

## I. GETTING STARTED

This homework is intended to introduce you to E-Views and start you looking at some macro data. Items to be turned in are numbered and indicated in **bold**.

### E-Views Actions in Homework #1:

1. **OPEN THE FILE AND LOOK AT THE DATA**
2. **MAKE A LINE GRAPH**
3. **GENERATE SOME NEW SERIES**
4. SELECT A DATA SUBSET USING THE **SAMPLE** COMMAND
5. MAKE A **BAR GRAPH**
6. MAKE A **HISTOGRAM**



**MAKE A LINE GRAPH**

At the top of the spreadsheet window you should see a menu:

View	Procs	Print	Store	Name	Freeze	Edit+/-	Ins/Del	Sampl+/-	Label+/-	Title	Sample	Genr
------	-------	-------	-------	------	--------	---------	---------	----------	----------	-------	--------	------

Click on **View**. You should see a new submenu that looks like:

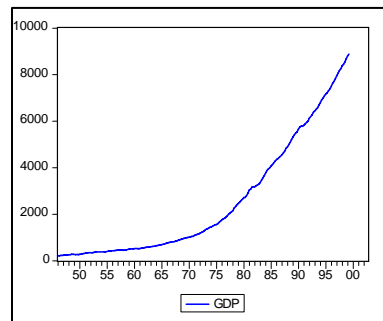
<b>VIEW</b>
Spreadsheet
<b>Line graph</b>
Bar graph
Histogram and Stats
Tabulate
Correlogram
Unit Root Test
Label



Choose line graph. You should see a graph of the GDP series.

There is even a new menu.

Try double clicking on this graph and see what happens..



**GENERATE SOME NEW SERIES**

The GDP increases over time partly because the economy produces more goods and services and partly because prices tend to increase over time. The effect of increasing prices can be eliminated by dividing GDP by the price index GDP\_PRICE to produce what economists call “**Real GDP.**” Let’s calculate this series. Go back to the MENU 2. Click on GENR. and type the equation

$$RGDP = 100 * GDP / GDP\_PRICE$$

Point and click on **RGDP** in the list of variables. Hold down the CTRL key and point and click on GDP. This should allow you to highlight both RGDP and GDP at the same time. Double click on one of the highlighted series and select “Open Group” in order to open up both simultaneously. Now click on **View**. Select Graph from the pull-down menu. You should now be seeing a line graph that compares GDP with RGDP.

- 5) **What is the difference, if any, between GDP and RGDP? When are they equal and why? Which grows more rapidly, and why? How big was GDP in the first quarter of 1990? (Get the units right if you can.)**

**Select data backward in time**

Again referring to MENU 2, select SHOW and type GDP GDP(-1) GDP(-2) and hit return?

- 6) **What is the meaning of GDP(-1)?**

**Generate Annualized Rates of Growth**

The data file that has been provided has quarterly data. The GDP figures are *quarterly data at annual rates*, meaning that they have been multiplied by four to transform the measured output in the quarter to the equivalent annual series. Something also has to be done to convert growth over a quarter to the equivalent annual number. This can be done just by multiplying by four, but it is better to allow for compounding using the following formula

$$r_{\text{ANNUAL}} = (1 + r_{\text{QUARTER}})^4 - 1$$

This formula takes a rate of growth per quarter (defined as a fraction, not a percent) and compounds it four times to obtain the annual growth that would occur if the quarterly rate applied to four consecutive quarters. Confirm that the following formula defines the annualized rate of growth of GDP in percentages:

$$G = 100 * (RGDP / RGDP(-1)) ^ 4 - 100$$

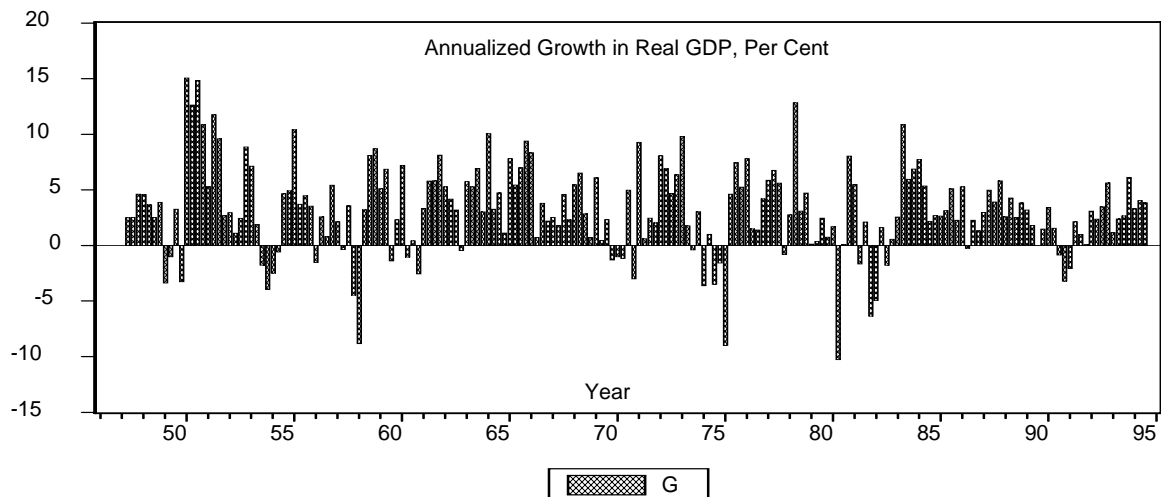
- 7) Explain in words what G is. What is the meaning of the 100 in each of the formulae for G and RGDP?

**Graphs and DATA SUMMARIES**

The first step in any statistical analysis ought to be a graphical examination of the data. This will help to assure that the data have been properly gathered and that important features of the data are not overlooked. During this initial phase, you should be trying out several different transformations of the data and should be identifying the salient features of the time series, such as the existence of a trend and the amount of volatility.

**MAKE A BAR GRAPH**

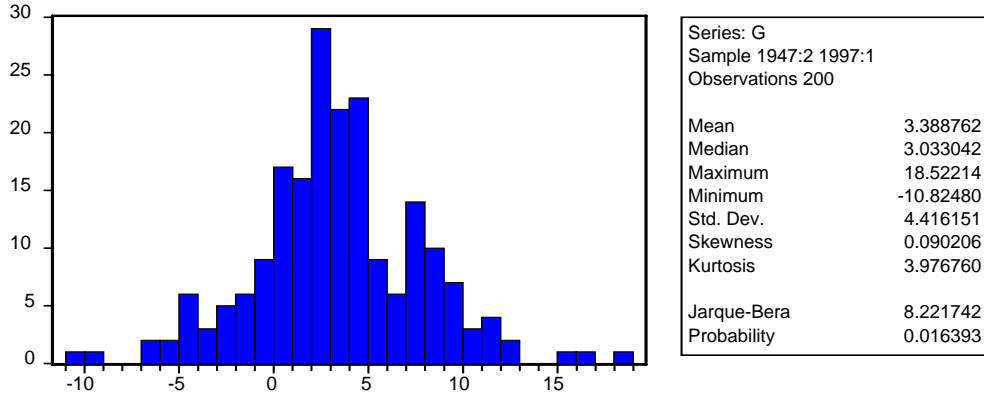
Double-click on G. Select the View option and click on **bar graph**. You should be looking at:



8) **When was the US Economy in recession?** Define a “recession” as a period in which there are two or more consecutive quarters of negative growth in GDP.

***Make a histogram***

Next click on View again and select Histogram and Stats. You should be looking at:



9) **What is the total number of observations of the growth rate G? How many times did the growth rate exceed 10? What has been the average growth rate of real GDP? What has been the maximum growth rate of real GDP? When did the maximum occur? Set the SAMPLE to include the data after 1975. What has been the average rate of growth of real GDP since 1975?**