Economics 201: Introduction to Macroeconomics
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First: Three Important Definitions

I. Revenue = Price*(Quantity sold) = "Sales"
   A. On a supply & demand graph, revenue is a rectangle (P*Q)
   B. In growth rates: (% change in revenue) = (% change in price) + (% change in Q)

II. Profit = Revenue – Costs
   A. Costs are generally an increasing function of the quantity produced (more on this later).
   B. The standard assumption in economics is that firms act to maximize their expected future profits.

III. Elasticity: A measure of responsiveness, the % change in one thing as a result of a % change in something else. (NOT the same as slope, but related.)

The Lemonade Stand

The little kid who runs this stand is a local monopolist.
Cost per unit = $0.15 per cup of lemonade.
Profit = Revenue - Costs

Price	Quantity Demanded	Revenue P*Q	Costs	Profit
$0.60	0			
$0.50	5			
$0.40	10			
$0.30	15			
$0.20	20			
$0.15	22.5			
$0.10	25			
$0	30			

What happens to total revenue as the price changes from very low to middle? From middle to high?

What price should be chosen to maximize revenue? Profit?

What is true about changing the price around the point where revenue is at a maximum?

Suppose that this kid could price discriminate. That is, she could sell cups of lemonade at lower prices to some customers who were not willing to pay the monopoly price she had set for the market as a whole. What is the lowest price she would tolerate for some customer? Would do this increase her profits? [Suppose that she could identify a group who just would not pay $0.40 for a cup, but would pay $0.20. If she could cut her price to this group and thus sell ten more cups at $0.20 each, she would earn $0.05 profit on each additional cup and come out with a total profit of $3.00. This however assumes that none of the people who would have paid $0.40 can sneak in and buy their cups at the lower price.]

Price Discrimination, Market Segmentation, Marginal Cost Pricing

I. When competition is imperfect, P > Average Cost and P > Marginal Cost of production
II. Incentive to increase profit by cutting prices to those who won't pay full price, but will pay more than the cost of producing the extra units. (Won't pay 40 cents, but will pay more than 15 cents)
III. Also incentive to charge higher prices to people who will pay them, for whatever reason.
IV. Price discrimination: Charge people different prices based upon their willingness to pay
    A. Charge people whatever they are willing to pay, as long as it's above the marginal cost of production.
V. Limited by competition
VI. This is a good thing in that it increases economic surplus
VII. Examples:
    A. Haggling in markets, houses, cars
    B. Outlet malls on the edge of town
    C. Matinee movies and cheap lunch prices
    D. Student and senior citizen discounts
    E. Airline advanced tickets and weekend stays versus
    F. Coupons
    G. College financial aid
    H. Hardback versus paperback books

Market Structure, Revenue, Profit, Elasticity of Demand

I. Why do we have different market structures? Why are some markets perfectly competitive (supply curve, lots of competing firms), some oligopolies (a few sort-of-competing firms), and some monopolies (only one firm)?
   A. Barriers to entry: Oligopoly or monopoly may result because other firms are prevented from doing business in the industry.
   B. Government may restrict entry (Adam Smith hated this! Think of the Post Office.)
   C. Only one of a few firms may have access to the patents or trade secrets that allow production of the good.
   D. Only one of a few firms may have access to the scarce resources that allow production of the good.

II. Economies of scale versus the overall size of the market
   A. Perfectly competitive markets would be expected where firms can be competitive as a size that is much smaller than the total market for the product ("the Minimum Efficient Scale or MES for a firm is small relative to the overall size of the market at a price near the minimum AC"). That is, lots of firms could fit into the market. (MES is small relative to the total market.)
   B. Oligopoly would be where only a few firms could "fit" into the market ("the MES is so large that only a few firms could fit into the market).
   C. Monopoly is one firm in the industry, limited only by its costs and the demand curve for the market.

Market Structure

I. Perfect competitors
   A. Lots of firms in the market for very, very similar goods, each small relative to the entire market
   B. Market price close to average cost of production, so very little profit, "Economic profit equals zero, after accounting for opportunity costs"
   C. Each takes the market price as given ("price takers") and know that their individual behavior will have no effect on the market price. :
   D. Can't charge more than the market price or will lose all customers to others
   E. Can't charge less than the market price and still cover cost of production
   F. Farmers are the classic example
   G. Supply curve behavior, upward sloping if some fixed factor is used by

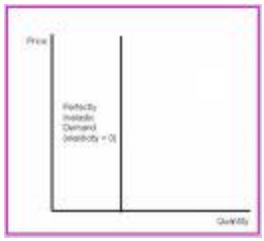
all firms and becomes congested with more use

II. Oligopoly
    A. A few firms in "sort of" competition, some product differentiation
    B. Firms face both incentives to compete and to cooperate (collude)
    C. Price wars: Airlines, cars, Colleges, campus bookstores, breakfast cereals, OPEC
    D. No real supply curve in this case
III. Monopoly
    A. One firm dominates whole market, like Lemonade Stand Example
    B. Limited by demand and own costs, but not competition (explicitly at least)
    C. Supply curve difficult again.
    D. Sometimes "economies of scale" are so large in an industry that the cheapest way to produce goods is for a monopoly to do it rather than two smaller and less efficient firms. (Examples: Electricity, water, local phone service, and maybe computer operating systems. This is known as a "natural monopoly and the prices charged by such firms are usually regulated by government.)
    E. "Price maker", sets market price (and thus the quantity is sells) to maximize its profit.Little or no fear of "entry" from other firms, barriers to entry (legal, technological, size), or else may not be able to behave as monopolist

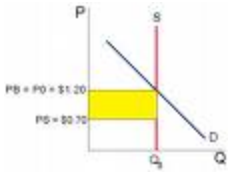
Elasticity of Demand

I. A measure of responsiveness, the % change in one thing as a result of a % change in something else. (NOT the same as slope, but related.)
II. There are many kinds of elasticities in economics, elasticity of supply, income elasticity, cross-price elasticity, but the one we care most about in this class is **elasticity of demand**.
III. Extreme examples of elasticity of supply and demand:

    A. “Perfectly inelastic” demand is vertical. No matter what price is charged, demanders will buy the same amount. Insulin? (But remember, elasticity is not slope!)

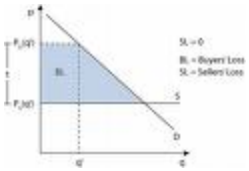


B. "Perfectly inelastic" supply is vertical. No matter what price is charged, suppliers will offer the same amount. Spring water? (But remember, elasticity is not slope!)



C. "Perfectly elastic" demand is horizontal. From a given starting point with a price and a quantity demanded, if the price rises be even a penny, quantity demanded falls to zero. But if the price falls by a penny from the original price, quantity demanded heads toward infinity. Demand for apples from one particular farm in a homogeneous market?

D. "Perfectly elastic" supply is horizontal. From a given starting point with a price and a quantity supplied, if the price rises be even a penny, quantity supplied heads to infinity. But if the price falls by a penny from the original price, quantity supplied goes to zero. I've got no idea for an example here.



Elasticity of Demand

I. Elasticity of demand (specifically "own-price elasticity of demand") examines what the percentage change in quantity demanded would be for a given percentage change in price.

II. Elasticity of demand answers the important question of, "What happens to a firm's revenue when it raises the price of its product? Or cuts it?"

[Remember: Revenue is not the same thing as profit].

III. Three basic types of elasticity of demand

   A. Elastic demand: People's decision to buy is very much affected by price
      i. Cutting price causes so many more people to buy that total spending on the good rises
      ii. Raising price causes so many people to cut back spending on the good that total spending on it falls
   B. Inelastic demand: People don't change their buying much because of price
      i. Cutting price doesn't attract many new customers so total spending on the good falls.
      ii. Raising price causes so few people to stop buying that continued spending by those who remain causes total spending on the good to rise.
      iii. Necessities for which there aren't good substitutes
   C. Unit elastic: The amazing in-between case
      i. No matter if price rises or falls, the amount purchased changes by just enough so that total spending stays the same.
      ii. Dental care?

I. Revenue Test: What happens to revenue as price changes? Definition: (Sales) = Revenue = Price * Quantity
   A. Elastic demand: If price rises, revenue falls. (Price and revenue move opposite directions)
   B. Unit elastic demand: If price rises, revenue is unchanged.
   C. Inelastic demand: If price rises, revenue rises. (Price and revenue move in the same direction)
   D. Note: **Elasticity is not the same thing as slope**, but they are related. (Elasticity of demand is about the change in the area of the revenue rectangle under a line.) However, at the extremes (perfectly elastic or inelastic demand or supply) where the slope tells us the elasticity. There are also times when a curve can be elastic, unit, or inelastic throughout its range.
      i. Perfectly inelastic: Vertical (infinite % change in P has zero effect on Q)
      ii. Perfectly elastic: Horizontal (infinitesimally small % change in P has infinite % change in Q)

Elasticity of Demand Examples

Price	Quantity Demanded	Revenue = P*Q
$4	20	$80
$3	30	$90
$2	60	$120
$1	150	$150

This demand curve is _____ over the given range.

Price	Quantity Demanded	Revenue = P*Q
$4	50	$200
$3	60	$180
$2	75	$150
$1	100	$100

This demand curve is _____ over the given range.

Price	Quantity Demanded	Revenue = P*Q
$4	25	$100
$3	33.3	$100
$2	50	$100
$1	100	$100

This demand curve is _____ over the given range.

Price	Quantity Demanded	Revenue = P*Q
$0.60	0	$0
$0.50	5	$2.50
$0.40	10	$4.00
$0.30	15	$4.50
$0.20	20	$4.00
$0.15	22.5	$3.375
$0.10	25	$2.50
$0	30	$0

This demand curve is _____ over the given range. Hmm…tricky…but then ELASTICITY IS NOT SLOPE!

Answers to monopoly problem

Price	Quantity Demanded	Revenue P*Q	Costs	Profit
$0.60	0	$0	$0	$0
$0.50	5	$2.50	$0.75	$1.75
$0.40	10	$4.00	$1.50	$2.50
$0.30	15	$4.50	$2.25	$2.25
$0.20	20	$4.00	$3.00	$1.00
$0.15	22.5	$3.375	$3.375	$0
$0.10	25	$2.50	$3.75	-$1.25
$0	30	$0	$4.50	-$4.50