Smoking, Genes, and Health

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Many studies have linked "candidate" genetic variants (SNPs) with smoking behaviors and with smoking-related health problems. While the biological mechanism is under active investigation, biological research alone cannot answer policy relevant questions on smoking behavior. We develop a life-cycle model of smoking initiation, continuation, cessation, health beliefs, and health outcomes that incorporates genetic heterogeneity. We estimate our model using newly genotyped data from the Health and Retirement Study (HRS). We find the two SNPs that impact smoking to operate through different behavioral channels. Strikingly, both SNPs have effects on smoking-related illness and mortality that are an order of magnitude larger than their measured connection with smoking would suggest. This shows that standard measures of smoking (e.g. maximum cigarette consumption) are only weakly related to the health risks associated with life-cycle smoking.