Predicting Emergency Fund Adequacy Using Classification Trees

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Abstract

This research examines predictors of emergency fund adequacy using a classification and regression tree methodology. The purpose of this research is to use classification and regression trees to examine the predictors of those who do not meet the three-month emergency fund rule. By using classification and regression trees, and by utilizing a subjective measure of emergency fund adequacy, this research aims to look at the characteristics of whom is more at risk in terms of emergency preparedness.

A subjective evaluation of emergency fund adequacy was obtained from a survey with 404 respondents in two U.S. cities. Over one-half (55.2%) of the respondents were male. The majority of respondents (65%) were married. More than half of the respondents' partners were employed. The majority of respondents were employed and 15.6% were retired. Almost half of the respondents were employed at for-profit organizations. The majority of the respondents were White/Caucasians. The average age of respondents was 48.66 years with a standard deviation of 15.98 years

Using CART® software, a classification tree, which determines who meets the three-month emergency fund guideline, was identified. The CART® program identified a tree with six terminal nodes as the one that provides the minimum misclassification cost rate. The cross-validated relative cost was 0.411 and resubstitution relative cost of .313. The prediction success statistics show that the classification tree offers an over 80% prediction success rate between the two groups. For those who meet the guideline, the prediction success is over 88%.

The sample data showed financial behaviors, such as whether a respondent saves regularly, pays credit card bills in full each month, and has a written financial plan, and demographic characteristics such as household size and ethnicity, were major splitters of the classification tree. The implications for research in terms of introducing a new form of measurement and analysis technique are discussed.

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