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Economics / EC231-01
Elasticity: Practice Problems

Elasticity Practice Calculations. Show all of your work and interpretations.

1) According to *WSJ* data, in 2006 a gallon of milk was $2.99. In 2007, a gallon of milk was $3.90. Let's assume that demand for milk decreased slightly from a gallon (128 oz.) to 120 oz. from 2006 to 2007. Calculate the price elasticity of demand for milk over this time period.

(Q_1, P_1) (Q_2, P_2)
$(128, 2.99)$ $(120, 3.90)$

$\frac{Q_2 - Q_1}{(Q_2 + Q_1)/2} \times 100 \quad \frac{(120-128)}{(120+128)/2} \times 100$

$\frac{-8}{124} \times 100 = -6.45$

$\frac{P_2 - P_1}{(P_2 + P_1)/2} \times 100 = \frac{(3.90 - 2.99)}{(3.90+2.99)/2} = \frac{.91}{3.445} \times 100 = 26.4\%$

-6.45%
26.42%

$\frac{\Delta Q}{\Delta P} = \frac{-6.45}{26.42}$

$.24$

price elasticity for milk

2) The office vacancy rate for New York City in 2006 was 13.8% in the 2nd Q. This office vacancy rate declined to 13. 5% in the 3rd Q. The office rent was $21.41sq ft. in the 2nd Q. and $21.90 sq ft. In the 3rd Q. What was the demand response to this slight change in office rent?

(Q_1, P_1) (Q_2, P_2)
$(13.8, 21.41)$ $(13.5, 21.90)$

$\frac{(13.5 - 13.8)}{(13.5 + 13.8)/2} = \frac{-.3}{13.65} \times 100 = -2.30$

$\frac{(21.90 - 21.41)}{(21.90 + 21.41)/2} \times 100 = \frac{.49}{21.65} = 2.26$

$\frac{-2.30}{2.26} = -1.01$

demand response to this slight change in office rent

3) For 2012, according to the *WSJ* (10/3/12), office rents in the country as a whole went from $28.23 sq ft. to $28.29 sq ft. from the 2nd Q. to the 3rd Q. Likewise, over the same period, the office vacancy rate went from 17.1% to 17.2%. Calculate the elasticity for office vacancy in the U.S. in 2012 from the 2nd Q. to the 3rd Q.

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$Q_2(Q_1)$ $Q_3(Q_2)$

$(17.1, 28.23)$ $(17.21, 28.29)$

$$\frac{28.29 - 28.23}{(28.29 + 28.23)/2} \times 100 \qquad \frac{.06}{28.26} \times 100 = .21$$

$$\frac{17.2 - 17.1}{(17.2 + 17.1)/2} \times 100 \qquad \frac{.1}{17.15} \times 100 = .58$$

$$\frac{.21}{.58} = \boxed{.36}$$

elasticity for office vacancy in the U.S in 2012 from Q_2 to Q_3