عنوان مقاله:
An ARIMA based Railway Freight Demand Prediction in Iran in 2025

محل انتشار:
سومین کنفرانس بین المللی پیشرفت‌های اخیر در مهندسی راه آهن (سال:1392)

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خلاصه مقاله:
This paper investigates the railway freight transportation demand in Iran in 2025. The prediction is done based on applying econometrics methods such as Auto Regressive Distributed Lag (ARDL); Auto-Regressive Integrated Moving Average (ARIMA) and also a Metaheuristic method; the Genetic algorithm. To predict the demand, a preliminary list of 14 parameters selected and later by using expert choice techniques a short list of parameters finalized. The final parameters used for estimating the demand function are: GDP, the length of main railway lines, the road freight tonnage, the fuel prices, population and the number of main locomotives. For the estimation purpose, the related data from 1994 to 2007 observed and the data from 2008 to 2010 used for testing. Comparison of results in econometric methods indicates that ARIMA method produce more proper results and less error value than ARDL for freight demand prediction. Similar comparison of results in Genetic Algorithm indicates that liner form of the model has less error value than quadratic and exponential forms. In overall comparison, the ARIMA method produces better results and less error and therefore is used for further prediction in this research. The result of freight demand prediction is then used for market prediction of the biggest locomotive manufacturer in Iran – the MAPNA Group- for the years ahead up to 2025.

کلمات کلیدی:
Iran’s Railways, Freight Demand Prediction, ARIMA, ARDL, Genetic Algorithm

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