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| **Microeconomics Chapters 8&9: Perfect Competition** | |
|  | **Learning Objectives:** | |
|  | At the end of this unit you should be able to:   1. Explain the conditions necessary for a perfectly competitive market to exist 2. Use two approaches to explain how a firm might maximize its profits 3. Explain what is meant by break-even price and shut down price 4. Explain the benefits of a perfectly competitive market 5. Understand why perfectly competitive markets may fail to achieve desired results 6. Understand how too much of certain undesirable products might be produced in competitive markets 7. Understand why certain desirable products may not get produced at all |  |
|  | **Learning Materials:** | |
|  | * Chapters 8 and 9 - Principles of Microeconomics, Sayre & Morris | |
|  | **Overview of this Unit** | |
|  | In this unit and in the remaining units we will examine market structures. Market structures describe how trade occurs between buyers and sellers.  Market structures range from buyer dominated structures of Perfectly Competitive markets to seller dominated structures known as Monopolies.  In addition to these two extremes there are other types that fit in between known as, Monopolistic Competition, and Oligopolies.  In this unit we will be looking at the characteristics of the buyer dominated purely competitive market. | |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Features of Perfect Competition

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| **Unit 8 - Topic 1: Features of Perfect Competition** |
| A market exists when there is interaction between buyers and sellers with the intention of trade.  Combined a group of sellers selling similar products is known as an industry.  For perfectly competitive markets to exist, the industry, comprising of many individual firms must be selling identical products to a large number of customers.  Under such circumstances no single seller or buyer can control price in the market because no single firm or individual dominates   |  |  | | --- | --- | | **Perfect Competition (Purely Competitive Markets)** | | | **Number of Sellers** | **Many** | | **Type of Product** | **Identical** | | **Ease of Market entry and exit** | **Very Easy** | | **Sellers control over Price** | **None** | | **Example Industries** | **Commodities oil, iron ore, salt fish** |   ***Four conditions must exist for a market to be considered purely competitive:***   1. There must be many buyers and sellers, all of whom are price takers 2. There are no preferences shown by the buyer for one firm's products over **another’s.**. 3. Firms can easily enter the market to begin selling products to buyers and they can just as easily exit the market and stop selling product. 4. Everyone, buyers and sellers, have complete and timely information on products, prices and availability. |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    The Perfectly Competitive Industry and the Firm

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| **Unit 8 - Topic 2: The Perfectly Competitive Industry and the Firm** |
| As we have said, the firm is a very small and inconsequential player in a much larger competitive industry.  As such the firm has no influence on the price that it can get for its products. It is a price taker in the truest sense of the word no matter how much it decides to produce the market dictates how much it will buy and for what price.  The demand curve for the purely competitive firm therefore is flat (horizontal)  Taking the analysis further, if the individual firm decided to produce 100 units of output at a market set price of $10 per unit it would make Total Revenue of $1000. (Quantity (100 units) x Price ($10) = $1000 Total Revenue). Average revenue, the amount of revenue per unit would be the same as the price at $10 (Total Revenue ($1000)/Quantity (100 units) = $10).  So, in a purely competitive market Price and Average revenue is the same!  But that is not where the analysis stops.  If we were to increase the firm's production to 200 units a day, and remembering that price would stay the same because it is dictated by the market, the firm's revenue would increase from $1000 to $2000 (Price ($10) x Quantity ($200) = $2000) a $1000 increase in revenue generated by a 100 unit increase in production.  Effectively our Marginal Revenue would increase by $10 as well!  (Change in Revenue ($1000) / Change in output (100) = $10 Marginal Revenue.  From this we can conclude that in a perfectly competitive market, Price, Average Revenue and Marginal Revenue for a firm are always the same.   |  | | --- | | **In a Perfectly Competitive Market: Price = Average Revenue = Marginal Revenue** | |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Price Profit an Output

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| **Unit 8 - Topic 3: Price Profit an Output in a Perfectly Competitive Industry** |
| As we have seen, a firm has no influence on price in a perfectly competitive industry. A firm’s only real concern in such an industry is how to maximize profit. To determine profitability costs have to be considered.  With Revenue and Cost considerations in hand there are two basic methods that a firm can use to calculate the appropriate level of output that is required in order to achieve maximum profitability. These methods are Break-even and Marginal analysis.  ***Break Even Output Analysis***  Breakeven is considered to be the level of output that is required for revenues to cover all costs associated with running a firm. By definition, Breakeven occurs when a firm's profit is Zero. When factoring costs, they need to be classified as either Fixed or Variable. Fixed costs remain the same regardless of production output levels (e.g. The cost of building a paper mill is fixed) whereas Variable costs change and increase with each additional unit of output (e.g. the cost of making each roll of paper that is made in that paper mill). Total Costs then include the fixed and variable cost of each unit of production. To calculate Break Even we simply compare the total cost at each unit of production with the total revenue that can be achieved at each level of production. This will show us not only the point(s) at which we break even but also our points of maximum profitability.  In this example, you can see how breakeven is calculated (4 units of output) as well as the point of maximum profitability (7 units of output) over the possible range of output   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Units of Output**  (possible range of output) | **Total Revenue (Price x Quantity)**    **(Market Price of $10000/unit** | **Variable cost of $5000 per unit** | **Fixed Cost (By definition these are constant over the relevant range)** | **Total Cost** | **Profit (Loss)** | | 1 | 10000 | 5000 | 20000 | 25000 | -20000 | | 2 | 20000 | 10000 | 20000 | 30000 | -10000 | | 3 | 30000 | 15000 | 20000 | 35000 | -5000 | | 4 | 40000 | 20000 | 20000 | 40000 | 0 | | 5 | 50000 | 25000 | 20000 | 45000 | 5000 | | 6 | 60000 | 30000 | 20000 | 50000 | 10000 | | 7 | 70000 | 35000 | 20000 | 55000 | 20000 |   **Marginal Analysis for calculating Profitability**  Marginal analysis looks at the changes that occur in revenues and costs as production levels change. For calculating maximum profitability, we would want to see the point at which the positive difference between the extra revenue that we get by producing an extra unit of product exceeds the extra cost involved in making that additional product.  **Some basic rules flow from this simple concept as illustrated below:**  ****  If Marginal Revenue is greater than Marginal Cost, you will continue to produce more  ****  If Marginal Costs are greater than Marginal Revenue, you will produce less  ****  Maximum Profit occurs at the point that Marginal Revenue equals Marginal Cost |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Using Cost Analysis

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| **Unit 8 - Topic 4: Using Cost Analysis to Determine When to Shut Down** |
| Using Cost analysis to determine when to shut down a poorly performing firm  Having considered how to calculate the point of output that maximizes profitability for a firm operating in a purely competitive market, now let us turn our attention to the opposite end of the **firm's** economic spectrum: At what point should you close the doors if the firm is not living up to its potential?  The answer to this question depends on an understanding of the amount of loss that the firm is willing to incur by operating through this rough time.  Let's examine the following firms revenue and cost structure:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Units of Output**  (possible range of output) | **Total Revenue (Price x Quantity)**    **(Market Price of $10000/unit** | **Variable cost of $5000 per unit** | **Fixed Cost per year  (By definition these are constant over the relevant range)** | **Total Cost** | | 0 | 0 | 0 | 20000 | 20000 | | 1 | 10000 | 5000 | 20000 | 25000 | | 2 | 20000 | 10000 | 20000 | 30000 | | 3 | 30000 | 15000 | 20000 | 35000 | | 4 | 40000 | 20000 | 20000 | 40000 | | 5 | 50000 | 25000 | 20000 | 45000 | | 6 | 60000 | 30000 | 20000 | 50000 | | 7 | 70000 | 35000 | 20000 | 55000 |   This firm has fixed costs of $20,000.  Regardless if this firm operates or not, these costs will still be incurred (e.g. the mortgage on the factory will still have to be paid).  The worst loss that the firm can incur is the $20,000 per year that would occur if the firm shut its doors.  Knowing this the firm should refocus its efforts on minimizing its losses.  If by operating a firm could at least cover off its variable costs then any extra revenue could contribute to covering fixed expenses minimizing total loss.  For example, if the firm illustrated shut down it would incur a loss of $20,000 annually.  If instead it produced 1 unit of output it would still be operating at a loss - but only a loss of $15,000 (Total revenue of $10,000 less total costs of $25,000).  In this case it would make more sense to stay open! Of course the firm cannot continue to **lose** money indefinitely but it should take this time to restructure rather than close. |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Benefits of Perfectly Competitive Markets

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| **Unit 8 - Topic 5: The Benefits of a Perfectly Competitive Market** |
| Competition is good for the consumer because many sellers compete to sell. With this in mind, economists have cited key specific benefits of competition:  **PRODUCTIVE EFFECIENCY** — Production of an output at the lowest possible average cost (P = minimum Average Cost)  **ALLOCATIVE EFFECIENCY** — The production of the combination of products that best satisfies consumers demands (Price = Marginal Cost)  **COSTLESS SELF-COORDINATION** — The basic rules of supply and demand work perfectly in a purely competitive market.  Suppliers (the Industry) will supply an amount of product that matches the demand for that product. Price will settle at the equilibrium price.  **ECONOMIC FREEDOM** — firms can enter and exit the markets as they wish.  Neither one firm nor buyer can influence the market.  Buyers have considerable choice. |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Problems with Perfectly Competitive Markets

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| **Unit 8 - Topic 6: The Problems of Perfectly Competitive Markets** |
| Competition is good right?  Sometimes! There are defects in competitive markets that sometimes prevent them from achieving an efficient or equitable allocation of resources:  **INEQUALITY:**  the market is no guarantor of fairness, and income and wealth inequalities often seem endemic to competitive markets  **INSTABILITY:** Competitive markets are often unstable and periodically seem to move, without warning, from an expansionary boom to a reversionary slump  **SELF-DEFEATING COMPETITION:**  Competitive markets seem to contain the seeds of their own destruction because they easily admit forces that work to destroy competition.  **PUBLIC GOODS:**  Competitive markets do not ensure the production of a number of important goods and services known as public goods.  Public goods are goods that we all agree are needed but no one person is willing or able to buy.  Fire trucks are an example of this, as most people recognize the need for fire trucks but individuals are not willing to buy them.  **EXTERNALITIES:**  Competitive markets often encourage the overproduction of some products and the underproduction of other products because the marketplace has difficulty in integrating what are known as externalities. As well, things like pollution and waste are undesirable by products.  Government legislation, Taxation and permits are often cited as ways of **minimizing** market externalities. |
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EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Interactive Graph - Short-Run Profit Maximization

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| **Unit 8: Interactive Graph - Short-Run Profit Maximization** |
| **Graphing Exercise: Short-Run Profit Maximization**  A competitive firm is a price-taker, able to sell as little or as much as it desires at the going market price. In other words, demand for a competitive firm is perfectly elastic at the going price. Its only choice, then, is how much output, if any, to produce. Throughout, firms are assumed to maximize profits.  **Exploration: With respect to its output choice, what is the rule a competitive firm will follow to obtain maximum profits?** |

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| The graph shows the average- and marginal-cost curves of a typical competitive firm. Initially, price is $80 and the firm is producing 80 units per week. Its fixed costs are $2700 per week. To use the graph, click and drag the green triangle on the vertical axis to change the market price, hence the firm's demand curve. Click and drag the green triangle on the horizontal axis to change the firm's choice of output. Cost and profit data are shown in the box at right; clicking on the Show Profit/Loss button will provide a graphical illustration of the firm's profit or loss, profit in green and losses in red. Clicking the Reset button will restore all initial values. |

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| **Self Quiz** | | |
| ***1.*** | At the initial market price of $80 and output level of 80 units per week, how much profit is the firm earning? Is there any other output choice that provides a higher profit? | Show Answer |
| ***2.*** | Holding price constant at $80, compare price and marginal cost at various output levels. How should the firm adjust its output if price exceeds marginal cost? How should the firm adjust its output if price falls short of marginal cost? | Show Answer |
| ***3.*** | Suppose price rises to $100. How should the firm respond? Will its economic profits increase or decrease? | Show Answer |
| ***4.*** | If price suddenly falls to $60 per week, should the firm shut down? | Show Answer |
| ***5.*** | Experiment on your own. What is the rule for profit maximization? | Show Answer |
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-    Summary

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| **Unit 8 - Summary** |
| In this unit we discussed the distinction between a firm, an industry and a market operating in a competitive market environment. Key conditions exist for competitive markets to exist however these are difficult to find in the real world.  Firms that operate in a competitive market need to consider their cost structure in order to determine the level of production that is best for them sometimes it may even be preferable to operate even when the firm is losing money. |

EC1100 Microeconomics - PT (CL) - Unit 8.  Perfect Competition -    Suggested Problems

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| **Unit 8 - Suggested Problems** |
| In order to reinforce what you have learned in this unit, I suggest you review the following end-of chapter problems.  The following problems located in the text.  Once you have attempted this review   * Chapter 8, 36A, 37A, & 42A * Chapter 9, 36A |