

Data Visualization and Prediction Algorithms Applied to A Philippine Community Health Survey: Notes for Policy-Making

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ABSTRACT

There is a growing body of knowledge that expresses health care decision as an economic decision, which can be estimated with existing demographic, household and social indicators. Health care decision was expressed in terms of three logical decisions: (1) visiting a government doctor, (2) visiting a private doctor, and (3) deciding to be confined/hospitalized. This paper intends to apply predictive analytics algorithms to visualize data patterns as well as establish the efficacy of count predictive algorithms (Poisson and negative binomial model under MASS and AER packages of R) in determining prediction model appropriateness for three hypothesized health care decision models. Data cleaning, integration and visualization algorithms were utilized to extract and visualize a geographically-representative data of Digos City, Philippines from the general dataset prior to the application of prediction algorithms, in order to have localized context of policy considerations. It is suggested the utilization of two known count model algorithms in comparing robustness of fit. Finally, the paper discusses policy implications based on the result and explores inputs for potential policy-making and suggestions for localized governance challenges and opportunities for policy improvement, while providing future researchers with opportunities for a broader research direction in the field.

Keywords: count model; data analytics; health economics; healthcare; Philippines