

gretl Workshop 2

Data Entry, Transformations,
Graphs and Regression
Inflation & interest rate data

Loading Data

- Start gretl. Choose open data/sample files and choose jgm-data under the gretl tab
- Note variable names and definitions.
- gretl commands are case-sensitive; PI_Y is not the same as pi_y.

Graphing time series data

- Choose view/graph specified variables/time series plot, and select pi_y and r_l. Then ok. Do these two series appear to move together?
- Click on graph and choose Copy to clipboard/monochrome. Then you can paste into a windows program, such as Word, as part of your report.



Data Transformations

- Click and highlight all three interest rates.
- Choose Add/log of selected variables. This creates l_r_s , l_r_m , and l_r_l .
- Notice other pre-programmed data transformations under the Add menu.
- Choose Add/define new variable. Enter formula: $r_dif=r_l-r_s$. (creating new variable with formula)

Name	Description
auto-g	
inflati	
inflati	
short t	
mediu	
long te	
= log d	
= log d	
= log d	
r_dif=	

- Logs of selected variables
- Squares of selected variables
- Lags of selected variables
- First differences of selected variables
- Log differences of selected variables
- Seasonal differences of selected variables

- Index variable
- Time trend

- Random variable

- Periodic dummies
- Unit dummies
- Time dummies
- Dummies for selected discrete variables

- Define new variable...

Simple Regression

- Choose Model/ordinary least squares.
- Double click on r_l (dependent); add pi_y (independent); click ok.

Descriptive label

auto-generated constant

inflation rate based on the CPI

inflation rate based on the GDP deflator

gretl: specify model

OLS

Dependent variable

Choose ->

Set as default

Independent variables

Add ->

- const
- pi_c
- pi_y
- r_s
- r_m
- r_l
- l_r_s
- l_r_m
- l_r_l
- r_dif

- Model 1: OLS estimates using the 43 observations 1952-1994
- Dependent variable: r_l

VARIABLE	COEFFICIENT	STDERROR	T STAT	P-VALUE
const	5.48281	0.661486	8.289	<0.00001 ***
pi_y	0.546308	0.126167	4.330	0.00009 ***

- Mean of dependent variable = 7.79116
- Standard deviation of dep. var. = 3.06293
- Sum of squared residuals = 270.38
- Standard error of residuals = 2.568
- Unadjusted R-squared = 0.313798
- Adjusted R-squared = 0.297062
- Degrees of freedom = 41
-

Exercise: Fisher hypothesis

- Test the hypothesis that the coefficient on inflation equals 1.

Write output to a Word file

- Open Word or other editor.
- In output window choose Edit/copy/plain text, and Ok.
- Go to Word and hit “paste” icon.
- You can save file to flash drive for later use.

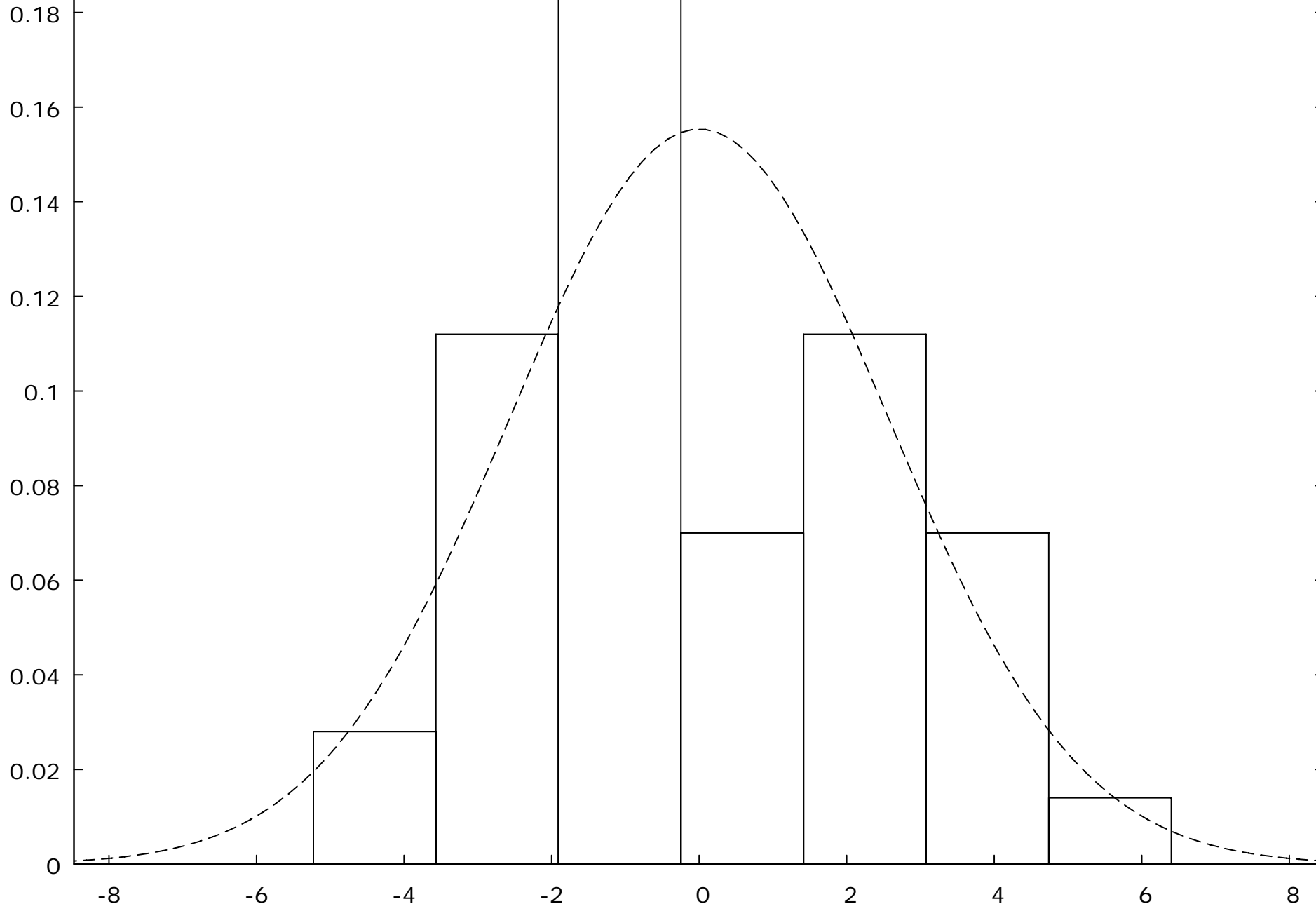
Jarque-Bera Test of Normality

- From top of equation output window choose Tests/normality of residual.
 - Top part shows histogram
 - Bottom part reports J-B test statistic. Null hypothesis is that residuals are normal. Based on p-value, what do you conclude?

Test statistic for normality:

Chi-squared(2) = 4.379 pvalue = 0.11199

uhat1 ———
N(1.4459e-016, 2.568) - - - -



Saving Data

- Choose File/Save data and Ok.
- Give it a file name (fisher), and use the default directory and folder.
- Or you can save it to your flashdrive.
- Exit gretl (File/exit), and say no to any questions.

Retrieving Data

- Restart gretl.
- Choose File/Open data/user file and click on fisher.gdt (gdt stands for gretl data file).
- All of your variables reappear.

Lessons

- Data files can be saved as gretl files for easy retrieval later.
- Objects such as graphs, regression output can be copied to clipboard and pasted into windows programs

Gretl Overview

- Continue with same data set (jgm-data).
- Click on the Model menu to see list of model types:
 - Set cursor on each sub-menu to see estimation methods
- Click on Help (upper right of main window) and select User's Guide.
 - Table of contents shows list of procedures

Gretl capabilities: Overview

- Use Model/Ordinary least squares to estimate r_l as a function of r_s and pi_y .
- From the output window choose Tests:
 - Tests of linear restrictions
 - Diagnostic tests