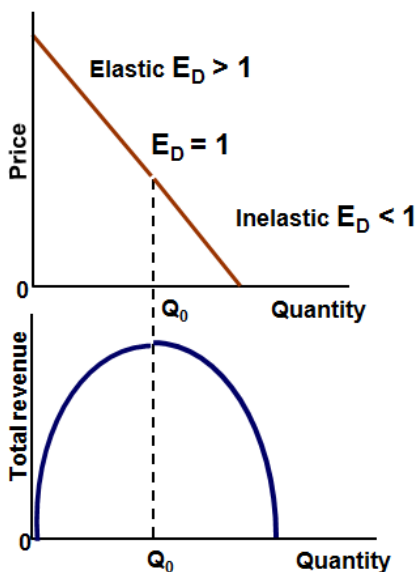# Elasticity of demand and total revenue

The elasticity of demand tells suppliers how their total revenue will change if their price changes.

Total revenue equals total quantity sold multiplied by price of good.

Total Revenue Along a Demand Curve

With **elastic** demand – a rise in price lowers total revenue TR increases as price falls.

With **inelastic** demand – a rise in price increases total revenue and TR decreases as price falls.

If E_D is inelastic ($E_D < 1$), a rise in price increases total revenue.

If E_D is unit elastic ($E_D = 1$), a rise in price leaves total revenue unchanged

If E_D is elastic ($E_D > 1$), a rise in price lowers total revenue.

Elastic Demand and Total Revenue

Elastic Demand: Elasticity > 1

Percentage change in quantity is greater than percentage change in price

Raise Price: quantity demanded falls more → Higher price, lower total revenue

Lower Price: quantity demanded rises more → Lower price, higher total revenue

Example of Elastic Demand and Total Revenue

Price of Tim Horton's coffee Rises 10% from $.95 to $1.05
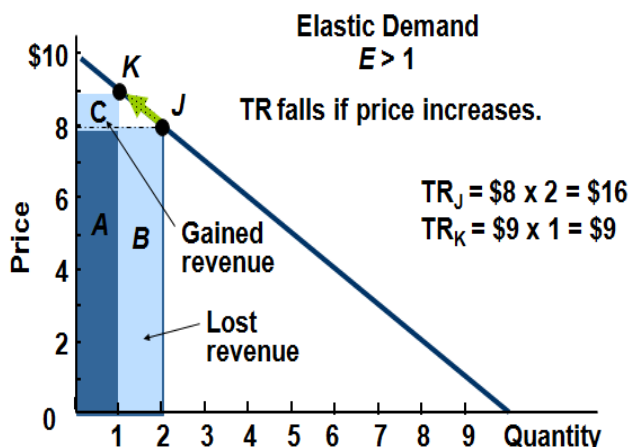
Quantity Falls 20% from 110 to 90 cups per hour

Elasticity = 20%/10% = 2

Total Revenue before the price rise:

$.95 * 110 = $104.50

Total Revenue after the price rise:

$1.05 * 90 = $94.50

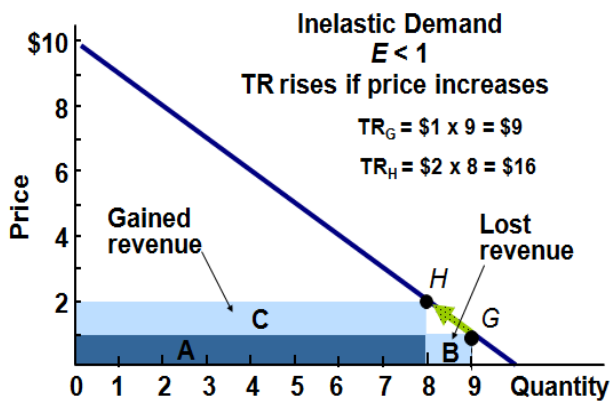$TR_J = \$8 \times 2 = \$16$

$TR_K = \$9 \times 1 = \$9$

Inelastic Demand and Total Revenue

Inelastic Demand: Elasticity < 1

Percentage change in quantity is less than percentage change in price

Raise Price: quantity demanded falls less → Higher price, higher total revenue

Lower Price: quantity demanded rises less → Lower price, lower total revenue

Inelastic Demand
$E < 1$
TR rises if price increases

$TR_G = \$1 \times 9 = \$9$

$TR_H = \$2 \times 8 = \$16$

Gained revenue

Lost revenue

Example of Inelastic Demand and Total Revenue

Price of gasoline Rises 10% from 66.5 cents to 73.5 cents

Quantity Falls 5% from 205 to 195 liters per hour

Elasticity = 5%/10% = .5

Total Revenue before the price rise:

$.665 * 205 = $136.33

Total Revenue after the price rise:

- $.735 * 195 = $143.33