



gEcon vs Dynare for DSGE modelling

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Language and symbolic computations

Feature	gEcon	Dynare	Comments
Overall language and symbolic computations maturity	● ● ●	● ● ●	Dynare does not support templates (macros only), does not support FOC derivation, requires declarations of variables and parameters
Derivation of FOCs	● ● ●	● ● ●	Dynare does not derive FOCs for optimisation problems
Construction of multi-sector models	● ● ●	● ● ●	Dynare does not support templates (macros only), gEcon offers robust template mechanism
Automatic variable / equations reduction	● ● ●	● ● ●	Dynare does not support variable / equations reduction, gEcon offers symbolic reduction mechanism

Interface

Feature	gEcon	Dynare	Comments
Interactivity of the model solution process	● ● ●	● ● ●	In gEcon models are solved in consecutive steps through calls to R routine, changes can be made by the user during solution process without the need to recompute the entire model
Model analysis	● ● ●	● ● ●	Dynare does not provide an interface for accessing information about selected model variables or computing correlations with reference variable (eg. GDP)
Model documentation in \LaTeX	● ● ●	● ● ●	gEcon produces extensive documentation, understands Greek letter names, allows for documenting all types of model results

Steady state and calibration

Feature	gEcon	Dynare	Comments
Steady-state computation	● ● ●	● ● ●	Dynare supports few solvers and homotopy continuation, gEcon supports R <code>nleqslv</code> package only, however, the symbolic reduction algorithm in gEcon often allows for fewer and less precise initial guesses
Parameter calibration	● ● ●	● ● ●	Dynare does not allow for explicit formulation of calibrating equations in general — preprocessor macros have to be used, gEcon <code>iosam</code> package allows to calibrate models using SAM matrices easily

Perturbation / RE model solution

Feature	gEcon	Dynare	Comments
Log-linearisation	● ● ●	● ● ●	Dynare requires manual transformation of the log-linearised variables, gEcon performs log-linearisation of selected variables automatically
Second order perturbation	● ● ●	● ● ●	gEcon does not offer this functionality, in Dynare models have to be written in term of actual FOCs (no log-linearisation) for 2nd order perturbation
Partial information models	● ● ●	● ● ●	gEcon does not offer this functionality
Solving RE models with predefined paths of exogenous variables	● ● ●	● ● ●	gEcon does not offer this functionality

Model estimation

Feature	gEcon	Dynare	Comments
Bayesian estimation	● ● ●	● ● ●	gEcon. estimation package provides this functionality for gEcon, however, it does not allow for estimation of non-stationary models and does not support DSGE-VAR or observation errors
Second order model estimation	● ● ●	● ● ●	Dynare provides a set of tools for this task (incl. particle filter), gEcon does not offer this functionality