Econ 584

Time Series Econometrics

Forecasting

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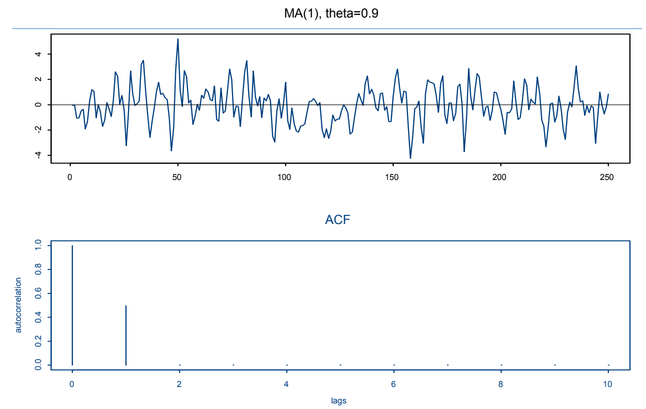
April 7, 2006

MA(1), θ=0.9



Forecasting with MA(1)

EViews - [Equation: UNTITLED Workfile: ARMADATA\armaData]

Dependent Variable: MA1_SIM
Method: Least Squares
Date: 04/10/06 Time: 13:35
Sample: 1 225
Included observations: 225
Convergence achieved after 7 iterations
Backcast: 0

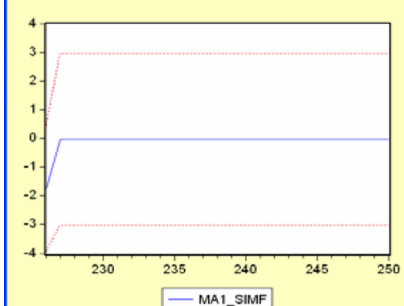
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.027455	0.140247	-0.195761	0.8450
MA(1)	0.943203	0.022702	41.54788	0.0000

R-squared	0.473335	Mean dependent var	-0.020492
Adjusted R-squared	0.470973	S.D. dependent var	1.488687
S.E. of regression	1.082785	Akaike info criterion	3.005800
Sum squared resid	261.4506	Schwarz criterion	3.036165
Log likelihood	-336.1525	F-statistic	200.4188
Durbin-Watson stat	1.966231	Prob(F-statistic)	0.000000

Inverted MA Roots -.94

h-step ahead forecasts

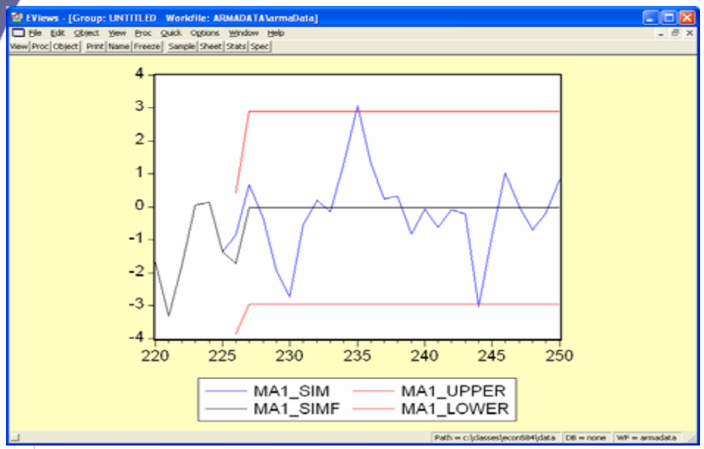
EViews - [Equation: UNTITLED Workfile: ARMADATA\armaData]



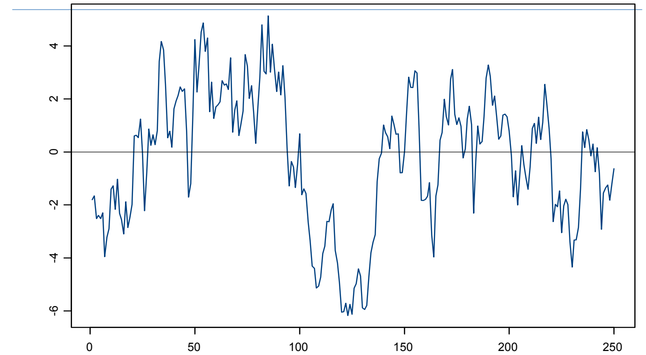
Forecast: MA1_SIMF
Actual: MA1_SIM
Forecast sample: 226 250
Included observations: 25

Root Mean Squared Error	1.253554
Mean Absolute Error	0.885458
Mean Abs. Percent Error	130.0247
Theil Inequality Coefficient	0.783058
Bias Proportion	0.003908
Variance Proportion	0.529167
Covariance Proportion	0.466924

Forecasts vs. Actuals



AR(1), Φ=0.9



Forecasting with AR(1)

EViews - [Equation: UNTITLED Workfile: ARMADATA\armaData]

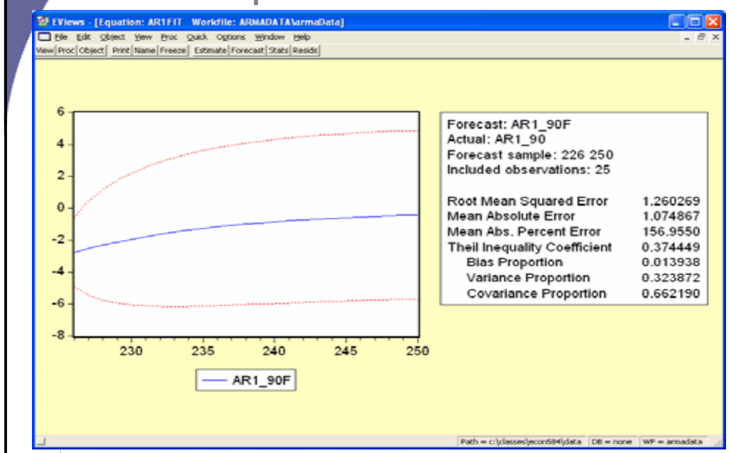
Dependent Variable: AR1_90
Method: Least Squares
Date: 04/10/06 Time: 13:52
Sample (adjusted): 2 225
Included observations: 224 after adjustments
Convergence achieved after 4 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.150744	0.819243	-0.184004	0.8542
AR(1)	0.911094	0.027974	32.56985	0.0000

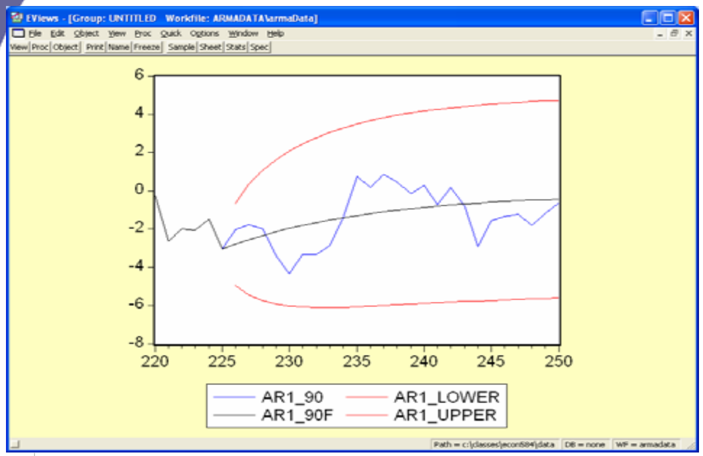
R-squared	0.826940	Mean dependent var	-0.094056
Adjusted R-squared	0.826161	S.D. dependent var	2.613798
S.E. of regression	1.089798	Akaike info criterion	3.018750
Sum squared resid	263.6603	Schwarz criterion	3.049211
Log likelihood	-336.1000	F-statistic	1060.795
Durbin-Watson stat	1.921896	Prob(F-statistic)	0.000000

Inverted AR Roots .91

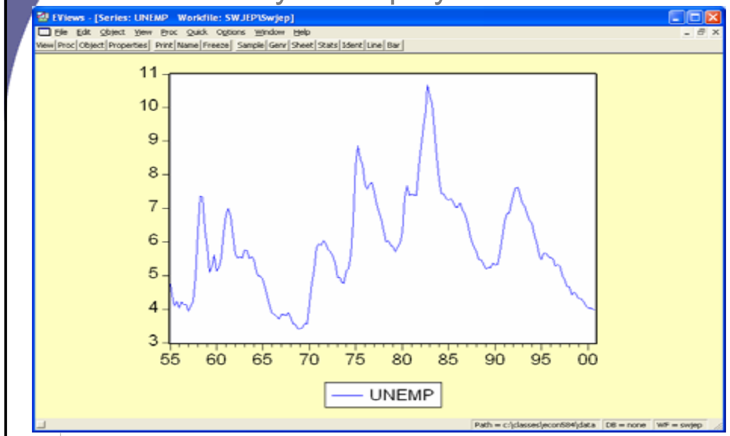
H-step ahead forecasts



Forecasts vs. Actuals



Comparing Forecasts for the US Quarterly Unemployment Rate



AR(2) looks like best model

EViews - [Series: UNEMP Workfile: SWJEP\Swjep]

Correlogram of UNEMP

Date: 04/10/06 Time: 14:06
Sample: 1955Q1 2000Q4
Included observations: 184

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.966	0.966	174.36	0.000
		2	0.896	-0.538	325.29	0.000
		3	0.811	-0.000	449.62	0.000
		4	0.725	0.061	549.60	0.000
		5	0.648	0.057	629.78	0.000
		6	0.579	-0.030	694.28	0.000
		7	0.515	-0.089	745.56	0.000
		8	0.455	0.031	785.85	0.000
		9	0.406	0.135	818.08	0.000
		10	0.364	-0.072	844.18	0.000
		11	0.324	-0.115	864.96	0.000
		12	0.287	0.075	881.36	0.000

Fit AR(1): 1955:2 – 1989:4

EViews - [Equation: AR1_FIT Workfile: SWJEP\Swjep]

Dependent Variable: UNEMP
Method: Least Squares
Date: 04/22/04 Time: 10:51
Sample(adjusted): 1955:2 1989:4
Included observations: 139 after adjusting endpoints
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.081033	1.036496	5.866915	0.0000
AR(1)	0.967572	0.021031	46.00709	0.0000

R-squared	0.939210	Mean dependent var	5.945084
Adjusted R-squared	0.938766	S.D. dependent var	1.595217
S.E. of regression	0.394744	Akaike info criterion	0.993126
Sum squared resid	21.34775	Schwarz criterion	1.035349
Log likelihood	-67.02229	F-statistic	2116.652
Durbin-Watson stat	0.774764	Prob(F-statistic)	0.000000

Inverted AR Roots .97

Fit MA(1): 1955:2 – 1989:4

EViews - [Equation: MA1_FIT Workfile: SWJEP\Swjep]

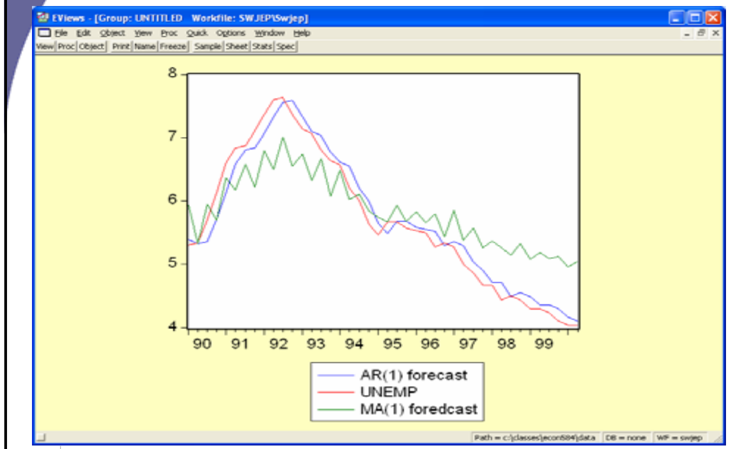
Dependent Variable: UNEMP
Method: Least Squares
Date: 04/22/04 Time: 10:55
Sample: 1955:1 1989:4
Included observations: 140
Convergence achieved after 6 iterations
Backcast: 1954:4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.942297	0.140612	42.26025	0.0000
MA(1)	0.968079	0.023263	41.61496	0.0000

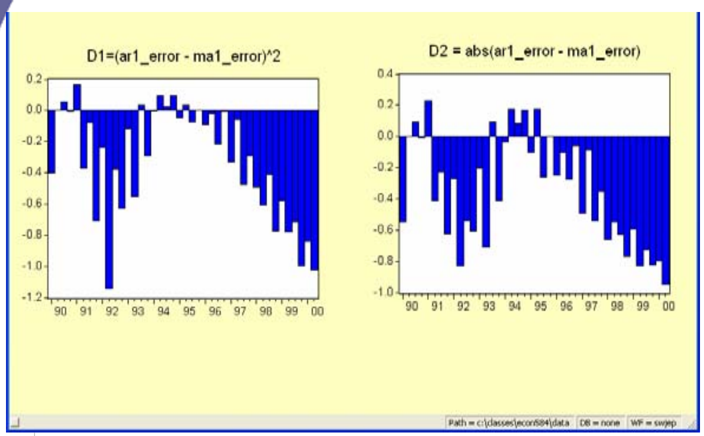
R-squared	0.720311	Mean dependent var	5.936429
Adjusted R-squared	0.718285	S.D. dependent var	1.592764
S.E. of regression	0.845389	Akaike info criterion	2.516144
Sum squared resid	98.62626	Schwarz criterion	2.558167
Log likelihood	-174.1301	F-statistic	355.4057
Durbin-Watson stat	0.321105	Prob(F-statistic)	0.000000

Inverted MA Roots -.97

Rolling 1-Step Ahead Forecasts vs. Actual



Loss Differentials: AR(1) – MA(1)



DM Statistics for D1

EViews - [Equation: UNTITLED Workfile: SWJEP\Swjep]

Dependent Variable: D1
Method: Least Squares
Date: 04/10/06 Time: 14:21
Sample: 1990Q1 2000Q4
Included observations: 44
Newey-West HAC Standard Errors & Covariance (lag truncation=3)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.346165	0.093962	-3.684117	0.0006

R-squared	0.000000	Mean dependent var	-0.346165
Adjusted R-squared	0.000000	S.D. dependent var	0.371885
S.E. of regression	0.371885	Akaike info criterion	0.882002
Sum squared resid	5.946841	Schwarz criterion	0.922552
Log likelihood	-18.40405	Durbin-Watson stat	0.783051

DM Statistics for D1

EViews - [Equation: UNTITLED Workfile: SWJEP\Swjep]

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View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: D2
Method: Least Squares
Date: 04/10/06 Time: 14:23
Sample: 1990Q1 2000Q4
Included observations: 44
Newey-West HAC Standard Errors & Covariance (lag truncation=3)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.364500	0.088732	-4.107855	0.0002

R-squared	0.000000	Mean dependent var	-0.364500
Adjusted R-squared	0.000000	S.D. dependent var	0.353925
S.E. of regression	0.353925	Akaike info criterion	0.783002
Sum squared resid	5.386309	Schwarz criterion	0.823552
Log likelihood	-16.22605	Durbin-Watson stat	0.827874