



PERGAMON

Social Science & Medicine 54 (2002) 133–146

SOCIAL
SCIENCE
&
MEDICINE

www.elsevier.com/locate/socscimed

Compensating behaviors, regret, and heterogeneity in the dynamics of smoking behavior

K. Tom Xu*

*Department of Health Services Research and Management, Texas Tech University Health Sciences Center,
3601 4th Street, Room 1C165, Lubbock, TX 79430, USA*

Abstract

This paper studied smoking behavior in the context of the interactions among health, smoking, exercise and seeking medical care using a microeconomic model. Based on a dynamic optimal choice theory, a simultaneous equation system was used in the empirical estimation. This study found that smokers with longer smoking history tend to have extra incentives to maintain or improve their health. It was found that they tend to use more medical services and to be more active in exercise than smokers with shorter smoking history. Health status nonlinearly affects smoking decisions. Quitting incentives can be “curative” or “preventive”, depending on one’s health status. Light smokers’ addiction is qualitatively and quantitatively different from heavy smokers’. © 2001 Elsevier Science Ltd. All rights reserved.

Keywords: Addiction; Smoking behavior; Exercise; Medical services; Dynamic model

Introduction

If smokers are aware of addiction and the possible illness associated with smoking, and are hence ‘rational addicts’ (Lahiri & Song, 1998; Stigler & Becker, 1977; Becker, Grossman, & Murphy, 1994, 1988; Becker & Murphy, 1991; Chaloupka, 1991; Orphanides & Zervos, 1995; Suranovic, Goldfarb, & Leonard, 1999), evidence of rationality may also be manifested in their other health behaviors such as regular physical exercise. In essence, unhealthy and healthy behaviors are two sides of a coin, which are linked via an individual’s concerns about his or her health. A rational smoker may choose to quit and suffer the withdrawal symptoms, or as a compromise, may choose alternative measures to counteract the detrimental health consequences of smoking without giving up the habit.

Addiction follows a dynamic path, which is created by an individual’s smoking decisions made since initiation. The health consequences of smoking can alter an individual’s smoking pattern, but these may be (partially) alleviated via counter-measures such as medical

intervention. With the development of modern medicine and technology, smokers may think that they do not have to quit in order to improve or maintain their health when they suffer certain smoking-related diseases. Instead, they might simply utilize medical intervention to deal with the illness caused by smoking, or choose to exercise more regularly to offset the detrimental effects of smoking, without altering their smoking patterns. The compensating behavior results from worse health, or an increased awareness of the consequences of smoking. It was found that better knowledge of the health consequences of smoking is related to less smoking and more exercise (Kenkel, 1990, 1991).

Little empirical support has been found for the theoretical substitution among cessation, exercise and medical care. Instead, literature from the fields of medicine and public health suggest that smokers are less likely to exercise and have unhealthy lifestyles. (Patterson, Haines, & Popkin, 1994; Coulson, Eiser, & Eiser, 1997; Steptoe & Wardle, 1997) Because these studies are associational rather than analytical, however, it is inappropriate to conclude that there is a causal relationship between smoking and an individual’s level of exercise. Evidence, especially evidence of causality, is not provided in these studies. Specifically, it is still not

*Tel.: +1-806-743-6983; fax: +1-806-743-1292.

E-mail address: somktx@ttuhsc.edu (K.T. Xu).

clear whether the observed association is the result of the fact that smokers choose not to exercise because they are busier (time allocation problem), that the smoker samples used are healthier, or that smokers' psychological attributes are different. Additional research is needed to address questions concerning the direct and indirect effects of smoking in exercise behavior.

Similarly, the relationship between smoking and medical care has not been fully addressed by previous research. In particular, studies have failed to distinguish medical care resulting from poor health due to smoking from medical care voluntarily sought by smokers, which may not be related to smokers' current health. In a behavioral model often used by health service researchers, three groups of factors are identified to affect an individual's behavior to seek medical care: predisposing, enabling and need factors. (Andersen & Newman, 1973; Andersen & Aday, 1978; Aday & Andersen, 1984; Andersen, 1995) Poor health resulting from smoking is a need factor, which increases the probability that an individual will seek care. However, as more and more smokers are exposed to health education concerning the detrimental effects of smoking, their predisposing factors may change accordingly. That is, smokers may be more inclined to seek medical care than nonsmokers, not necessarily because of poor health, but because of their altered perception that they are more likely to get sick.

In previous empirical work, researchers identified several factors that contribute to smoking behavior: age, gender, race, education, psychiatric impairment, income, cigarette price, excise taxes, as well as state and federal policies and regulations on smoking. (Conway, Ward, Vickers Jr., & Rahe, 1981; Gunn, 1983; Linn, Sandifer, & Stein, 1985; Kabat & Wynder, 1987; Waldron & Lye, 1989a, b; Kenkel, 1990; Viscusi, 1990; Kenkel, 1991; Viscusi, 1991; Blaylock & Blisard, 1992; Nides & David, 1995; Hsieh, Yen, Liu, & Lin, 1996; Kinnunen, Doherty, Militello, & Garvey, 1996) In many studies using cross-sectional data, smoking status was treated as a binary dependent variable, with individuals' socioeconomic, demographic, and some physiological characteristics included as explanatory variables. One of the most debated issues was the function of health status in determining smoking behavior. One economic theory suggests that smokers may experience regret because of health concerns. (Orphanides & Zervos, 1995) If the theory holds, empirical studies would indicate a significant impact of health on smoking and health would be endogenous to an individual's decision about whether or not to continue smoking.

Three empirical economic studies demonstrated the effect of health on smoking. (Jones, 1994, 1996; Shmueli, 1996) They also pointed out that in modeling smoking behavior, lack of control for the endogeneity of health biases the results. However, the findings on how health

affects smoking were not unanimous. That is, both "curative" and "preventive" cessation were found using different data and model specifications. "Curative" cessation means that a smoker quits when his or her health deteriorates. "Preventive" cessation indicates that a healthy smoker quits to maintain good health status.

Lastly, most of the previous studies treated smokers as homogenous in their smoking decision-making. That is, heavy smokers were considered to behave the same way as light smokers. To illustrate a complicated addictive behavior such as smoking, a more detailed model incorporating the potential heterogeneity of smokers is necessary. (Kassel, Shiffman, Gnys, Jean, & Zettler-Segal, 1994).

A theoretical model of smoking behavior based upon the assumption of rationality includes the proposition that individuals know the health consequences of smoking and that they can choose curative and preventive interventions other than smoking cessation to improve or maintain their health. Hence smokers allocate their time and resources accordingly. The main objective of this paper is to study an individual's smoking behavior based on a microeconomic theory while taking into account his or her other health behaviors including seeking medical intervention when illness occurs and preventive measures such as exercise.

This paper aims to examine the following aspects of smoking behavior: compensation, regret, and heterogeneity.

- (1) Given health status, are smokers more inclined to seek medical care and to exercise to compensate the unrealized but perceived health deterioration in the future?
- (2) Does an individual's health condition change his or her smoking behavior? Does the change occur in the decision to smoke or quit, or in the amount of cigarette consumption?
- (3) Controlling for other observable characteristics, do heavy smokers behave the same way as light smokers? If not, how and to what extent are they different?

Methodology

Data

The data used in estimation were extracted from the RAND Health Insurance Experiment (HIE), 1974–1982. Because there was insufficient information on medical expenditure for HMO enrollees to enable the determination of the volume of services received in terms of dollars, only the individuals who were assigned HIE insurance and used the Fee-For-Service mode were included in the sample for the estimation. Individuals

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات