

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

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Description

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

To become familiar with this command, type `db irf ograph`.

Quick start

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

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

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`, `vec`, `arma`, or `arfima`; see [\[TS\] var](#), [\[TS\] svar](#), [\[TS\] vec](#), [\[TS\] arma](#), or [\[TS\] arfima](#).

Menu

Statistics > Multivariate time series > IRF and FEVD analysis > Overlaid graph

Syntax

```
irf ograph (spec1) [ (spec2) ... [ (spec15) ] ] [ , options ]
```

where (*spec*_{*k*}) is

```
(irfname impulsevar responsevar stat [ , spec_options ])
```

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:

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

| <i>options</i> | Description |
|---|---|
| Plots | |
| <i>plot_options</i> | define the IRF plots |
| <i>set</i> (<i>filename</i>) | make <i>filename</i> active |
| Options | |
| <i>common_options</i> | level and steps |
| Y axis, X axis, Titles, Legend, Overall | |
| <i>twoway_options</i> | any options other than by() documented in [G-3] <i>twoway_options</i> |

| <i>plot_options</i> | Description |
|--------------------------------------|--|
| Main | |
| <i>set</i> (<i>filename</i>) | make <i>filename</i> active |
| <i>irf</i> (<i>irfnames</i>) | use <i>irfnames</i> IRF result sets |
| <i>impulse</i> (<i>impulsevar</i>) | use <i>impulsevar</i> as impulse variables |
| <i>response</i> (<i>endogvars</i>) | use endogenous variables as response variables |
| <i>ci</i> | add confidence bands to the graph |

| <i>spec_options</i> | Description |
|-----------------------------|--|
| Options | |
| <i>common_options</i> | level and steps |
| Plot | |
| <i>cline_options</i> | affect rendition of the plotted lines |
| CI plot | |
| <i>ciopts(area_options)</i> | affect rendition of the confidence intervals |

| <i>common_options</i> | Description |
|-----------------------|--|
| Options | |
| <i>level</i> (#) | set confidence level; default is <i>level</i> (95) |
| <i>lstep</i> (#) | use # for first step |
| <i>ustep</i> (#) | use # for maximum step |

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

Options

Plots

plot_options defines the IRF plots and are found under the **Main**, **Plot**, and **CI plot** tabs.

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

Main

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

irf(irfnames) specifies the IRF result sets to be used. If *irf()* is not specified, each of the results in the active IRF file is used. (Files often contain just one set of IRF results saved under one *irfname*; in that case, those results are used.)

impulse(varlist) and *response(endogvars)* specify the impulse and response variables. Usually one of each is specified, and one graph is drawn. If multiple variables are specified, a separate subgraph is drawn for each impulse–response combination. If *impulse()* and *response()* are not specified, subgraphs are drawn for all combinations of impulse and response variables.

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

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`.

Options

`level(#)` specifies the confidence level, as a percentage, for confidence bands; see [U] [20.7 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(#)`, $\# \geq 1$, specifies the maximum step, or period, to be included.

Y axis, X axis, Titles, Legend, Overall

tway_options are any of the options documented in [G-3] [tway_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](http://www.stata.com)

If you have not read [TS] [irf](#), please do so.

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

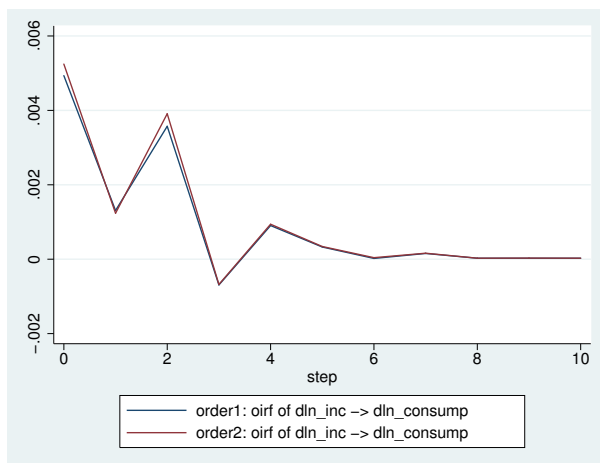
► Example 1

We have previously issued the commands:

```
. use http://www.stata-press.com/data/r14/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)
```



◀

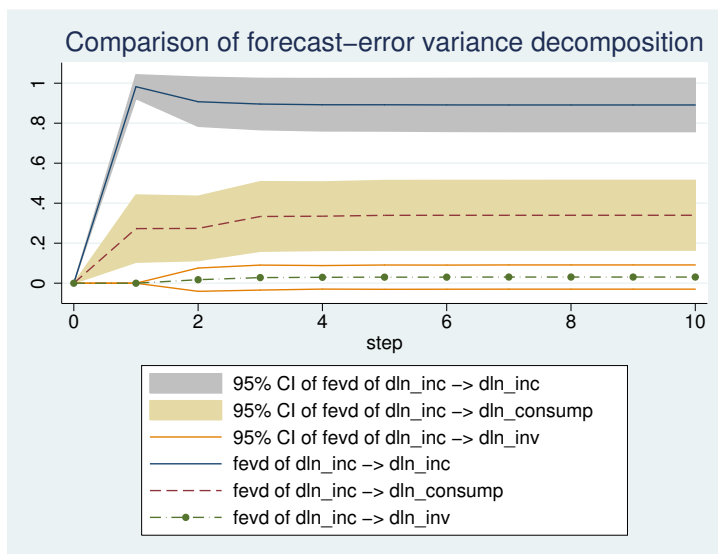
□ Technical note

Graph options allow you to change the appearance of each plot. The following graph contains the plots of the FEVDs (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). 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) recast(connected)` options to get small circles connected by a line with a dash-dot pattern; the `cilines` option plots the confidence bands by using lines instead of areas. We use the `title()` option to add a descriptive title to the graph and supply the `ci` option globally to add confidence bands to all the plots.

```

. irf ograph (. dln_inc dln_inc fevd)
> (. dln_inc dln_consump fevd, clpat(dash))
> (. dln_inc dln_inv fevd, cilines m(o) clpat(dash_dot)
>                                recast(connected))
> , ci 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 *nocl*

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