

Homework 4

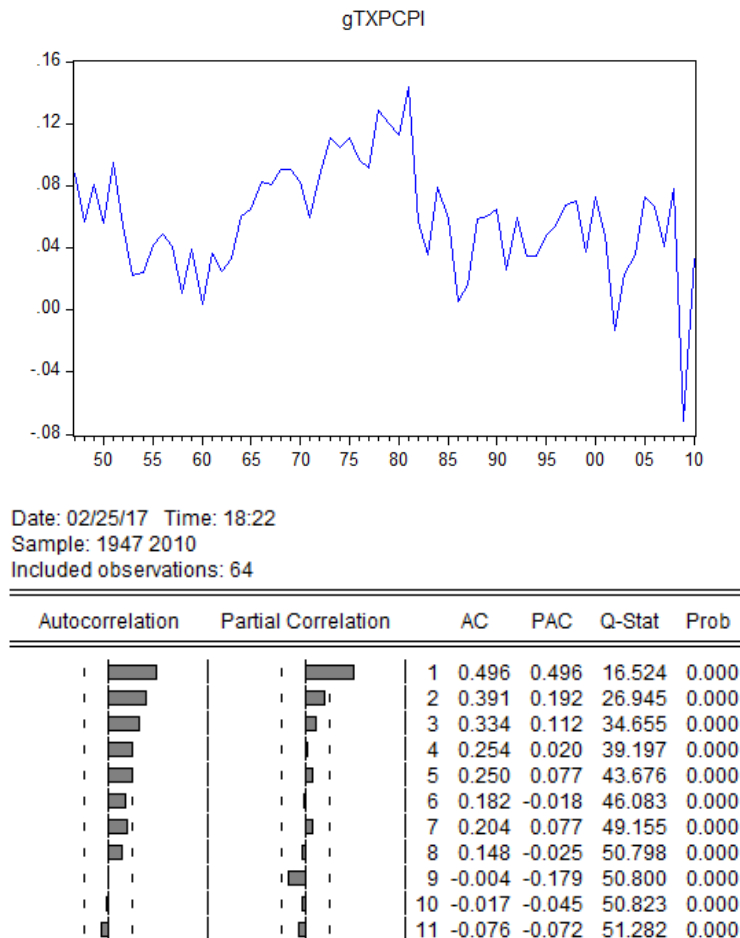
Eco 4306 Economic and Business Forecasting

Spring 2018

Due: Thursday, February 22, before the class

Problem 1

- (a) The times series plot and the correlogram for real per capita personal income in Texas during the period 1947-2010 are shown below.



- (b) The time series for real per capita personal income in Texas shows similar behavior as the real per capita personal income in California. The correlograms are also very similar - AC decays toward zero gradually and PAC only has one significant component at lag 1.

- (c) For both California and Texas AR(1) model is appropriate since AC decays toward zero gradually and PAC only has one significant component at lag 1.

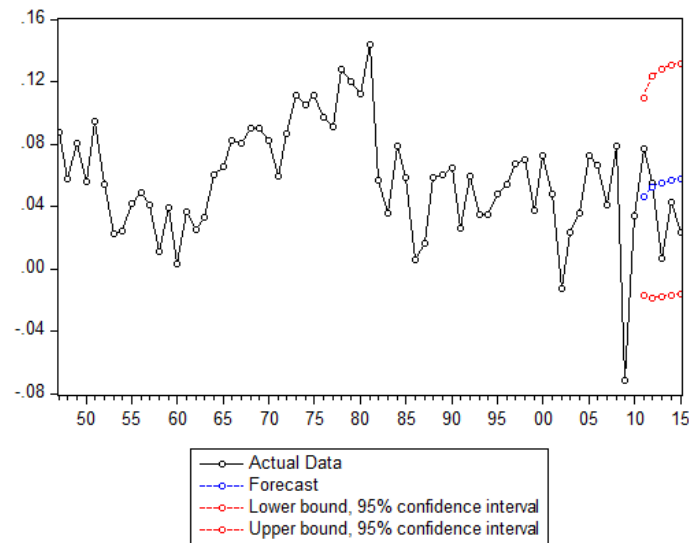
Dependent Variable: GTXPCPI
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 02/25/17 Time: 18:22
Sample: 1947 2010
Included observations: 64
Convergence achieved after 4 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.058308	0.009344	6.240305	0.0000
AR(1)	0.497685	0.112047	4.441763	0.0000
SIGMASQ	0.000953	0.000111	8.613806	0.0000

R-squared	0.250922	Mean dependent var	0.058236
Adjusted R-squared	0.226362	S.D. dependent var	0.035960
S.E. of regression	0.031629	Akaike info criterion	-4.019309
Sum squared resid	0.061023	Schwarz criterion	-3.918111
Log likelihood	131.6179	Hannan-Quinn criter.	-3.979442
F-statistic	10.21673	Durbin-Watson stat	2.171895
Prob(F-statistic)	0.000149		

Inverted AR Roots	.50
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- (d) Figure below shows the forecast for the period 2011-2015 together with its 95% confidence interval and the actual values of the real per capita personal income growth in Texas.



- (e) The actual values of the real per capita personal income growth in Texas are in the 95% confidence interval for the forecast, but this interval is very wide, roughly from -2% to 12%. The forecast errors are -5% between 3%. The model forecast is thus not particularly precise.