Econ 30010

Intermediate Microeconomic Theory

Production and Cost Summary and Outline

What products/services should a firm sell? How much of each product/service should be produced? What prices should a firm charge? Which technologies and inputs should be used in manufacturing products or providing services? These are the main questions every firm must address. Economic theory tells us that these questions are not independent. The best prices to charge depend on the relative costs of the firm's capital and labor, which in turn depends on the technologies being used, which is partly a function of the levels of production, which depend on the markets in which the firm operates, which in turn is a decision based on the prices the firm can reasonably expect to charge.

The key to answering these questions is to first study the relationship between costs and output decisions, not just for a single level of production, but for all possible levels of production. Economists call this relationship the **Cost Function**.

Outline

I. Measuring Productivity (Chapter 6)
- A. Production Function
- B. Marginal Products and Marginal Rates of Technical Substitution
- C. Technological Improvement

II. Productive Efficiency (Chapter 7)
- A. Technological efficiency (the absence of avoidable waste)
- B. Economic efficiency (cost minimization)
- C. Cost function

III. Economic Costs = Accounting costs + Opportunity costs (Chapter 7)
- A. **Accounting cost** = Actual or amortized cash payments.
- B. **Opportunity cost** = An assets profit-making potential in its best alternative use.

III. Cost Curves (Chapters 7 and 8)
- A. **Fixed and sunk costs**
- B. **Variable costs**
- C. **Average and marginal costs**

Key Concepts and Ideas
- Profit is maximized when each input's **value marginal product** equals its input price.
- Firms minimize costs by selecting input combinations for which the last dollar spent on each input increases output by the same amount.
- When an asset (money, land, labor, etc...) is used to produce a product or provide a service, the firm loses the opportunity to use that asset in all other applications. The value of these foregone profits in the best alternative application equals the asset's opportunity cost.
- Economic costs equal direct accounting costs plus opportunity costs.
- For any given planning horizon, a firm has fixed and variable inputs. Fixed inputs generate fixed costs. Variable inputs generate variable costs. Only the latter can be changed by changing how much is produced. The cost of fixed inputs becomes relevant only when the firm must decide whether or not to produce.

Important Skills
- Graph isoquants and isocost curves.
- Calculate the cost-minimizing combination of inputs for any level of output given factor prices and explain the economic intuition behind the relevant equations.
- Understand how factor prices affect input demands and firms cost
- Understand the difference between accounting costs and economic (or managerial) costs.
- Learn how to calculate and analyze production costs.

- Learn how to recover technology information from cost data.
- Distinguish between sunk, fixed, and variable costs.
- Identify opportunity costs.
- Calculate and graph average total cost, average variable cost, and marginal cost for a firm with a "standard" cost structure.