

# Mankiw Macro Chapter V: Elasticity and its Application

## Introduction (pg 89)

It is fairly easy to determine in what direction something happens

If the supply of oil shifts in, we consume less of it.

It is more difficult to determine how much less

**Elasticity** helps us to actually determine the magnitude of changes

In the example of Oil, a 10% price reduction will

Reduce consumption about 2.5% in the SR (less than a year), and

Reduce consumption about 6% in the LR (5 years), through

Reduced travel, and

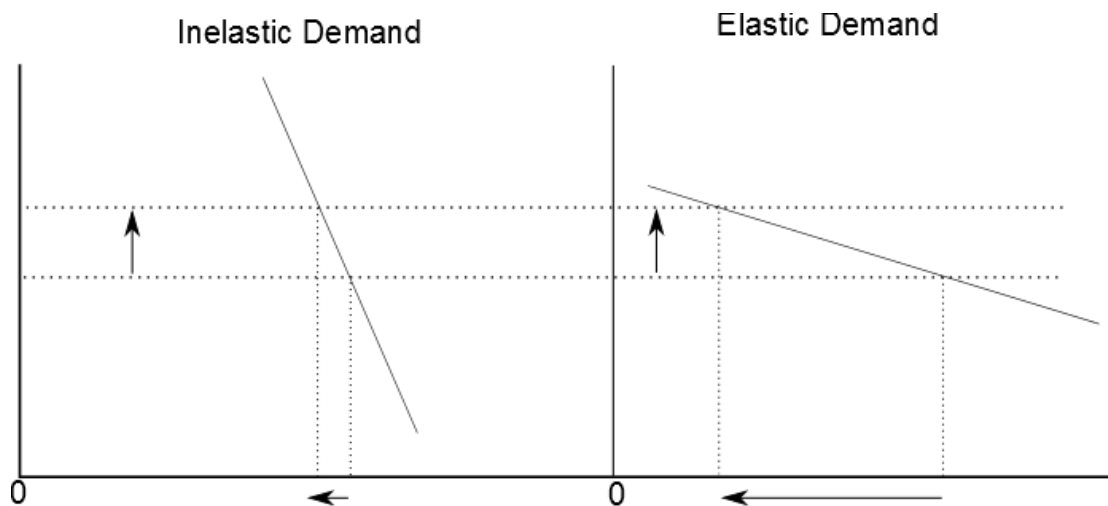
Better fuel efficiency

## Price Elasticity of Demand

A measure of how much the quantity demanded of a good responds to a change in the price of the good

Elastic Demand: The change in Quantity Demanded is large

Inelastic Demand: The change in Quantity Demanded is small



So, what determines the Price Elasticity of Demand?

Example 1. Coke and Pepsi, Butter and Margarine, Eggs and.....

**The more close substitutes, and the more accessible they are, the more price elastic a good is.**

Example 2. Food vs. Travel

**“Necessities” tend to have an inelastic demand, while luxuries have a more elastic demand. (how people define necessities varies however....)**

Example 3. Food vs. Japanese food, vs. Sushi, vs. Sashimi, vs. Fugu

**The narrower our definition of a market, the more inelastic the demand, but as we broaden our definition of the market, demand becomes more elastic.**

Example 4. Gasoline, (or energy....?) (Counter-example: short term food costs...)  
**The shorter the time horizon, the less elastic demand will be. With more time, people can adjust to higher/lower prices, and price elasticity will increase.**

**Computing Price elasticity. (pg 91)**

Price Elasticity of Demand  $PEd = \% \text{change } Qd / \% \text{change in } P$

This is not actually a constant, it depends on where we start....

<u>Price of Sushi</u>	<u>Quantity Demanded</u>
<u>100</u>	<u>1</u>
<u>80</u>	<u>2</u>
<u>60</u>	<u>3</u>
<u>40</u>	<u>4</u>
<u>20</u>	<u>5</u>

**FOR OUR PURPOSES, WE WILL HAVE THREE SORTS OF GOODS....  
*INELASTIC, ELASTIC, NORMAL***

## **Other Demand Elasticities (Pg 97)**

### **Income Elasticity of Demand**

How much does demand shift if income goes up or down? Normal goods have a positive income elasticity (Qd rises with Income), Inferior goods have a negative income elasticity (Qd falls as income rises).

We model this as how much does the demand curve shift as income rises/falls

Example: Mama and Sushi

### **Cross price Elasticity of Demand:**

How much does demand shift if the price of another good changes? Is the change positive (Substitutes) or negative (complements).

Example: Hot dogs and burgers, hot dogs and ketchup

O.K. APPLICATIONS.....

Elasticity and Total Revenue....

Total revenue is simply the quantity sold, times the price.

What happens to total revenue when you increase price on an elastic good

An Inelastic Good?

Example: Vaping and protecting people from the dangers of cigarettes

**The Elasticity of Supply (price elasticity of supply) pg 98**

**Calculating it is similar to how you would do so for demand...  
You don't need to know how to.**

**As with demand, we will have 3 different Price Elasticity of Supply,  
Elastic, Inelastic, Normal.**

Example 1. Why do farmers pray for bad weather?

Example 2. OPEC and the price of Oil.

### Example 3. The War on Drugs