


**Telecommunications Policy,
Economics & Regulations**



■ **Telecommunications Economics**
Spring 1997
James Alleman
Interdisciplinary Telecommunications Program
University of Colorado

Agenda

- **Economic Efficiency**
- **Demand**
- **Supply**
- **Regulation**
- **Case Studies**

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Economic Efficiency

Scarcity: The concern of economic theory.

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Economic Efficiency

How to allocate limited resources?

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Economic Efficiency

How can the resources be optimally allocated?

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Economic Efficiency

Economic Costs:

Measures the value of resources used.

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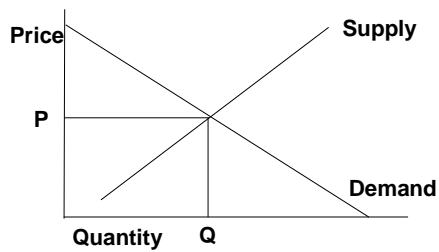
Economic Efficiency

Demand:
Measures the value to consumers of resources.
Consumer's willingness to pay

Economic Efficiency

Supply and Demand:
Determines the allocation of resources.

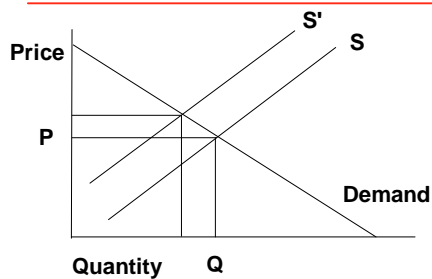
Economic Efficiency



Economic Efficiency

Exception: Market Failure for example, Monopoly.

Economic Efficiency



Demand

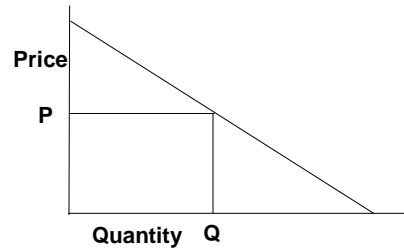
Measures the value of goods and services.

Demand

Function of

- Price
- Income
- Price of Other Goods
- Tastes

Demand



Demand

Elasticity

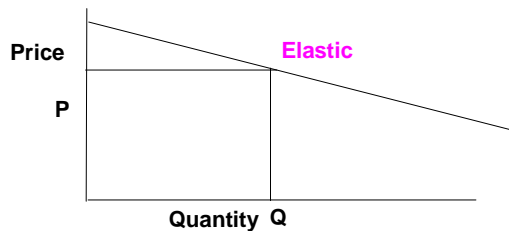
The Percentage Change in Quantity with respect to a Percentage Change in Price

Demand

Elastic

The Percentage Change in Quantity *greater* than the Percentage Change in Price

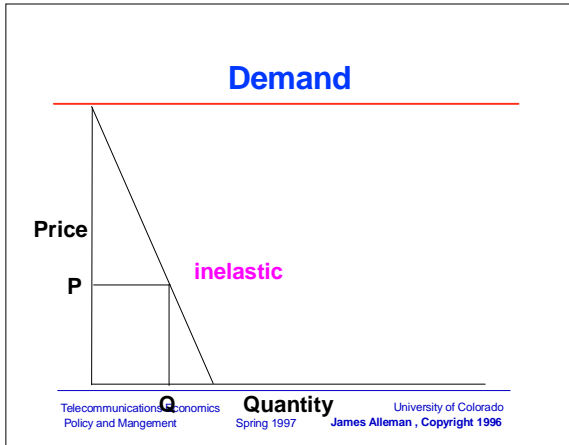
Demand



Demand

Inelastic

The Percentage Change in Quantity *less* than the Percentage Change in Price

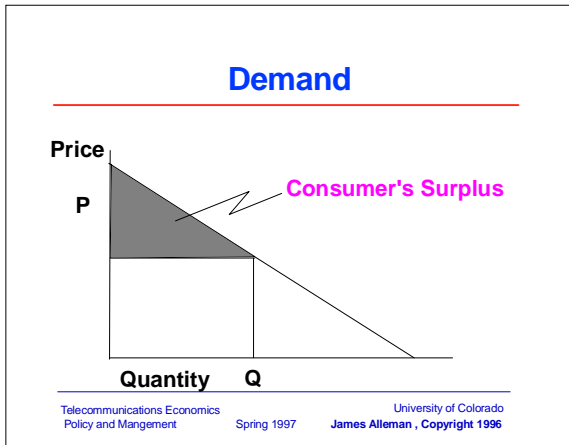


Demand

Consumer's Surplus:

Value beyond which the consumer pays for a good or service.

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Supply Function

The relationship between quantity and cost (price).

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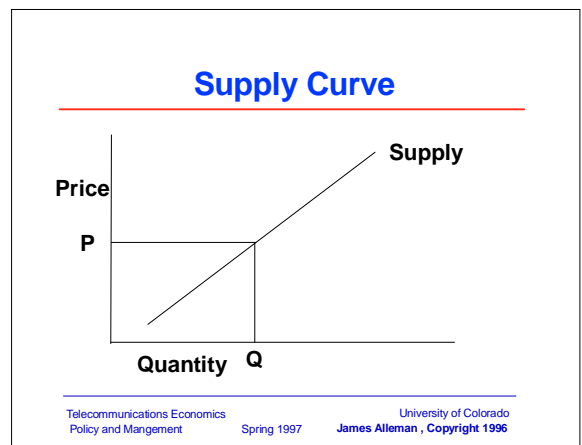
Supply

Based on Cost (Incremental)

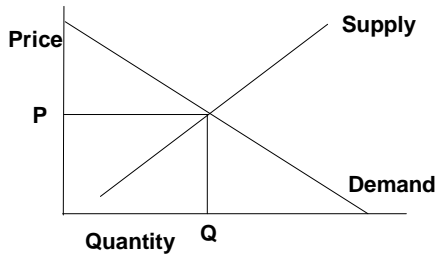
Price / Quantity of Inputs

Price of Outputs

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Demand & Supply Interaction



Costs / Production Analysis

- Fixed versus Variable
- Relevant versus Irrelevant
- Marginal versus Average
- Economic versus Accounting

Costs / Production Analysis

- Irrelevant
Historic Costs
Sunk Costs
- Beware of
Accounting Costs
Allocated Costs

Costs / Production Analysis

- Relevant

Prospective (Future) Costs
Spectrum Costs
Joint / Common Costs

Costs / Production Analysis

- Fixed versus Variable
- Relevant versus Irrelevant
- Marginal versus Average

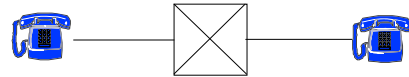
Costs / Production Analysis

- Marginal vs. Average
- Economic vs. Accounting

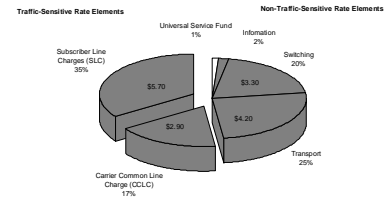
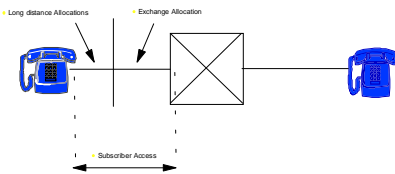
Telecommunications Demand

- Definition of Service
- Subscribers' Access
- Demand for Usage
- Externality

Telecommunications Demand



Telecommunications Demand



Role of Costs in Pricing

- Marginal Cost Pricing
- Ramsey Pricing
- Other Alternatives

Economic Efficiency

Telephony Guidelines

- Prices Based on Costs
- Define Service Correctly
- Avoid Cross-Subsidies
- Competition

Economic Efficiency

Pricing Practices

- **Fixed Costs, Fixed Prices**
- **Variable Costs, Variable Prices**

Economic Efficiency

Subsidies

- **No Cross-Subsidies**
- **Targeted Subsidies, if any**
- **Subsidies Financed by Government**

Equity Considerations

- **Universal Service**
- **Cross-Subsidies**

Targeted Subsidies
Service Subsidies

Theory of Monopoly

- **Definition**
- **Pricing Practices**
- **Constraint of Output**
- **Sustainability**
- **De jure versus de facto**
- **X-inefficiency**

Theory of Monopoly

Definition

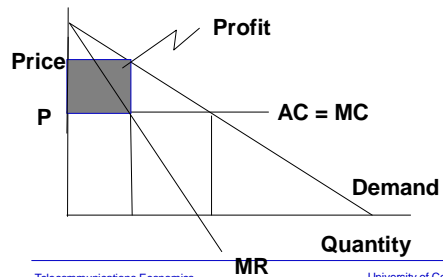
- **Economies of Scale**
- **Economies of Scope**

Theory of Monopoly

Pricing Practices

- **Higher Prices**
- **Constrain Output**

Monopoly



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Theory of Monopoly

- **Sustainability**

If economies of scale and scope exit, why would a firm want or need to keep out competition?

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Economics of Regulation

- **Rate of Return Regulation**
- **Essential Services**
- **Alternative Methods**
- **Competitive Provision**

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Rate of Return

- **Determining Capital**
- **Determining Rate**
- **Averch-Johnson**
- **Rate Structure**

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Cautions and Failures

- **Duopoly Fallacy**
UK Situation
Cellular Phone System
- **Extended Area Service**

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Role of Competition

- **Allocation of Resources**
- **Incentive for Efficiency**
- **Threat of Entry Discipline**

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Summary

- **Competition Desirable**
- **No Entry Restrictions**
- **Specific Transition Period**
- **Prices Cost-Oriented**
- **Incentive Regulation**
- **Targeted Subsidies, if any**

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Summary (continue)

- **Regulation in place**
- **Anti-Trust Required**
- **Interconnection determined**
- **Spectrum leased/sold**
- **Long Distance -- transition**

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