

Changes in Crossmark 2.0.0

1. Format of the input data.

We changed the way the input data are to be formatted as is symbolized in the text on the Main Menu

Datafile (t-x-n-f1)

followed by the field where you can enter the name of the data file. The abbreviations in '(t-x-n-f1)' stand for **t**imepoint (1, 2, 3 etc.) of the cross-section, **x** for predictor variables, **n** for total number of cases having these values of the predictor variables in that cross-section, and **f1** for the number or frequency of cases among these n, that have a Y-value of 1. If for each cross-section your data can be aggregated over the values X, this 'aggregated cases' presentation needs less memory than when the cases are in 'individual format' as in the older version of Crossmark. The 'aggregated cases' presentation has great advantage in terms of the speed of the estimation procedure. Of course, aggregation is not very helpful if many predictors, or predictors that can take on many different values, are used. If you don't want to aggregate your data, then simply hand over the individual data, i.e., with **n** having the value 1 for each individual case and **f1** having the value 0 or 1, equal to the observed Y value of the individual case.

2. Metropolis sampling option in the Estimation window.

- a) We only implemented this option in a very basic sense: there is e.g. no 'prior' distribution that can be specified for the parameters. That is to say, the implicit prior used for all parameters is the uniform prior.
- b) Do not forget to always specify a filename in the field for the "Outputfile posterior parameter values" when you are using the metropolis sampler. If you forget to specify this filename, the program hangs up with some dirty error message.
- c) The value to be specified on the Estimation window in the sentence

Covariance matrix of the jumping distribution equals (value) times estimated covariance matrix of parameters

refers to what is discussed by Gelman, Stern and Rubin in 'Bayesian data analysis', 1995, on page 334 at the bottom where $c=2.4/\sqrt{d}$. Value 2.4 is the default Crossmark uses if you don't specify a value in the above sentence.

- d) The parameter values Crossmark samples by the metropolis algorithm are written out (to the file you specified) in the following format: sequence number (1,2,3,4,..., 100000, or more, depending on the length of the chain you wish), followed by the values of the parameter of all X on the entry probabilities, followed by those on the 1-exit probabilities, followed finally by the loglikelihood value associated with all these parameter values. You yourself will have to evaluate the output posterior parameter values Crossmark generates: Crossmark does not perform any chain-evaluation, produces no histogram's of the generated parameter values nor calculates statistics as means or standard deviations.

The parametric bootstrap option.

The Simulate button on the main menu opens the Simulation window where parametric bootstrapping can be performed. First you must 'Simulate data' based on 'true' parameter values for a number simulated samples; afterwards you can estimate the parameters for all samples that you just simulated by pushing the Go button. The estimated parameters of all the samples are written to a file, the format of which is: the samplenumber, the parameter values of all X on the entry probability, the parameter values of all X on the 1-exit probability, and finally the value of the loglikelihood. As with the metropolis sampler, here again you'll have to evaluate the estimated parameters yourself.