Econ 101 Discussion Section-Handout 8

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1 Review

- Review Price Elasticity of Demand and Total Revenue
  - What is the relationship between elasticity and the change in total revenue in respond to a change in the price?
  - What is a unit elastic point?
  - How to maximize total revenue?
- Elasticity Formulations
  - What is regular percentage change?
  - What is arc percentage change?
  - What are the three formulations of elasticity: regular percentage elasticity, arc percentage elasticity, and point (slope form) elasticity?
- Types of Elasticity
  - Demand Elasticity Do we take absolute value? Why? What are the determinants of demand elasticity?
  - Income Elasticity of Demand Do we take absolute value? Why? What is a normal good? Inferior good?
  - Cross Price Elasticity of Demand Do we take absolute value? Why? What goods are substitutes? Complements?
  - Price Elasticity of Supply What are the determinants of supply elasticity?
- Real and Nominal Variables
  - What is a market basket? How to find the market basket? What is a base year?
  - What is CPI? How to calculate CPI? What is a scale factor? What is inflation? CPI in a particular year=(Cost of market basket in that particular year)/(Cost of market Basket in the base year)×Scale factor
  - What is nominal price? What is real price? Real Prcice=(Nominal price)/(Inflation Index)×Scale factor
  - What is the percentage change in nominal price? What is the percentage change in real price? What happen to nominal price and real price when the base year is changed? How to backtrack CPI, real price and inflation rate if the base year is changed?

2 Problems: Elasticity and Real and Nominal

1. Problem 1 (Basics of Elasticity)

   (a) Suppose the price of one cup of taro bubble tea decreases from $8 to $6, and the quantity demanded increases from 10 to 15 cups. What is the regular price elasticity of demand using the standard percentage formula? What is the arc price elasticity of demand?

   (b) Again consider taro bubble tea. The price of one cup of taro bubble tea increases from $6 to $8, and quantity demanded decreases from 15 to 10 cups. What is the regular price elasticity of demand using the standard percentage formula? What is the arc price elasticity of demand? Compare your calculations here with the calculations you made in a

   (c) Gabo's cross-price elasticity of demand for chocolate chip cookies with respect to the price change in brownies is equal to 2. Are brownies and chocolate chip complements or substitutes for Gabo? Suppose that the price of brownies increases by 10%. What is the percentage change in the quantity demanded of chocolate chip cookies? What if this elasticity is equal to 0?

   (d) Dean's income elasticity of demand for coke zero is -1.5. Is coke zero a normal or an inferior good for Dean? If Dean's income increases by 15%, what would happen to his quantity demanded? What if this elasticity is equal to 0?

2. Suppose that market demand for tickets of Gone Girl is given by: Q = 20 + 3*A – 2*P + 4*Y; where Q is the number of ticket sale (in unit of million tickets), P is price per ticket (in dollars), Y is average weekly income of consumer (in thousands dollars), and A is the budget that filmmaker spends on advertising its movie (in million dollars).

   (a) Treating all other factors fixed as constant value, how does the spending on ad-campaign affect consumer demand's decision?

   (b) Suppose that the price per ticket $9 and budget on ad-campaign is $2 million. Calculate both point elasticity of demand at initial income and arc income elasticity of demand when income increases from $1,000 to $2,500.

   (c) Now suppose that income is $250 and budget on ad-campaign is $1 million. Calculate price elasticity using both point price elasticity of demand at initial price and arc price elasticity of demand when ticket price drops from $9 to $8.

   (d) Based on (c), how much should theater manager charge consumers to get the highest revenue? How much maximum revenue can they get?

3. Suppose you want to compare the prices and wages in 2010 to what they were back in 1910. You collect the following data:

Year	Cost of market Basket	Nominal Price of Gas	Nominal price of haircuts	Nominal hourly wage
1910	$50	$0.25	$2.5	$0.5
2010	$400	$4.00	$20.00	$8.00

   (a) Using 1910 as the base year, which of the following statements is FALSE?

      i. The real price of gas in 2010 is $0.50 (in 1910 dollars.)
      ii. The percent change in the real price of gas from 1910 to 2010 is 100%.
      iii. The real price of haircuts in 2010 is the same as it was in 1910.
      iv. The increase in the real price of haircuts from 1910 to 2010 was $2.50 (in 1910 dollars).

4. (b) What was the change in the real wage from 1910 to 2010 in terms of 2010 dollars? What was the percentage change in the hourly wage from 1910 to 2010?

   (a) 1. In equilibrium, equalizing demand and supply yields P=36, Q=640

   (b) Assume recently, an environmentalist successfully make a fish-protecting proposal to city hall so that only licensed fishing is allowed at Lake Mendota. One fishing license qualifies 5 units of fish, and totally 100 licenses are distributed. What is the price that fish supplier receives?

   (c) What good (gas, haircuts, and labor) experiences the greatest nominal increase in price? What good experiences the greatest real increase in price?