

# SIMULATION EFFICIENCY FOR MULTI-PRODUCTION MODEL

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## Abstract

Through a simulation experiment, often an experimenter is concerned with estimating the system parameters of the linear model consisting of  $m$  design points from the outputs of the simulation model. To improve the estimation of the system parameters and reliability of these estimators, appropriate simulation techniques have been developed. For the first order linear model, Schruben and Margolin (1978) exploited the random number assignment rules which uses a combination of common random numbers and antithetic streams in a simulation experiment designed to estimate the system parameters when the design matrix of simulation model admits orthogonal blocking into two blocks. Nozari, Arnold and Pegden (1984) developed a method for applying the method of control variates to the situation of the linear model having multiple design points.

This talk deals with a different way of utilizing controls under the correlation induction strategy of Schruben and Margolin's to improve the simulation efficiency, and presents a procedure for obtaining the estimators of the system parameters analytically. Simulation results on a selected simulation model indicate a promising evidence that a proposed method may yield better results than Schruben and Margolin's method.