

DEVELOPING SUSTAINABLE LABOR MARKET IN THE TOURISM AND HOSPITALITY INDUSTRIES: A MACHINE LEARNING APPROACH

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ABSTRACT

Predicting labor demand, hires, and turnover is the first step for employers to maintain sustainable businesses. Labor prediction is more emphasized in the tourism and hospitality industries due to the higher labor intensiveness and turnover rates, influencing service quality and customer satisfaction. Nevertheless, prior studies have paid scant attention to prediction approaches in understanding actual behaviors in the labor market. Thus, this study aims to develop prediction models for labor demand, hires, and employee turnover, drawing upon system theory. In specific, the prediction was facilitated by relevant predictors: (1) economic-related factors, (2) social-related factors, (3) labor-related factors, and (4) industry-related factors. The factors above predicted three significant dependent variables: (1) labor demand, (2) hires, and (3) turnover. Secondary datasets were collected through the U.S. Bureau of Labor Statistics, Census, and Transportation Statistics. Several machine learning techniques, including LASSO and random forest regression, along with OLS regression, performed for better prediction and extended implications. The results showed that OLS regression emphasizes the importance of salary levels in predicting labor demand and turnover. Moreover, machine learning algorithms confirmed the results of OLS and shed light on other predictors, including retirement plans, age, and consumer-price-index. This study provides significant implications by highlighting the importance of salary levels for enhancing hires and decreasing employee turnover. The implications also assist policymakers in developing suitable policies to address the labor shortage in the industry.

Keywords: Labor Prediction, Labor Demand, Employee Hires, Employee Turnover, Prediction Model, Machine Learning

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