**The Effectiveness of Advertising Bans on Smoking.**

Stewart, Michael J. (1993) “The Effect on Tobacco Consumption of Advertising Bans in OECD Countries,” International Journal of Advertising 12(2): 155-180

Anti-smoking activists often push for a total ban on cigarette advertisements. Indeed, one of the basic assumptions of the groups pushing the 1996 proposed settlement with the tobacco companies is that **the amount of tobacco consumed is positively affected by the amount of tobacco advertising**. There are **two mechanisms** that might underlie such a relationship. The first mechanism suggests that the **advertising increases the amount of cigarettes smoked by current smokers**. Many economists doubt that the tobacco advertising increases the consumption of current smokers, arguing that the total consumption of cigarettes is unresponsive to advertisement. Instead, they argue that advertising is an effort by cigarette companies to **affect the brand** of cigarettes that current smokers consume. The second mechanism suggests that advertising is an effort by cigarette companies **to induce non-smokers (especially children) to try cigarettes**. The main reason that cigarette companies want non-smokers to try smoking, so the argument goes, is that some percentage of non-smokers who try cigarettes will become addicted and will form the **future demand** for cigarettes.

The effect of a total ban on advertising would be completely different if cigarette companies advertise with the hope of increasing the number of people addicted to cigarettes. In particular, the ban should have a small or negligible effect on current cigarette demand. Instead, the cigarette companies would face a steadily decreasing demand for their product. Such a decrease in demand would reduce future profits for these companies. If future profits fell enough, some of the companies might be forced out of business. Clearly, it is this result that anti-smoking activists have in mind with their proposals to ban cigarette advertisements.

Finally, if advertising only induces current smokers to increase the number of cigarettes they consume, then the total ban on advertising should cause a one-time reduction in cigarette consumption that will reduce the profits of cigarette companies. However, which of these three mechanisms (if any) is correct is an empirical question.

Six European countries adopted a complete ban on cigarette advertising in the period after 1970. It this project we use **annual data on smoking consumption in 22 developed countries for the 27 years between 1964 and 1990 to test the effect of a complete smoking ban on cigarette demand** (giving us 594 observations). Moreover, since we have no a priori reason to choose one model specification over another, we check the stability of the estimated impact of an advertising ban on cigarette demand under several alternative model specifications.

We estimate three types of specifications of the model — the linear model, the log-linear model, and the log-log model. In general whether one uses a variable or the logarithm of the variable is the main difference in these three specifications. The linear model does not transform either the dependent or the independent variables. A variation on the linear models allows the use of the square and product of some of the independent variables in order to take care of any non-linearity in the data. The log-linear model takes the same form as the linear model except that the dependent variable is the logarithm of variable under study. Finally, in the log-log model both the dependent and independent variables are, if possible, in logarithm form.

For example, for this problem the dependent variable in any of these specifications is either the per capita consumption of tobacco (Tit) or the logarithm of the per capita consumption of tobacco. The dependent variables might include

(1) the real price of tobacco in each country for each year - Pit,

(2) a measure of the per capita income level of the country for each year - Iit,

(3) the unemployment rate of the country for each year - Uit,

(4) a measure of the age distribution of the population to measure smoking intensity by age- Ait,

(5) a trend variable Year to account for the rising awareness of the health costs of smoking,

(6) a dummy variable equal to one for years that a country has a complete ban on cigarette advertising - Bit,

(7) a set of 21 dummy variables identifying the country - Ci.

The data you will use in this project are in the MS Excel file Smkdata.txt.

(a) Estimate the fixed effects models of the following versions

1. Basic models: 1. Linear, 2. Log-linear and 3. Log-log model.

2. Basic models 1+2with squared terms for the price, income, unemployment rate, and the age distribution included. This regression is designed to test for non-linearity.

3. Basic models 1+2 with the squared terms mentioned in 2 that are statistically significant plus the following new variables: Ban\*Time, Ban\*Price, and Ban\*Consump. (You must create these variables) This regression allows for an effect of the Ban on the slopes of the other explanatory variables.

4. Basic model 3 with the following new variables: Ban\*Log(Time), Ban\*Log(Price), and Ban\*Log(Consump).

5. Basic models as estimated in 3 and 4 with a variable that counts the number of years that a total ban has been in effect (BanTime) and its square (BanTime2). This regression allows for a changing impact of a ban the longer it is in effect.

Report the results of your regressions in a table that allows you to comment on the stability of your estimation results over specifications.

(c) Do these results support any of the theories suggested above?

(d) What, if any, policy conclusions would you make given your estimations?

(e) Assume for the moment that you “believe” your results you got in (5). Sketch out a strategy you would follow to forecast the impact of a ban in a country that does not currently have a ban.