BTSCS: A BINARY TIME-SERIES–CROSS–SECTION DATA ANALYSIS UTILITY

(*Version 4.0.4*)

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Overview

BTSCS is a program (requiring `Stata` version 5.0 and above) that creates a set of variables necessary to implement the methods described in:

Beck, Nathaniel, Katz, Jonathan N., and Richard Tucker (1998). "Taking Time Seriously in Binary Time-Series–Cross-Section Analysis." *American Journal of Political Science* 42(4):1260-1288.

Binary time-series-cross-section (BTSCS) observations are likely to violate the independence assumption of the ordinary logit or probit statistical model. When observations are temporally related, the results of an ordinary logit or probit analysis may be misleading. Beck, Katz, and Tucker (1998) provide a simple diagnostic for temporal dependence, and a simple remedy based on the idea that BTSCS data is identical to grouped duration data. This recognition allows logit-oriented BTSCS analysts to use familiar methods to incorporate statistical concepts explicitly designed for temporally dependent data.

Beck, Katz, and Tucker (BKT) illustrate the analysis of time until an event/failure for BTSCS data via the logit specification rather than a duration/survival model. Event history analysts model the elapsed time until an "event" or "failure", or, equivalently, the length of a non-eventful spell. BTSCS allows easy computation of a variable such as the length of non-eventful binary spells (i.e., the length of the sequence of zeros preceding current observations). In international politics, for example, war is a frequently analyzed event, and models are constructed for the duration of spells of peace. BTSCS produces a variable that measures the duration of prior spells of peace. For first observations, this variable will equal "0". BTSCS can also produce a set of spline and temporal dummy variables (associated with non-eventful binary spells) to account for duration dependence (as described in BKT).

The treatment of BTSCS data as discrete-time duration data warrants the construction of additional types of covariates. BTSCS provides users with the option to generate other useful variables for BTSCS logit analysis (i.e., first failure marker, number of previous failures counter, and a time until failure counter).

Files

BTSCS.ZIP is comprised of three files: "`btscs.ado`", the command file; "`btscs.hlp`", the corresponding help file; and "`btscsdat.dta`", a sample data file.

The command "`btscs`" creates: a binary spell-identification variable, accompanying spline and temporal dummy variables, previous failure and time until failure counters, and a first failure marker variable.

Installation

To take full advantage of this program, one should follow the directions below and place the above files in one's personal "ado" directory. Then, the user should enter `Stata` and type "help" followed by the command name, e.g., `help btscs`.

1. Download btscs.zip in binary mode.
2. Unzip the file.
3. Verify that your personal "ado" directory exists.

   If you use Windows or DOS, it is probably C:\ADO, but it might be D:\ADO

   If you use Unix, it is ~/ado

   If you use Macintosh, it is ~:ado. That is, it is the ado folder in the same folder that contains the `Stata` folder.

In any case, the way to find out for sure is to enter `Stata` as you ordinarily do and then type "adopath:"

```
.adopath
[1] C:\STATA\ADO
[2] C:\ADO
[3] .
```

The next-to-last-directory is your personal ado directory. You must create your personal "ado" directory, if it does not exist:

```
>mkdir c:\ado
```

4. Copy the "btscs.*" files into your personal ado directory.
   If you have previously installed an earlier version, you will probably see:

   Overwrite ... (Yes/No/All)?

   It is safe to overwrite in this case (and in most other cases, too).

5. You are ready to begin.

References

If you use this program, please cite

- Tucker, Richard (1999). *BTSCS: A Binary Time-Series–Cross-Section Data Analysis Utility.* Version 4.0.4. Cambridge, MA: Harvard University. http://www.fas.harvard.edu/~rtucker/programs/btscs/btscs.html

and

- Beck, Nathaniel, Katz, Jonathan N., and Richard Tucker (1998). "Taking Time Seriously in Binary Time-Series–Cross-Section Analysis." *American Journal of Political Science* 42(4):1260-1288.

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