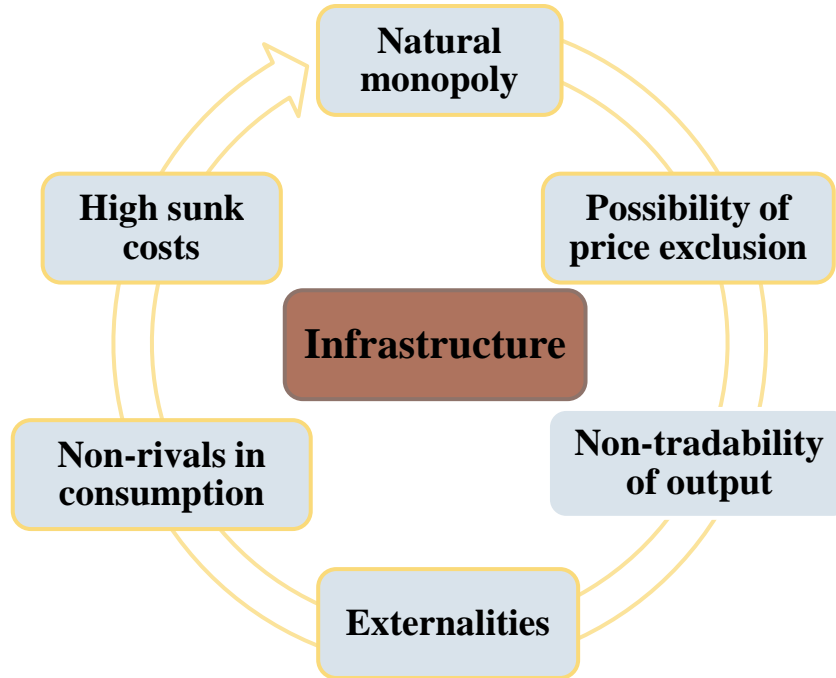


Module - 2

Features of Infrastructure



Features of Infrastructure



Infrastructure: Natural Monopoly

- ▶ When one firm can potentially supply market's entire demand for goods and services at most efficient price, it is said to exist natural monopoly
- ▶ When the fixed costs become so large that only one firm can feasibly operate, and the average costs continue to fall over the entire range of production, the one firm will emerge as natural monopoly
- ▶ The production of certain goods and services are subject to scale economies-like Infrastructure facilities
- ▶ The production of infrastructure facilities (like railways, electricity, tele-communications, gas-pipelines and other public-utilities) require a certain minimum scale of production
- ▶ Natural Monopoly is often viewed as market-failure



Infrastructure: Natural Monopoly

- ▶ Figure 1 shows cost and demand curves of a natural monopoly. The firm produces output Q_1 , where $MC=MR$. At this point the price per unit of production is P_1 and average cost is AC_1 . It is clear from the figure that price is greater than average cost ($P_1 > AC_1$), the profit per unit of output = $[P_1 - AC_1]$.
- ▶ If this natural monopoly starts to operate as perfect competitive firm, the marginal cost pricing [$P=MC$] principle, then it must produce output Q_a and price will be P_a . In this situation, there is a loss ($AC_a - P_a$) per unit of output.

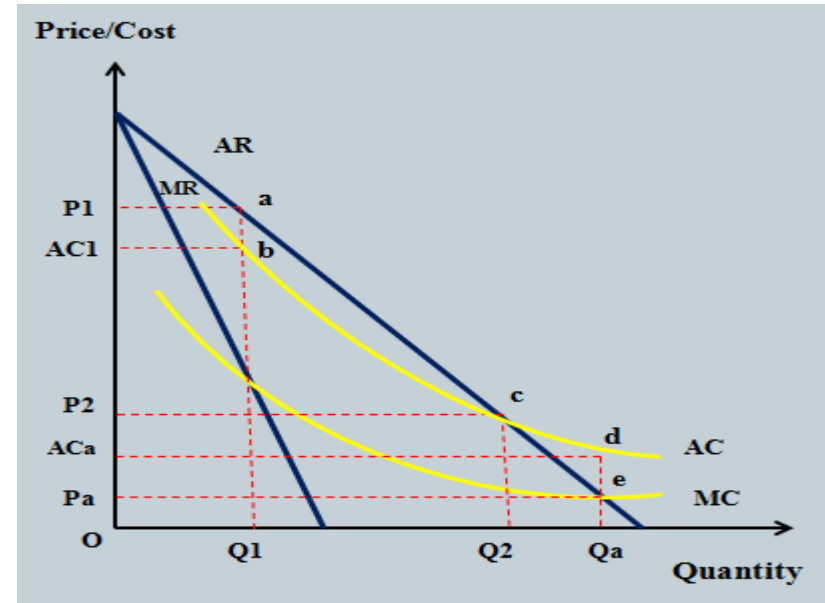


Figure 1: Natural Monopoly

Infrastructure: Sunk Costs

- ▶ The expenditures that has already made and cannot be recovered even when the firm go out of business
- ▶ Sunk costs may be a barrier to entry into infrastructure development projects for private investors
- ▶ If sunk costs are high relative to marginal cost, price will almost surely exceed marginal cost, even though economic profits are zero



Cont.

- ▶ Examples of sunk costs include investments in product development, the construction of a specialized production facility, large infrastructure projects etc. Such expenditures cannot be recovered and are therefore essentially irrelevant for any on going decisions that the firm must make
- ▶ Sunk costs should not be considered for future investments decisions
- ▶ Examples: telecommunication towers, sewerage, railways etc. have high sunk costs



Infrastructure: Non-Tradability of Output

- ▶ Infrastructure output are the services that are evoked from the use of particular infrastructure facility. Thus the characteristics of services are equally applicable to infrastructure: intangible nature and non-tradability
- ▶ This means that infrastructure services must be consumed/purchased at the place they are produced
- ▶ These services generally can not be transported (with some exceptions)
- ▶ This characteristic has significant policy implications, because the viability of a particular infrastructure establishment has little role to play
- ▶ For instance: roads, railways, bridges, airports etc. can not be transported



Infrastructure: Non-Rival Consumption

- ▶ Consumption by an individual does not affect the consumption by others
- ▶ Thus an additional consumer can enjoy the benefits of consuming a good or service without conflicting the benefits of others
- ▶ Zero marginal cost of providing the benefits of a good to an additional consumer
- ▶ For instance: roads and telecomm



Infrastructure: Price Exclusion

- ▶ The benefits will be provided only to those who pay for the services/goods
- ▶ Price exclusion is a feature of private goods
- ▶ Perfect competition and efficiency merit marginal cost pricing, i.e., $P=MC$, that the prices must be set at marginal cost
- ▶ But, in the case of infrastructure, it will be very difficult to recover the costs of providing the facilities
- ▶ Thus, pricing of infrastructure facilities are not regulated through market forces



Infrastructure: Externalities

- ▶ Externalities are the spillover effects (costs or benefits) that are not included in the prices and accrue to other (third) parties than those involved in the transaction. For instance: health and education
 - ▶ Externalities are said to exist when production or consumption of an entity affect the productivity or well being of another entity
 - ▶ Two conditions are necessary for an externality
 1. Interdependence between economic entity
 2. Non-compensation for the effects of interdependence
 - ▶ Two types of Externality:
 - i.) Positive Externality
 - ii.) Negative Externality
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