Package Name: TVPUNI
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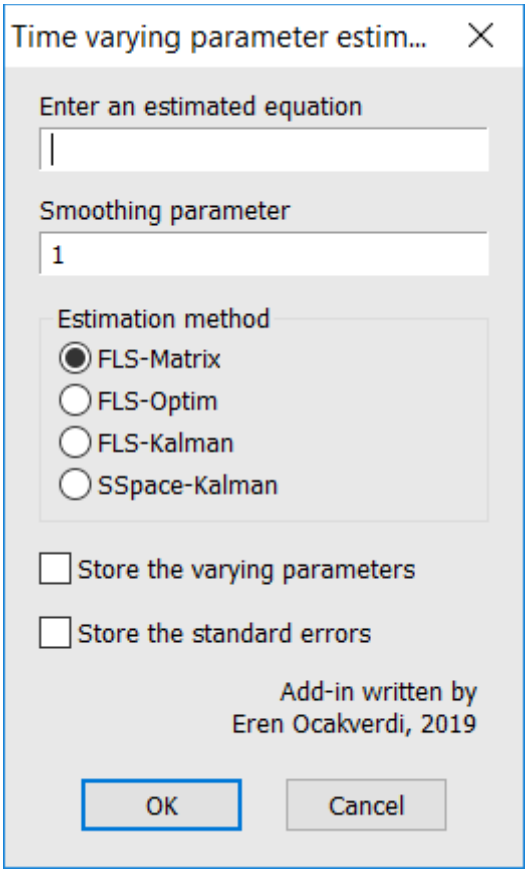
Add-in Type: Equation and Global
Default Proc Name: tvpuni
Default Menu Text: Time Varying Parameter estimation for OLS models
Interface: Dialog and Command Line

Description: This add-in performs different varying coefficient estimation procedures on an already estimated equation with LS method. No ARMA terms are allowed. Since this particular approach is appropriate for time series data, use of add-in is restricted for the cross-section data. Add-in makes use of several new features of EViews introduced with the version 8.0, so will not work in older versions.

Dialog: Upon running the add-in from the menus or command line, a dialog will appear:



In the first box, enter the name of your equation. Enter the smoothing parameter value in the second box, which is required if you choose one of the three Flexible Least Squares (FLS) methods in the next step. Four different estimation methods are available for time varying parameter estimation. Kalaba and Tesfatsion (1989) offers a flexible least square version for the varying coefficients estimation for linear systems. First method implements the matrix

solution of this approach. It is the fastest method but will not produce the associated standard errors. Second method treats the problem as a minimization problem and each observation of unknown betas as a decision variable (using the Optim feature) and is therefore the slowest. Third and fourth methods carry out the estimation using Kalman filter. The final model is the traditional approach to time varying parameter estimation that treats all the coefficients as separate random walks and therefore does not take into account the smoothing parameter. If you want to save the output of varying parameters and/or their associated standard errors, simply check the related box.

Estimation results from the first and second methods would be identical in most cases. The third method, however, takes a different venue and deals the problem within a state space framework. The results, therefore, would be identical to first two methods under certain conditions but will slightly be different from them most of the time. You may not always get feasible results (or an output at all) depending on the success of the convergence of the chosen estimation model.

If your constant parameter OLS model includes an intercept, add-in will treat it as if it were the first in the coefficient order no matter where you put it. So please keep this in mind when making comparisons. Finally, your model variables should be specified by a list instead of an explicit equation.

Command Line:

Syntax-1: tvpuni

Syntax-2: myequation.tvpuni(options)

Options:

Argument	Type	Explanation
eq	*string*	Name of the estimated equation
lambda	*numeric*	Smoothing parameter (a positive number)
method	*numeric*	Estimation method (“1-Matrix”, “2-Optim”, “3-Kalman” and “4-SSpace”)
savem		Store the estimated varying parameter values
saves		Store the associated standard errors
prompt		Default cross validation method for binary choice models
		Open the GUI

Examples:

1) myequation.tvpuni(stat)
2) myequation.tvpuni(method="2",lambda="100",savem,saves)

Reference:

Kalaba, R. and Tesfatsion, L., 1989. "Time Varying Linear Regression via Flexible Least Squares", *Computers and Mathematics with Applications*, Vol. 17, pp. 1215-1245