

**mca postestimation plots** — Postestimation plots for mca

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## Postestimation commands

The following postestimation commands are of special interest after `mca`:

Command	Description
<code>mcaplot</code>	plot of category coordinates
<code>mcaprojection</code>	MCA dimension projection plot

## mcaplot

### Description for mcaplot

`mcaplot` produces a scatterplot of category points of the MCA variables in two dimensions.

### Menu for mcaplot

Statistics > Multivariate analysis > Correspondence analysis > Postestimation after MCA or JCA > Plot of category coordinates

### Syntax for mcaplot

```
mcaplot [speclist] [, options]
```

where

```
speclist = spec [spec ...]
```

```
spec = varlist | (varname [, plot_options])
```

and variables in *varlist* or *varname* must be from the preceding `mca` and may refer to either a regular categorical variable or a crossed variable. The variables may also be supplementary.

<i>options</i>	Description
Options	
<i>combine_options</i>	affect the rendition of the combined graphs
<i>overlay</i>	overlay the plots of the variables; default is to produce separate plots
<i>dimensions</i> (# <sub>1</sub> # <sub>2</sub> )	display dimensions # <sub>1</sub> and # <sub>2</sub> ; default is <i>dimensions</i> (2 1)
<i>normalize</i> ( <i>standard</i> )	display standard coordinates
<i>normalize</i> ( <i>principal</i> )	display principal coordinates
<i>maxlength</i> (#)	use # as maximum number of characters for labels; default is <i>maxlength</i> (12)
<i>xnegate</i>	negate the coordinates relative to the <i>x</i> axis
<i>ynegate</i>	negate the coordinates relative to the <i>y</i> axis
<i>origin</i>	mark the origin and draw origin axes
<i>originlopts</i> ( <i>line_options</i> )	affect the rendition of the origin axes
Y axis, X axis, Titles, Legend, Overall	
<i>twoway_options</i>	any options other than <i>by</i> () documented in [G-3] <i>twoway_options</i>

<i>plot_options</i>	Description
<i>marker_options</i>	change look of markers (color, size, etc.)
<i>marker_label_options</i>	add marker labels; change look or position
<i>twoway_options</i>	titles, legends, axes, added lines and text, regions, etc.

## Options for mcaplot

### Plots

*plot\_options* affect the rendition of markers, including their shape, size, color, and outline (see [G-3] *marker\_options*) and specify if and how the markers are to be labeled (see [G-3] *marker\_label\_options*). These options may be specified for each variable. If the *overlay* option is not specified, then for each variable you may also specify many of the *twoway\_options* excluding *by*(), *name*(), and *aspectratio*(); see [G-3] *twoway\_options*. See *twoway\_options* below for a warning against using options such as *xlabel*(), *xscale*(), *ylabel*(), and *yscale*() .

### Options

*combine\_options* affect the rendition of the combined plot; see [G-2] **graph combine**. *combine\_options* may not be specified with *overlay*.

*overlay* overlays the biplot graphs for the variables. The default is to produce a combined graph of the biplot graphs.

*dimensions*(#<sub>1</sub> #<sub>2</sub>) identifies the dimensions to be displayed. For instance, *dimensions*(3 2) plots the third dimension (vertically) versus the second dimension (horizontally). The dimension number cannot exceed the number of extracted dimensions. The default is *dimensions*(2 1).

*normalize*(*norm*) specifies the normalization of the coordinates. *normalize*(*standard*) returns coordinates in standard normalization. *normalize*(*principal*) returns principal coordinates. The default is the normalization method specified with *mca* during estimation, or *normalize*(*standard*) if no method was specified.

`maxlength(#)` specifies the maximum number of characters for row and column labels; the default is `maxlength(12)`.

`xnegate` specifies that the  $x$ -axis coordinates be negated (multiplied by  $-1$ ).

`ynegate` specifies that the  $y$ -axis coordinates be negated (multiplied by  $-1$ ).

`origin` marks the origin and draws the origin axes.

`originlopts(line_options)` affect the rendition of the origin axes. See [G-3] [line\\_options](#).

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Y axis, X axis, Titles, Legend, Overall

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*twoway\_options* are any of the options documented in [G-3] [twoway\\_options](#) excluding `by()`.

`mcaplot` automatically adjusts the aspect ratio on the basis of the range of the data and ensures that the axes are balanced. As an alternative, the *twoway\_option* `aspectratio()` can be used to override the default aspect ratio. `mcaplot` accepts the `aspectratio()` option as a suggestion only and will override it when necessary to produce plots with balanced axes; that is, distance on the  $x$  axis equals distance on the  $y$  axis.

*twoway\_options* such as `xlabel()`, `xscale()`, `ylabel()`, and `yscale()` should be used with caution. These options *axis\_options* are accepted but may have unintended side effects on the aspect ratio. See [G-3] [twoway\\_options](#).

## mcaprojection

### Description for mcaprojection

`mcaprojection` produces a projection plot of the coordinates of the categories of the MCA variables.

### Menu for mcaprojection

Statistics > Multivariate analysis > Correspondence analysis > Postestimation after MCA or JCA > Dimension projection plot

### Syntax for mcaprojection

```
mcaprojection [speclist] [, options]
```

where

```
speclist = spec [spec ... ]
```

```
spec = varlist | (varname [, plot_options])
```

and variables in *varlist* or *varname* must be from the preceding `mca` and may refer to either a regular categorical variable or a crossed variable. The variables may also be supplementary.

<i>options</i>	Description
Options	
<code><u>d</u>imensions(<i>numlist</i>)</code>	display <i>numlist</i> dimensions; default is all
<code><u>n</u>ormalize(<u>p</u>rincipal)</code>	scores (coordinates) should be in principal normalization
<code><u>n</u>ormalize(<u>s</u>tandard)</code>	scores (coordinates) should be in standard normalization
<code><u>a</u>lternate</code>	alternate labels
<code><u>m</u>axlength(<i>#</i>)</code>	use <i>#</i> as maximum number of characters for labels; default is <code>maxlength(12)</code>
<code><i>combine_options</i></code>	affect the rendition of the combined graphs
Y axis, X axis, Titles, Legend, Overall	
<code><i>twoway_options</i></code>	any options other than by() documented in <a href="#">[G-3] <i>twoway_options</i></a>

<i>plot_options</i>	Description
<code><i>marker_options</i></code>	change look of markers (color, size, etc.)
<code><i>marker_label_options</i></code>	add marker labels; change look or position
<code><i>twoway_options</i></code>	titles, legends, axes, added lines and text, regions, etc.

## Options for mcaprojection

### Plots

*plot\_options* affect the rendition of markers, including their shape, size, color, and outline (see [G-3] *marker\_options*) and specify if and how the markers are to be labeled (see [G-3] *marker\_label\_options*). These options may be specified for each variable. If the *overlay* option is not specified then for each variable you may also specify *twoway\_options* excluding *by()* and *name()*; see [G-3] *twoway\_options*.

### Options

*dimensions(numlist)* identifies the dimensions to be displayed. By default, all dimensions are displayed.

*normalize(norm)* specifies the normalization of the coordinates. *normalize(standard)* returns coordinates in standard normalization. *normalize(principal)* returns principal coordinates. The default is the normalization method specified with *mca* during estimation, or *normalize(standard)* if no method was specified.

*alternate* causes adjacent labels to alternate sides.

*maxlength(#)* specifies the maximum number of characters for row and column labels; the default is *maxlength(12)*.

*combine\_options* affect the rendition of the combined plot; see [G-2] *graph combine*. These options may not be used if only one variable is specified.

### Y axis, X axis, Titles, Legend, Overall

*twoway\_options* are any of the options documented in [G-3] *twoway\_options*, excluding *by()*.

## Remarks and examples

[stata.com](http://www.stata.com)

Several examples of *mcaplot* were displayed in [MV] *mca*, so we will not give more examples here. The discussion in [MV] *ca postestimation* is also relevant.

We will focus on *mcaprojection*, which is the *mca* analogue of *caprojection*, just as *mcaplot* is the analogue of *cabiplot*.

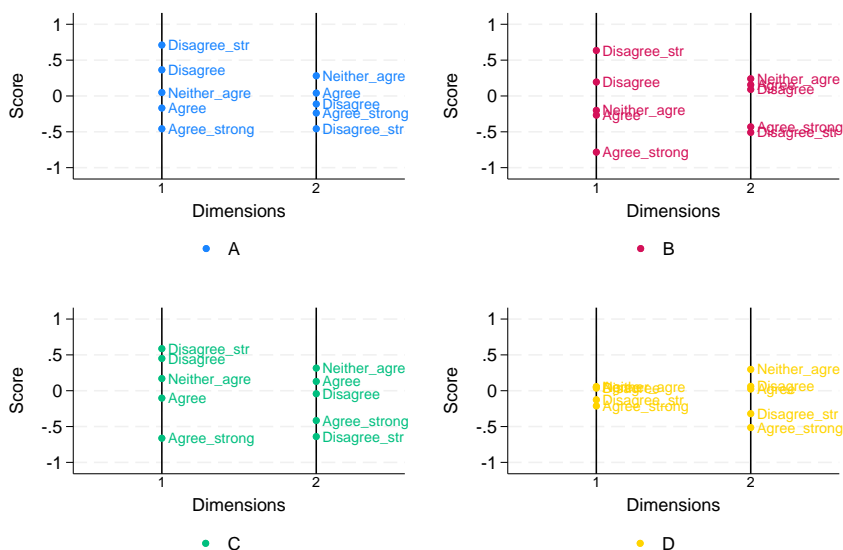
### ► Example 1: MCA dimension projection plot

*mcaprojection* produces a projection plot of the column coordinates after *mca*. We continue with *example 1* of [MV] *mca postestimation*. Say that we want to examine the projections in the principal normalization.

```
. use https://www.stata-press.com/data/r18/issp93
(selection from ISSP (1993))
. mca A-D, method(joint)
(output omitted)
```

```
. mcaprojection, norm(principal)
```

### MCA dimension projection plot



Principal normalization

We would see the same alignment of points in the standard normalization, but the scale would be changed. We have noted previously that item D does not behave like the other variables in the MCA. Each of the first three variables, A, B, and C, has its responses arrayed in order from strong disagreement to strong agreement on the first dimension. Here again, variable D is the only one of the four that shows a different ordering in its projection. We do not see a nice projection from strong disagreement to strong agreement on the second dimension, but an inspection indicates that the first three variables are all in the same order, with the last, D, opposed to the remainder.

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## Methods and formulas

See *Methods and formulas* in [MV] **mca**.

## References

See *References* in [MV] **mca**.

## Also see

[MV] **mca** — Multiple and joint correspondence analysis

[MV] **mca postestimation** — Postestimation tools for mca

[MV] **ca** — Simple correspondence analysis,

[MV] **ca postestimation** — Postestimation tools for ca and camat

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