Creating \LaTeX\ documents from within Stata

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Introduction

- texdoc is a new command to create \LaTeX\ documents from within Stata.
- texdoc is especially convenient to create \LaTeX\ documents that contain Stata output.
- texdoc is like weaving, but all Stata.
- I use it for teaching, e.g. to create solutions for class assignments.
- I also use it for Stata Journal articles.
Create a \LaTeX{} document (interactive mode)

\begin{verbatim}
texdoc_init docname [, replace ]
tex line 1
tex line 2
...
texdoc_close
\end{verbatim}
Syntax and Usage

- Include Stata output in \LaTeX\ document

  \begin{verbatim}
texdoc \_init \_docname [, \_replace \ldots ]
  ...

  texdoc \_stlog [\_name]
  ... \_commands ... 
  texdoc \_stlog \_close

  ...
  texdoc \_close
  \end{verbatim}
Syntax and Usage

- Within `texdoc stlog`, type
  
  \texttt{texdoc\_stlog\_oom \textit{command}}

  to suppress output (and print “\textit{(output omitted)}”).

- Furthermore, within `texdoc stlog` type
  
  \texttt{texdoc\_stlog\_cnp}

  to continue output on next page (and print “\textit{(continued on next page)}”).
Syntax and Usage

- Non-interactive mode: Process a do-file containing \texttt{texdoc}
  commands.

  \begin{verbatim}
  texdoc do filename [, init(docname) close replace ... ]
  \end{verbatim}

- In non-interactive mode you can use the

  \begin{verbatim}
  /*tex ... tex*/
  \end{verbatim}

  comment structure to include blocks of \LaTeX\ code.

- \texttt{init()} and \texttt{close} can also be specified within the do-file using
  \texttt{texdoc init} and \texttt{texdoc close}

- Get rid of all \LaTeX\ and \texttt{texdoc} commands:

  \begin{verbatim}
  texdoc strip oldfile newfile [, replace ]
  \end{verbatim}
Examples
Create homework assignment (interactive mode)

. texdoc init assignment
(texdoc output file is assignment.tex)
. tex \documentclass[12pt]{article}
. tex
. tex \begin{document}
. tex
. tex \section*{Assignment A}
. tex
. tex \subsection*{Exercise 1}
. tex
. tex Open auto.dta and describe the data.
. tex
. tex \subsection*{Exercise 2}
. tex
. tex Run some regressions.
. tex
. tex \subsection*{Exercise 3}
. tex
. tex Draw a scatter plot.
. tex
. tex \subsection*{Exercise 4}
. tex
. tex Draw a histogram.
. tex \end{document}
. texdoc close(texdoc output written to assignment.tex)
Solutions to assignment (non-interactive mode)

Assignment A

Exercise 1
Open auto.dta and describe the data.

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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>make</td>
<td>74</td>
<td>74</td>
<td>2949.5</td>
<td>3291</td>
<td>15906</td>
</tr>
<tr>
<td>price</td>
<td>74</td>
<td>21</td>
<td>5.78</td>
<td>12</td>
<td>41</td>
</tr>
<tr>
<td>rep78</td>
<td>69</td>
<td>3.40</td>
<td>.99</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>headroom</td>
<td>74</td>
<td>2.99</td>
<td>.85</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td>trunk</td>
<td>74</td>
<td>13.76</td>
<td>4.28</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>weight</td>
<td>74</td>
<td>3019.45</td>
<td>777.1936</td>
<td>1760</td>
<td>4840</td>
</tr>
<tr>
<td>length</td>
<td>74</td>
<td>187.93</td>
<td>22.27</td>
<td>142</td>
<td>233</td>
</tr>
<tr>
<td>turn</td>
<td>74</td>
<td>39.65</td>
<td>4.4</td>
<td>31</td>
<td>51</td>
</tr>
<tr>
<td>disp</td>
<td>74</td>
<td>197.29</td>
<td>91.84</td>
<td>79</td>
<td>425</td>
</tr>
<tr>
<td>gear</td>
<td>74</td>
<td>3.01</td>
<td>.46</td>
<td>2.2</td>
<td>3.9</td>
</tr>
<tr>
<td>foreign</td>
<td>74</td>
<td>.29</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

As we can see, the mean price is 6165.

Exercise 2
Run some regressions.

```
. regress price weight mpg
```

```
      Source | SS      | df | MS        | Number of obs = 74
-------------+---------+----+-----------+-------------------
Model       | 186321280 | 2  | 93160639.9 | F( 2, 71) = 14.74
Residual   | 448744116 | 71 | 6320339.67 | R-squared = 0.2934
Total      | 635065396 | 73 | 8699525.97 | Adj R-squared = 0.2735
-------------+---------+----+-----------+-------------------
price      | 1.746 .641 | 2.72 | 0.008     | 0.467 3.025 |
mpg        | -49.51222 | 86.156 | -0.570 | 0.567 -221.3025 122.278 |
_cons      | 1946.069 | 3597.05  | 0.540 | 0.590 -5226.245 9118.382 |
-------------+---------+----+-----------+-------------------
```

Exercise 3
Draw a scatter plot.

```
. scatter price mpg
```

Exercise 4
Draw a histogram.

```
. hist price(bin=8, start=3291, width=1576.875)
```

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Issues

- **texdoc do** always runs everything, that is it
  - cannot process \texttt{\LaTeX} without running Stata commands,
  - cannot run Stata commands without processing \texttt{\LaTeX}.

- An option to copy the pieces of Stata output directly into the \texttt{\LaTeX} document instead of using external log files would be nice.

- **texdoc stlog** relies on \texttt{sjlog}, which has some limitations:
  - linesize is fixed
  - closes the (unnamed) default log

- **texdoc do** does not exit the do-file on exit

- Overall, **texdoc** is only for small documents. I would not use it to produce a whole book or so. Also, **texdoc** is suited primarily for documents where Stata plays an important role. If the document is mostly \texttt{\LaTeX} then an alternative approach should probably be followed . . .
Alternative approach

- Make \LaTeX\ the default and tag Stata commands.
- That is, define a \LaTeX\ document containing blocks of Stata code such as
  \begin{verbatim}
  \begin{stata}
  ... commands ...
  \end{stata}
  \end{verbatim}

  \begin{verbatim}
  \begin{stlog}
  ... commands ...
  \end{stlog}
  \end{verbatim}

  and then process the file e.g. as follows
  \texttt{dotex filename}

- Implementation would not be much more complicated than the implementation of \texttt{texdoc}.
Thanks for listening!