estat stable — Check stability of nonrecursive system

Description

`estat stable` is for use after `sem` but not `gsem`.

`estat stable` reports the eigenvalue stability index for nonrecursive models. The stability index is computed as the maximum modulus of the eigenvalues for the matrix of coefficients on endogenous variables predicting other endogenous variables. If the model was fit by `sem` with the `group()` option, `estat stable` reports the index for each group separately.

There are two formulas commonly used to calculate the index. `estat stable` uses the formulation of Bentler and Freeman (1983).

Menu

Statistics > SEM (structural equation modeling) > Other > Assess stability of nonrecursive systems

Syntax

`estat stable [ , detail ]`

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

Option

`detail` displays the matrix of coefficients on endogenous variables predicting other endogenous variables, also known as the β matrix.

Remarks and examples

See *nonrecursive (structural) model (system)* in [SEM] **Glossary**. The issue of stability is described there. Also see *Remarks and examples* of [SEM] **estat teffects**.

Stored results

`estat stable` stores the following in `r()`:

Scalars

`r(N_groups)`	number of groups
`r(stindex[_#])`	stability index (for group #)

Matrices

`r(nobs)`	sample size for each group
`r(Beta[_#])`	coefficients of endogenous variables on endogenous variables (for group #)
`r(Re[_#])`	real parts of the eigenvalues of A (for group #)
`r(Im[_#])`	imaginary parts of the eigenvalues of A (for group #)
`r(Modulus[_#])`	modulus of the eigenvalues of A (for group #)

Reference

Bentler, P. M., and E. H. Freeman. 1983. Tests for stability in linear structural equation systems. *Psychometrika* 48: 143–145. https://doi.org/10.1007/BF02314682.

Also see

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

[SEM] **sem postestimation** — Postestimation tools for sem

[SEM] **estat teffects** — Decomposition of effects into total, direct, and indirect

[SEM] **Methods and formulas for sem** — Methods and formulas for sem