

Description

`estat stable` displays functions of the model parameters that indicate whether the model is saddle-path stable at specific parameter values. These results can help you find initial values for which the model is saddle-path stable. Saddle-path stability is required for solving and estimating the parameters of DSGE models.

Menu for estat

Statistics > Postestimation

Syntax

`estat stable`

`collect` is allowed; see [\[U\] 11.1.10 Prefix commands](#).

Remarks and examples

DSGE models are dynamic systems that are subject to random shocks. DSGE models that do not spiral out of control or converge to a single point when shocked are said to be “saddle-path stable”. We can solve for the state-space form of DSGE models only if they are saddle-path stable, and we can estimate the parameters of models only if we can solve for the state-space form.

The structural parameter values determine whether a DSGE model is saddle-path stable. In the process of solving the structural form for the state-space form, the [Klein \(2000\)](#) solver computes the generalized eigenvalues of a matrix formed from structural parameter values. An eigenvalue is said to be stable when its absolute value is less than 1. The model is saddle-path stable when the number of stable eigenvalues equals the number of states in the model.

`estat stable` displays the generalized eigenvalues implied by the parameter values in `e(b)`, indicates which are stable and which are unstable, and displays a note indicating whether the model is saddle-path stable at these parameter values. `estat stable` can help you find initial values for the maximization routine when the default values imply a model that is not saddle-path stable; see [\[DSGE\] Intro 5](#) for details.

Stored results

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

Scalars

`r(stable)` 1 if stable, 0 otherwise

Matrices

`r(eigenvalues)` eigenvalues

Methods and formulas

estat stable displays the generalized eigenvalues computed by the [Klein \(2000\)](#) solver. Values less than 1 are labeled as stable; values greater than or equal to 1 are labeled as unstable.

Reference

Klein, P. 2000. Using the generalized Schur form to solve a multivariate linear rational expectations model. *Journal of Economic Dynamics and Control* 24: 1405–1423. [https://doi.org/10.1016/S0165-1889\(99\)00045-7](https://doi.org/10.1016/S0165-1889(99)00045-7).

Also see

[DSGE] [dsge](#) — Linear dynamic stochastic general equilibrium models

[DSGE] [dsge postestimation](#) — Postestimation tools for dsge

[DSGE] [dsgenl](#) — Nonlinear dynamic stochastic general equilibrium models

[DSGE] [dsgenl postestimation](#) — Postestimation tools for dsgenl

[DSGE] [Intro 5](#) — Stability conditions

Stata, Stata Press, and Mata are registered trademarks of StataCorp LLC. Stata and Stata Press are registered trademarks with the World Intellectual Property Organization of the United Nations. StataNow and NetCourseNow are trademarks of StataCorp LLC. Other brand and product names are registered trademarks or trademarks of their respective companies. Copyright © 1985–2025 StataCorp LLC, College Station, TX, USA. All rights reserved.

For suggested citations, see the FAQ on [citing Stata documentation](#).

