

## Probabilistic Approach to Contrast Theoretical Predictions from a Public Corruption Game Using Bayesian Networks

**Authors :** Jaime E. Fernandez, Pablo J. Valverde

**Abstract :** This paper presents a methodological approach that aims to contrast/validate theoretical results from a corruption network game through probabilistic analysis of simulated microdata using Bayesian Networks (BNs). The research develops a public corruption model in a game theory framework. Theoretical results suggest a series of 'optimal settings' of model's exogenous parameters that boost the emergence of corruption. The paper contrasts these outcomes with probabilistic inference results based on BNs adjusted over simulated microdata. Principal findings indicate that probabilistic reasoning based on BNs significantly improves parameter specification and causal analysis in a public corruption game.

**Keywords :** Bayesian networks, probabilistic reasoning, public corruption, theoretical games

**Conference Title :** ICCSCN 2019 : International Conference on Complex Systems and Complex Networks

**Conference Location :** Bali, Indonesia

**Conference Dates :** January 14-15, 2019