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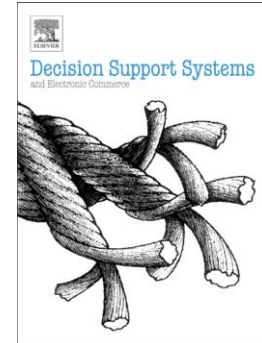
Comparing alternatives to account for unobserved heterogeneity in direct marketing models

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## Comparing alternatives to account for unobserved heterogeneity in direct marketing models

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### Abstract

We are dealing with mailing decisions of a direct marketing company and focus on assessing three alternative approaches to model unobserved heterogeneity, which are based on finite mixtures, continuous mixtures, and a mixture of Dirichlet processes (MDP), respectively. Models are estimated by Markov Chain Monte Carlo (MCMC) simulation. Based on Pseudo Bayes factors (PsBF), we find that a finite mixture model turns out to be superior both to models based on either a MDP or a continuous mixture. Whereas the MDP finds similar estimates compared to the finite mixture approach, estimates of the continuous mixture differ for some variables. According to the finite mixture, type of mailing has an effect on purchase behavior. In addition, some customers show supersaturation effects of mailings. Due to different coefficient estimates, managerial implications differ depending on which model they relate. In particular, a continuous mixture model would recommend more mailings than a finite mixture approach.

### Keywords:

unobserved heterogeneity, direct mailings, hierarchical Bayesian models, mailing effects

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