

THE UNIVERSITY OF ILLINOIS AT CHICAGO
ECON 534: Econometrics I
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Example 1: Bivariate Regression

Consider the following regression model:

$$cgrowth_i = \beta_0 + \beta_1 ygrowth_i + \varepsilon_i, \quad i = 1, 2, \dots, N, \quad (1)$$

where *cgrowth* is the consumption growth rate, *ygrowth* is the real income growth rate, ε is an error term, and β_0 and β_1 are parameters. Using the average (1953-1990) cross-sectional data from G. Karras (May 1996), "Are the Output Effects of Monetary Policy Asymmetric? Evidence from a Sample of European Countries" *Oxford Bulletin of Economics and Statistics* ($N = 18$), write the following simple RATS program:

```
* E534 -- Example 1
allocate 18
* cross section data from Karras, Oxford Bulletin, 1996 (Appendix)
data(unit=input,org=obs) / number ygrowth cgrowth
1      4.108    2.467
2      3.264    1.932
3      3.163    1.560
4      3.943    1.985
5      3.807    2.218
6      4.001    2.250
7      4.903    3.369
8      4.967    2.838
9      3.757    2.065
10     4.311    2.578
11     3.909    2.333
12     3.810    1.569
13     4.764    3.173
14     4.739    2.815
15     2.883    1.439
16     3.203    1.683
17     5.406    3.552
18     2.743    1.861
*
linreg cgrowth
# constant ygrowth
*
end
```

Save the program as e534ex1.rat. To execute the program on ICARUS, give the command

```
rats e534ex1.rat e534ex1.out
```

which will store the output in the file e534ex1.out. The output obtained includes the following regression information:

```
RATS386 4.21. Run on Sep  9 1998
(c) 1992-5 Thomas A. Doan. All rights reserved
* E534 -- Example 1
... other lines ...
*
linreg cgrowth
# constant ygrowth

Dependent Variable CGROWTH - Estimation by Least Squares
Usable Observations      18      Degrees of Freedom      16
Centered R**2            0.845949      R Bar **2            0.836321
Uncentered R**2         0.989829      T x R**2            17.817
Mean of Dependent Variable      2.31594444444
Std Error of Dependent Variable 0.6335956655
Standard Error of Estimate      0.2563355945
Sum of Squared Residuals        1.0513269924
Regression F(1,16)              87.8617
Significance Level of F          0.00000007
Durbin-Watson Statistic         2.205428

      Variable      Coeff      Std Error      T-Stat      Signif
*****
1.  Constant      -0.739169492  0.331485129   -2.22987   0.04042983
2.  YGROWTH       0.767177507  0.081845730    9.37346   0.00000007

*
end

Normal Completion
```