A Fuzzy Linear Regression Model Based on Dissemblance Index

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Abstract : Fuzzy regression models are useful for investigating the relationship between explanatory variables and responses in fuzzy environments. To overcome the deficiencies of previous models and increase the explanatory power of fuzzy data, the graded mean integration (GMI) representation is applied to determine representative crisp regression coefficients. A fuzzy regression model is constructed based on the modified dissemblance index (MDI), which can precisely measure the actual total error. Compared with previous studies based on the proposed MDI and distance criterion, the results from commonly used test examples show that the proposed fuzzy linear regression model has higher explanatory power and forecasting accuracy.