Estimation of Dynamic Discrete Choice Models by Maximum Likelihood and Simulated Methods of Moments[*]

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We compare the performance of maximum likelihood (ML) and simulated method of moments (SMM) for estimating dynamic discrete choice models. We construct and estimate a deliberately simplified structural model that captures some basic features of educational choices in the United States in the 1980s and early 1990s. The model is computationally tractable and amenable to exact analysis of numerical accuracy. We use estimates from our model to simulate a synthetic dataset and assess the ability of ML and SMM to recover the model parameters. ML estimates applied to the synthetic data are close to the true parameter values, while conventional formulations of SMM have trouble recovering some key model parameters. We investigate the performance of alternative tuning parameters for SMM. We show how the choice of moments, number of replications, weighting matrix, and optimization algorithm affects the quality of estimates obtained from SMM.