Applied Macroeconomics

PRACTICAL 2

For this practical you will use data on the producer price index (**ppi**) for the United States from 1960 quarter 1 to 2002 quarter 1. The variable **time** is the time index.

All the Stata commands needed for these labs have been discussed in the applications covered in the lectures. Start with the following commands.

```
. tsset time
. gen lppi=log(ppi)
. gen dlppi=d.lppi
```

TASK> Perform the Augmented Dickey Fuller (ADF) test to check whether the logarithm of ppi (lppi) is stationary or not.

You should find that the series **lppi** is non-stationary. Thus, you need to use the first difference of the series, which is stationary. Rename the first difference as **inflation**.

```
. rename dlppi inf
. label var inf "inflation"
```

Applied Macroeconomics

HOMEWORK # 1

TASK> Use the Box-Jenkins methodology to find the best fitting model for inflation. As you carry out the different steps of this procedure fill the table on the next page. This will enable you to make a better comparison between the various models and can be used as a reminder of what you are supposed to look for. *Note: one of the potential models is already provided.*

FYI: You can import the data from the Excel spreadsheet and then re-create the time variable using the following commands:

```
. generate time=q(1960q1)+_n-1
. format time %tq
. tsset time
```

Comparison of potential models for the mean of inflation

	AR(1)	Model 2?	Model 3?
Coefficients			
Are they all individually significant? (t-test)	yes		
Are they all jointly significant? (F-test or chi-squared test)	yes		
Do they imply stationarity (AR coefficients) and invertibility (MA coefficients)?	yes		
Information criterion			
AIC	-1025.94		
BIC	-1016.57		
Diagnostic checks – residuals			
Plot of the residuals – do they exhibit any remaining pattern?	no		
ACFs and PACFs of residuals – do they indicate white noise?	no		
Ljung-Box Q-Test (p-values in brackets)			
Q_lag4	12.83 [0.012]		
Q_lag8	20.70 [0.008]		
Q_lag12	25.53 [0.012]		

In the table there is space for three models. This does not mean you can estimate only three models - this is just a guide. You may want to estimate more models.