

## Commands

Command	Explanation	Abbreviation
tssmooth ma	generates moving average of time series	
ssc install freduse	installs function to easily import FRED data	
search freduse	shows available FRED data	
scalar a = 5	defines scalar $a = 5$	
scalar list	lists scalars	
ttail(df,c)	gives $Pr(T > 2.3)$ for $T \sim t(df)$	
invttail(df,c)	gives the value $t^*$ such that $Pr(T > t^*) = c$	

## Examples

**Moving Average.** Generate 3-period (2 lags + current) MA smoothing of realgdp.

```
tssmooth ma marealgdp = realgdp, window(2 1 0)
```

**FRED.** To import FRED's *UNRATE* data (unemployment rate) into Stata,

```
ssc install freduse
search freduse
freduse UNRATE
```

choose *SJ-6-3 st0110* and install

**Summary Statistics and Scalars.** Keep *UNRATE* loaded.

```
sum UNRATE, detail
scalar xbar = r(mean)
scalar n = r(N)
scalar s = r(sd)
```

$\bar{x}$ bar equals *UNRATE* mean  
 $n$  equals number of *UNRATE* obs  
 $s$  equals *UNRATE* standard deviation

**Tails and Confidence Intervals.** Construct the 95% confidence interval for the *UNRATE* mean. The formula is

$$\bar{x} \pm t_{\alpha/2, df} \times \frac{s}{\sqrt{n}}.$$

In this case the 95% confidence interval means  $\alpha = 0.05$ , and since there are  $n = 840$  observations,  $df = 839$ . Our critical value, then, is given by  $t_{0.025, 839} = \text{invttail}(839, 0.025)$ . We can then construct the confidence interval by typing

```
scalar lconf = xbar - invttail(839,0.025)*s/sqrt(n)
scalar uconf = xbar + invttail(839,0.025)*s/sqrt(n)
```

Type in `scalar list` to see the values of each scalar. Notice that *lconf* and *uconf* are the same values from using `mean UNRATE`, and that  $s/\sqrt{n}$  is the standard error.