

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

[Syntax](#)                      [Menu](#)                      [Description](#)            [Options](#)  
[Remarks and examples](#)    [Stored results](#)        [Also see](#)

## Syntax

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

where (*spec*<sub>*k*</sub>) 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

*plot\_options*                      define the IRF plots  
*set(filename)*                    make *filename* active

### Options

*common\_options*                level and steps

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

*twoway\_options*                any options other than *by()* documented in [G-3] *twoway\_options*

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

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

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

## Menu

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

## 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`.

## 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 combination 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

*twoway\_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](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.

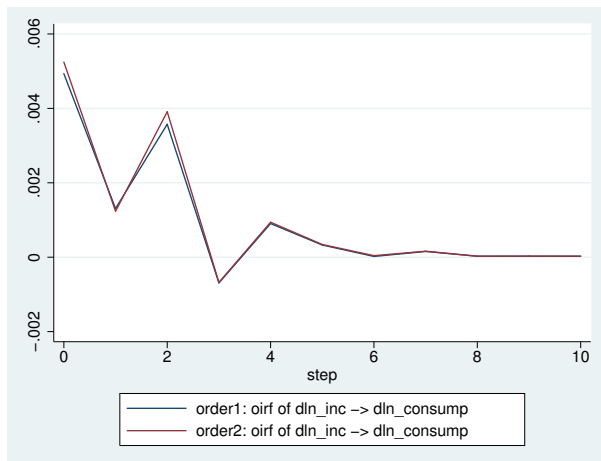
## ▷ Example 1

We have previously issued the commands

```
. use http://www.stata-press.com/data/r13/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)
```



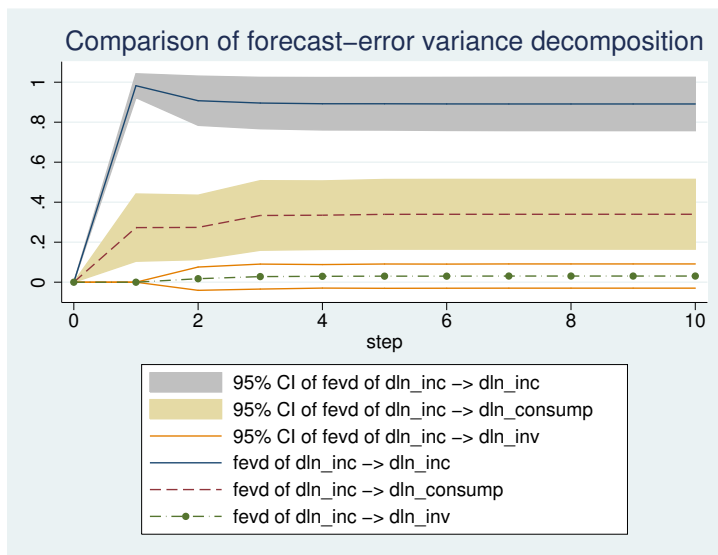
◀

#### □ 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 *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