# Stata and LaTeX: Tables with estout

RPAD/RPOS 517
Quantitative Methods
Rockefeller College of Public Affairs & Policy
University at Albany, SUNY

February 23, 2018

### Brief note about this document

This is a short tutorial to create publishable tables from Stata. There are few options w ith user-written packages. The ones you must know are `outreg2` and `estout`. The package `outreg2` is probably most known and easier to learn and manage than `estout`; however, is less flexible and less integrated with the LaTeX environment. But you might find it more beneficial if you do not intend to intend to do statistical analysis ocasionally.

On the other hand, `estout` is a more robust package that has a neat integration with LaTeX. During the course we will rely on `estout` to produce the tables for the assignments. This tutorial shows you how to create basic descriptive statistics and regression tables with `estout`.

For further details on the packages, please refer to the full documentation of estout and outreg2.

## 1 Getting Started

Install the package with the command `ssc install estout`. For this tutorial, we are going to use the built-in dataset auto. Load it with the line `sysuse auto`.

To make our publishable tables, we will need three packages. The first one is `estimates store`; this is a Stata's official command. Then, the command `estpost` will help us to create the Descriptive Statistics table, whereas the command `esttab` will help us to create the Regression tables.

## 2 Descriptive Statistics

First, load the data.

```
. sysuse auto
(1978 Automobile Data)
```

Then, we are going to produce a descriptive statistics table for the variables mpg, price and weight with the command `estpost`.

```
. quietly estpost sum mpg price weight
```

This command produces the descriptive statistics table. Now, we need to export it as a .tex file. To do that, we will use the command `esttab`. In this case, the dot means "use the estimates that are currently in memory" (meaning, the last `estpost` command that you ran). Then, name your file (if you are not using a working directory, use the complete path) with the extension .tex.

In the options that appear below, wathever is inside the `cell(( ))` parenthesis will beis the statistic that will be shown (note that it has double parenthesis). In this case, we want the mean 'verb—mean()—, minimum `min()` and maximum `max()`. We also included the options `nonnumber`, `nomtitle`, and `replace` (see Table 3 below for an explantation of these options).

```
. esttab . using ".\report\Table1.tex", cell((mean() min() max())) ///
                              nonumber nomtitle replace

(output written to `".\report\Table1.tex"')
```

Now, you have successfully saved your .tex file containing your table. Now, you just need to call that .tex file within your .tex document. To do that, you must first create an object with the command begin and tell LaTeX that it's a table (see lines belwow). Next line will center the table. Then, by using the command `input`, call your recently created `Table1.tex` file (you don't neet to write the file extension, since it is assumed is a .tex file). Next line `caption` is the title of your table. Put your title whitin the braces. The title will be automatically numbered. The final line `end` closes the object.

```
\begin{table}[H]
\centering
\input{Table1}
\caption{Summary Statistics}
\end{table}
```

By using those five lines, you table will be inserted in your document and should look like this:

| | mean | min | max |
|---|---|---|---|
| mpg | 21.2973 | 12 | 41 |
| price | 6165.257 | 3291 | 15906 |
| weight | 3019.459 | 1760 | 4840 |
| *N* | 74 | | |

Table 1: Summary Statistics

# 3 Regression

To make a regression table, first run the regression model. In this case, we will start with a bivariate model of mileages per hour on price.

```
. quietly reg price mpg weight
```

The results are stored in temporary memory. We must save the results with the command `estimates store`. To do that, type `estimates store` and then give the results a name (e.g. Model1).

```
. estimates store Model1
```

Now, produce the .tex file for this table. Use the command `esttab`. Then, name the stored model you want to include in the table. In this case, we want our stored `Model1`. after the word `using` name the file path and the file name (if you are using a working directory, you only need the latter, as in the example below). Include the option `replace`.

```
. esttab Model1 using ".\report\Table2.tex", replace
(output written to `".\report\Table2.tex"')
```

The .tex file containing the table must be created at this moment. To insert the table in the document, follow the same process as with the descriptive statistics:

```
\begin{table}[H]
\centering
```

```
\input{Table2}
\caption{Regression. Bivariate Model}
\end{table}
```

See the results below:

| | (1) |
|---|---|
| | price |
| mpg | -49.51 |
| | (-0.57) |
| weight | 1.747** |
| | (2.72) |
| _cons | 1946.1 |
| | (0.54) |
| *N* | 74 |

*t* statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: Regression. Bivariate Model

Finally, we will expand the regression table. We will include more models and more options. We will create a `Model2`, which includes the independent variable `weight` and a `Model3` which includes the independent variables `weight` and `foreign`. Save the results with `estimates store` for each model:

```
. quietly reg price mpg weight

. estimates store Model2

. quietly reg price mpg weight foreign

. estimates store Model3
```

To create the .tex file containing the table, we use again the command `esttab`. Now, we will include our three models stored. We will also include the options `nonumbers` (will take out the number from the heading row), `label` (will use Stata's labels in the variable colums), and `mtitles` (to name the results colums with our own titles). We also want to add the r-squared by including the option `r2(2)`.

```
. esttab Model1 Model2 Model3 using ".\report\Table3.tex", ///
```

```
r2(2) replace label nonumbers mtitles("Model 1" "Model 2" "Model 3")

(output written to `".\report\Table3.tex"')
```

The new `Table3.tex` file will produce this table:

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Mileage (mpg) | -49.51 | -49.51 | 21.85 |
| | (-0.57) | (-0.57) | (0.29) |
| Weight (lbs.) | 1.747** | 1.747** | 3.465*** |
| | (2.72) | (2.72) | (5.49) |
| Car type | | | 3673.1*** |
| | | | (5.37) |
| Constant | 1946.1 | 1946.1 | -5853.7 |
| | (0.54) | (0.54) | (-1.73) |
| Observations | 74 | 74 | 74 |
| $R^2$ | 0.29 | 0.29 | 0.50 |

$t$ statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Summary Statistics

# 4 Extra functions

- What is the [H] symbol that appears besides the command "begin table"?
- To manipulate the table numeration use the package caption
- For more fine-grained manipulation of estout tables, see this documentation.
- To use labels in Stata see here (it's better is you do this in the data management do-file).
- You can check out the companion do-file of this document on blackboard.
- My table doesn't fit the page. How can I solve it?