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.
Syntax and Usage

- Create a \LaTeX\ document (interactive mode)

```stata
texdoc_init docname [, replace ]
tex line 1
tex line 2
...
texdoc_close
```
Syntax and Usage

- Include Stata output in \texttt{\LaTeX} document

\begin{verbatim}
 texdoc \_init \textit{docname} [, \_replace ... ] \\
...

 texdoc \_stlog [\textit{name}] \\
... \textit{commands} ...
 texdoc \_stlog \_close

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

- Within `texdoc stlog`, type
  
  \verb|texdoc_stlog_oom command|

  to suppress output (and print ``(output omitted)``).

- Furthermore, within `texdoc stlog` type
  
  \verb|texdoc_stlog_cnp|

  to continue output on next page (and print ``(continued on next page)``).
Syntax and Usage

- Non-interactive mode: Process a do-file containing `texdoc` commands.

  \[
  \text{texdoc do } \texttt{filename} [, \texttt{init(docname)} \texttt{close replace ... } ]
  \]

- In non-interactive mode you can use the

  \[
  /*\text{tex ... tex}*/
  \]

  comment structure to include blocks of \LaTeX{} code.

- `init()` and `close` can also be specified within the do-file using `texdoc init` and `texdoc close`.

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

  \[
  \text{texdoc strip } \texttt{oldfile newfile} [, \texttt{replace } ]
  \]
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)

Assignment A

Exercise 1
Open auto.dta and describe the data.

Exercise 2
Run some regressions.

Exercise 3
Draw a scatter plot.

Exercise 4
Draw a histogram.
. type solutions.do
* Solutions to Assignment A
/tex
\documentclass[12pt]{article}
\usepackage{stata, graphicx}
\begin{document}
\section*{Assignment A}
\subsection*{Exercise 1}
Open auto.dta and describe the data.
\begin{verbatim}
. sysuse auto(1978 Automobile Data)
. summarize
\end{verbatim}
\begin{verbatim}
Obs  Mean    Std. Dev.  Min   Max
make                     
price                   74  6165.26  2949.49  3291  15906
mpg                     74  21.2973  5.785503  12   41
rep78                   69  3.4058   .989932  1    5
headroom                74  2.99324  .845995   1.5    5
trunk                   74  13.7568  4.277404   5    23
weight                  74  3019.46  777.1936  1760  4840
length                  74  187.9324 22.26634  142  233
turn                    74  39.6487  4.399354  31   51
displacement            74 197.30    91.83722  79  425

As we can see, the mean price is 6165.
\end{verbatim}
\subsection*{Exercise 2}
Run some regressions.
\begin{verbatim}
. regress price weight mpg
\end{verbatim}
\begin{verbatim}
Source       SS       df       MS       Number of obs = 74
Model 186321280     2  93160639.9     Prob > F = 0.0000
Residual 448744116   71  6320339.67     R-squared = 0.2934
Total 635065396    73  8699525.97     Root MSE = 2514

price Coef. Std. Err. t P>|t|  [95% Conf. Interval]
weight 1.7466  .6414  2.72  0.008  .4677  3.0254
mpg -49.51  86.16 -0.57  0.567 -221.30 122.28
\end{verbatim}
\begin{verbatim}
. xi: regress price mpg i.rep
(output omitted)
. testparm _I*(1) _Irep78_2 = 0(_2) _Irep78_3 = 0(_3) _Irep78_4 = 0(_4) _Irep78_5 = 0
F(4, 63) = 1.07  Prob > F = 0.3780
\end{verbatim}
\subsection*{Exercise 3}
Draw a scatter plot.
\begin{verbatim}
. scatter price mpg
\end{verbatim}
\subsection*{Exercise 4}
Draw a histogram.
\begin{verbatim}
. hist price(bin=8, start=3291, width=1576.875)
\end{verbatim}
\end{document}
**Issues**

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

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

- `texdoc stlog` relies on `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 \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

dotex filename

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