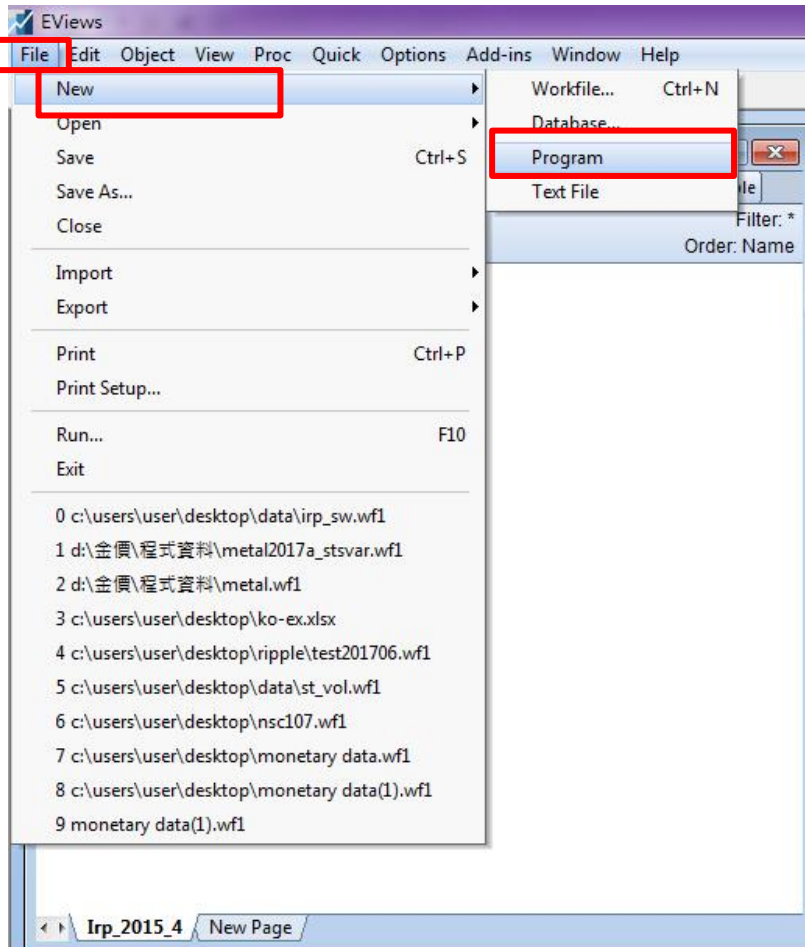


**The operating step of
Gregory and Hansen cointegration tests**

- Step 1- select “File”, then select “New”, then select “Program”



- Step 2- paste the codes of GH, enter “independent variables”

The screenshot shows the EViews software interface. The main window displays the 'Program: UNTITLED' editor with the following content:

```
'Gregory-Hansen Cointegration Test
'Reference: Gregory, A. W. and Hansen, B. E. (1996). "Residual-Based Tests for Cointegration in Models with Regime Shifts",
Journal of Econometrics, Vol. 70, pp. 89-126.

group independents
independents.add Lnfsw
call greghansen(y,independents,2,"sic",1)
```

The variable 'Lnfsw' is highlighted with a red box, and a red arrow points from the text 'independent variables' in the instruction to this box.

The left sidebar shows a list of variables in the workfile 'IRP_SW - (c:\users\user\desktop\data\irp_sw.wf1)'. The variables listed are:

- c
- d1
- fd_sw
- fsw
- ghc
- ghz
- id_sw
- independents
- isw
- ius
- lnfd_sw
- lnfsw
- lnid
- lnif
- lnisw_us
- lnssw
- resid
- series01
- ssw
- y

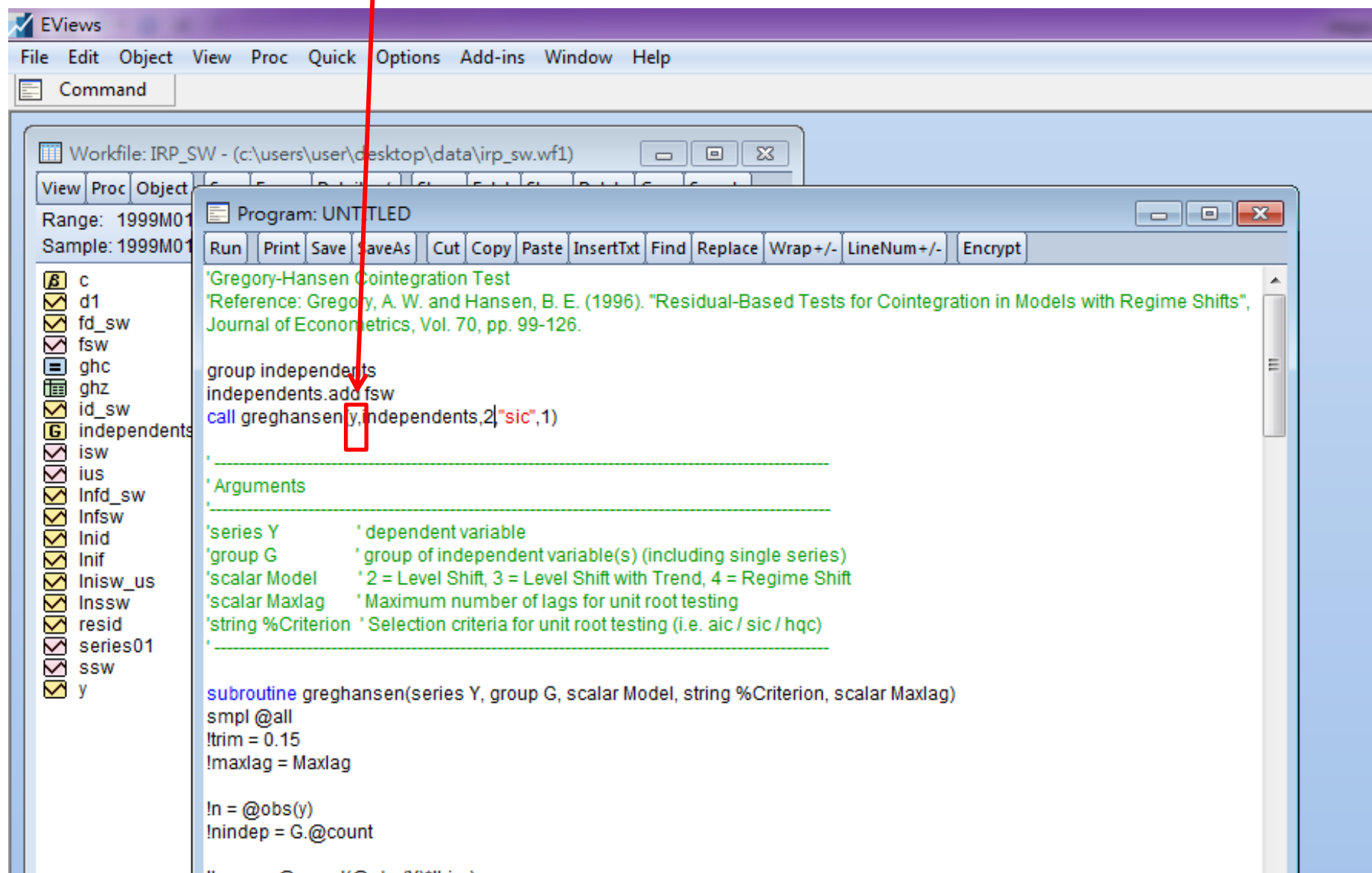
The bottom of the command window shows the subroutine definition for 'greghansen'.

```
subroutine greghansen(series Y, group G, scalar Model, string %Criterion, scalar Maxlag)
smpl @all
!trim = 0.15
!maxlag = Maxlag

ln = @obs(y)
lnindep = G.@count

!lower = @round(@obs(Y)*!trim)
```

- Step 3- “dependent variable



The screenshot shows the EViews software interface. The main window displays a list of variables on the left and a program window on the right. The program window is titled "Program: UNTITLED" and contains the following code:

```

'Gregory-Hansen Cointegration Test
'Reference: Gregory, A. W. and Hansen, B. E. (1996). "Residual-Based Tests for Cointegration in Models with Regime Shifts",
Journal of Econometrics, Vol. 70, pp. 99-126.

group independents
independents.add fsw
call greghansen y, independents, 2, "sic", 1)

```

A red arrow points from the text "dependent variable" in the list of arguments to the variable "y" in the command line. The list of arguments is as follows:

Argument	Description
'series Y	' dependent variable
'group G	' group of independent variable(s) (including single series)
'scalar Model	' 2 = Level Shift, 3 = Level Shift with Trend, 4 = Regime Shift
'scalar Maxlag	' Maximum number of lags for unit root testing
'string %Criterion	' Selection criteria for unit root testing (i.e. aic / sic / hqc)

The variable "y" is listed in the left pane of the EViews window, indicating it is the dependent variable for the test.

- Step 4- select “model “

Workfile: IRP_SW - (c:\users\user\desktop\data\irp_sw.wf1)

Range: 1999M01
Sample: 1999M01

Program: UNTITLED

Run Print Save SaveAs Cut Copy Paste InsertTxt Find Replace Wrap+/- LineNum+/- Encrypt

'Gregory-Hansen Cointegration Test
'Reference: Gregory, A. W. and Hansen, B. E. (1996). "Residual-Based Tests for Cointegration in Models with Regime Shifts", Journal of Econometrics, Vol. 70, pp. 99-126.

group independents
independents.add fsw
call greghansen(y,independents 2,'sic',1)

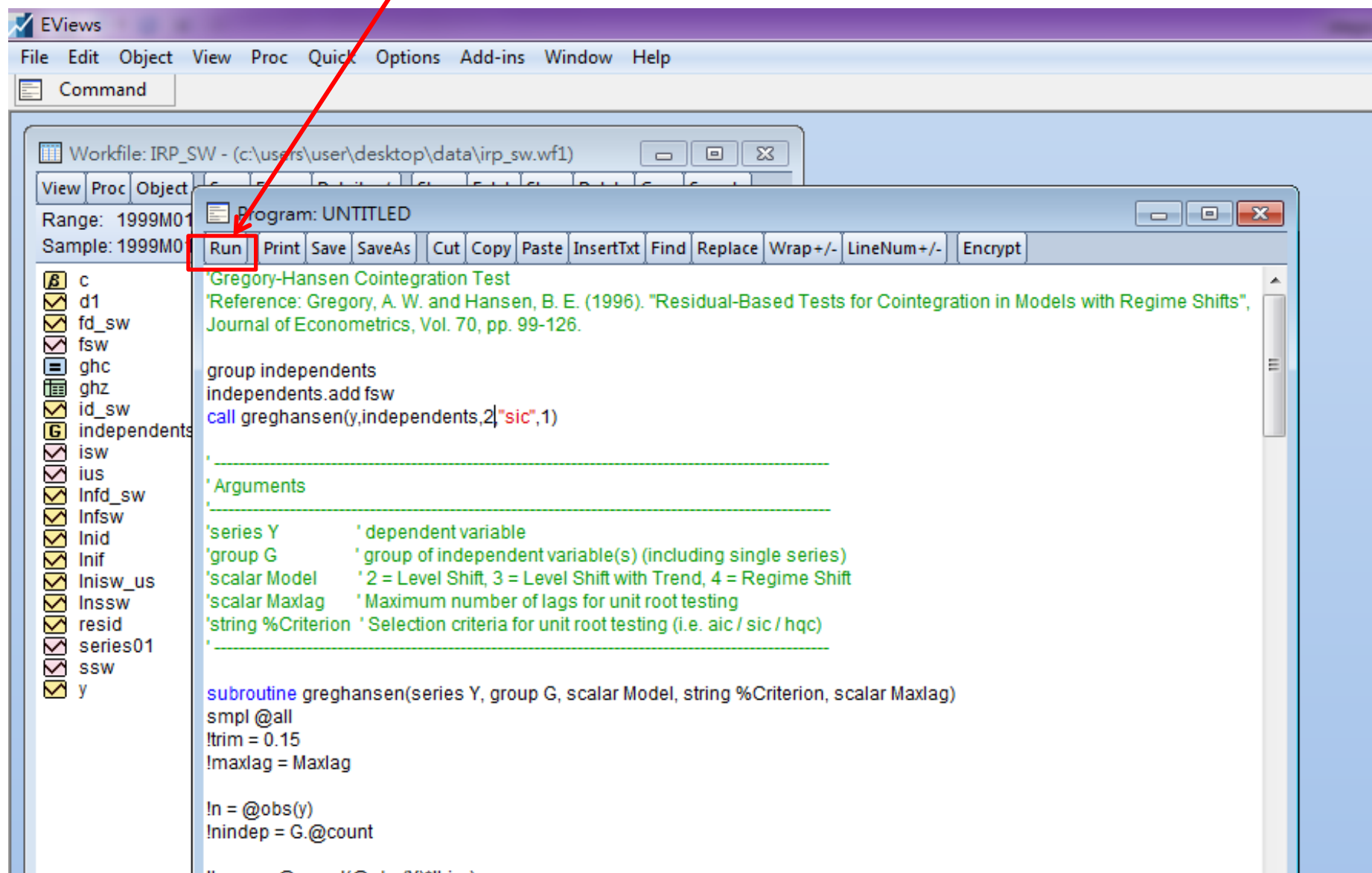
' Arguments

'series Y ' dependent variable
'group G ' group of independent variable(s) (including single series)
'scalar Model ' 2 = Level Shift 3 = Level Shift with Trend 4 = Regime Shift
'scalar Maxlag ' Maximum number of lags for unit root testing
'string %Criterion ' Selection criteria for unit root testing (i.e. aic / sic / hqc)

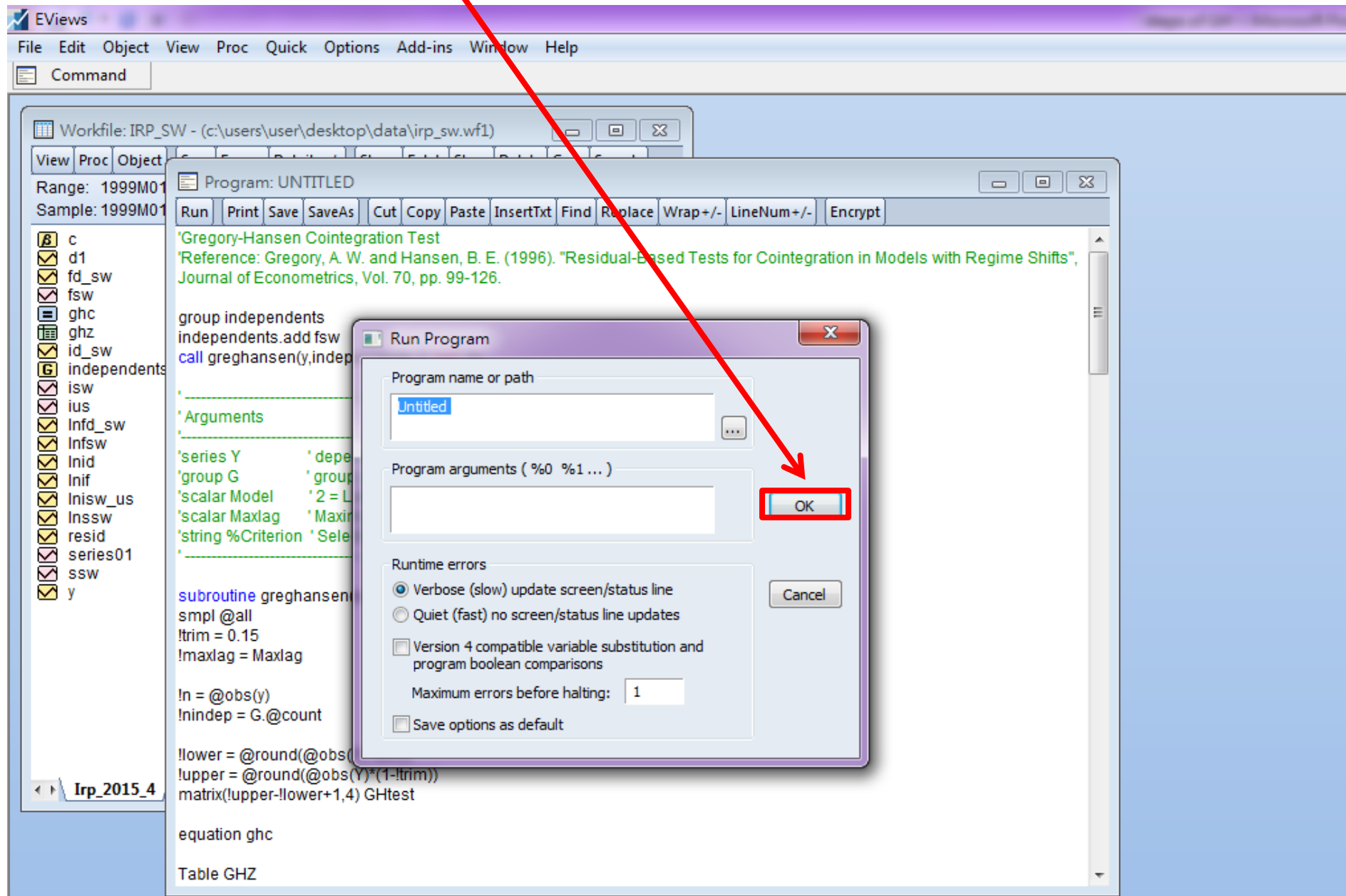
subroutine greghansen(series Y, group G, scalar Model, string %Criterion, scalar Maxlag)
smpl @all
!trim = 0.15
!maxlag = Maxlag

ln = @obs(y)
lindep = G.@count

- Step 5 – select “run”

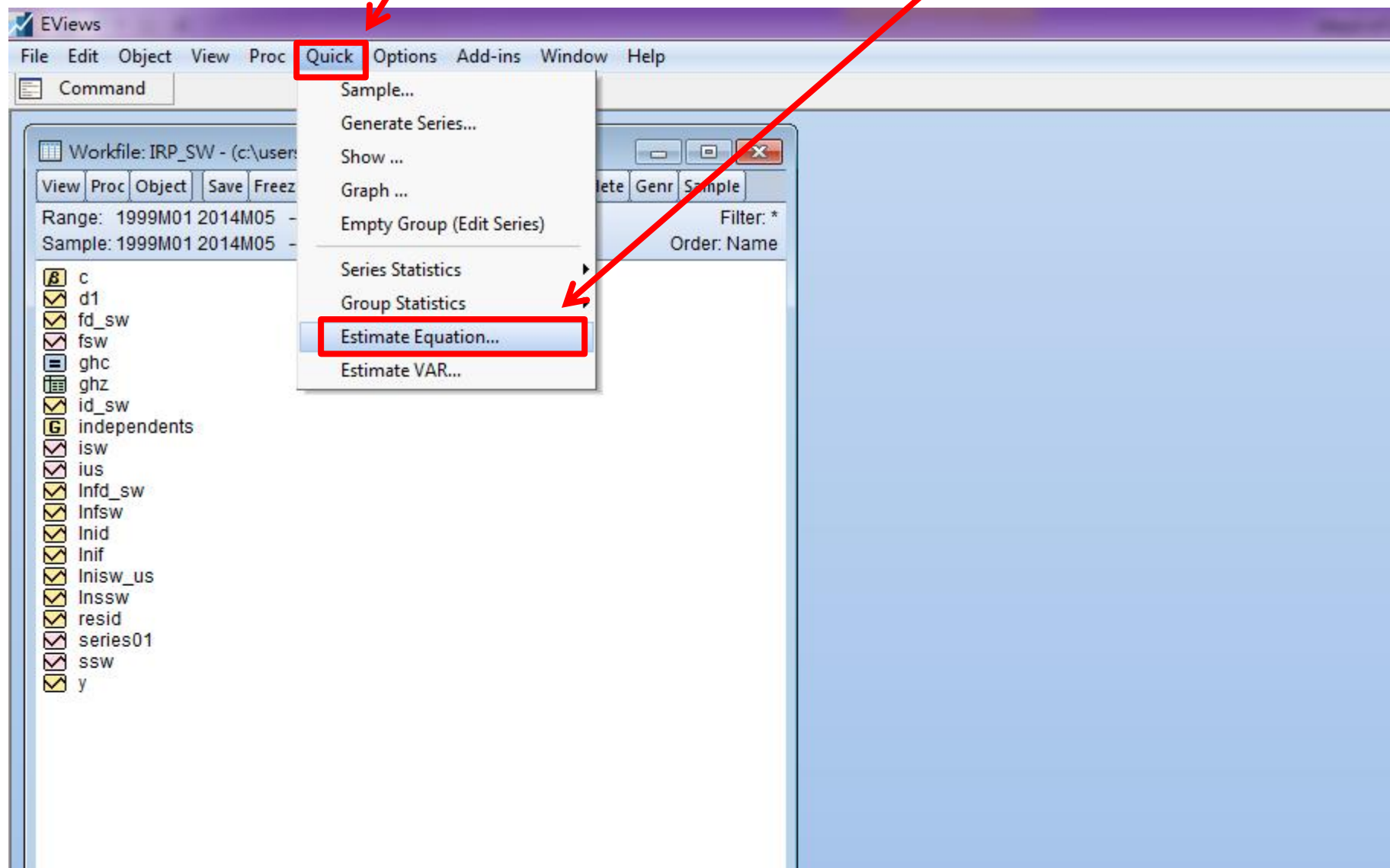


- Step 6 – press “OK”



**FMOLS steps to estimate
the cointegration with structural breaks**

- Step 1 – select “Quick”, then select “ Estimate Equation”



- Step 2 – select “ COINTREG - Cointegrating Regression”

The screenshot shows the EViews software interface. The main window displays the 'Workfile: IRP_SW - (c:\users\user\desktop\data\irp_sw.wf1)' with a range of 1999M01 to 2014M05 and 185 observations. A list of variables is visible on the left, including c, d1, fd_sw, fsw, ghc, ghz, id_sw, independents, isw, ius, lnfd_sw, lnfs, lnid, lnif, lnisw_us, lnssw, resid, series01, ssw, and y.

An 'Equation Estimation' dialog box is open, showing the 'Specification' tab. The 'Equation specification' section contains the text: 'Dependent variable followed by list of regressors including ARMA and PDL terms, OR an explicit equation like $y=c(1)+c(2)*X$.' The 'Estimation settings' section shows the 'Method' dropdown menu open, with 'COINTREG - Cointegrating Regression' selected and highlighted by a red box. A red arrow points from the text 'COINTREG - Cointegrating Regression' in the list to the text 'COINTREG - Cointegrating Regression' in the title bar of the dialog box.

The list of methods includes:

- LS - Least Squares (NLS and ARMA)
- LS - Least Squares (NLS and ARMA)
- TSL - Two-Stage Least Squares (NLS and ARMA)
- GMM - Generalized Method of Moments
- LIML - Limited Information Maximum Likelihood and K-Class
- COINTREG - Cointegrating Regression**
- ARCH - Autoregressive Conditional Heteroskedasticity
- BINARY - Binary Choice (Logit, Probit, Extreme Value)
- ORDERED - Ordered Choice
- CENSORED - Censored or Truncated Data (including Tobit)
- COUNT - Integer Count Data
- QREG - Quantile Regression (including LAD)
- GLM - Generalized Linear Models
- STEPLS - Stepwise Least Squares
- ROBUSTLS - Robust Least Squares
- HECKIT - Heckman Selection (Generalized Tobit)
- BREAKLS - Least Squares with Breakpoints
- THRESHOLD - Threshold Regression
- SWITCHREG - Switching Regression
- ARDL - Auto-regressive Distributed Lag Models
- MIDAS - Mixed Data Sampling Regression

- Step 3 – enter variables, then select method (FMOLS)

Workfile: IRP_SW - (c:\users\user\desktop\data\irp_sw.wf)

View Proc Object Save Freeze Details+/- Show Fetch Store Delete Genr Sample

Range: 1999M01 2014M05 -- 185 obs Filter: *
Sample: 1999M01 2014M05 -- 185 obs Order: Name

Equation Estimation

Specification Options

Equation specification
Dependent variable followed by list of cointegrating regressors
LnSSW(3) LnFSW D1

Trend specification
Constant (Level)

Deterministic regressors

Cointegrating regressors specification
Additional trends
None

Additional deterministic regressors

☐ Estimate using differenced data

Nonstationary estimation settings
Method: Fully-modified OLS (FMOLS)

Long-run variance calculation: Options

Estimation settings
Method: COINTREG - Cointegrating Regression

Sample: 1999m01 2014m05

確定 取消