World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:14, No:06, 2020

The Effects of Aging on the Cost of Operating and Support: An Empirical Study Applied to Weapon Systems

Authors : Byungchae Kim, Jiwoo Nam

Abstract : Aging of weapon systems can cause the failure and degeneration of components which results in increase of operating and support costs. However, whether this aging effect is significantly strong and it influences a lot on national defense spending due to the rapid increase in operating and support (O&S) costs is questionable. To figure out this, we conduct a literature review analyzing the aging effect of US weapon systems. We also conduct an empirical research using a maintenance database of Korean weapon systems, Defense Logistics Integrated Information System (DAIIS). We run regression of various types of O&S cost on weapon system age to investigate the statistical significance of aging effect and use generalized linear model to find relations between the failure of different priced components and the age. Our major finding is although aging effect exists, its impacts on weapon system cost seem to be not too large considering several characteristics of O&S cost elements not relying on the age.

Keywords : O&S cost, aging effect, weapon system, GLM
Conference Title : ICDME 2020 : International Conference on Defense and Military Engineering
Conference Location : Toronto, Canada
Conference Dates : June 18-19, 2020