Linear Regression with Excel [cf Chps 8 - 12]
Explanatory comments appear in bold font

| Y data	X data		
Inflation	Unemployment		Labels
4.2	6.0		
3.5	5.5		
2.8	6.1		**Question: What is the degree of association between**
3.2	7.0		**unemployment and inflation?**
3.1	4.8		
4.2	6.0		**Is unemployment a good predictor of inflation?**
5.0	7.2		
3.8	4.3		
4.5	5.0		
3.9	3.8		
4.1	6.0		
6.0	7.1		

SUMMARY OUTPUT

Tools: Data Analysis: Regression
Labels: On ; Line fit plot: On ; Residuals: On ; Residual plot: On; New workbook

Regression Statistics	
Multiple R	0.37203893
R Square	0.138412965
Adjusted R Square	0.052254262
Standard Error	0.8569058
Observations	12

Absolute value of correlation coefficient
[Note: The sign of r can be determined from the information below.]

rms error for Inflation [Y-] estimates

Unemployment Line Fit Plot
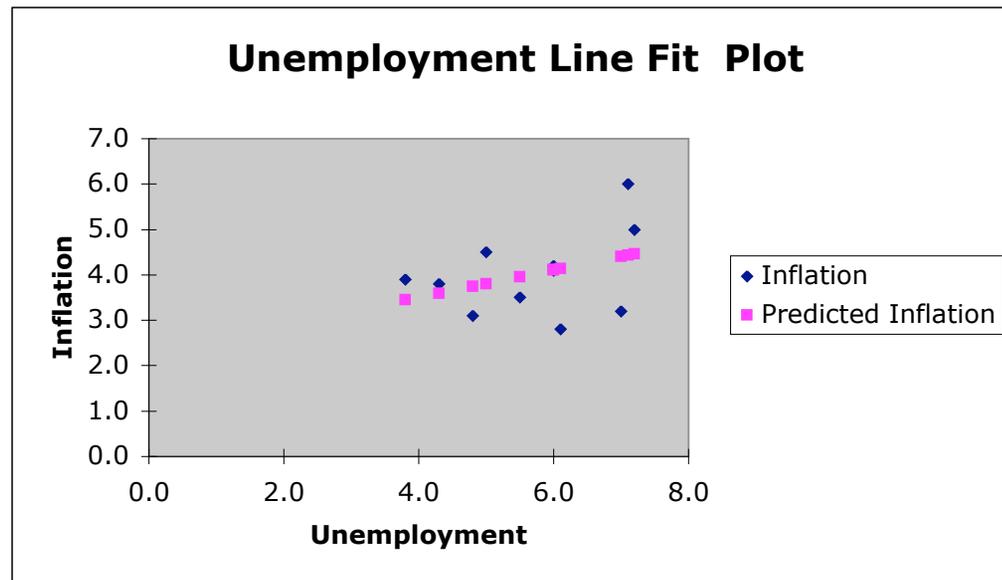
RESIDUAL OUTPUT

Observation	Predicted Inflation	Residuals
1	4.104637097	0.095362903
2	3.95531754	-0.45531754
3	4.134501008	-1.334501008
4	4.40327621	-1.20327621
5	3.746270161	-0.646270161
6	4.104637097	0.095362903
7	4.463004032	0.536995968
8	3.596950605	0.203049395
9	3.805997984	0.694002016
10	3.447631048	0.452368952
11	4.104637097	-0.004637097
12	4.433140121	1.566859879

Unemployment Residual Plot
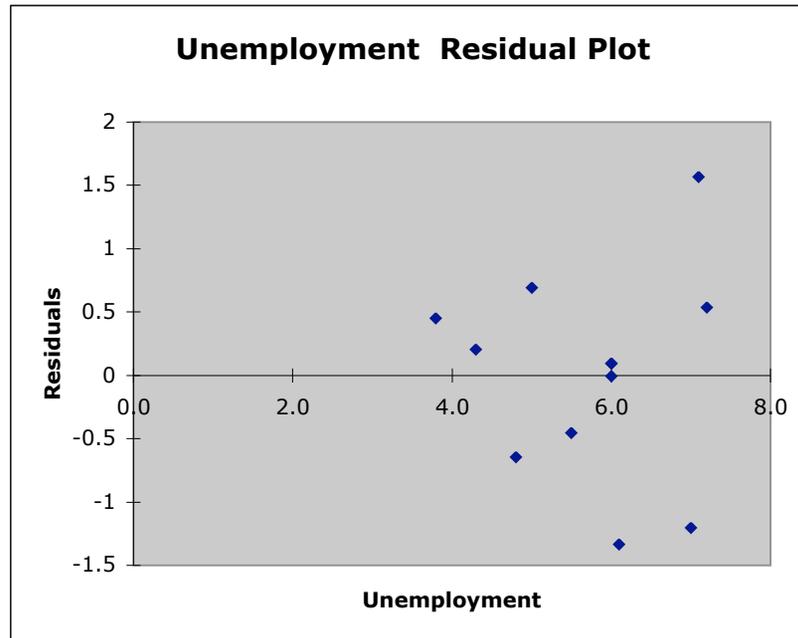
ANOVA

	df	SS	MS	F	Significance F
Regression	1	1.179624496	1.179624496	1.606488487	0.233704823
Residual	10	7.342875504	0.73428755		
Total	11	8.5225			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	2.312802419	1.373336486	1.684075566	0.123072411	-0.747182491	5.37278733	-0.747182491	5.37278733
Unemployment	0.298639113	0.235617681	1.267473269	0.233704823	-0.226349888	0.823628114	-0.226349888	0.823628114

Regression line equation: Inflation = (2.31) + (.299)*Unemployment

[The sign on the coefficient of the independent variable [Unemployment] is the same as the sign of r.]

Multiple regression with Excel
Explanatory comments appear in bold font

Y data	X1 data	X2 data	
Inflation	Unemployment	Per capita GNP	Labels
4.2	6.0	11.5	
3.5	5.5	10.2	
2.8	6.1	10.9	Question: What is the degree of association
3.2	7.0	9.8	between unemployment, per capita GNP and inflation?
3.1	4.8	12.0	
4.2	6.0	13.1	Are unemployment and GNP good predictors of inflation?
5.0	7.2	13.9	
3.8	4.3	10.0	
4.5	5.0	12.2	
3.9	3.8	8.9	
4.1	6.0	9.5	
6.0	7.1	12.0	

SUMMARY OUTPUT

Tools: Data Analysis: Regression
Labels: On ; Line fit plot: Off; Residuals: On; Residual plots: On; New workbook

| Regression Statistics	
Multiple R	0.495269464
R Square	0.245291842
Adjusted R Square	0.077578918
Standard Error	0.845379617
Observations	12

Correlation coefficient
[r has no sign in the context of a multiple regression analysis]

rms error for Inflation [Y-] estimates

RESIDUAL OUTPUT

Observation	Predicted Inflation	Residuals
1	4.139685704	0.060314296
2	3.783443348	-0.283443348
3	4.031026428	-1.231026428
4	3.952631682	-0.752631682
5	4.041990146	-0.941990146
6	4.474397791	-0.274397791
7	4.844046919	0.155953081
8	3.539311252	0.260688748
9	4.117544671	0.382455329
10	3.224907907	0.675092093
11	3.721295595	0.378704405
12	4.429718559	1.570281441

Unemployment Residual Plot
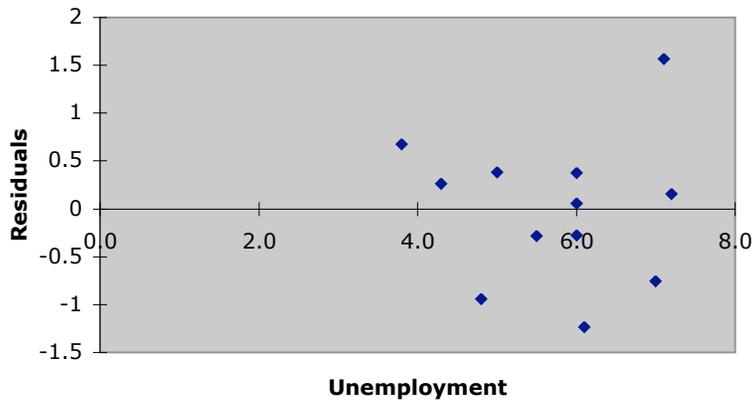
Per capita GNP Residual Plot
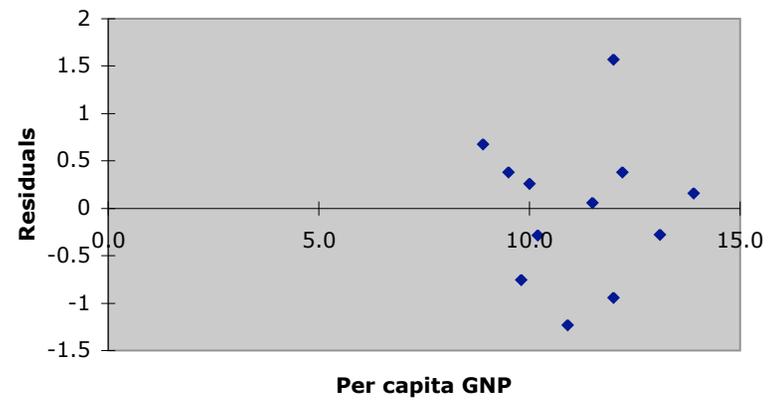
ANOVA

	df	SS	MS	F	Significance F
Regression	2	2.090499725	1.045249862	1.462569708	0.281841992
Residual	9	6.432000275	0.714666697		
Total	11	8.5225			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.722477154	1.954481569	0.369651556	0.720190238	-3.698870696	5.143825004	-3.698870696	5.143825004
Unemployment	0.168577571	0.259431005	0.649797317	0.532055919	-0.418296582	0.755451723	-0.418296582	0.755451723
Per capita GNP	0.209195054	0.185299283	1.128957709	0.288108138	-0.209981366	0.628371475	-0.209981366	0.628371475

Regression line equation: Inflation = (.722) + (.169)*Unemployment + (.209)* GNP