Comparative Study for Some Operators Between Real and Binary Genetic Algorithms Applied on SARIMA Model

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Abstract:

This paper presents a comparative analysis between two genetic algorithm methodologies: Real Coding Genetic Algorithms (RCGA) and Binary Coding Genetic Algorithms (BCGA) for the purpose of determining the order and estimating parameters of the SARIMA model. The primary focus is on minimizing the Akaike Information Criterion (AIC, BIC). The study highlights that the key distinction between RCGA and BCGA lies in their recombination operators, namely crossover and mutation operators. By applying these methodologies to monthly average hotel room data in Kuwait, our goal is to identify the optimal model among these methods. The study has been implemented in the RStudio-package and Matlab.

Keywords:

Genetics algorithms GA; Akaike information criterion; SARIMA model, RCGA; BCGA.

2000 Mathematics Subject Classification: 62H12. **JEL Classification System:** C22.