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Applying Genetic Algorithm in Exchange Rate Models Determination

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Abstract : Genetic Algorithms (GAs) are an adaptive heuristic search algorithm premised on the evolutionary ideas of natural selection and genetic. In this study, we apply GAs for fundamental and technical models of exchange rate determination in exchange rate market. In this framework, we estimated absolute and relative purchasing power parity, Mundell-Fleming, sticky and flexible prices (monetary models), equilibrium exchange rate and portfolio balance model as fundamental models and Auto Regressive (AR), Moving Average (MA), Auto-Regressive with Moving Average (ARMA) and Mean Reversion (MR) as technical models for Iranian Rial against European Union's Euro using monthly data from January 1992 to December 2014. Then, we put these models into the genetic algorithm system for measuring their optimal weight for each model. These optimal weights have been measured according to four criteria i.e. R-Squared (R2), mean square error (MSE), mean absolute percentage error (MAPE) and root mean square error (RMSE).Based on obtained Results, it seems that for explaining of Iranian Rial against EU Euro exchange rate behavior, fundamental models are better than technical models.

Keywords : exchange rate, genetic algorithm, fundamental models, technical models
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