

JOB MARKET PAPER ABSTRACT

This paper examines the effect of new information on individual perceptions about the risk of disease and on preventive health behavior. Specifically, I study beliefs about the risk of pneumonia and vaccine demand among elderly persons. Pneumonia and influenza together are the sixth leading cause of death among the elderly in the United States. Medicare part B covers the cost of the vaccine and its administration. Despite such high risk and the low monetary cost, vaccination rates remain low among this population. While several factors may affect an individual's decision to vaccinate, subjective beliefs about the risk of infection are an important determinant. I consider a simple Bayesian updating model where new information arrives in the form of exogenous health shocks related to pneumonia and influenza and examine whether individuals update their beliefs in response to these shocks. Next, I study whether these health shocks have a corresponding effect on demand for vaccination.

I use data from the Medicare Current Beneficiary Surveys (MCBS) and associated Medicare claims. The MCBS is a rotating panel and the panel structure of the data permits identification of the effect of new information on beliefs and behavior. Answers to a survey question about why a person did not get a pneumonia shot is used to measure perceptions about the risk of infection. Health shocks are identified from Medicare claims with diagnoses of influenza or pneumonia. Variation in the prevalence of pneumonia and the infectious nature of the disease allows me to model these shocks as exogenous.

I find substantial heterogeneity across individuals - those who choose to vaccinate tend to be older and more educated than those who do not. The presence of certain chronic conditions is also a strong predictor of vaccination status. To identify learning, I estimate the effect of health shocks on risk perceptions, controlling for prior perceptions and other covariates. I account for the endogeneity of prior perceptions by using a generalized method of moments estimator suggested by the Arellano-Bond (1991) and Blundell-Bond (1998). I find strong evidence of learning - individuals who experience health shocks are less likely to believe that they are not at risk of infection. Since the pneumonia shot is usually taken only once in a person's lifetime, I estimate a Weibull proportional hazards model accounting for unobserved heterogeneity. The unobserved individual specific term is modeled as a Gamma frailty term. I find that experiencing a health shock significantly increases the hazard of vaccinating. Consistent with previous literature, I find that vaccine demand also increases with the prevalence of the disease; however, this effect is substantially smaller than that of a personal health shock. This is consistent with the idea that individuals react more strongly to a personal risk than to the average risk of a disease.