

Assignment 1

Due Date: August 4, 2011, 14:00h

1. Given the data below and Excel

- a. Plot the series and comment on the possible components it might have.
- b. Find the smoothed series by using 4-week Moving Average technique plot the series.
- c. Apply exponential smoothing technique with $w=0.3$
- d. Decompose the series into its components and calculate the seasonal indices for every quarters
- e. Predict the amount of shipments for the second quarter of 1989.

Year	Quarter	Private Residential investments (billions dollar)	Trend	Year	Quarter	Private Residential investments (billions dollar)	Trend
1980	1	34.2	38.5	1983	1	63.8	47.2
	2	34.3	39.2		2	62.3	47.9
	3	37.7	39.9		3	48.2	48.6
	4	42.5	40.6		4	42.2	49.4
1981	1	43.1	41.4	1984	1	51.2	50.1
	2	42.7	42.1		2	60.7	50.8
	3	38.2	42.8		3	62.4	51.5
	4	37.1	43.5		4	59.1	52.3
1982	1	43.1	44.3	1985	1	47.1	53.0
	2	43.6	45.0		2	44.7	53.7
	3	41	45.7		3	37.8	54.4
	4	53.7	46.4		4	52.7	55.2

2.The following data provide the unemployment rates during 10 years from 1990 to 1999 together with an index of industrial production from Federal Reserve Board.

Year, X2	Unemployment, Y	Index of production, X1
1990	3.1	113
1991	1.9	123
1992	1.7	127
1993	1.6	138
1994	3.2	130
1995	2.7	146
1996	2.6	151
1997	2.9	152
1998	4.7	141
1999	3.8	159

Fit a multiple regression model by using software to express the change in unemployment in terms of year and the index of production.