



## Title

**scplot** — Synthetic Control Methods Plots.

## Syntax

```
scplot , [scest) uncertainty(string) dots_tr_col(colorstyle)
      dots_tr_symb(symbolstyle) dots_tr_size(markersizestyle) dots_sc_col(
      colorstyle) dots_sc_symb(symbolstyle) dots_sc_size(markersizestyle)
      line_tr_col(colorstyle) line_tr_patt(linepatternstyle)
      line_tr_width(linewidthstyle) line_sc_col(colorstyle)
      line_sc_patt(linepatternstyle) line_sc_width(linewidthstyle)
      spike_sc_col(colorstyle) spike_sc_patt(linepatternstyle)
      spike_sc_width(linewidthstyle) gphoptions(string) gphsave(string)
      savedata(dta_name) ]
```

## Description

**scplot** implements several Synthetic Control (SC) plots. The command is designed to be called after **scest** or **scpi** which implement estimation and inference procedures for SC methods using least squares, lasso, ridge, or simplex-type constraints according to [Cattaneo, Feng, and Titiunik \(2021\)](#). The command is a wrapper of the companion Python package. As such, the user needs to have a running version of Python with the package installed. A tutorial on how to install Python and link it to Stata can be found [here](#).

Companion R and Python packages are described in [Cattaneo, Feng, Palomba and Titiunik \(2022\)](#).

Companion commands are: **scdata** for data preparation, **scest** for estimation procedures, and **scpi** for inference procedures.

Related Stata, R, and Python packages useful for inference in SC designs are described in the following website:

<https://nppackages.github.io/scpi/>

## Options

**scest** if specified **scplot** must be called after **scest**. Otherwise, it is presumed that **scplot** is called after **scpi**.

**uncertainty(string)** specifies which prediction intervals are plotted. It does not affect the plot if **scest** is specified. Options are:  
**insample** prediction intervals quantify only in-sample uncertainty.  
**gaussian** prediction intervals quantify in-sample and out-of-sample uncertainty using conditional subgaussian bounds.  
**ls** prediction intervals quantify in-sample and out-of-sample uncertainty imposing a location-scale model.  
**qreg** prediction intervals quantify in-sample and out-of-sample uncertainty using quantile regressions.

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### Marker Options

These options let the user specify color, size, and form of the markers in the plot.

**dots\_tr\_col(colorstyle)** specifies the color of the markers for the treated unit.  
**dots\_tr\_symb(symbolstyle)** specifies the form of the markers for the treated unit.  
**dots\_tr\_size(markersizestyle)** specifies the size of the markers for the treated unit.  
**dots\_sc\_col(colorstyle)** specifies the color of the markers for the SC unit.  
**dots\_sc\_symb(symbolstyle)** specifies the form of the markers for the SC unit.  
**dots\_sc\_size(markersizestyle)** specifies the size of the markers for the SC unit.

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### Line Options

These options let the user specify color, pattern, and width of the lines in the plot.

**line\_tr\_col**(*colorstyle*) specifies the color of the line for the treated unit.  
**line\_tr\_patt**(*linepatternstyle*) specifies the pattern of the line for the treated unit.  
**line\_tr\_width**(*linewidthstyle*) specifies the width of the line for the treated unit.  
**line\_sc\_col**(*colorstyle*) specifies the color of the line for the SC unit.  
**line\_sc\_patt**(*linepatternstyle*) specifies the pattern of the line for the SC unit.  
**line\_sc\_width**(*linewidthstyle*) specifies the width of the line for the SC unit.

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#### Bar Options

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These options let the user specify color, pattern, and width of the bar (spikes) in the plot. These options do not have effect if **scest** is specified.

**spike\_sc\_col**(*colorstyle*) specifies the color of the bars for the SC unit.  
**spike\_sc\_patt**(*linepatternstyle*) specifies the pattern of the bars for the SC unit.  
**spike\_sc\_width**(*linewidthstyle*) specifies the width of the bars for the SC unit.

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#### Others

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**gphoptions**(*string*) specifies additional options to modify the plot.  
**gphsave**(*string*) specifies the path and the name of the *.gph* file that is saved by the command.  
**savedata**(*dta\_name*) saves a *dta\_name.dta* file containing the processed data used to produce the plot.

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#### **Example: Cattaneo, Feng and Titiunik (2021) Germany Data**

Setup

```
. use scpi_germany.dta
```

Prepare data

```
. sdata gdp, dfname("python_sdata") id(country) outcome(gdp) time(year)
  treatment(status) cointegrated
```

Estimate Synthetic Control with a simplex constraint and quantify uncertainty

```
. scpi, dfname("python_sdata") name(simplex) u_missp
```

Plot Synthetic Control Estimate with Prediction Intervals

```
. scplot, gphsave("plot_scpi")
```

#### **References**

Cattaneo, M. D., Feng, Y., and Titiunik, R. 2021. Prediction Intervals for Synthetic Sontrol Methods. *Journal of the American Statistical Association*, 116(536), 1865-1880.

Cattaneo, M. D., Feng, Y., Palomba F., and Titiunik, R. 2022. scpi - Uncertainty Quantification for Synthetic Control Estimators.

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