

Multiple Regression in an Article Analysis

Clark AE, Oswald AJ. A simple statistical method for measuring how life events affect happiness. [Int J Epidemiol](#). 2002 Dec;31(6):1139-44; discussion 1144-46.

In order to analyze the impact that these life events have on someone's happiness, a multiple regression analysis was conducted. In this analysis, the economists "recorded the mental well being levels of people in these samples at different points in time, studied the incomes of and events that occurred to the individuals, and then use multiple regression techniques to work out the consequences upon well-being of different occurrences in life" (1). The two main outcomes of the analysis were to put a financial valuation on happiness from life events and also to claim that happiness is quantified mainly by comparisons to a certain reference level.

The equation to put a monetary valuation of events, according to the article:

$$u = A + \beta_1 S_1 + \beta_2 S_2 + \dots + \gamma Y + \theta'X + \varepsilon$$

The dependent variable, u , is one's individual utility which is a measure of happiness, according to the economists. The independent variables included income, marital status, employment status, and a vector X which includes demographic variables such as events from childhood and one's regional location. The primary data collected in the study comes from General Health Questionnaire mental-strain scores. The secondary data collected in the study comes from the British Household Panel Survey (BHPS). The specific regression technique used was probit regression for multiple variables. Using subjective well-being scores from happiness and the GHQ scores, the economists created two different regression equations to

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run analysis with. The essential idea is to observe whether the coefficients of the variables would be positive which would lead to a higher probability of a certain event occurring. The results of the study found that the largest valuation comes from the variable, health. If one's transition differential went from excellent health to good health, it would incur the biggest cost on the individual.

In the second part of the study which tests the claim whether happiness is comparative, more multivariate regression techniques are used. The dependent variable in this analysis was a person's well-being score from the German Socio-Economic Panel dataset. The main context for finding out whether happiness is comparative comes from the psychological impact that employment has on an individual. The result of this study showed that marriage brings the same valuation as someone having an extra 70,000 pounds of income per annum and that physical health is one of the most significant variables to explain human well-being.

My criticism of the study is that the underlying idea of a monetary valuation of happiness cannot be the sole dependent variable to understand how life events shape one's measure of happiness. In terms of the regression methods used, it is unclear what specific dynamics of the multivariate regression analysis are actually being used. Both objectives of the study used multivariate analysis, but one uses probit regression on multiple variables without explaining the process of constructing the equation in the first place. It seems to be that the underlying analysis is not thoroughly explained such as whether or not stepwise regression is used and if so, to which extent? There is no mention of significant F values to determine which variables contribute the most to the well-being score or individual utility. There is also no mention of an R or R Squared value. Without the important statistics required for these kinds of techniques to be

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viable, it is hard to determine to what extent this technique will be used in social science. It may make sense coming from an economic perspective, but to the typical non-economist, this study has a long way to go to convince most statisticians and non-economists.

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