Using `outreg2` to report regression output, descriptive statistics, frequencies and basic crosstabulations

(v1.6 *draft*)

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Linear regression

The command `outreg2` gives you the type of presentation you see in academic papers. It is important to notice that `outreg2` is not a Stata command, it is a user-written procedure, and you need to install it by typing (only the first time)

```
ssc install outreg2
```

Follow this example (letters in italics you type)

```
use "http://dss.princeton.edu/training/Panel101.dta", clear
reg y x1, robust
outreg2 using myreg.doc, replace ctitle(Model 1)
```

```
. outreg2 using myreg.doc, replace ctitle(Model 1)
myreg.doc
dir : seeout
```

Windows users click here to open the file `myreg.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `myreg.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) Model 1
x1	4.950e+08
	(6.902e+08)
Constant	1.524e+09**
	(6.636e+08)
Observations	70
R-squared	0.006

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

You can add other model (using variable *x2*) by using the option `append`
(NOTE: make sure to close `myreg.doc`)

```
reg y x1 x2, robust
outreg2 using myreg.doc, append ctitle(Model 2)
```

```
. outreg2 using myreg.doc, append ctitle(Model 2)
myreg.doc
dir : seeout
```

VARIABLES	(1) Model 1	(2) Model 2
x1	4.950e+08	5.513e+08
	(6.902e+08)	(6.869e+08)
x2		3.808e+07
		(2.478e+08)
Constant	1.524e+09**	1.483e+09**
	(6.636e+08)	(6.595e+08)
Observations	70	70
R-squared	0.006	0.006

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

You also have the option to export to Excel, just use the extension *.xls.
For older versions of `outreg2`, you may need to specify the option `word` or `excel` (after comma)

Source: Updated version shown here http://dss.princeton.edu/training/Regression101.pdf

Linear regression: showing variable labels instead of variable names

The command `outreg2` gives you the type of presentation you see in academic papers. It is important to notice that `outreg2` is not a Stata command, it is a user-written procedure, and you need to install it by typing (only the first time)

```
ssc install outreg2
```

Follow this example (letters in italics you type)

```
use "http://dss.princeton.edu/training/Panel101.dta", clear
reg y x1, robust
outreg2 using myreg.doc, replace ctitle(Model 1) label
```

```
. outreg2 using myreg.doc, replace ctitle(Model 1)
myreg.doc
dir : seeout
```

Windows users click here to open the file `myreg.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `myreg.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) y
Predictor x1	4.950e+08
	(6.902e+08)
Constant	1.524e+09**
	(6.636e+08)
Observations	70
R-squared	0.006

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

You can add other model (using variable *x2*) by using the option `append`
(NOTE: make sure to close `myreg.doc`)

```
reg y x1 x2, robust
outreg2 using myreg.doc, append ctitle(Model 2) label
```

```
. outreg2 using myreg.doc, append ctitle(Model 2)
myreg.doc
dir : seeout
```

VARIABLES	(1) y	(2) y
Predictor x1	4.950e+08	5.513e+08
	(6.902e+08)	(6.869e+08)
Predictor x2		3.808e+07
		(2.478e+08)
Constant	1.524e+09**	1.483e+09**
	(6.636e+08)	(6.595e+08)
Observations	70	70
R-squared	0.006	0.006

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

You also have the option to export to Excel, just use the extension *.xls.
For older versions of `outreg2`, you may need to specify the option `word` or `excel` (after comma)
NOTE: Other options for `label`: `label(insert); label(proper); label(upper); label(lower)`

Source: Updated version of http://dss.princeton.edu/training/Regression101.pdf

Fixed effects regression

Letters in italics you type

```
use "http://dss.princeton.edu/training/Panel101.dta", clear
xtreg y x1 x2 x3, fe robust
outreg2 using myreg.doc, replace ctitle(Fixed Effects) addtext(Country FE, YES)
```

```
. outreg2 using myreg.doc, replace ctitle(Fixed Effects)  addtext(Country FE, YES)
myreg.doc
dir : seeout
```

Windows users click here to open the file `myreg.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `myreg.doc` is saved, open it with Word (you can replace this name with your own)

You also have the option to export to Excel, just use the extension *.xls.

For older versions of `outreg2`, you may need to specify the option `word` or `excel` (after comma)

VARIABLES	(1) Fixed Effects
x1	2.425e+09
	(1.458e+09)
x2	1.823e+09*
	(9.109e+08)
x3	3.097e+08
	(2.380e+08)
Constant	-2.060e+08
	(1.095e+09)
Observations	70
Number of country	7
R-squared	0.101
Country FE	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In fixed effects models you do not have to add the FE coefficients, you can just add a note indicating that the model includes fixed effects. This can be added from `outreg2`, see the option `addtex()` above.

Fro more info on panel data regression see http://dss.princeton.edu/training/Panel101.pdf

Fixed effects with time fixed effects

Letters in italics you type

```
use "http://dss.princeton.edu/training/Panel101.dta", clear
xtreg y x1 x2 x3 i.year, fe robust
outreg2 using myreg.doc, replace ctitle(Fixed Effects) keep(x1 x2 x3) addtext(Country FE, YES, Year FE, YES)
```

```
. outreg2 using myreg.doc, replace ctitle(Fixed Effects)  addtext(Country FE, YES)
myreg.doc
dir : seeout
```

Windows users click here to open the file `myreg.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `myreg.doc` is saved, open it with Word (you can replace this name with your own)

You also have the option to export to Excel, just use the extension *.xls.

For older versions of `outreg2`, you may need to specify the option `word` or `excel` (after comma)

VARIABLES	(1) Fixed Effects
x1	1.632e+09
	(1.492e+09)
x2	1.263e+09
	(1.275e+09)
x3	5.396e+08***
	(1.343e+08)
Constant	-9.256e+08
	(1.068e+09)
Observations	70
Number of country	7
R-squared	0.268
Country FE	YES
Year FE	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In fixed effects models you do not have to add the FE coefficients, you can just add a note indicating that the model includes fixed effects. This can be added from `outreg2`, see the option `addtex()` above.

Fro more info on panel data regression see http://dss.princeton.edu/training/Panel101.pdf

Comparing different linear models

Letters in italics you type

```
use "http://dss.princeton.edu/training/Panel101.dta", clear
xtset country year
reg y x1 x2 x3, robust
outreg2 using myreg.doc, replace ctitle(OLS)
xtreg y x1 x2 x3, fe robust
outreg2 using myreg.doc, append ctitle(Fixed Effects) addtext(Country FE, YES)
xtreg y x1 x2 x3 i.year, fe robust
outreg2 using myreg.doc, append ctitle(Fixed Effects) keep(x1 x2 x3) addtext(Country FE, YES, Year FE, YES)
```

```
. outreg2 using myreg.doc, append ctitle(Fixed Effects) keep(x1 x2 x3) addtext(Country FE, Y
> ES, Year FE, YES)
myreg.doc
dir : seeout
```

Windows users click here to open the file `myreg.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `myreg.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) OLS	(2) Fixed Effects	(3) Fixed Effects
x1	5.591e+08	2.425e+09	1.632e+09
	(6.933e+08)	(1.458e+09)	(1.492e+09)
x2	8.745e+07	1.823e+09*	1.263e+09
	(3.007e+08)	(9.109e+08)	(1.275e+09)
x3	9.262e+07	3.097e+08	5.396e+08***
	(2.096e+08)	(2.380e+08)	(1.343e+08)
Constant	1.401e+09*	-2.060e+08	-9.256e+08
	(7.556e+08)	(1.095e+09)	(1.068e+09)
Observations	70	70	70
R-squared	0.008	0.101	0.268
Number of country		7	7
Country FE		YES	YES
Year FE			YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Fro more info on panel data regression see http://dss.princeton.edu/training/Panel101.pdf

Regression: publishing logit/probit output (outreg2)

You can use outreg2 for almost any regression output (linear or no linear). In the case of logit models with odds ratios, you need to add the option eform, see below

```
use "http://dss.princeton.edu/training/Panel101.dta", clear
logit y_bin x1
outreg2 using mymod.doc, replace ctitle(Logit coeff)
```

```
. outreg2 using mymod.doc, replace ctitle(Logit coeff)
mymod.doc
dir : seeout
```

```
logit y_bin x1, or
outreg2 using mymod.doc, append ctitle(Odds ratio) eform
```

```
. outreg2 using mymod.doc, append ctitle(Odds ratio) eform
mymod.doc
dir : seeout
```

Windows users click here to open the file mymod.doc in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where mymod.doc is saved, open it with Word (you can replace this name with your own)

EQUATION	VARIABLES	(1) Logit coeff	(2) Odds ratio
y_bin	x1	0.493	1.637
		(0.645)	(1.055)
	Constant	1.082**	2.952**
		(0.482)	(1.422)
	Observations	70	70

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

For more details/options and examples type

```
help outreg2
```

Source: http://dss.princeton.edu/training/Regression101.pdf

Regression: publishing regression output (`outreg2`)

For predicted probabilities and marginal effects, see the following document

http://dss.princeton.edu/training/Margins.pdf

Source: http://dss.princeton.edu/training/Regression101.pdf

Using `outreg2` for summary statistics: all variables in dataset

```
sysuse auto, clear
outreg2 using x.doc, replace sum(log)
```

```
. outreg2 using x.doc, replace sum(log)
```

Variable	Obs	Mean	Std. Dev.	Min	Max
price	74	6165.257	2949.496	3291	15906
mpg	74	21.2973	5.785503	12	41
rep78	69	3.405797	.9899323	1	5
headroom	74	2.993243	.8459948	1.5	5
trunk	74	13.75676	4.277404	5	23
weight	74	3019.459	777.1936	1760	4840
length	74	187.9324	22.26634	142	233
turn	74	39.64865	4.399354	31	51
displacement	74	197.2973	91.83722	79	425
gear_ratio	74	3.014865	.4562871	2.19	3.89
foreign	74	.2972973	.4601885	0	1

```
Following variable is string, not included:
make
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
price	74	6,165	2,949	3,291	15,906
mpg	74	21.30	5.786	12	41
rep78	69	3.406	0.990	1	5
headroom	74	2.993	0.846	1.500	5
trunk	74	13.76	4.277	5	23
weight	74	3,019	777.2	1,760	4,840
length	74	187.9	22.27	142	233
turn	74	39.65	4.399	31	51
displacement	74	197.3	91.84	79	425
gear_ratio	74	3.015	0.456	2.190	3.890
foreign	74	0.297	0.460	0	1

For more details/options and examples type `help outreg2`

Using outreg2 for summary statistics: selected variables

```
sysuse auto, clear
outreg2 using x.doc, replace sum(log) keep(price mpg turn)
```

```
. outreg2 using x.doc, replace sum(log) keep(price mpg turn)
```

Variable	Obs	Mean	Std. Dev.	Min	Max
price	74	6165.257	2949.496	3291	15906
mpg	74	21.2973	5.785503	12	41
rep78	69	3.405797	.9899323	1	5
headroom	74	2.993243	.8459948	1.5	5
trunk	74	13.75676	4.277404	5	23
weight	74	3019.459	777.1936	1760	4840
length	74	187.9324	22.26634	142	233
turn	74	39.64865	4.399354	31	51
displacement	74	197.2973	91.83722	79	425
gear_ratio	74	3.014865	.4562871	2.19	3.89
foreign	74	.2972973	.4601885	0	1

```
Following variable is string, not included:
make
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
price	74	6,165	2,949	3,291	15,906
mpg	74	21.30	5.786	12	41
turn	74	39.65	4.399	31	51

For more details/options and examples type `help outreg2`

Using `outreg2` for summary statistics: selected variables in dataset and selected statistics

```
sysuse auto, clear
outreg2 using x.doc, replace sum(log) keep(price mpg turn) eqkeep(N mean)
```

```
. outreg2 using x.doc, replace sum(log) keep(price mpg turn) eqkeep(N mean)
```

Variable	Obs	Mean	Std. Dev.	Min	Max
price	74	6165.257	2949.496	3291	15906
mpg	74	21.2973	5.785503	12	41
rep78	69	3.405797	.9899323	1	5
headroom	74	2.993243	.8459948	1.5	5
trunk	74	13.75676	4.277404	5	23
weight	74	3019.459	777.1936	1760	4840
length	74	187.9324	22.26634	142	233
turn	74	39.64865	4.399354	31	51
displacement	74	197.2973	91.83722	79	425
gear_ratio	74	3.014865	.4562871	2.19	3.89
foreign	74	.2972973	.4601885	0	1

```
Following variable is string, not included:
make
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) N	(2) mean
price	74	6,165
mpg	74	21.30
turn	74	39.65

For more details/options and examples type `help outreg2`

Using `outreg2` for summary statistics: selected variables in dataset and detail statistics

*NOTE: The option "sum(detail)" will give all the summary statistics shown below for the selected variables but it will show in the output window results for all the variables in the dataset. This is similar to typing "summarize, detail"

```
sysuse auto, clear
set more off
outreg2 using x.doc, replace sum(detail) keep(price mpg turn)
```

```
Following variable is string, not included:
make
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max	(6) sum_w	(7) Var	(8) skewness	(9) kurtosis	(10) sum	(11) p1	(12) p5	(13) p10	(14) p25	(15) p50	(16) p75	(17) p90	(18) p95	(19) p99
price	74	6,165	2,949	3,291	15,906	74	8.700e+06	1.653	4.819	456,229	3,291	3,748	3,895	4,195	5,007	6,342	11,385	13,466	15,906
mpg	74	21.30	5.786	12	41	74	33.47	0.949	3.975	1,576	12	14	14	18	20	25	29	34	41
turn	74	39.65	4.399	31	51	74	19.35	0.124	2.229	2,934	31	33	34	36	40	43	45	46	51

OTR

For more details/options and examples type `help outreg2`

Using `outreg2` for summary statistics: selected variables in dataset and selected detail statistics

```
*NOTE: The option "sum(detail)" will give all the summary statistics shown below for
the selected variables but it will show in the output window results for all the
variables in the dataset. This is similar to typing "summarize, detail"
* The option "p50" gives the median

sysuse auto, clear
set more off
outreg2 using x.doc, replace sum(detail) keep(price mpg turn) eqkeep(N mean p50)
```

```
Following variable is string, not included:
make
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) N	(2) mean	(3) p50
price	74	6,165	5,007
mpg	74	21.30	20
turn	74	39.65	40

For more details/options and examples type `help outreg2`

Using `outreg2` for summary statistics: by group, selected variables in dataset and detail statistics

*NOTE: You need to specify either keeping statistics (eqkeep) and droping variables (drop) or viceversa. You can't specify eqkeep() and keep() at the same time

```
sysuse auto, clear
set more off
bysort foreign: outreg2 using x.doc, replace sum(log) eqkeep(N mean) drop(make rep78 headroom trunk weight length displacement gear_ratio)
```

```
Following variable is string, not included:
make
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

VARIABLES	(1) foreign 0 N	(2) mean	(3) foreign 1 N	(4) mean
price	52	6,072	22	6,385
mpg	52	19.83	22	24.77
turn	52	41.44	22	35.41

For more details/options and examples type `help outreg2`

Using `outreg2` for frequencies

```
sysuse auto, clear
outreg2 foreign using x.doc, replace cross
```

```
. outreg2 mileage foreign using x.doc, replace cross
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

	(1)
foreign	Freq (Percent)
0	52 (70.27)
1	22 (29.73)
Total	74

For more details on what are frequencies and how to interpret the table see: http://dss.princeton.edu/training/StataTutorial.pdf

For more details/options and examples type `help outreg2`

Using outreg2 for crosstabs

```
*Taken from outreg2's help file. It can report only column
percents.

sysuse auto, clear
egen mileage=cut(mpg), group(10)
outreg2 mileage foreign using x.doc, replace cross
```

```
. outreg2 mileage foreign using x.doc, replace cross
x.doc
dir : seeout
```

Windows users click here to open the file `x.doc` in Word (you can replace this name with your own) . Otherwise follow the Mac instructions.

Mac users click here to go to the directory where `x.doc` is saved, open it with Word (you can replace this name with your own)

mileage	(1) foreign 0 Freq (Percent)	(2) foreign 1 Freq (Percent)
0	2 (3.846)	
1	11 (21.15)	1 (4.545)
2	2 (3.846)	2 (9.091)
3	7 (13.46)	2 (9.091)
4	8 (15.38)	
5	6 (11.54)	2 (9.091)
6	5 (9.615)	3 (13.64)
7	3 (5.769)	1 (4.545)
8	5 (9.615)	6 (27.27)
9	3 (5.769)	5 (22.73)
Total	52	22

NOTE: If you add the option `side` (after `cross`) it will put all values in columns.

For more details on what are crosstabs and how to interpret the table see: http://dss.princeton.edu/training/StataTutorial.pdf

For more details/options and examples type `help outreg2`