

## sem estimation options — Options affecting estimation

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## Description

These options control how results are obtained.

## Syntax

```
sem paths ..., ... estimation_options
```

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

`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`, `tolerance(#)`, `ltolerance(#)`, and `nrtolerance(#)`.

`satopts(maximize_options)` 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`.

`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

[stata.com](http://www.stata.com)

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