

## Title: Household's Life Insurance Demand - a Multivariate Two Parts Model

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**Abstract:** The purpose of this paper is to understand characteristics of a household that drive life insurance demand with more sophisticated analytical techniques. The analysis is based on the Survey of Consumer Finances data, a probability sample of the U.S. population. Household demand of two types of insurance, term life insurance and whole life insurance, is examined jointly. We model both the frequency and the severity of demand for insurance building on the work of Lin and Grace (2007) by using covariates that they developed. A household's decision about whether or not to have term life insurance and/or whole life insurance (frequency model) is modeled simultaneously with a bivariate probit regression model. Given a household deciding to have life insurance, the amount of insurance (severity model) is analyzed using a generalized linear model with a normal copula. The normal copula permits the modeling of the amount of insurance for households who own both term and whole life insurance, about 20% of our sample. Our findings suggest that a household's demand for term and whole life insurance are jointly determined. After controlling for the covariates, there exist a negative relationship for the frequency part and a positive relationship for the severity part. This mixed effect extends prior work which established that term life insurance and whole life insurance are substitutes for one another.

Reference: Lin, Y, and M.F. Grace, 2007. Household Life Cycle Protection: Life Insurance Holdings, Financial Vulnerability, and Portfolio Implications. *Journal of Risk and Insurance* Vol.74, No.1, pp.141-173.