Help sensitiveJM

[PRELIMINARY PROGRAM: PREPARED FOR TESTING PURPOSES]
Please contact joel.middleton@yale.edu with questions, comments, suggestions

Title
sensitiveJM -- Imbens' sensitivity analysis

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      syntax varlist(min=3) [fweight pweight iweight ] [if] [, options]
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options	description
MODEInit	runs initial model (i.e. alpha & delta equal to zero)
MODEAlphadelta	estimates the model with alpha & delta specified by user
MODEVarpartials	estimates the partial R-square values for each covariate
alpha(#)	sets the alpha value (only for use with modealphadelta)
delta(#)	sets the alpha value (only for use when modealphadelta)
r2Winit(#)	specifies the R-square value for the initial model (required when modeinit not specified)
r2Yinit(#)	specifies the R-square value for the initial model (required when modeinit not specified)
group(varlist)	specifies a collection of covariates for which the partial R-square should be calculated (for use only with modevarpartials)
itlimit(#)	set the maximum number of iterations for ML convergence
eq1max(#)	set the max search range for parameter values (eq. 1)
eq1min(#)	set the min search range for parameter values (eq. 1)
eq2max(#)	set the max search range for parameter values (eq. 2)
eq2min(#)	set the min search range for parameter values (eq. 2)
eq3min(#)	set the max search range for parameter values (eq. 3)
eq3max(#)	set the min search range for parameter values (eq. 3)
loglog	changes from Imbens' sensitivity to two log models
linlin	changes from Imbens' sensitivity to two linear models

Description

sensitiveJM implements Imbens' sensitivity analysis. Because Imbens' sensitivity analysis requires three basic steps, there are three corresponding modes which can be run one-at-a-time or all together. The first mode (modeinit) initializes the model for alpha and delta equal to zero providing baseline R-square estimates. The second mode (modealphadelta) returns results for user-specified alpha-delta pairs. The third mode (modevarpartials) estimates the partial r-square values associated with each of the covariates. The modes can be run together or separately. By default all three steps run.

If modeinit is not run then r2Yinit(#) and r2Winit(#) must be specified. Option loglog generalizes Imbens' analysis to two log models. Option linlin generalizes Imbens' analysis to two linear models.

Options

modeinit initializes the model by running it with alpha=0 and delta=0, obtaining the baseline r-square values which will are needed in subsequent steps to calculate the partial r-squares values. If modeinit is not specified then r2Winit() and r2Yinit() must be specified.

modealphadelta re-estimates the model for the alpha and delta values you specify. As such alpha() and delta() should be specified along with modealphadelta. If modeinit is not specified with modealphadelta then the options r2Winit() and r2Yinit() must be specified to provide the baseline r-square values.

modevarpartials estimates the partial r-square values associated with each of the covariates. Optionally modevarpartials may be specified with group() command which will specify a collection of variables for which the r-square value is calculated. If modeinit is not specified along with modevarpartials then options r2Winit() and r2Yinit() must be specified.

alpha() and delta() specify the values of alpha and delta for Imbens' sensitivity analysis. For use with modealphadelta only.

r2Winit() and r2Yinit() allow the user provide the baseline r-square values so that modeinit does not need to be run each time for a new alpha-delta pair. This may be handy, say, if the user wishes to do a grid-search for alpha-delta values that have a certain affect on the "treatment" variable and initializing the model before each alpha-delta pair would take additional (unnecessary) processing. These must be specified if modeinit is not specified.

group() specifies a group of variables for which the partial r-square values should be calculated. For use with modevarpartials only.

itlimit(#) sets the maximum number of iterations for stata ML. Can be useful if Stata ML fails to converge.

eq1max(#), eq2min(#), eq2max(#) and eq2min(#) specify the range that Stata ML should search for initial starting values for the coefficients associated with the first (linear) and second (logistic) equations. Bounds may be necessary if Stata ML returns a "could not find feasible values" error.

eq3max() and eq3min() specify the range that Stata ML should search for initial starting values for the estimate of the variance of the residuals. Bounds may be necessary if Stata ML returns a "could not find feasible values" error.