UNIT 3 – The Theory of the Firm

The "Theory of the Firm" is the heart of the microeconomics course.

- The material in this unit accounts for 40-55% of the AP Micro exam.
- The material is difficult because it is abstract.
- Students must be able to:
 - Differentiate between short-run and long run equilibrium for both a profitmaximizing individual firm and for an industry.
 - Understand the relationships among price, marginal revenue, average revenue, marginal cost, average cost, and profit.
 - Compare a monopolist's price, level of output, and profits with the price, level of output, and profits of a perfect competitor.
 - Understand why a monopoly is bad and competition is good.
 - Understand and evaluate government regulation of a monopoly.
 - Understand the kinds of market structures that range between monopoly and perfect competition.

Market Structure	Number of Firms	Differentiated or Homogeneous Product	Ease of Entry	Price- Setting Power	Non-Price Competition	Examples
Perfect Competition	Many	Homogeneous	Free or easy	None – Price Taker	None by firm	Wheat, corn, beef, and other ag products
Monopolistic Competition	Many	differentiated	Relatively easy	some discretion – mostly determined by market	Some	Fast food, gas, and other retail stores
Oligopoly	Few	Homogeneous or differentiated	Substantial barriers	Price leadership – some discretion	Extensive	Steel, beer, aluminum, cereal, cars, soft drinks, soap
Monopoly	One	Only product of its kind available	Blocked	Complete control	Firm's image – public relations	Utilities, local phone service

Types of Market Structure:

Market Models are used to Explain Market Structure.

- assumption that all firms want to maximize profits (Theory of the Firm)
- such behavior has varying effects on society and the economy depending on the market structure
- the real world is messy

The Costs of Production

Objectives:

- I. Application of Opportunity Costs
- II. The Interrelationships among these costs.
- III. Learn how to graph cost curves to see relationships.

ALL FIRMS HAVE COSTS!

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revenues - income a company receives (TR = P x Q)
costs - valuation in terms of money (fixed & variable)
profits - (TR - Costs = Profits)
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explicit costs -

• monetary payments a firm must make to an outsider to obtain a resource **implicit costs** –

• income a firm sacrifices (opp. cost) when it employs a resource it owns to produce a product rather than to sell the resource to someone else.

economic costs -

- any cost that must be made to obtain and use resources.
- explicit + implicit costs.

accounting profit – when revenue exceeds explicit costs.

- Accounting Profit = TR accounting (explicit) costs
- economic profit when revenue covers both explicit and implicit costs (pure profit)
 - Economic Profit = TR economic costs

fixed costs – costs that do not change with output.

variable costs – costs that increase as output increases, and vice versa.

total costs - all the costs of a firm.

• TC = FC + VC

average fixed costs (AFC) AFC = FC/Qaverage variable costs (AVC) AVC = VC/Qaverage total costs (ATC) ATC = TC/Q

marginal product (MP)

• the additional output produced when one additional unit of resource is employed. average product (AP)

• the total output produced per unit of a resource employed. marginal cost (MC)

• the extra (additional) cost of producing one more unit of output.

Law of Diminishing Returns

• as successive units of a variable resource (labor) are added to a fixed resource (capital or land), beyond some point the extra, or marginal, product that can be attributed to each additional unit of the resource will decline.

Short Run

- a period of time when at least one cost is fixed; when existing firms can increase the quantity of their output with their existing plants.
- a period of time too brief for a firm to alter plant capacity but long enough to permit change in how fixed plant is used.

Long Run

• a period of time long enough to change all costs. All costs are variable in long run.

COMMON QUESTIONS ASSOCIATED WITH COST CURVES

- Q. What is the relationship between MC and output?
- A. MC decreases and then rises as output increases.

Q. Why does MC fall then rise as output increases?

A. Increasing returns followed by diminishing returns.

Q. What is the difference between fixed and total costs?

A. Variable costs.

Q. Why does VC rise as output increases?

A. It costs more to produce.

Q. Why is FC a horizontal line?

A. It is a constant, it is not affected by output.

Q. Why does the TC curve have the same slope as the VC curve?

A. Because the difference between the two is fixed cost which is a constant.

Q. What happens to AFC as output rises? Why?

A. It falls because a constant (TFC) is divided by a greater output.

Q. What happens to AVC as output rises? Why?

A. It falls and then rises because of increasing outputs followed by diminishing returns.

Q. What happens to ATC as output rises? Why?

A. It falls and then rises because of increasing outputs followed by diminishing returns.

Q. What happens to MC as output rises? Why?

A. It falls and then rises because of increasing outputs followed by diminishing returns.

Q. At what unique point does MC cross AVC and ATC? Why?

- A. At the lowest point. If MC<ATC then ATC must fall IF MC>ATC then ATC must rise AVC and MC relations is same.
- Q. Why is MC the same whether computed from TC or VC?
- A. Fixed Cost is the difference between TC and VC and it is a constant. MC is the variable cost of the last unit produced.
- Q. What generalization can you make about price and MR under perfect competition?
- A. They are the same.
- Q. Why doesn't the perfect competitor lower the price to sell more?
- A. The seller is not large enough to affect the market, it is a price taker. Perfect competitors can sell all they want at the market price, so they have no incentive to lower price.

Q. What determines price at which the perfect competitor sells the product?

A. Market supply and market demand for the product.

PRICING UNDER PERFECT COMPETITION

Breakeven Point MR = MC = ATC

Economic Profit (MC = MR) > ATC

Economic Loss (MC = MR) < ATC

Classis Shutdown Mode (MC = MR) < AVC

MONOPOLY – AN IMPERFECT COMPETITOR

- when monopolist attempts to maximize profits, it results in a *misallocation of resources.*
- In LR, may make an economic profit, *BUT NOT allocatively or productively efficient.*
- Monopolists are price seekers (price makers). *They can change any price it wants BUT they can't repeal the law of demand.*
- Demand curve is downsloping.
- MR is less than price. (MR < P)
- MR and Price are different for a monopoly.

REGULATING MONOPOLY PRICING

- 1. Socially Optimal Price (Perfect Allocation)
 - **a.** P = MC = D
- 2. Fair Return Price (Break-even Point)
 a. P = ATC = D

MONOPOLISTIC COMPETITION and OLIGOPOLIES

OLIGOPOLY

- dominated by a few large firms; barriers of entry
- they act interdependently in output and pricing decision
- one firms actions very much affect a rival firms well being
- think manufacturing
- advertising is prevalent (usually on national scale)
- examples: auto industry, steel industry, photographic equipment industry, aircraft manufacturing, wholesale beer, breakfast cereal, infant formula, oil industry (OPEC), airlines, etc.

MONOPOLISTIC COMPETITION

- relatively large number of firms of small and moderate size. (Lots of competition)
- offers similar but not identical products (differentiated products)
- think retailing
- firms advertise (usually local level)
- examples include retail clothing, retail shoes, gas stations, fast food, car dealers, pizza restaurants, financial consulting services, video rentals.

Collusion

- an agreement, usually secretive, which occurs between two or more persons to limit open competition.
- rival companies within an industry that cooperate for their mutual benefit (dealing w/ pricing dilemma)

- OVERT COLLUSION
 - designed to control market; distinguishing feature is a formal agreement.
- PRICE LEADERSHIP
 - market leader sets price and others follow suit.
- COST-PLUS PRICING
 - what does it cost to make item; plus percentage markup

ALWAYS REMEMBER THAT THE REAL WORLD IS MESSIER THAN OUR MODELS.

Economies of Scale (economies of mass production)

- explains downsloping part of LR ATC Curves
- as plant size increases, a number of factors will lead to lower average costs of production:
 - labor specialization
 - o managerial specialization
 - efficient capital (better machinery)
 - Adam Smith identified division of labor and specialization as two key components to receive a larger return on production.

Constant Returns to Scale

- varies from firm to firm
- wide range of output between the output at which economies of scale end and diseconomies of scale begin.
- efficient in producing small or large batches

Diseconomies of Scale

- after time the expansion of a firm may lead to higher ATC
- main cause is difficulty of efficiently controlling and coordinating a firms operations as it becomes a large scale producer
- management gets farther from production as plan size increases.
- alienation of workers
- red tape