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11.479J / 1.851J Water and Sanitation Infrastructure in Developing Countries
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11.479: Water Supply & Sanitation Planning and Policy in Developing Countries

Tutorial 1: Principles of microeconomics

I. Introduction

Economics: the study of how to allocate scarce resources, goods, and services among alternative uses. Those goods and services are scarce because the resources used as inputs to produce them—land, labor, and (physical) capital—are scarce.

Microeconomics: Focuses on the economic choices made by individuals and firms, the interaction of individuals and firms in markets, and the role and nature of regulation and other forms of government intervention.

Macroeconomics: Studies economic aggregates such as gross domestic product, inflation, and unemployment, along with fluctuations in these (the business cycle), and government policy designed to influence the business cycle.

II. How is the microeconomic lens helpful for us in W&S policy and planning?

A. Supply and demand

Effective demand: Willingness and ability to purchase something

Demand (D) is a function of:

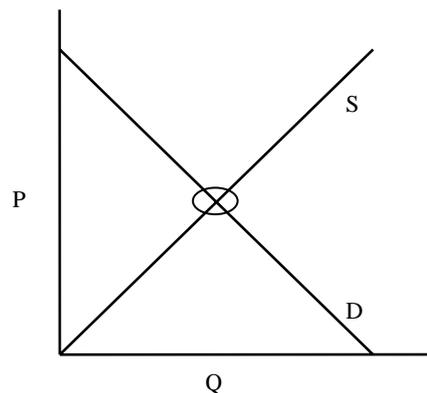
- Price of the good or service
- Income
- Buyer's tastes and preferences
- Price of substitute and complementary goods or services
- Number of buyers

Supply is a function of:

- Price of the good or service
- Taxes and subsidies
- Technology
- Cost of inputs such as capital, labor, and intermediate goods
- Number of sellers
- Price of production substitutes
- Seller expectations of future prices

B. The interaction of supply and demand in the market

Equilibrium: The market price under competitive conditions



C. Do we typically have competitive market conditions in water supply and sanitation?

Characteristics of competitive market:

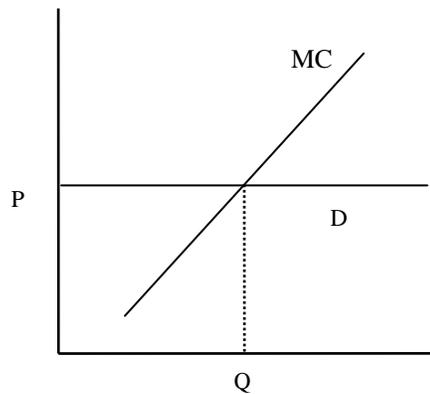
- A large number of producers and consumers, each too small individually to affect market price by way of the quantity they produce or consume ('price takers')
- A homogenous good or service produced at identical cost,
- Very easy entry into or exit from the market.

Characteristics of a monopoly market:

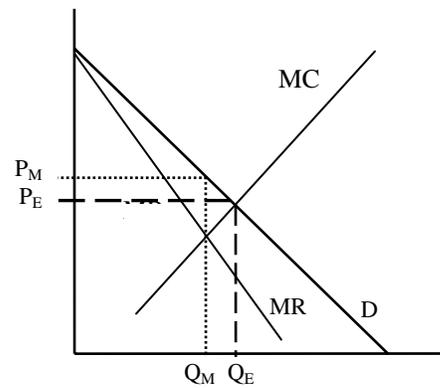
- A single firm provides the total supply of a product in a given market ('price maker'),
- There are no close substitutes for the monopolist's product,
- Barriers to entry—monopolist controls a strategic input (e.g., water source), legal barriers (e.g., monopolist has exclusive service rights), or economies of scale—make it very difficult or impossible for new firms to enter an industry.

Why does this matter?

Competitive firms



Monopolist



In a competitive market, where will the service provider set price? How about a monopoly provider?

- Perfectly competitive firms produce the quantity of output where $P=MC$. This is also the price at which efficient allocation of resources is achieved.
- Monopolists produce output where $P > MC$ (and where $MR=MC$). This is not efficient, and overcharges consumers, because the marginal benefit of the last unit produced exceeds the marginal cost of producing it. In other words, monopoly is considered harmful to consumers because it results in higher prices and lower outputs than would result in a perfectly competitive market.

What are the implications for W&S policy and planning?

III. Other economics concepts with implications for institutional arrangements in W&S service delivery

A. Are water supply and sanitation services public or private goods?

	Exclusive	Non-exclusive
Rival	Private goods	Quasi-public
Non-rival	Club good	Public goods

	Exclusive	Non-exclusive
Rival	Cars, houses, your lunch	Clean air, grazing land
Non-rival	Bridges, swimming pool, movie theatre	National defense, public health programs

The more non-depletable and non-excludable a good or service is, the less efficiently the market will provide it—and the greater the justification for state involvement.

Water & sanitation are often labeled as being “social goods.” What does that mean? (Is efficiency our only objective?)

B. Do substantial externalities (positive or negative) arise from the production or consumption of water supply and sanitation services?

Externality: An uncompensated impact on well-being created by production and/or consumption activities

The greater the value of an externality, the less accurately the price reflects the ‘true’ value of the good or service—and the less efficiently it will be provided by the market.

What are the implications for W&S policy and planning?