HW#7 Due Feb 15, 2022

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3. Suppose the price elasticity of demand for heating oil is 0.2 in the short run and 0.7 in the long run.

   a. If the price of heating oil rises from $1.80 to $2.20 per gallon, what happens to the quantity of heating oil demanded in the short run? In the long run? (Use the midpoint method in your calculations.)

   b. Why might this elasticity depend on the time horizon?

7. Suppose that your demand schedule for pizza is as follows:

Price	Quantity Demanded (income = $20,000)	Quantity Demanded (income = $24,000)
$8	40 pizzas	50 pizzas
10	32	45
12	24	30
14	16	20
16	8	12

   a. Use the midpoint method to calculate your price elasticity of demand as the price of pizza increases from $8 to $10 if (i) your income is $20,000 and (ii) your income is $24,000.

   b. Calculate your income elasticity of demand as your income increases from $20,000 to $24,000 if (i) the price is $12 and (ii) the price is $16.

3a) mid point = $\frac{\Delta D\%}{\Delta P\%}$

a) $\frac{\% \Delta Q}{\frac{1.80+2.20}{2}} = 0.2$

$= 0.2(2)$

$= 0.4$

the quantity demand decreases 4% when price increase 2%.

b) $\frac{\% \Delta Q}{\frac{1.80+2.20}{2}} = 0.7$

$0.7(2)$

$= 0.14$ #

the quantity demand decreases 14% when price increases 2%.

b. In short run ped is inelastic because factor of production is fix so it could not change much, therefore quantity demanded change a little.

However, in the longrun there is more substitution and the factor of production is more variable therefore quantity demanded change alot.

To conclude quantity demanded does change alot in long-run than short run.

7. a) 1 คือ หา slope.

$\frac{10-8}{32-40} = -\frac{2}{8} = -\frac{1}{4}$

$\frac{1}{-\frac{1}{4}} \cdot \frac{8+10}{40+32} = -1$

ii) หา slope

$\frac{10-8}{45-50} = \frac{2}{-5}$

$\frac{1}{\frac{2}{-5}} \cdot \frac{8+10}{50+45} = -\frac{9}{19}$

b.

$\Delta I\% = \frac{24000-20000}{20000} \times 100$

$= 20\%$

$\Delta D\% \quad \frac{30-24}{24} \times 100 = 25\%$

$YED = \frac{25\%}{20\%} = 1.25$ #

ii) $\Delta I\% \quad \frac{24000-2000}{20000} \times 100$

$= 20\%$

$\Delta D\% \quad \frac{12-8}{8} \times 100 = 50\%$

$YED = 2.5\%$