

Risky Behaviors and Mental Health: A New Look at Self-Medication.

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Abstract

If an individual has a consumption value for mental health, risky behaviors such as alcohol and tobacco consumption may alleviate the contemporaneous disutility associated with poor mental health. However, risky behaviors are costly in the sense that they draw from income, they potentially contribute to poor overall health, and perhaps most importantly, they potentially worsen future mental health. When technological advancements improve the quality of anti-depressant pharmaceuticals, the incentives to manage mental health with risky behaviors potentially change depending on the level of addiction to risky behaviors. In this paper, we estimate a model of risky behavior and anti-depressant consumption with 40-years of longitudinal data on 2,315 individuals from the Framingham Heart Study: Offspring Cohort. Importantly, during the timeframe of our study, Selective Serotonin Reuptake Inhibitors (SSRI), which dramatically improved the side effects associated with anti-depressant pharmaceuticals, entered the market and spread rapidly. Our goal is to estimate the substitutability between risky behaviors and anti-depressants while allowing for addiction in risky behaviors, which may inhibit substitution.

Reduced-form estimates of the effect of anti-depressants on tobacco and alcohol use, which condition on individual and time fixed effects, suggest strong substitutability between these risky behaviors and anti-depressants for both men and women. However, these estimates do not account for addiction in risky behaviors. Therefore, we estimate an empirical approximation to a dynamic structural model of alcohol, tobacco, and medication decisions which explicitly accounts for the history of consumption as state variables in an optimization problem. We allow the error structure of each equation to be flexibly correlated across equations with the discrete factor method for both time varying and time invariant unobserved heterogeneity. Our model is identified off of time-varying exogenous controls and the exogenous introduction of SSRI anti-depressants. Simulations of the estimated model suggest that risky behaviors and medication are substitutes for women and complements for men. Indeed, we

show a strong negative correlation between lagged alcohol consumption and contemporaneous anti-depressant use that, when modeled, flips the relationship between risky behaviors and medication in men relative to the static fixed effects estimator.