**Concepts of “Percent Change” and**

**“Elasticity of Demand”**

**Percent Change**

The first thing we will cover is the concept of percent change. One can not compute elasticity of demand without first calculating the percent change of price and the percent change in quantity. The formula for percent change (midpoint method) is:

Q: What do I mean by “New?”

A: I refer to “New” as the new price or the “New” quantity. For that matter, any new value ton which we are calculating the percent change.

**Example 1:**

Q: Suppose the price of one pound apples in 2002 was $2. The price of one pound of apples is $3 in 2003. What it is the percent change of one pound of apples?

A: The “Old” price relates to the oldest price mentioned in the question. That price is $2.

The “New” price relates to the newest price mentioned in the question. That price is $3.

The calculation of percent change in price is:

**Example 2:**

Q: Suppose that a college football player make approximately the same as a PhD candidate at the university (Cost of living expense payment). Let us say his income is $12,000 plus tuition a year. Thus, his annual income is $24,000 for 2006. Now let us assume that this athlete was a great football player and got drafted on the 10 round of the draft. (Let us not forget that any player who s drafted is a great athlete, even if he gets drafted on the 10th round of the NFL draft). His new income for 2007 is the minimum wage for NFL football players of $350,000. What it is the percent change in income for this athlete?

A:

The “Old” income relates to how much he was being paid in 2006. That income is $24,000.

The “New” income relates to how much he is now getting paid in 2007 (the latest year). That income is $350,000.

The calculation of percent change in price is:

*Put the new and old values were they belong:*

*Do the additions and subtractions within the parenthesis:*

*Divided the denominator by “2”:*

*Divided the numerator by the denominator:*

*Multiply by “100,” and add the percent sign:*

**Elasticity**

Now that we have covered the concept of percent change, we can calculate elasticity of demand, or supply. We can also calculate cross elasticity of demand and income elasticity. The formula for elasticity using midpoint method is:

The price elasticity of demand looks at how responsive people are to a small change in price.

**Easy way to think about elasticity:**

If the percent change in the quantity is greater than the percent change in the price, then the product is elastic. In other word, if the numerator (%ΔQ) is greater than the denominator (%ΔP), the product faces an elastic demand.

If the percent change in the price is greater than the percent change in the quantity, then the product is inelastic. In other word, if the denominator (%ΔP) is greater than the numerator (%ΔQ), the product faces an inelastic demand.

**Example:**

In 2005 the price of gas was $1.50 and we consumed 1 billion gallons a month. In 2006 the price of gas was $3.50 and we consumed 990 million gallons a month. What is the price elasticity of demand?

*Set it up (using new and old) as:*

*Do all additions and subtractions:*

*Divide the formulas within the brackets:*

*Cancel the “100”*

*Divide what is left:*

*Remove the absolute value:*

The elasticity of gas is below “1,” so it is inelastic.