Title

> **irf ograph —** Overlaid graphs of IRFs, dynamic-multiplier functions, and FEVDs

Description	Quick start	Menu	Syntax
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Description

irf ograph displays plots of irf results on one graph (one pair of axes).

Quick start

Graph of an orthogonalized IRF myirf overlayed on cumulative IRF mycirf for dependent variables
y1 and y2

    irf ograph (myirf y1 y2 oirf) (mycirf y1 y2 cirf)

Same as above, and include confidence bands and add a title

    irf cgraph (myirf y1 y2 oirf) (mycirf y1 y2 cirf), ci   ///
        title("My Title")

Note: irf commands can be used after var, svar, ivsvar, vec, arima, arfima, lpirf, dsge, or
dsgenl; see [TS] **var**, [TS] **var svar**, [TS] **var ivsvar**, [TS] **vec**, [TS] **arima**, [TS] **arfima**, [TS] **lpirf**,
[DSGE] **dsge**, or [DSGE] **dsgenl**.

Menu

Statistics > Postestimation

Syntax

> irf <u>og</u>raph (spec₁) $\left[\right.$ (spec₂) …$\left[\right.$ (spec₁₅) $\left.\right]\left.\right]$ $\left[\right.$, options $\left.\right]$

where (specₖ) is

> (irfname impulsevar responsevar stat $\left[\right.$, plot_options $\left.\right]$)

irfname is the name of a set of IRF results in the active IRF file or ".", which means the first named result in the active IRF file. impulsevar should be specified as an endogenous variable for all statistics except dm and cdm; for those, specify as an exogenous variable. responsevar is an endogenous variable name. stat is one or more statistics from the list below:

stat	Description
Main	
irf	impulse–response function
oirf	orthogonalized impulse–response function
dm	dynamic-multiplier function
cirf	cumulative impulse–response function
coirf	cumulative orthogonalized impulse–response function
cdm	cumulative dynamic-multiplier function
fevd	Cholesky forecast-error variance decomposition
sirf	structural impulse–response function
sfevd	structural forecast-error variance decomposition

plot_options	Description
Main	
ci	add confidence bands to the graph
level(#)	set confidence level; default is level(95)
<u>l</u>step(#)	use # for first step
<u>u</u>step(#)	use # for maximum step
Plot	
cline_options	affect rendition of the plotted lines
CI plot	
ciopts(*area_options*)	affect rendition of the confidence intervals

plot_options may be specified within a plot specification, globally, or in both. When specified in a plot specification, *plot_options* affect only the specification in which they are used. When supplied globally, *plot_options* affect all plot specifications. When supplied in both places, options in the plot specification take precedence.

options	Description
set(*filename*)	make *filename* active
Graph options	
graph_options	any options other than by() documented in [G-3] *twoway_options*

collect is allowed; see [U] **11.1.10 Prefix commands**.

Options

set(*filename*) specifies the file to be made active; see [TS] **irf set**. If set() is not specified, the active file is used.

plot_options affect the rendition of the specification and include the following:

      ‾‾‾| Main |‾‾

ci adds confidence bands to the graph. The noci option may be used within a plot specification to suppress its confidence bands when the ci option is supplied globally.

level(#) specifies the confidence level, as a percentage, for confidence bands; see [U] **20.8 Specifying the width of confidence intervals**.

lstep(#) specifies the first step, or period, to be included in the graph. lstep(0) is the default.

ustep(#), # ≥ 1, specifies the maximum step, or period, to be included.

      ‾‾‾| Plot |‾‾

cline_options affect the rendition of the plotted lines; see [G-3] *cline_options*.

      ‾‾‾| CI plot |‾‾

ciopts(*area_options*) affects the rendition of the confidence bands for the plotted statistic; see [G-3] *area_options*. ciopts() implies ci.

      ‾‾‾| Graph options |‾‾

graph_options are any of the options documented in [G-3] *twoway_options*, excluding by(). These include options for titling the graph (see [G-3] *title_options*) and for saving the graph to disk (see [G-3] *saving_option*).

Remarks and examples

[stata.com]

If you have not read [TS] **irf**, please do so.

irf ograph overlays plots of IRFs and FEVDs on one graph.

▷ Example 1

We have previously issued the commands:

```
. use https://www.stata-press.com/data/r18/lutkepohl2
. var dln_inv dln_inc dln_consump if qtr<=tq(1978q4), lags(1/2) dfk
. irf create order1, step(10) set(myirf1, new)
. irf create order2, step(10) order(dln_inc dln_inv dln_consump)
```

We now wish to compare the `oirf` for impulse `dln_inc` and response `dln_consump` for two different Cholesky orderings:

```
. irf ograph (order1 dln_inc dln_consump oirf)
>            (order2 dln_inc dln_consump oirf)
```


◁
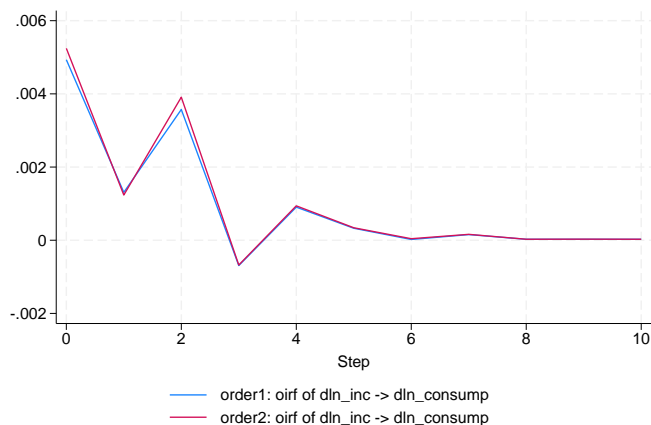
□ Technical note

Graph options allow you to change the appearance of each plot. The following graph contains the plots of the FEVDS for impulse `dln_inc` and each response using the results from the first collection of results in the active IRF file (using the "." shortcut). We specify `ciopts(color())` with each plot to request confidence bands and specify a color that corresponds to the plotted line. In the second plot, we supply the `clpat(dash)` option (an abbreviation for `clpattern(dash)`) to give the line a dashed pattern. In the third plot, we supply the `m(o)`, `clpat(dash_dot)`, and `recast(connected)` options to get small circles connected by a line with a dash–dot pattern. We use the `title()` option to add a descriptive title to the graph.

```
. irf ograph (. dln_inc dln_inc fevd, ciopts(color(ltblue)))
>           (. dln_inc dln_consump fevd, ciopts(color(cranberry*.3))
>                     clpat(dash))
>           (. dln_inc dln_inv fevd, ciopts(color(green*.3))
>                     m(o) clpat(dash_dot) recast(connected))
>        , title("Comparison of forecast-error variance decomposition")
```
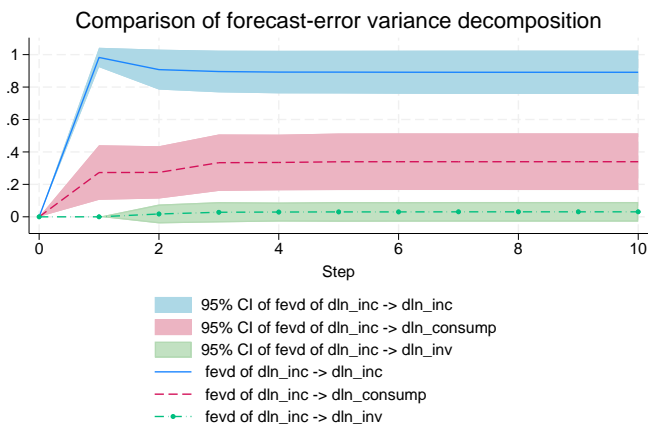

The clpattern() option is described in [G-3] *connect_options*, msymbol() is described in [G-3] *marker_options*, title() is described in [G-3] *title_options*, and recast() is described in [G-3] *advanced_options*.

❑

Stored results

irf ograph stores the following in r():

Scalars
    r(plots)   number of plot specifications
    r(ciplots)   number of plotted confidence bands

Macros
    r(irfname#)   *irfname* from (*spec#*)
    r(impulse#)   impulse from (*spec#*)
    r(response#)   response from (*spec#*)
    r(stat#)   statistics from (*spec#*)
    r(ci#)   level from (*spec#*) or noci

Also see

[TS] **irf** — Create and analyze IRFs, dynamic-multiplier functions, and FEVDs

[TS] **var intro** — Introduction to vector autoregressive models

[TS] **vec intro** — Introduction to vector error-correction models

For suggested citations, see the FAQ on citing Stata documentation.