

A Novel Framework to Conduct Sale Forecasting and Performance Assessment for International Airlines

ChihHsuan Wang

National Yang Ming Chiao Tung University,
chihswang@nycu.edu.tw

Abstract

Forecasting sales revenues for global airlines is challenging in practice because the pandemic since 2019 results in abrupt declines. Due to lockdown of borders, non-essential travels are prohibited to stop the spread of coronavirus. Recently, several countries reopen their borders to fully vaccinated travelers and allow their business or leisure travels. In practice, sales forecasting for airlines is closely related to market demand and capacity planning for fleets. To the best of our knowledge, rare studies addressed the selection of key predictors composed of domestic economic indicators, global market conditions, and individual firms. To facilitate research gaps, this study spanning from 2006/Q1 to 2021/Q4 collects multinational airlines composed of CEA and CSA in China, CA and EVA in Taiwan, and JAL and ANA in Japan. Industrial cases show international passengers and oil price are two common factors to affect sales revenues. Due to the emerging demand for cargo shipping, CA and EVA perform the best in operational efficiencies during the pandemic. The required reduction of full-time employees and operating expenses are respectively suggested. Increasing revenue and RPK (revenue-passenger-kilometer) are specifically critical for CEA and ANA.

Keywords:

sales forecasting, machine learning, pandemic, performance assessment.