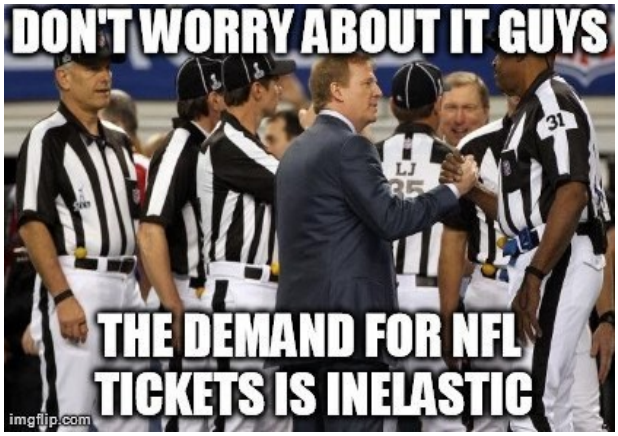
# Who Cares about Elasticity Coefficients?

## If you know how to find one, here is what it tells you:




The word elasticity basically means responsiveness or sensitivity in everyday language. In fact, when the economist wants to know how "price elastic" the demand for apples is, all he really wants to know is how the demand for apples "responds" to a change in the price of apples.

**if $E_D > 1$, then demand is elastic** If **demand is relatively responsive—in percentage terms—to changes in price**, it is "elastic" ($E_D$ is greater than one).

**if $E_D = 1$, then demand is unit elastic:** When $E_D$ is equal to one at a point (or between points) demand is said to be "unit elastic" at that point (or between those points).

**if $E_D < 1$, then demand is inelastic:** If $E_D$ is less than one, **the amount demanded is relatively unresponsive—in percentage terms—to changes in price**. In this case, demand is said to be "inelastic."

Example: Let's answer the following question: Suppose Antonio's raises the price of pizzas by ten percent and finds that the purchase of pizzas by customers falls by five percent. What is the elasticity of demand for pizzas with respect to their price at Antonio's?

The calculation is simple: Use the second term in the above equation and simply plug in the amounts:

$$E_D = \frac{\% \Delta Q_x^D}{\% \Delta P_x} = \frac{-5}{10} = -.5$$

This is the formula we looked at in class!

**Who cares???** **So what exactly does the elasticity coefficient tell us?**

****This means that each one percent rise in the price of pizzas results in a one-half of one percent decline in the consumption of pizzas.**

## Elasticity of Demand is NOT Slope!!!

### Because step demand curves are relatively inelastic, we tend to think of elasticity as being slope. It isn't!!!

Even at a constant slope, goods will have different elasticity coefficients at EACH part of the demand curve. Did that just blow your mind? It's about *percentage* change, y'all!

**Influences on the Price Elasticity of Demand:**

1. Time. (over a set amount of time – see our water game)

2. The proportion of one's budget spent on the good. (does it cost a lot, compared to your income?)

3. Are there readily available substitutes?

*In the table below, look at some goods that are elastic + inelastic: Now this should start making sense!*

| Estimated Price Elasticities of Demand for Various Goods and Services | |
|---|---|
| **Goods** | **Estimated Elasticity of Demand** |
| *Inelastic* | |
| Salt | 0.1 |
| Matches | 0.1 |
| Toothpicks | 0.1 |
| Airline travel, short-run | 0.1 |
| Gasoline, short-run | 0.2 |
| Gasoline, long-run | 0.7 |
| Residential natural gas, short-run | 0.1 |
| Residential natural gas, long-run | 0.5 |
| Coffee | 0.25 |
| Fish (cod) consumed at home | 0.5 |
| Tobacco products, short-run | 0.45 |
| Legal services, short-run | 0.4 |
| Physician services | 0.6 |
| Taxi, short-run | 0.6 |
| Automobiles, long-run | 0.2 |
| *Approximately Unitary Elasticity* | |
| Movies | 0.9 |
| Housing, owner occupied, long-run | 1.2 |
| Shellfish, consumed at home | 0.9 |
| Oysters, consumed at home | 1.1 |
| Private education | 1.1 |
| Tires, short-run | 0.9 |
| Tires, long-run | 1.2 |
| Radio and television receivers | 1.2 |
| *Elastic* | |
| Restaurant meals | 2.3 |
| Foreign travel, long-run | 4.0 |
| Airline travel, long-run | 2.4 |
| Fresh green peas | 2.8 |
| Automobiles, short-run | 1.2 - 1.5 |
| Chevrolet automobiles | 4.0 |
| Fresh tomatoes | 4.6 |

Note: Short-run is less than a year. Long-run is more than a year.
Source: http://www.mackinac.org/article.aspx?ID=1247

**Why do I need to know this?**

Imagine you are the seller of something. Knowing the demand elasticity of your product will tell you how to **maximize your profits**!

<u>Look at the Total Revenue at each point in the curve!</u>

An important relationship to understand is the one between elasticity and total revenue or total receipts (where total revenue or total receipts = P X Q):

Total Revenue = Price x Quantity

Total Revenue - Total Costs = Profit

So, if you sell pizzas:

When you think about it, all of this makes sense. If the demand for pizzas is responsive to changes in price, when the price falls, people will increase the number of pizza they demand. Therefore, although each pizza costs less, total revenue increases because people are buying so many more pizzas. On the other hand, if the demand for pizzas is not responsive to changes in price, a fall in the price of pizzas will also mean a fall in total revenue. This is because the same (or close to the same) number of pizzas are demanded, but each one is sold for a lower price.

# The Total Revenue Test: Something you can use!

Now, put your "good" to the total revenue test!

## Demand is "Elastic" if...

**If total revenue rises when the price falls, the demand is elastic.**

**If total revenue falls when the price rises, the demand is elastic.**


## Demand is "Inelastic" if...

**If total revenue falls when price falls, the demand is inelastic.**

**If total revenue rises when price rises, the demand is inelastic.**