ISSN 1045-6333

GENDER, INCOME LEVELS, AND THE DEMAND FOR CIGARETTES

Joni Hersch

Discussion Paper No. 299

10/2000

Harvard Law School
Cambridge, MA 02138

The Center for Law, Economics, and Business is supported by a grant from the John M. Olin Foundation.

JEL Class: I12

Gender, Income Levels, and the Demand for Cigarettes

Joni Hersch*

Forthcoming *Journal of Risk and Uncertainty*

Abstract

This paper uses data from the Current Population Survey to analyze determinants of cigarette demand. Price elasticities for smoking participation and quantity of cigarettes smoked are between -0.4 and -0.6 for both men and women. These effects diminish for high-income individuals. The family earnings elasticity of demand is weak, but education has strong negative effects on smoking, especially for high-income respondents. Own-earnings decrease individuals' price sensitivity. Employment status is influential even after controlling for income, education, and other factors. The presence of young children reduces smoking, with the effect most pronounced for women.

---

* Lecturer on Law, Harvard Law School

Gender, Income Levels, and the Demand for Cigarettes

Joni Hersch*

Until recently men were far more likely to smoke than were women. Although the overall smoking rate has declined dramatically in the last three decades, the bulk of the decline has been caused by a substantial decrease in the smoking rate of men. From 1965 to 1995, the total smoking rate of men declined from 51.9 percent to 27.0 percent. While the level of smoking for women has historically been below men's, their rate has declined more modestly, from 33.9 percent in 1965 to 22.6 percent in 1995.[1] The gender gap in smoking rates is even narrower among younger age groups. Indeed, data from the Monitoring the Future project indicate that the smoking rate for female 8th and 10th grade students has exceeded that of their male counterparts since 1995 (Johnson, O'Malley and Bachman (1999)). Since most smokers start smoking in their teens, the relatively high rate of underage female smokers suggests that the female smoking rate may eventually surpass that of males.

This paper makes five distinct contributions to the analyses of smoking behavior. First, I examine the income elasticity of demand using a different measure of income than earlier studies. To assess the income elasticity of demand I use measures of family earnings as well cruder measures of family income based on broad categories, which is the standard approach in the literature. Information on income elasticities is important in

* Lecturer on Law, Harvard Law School. I thank the John M. Olin Center for Law, Economics, and Business for research support.

[1] U.S. Bureau of the Census (1999).

explaining differences in smoking across income groups as well as in explaining how smoking rates will be affected by our increasing affluence.

Second, I explore how price and income elasticities vary by income group. Price elasticities have become a central policy concern as cigarette excise taxes can be raised to reduce smoking behavior. Further, the tobacco industry settlement of the state attorneys' general lawsuits is equivalent to imposing an excise tax on cigarettes. The role of these economic mechanisms varies considerably across the income ranges so that manipulation of tax policies may have differential effects on smoking rates and the distribution of the tax burden.

Third, I explore the role of labor market status. One possible source of the gender disparity in the decline in smoking rates may relate to accompanying gender differences in the labor market. This same 30-year period of male and female smoking rate convergence has been accompanied by a huge growth in the labor force participation rate of women, from 39.3 percent in 1965 to 58.9 percent in 1995. The labor force participation rate for men has declined over this period, from 80.7 percent in 1965 to 75.0 percent in 1995. While early female labor market participants were largely employed in traditionally female occupations, women are now employed in a wider range of jobs, including blue-collar occupations in which workers have tended to have higher smoking rates. On the other hand, the white-collar occupations that still employ the majority of women in the labor force are more likely to be subject to workplace smoking restrictions, which may depress their smoking rates. In this paper I explore the effects of employment status, occupation, and workplace smoking restrictions on smoking behavior.

The fourth new concern is how the source of income may affect smoking behavior. Do families truly pool their income or does smoking behavior vary according to who earns the household income? All existing studies of smoking demand have used family income as a measure of the individual's ability to purchase tobacco. However, ones' own earnings may have a different effect on cigarette demand than that of family income. For example, women are less likely to be employed, and employed women earn less on average than do men. Women without their own earnings who must draw exclusively on family income for cigarette purchases may behave differently in their cigarette purchase decisions than employed women with their own earnings. To interpret demand elasticities based on family income as pertaining to individuals requires that one assumes that all family income is pooled and that each household member has equal access to household resources. However, there is evidence with respect to household spending on children that contradicts this assumption, finding that spending for children is greater when a female household member controls the family resources.[2] Unlike goods purchased for children, cigarettes are strictly a private good, provided one excludes secondhand smoke effects, and this paper provides a more refined test of whether consumption is influenced by own control of financial resources.

The fifth area of exploration is how the presence of children affects smoking behavior. Smoking during pregnancy has well-established consequences including low birth weights, premature delivery, and increased risk of fetal death.[3] Parent of either gender who smoke could create environmental tobacco smoke risks for their children if they expose them to their smoke. Despite increased involvement by fathers in childcare,

[2] See Lundberg and Pollak (1996) and references cited therein.

mothers tend to assume a greater share of the child care responsibilities. A mother's smoking behavior may have a greater impact than the father's may on their children's health because of their greater role as caregivers. Accordingly, the presence of children may have a different impact on women's smoking behavior than men's.

There are a large number of published studies that have estimated the demand for cigarettes. However, few studies have examined gender differences in cigarette demand. Outside of the economics literature, researchers have examined a variety of reasons for gender differences in smoking behavior including concerns about weight gain, depression, and family factors.[4] Studies using micro data in the U.S. uniformly find that women are less likely than men to smoke controlling for factors such as family income, age, education, and marital status.[5] This differential could stem from broader gender differences in willingness to incur health risks. Hersch (1996) examines the choices made by gender and race on a variety of safety choices, including smoking, finding that women consistently make safer decisions than men controlling for pertinent economic and individual factors.

The underlying behavior driving smoking decisions may differ by gender as well, but how they differ remains an unresolved empirical issue. Previous studies have found conflicting evidence of the effects of price and family income on the demand for cigarettes for men and women. Atkinson and Skegg (1973) used aggregate annual data on tobacco sales in the U.K. for 1951-70, apportioning the total into gender shares. Their

---

[3] U.S. Department of Health and Human Resources (1980).

[4] See for instance Klesges et. al. (1989), Anda et. al. (1990), Glassman et. al. (1990), Williamson et. al. (1991), Pomerleau et. al. (1994).

[5] See e.g., Ippolito, Murphy and Sant (1979), Lewit and Coate (1982), Hersch (1996).

study found a lower price elasticity for men than for women, equal to zero for men and –0.34 for women in their preferred specification. In contrast, three studies that used micro data to estimate elasticities for samples stratified by gender (Lewit and Coate (1982), Mullahy (1985), Chaloupka (1990)) find that women are less price sensitive than men. However, Chaloupka and Wechsler (1995) found, within a sample of college students, that female students have a higher participation but a lower consumption elasticity relative to their male counterparts.

Section 1 describes the data set used for this study, which consists of 54,425 individuals age 18-65 from the 1992 and 1993 U.S. Current Population Survey: Tobacco Use Supplements. In addition to the usual Current Population Survey questions that provide information on earnings and demographic characteristics, the Tobacco Use Supplements included detailed information on smoking behavior. Detailed information on labor force characteristics, own wage, and family earnings is a distinctive advantage of this data set over the micro data sets used in other studies of cigarette demand.[6]

Section 2 analyzes the smoking participation decision and the quantity of cigarettes smoked by smokers. The most noteworthy finding is the general similarity of the behavioral response of men and women to price, income, education, and labor market status. Over the broad age range in the sample, men are more likely than women to smoke. However, both men and women exhibit negative price and income elasticities of demand, and the magnitudes of the effects are similar. Labor force status has important and similar influences on smoking participation for both men and women. Relative to individuals not in the labor force, workers in white-collar occupations are less likely to

smoke, and workers in blue-collar occupations and unemployed individuals are more likely to smoke. The presence of children reduces smoking participation for both men and women, with the magnitude of the effect higher for women. One might expect a greater behavioral response by women, consistent with the greater risks their smoking poses to babies and children.

While the overall results for men and women indicate a generally similar smoking participation pattern, stratification of the sample into income groups reveals stark differences by both income groups and sex. Price effects are most consequential for lower income individuals, while education and children are more consequential for individuals in higher income groups.

Section 3 analyses the smoking behavior of the employed sample. While own earnings elasticities are similar to those estimated using family earnings, the price elasticities are considerably smaller, suggesting that access to own earnings reduces price sensitivity. Section 4 concludes with a discussion of the implications of the findings of this paper for how people make decisions regarding this very risky consumption activity.

1. Data Set and Variable Definitions

The data on individuals used in this analysis are derived from the Current Population Survey (CPS). The CPS is conducted by the U.S. Bureau of the Census on behalf of the U.S. Bureau of Labor Statistics. Every month, the CPS surveys a nationally representative sample of approximately 57,000 households. The survey requests information on a wide range of demographic, labor force, and household characteristics

[6] For instance, the widely used National Health Interview Survey and the Health Examination Survey have information on family income in broad categories only. These surveys do not have information on

of household members age 15 and older. The September 1992, January 1993, and May 1993 CPS included a Tobacco Use Supplement sponsored by the National Cancer Institute, and the analyses of this paper are based on data from these 3 waves of the CPS. These supplements requested information on the smoking behavior of all household members age 15 and older.

Since a main concern of this paper is the effect of labor market characteristics on smoking behavior, I restrict the sample to adults age 18 - 65. Wage and family earnings data are available each month for only a quarter of the sample.[7] I therefore restrict the sample to the quarter sample that is eligible for questions on their earnings. The sample is further restricted to those observations providing complete information for all variables used in the analysis (with two exceptions noted below). These restrictions result in a sample size of 54,425 with 28,699 women and 25,726 men. The variables used in the analyses are defined below. Table 1 provides smoking rates, and Table 2 summarizes sample means by sex and smoking status.

A series of survey questions ascertained individual smoking status. Respondents (or their proxy) were asked if the individual had smoked at least 100 cigarettes in their lifetime. Those responding affirmatively were asked if they currently smoke every day, some days, or not at all. Those who currently smoke every day or some days are identified as smokers in the analysis below. As indicated in Table 1, the overall smoking rate for the sample is 23.9 percent for females and 28.9 percent for males.

---

individual earnings.

[7] Households are interviewed monthly for 4 months, not interviewed for the following 8 months, and then interviewed again for 4 months. Wage and family earnings data are asked only for the outgoing samples in their 4th and 8th interview period.

Although proxy respondents provided information on the smoking status of everyone in the household, only self-respondents were asked questions about the quantity of cigarettes smoked. Therefore, the samples used to estimate participation and consumption differ slightly. All observations are used to estimate the participation equations, while only the sample of self-respondents is used to estimate the quantity decision. There is evidence that self-responding is not random. The smoking rate based on the restricted sample of self-respondents is lower than the overall smoking rate. The smoking rates of female and male self-respondents are 22.1 and 23.7 percent respectively.

The number of cigarettes smoked is calculated as the average number of cigarettes smoked per day for those who smoke daily and the average daily consumption over the past 30 days for those who report that they smoked on some days in the past 30 days but not daily. Female smokers in the sample average 16 cigarettes per day and males average 19 (reported in Table 2).

The two ongoing concerns in the cigarette demand literature are the elasticities with respect to price and income. The data sets typically used to estimate the demand for smoking have categorical family income data as the only measure of income. The CPS likewise provides a measure of annual family income in categories.[8] In addition, the survey provides actual weekly family earnings rather than simply categorical information. For comparison to the annual family income measure, I annualize weekly family earnings by multiplying by 52, and estimate elasticities using both measures. Note that income and earnings are not identical, since earnings refers to labor market earnings, and income will include non-earned sources of income such as Social Security payments,

[8] I omit the 5 percent of the sample with missing data on this key variable.

dividends, rental income, and so forth. Family earnings are missing for 17 percent of the sample. Observations with missing family earnings are assigned an indicator variable equal to one in estimates using family earnings.

The categorical income measure is based on 14 broad income categories. To provide a continuous measure for comparison to the estimates based on earnings, as well as for convenience of interpretation, I assign the midpoint of each category at each income level.[9] I also stratify the sample into low income (bottom quartile with family income less than $17,400), middle income, and high income (top quartile with income greater than $54,000). Both earnings and income are adjusted to constant September 1992 prices using the monthly CPI-U.

Although quantity demanded rises with increases in income for most economic goods, it is quite clear that cigarettes may not be normal economic good. Income has two conflicting effects. Higher levels of income boost the economic resources available for cigarettes, leading to the positive income elasticity observed in early studies of cigarette demand. However, there is an opposing influence as well. Cigarette smoking endangers one's health, and it is widely established that willingness to incur health risks declines with income. This influence will tend to make higher income individuals less likely to smoke. The smoking rates by income group reported in Table 1 indicate that smoking is indeed strongly and negatively correlated with family income, so that the health risk-income linkage is dominant. Low income men and women are twice as likely to smoke as their high income counterparts. For each income group, female smoking rates are 3 – 7

[9] The top category level is $75,000, with 10 percent of households reporting income greater than $75,000. I assume an income level of $80,000 for this category.

percentage points below that of men, where the magnitude of the difference narrows moving up the income scale.

Respondents are categorized by their employment status into one of four groups: white-collar worker, blue-collar worker, unemployed (and looking for work), or not in the labor force. Differences in smoking restrictions at work, stress associated with unemployment, and different social pressures of one's peers may result in differences in smoking rates by occupational status. As Table 1 indicates, unemployed workers have the highest smoking rates, with rates about 10 percentage points above the overall average. In addition, cigarette smoking clearly has a strong blue-collar orientation. White-collar workers of both sexes have the lowest smoking rates, followed by individuals not in the labor force, whose smoking rates are close to the overall average.

The analyses restricted to workers presented in Section 3 examine own-earnings elasticities. The CPS provides the value of weekly earnings for all workers in the quarter-sample making it possible to assess how cigarette demand responds to the individual's personal earnings. Individual earnings are adjusted to constant September 1992 prices using the monthly CPI-U.

The influence of the presence of children on smoking behavior is investigated by variables indicating the age of the youngest child in the household. The indicator variables are for the age categories under 2 years old, age 3-5, age 6-13, and age 14-17. The age of the youngest child captures proximity to pregnancy and the enhanced health risks to young children of environmental tobacco exposure. Note that while many parents may refrain from smoking in order to prevent exposing their children to environmental tobacco smoke, raising children is stressful. Some parents, particularly

those whose outside activities are restricted because of childcare obligations, may smoke for reasons such as to relieve stress, to reward themselves, or to provide an outlet for boredom.

The education level is the number of years of education completed by the respondent. Education has consistently been found to exert a strong influence on smoking behavior. Education captures multiple influences relating to lifetime wealth, smoking risk information, rates of time preference, and the social acceptability of smoking among one's peers. Age (in years) captures different cigarette information eras in which people started to smoke as well as restrictions on smoking over the life cycle.[10] Current marital status is indicated by a series of 0-1 indicator variables, where the categories are married, widowed, never married, divorced, or separated. Stressful marital events such as divorce, separation, or a spouse's death may affect smoking behavior by making quitting more difficult or by fostering a relapse among former smokers. Marriage may reduce smoking by providing social support. The respondent's race is captured by indicator variables for white, black, and other non-white races. Smoking status may differ by race, especially between white and non-white women, as white women frequently smoke in order to lose weight or maintain a weight loss.

The CPS data did not include cigarette price information, but this information was matched to respondents based on their state. Cigarette price data are from the Tobacco Institute (1995), which represent the average prices in November of that year. In particular, the price variable is the average statewide price per pack, where the sample of cigarettes includes generic cigarettes and the prices reflect both state and federal taxes.

[10] Data in Viscusi (1992, 1998) indicate that younger age groups consider smoking riskier than do older respondents, who were raised in a less stringent anti-smoking environment.

To maintain comparability across the two years of data, cigarette prices were adjusted to constant September 1992 prices using interpolations of the 1992 and 1993 price data.

Finally, the analysis includes an indicator of whether the respondent lived in a state that restricted smoking in private workplaces in 1992-93. [11] Although now widely required by state law, as of 1992-93 only about half of the respondents lived in states with such workplace restrictions.

As Table 2 indicates, the family earnings and income of smokers are considerably below that of nonsmokers, and smokers' own earnings are substantially less than that of nonsmokers. Within gender, nonsmokers average about $7000 - $9000 more in real family income than smokers. There are also large differences in own weekly earnings, with female smokers earning 16 percent less than female nonsmokers, and male smokers earning 23 percent less than their nonsmoking counterparts. The earnings and income gap is in part related to differences in education and occupational status. Nonsmokers have about one more year of schooling, and are far more likely to be employed in white-collar occupations that are generally higher paying. Smokers are also more likely to be divorced and therefore in a one-earner household. Otherwise, smokers and nonsmokers of the same gender are demographically similar. In particular, the income gap is not due to differences in labor force participation. Within gender, both smokers and nonsmokers are equally likely to be non-labor force participants, and there are only minor differences by smoking status in the probability of being unemployed.

[11] Centers for Disease Control and Prevention (1995).

2. The Smoking Participation and Consumption Decisions

As with any market good, the demand for cigarettes is a function of price, income, and other factors that influence tastes. Both the decision to smoke (the participation decision) and the quantity smoked are of interest. Although most adult smokers began smoking in their teens, price, income, and other factors will affect both the decision to begin smoking as well as the decision to continue to smoke.

The same set of explanatory variables is used to estimate both the participation decision and the consumption decision. Smoking behavior is a function of price, family earnings or income, education, age, marital status, race, presence of children by age group, and labor market status. Both the participation and consumption equations are estimated separately for men and women, as well as stratified into 3 income groups. Tables 3 and 4 present participation equations estimated by probit for women and men respectively, where the reported coefficients correspond to the marginal effects of each variable, transformed from the ordinary probit estimates. Tables 5 and 6 present the corresponding consumption decisions for the sample of smokers, estimated by OLS. Table 7 summarizes the price, earnings, and education elasticities implied by the regression results. The regression results presented in these tables are estimated using real family earnings as the measure of income.

Perhaps the most basic result in economics is that, with rare exceptions, higher prices discourage consumption of a good. As noted in the first columns of each of the tables, for the full samples of men and women, price has a significant negative influence on both smoking participation and on the number of cigarettes consumed by smokers, with elasticities ranging between –0.4 and –0.6. The marginal effect of price on smoking

behavior does not differ significantly by sex. That is, in contrast to the mixed findings of earlier studies, men and women respond statistically similarly to an increase in price. The magnitudes of the effects are substantial, with a one-dollar increase in the per-pack price of cigarettes decreasing participation by 5 – 8 percentage points, and decreasing the number of cigarettes smoked by about 5 cigarettes per day. These findings indicate that an increase in cigarette taxes will decrease both smoking participation and consumption.

However, the effect of price varies widely by income group, with the greatest effect being for low income women. The price elasticity of participation for low income women is nearly -1.0, which is almost three times the elasticity for the pooled sample of women and double the magnitude for men overall. In contrast, higher prices do not deter smoking participation for middle income women and high income men and women. Similarly, higher prices reduce the quantity of cigarettes smoked for low and middle income smokers of both genders, with the effect larger for lower income smokers, but has no effect on smoking quantity in the high income group. The price elasticities of consumption for low income women and men are -0.72 and -0.60 respectively, while the values for middle income women and men are -0.55 and -0.44. These results suggest that at current prices, cigarettes simply do not comprise a large enough share of the household budget of high income respondents that a marginal increase in price is likely to influence smoking behavior.

Higher family earnings reduce participation for both genders, and reduces consumption for women. The overall earnings elasticities of participation are significantly different from zero with values of -0.14 for women and -0.11 for men, although this elasticity is not significantly different from zero for many of the

gender/income group categories. Substituting family income derived from the income categories for family earnings reveals income elasticities of participation that are larger, with statistically significant elasticities of participation of –0.28 and –0.29 for women and men respectively. However, the corresponding income elasticities of consumption derived from use of family income are similar to those based on family earnings, revealing only a minor effect of income on cigarette consumption. The income elasticity of consumption for women is significantly different from zero with a value of -0.04 based on either family earnings or family income. The corresponding value for men is not significantly different from zero, using either income measure. Any role of income in affecting smoking behavior is confined almost exclusively to determining the propensity to smoke rather than the number of cigarettes smoked. Finding a relatively minor effect of income on cigarette demand is consistent with the literature cited in Viscusi (1992, Table 5-6).

Overall, education has a strong and consistently negative effect on both smoking participation and cigarette consumption. However, the influence of education varies considerably by income level. For both men and women, and for both participation and income elasticities, the relevant elasticity is almost zero in low income households, and increases substantially as one moves into higher family income categories. Increasing education by about 10 percent, or by little more than one year, reduced smoking participation by about 11 percent for individuals in middle income households and by about 25 percent in high income households. A similar pattern holds for quantity smoked. Once again, education has almost no effect on cigarette consumption of individuals in low income households, while a 10 percent increase in education decreases

cigarette consumption by about 5 percent in middle income households, and 6 – 8 percent in high income households. Whereas price effects are greatest for low income groups, education effects are greatest for high income groups.

The effect of age on smoking behavior is nonlinear as indicated by the statistically significant coefficients on age and age squared, which are positive for the linear term and negative for the quadratic term. The magnitudes of the effects are similar over income groups and between genders. The results indicate that the number of cigarettes smoked increases at a decreasing rate up to age 47 for women and age 52 for men, with the quantity decreasing thereafter.

The effect of marital status, relative to the excluded category of married individuals, indicates that divorced and separated individuals of both genders are more likely to smoke. Stress associated with these marital events or the lack of social support may make quitting more difficult for these groups. However, marital status does not have a consistent effect on the number of cigarettes smoked.

Race exerts a powerful influence on smoking participation among women, and on the quantity of cigarettes smoked by both men and women. Relative to their white counterparts, nonwhite women are less likely to smoke, and those who do smoke consume fewer cigarettes. This differential holds true for the pooled results and in almost all income groups. Black women smoke an average of 6 fewer cigarettes per day, and other nonwhite women smoke 3 fewer cigarettes. Although the pooled estimates indicate that overall race has no effect on smoking participation for men, nonwhite men in the low income group are less likely to smoke than are white men. In contrast, the quantity of cigarettes smoked by male smokers is strongly affected by race, with black male smokers

consuming 8 fewer cigarettes per day than their white counterparts, and other nonwhite male smokers consuming 5 cigarettes per day less.

The presence of children of any age has a negative effect on smoking participation for women overall, while only the presence of a child under age 2 deters men from smoking. However, the magnitudes of these influences are surprisingly weak given the extensive warnings about the hazards of environmental tobacco smoke. The presence of children reduces smoking, if at all, by only 2.5 - 4.0 percentage points. The presence of children has an even more limited effect on smoking consumption, indicating that both women and men with children under 2 years old smoke less than two fewer cigarettes per day. Any concern with the hazards smoking poses to children is addressed primarily by giving up smoking altogether rather than by cutting back smoking levels.

However, the presence of children has very different effects by income group on women's smoking behavior. In contrast to the pooled results and the results for middle and high income women, the presence of children does not have a significant impact on smoking participation or consumption for low income women. Since the analysis controls for other factors that affect smoking such as income and education, this absence of an effect of children on smoking by women in low income households suggests that other factors may offset any concerns about exposing children to tobacco smoke.

The effects of occupational category on smoking behavior controlling for income, education, and other factors parallel the simple summary statistics reported in Table 1. Overall, relative to individuals not in the labor force, white-collar workers are less likely to smoke, and blue-collar workers are more likely to smoke, with unemployed individuals having the highest probability of smoking. It is noteworthy that the blue-collar orientation

of smoking holds after controlling for earnings and education. However, these effects are not consistent across all income groups. The quantity of cigarettes smoked is lower only for those in white-collar occupation, by around two cigarettes per day for both men and women, perhaps reflecting a greater likelihood of workplace restrictions on smoking in white-collar jobs.

3. Smoking decisions for workers

Use of the CPS data to estimate cigarette demand equations offers a unique opportunity to contrast the elasticity estimates derived from family income to those derived from own earnings. Comparing elasticities based on family earnings to own earnings provides information on whether control over financial resources influences the ability to purchase cigarettes. To examine whether own earnings influences smoking behavior, I restricted the sample to employed individuals reporting earnings of at least $2.00 per hour. Using this sample, I estimated the basic equations of section 2, replacing family earnings by own wage and including the indicator of whether the individual lives in a state that restricts smoking in private workplaces. There are 17,307 females and 17,622 males in this sample of workers. Forty-seven percent of these workers lived in a state with private workplace smoking restrictions as of 1992-93.

The price, own earnings, and education elasticities are summarized in Table 8. Compared to the earnings elasticity based on family earnings for this same sample of workers, the effect of own wage on smoking demand is weaker for women, and unchanged for men. Smoking participation is lower among those with higher own earnings, with small but statistically significant elasticities of participation of -0.07 for

women and –0.17 for men. The corresponding elasticities replacing own earnings with family earnings for this same group are statistically significant values of -0.17 for women and -0.19 for men. Similar to the findings of the overall sample, own earnings have at most a minor effect on quantity of cigarettes consumed by smokers. The education elasticities are similar to those derived for the entire sample, with participation elasticities of –1.47 for women and –1.14 for men, and consumption elasticities of –0.50 and –0.28 for women and men, respectively.

However, employment status appears to have a large effect on price elasticities. The price elasticities of participation for male and female workers, and the price elasticity of consumption for women, are considerably smaller than that of the overall sample. For employed women, the price elasticity of participation is not significantly different from zero, in contrast to an overall significant price elasticity of -0.38 for the full sample of women. The corresponding price elasticity for employed men drops to about half that estimated for the full sample, from -0.54 to -0.28. These findings imply that the price elasticities for the sample who are not employed would be considerably higher than that estimated for the full sample. One interpretation of these results is that those with earnings are less price sensitive precisely because they earn their own income. Similarly, the smaller earnings elasticity for women based on own earnings as compared to that based on family earnings suggests that control over earnings influences women's smoking behavior.

The smoking rates of workers in states with private workplace restrictions are lower than those without restrictions, by 1.3 percentage point for women and 2.5 percentage points for men, although the result for women is only marginally significant (p-value =

0.065). However, the quantity of cigarettes smoked is not affected by workplace restrictions, suggesting that smokers manage to overcome any inconvenience associated with such restrictions.

4. Conclusion

Observers other than economists often characterize cigarette smokers as locked into their smoking behavior because of their smoking addiction. If addiction is the primary cause of smoking behavior, then increases in cigarette price would not deter smoking. This paper confirms the results of other studies finding that smoking behavior responds to changes in price, not unlike many other economic commodities. Higher prices reduce cigarette demand for men and women both with respect to smoking participation and cigarette consumption levels, with elasticities ranging from –0.4 to –0.6. The price elasticities are similar for men and women, in contrast to other studies finding a gender difference in responsiveness to price. However, there are large price elasticity differences by income groups. Price effects are greatest for low income smokers and largely nonexistent for high income smokers. Excise tax policies consequently can deter smoking, but their effects will be largely restricted to the low income segment of the population.

While overall smoking behavior is clearly responsive to changes in price, income has a weaker, although still negative, effect on smoking behavior. Income has a greater impact on smoking participation rates than on the number of cigarettes smoked. Higher income individuals are less likely to smoke, consistent with evidence that the willingness to bear health risks diminishes with earnings levels. Education, which is linked to

lifetime wealth, has a consistently strong impact on smoking behavior. Better-educated individuals are less likely to smoke, and these effects are especially strong for those in upper income groups.

Employment status is influential, even controlling for income, education, and other factors. Relative to individuals not in the labor force, white-collar workers are less likely to smoke, blue-collar workers more likely to smoke, and unemployed workers smoke the most. The converging male-female smoking rate may be attributable in part to women's greater likelihood of employment in blue-collar jobs.

There is limited evidence that parents reduce their smoking in response to externalities such as environmental tobacco smoke. Overall, women are less likely to smoke if they have children, and men are less likely to smoke if they have young children. However, the smoking behavior of low income women is not affected by the presence of children, and in most income groups men's smoking behavior is not influenced by the presence of children. Only middle and upper income women appear to attempt to reduce the risk to their children by not smoking. This result suggests that there might be a constructive response by smokers to informational efforts that warn about the dangers that environmental tobacco smoke poses to others, particularly when it is members of one's household.

References.

Anda, R.F., D.F. Williamson, L.G. Escobedo, E.E. Mast, G.A. Giovino, and P.L. Remington. (1990). "Depression and the Dynamics of Smoking: A National Perspective," *JAMA* 264, 1541-1545.

Atkinson, Anthony B. and Joy L. Skegg. (1973). "Anti-Smoking Publicity and the Demand for Tobacco in the U.K.," *The Manchester School of Economic and Social Science* 41, 265-82.

Centers for Disease Control and Prevention. (1995). *State Laws on Tobacco Control—United States, 1995*, MMWR Surveillance Summaries Nov. 3, 1995/44(SS-6), 1-28.

Chaloupka, Frank J. (1990). "Men, Women, and Addiction: The Case of Cigarette Smoking," NBER Working Paper #3267, February 1990.

Chaloupka, Frank J. and Henry Wechsler. (1995). "Price, Tobacco Control Policies and Smoking Among Young Adults," NBER Working Paper No. 5012.

Glassman, A.H., J.E. Helzer, L.S. Covey, L.B. Cottler, F. Stetner, J.E. Tipp, and J. Johnson. (1990). "Smoking, Smoking Cessation, and Major Depression," *JAMA* 264, 1546-1549.

Hersch, Joni. (1996)."Smoking, Seat Belts, and Other Risky Consumer Decisions: Differences by Gender and Race," *Managerial and Decision Economics* 17, 471-81.

Ippolito, Richard A., R. Dennis Murphy, and Donald Sant. (1979). "Staff Report on Consumer Response to Cigarette Health Information," Bureau of Economics, Federal Trade Commission, August 1979.

Johnston, L.D., P.M. O'Malley, J.G. Bachman. (1999). "Cigarette Smoking among American Teens Continues Gradual Decline." University of Michigan News and Information Services: Ann Arbor, MI.[On-line]. Available: www.monitoringthefuture.org.

Klesges, R.C., A.W. Meyers, L.M. Klesges, and M.E. LaVasque. (1989). "Smoking, Body Weight, and Their Effects on Smoking Behavior: A Comprehensive Review of the Literature," *Psychol. Bull*. 106, 204-230.

Lewit, Eugene M. and Douglas Coate. (1982). "The Potential for Using Excise Taxes to Reduce Smoking," *Journal of Health Economics* 1, 121-145.

Lundberg, Shelly and Robert A. Pollak. (1996). "Bargaining and Distribution in Marriage," *Journal of Economic Perspectives* 10, 139-58.

Mullahy, John. (1985). “Cigarette Smoking: Habit, Health Concerns, and Heterogeneous Unobservables in a Microeconomic Analysis of Consumer Demand,” Ph.D. Dissertation, University of Virginia.

Pomerleau, Cynthia S., Barbara A. Berman, Ellen R. Gritz, Judith L. Marks, and Susan Goeters. (1994). “Why Women Smoke.” In R.R. Watson (ed.), *Drug and Alcohol Abuse Reviews, vol. 5: Addictive Behaviors in Women*. Humana Press Inc., Totowa, NJ., 39 – 70.

Tobacco Institute. (1995). *The Tax Burden on Tobacco: Historical Compilation.* Washington, DC: The Tobacco Institute.

U.S. Bureau of the Census. 1999. *Statistical Abstract of the United States: 1999 (119th edition.)* Washington, DC.

U.S. Department of Health and Human Services. (1980). *The Health Consequences of Smoking for Women, A Report of the Surgeon General*. Washington, D.C.: U.S. Government Printing Office.

Viscusi, W. Kip. (1992). *Smoking: Making the Risky Decision*. Oxford: Oxford University Press.

Viscusi, W. Kip. (1998). "Constructive Cigarette Regulation," *Duke Law Journal* 47, 1095-1131.

Williamson, D.F., J. Madans, R.F. Anda, J.C. Kleinman, G.A. Giovino, and T. Byers. (1991). "Smoking Cessation and Severity of Weight Gain in a National Cohort," *N. Engl. J. Med*. 324, 739-745.

Table 1: Smoking Rates by Sex, Income, and Employment Status

	Female	Male
Smoking rate percentage by sex	23.9	28.9
By family income		
Low	32.0	39.1
Middle	23.1	27.9
High	15.5	18.1
By employment status		
White collar	20.7	19.9
Blue collar	30.5	34.0
Unemployed	34.6	38.1
Not in labor force	24.1	28.9
Sample size	28,699	25,726

Table 2: Descriptive Statistics by Sex and Smoking Status[a]

	Female		Male	
Variable	Nonsmokers	Smokers	Nonsmokers	Smokers
Annual family earnings (in thousands of 1992$)	35.24 (29.78)	28.07 (25.77)	39.34 (30.51)	32.41 (26.18)
Annual family income (in thousands of 1992$)	36.79 (22.72)	29.00 (20.62)	39.67 (22.68)	30.92 (20.53)
Weekly earnings (1992$)	237.40 (281.38)	204.02 (238.38)	405.04 (413.46)	328.72 (335.25)
Education	12.91 (2.65)	12.16 (2.10)	13.15 (2.88)	12.06 (2.44)
Age	39.14 (12.96)	38.35 (11.96)	38.80 (12.90)	38.83 (11.97)
Married	0.63 (0.48)	0.54 (0.50)	0.65 (0.48)	0.58 (0.49)
Widowed	0.03 (0.18)	0.04 (0.19)	0.01 (0.08)	0.01 (0.10)
Single	0.22 (0.41)	0.19 (0.39)	0.27 (0.44)	0.25 (0.43)
Divorced	0.09 (0.29)	0.17 (0.38)	0.06 (0.24)	0.13 (0.33)
Separated	0.03 (0.16)	0.06 (0.24)	0.02 (0.12)	0.03 (0.18)
White	0.85 (0.36)	0.87 (0.34)	0.88 (0.33)	0.87 (0.34)
Black	0.10 (0.30)	0.10 (0.30)	0.08 (0.27)	0.09 (0.29)
Other non-white	0.05 (0.22)	0.03 (0.18)	0.05 (0.21)	0.04 (0.20)

Youngest child under 2 years old	0.12 (0.32)	0.11 (0.31)	0.11 (0.31)	0.10 (0.30)
Youngest child 3 – 5 years old	0.08 (0.27)	0.09 (0.28)	0.07 (0.26)	0.06 (0.25)
Youngest child 6 – 13 years old	0.17 (0.37)	0.18 (0.38)	0.15 (0.36)	0.15 (0.36)
Youngest child 14 – 17 years old	0.08 (0.27)	0.07 (0.25)	0.08 (0.26)	0.07 (0.25)
White-collar	0.45 (0.50)	0.37 (0.48)	0.40 (0.49)	0.26 (0.44)
Blue-collar	0.15 (0.36)	0.22 (0.41)	0.38 (0.49)	0.50 (0.50)
Unemployed	0.01 (0.12)	0.02 (0.15)	0.03 (0.17)	0.05 (0.21)
Not in labor force	0.38 (0.49)	0.39 (0.49)	0.19 (0.39)	0.19 (0.40)
Cigarette price per pack	1.82 (0.18)	1.81 (0.19)	1.82 (0.18)	1.80 (0.19)
Cigarettes smoked per day	0.00 (0.00)	15.94 (10.51)	0.00 (0.00)	19.23 (12.59)
Private workplace restriction	0.48 (0.50)	0.44 (0.50)	0.49 (0.50)	0.44 (0.50)
Sample Size	21,848	6,851	18,498	7,228

[a] Means with standard deviations in parentheses.

Source: Author's calculations from the 1992-93 Current Population Surveys: Tobacco Use Supplement.

Table 3: Female Smoking Participation Estimates[a]

Marginal effect[b] (standard error)

Variable	Pooled	Low Income	Middle Income	High Income
Price	-0.050* (0.014)	-0.176** (0.029)	-0.008 (0.019)	0.048* (0.025)
Annual family earnings x 100	-0.103** (0.011)	-0.236** (0.056)	-0.057** (0.020)	-0.014 (0.014)
Family earnings missing	0.004 (0.009)	0.001 (0.017)	0.027 (0.015)	0.011 (0.026)
Education	-0.020** (0.001)	-0.006** (0.002)	-0.021** (0.002)	-0.028** (0.002)
Age	0.016** (0.002)	0.020** (0.003)	0.017** (0.002)	0.016** (0.003)
Age squared x 100	-0.023** (0.002)	-0.028** (0.004)	-0.024** (0.003)	-0.020** (0.004)
Widowed	0.066** (0.016)	0.103** (0.026)	0.024 (0.025)	0.031 (0.052)
Single	-0.011 (0.009)	-0.007 (0.017)	-0.033** (0.012)	0.008 (0.021)
Divorced	0.129** (0.010)	0.124** (0.018)	0.102** (0.015)	0.114** (0.032)
Separated	0.151** (0.016)	0.135** (0.023)	0.136** (0.027)	0.255** (0.089)
Black	-0.052** (0.008)	-0.090** (0.013)	-0.048** (0.012)	-0.036 (0.020)
Other non-white	-0.077** (0.010)	-0.067** (0.023)	-0.093** (0.015)	-0.072** (0.015)
Youngest child under 2 years old	-0.035** (0.009)	0.010 (0.020)	-0.050** (0.012)	-0.042** (0.015)

Youngest child 3 – 5 years old	-0.023* (0.010)	0.022 (0.022)	-0.034** (0.013)	-0.040* (0.016)
Youngest child 6 – 13 years old	-0.024** (0.008)	0.026 (0.019)	-0.027* (0.010)	-0.044** (0.011)
Youngest child 14 – 17 years old	-0.040** (0.009)	-0.022 (0.024)	-0.042** (0.013)	-0.043** (0.013)
White-collar	-0.018** (0.006)	-0.025 (0.015)	-0.017 (0.009)	0.011 (0.011)
Blue-collar	0.029** (0.008)	-0.001 (0.014)	0.040** (0.011)	0.033 (0.019)
Unemployed	0.075** (0.021)	0.043 (0.034)	0.079** (0.032)	0.141** (0.061)
Chi-squared[c]	1481.85	372.39	563.62	295.17
Number of observations	28699	7888	14451	6360

[a] Probit estimates. Dependent variable equals 1 if respondent is a smoker and 0 otherwise. The reported values are marginal effects. Coefficients on dichotomous variables give the change in probability of smoking for a discrete change in the dichotomous variable from 0 to 1.

[b] **(*) indicates significance at the 1% (5%) level, 2 sided tests.

[c] Critical value of chi-squared with 19 degrees of freedom at 99 percent level of significance is 36.19.

Source: Author's calculations from the 1992-93 Current Population Surveys: Tobacco Use Supplement.

Table 4: Male Smoking Participation Estimates[a]

Marginal effect[b] (standard error)

Variable	Pooled	Low Income	Middle Income	High Income
Price	-0.083**	-0.126**	-0.062**	-0.025
	(0.016)	(0.035)	(0.022)	(0.026)
Annual family earnings x 100	-0.081**	-0.144**	-0.014	-0.018
	(0.012)	(0.057)	(0.023)	(0.015)
Family earnings missing	0.030**	0.036	0.020	0.017
	(0.011)	(0.020)	(0.017)	(0.026)
Education	-0.024**	-0.012**	-0.023**	-0.031**
	(0.001)	(0.002)	(0.002)	(0.002)
Age	0.022**	0.026**	0.024**	0.021**
	(0.002)	(0.003)	(0.003)	(0.004)
Age squared x 100	-0.027**	-0.033**	-0.029**	-0.024**
	(0.002)	(0.004)	(0.003)	(0.004)
Widowed	0.071*	0.117*	0.082	-0.061
	(0.036)	(0.059)	(0.055)	(0.060)
Single	-0.017	-0.062**	0.002	0.035
	(0.010)	(0.020)	(0.015)	(0.023)
Divorced	0.112**	0.083**	0.144**	0.054*
	(0.013)	(0.024)	(0.019)	(0.030)
Separated	0.117**	0.138**	0.104**	0.113*
	(0.023)	(0.038)	(0.033)	(0.060)
Black	-0.011	-0.042*	-0.022	0.029
	(0.010)	(0.018)	(0.015)	(0.026)
Other non-white	0.005	-0.056*	0.006	0.026
	(0.014)	(0.026)	(0.021)	(0.026)
Youngest child under 2 years old	-0.025*	-0.015	-0.020	-0.029
	(0.010)	(0.024)	(0.015)	(0.018)

Youngest child 3 – 5 years old	-0.037 (0.012)	-0.061* (0.029)	-0.034* (0.016)	-0.008 (0.020)
Youngest child 6 – 13 years old	-0.001 (0.009)	0.032 (0.024)	-0.001 (0.012)	-0.006 (0.014)
Youngest child 14 – 17 years old	-0.010 (0.011)	0.035 (0.033)	-0.013 (0.015)	-0.021 (0.016)
White-collar	-0.054** (0.009)	-0.069** (0.021)	-0.043** (0.014)	0.022 (0.017)
Blue-collar	0.025** (0.008)	0.010 (0.016)	0.029* (0.013)	0.062** (0.020)
Unemployed	0.065** (0.017)	0.027 (0.028)	0.092** (0.027)	0.074 (0.049)
Chi-squared[c]	1671.76	271.60	606.30	359.63
Number of observations	25726	6056	13284	6386

[a] Probit estimates. Dependent variable equals 1 if respondent is a smoker and 0 otherwise. The reported values are marginal effects. Coefficients on dichotomous variables give the change in probability of smoking for a discrete change in the dichotomous variable from 0 to 1.

[b] **(*) indicates significance at the 1% (5%) level, 2 sided tests.

[c] Critical value of chi-squared with 19 degrees of freedom at 99 percent level of significance is 36.19.

Source: Author's calculations from the 1992-3 Current Population Surveys: Tobacco Use Supplement.

Table 5: Female Smoking Consumption Estimates[a]

Coefficient[b] (standard error)

Variable	Pooled	Low Income	Middle Income	High Income
Price	-5.065**	-6.665**	-4.863**	-2.384
	(0.712)	(1.193)	(1.019)	(1.978)
Annual family earnings	-0.025**	-0.007	-0.012	-0.031**
	(0.007)	(0.024)	(0.011)	(0.012)
Family earnings missing	-1.316**	-0.697	-1.302	0.013
	(0.462)	(0.716)	(0.748)	(1.819)
Education	-0.508**	-0.195	-0.689**	-0.880**
	(0.069)	(0.106)	(0.111)	(0.193)
Age	0.567**	0.700**	0.516**	0.641*
	(0.084)	(0.129)	(0.127)	(0.282)
Age squared	-0.006**	-0.008**	-0.005**	-0.007*
	(0.001)	(0.002)	(0.002)	(0.003)
Widowed	0.605	0.492	1.651	-2.114
	(0.742)	(1.005)	(1.266)	(3.369)
Single	-0.325	-0.790	0.537	-1.472
	(0.467)	(0.709)	(0.739)	(1.684)
Divorced	0.925*	0.201	1.734**	-0.280
	(0.407)	(0.634)	(0.616)	(1.603)
Separated	0.346	0.179	0.451	-5.462
	(0.581)	(0.800)	(0.983)	(3.258)
Black	-5.776**	-6.054**	-5.832**	-3.942
	(0.469)	(0.637)	(0.758)	(2.251)
Other non-white	-2.830**	-3.729**	-1.547	-4.301
	(0.764)	(1.127)	(1.176)	(2.356)
Youngest child under 2 years old	-1.660**	-0.456	-1.736*	-4.660**
	(0.500)	(0.809)	(0.736)	(1.498)

Youngest child 3 – 5 years old	-0.709 (0.525)	-0.312 (0.845)	-0.328 (0.765)	-2.726 (1.597)
Youngest child 6 – 13 years old	-0.621 (0.410)	-1.022 (0.733)	0.080 (0.568)	-1.072 (1.058)
Youngest child 14 – 17 years old	-0.239 (0.553)	-0.794 (1.032)	0.230 (0.762)	-0.610 (1.299)
White-collar	-1.621** (0.334)	-2.602** (0.616)	-1.316** (0.478)	-0.972 (0.848)
Blue-collar	-0.178 (0.363)	-1.167* (0.580)	-0.047 (0.534)	1.366 (1.254)
Unemployed	0.769 (0.855)	0.689 (1.203)	0.465 (1.375)	0.254 (2.723)
Intercept	21.484** (2.127)	19.050** (3.263)	22.841** (3.319)	19.858** (7.335)
R^2	0.08	0.09	0.08	0.09
Number of observations	6109	2290	2977	842

[a] Ordinary Least Squares estimates. Dependent variable equals number of cigarettes smoked per day for the sample of smokers.

[b] **(*) indicates significance at the 1% (5%) level, 2 sided tests.

Source: Author's calculations from the 1992-93 Current Population Survey: Tobacco Use Supplement.

Table 6: Male Smoking Consumption Estimates[a]

Coefficient[b] (standard error)

Variable	Pooled	Low Income	Middle Income	High Income
Price	-4.571**	-6.328**	-4.756**	-1.407
	(0.894)	(1.591)	(0.013)	(2.378)
Annual family earnings	0.003	0.006	-0.019	-0.017
	(0.008)	(0.030)	(0.014)	(0.015)
Family earnings missing	0.694	0.088	1.873*	-0.337
	(0.591)	(0.925)	(0.911)	(2.165)
Education	-0.348**	0.049	-0.680**	-0.860**
	(0.075)	(0.117)	(0.118)	(0.216)
Age	0.732**	0.503**	0.857**	1.156**
	(0.102)	(0.161)	(0.145)	(0.352)
Age squared	-0.007**	-0.004*	-0.008**	-0.011**
	(0.001)	(0.002)	(0.002)	(0.004)
Widowed	-0.952	0.645	-1.466	-6.131
	(1.641)	(2.328)	(2.414)	(9.358)
Single	-1.088	-1.892*	-0.186	-0.696
	(0.595)	(0.982)	(0.825)	(1.986)
Divorced	1.183*	1.445	1.355	0.134
	(0.613)	(1.012)	(0.849)	(2.128)
Separated	1.031	1.110	1.065	1.370
	(0.975)	(1.418)	(1.480)	(3.615)
Black	-7.956**	-7.095**	-8.123**	-10.899**
	(0.601)	(0.894)	(0.884)	(2.116)
Other non-white	-4.825**	-3.749**	-4.661**	-9.278**
	(0.849)	(1.335)	(1.236)	(2.490)
Youngest child under 2 years old	-1.567*	-1.598	-0.761	-3.468*
	(0.649)	(1.158)	(0.874)	(1.797)

Youngest child 3 – 5 years old	-0.077 (0.742)	-0.642 (1.448)	-0.126 (0.959)	2.828 (2.016)
Youngest child 6 – 13 years old	-0.615 (0.536)	-1.077 (1.079)	0.160 (0.701)	-1.802 (1.320)
Youngest child 14 – 17 years old	1.500* (0.730)	1.235 (1.535)	2.354** (0.959)	0.087 (1.666)
White-collar	-1.718** (0.552)	-2.403* (0.998)	-2.220** (0.828)	-0.388 (1.753)
Blue-collar	-0.160 (0.475)	0.023 (0.714)	-1.056 (0.750)	0.729 (1.741)
Unemployed	0.377 (0.843)	-0.356 (1.174)	1.122 (1.274)	-2.077 (4.024)
Intercept	15.770** (2.578)	19.536** (4.280)	16.990** (3.739)	8.201 (8.472)
R^2	0.10	0.10	0.10	0.13
Number of observations	5378	1774	2776	828

[a] Ordinary Least Squares estimates. Dependent variable equals number of cigarettes smoked per day for the sample of smokers.

[b] **(*) indicates significance at the 1% (5%) level, 2 sided tests.

Source: Author's calculations from the 1992-93 Current Population Survey: Tobacco Use Supplement.

Table 7: Smoking Participation and Consumption Elasticities[a]

Panel A: Female Participation Elasticities	Pooled	Low Income	Middle Income	High Incom
Price	-0.38**	-0.99**	-0.06	0.58*
Family earnings	-0.14**	-0.08**	-0.08**	-0.05
Education	-1.05**	-0.22**	-1.17**	-2.55**
Panel B: Male Participation Elasticities				
Price	-0.54**	-0.58**	-0.40**	-0.25
Family earnings	-0.11**	-0.05**	-0.02	-0.06
Education	-1.10**	-0.34**	-1.05**	-2.45**
Panel C: Female Consumption Elasticities				
Price	-0.57**	-0.72**	-0.55**	-0.30
Family earnings	-0.04**	0.004	0.02	-0.12**
Education	-0.39**	-0.14	-0.54**	-0.81**
Panel D: Male Consumption Elasticities				
Price	-0.43**	-0.60**	-0.44**	-0.13
Family earnings	0.01	0.004	0.03	-0.05
Education	-0.22**	0.03	-0.43**	-0.60**

[a] **(*) indicates significance at the 1%(5%) level, two-sided tests.

Source: Author's calculations from the 1992-93 Current Population Surveys: Tobacco Use Supplement.

Table 8: Smoking Participation and Consumption Elasticities for Workers[a]

	Price	Weekly earnings	Education
Female participation	-0.21	-0.07**	-1.47**
Male participation	-0.28*	-0.17**	-1.14**
Female consumption	-0.38**	-0.03	-0.50**
Male consumption	-0.46**	0.03	-0.28**

[a] **(*) indicates significance at the 1%(5%) level, two-sided tests.

Source: Author's calculations from the 1992-93 Current Population Surveys: Tobacco Use Supplement.