

GUI — Graphical user interface for power and sample-size analysis

[Description](#) [Menu](#) [Remarks and examples](#) [Also see](#)

Description

This entry describes the graphical user interface (GUI) for the `power` command. See [\[PSS\] power](#) for a general introduction to the `power` command.

Menu

Statistics > Power and sample size

Remarks and examples

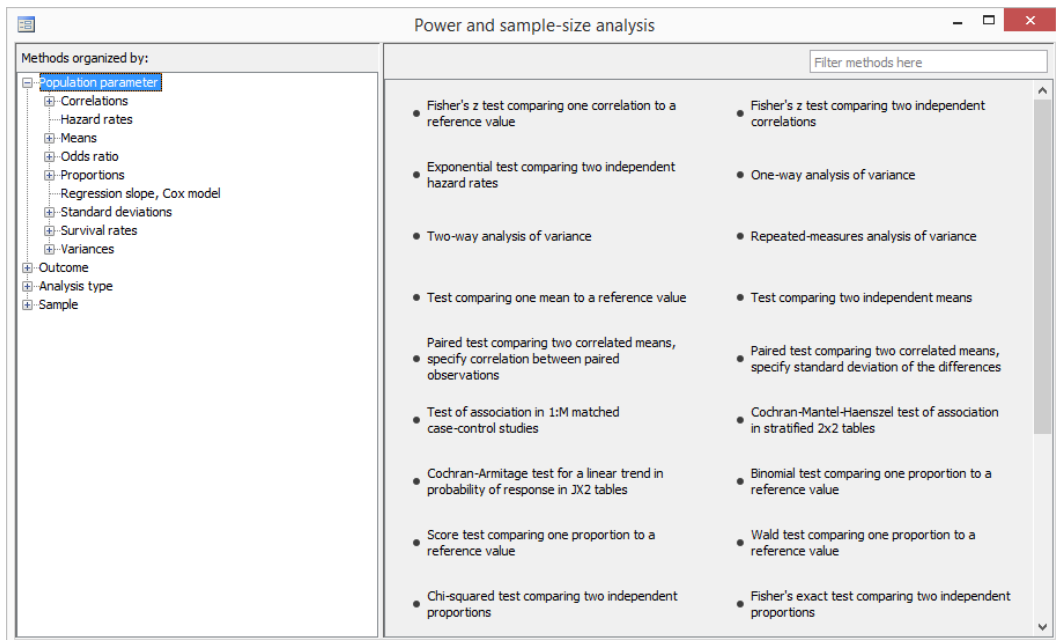
Remarks are presented under the following headings:

- [PSS Control Panel](#)
- [Example with PSS Control Panel](#)

PSS Control Panel

You can perform PSS analysis interactively by typing the `power` command or by using a point-and-click GUI available via the PSS Control Panel.

The PSS Control Panel can be accessed by selecting **Statistics > Power and sample size** from the Stata menu. It includes a tree-view organization of the PSS methods.

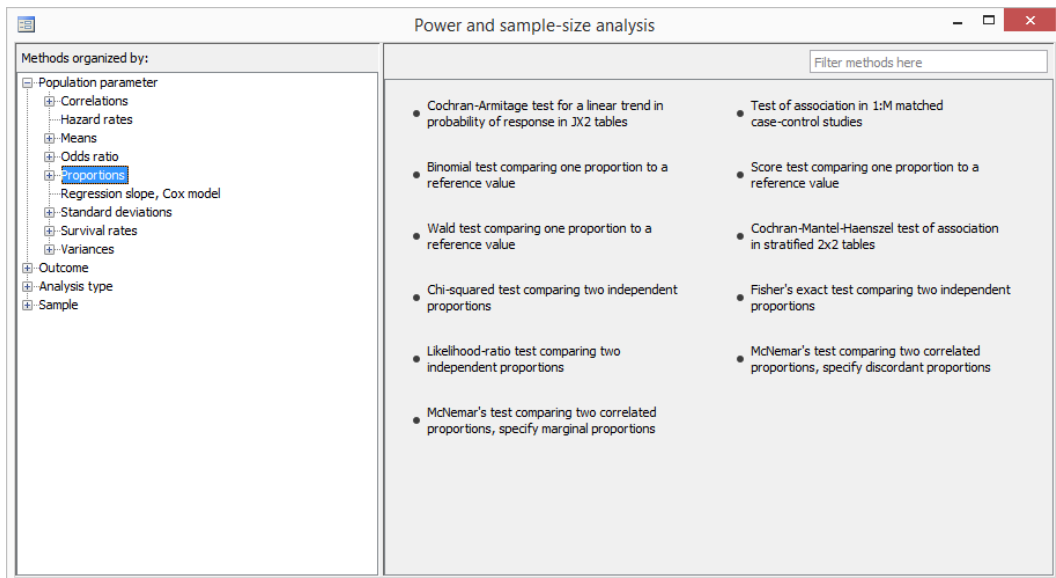


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The left pane organizes the methods, and the right pane displays the methods corresponding to the selection in the left pane. On the left, the methods are organized by the type of population parameter, such as mean or proportion; the type of outcome, such as continuous or binary; the type of analysis, such as t test or χ^2 test; and the type of sample, such as one sample or two samples. You click on one of the methods shown in the right pane to launch the dialog box for that method.

By default, methods are organized by **Population parameter**. We can find the method we want to use by looking for it in the right pane, or we can narrow down the type of method we are looking for by selecting one of the expanded categories in the left pane.

For example, if we are interested in proportions, we can click on **Proportions** within **Population parameter** to see all methods comparing proportions in the right pane.



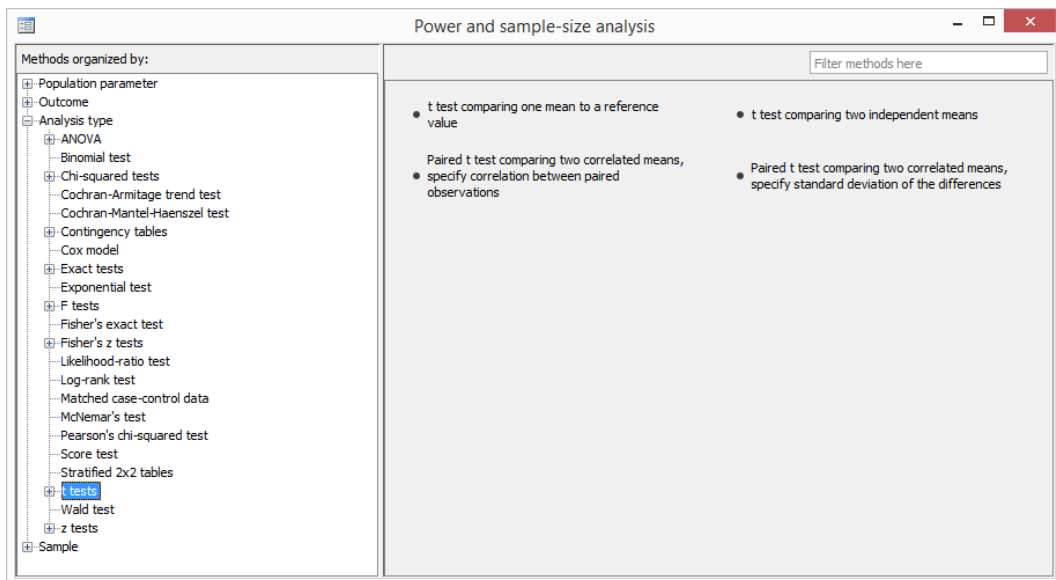
We can expand **Proportions** to further narrow down the choices by clicking on the symbol to the left of **Proportions**.

The screenshot shows a software window titled "Power and sample-size analysis". On the left, a tree view under "Methods organized by:" lists various statistical methods. The "Proportions" category is expanded, showing sub-methods like "Linear trend in Jx2 table, Cochran-Armitage test" and "McNemar's test". On the right, a list of methods is displayed, with a search filter "Filter methods here" at the top. The list includes:

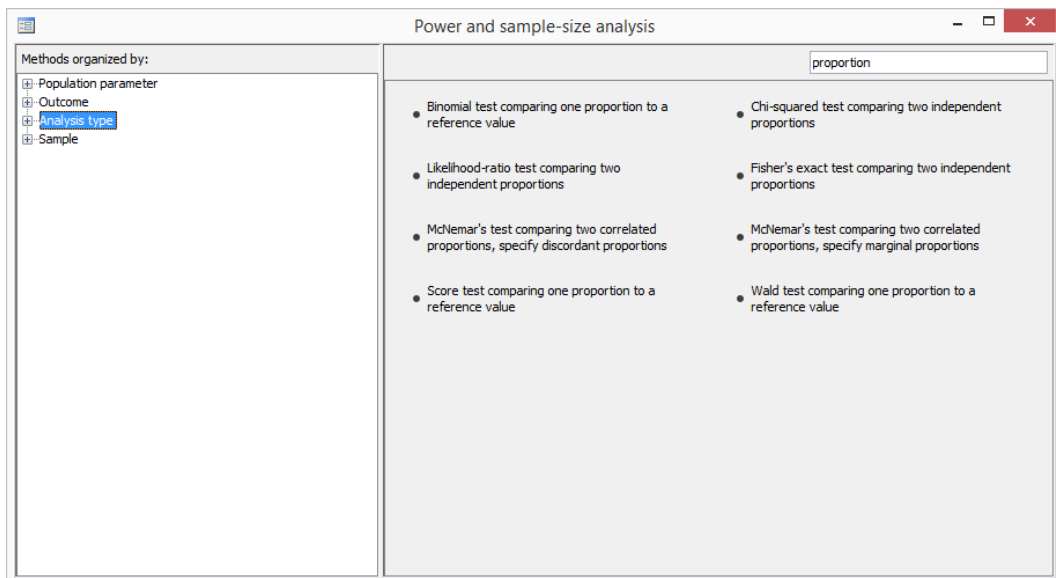
- Cochran-Armitage test for a linear trend in probability of response in Jx2 tables
- Binomial test comparing one proportion to a reference value
- Wald test comparing one proportion to a reference value
- Chi-squared test comparing two independent proportions
- Likelihood-ratio test comparing two independent proportions
- McNemar's test comparing two correlated proportions, specify marginal proportions
- Test of association in 1:M matched case-control studies
- Score test comparing one proportion to a reference value
- Cochran-Mantel-Haenszel test of association in stratified 2x2 tables
- Fisher's exact test comparing two independent proportions
- McNemar's test comparing two correlated proportions, specify discordant proportions

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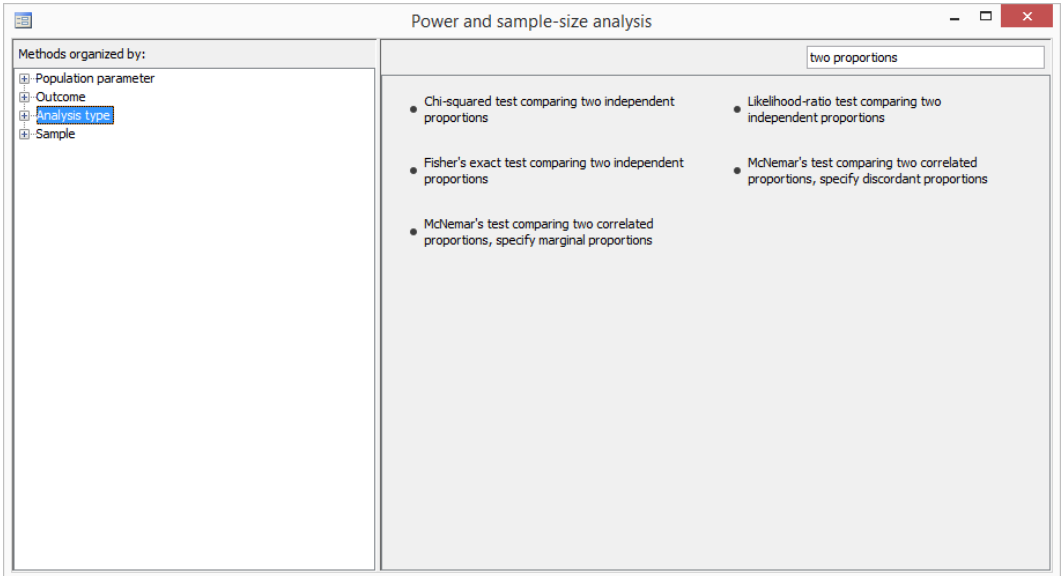
Or we can choose a method by the type of analysis by expanding **Analysis type** and selecting, for example, **t tests**:



We can also locate methods by searching the titles of methods. You specify the search string of interest in the *Filter* box at the top right of the PSS Control Panel. For example, if we type “proportion” in the *Filter* box while keeping the focus on **Analysis type**, only methods with a title containing “proportion” will be listed in the right pane.



We can specify multiple words in the *Filter* box, and only methods with all the specified words in their titles will appear. For example, if we type “two proportions”, only methods with the words “two” and “proportions” in their titles will be shown:

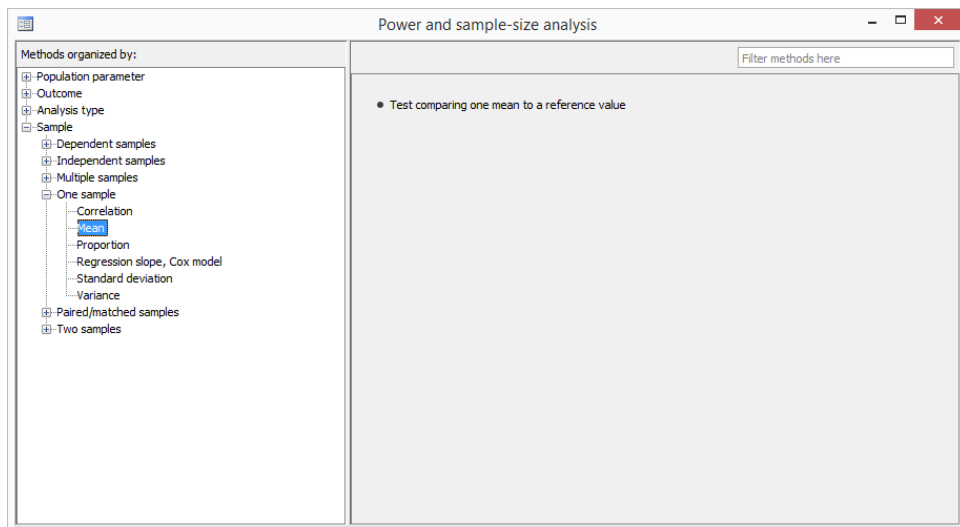


The search is performed within the group of methods selected by the choice in the left pane. In the above example, the search was done within **Analysis type**. When you select one of the top categories in the left pane, the same set of methods appears in the right pane but in the order determined by the specific organization. To search all methods, you can first select any of the four top categories, and you will get the same results but possibly in a slightly different order determined by the selected top-level category.

Example with PSS Control Panel

In *An example of PSS analysis in Stata* in [PSS] [intro](#), we performed PSS analysis interactively by typing commands. We replicate the analysis by using the PSS Control Panel and dialog boxes.

We first launch the PSS Control Panel from the **Statistics > Power and sample size** menu. We then narrow down to the desired dialog box by first choosing **Sample** in the left pane, then choosing **One sample** within that, and then choosing **Mean**. In the right pane, we see **Test comparing one mean to a reference value**.



We invoke the dialog box by clicking on the method title in the right pane. The following appears:

power onemean - Power analysis for a one-sample mean test

Main Table Graph Iteration

Compute: * Accepts numlist (Examples)
Sample size

Error probabilities
0.05 * Significance level 0.8 * Power

Sample size
 Allow fractional sample size

Effect size

Means
* Null
* Alternative

Standard deviation
1 * Standard deviation
 Assume a known standard deviation

* Finite population correction:
None

Sides:
Two-sided test

Treat number lists in starred(*) options as parallel

OK Cancel Submit

Following the example from *An example of PSS analysis in Stata* in [PSS] **intro**, we now compute sample size. The first step is to choose which parameter to compute. The *Compute* drop-down box specifies `Sample size`, so we leave it unchanged. The next step is to specify error probabilities. The default significance level is already set to our desired value of 0.05, so we leave it unchanged. We change power from the default value of 0.8 to 0.9. We then specify a null mean of 514, an alternative mean of 534, and a standard deviation of 117 in the *Effect size* group of options. We leave everything else unchanged and click on the **Submit** button to obtain results.

The following command is displayed in the Results window and executed:

```
. power onemean 514 534, sd(117) power(0.9)
Performing iteration ...
Estimated sample size for a one-sample mean test
t test
Ho: m = m0 versus Ha: m != m0
Study parameters:
      alpha =    0.0500
      power =    0.9000
      delta =    0.1709
      m0 =   514.0000
      ma =   534.0000
      sd =   117.0000
Estimated sample size:
      N =      362
```

We can verify that the command and results are exactly the same as what we specified in [An example of PSS analysis in Stata](#) in [\[PSS\] intro](#).

Continuing our PSS analysis, we now want to compute power for a sample of 300 subjects. We return to the dialog box and select **Power** under *Compute*. The only thing we need to specify is the sample size of 300:

The following command is issued after we click on the **Submit** button:

```
. power onemean 514 534, sd(117) n(300)
Estimated power for a one-sample mean test
t test
Ho: m = m0 versus Ha: m != m0
Study parameters:
    alpha =    0.0500
     N    =    300
    delta =    0.1709
     m0   = 514.0000
     ma   = 534.0000
     sd   = 117.0000
Estimated power:
    power =    0.8392
```

To compute effect size, we select *Effect size and target mean* under *Compute*. All the previously used values for power and sample size are preserved, so we do not need to specify anything additional.

We click on the **Submit** button and get the following:

```
. power onemean 514, sd(117) power(0.9) n(300)
Performing iteration ...
Estimated target mean for a one-sample mean test
t test
Ho: m = m0 versus Ha: m != m0; ma > m0
Study parameters:
      alpha =    0.0500
      power =    0.9000
         N =     300
        m0 = 514.0000
        sd = 117.0000
Estimated effect size and target mean:
      delta =    0.1878
         ma = 535.9671
```

To produce the graph from *An example of PSS analysis in Stata*, we first select Power under Compute. Then we specify the *numlists* for sample size and alternative mean in the respective edit boxes:

power onemean - Power analysis for a one-sample mean test

Main Table Graph Iteration

Compute: * Accepts numlist (Examples)
Power

Error probabilities
0.05 * Significance level

Sample size
200(10)300 * Sample size

Effect size

Means
514 * Null
535(5)550 * Alternative

Standard deviation
117 * Standard deviation
 Assume a known standard deviation

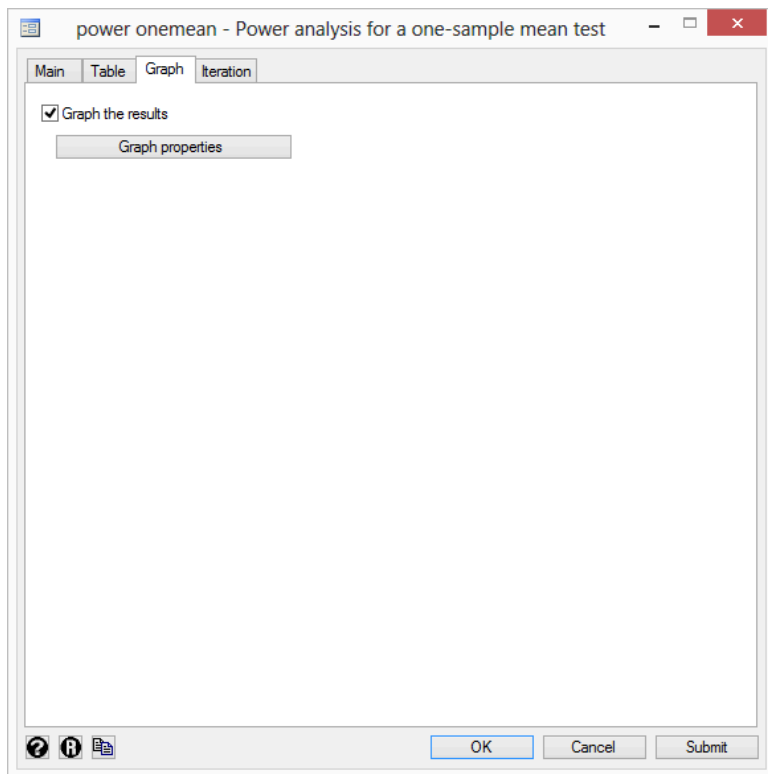
* Finite population correction:
None

Sides:
Two-sided test

Treat number lists in starred(*) options as parallel

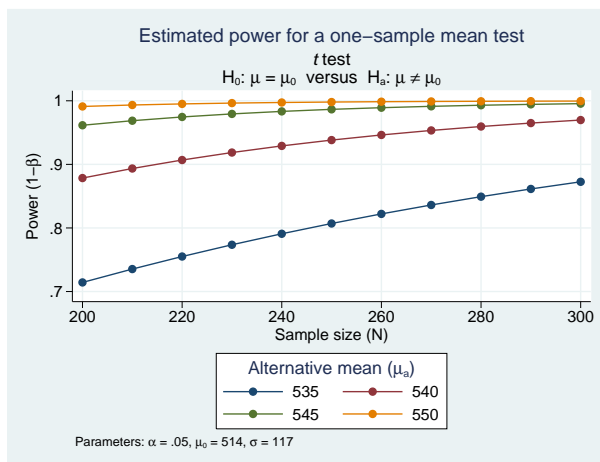
OK Cancel Submit

We also check the *Graph the results* box on the **Graph** tab:



We click on the **Submit** button and obtain the following command and graph:

```
. power onemean 514 (535(5)550), sd(117) n(200(10)300) graph
```



Also see

[PSS] [power](#) — Power and sample-size analysis for hypothesis tests

[PSS] [intro](#) — Introduction to power and sample-size analysis

[PSS] [Glossary](#)