aspect_option — Option for controlling the aspect ratio of the plot region

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Description

The `aspectratio()` option controls the relationship between the height and width of a graph's plot region. For example, when # = 1, the height and width will be equal (their ratio is 1), and the plot region will be square.

Quick start

Make the plot region square by specifying an aspect ratio of 1

graph_command `...,` `... aspect(1)`

Make the plot region twice as tall as it is wide

graph_command `...,` `... aspect(2)`

Make the plot region twice as wide as it is tall

graph_command `...,` `... aspect(.5)`

Syntax

aspect_option	Description
`aspectratio(`# [`,` *suboptions*]`)`	set plot region aspect ratio to #

suboptions	Description
`placement(`*compassdirstyle*`)`	placement of plot region
`units`	interpret # as the relative scale of the units
`yaxis(`#`)`	y axis whose units are to be used with `units`
`xaxis(`#`)`	x axis whose units are to be used with `units`

Option

`aspectratio(`#`)` specifies the aspect ratio.

Suboptions

`placement(`*compassdirstyle*`)` specifies where the plot region is to be placed to take up the area left over by restricting the aspect ratio. See [G-4] ***compassdirstyle***.

`units` specifies that # be interpreted as the relative scale of the units on the x and y axes.

The most common specification is `aspectratio(1, units)`, meaning that the x and y axes have common units and that the distance taken up by those units in the x and y dimensions should be the same. You might want such scaling of the units when plotting longitude and latitude coordinates on a map; you want each unit to take up the same amount of space in both dimensions. Similarly, you want this type of scaling when plotting unitless variables, such as indices, in both the x and y dimensions.

A less common use would be if you wanted 1 unit in the y dimension to take up as much space as 1,000 units in the x dimension. In that case, you would type `aspectratio(1000, units)`.

When `units` is specified, the dimensions of the plot region are chosen to enforce this relative scale in the units of the x and y axes.

`units` is not allowed with `graph bar`, `graph dot`, or `graph box`. Common scales on the x and y axes make no sense for these graphs.

`yaxis(#)` and `xaxis(#)` are for use with suboption `units`, but they are rarely used. If your graph has more than one x or y axis, these options specify the x or y axis from which to enforce the relative scaling of units. The options may be used individually or together. The # in these options should match the # from the *axis_choice_options*, which created the desired axes.

`yaxis(#)` specifies the y axis to be used when creating relative scale units using `units`. The default is `yaxis(1)`.

`xaxis(#)` specifies the x axis to be used when creating relative scale units using `units`. The default is `xaxis(1)`.

Remarks and examples

The `aspectratio(#)` option constrains the ratio of the plot region to #. So, if # is 1, the plot region is square; if it is 2, the plot region is twice as tall as it is wide; and, if it is 0.25, the plot region is one-fourth as tall as it is wide. The most common use is `aspectratio(1)`, which produces a square plot region.

When `units` is added, the ratio of the length of the axes' units in the x and y dimensions is constrained to #. The most common use is `aspectratio(1, units)`, which produces a plot for which one unit in the y dimension is the same length as one unit in the x dimension. As an example, consider a map where longitude and latitude have the same length.

The overall size of the graph is not changed by the `aspectratio()` option. Thus constraining the aspect ratio will generally leave some additional space around the plot region in either the horizontal or vertical dimension. By default, the plot region will be centered in this space, but you can use the `placement()` option to control where the plot region is located. `placement(right)` will place the plot region all the way to the right in the extra space, leaving all the blank space to the left; `placement(top)` will place the plot region at the top of the extra space, leaving all the blank space at the bottom; `placement(left)` and `placement(right)` work similarly.

Specifying an aspect ratio larger than the default for a graph causes the width of the plot region to become narrower. Conversely, specifying a small aspect ratio causes the plot region to become shorter. Because titles and legends can be wider than the plot region, and because most schemes do not allow titles and legends to span beyond the width of the plot region, this can sometimes lead to surprising spacing of some graph elements; for example, axes may be forced away from their plot region. If this occurs, the spacing can be improved by adding the `span` suboption to the `title()`, `subtitle()`, `legend()`, or other options. The `span` option must be added to each element that is wider than the plot region. See *Spanning* in [G-3] ***title_options*** for a diagram.

Reference

Cox, N. J. 2004. Stata tip 12: Tuning the plot region aspect ratio. *Stata Journal* 4: 357–358.

Also see

[G-2] **graph bar** — Bar charts

[G-2] **graph box** — Box plots

[G-2] **graph dot** — Dot charts (summary statistics)

[G-2] **graph twoway** — Two-way graphs

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