

SENSITIVITY AND SCENARIO ANALYSIS FOR SIMULATION METAMODELS

Abstract

We use simple orthogonal and non-orthogonal designs to analyze a multi-tiered model for forecasting the performance of a large-scale home mortgage portfolio. The experiments are used to assess the sensitivity of the model to projected changes in economic conditions, as well as the sensitivity of the model to coefficients estimated from historical data. Our results attribute the variation in loan performance to variation in individual factors or factor combinations, indicating which are crucial to monitor or forecast accurately. The results are at times counter-intuitive, indicating the benefits of a systematic approach to sensitivity assessment and scenario generation.

Full citation:

Sanchez, S. M., L. D. Smith and E. C. Lawrence (1996). "Sensitivity and scenario analysis for simulation metamodels," *Proceedings of the 1996 Winter Simulation Conference*, eds. J. M. Charnes, D. J. Morrice, D. T. Brunner and J. J. Swain. Institute of Electrical and Electronic Engineers: Piscataway, NJ, pp. 1440–1447.