

Econ 741: Tutorial for GAUSS

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- 1) Click 'GAUSS 5.0' icon [for DOS version, click 'GAUSS 386' icon]
- 2) Click 'file' menu and select 'change working directory' $c : \backslash E741$ [for DOS version, type 'dos cd \ E741']

1 Basics of the matrix operations in GAUSS

1) creating matrices

- let $x[3,3] = 1\ 2\ 3\ 4\ 5\ 6\ 7\ 8\ 9$;
 - print x; (print "x=" x;)
- $y = \{11\ 12\ 13, 14\ 15\ 16, 17\ 18\ 19\}$;
 - print y; (print "y=" y;)
- referring to elements of matrices
 - extracting a specific element
 - * $x13 = x[1,3]$; (print x13;)
 - extracting a column or row
 - * $x1row = x[1,.]$; (print x1row;)

```
* x3col=x[:,3]; (print x3col;)
```

– extracting a subset of rows, columns

```
* xrc1=x[1:2,2:3]; (print xrc1;)
```

```
* xrc2=x[1:2,]; (print xrc2;)
```

- create a matrix of zeros

– `ze=zeros(3,3); (print ze;)`

- create a matrix of ones

– `oe=ones(3,3); (print oe;)`

- create an identity matrix

– `id=eye(3); (print id;)`

2) combining matrices

- horizontally combine using `~` operator

– `xy1=x~y; (print xy1;)` (3 by 6)

- vertically combine using `|` operator

– `xy2=x|y; (print xy2;)` (6 by 3)

3) other matrix operators

- matrix addition

– `xay=x+y; (print xay;)`

- matrix subtraction

– `xsy=x-y; (print xsy;)`

- matrix multiplication

– `xmy=x*y; (print xmy;)`

* multiplication by a scalar:

· `xs2=2*x; (print xs2;)`

- transpose

– `xt=x'; (print xt;)`

4) element by element operators

- element by element multiplication

– `xemy=x.*y; (print xemy;)`

- element by element division

– `xedy=x./y; (print xedy;)`

2 Running Regression

2.1 creating a data set

Create a (3 by 2) matrix and name it as ‘myols.dat’

- window version

- Type edit myols.dat; [Enter]

- 46 3 [Enter]

- 40 4 [Enter]

- 36 5 [Enter]

- Click SAVE and close the edit window

- dos version

- Type edit myols.dat; [Enter]

- 46 3 [Enter]

- 40 4 [Enter]

- 36 5 [Enter]

- Alt-X and X to save

2.2 creating a program file

Create a program file to execute regression and name it as ‘myols.prg’

- window version

- Type edit myols.prg; [Enter]

- Type `output file=myols.out reset;` [Enter]
- Type `load yx[3,2]=myols.dat;` [Enter]
- Type `y = yx[.,1];` [Enter]
 - @ y will be defined as the 1st column of yx taking all the rows @
- Type `x = ones(3,1)~yx[.,2];` [Enter]
 - @ including constant term by ones. The 1st column of x is all ones and the 2nd column of x is the 2nd column of yx @
- Type `invx=invpd(x'x);` [Enter]
- Type `bols=invx*x'y;` [Enter]
 - @ OLS estimates @
- Type `print bols';` [Enter]
- Type `output off;` [Enter]
- Type `end;`
- Click 'file' menu and select 'save'. Close edit window

- dos version

- Type `edit myols.prg;` [Enter]
- Type `output file=myols.out reset;` [Enter]
- Type `load yx[3,2]=myols.dat;` [Enter]
- Type `y = yx[.,1];` [Enter]
 - @ y will be defined as the 1st column of yx taking all the rows @

- Type `x = ones(3,1)~yx[:,2];` [Enter]
 - @ including constant term by ones. The 1st column of x is all ones and the 2nd column of x is the 2nd column of yx @
- Type `invx=invpd(x'x);` [Enter]
- Type `bols=invx*x'y;` [Enter]
 - @ OLS estimates @
- Type `print bols';` [Enter]
- Type `output off;` [Enter]
- Type `end;`
- Alt-X and X to save

2.3 run a program

- window version
 - Type `run myols.prg;` [Enter]
- dos version
 - Type `run myols.prg;` [Enter]