GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

Scalars and matrices

Stata Self-Learning Course

Scalars

- Scalars contain either numerical value or a string
- Scalars are preferred to macros for precise calculations
- Disadvantage: can only use scalars when normal variables would be allowed

1.
```
set obs 100
scalar a = _N
gen number_obs = a
```
→ one variable containing 100 for all obs

2.
```
scalar b = obs
gen number_b = a
```
→ error message: obs not found

3.
```
local b obs_new
gen number_`b' = a
```
→ creates variable number_obs_new containing 100 for all obs

Scalars

- For a list of all created scalars, type scalar dir
- Scalars are used like variables
- Do not assign same name to scalar and variable
- Stata will give preference to variable over scalar
- Specifying for Stata to use scalar:

```
set obs 100
gen a = _n
gen b = a * scalar(a)
tab b
```

→ b is product of variable a and scalar a

Matrices

- Matrices contain only numerical values
- For commands, see help matrix
- Creating a matrix
  - mat *name* = J(*rows, columns, content*)

    ```
    mat A = J(3,3,1)
    mat list A
    ```
  - By hand

    ```
    mat define B = (1,1,1\1,1,1\1,1,1)
    mat list B
    ```
- Changing single values

  ```
  mat A[3,1]=5
  mat list A
  ```
- Extracting elements using el(*name, row, column*):

  ```
  scalar a = el(A,3,1)
  scalar b = A[3,1]
  ```