

2nd International Conference and Exhibition on **Industrial Engineering**

November 16-18, 2015 Dubai, UAE

An empirical study of factors affecting hours-per-vehicle in automotive industry

Majid Jaridi and Amir Abolhassani
West Virginia University, USA

The main goal of this research was to pinpoint and understand factors that improve performance in automotive industry in North America. Obviously, the most important factor to improve automakers' productivity is the manufacturing processes itself. However, in general, hours per vehicle (HPV) is a widely recognized and practiced measure that companies use to increase their performance level and raise productivity. Unfortunately, there is a limited understanding of the set of factors that affect HPV across the automotive industry at conceptual and technical levels. Using data from Harbour's survey of 10 automakers in North America, we have developed the best fitting linear regression model for HPV that include 12 independent variables and some transformations that are controllable by the automakers. The Generalized Linear Model (GLM) was used to analyze the data and derive the HPV regression equations. Stepwise regression procedure was terminated after the inclusion of 9 significant variables (and their transformations) in the model. Automaker brands that supplied the data used in this study are: DCX, Ford, GM, Honda, Cami, Nummi, Auto Alliance, Mitsubishi, Nissan, and Toyota. Independent variables used in the statistical analysis were: Vehicle segment, car assembly and capacity utilization, number of models, vehicle variety, platform strategy, production volume, flexible manufacturing, outsourcing, new product launch, annual available working days, salaried employees' percentage, and year. Regression equations that were formulated in this research may be used effectively to help automakers to set guidelines to improve their productivity with respect to internal and external constraints, strength, and opportunities.

Biography

Majid Jaridi is a Professor of Industrial and Management Systems Engineering at West Virginia University. He earned his PhD in Industrial and Operations Engineering from the University of Michigan in 1983. He teaches courses in the areas of statistical design of experiments, quality engineering, forecasting, and decision analysis. He also serves as the Director of West Virginia Space Grant Consortium, a consortium of 12 colleges and several high technology companies in West Virginia. His research areas include forecasting and time series analysis, transportation planning, design of experiments, and decision analysis.

majid.jaridi@mail.WVU.edu

Notes: