Customized Economic Stimulus Package Recommender System to Cushion the COVID-19 Impact

Rathimala Kannan[1], Ivan Wang Zhi Wei[2]

[1]Faculty of Management, Multimedia University, [2]Multimedia University

Abstract

Background - *Malaysian government reacted to the pandemic's economic effect with Prihatin Rakyat Economic Stimulus Package (ESP) to cushion the Covid-19 impact of low-income households and others. The ESP consists of cash assistance, utilities discount, moratorium, EPF cash withdrawals, credit gurantee scheme and Wage subsidies. A survey conducted by Department of Statistics Malaysia (DOSM) shows that different households preferred different type of assistance. This forges the need to have a customized economic stimulus package in order to effectively manage the economic burden among low-income households (B40).*

Purpose - *The purpose of the research is to propose a customized ecomomic stimulus package recommender system by leveraging data analytics and machine learning techniques.*

Design/methodology/approach - *This study used secondary dataset obtained from DOSM titled as "Effects of Covid-19 on the Economy and Individual'- Round 2". This special survey was conducted online on the 10th to 24th April 2020. Dataset had 41,386 responses with 38 variables. Cross-Industry Standard Process for Data Mining (CRISPDM) is followed to develop machine learning models to classify ESP receivers according to their preferred assistance types. Machine learning techniques such as Neural Network, Decision Tree, Gradient Boosted Tree, Random forest and Support Vector Machine will be applied to build the predictive models for each of the assistance type offered in the ESP. The optimal model will be selected based on sensitivity, precision and F-score metrics.*

Findings - *The expected findings are machine learning models which can predict individual household's preferences from ESP. These models could be used to design customized economic stimulus packages which would be useful to effectively manage the ecomomic burden of low-income households.*

Research limitations - *This study used only secondary data obtained from the Department of Statistics Malaysia.*

Originality/value - *To our knowledge this is the first study which applied data analytics and machine learning techniques on survey data and proposed customized economic stimulus package recommender system.*

Keywords : Covid-19 survey, Economic Stimulus Package, Data Analytics, Machine learning