
Using an artificial neural network approach to forecast Australia's domestic passenger air travel demand

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Abstract: The aim of this work is to utilise an artificial neural network (ANN) to model Australia's domestic air travel demand. This modelling will then facilitate forecasting future passenger demand. Forecasting passenger demand is a critical issue in the air transport industry and is generally viewed as the most crucial function of airline management. This is the first time an ANN has been applied to domestic air travel in Australia, with ANN approaches having limited use in the industry. Two ANN models to forecast Australia's domestic airline passenger demand (PAX model) and revenue passenger kilometres performed (RPKs model) were constructed. Quarterly data from 1992 to 2014 was used. Australia's real interest rates and tourism attractiveness were included as candidate variables for the first time in the models. As with the conventional ICAO approach to forecasting, GDP and airfare were significant factors, along with unemployment, jet fuel, and accommodation beds due to the large portion of the market to tourism.

Keywords: air transport; artificial neural network; ANN; Australia; forecasting methods; multi-layer perceptron; MLP; transportation.

Reference to this paper should be made as follows: Srisaeng, P., Baxter, G. and Wild, G. (2015) 'Using an artificial neural network approach to forecast Australia's domestic passenger air travel demand', *World Review of Intermodal Transportation Research*, Vol. 5, No. 3, pp.281–313.

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