Title

> **sem estimation options —** Options affecting estimation

    Description   Syntax   Options   Remarks and examples   Also see

Description

These options control how results are obtained.

Syntax

    sem *paths* ... , ... *estimation_options*

estimation_options	Description
method(*method*)	*method* may be ml, mlmv, or adf
vce(*vcetype*)	*vcetype* may be oim, eim, opg, sbentler, robust, cluster *clustvar*, bootstrap, or jackknife
nm1	compute sample variance rather than ML variance
noxconditional	compute covariances, etc., of observed exogenous variables
allmissing	for use with method(mlmv)
noivstart	skip calculation of starting values
heywood	allow negative variance estimates for endogenous errors
noestimate	do not fit the model; instead show starting values
maximize_options	control the maximization process for specified model; seldom used
satopts(*maximize_options* impute)	control the maximization process for saturated model; seldom used
baseopts(*maximize_options*)	control the maximization process for baseline model; seldom used

Options

method() and vce() specify the method used to obtain parameter estimates and the technique used to obtain the variance–covariance matrix of the estimates. See [SEM] **sem option method( )**.

nm1 specifies that the variances and covariances used in the SEM equations be the sample variances (divided by $N - 1$) and not the asymptotic variances (divided by N). This is a minor technical issue of little importance unless you are trying to match results from other software that assumes sample variances. sem assumes asymptotic variances.

noxconditional states that you wish to include the means, variances, and covariances of the observed exogenous variables among the parameters to be estimated by sem. See [SEM] **sem option noxconditional**.

allmissing specifies how missing values should be treated when `method(mlmv)` is also specified.

Usually, `sem` omits from the estimation sample observations that contain missing values of any of the observed variables used in the model. `method(mlmv)`, however, can deal with these missing values, and in that case, observations containing missing are not omitted.

Even so, `sem`, `method(mlmv)` does omit observations containing `.a`, `.b`, ..., `.z` from the estimation sample. `sem` assumes you do not want these observations used because the missing value is not missing at random. If you want `sem` to include these observations in the estimation sample, specify the `allmissing` option.

noivstart is an arcane option that is of most use to programmers. It specifies that `sem` is to skip efforts to produce good starting values with instrumental-variable techniques, techniques that require computer time. If you specify this option, you should specify all the starting values. Any starting values not specified will be assumed to be 0 (means, path coefficients, and covariances) or some simple function of the data (variances).

heywood specifies that `sem` allow negative variance estimates for endogenous errors. By default, `sem` does not allow any variance estimates to be negative.

noestimate specifies that the model is not to be fit. Instead, starting values are to be shown and they are to be shown using the `coeflegend` style of output. An important use of this is to improve starting values when your model is having difficulty converging. You can do the following:

```
. sem ..., ... noestimate
. matrix b = e(b)
. ... (modify elements of  b) ...
. sem ..., ... from(b)
```

maximize_options specify the standard and rarely specified options for controlling the maximization process for `sem`; see [R] **Maximize**. The relevant options for `sem` are difficult, technique(*algorithm_spec*), iterate(*#*), [no]log, trace, gradient, showstep, hessian, showtolerance, tolerance(*#*), ltolerance(*#*), nrtolerance(*#*), and nonrtolerance.

satopts(*maximize_options* impute) is a rarely specified option and is only relevant if you specify the `method(mlmv)` option. `sem` reports a test for model versus saturated at the bottom of the output. Thus `sem` needs to obtain the saturated fit. In the case of `method(ml)` or `method(adf)`, `sem` can make a direct calculation. In the other case of `method(mlmv)`, `sem` must actually fit the saturated model. The maximization options specified inside `satopts()` control that maximization process. It is rare that you need to specify the `satopts()` option, even if you find it necessary to specify the overall *maximize_options*.

impute specifies that `sem` use a weighted average as the starting values for fitting the saturated and baseline models. The weighted average is taken from the moments computed from each set of observations formed by a missing-values pattern in the estimation sample. By default, `method(mlmv)` uses the moments computed from observations with no missing values as starting values for fitting the saturated and baseline models. If all observations in the estimation sample have at least one missing value, then impute is implied.

baseopts(*maximize_options*) is a rarely specified option and an irrelevant one unless you also specify `method(mlmv)` or `method(adf)`. When fitting the model, `sem` records information about the baseline model for later use by `estat gof`, should you use that command. Thus `sem` needs to obtain the baseline fit. In the case of `method(ml)`, `sem` can make a direct calculation. In the cases of `method(mlmv)` and `method(adf)`, `sem` must actually fit the baseline model. The maximization options specified inside `baseopts()` control that maximization process. It is rare that you need to specify the `baseopts()` option even if you find it necessary to specify the overall *maximize_options*.

Remarks and examples

The most commonly specified option among this group is vce(). See [SEM] **sem option method( )**, [SEM] **Intro 8**, and [SEM] **Intro 9**.

Also see

[SEM] **sem** — Structural equation model estimation command

[SEM] **sem option method( )** — Specifying method and calculation of VCE

[SEM] **sem option noxconditional** — Computing means, etc., of observed exogenous variables

[SEM] **Intro 8** — Robust and clustered standard errors

[SEM] **Intro 9** — Standard errors, the full story