

Regression Results in Stata

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1 Regression Results

How Stata Works

- 1 Load data into memory
- 2 You tell Stata to do something
- 3 If valid, Stata:
 - stores some results temporarily
 - prints some results to the console
- 4 New commands overwrite stored results

Ex.: summ stores values in r()

Scalars

r(N)	number of observations
r(mean)	mean
r(skewness)	skewness (detail only)
r(min)	minimum
r(max)	maximum
r(sum_w)	sum of the weights
r(p1)	1st percentile (detail only)
r(p5)	5th percentile (detail only)
r(p10)	10th percentile (detail only)
r(p25)	25th percentile (detail only)
r(p50)	50th percentile (detail only)
r(p75)	75th percentile (detail only)
r(p90)	90th percentile (detail only)
r(p95)	95th percentile (detail only)
r(p99)	99th percentile (detail only)
r(Var)	variance
r(kurtosis)	kurtosis (detail only)
r(sum)	sum of variable
r(sd)	standard deviation

regress stores values in e()

Scalars

e(N)	number of observations
e(mss)	model sum of squares
e(df_m)	model degrees of freedom
e(rss)	residual sum of squares
e(df_r)	residual degrees of freedom
e(r2)	R-squared
e(r2_a)	adjusted R-squared
e(F)	F statistic
e(rmse)	root mean squared error
e(ll)	log likelihood under additional assumption of i.i.d. normal errors
e(ll_0)	log likelihood, constant-only model
e(N_clust)	number of clusters
e(rank)	rank of e(V)

regress stores values in e()

Macros

e(cmd)	regress
e(cmdline)	command as typed
e(depvar)	name of dependent variable
e(model)	ols or iv
e(wtype)	weight type
e(wexp)	weight expression
e(title)	title in estimation output when vce() is not ols
e(clustvar)	name of cluster variable
e(vce)	vcetype specified in vce()
e(vcetype)	title used to label Std. Err.
e(properties)	b V
e(estat_cmd)	program used to implement estat
e(predict)	program used to implement predict
e(marginsok)	predictions allowed by margins
e(asbalanced)	factor variables fvset as asbalanced
e(asobserved)	factor variables fvset as asobserved

regress stores values in e()

Matrices

e(b)	coefficient vector
e(V)	variance-covariance matrix of the estimators
e(V_modelbased)	model-based variance

Functions

e(sample)	marks estimation sample
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What do we do with this?

```
reg growth lcon
```

```
* store fitted values as yhat  
predict yhat
```

```
* store residuals as resid  
predict resid, r
```

```
* plot residuals  
graph twoway resid lcon
```


What do we do with this?

- We often need to explore results
- Default results in Stata console are:
 - Ugly
 - Formatted badly for print
 - Includes superfluous information
- We can store results and print them

What do we want to present?

- Coefficients
- Standard Errors
- Significance stars (?)
- Model fit
 - Adjusted- R^2
 - RMSE ($\hat{\sigma}$)
- Model-specific sample size

Results with estimates I

```
quietly reg growth lcon  
estimates store small
```

```
* print results  
estimates table
```

```
* print results with summary stats  
estimates table, se stats(N r2_a)
```

```
* format printing of coefs/SEs  
estimates table small large, ///  
b(%9.2f) se(%9.2f) stats(N r2_a)
```

Results with estimates II

```
quietly reg growth lcon lconsq  
estimates store large
```

```
estimates table small large  
estimates table small large, se stats(N r2_a)
```

Results with estout

- Stata has lots of user-defined add-on packages
- These can be helpful
- We'll use one called estout¹
- Install with:
`ssc install estout, replace`

¹<http://repec.org/bocode/e/estout/index.html>

Using estout

- Two functions:
 - `esttab`: Simple regression tables
 - `estout`: Better formatted tables
- Generally, use `esttab`
- Use `eststo` to store multiple models
- Lots of options (see `help esttab`)

Results with esttab I

```
reg growth lcon
```

```
* print results (but note t-statistics by default)  
esttab
```

```
* better formatting  
esttab, b(%9.2f) se(%9.2f)
```

Results with esttab II

```
quietly reg growth lcon  
eststo
```

```
quietly reg growth lcon lconsq  
eststo
```

```
estout, b(%9.2f) se(%9.2f) stats(rmse)  
esttab, b(%9.2f) se(%9.2f) stats(rmse)
```


Results with esttab III

- * output results to RTF (for MS Word)

```
esttab using example.rtf
```

- * Stata won't overwrite a file

- * But you can 'replace' or 'append':

```
esttab using example.rtf, replace
```

```
esttab using example.rtf, append
```

