

QUESTIONS ABOUT MCMC ITERATION CONVERGENCE IN MPLUS

I have a few questions about specifying the number of MCMC iterations with ESTIMATOR=BAYES. 1) When I use BITERATIONS to specify a min/max number of draws, does that number include what Mplus discards as burn-in? For example, if I use BITERATIONS=(50000) and CHAINS=1, are my posterior distributions going to be based off of 50,000 draws, or 25,000 (i.e., Mplus discards 50%)? 2) Does Mplus always discard half the draws regardless of when the PSR values become acceptably small? 3) If I don't specify the number of iterations, am I to understand that the number of iterations shown in the TECH8 output is the total number (i.e., including those that were discarded), or only those draws beyond those discarded? Finally, 4) when BITERATIONS is not specified, draws are taken until the PSR falls below the desired criterion value and then half of the draws are discarded while the rest constitute the posterior (if I am reading the manual correctly); in that case, aren't some of the draws that the posterior is based off of potentially coming from the MCMC process before the chain(s) have converged at the "true" posterior (assuming we define convergence as the moment the PSR meets the convergence criterion)? Thank you in advance and sorry for all of the questions.

ANSWERS

1. BITER = (50000) refers to the minimum number of total iterations, including the discards, so depending on when convergence occurs, more than 25,000 iterations may be used for the posterior distribution. With FBITER= 50000, the posterior is based on 25,000, that is the last half.
2. Mplus stops when the PSR based on only the last half of the iterations is low enough. The half mark keeps being moved forward, so that after 1000 iterations, the PSR is based on the last 500 iterations and after 1200 iterations the PSR is based on the last 600 iterations. So if PSR is fulfilled at a certain point, the last half consists of iterations that are deemed converged and those are the iterations that the posterior distribution is based on.
3. TECH8 shows the total number of iterations, including the discards.
4. See the answer in 2.