

Finance 30210 Midterm #1 Practice Questions

- 1) Suppose that you have estimated the following regression (standard errors associated with each are below in parentheses):

$$Q_d = 300 - 4P + \varepsilon$$

(6.5) (1.2) (60.5)

- a) Calculate your forecast at the sample average of \$50.
 - b) Calculate the 95% confidence interval for your forecast.
 - c) Calculate your estimated demand elasticity at the sample average of \$50.
 - d) Why might you be worried about calculating an estimate of demand at a price of \$70?
- 2) Suppose that you have the following data on heating oil usage:

Heating Oil Usage (in Thousands of Barrels)			
1995Q1	22,500	1997Q1	25,200
1995Q2	21,750	1997Q2	23,275
1995Q3	24,000	1997Q3	22,500
1995Q4	25,100	1997Q4	20,750
1996Q1	21,300	1998Q1	24,350
1996Q2	22,150	1998Q2	21,125
1996Q3	23,250	1998Q3	26,200
1996Q4	20,680	1998Q4	25,225

- a) Calculate a forecast for usage in the first quarter of 1999 using a moving average with a length of 4.
 - b) Repeat (a) using an exponential smoothing model with a smoothing parameter of .4 (assume that your forecast for 1998Q4 was 24,500).
 - c) How would you compare the performance of the methods in (a) and (b)?
 - d) Why should you be careful to check for the presence of a trend or seasonality before using the methods in (a) and (b)?
- 3) Suppose that you have the following data:

Gasoline Sales (in Thousands of Barrels)			
1995Q1	22,434	1997Q1	22,776
1995Q2	23,766	1997Q2	24,491
1995Q3	23,860	1997Q3	24,751
1995Q4	23,391	1997Q4	24,170
1996Q1	22,662	1998Q1	23,302
1996Q2	24,032	1998Q2	24,045

1996Q3	24,171	1998Q3	25,437
1996Q4	23,803	1998Q4	25,272

You have already estimated a linear trend as follows:

$$Q_d = 23,000 - 120t + \varepsilon$$

Where $t = 1$ refers to 1995Q1.

- a) Calculate your forecast for 1999Q1 ($t = 17$).
- b) Using the ratio to trend method. Revise your estimate in (a) for seasonality.

4) Suppose that you have the following demand and supply curve for sneakers:

$$Q_d = 400 - 3P$$

$$Q_s = 200 + 2P$$

- a. Solve for the equilibrium price and quantity.
- b. Calculate consumer expenditures on sneakers
- c. Calculate the elasticity of demand at the equilibrium found in (a)
- d. Would a 5% increase in price cause consumer expenditures to rise or fall?

5) Consider the following productivities:

	United States	England
Services	6 Units/hr	3 Units/hr
Manufacturing	2 Units/hr	6 Units/hr

- a) Calculate the opportunity cost of services in the US and England
- b) Calculate the opportunity cost of manufacturing in the US and England. Who has the comparative advantage in services?
- c) Between what prices will trade occur?
- d) Suppose that the relative price of services was one. What trading pattern would emerge?
- e) Why do we only concern ourselves with relative prices in economics?

- 6) Suppose that you have estimated the following demand curve:

$$Q = 120 - 4P + .001I$$

You know that the current market price is \$10 and average income is \$40,000.

- a) Calculate the markets total willingness to pay.
- b) Calculate the market's consumer surplus.

- 7) Suppose that you estimated the following demand curve.

$$Q = 400 - 6P + .005I$$

Q Represents quantity demanded, P represents price and I represents average income.

You know that the current market price is \$20 and average income is \$20,000

- a) Calculate current demand.
- b) Calculate the price elasticity of demand.
- c) Calculate the income elasticity of demand

How would your answers change if you estimated this demand curve in log form?

$$\ln(Q) = 45 - 1.6\ln(P) + 2.56\ln(I)$$

- 8) Suppose that you observed the following set of data:

Average Business School tuition: \$30,000
Average Salary for non-MBA's: \$50,000 per year
Average MBA salary: \$90,000 per year.

The length of an MBA program is 2 years and is assumed that and MBA will have a working career of 20 years after graduation.

- a) Is this set of data consistent with market equilibrium?
- b) If your answer to (a) is no, how will markets adjust?