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The role of family incomes in cigarette smoking: Evidence from French students

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ABSTRACT

In this paper, we study the smoking behavior of students aged from 18 to 25 using four cross-section data sets collected in France from 1997 to 2006. We focus on the role played by student income and parental resources. We find that both the probability of smoking and the number of cigarettes smoked are positively correlated to family resources. Among students, only wages earned and transfers received from parents increase smoking participation. However, sensitivity to income remains weak since a rise of 1% in income of either the students or their parents leads to an increase in smoking prevalence of about 0.15 −0.20%.

Introduction

Tobacco use is the leading global cause of preventable death according to the World Health Organization (WHO, 2011). Despite the various policies implemented to curb this epidemic, a substantial proportion of adolescents and young adults is still smoking in all European countries. According to the recent European School survey Project on Alcohol and other Drugs report (ESPAD, 2009: p. 406), the average rate of smoking prevalence in 2007 (defined as cigarette use in the last 30 days) was 29% in European countries. It is therefore important to explore smoking determinants among young adults. Many studies have shown that tobacco use is influenced not only by price, but also by family characteristics of both the young people concerned and their parents. In this context, changes in family resources are influential factors that are expected to affect the tobacco demand curve.

According to studies published during the 80s and 90s, the effect of parental socioeconomic status (SES) was not clear-cut. In the US, about half of the empirical studies have found an inverse relationship between SES and smoking behavior (Borland & Rudolph, 1975; Escobedo, Anda, Smith, Remington, & Mast, 1990; Lowry, Kann, Collins, & Kolbe, 1996; Mittelmark et al., 1987). Conversely, Headen, Bauman, Deane, and Koch (1991), Bailey, Ennett, and Ringwalt (1993) and Flint, Yamada, and Novotny (1998) have reached the opposite conclusion. Results from countries like Iceland and Scotland also show that there is an unclear relationship between SES and smoking (Glendinning, Shucksmith, & Hendry, 1994; Thorlindsson & Vilhjalmsson, 1991). Over recent years the relationship between smoking and SES has changed considerably, as has the culture of smoking. For instance, a significant relationship between parental social and occupational groups and smoking behavior was recently highlighted in France among 17-year-olds (OFDT, 2010).

At the same time, there is some evidence that the consumption of tobacco among young people is positively correlated with their own levels of income. In Iceland, income earned through after-school work is positively linked to smoking among adolescents (Thorlindsson & Vilhjalmsson, 1991). Similar results are reported by Alexander et al. (1983) and Stanton, Oei, and Silva (1994) in Australia and New Zealand respectively. Adolescents with a paid job are more able to afford tobacco. In Scotland, Austria, Finland, Germany, Norway and Wales, 15-year-old adolescents with above-average incomes are more likely to be smokers compared to children with below-average incomes (Griesbach, Amos, & Currie, 2003). Cigarette smoking is also positively correlated to pocket money as emphasized in Grizeau, Baudier, and Allemand (1997), Rissel, McLellan, and Bauman (1999) and Scragg, Laugesen, and Robinson (2002).

Curiously, very few studies have attempted to take both student and parental resources into account when explaining smoking decisions. This is a crucial issue given the expected positive correlation between the incomes of the two generations. In the context of intergenerational relationships, Altonji, Hayashi, and Kotlikoff

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(1997) have pointed out that omitting the characteristics of both generations in regressions could lead to biased estimates when explaining gifts received from parents. Nonetheless, information on family income is crucial to an understanding of how student income influences cigarette consumption net of the parental income effect.

In this paper, we investigate the relationship between family resources and smoking behavior among students. For that purpose, we consider four repeated cross-sectional data sets obtained in France from 1997 to 2006, with details on family incomes. Drawing on a subsample of about 80,000 students aged from 18 to 25, we perform an econometric analysis of the decision to smoke and the consumption intensity of smokers. The rest of our paper is organized as follows. Section 2 describes smoking behavior of students in France. In Section 3 we present estimates from Probit and OLS models. In Section 4 we further examine the correlation between smoking and family incomes. Finally, Section 5 concludes.

Description of the data

We study the role of family incomes on cigarette consumption using repeated cross-sectional data sets aimed at measuring the standard of living of students in France. The *Conditions de Vie des Etudiants* survey is carried out by the *Observatoire de la Vie Etudiante* (OVE hereafter) every three years. Founded in 1989 by the French Board of Education, its aim is to highlight students' living conditions and way of life. The data cover the period from 1994 to 2006. The OVE survey includes more than 250 questions related to educational achievement, schooling effort, personal and parental economic resources, family relationships, schedules, etc. Questionnaires were sent by regular mail to a large sample of randomly selected students, with a response rate of about 25%. The overall sample, which is representative of the French student population, includes 131,556 students of all ages.

Students indicate whether they are smoking or not at the time of the survey and how many cigarettes they are smoking per day. In what follows, we focus on both the probability of smoking and the number of cigarettes per day conditional on smoking status. To explain the consumption of cigarettes, we introduce characteristics related to both the student and their parents. We consider the following explanatory variables: gender, age, number of siblings, baccalaureate with distinction and personal resources for the student; and marital status, employment status, education and income for parents. Unfortunately, there is no information on parental smoking behavior in the OVE survey, but we will examine this issue further in Section 4.

The resources of the younger generation are defined as follows. Firstly, students receive wages when they have a job while studying or during vacation. Secondly, students may benefit from several public subsidies or grant transfers in France. For instance, they are eligible for scholarships when parents have limited resources. Students who rent an apartment receive housing allowances. Thirdly, young adults may receive money from their parents. Several studies have highlighted the importance of these private transfers among students, which may come through either regular or irregular allowances (Barnet-Verzat & Wolff, 2002). The student's income is defined as the sum of labor income, public grant transfers and parental transfers. The nominal income values were deflated using the French consumer price index, with 2006 prices as the base.

When selecting data, we discarded the 1994 survey ($N = 26{,}551$) because there was no information on student resources for that year. We have also restricted our analysis to the subsample of students aged 18–25 who have completed high school. This deletes 10,552 students. Both younger and older students are likely to show very specific behavior. Young students, for example, have often skipped one or more grades in school and tend to devote much more time to schoolwork. By contrast, older respondents may either be subject to stronger tobacco addiction acquired over their life cycle or less concerned about their physical health. Finally, we discarded another 7122 observations with missing values and obtained a sample comprising 87,331 students: 24,076 in 1997, 22,213 in 2000, 20,165 in 2003 and 20,877 in 2006.

We provide a description of the sample in Table 1. There are more female than male students in French universities (62.7% in 1997, 67.8% in 2006). The mean age is 20.5 years and more than one-half of the students obtained their high school diploma without distinction. The average income per student is about 490 euros per month over the period (from 452 euros in 1997 to 509

Table 1
Descriptive statistics of the sample.

Variables	1997	2000	2003	2006	1997–2006
Student's characteristics					
Girls	0.627	0.636	0.664	0.678	0.650
Age	20.529	20.449	20.354	20.450	20.449
Number of siblings	1.660	1.684	1.747	1.732	1.703
High school					
Without distinction	0.635	0.576	0.555	0.522	0.574
Cum laude	0.259	0.279	0.283	0.298	0.279
Magna cum laude	0.088	0.114	0.124	0.144	0.116
Summa cum laude	0.019	0.031	0.039	0.037	0.031
Labor income					
Mean	101.442	131.032	135.449	135.005	124.844
St. deviation	244.497	284.483	280.288	287.354	274.141
Public subsidies					
Mean	171.907	164.844	168.232	179.843	171.159
St. deviation	260.395	214.182	212.617	226.769	230.481
Private transfers					
Mean	178.355	194.708	211.301	194.438	193.967
St. deviation	219.966	353.576	466.150	365.865	356.992
Total income					
Mean	451.704	490.583	514.982	509.286	489.970
St. deviation	402.270	475.602	555.098	500.520	483.542
Labor income/total income	0.225	0.267	0.263	0.265	0.255
Public subsidies/total income	0.380	0.336	0.327	0.353	0.349
Private transfers/total income	0.395	0.397	0.410	0.382	0.396
Parental characteristics					
Parents living separately	0.199	0.209	0.221	0.199	0.206
Unemployed	0.166	0.168	0.158	0.161	0.163
Education					
Primary school	0.157	0.118	0.094	0.082	0.115
Secondary education	0.143	0.133	0.126	0.127	0.133
Vocational school	0.223	0.222	0.222	0.243	0.227
High school	0.212	0.244	0.263	0.265	0.244
More than high school	0.265	0.283	0.295	0.284	0.281
Total income					
Mean	3256.123	2944.184	3506.408	3165.689	3212.953
St. deviation	1829.424	1967.946	1898.888	1687.347	1860.143
Number of observations	24,076	22,213	20,165	20,877	87,331

Source: survey OVE 1997–2006.