neighborhood' relative to other products.
  ↳ Poorly defined space

→ The traditional consumer theory approach is a framework that analyze consumer behavior based on rationality and utility maximization. It assumes that consumers seek to maximize their satisfaction (utility) given their preferences and budget constraints. Key concepts include utility, preferences, budget constraints, marginal utility, consumer equilibrium, and demand.

2.2) Product Selection:-

→ Choice of quality (a vertical characteristic) by single-product monopolist, then a monopolist supplies too few or too many products (from social stand point).

→ Product selection refers to the strategic decisions made by firms regarding types of products they produce and offer in the market. It involves differentiating products based on characteristics, quality, levels, and features that align with consumer preferences.

→ Product selection is the process of choosing which products to offer to consumers in a market with differentiated products. This is a complex decision, as firm must consider a variety of factors, including the needs of their target market, the competition, their budget, their time line & risk tolerance

2.2.1) Product Quality

Assume that a monopolist produces, a single good, for which he chooses two real numbers; a price p and a quality s.

- Quality is desirable, in that p increases with s.

- Choice of quality by a social planner, who would choose price & quality (or equivalently, quantity & quality) so as to maximize the difference between gross consumer surplus & production cost.

- The monopolist is concerned with the effect of output on price, whereas the social planner (or a competitive firm) is not.

→ The incentive to provide quality is related to the marginal willingness to pay for quality, for the marginal consumer in the case of a monopolist and for the average consumer in the case of social planner.

→ In both the case of choice of quality and that of monopoly pricing, the monopolist is concerned with the effect of his decision on the marginal consumer's demand; the social planner cares about the effect of decision variable on the infra marginal consumers welfare as well.

→ When making a choice between monopoly and a socially oriented organization, one may want to focus on the total dead weight loss, associated with monopoly, and not only on the quality distortion.

→ An increase in quality ~~exceeds the marginal~~ is socially desirable if the average valuation for quality exceeds the marginal valuation for quality and if the policy that brings forth this increase in quality does not induce the monopolist to contract output

- Product Quality refers to the excellence and superiority of a product in terms of its attributes and performance. In monopoly, product quality may be influenced by profit maximization and reduced competitive pressure. The monopolist's objective is to maximize profits, which can lead to compromise in product quality. However, factors such as consumer demand, reputation, and regulation can still play a role in shaping product quality decisions. While a monopoly lacks the competitive incentives to prioritize high quality, considerations beyond profit may influence the monopolist's approach to product quality.

Applications:-

Swan's Optimal Durability theorem

- It states that in a competitive market, firms have an incentive to produce durable goods, with shorter lifespan than that what would be socially optimal for consumers.
- This is because, shorter durability allows firms to increase sales and generate more profits. However, this trade-off btw firm profits and consumer welfare raises concerns about the efficiency & sustainability of durable goods production & consumption.

→ The Dorfman-Steiner (1954) condition

The Dorfman-Steiner condition states that a monopolist should set the ratio of price to marginal cost for each product equal to the inverse of the respective elasticity of demand. This condition ensures that the monopolist maximizes its total profits. However, it does not consider efficiency or welfare implications explicitly.

→ An Example of "Underprovision" of Quality:-

→ In a monopoly, underprovision of quality can occur when the monopolist, having no competition, lacks the incentive to invest in improving the quality of their products or services. This can lead to lower quality offerings, such as slow internet speeds or limited customer support, which negatively impact consumer welfare.

→ Govt regulation may be necessary to address this issue.

→ Underprovision of quality occurs when companies prioritize profits over product quality, resulting in lower quality goods or services.

→ This can happen in both monopoly & competitive markets

An Example of "Overprovision" of Quality:-

- Overprovision in the case of a monopoly occurs when the monopolist invests excessively in product quality, features, or services beyond what is economically efficient. This can result in higher costs for the monopolist and potentially higher prices for consumers.
- In general, overprovision can occur when companies, regardless of market structure, invest disproportionately in products enhancements that exceed consumer preferences or needs. This can lead to higher production costs & potentially inflated prices for consumers.

→ 2.2.2) Too Many or Too few Products?

- In general, he may produce several goods. How does the monopolist's choice of diversity compare with the socially optimal product diversity?

- 2.2.2.1) Nonappropriability of the Social Surplus and Underprovision of Diversity:-
  - A firm that creates a new product generally cannot capture all the gross surplus generated by the product.
  - The monopoly introduces the product only if the monopoly profit π^m exceeds f.

$\pi^m > f$ ← Profit of monopoly; → Fixed cost of offering new product

Diversity:- more than one good at same time → Extract max amount of CS.

→ The social planner introduces the goods if & only if the social welfare w exceed f

$$w > f \quad \rightarrow \quad w > \bar{\pi}^m$$

· if welfare from new products is greater than fixed price

$w > f > \bar{\pi}^m$ → this case diversity will not be offered.
↳ the monopolist does not introduce the good, the social planner does.

· Thus with only one potential product, monopoly may imply "too few products" and never entails "too many products".

· Monopolist in general cannot appropriate the social surplus.

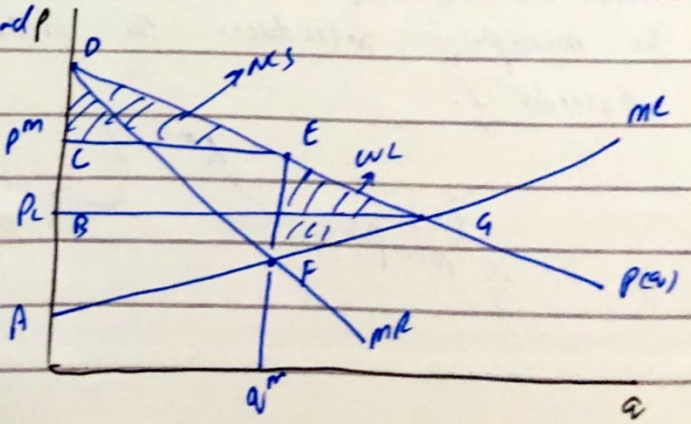
· $w - \bar{\pi}^m$ represents the sum of the dead weight loss & consumer surplus.

· An Attempt to capture CS by raising the price raises the dead weight loss. What matters for the efficiency of product selection is what fraction of net potentiale surplus is capturable by the monopolists.

Remarks:- . monopoly price alone can not capture all CS
→ when monopolist can price Discriminate Perfectly (all CS) with Dur.
→ Constant elasticity demand

How can monopoly capture all consumer surplus (CS)

Fig 11



→ 2.2.2.2) Multiproduct Monopoly and overprovision of Diversity

→ When a monopolist can manufacture several goods, a new effect appears which tends to create too much diversity.

→ Suppose that a monopolist can produce two goods which are substitutes. The price he charged for good 1 exceeds the marginal cost of producing that good. Thus the demand function for good 2 is shifted up by the use of monopoly power for the first good.

→ This may make it more profitable to produce good 2, which it would not be profitable to do if the monopolist were to charge the competitive (socially optimal) price in the first market

→ The monopoly may produce good 2 when this is not socially optimal

→ Monopolist can provide too many or too few products. Besides the two effects identified here, we will identify a third effect which affects product diversity when we introduce monopolistic competition. This third effect is linked to externality b/w firms.

2.2.3) Product Selection And Discrimination:-

- A monopolist who faces consumers with differing tastes is eager to learn which tastes each particular consumer has. If he can do so, he may be able to charge a high price to a consumer with a high willingness to pay for his good and a lower price to a consumer with a lower willingness to pay, assuming that the consumers cannot resell the good (arbitrage).

- However asking a consumer for his taste parameter is not "incentive compatible"; the consumer has a strong incentive to claim that he has a low willingness to pay so that he will be charged at low price.

- One such variable is quantity purchased by the consumer by using variables that are related to willingness to pay.
  - ↳ if the latter has a downward sloping demand.
  - ↳ Higher purchases are usually a signal of higher willingness to pay.

→ Another variable quality of product purchased
  - ↳ By both variables monopolist can use his product line or spectrum of goods to discriminate b/w consumers & price charges for.
  - ↳ Quality sold to a particular consumer is suboptimal & that the monopolist tends to offer "too many products.

2.3) Quality & Information

→ The quality of some goods (e.g dresses) can be ascertained by consumers before purchases. In other cases, the quality is learned after the good is bought for other goods, aspects of the quality is rarely learned, even after consumption.

→ Three types of goods "search goods", "experience goods" and "credence goods"

→ Most goods cannot be classified in this simple manner.

· The main issue for search good is product selection (quality, product diversity). For experience goods, the main issue is information. How do consumers learn the quality? What incentives do firms have to supply it? We will see that repeat purchases offer some consumer control over quality for such goods. Credence goods face the informational issue with a vengeance. → ⊗ govt. intervention.

→ In a broad sense, search goods include "warranty goods." It is not always necessary to observe quality before purchasing a good.

→ It remains to be seen whether the producer has an incentive to give full warranty.

→ A low warranty would be a signal of low quality. In contrast a full warranty system makes the producer internalize any consumer misperceptions and suppresses informational problems.

↳ Thus quality problem could be eliminated by a perfect warranty system.

- In many interesting real-world situations, however, the warranty system is nonexistent or imperfect.
- when quality means durability, the good must be consumed in order for the buyer to know its exact quality; if as is usual, the eventual performance of the good depends on the way the buyer consumes it as well as on its intrinsic quality, there is a moral-hazard problem on the consumer side.

→ The buyer has no incentive to take care of the good if he is to be fully reimbursed in case of breakdown.

↳ by giving a less full warranty

→ Moral hazard & adverse selection certainly explain many of the restrictions on the warranty system.

2.3.1) One shot Relationships: Moral Hazard and "lemons"

· 2.3.1.1) Moral Hazard

A manufacturer who sells an experience good to one-time consumers and who can neither offer a warranty nor be sued for faulty quality has strong incentives to cut quality, to the lowest possible level, because the market price cannot respond to the unobservable quality.

→ There is a moral Hazard on the producer side.
The moral Hazard problem explains, for instance, why the food in restaurants in some tourist areas for Paris is not what it could be.

→ More generally for one shot purchases, the quality chosen by a manufacturer is likely to be poor.

→ We assumed that consumers could not learn the quality of the product before buying. In a no of interesting cases, however some consumers do learn information related to a product's quality before the purchase.

→ The informed consumers exert a positive externality on the uninformed ones.

→ 1) High prices can signal high qualities to uninformed consumers when there also exist informed customers.

→ Second, the number of informed customers should be increased, prevent monopolist from cutting quality, it will increase efficiency as well.
↳ Government intervention.

· Consumers information should be encouraged beyond its privately optimal level. → Consumer Reports

2.3.1.2) The Lemons Problem

Akerlof (1970) showed that the same issues arise when the quality of goods is not a choice variable but putting the good on the market is.

→ The basic idea is, as before, is that if buyers do not know the quality of the good when purchasing, the purchase price must be independent of the actual quality. This implies that sellers put their goods on the market only if the goods are of low quality; otherwise they are better off consuming the goods themselves.

2.3.2) Repeat Purchases:-

- In the absence of warranties, repeat purchases offer consumers some means of monitoring quality. By experimenting, consumers learn about the attributes of a product,
- As long as their current experience is somehow related to the future quality, they obtain valuable information as to whether they should repeat their purchases.

→ Two ways in which this mechanism can operate.

- First the quality of good may remain the same over time. Past consumption then brings direct information on quality. Often, however the quality may change over time.
  ↳ Repeat purchases mechanism in an indirect way.

→ To charge a low price in the introductory period to attract consumers by Monopolists. → But low price means bad quality?

→ high quality product generates more repeat purchases.

→ on other hand, a low quality product, for a given price, generally yields high profits because of a lower production cost. → More incentive to attract customers

→ The difference in gain due to repeat purchases must exceed the cost advantage enjoyed by the low quality producer in order for the price to convey any information about product quality.
if this condition met then high quality producer can sacrifice current profits by charging a low price to signal the quality.
  ↳ a low price may signal a high quality.

2.3.3) Quality, Information & Public Policy

→ The mere fact that some products may have low quality or fail is not by itself an argument for govt intervention because the govt may be facing the same informational difficulties as the consumers.

→ When government intervention is likely to be desirable → in this section.

2.3.3.1) Failure of the Coase Theorem & Product Liability:-

→ To asses potential policy interventions, we first assume that the government a priori has the same information about product quality that a consumer has before making a purchase.

→ Any efficiency gain stemming from govt intervention, so runs the argument, could also be ~~obtai~~ obtained by monopolist through detailed contract provisions, furthermore the monopolist could appropriate these efficiency gains by raising the price.

→ Coase theorem not applicable here.

→ The efficiency of private contracts generally requiring perfect information, the absence of transaction costs & the absence of externalities towards third parties.

· Imperfect Information:

Imperfect information is the basis for the quality issue. However one might think that, even though the equilibrium may not be fully pareto efficient, it might be Pareto efficient relative to the structure of information.

→ In the second best situation, there are generally externalities b/w economic agents that must be corrected

→ In a one shot relationship, informed customers exert a positive externality on uninformed ones.

→ Transaction costs:-

Transaction costs may lead to incomplete contracts. This is particularly true for contracts b/w a firm and its customers. Often the contract does not exist or is of a standard form.

→ A consumer who buys a soda pipe will not bother to require that the manufacturer sign a detailed contract; doing so would involve costs incommensurate with the surplus associated with the consumption of this particular good

→ However efficiency calls for the producer to be liable in case the bottle explodes and hurts the consumer. This is required to give the firm incentives to produce safe bottle

→ Opponents of product-liability legislation might object to the previous argument by arguing that the producer would be better off supplying a standard form of contract that promises to compensate consumers in case of an accident

→ However the consumers usually do not have time to read the contract or do not understand its substitute.

→ 2.3.3.2. Creation of Information:-

- We assumed that the government does not acquire superior information, relative to the consumers. Sometimes, quality tests may speed up consumer learning. This apply to experience goods.

2.3.3.3 Consumers Misperceptions:-

→ Product liability has also been supported on the basis of consumers misperceptions.

- Consumers form their expectations rationally.

2.4) Advertising :-

- Advertising has long been percieved as wasteful & manipulative.
- One of the topics in the study of industrial organization for which the traditional assumptions (especially those with regard to consumer behavior) are strained most.
- The advertising of a product has strong psychological & sociological aspects that go beyond optimal inferences about objective quality.

→ we can distinguish b/w advertising that conveys "hard" (direct) information and advertising that conveys "soft" (indirect) information or none at all

- Hard information, includes the existence of product, its price, the retail outlets in which it is distributed, its physical appearance & so on. ↳ Much more advertising for search goods. (goods whose quality can be assessed before a purchase).