ISSN: 2278-3369
International Journal of Advances in Management and Economics
Available online at www.managementjournal.info

RESEARCH ARTICLE

Smoking Dependence during Economic Crisis the Case of Greece

Dapontas Dimitrios*

***Corresponding Author: E-mail:** *Greece.dapontas@uop.gr*

Abstract

This paper will present the relationship between public warnings and level of smoking dependence during economic crisis for the country with the highest rate of tobacco consumption in European Union (Greece). We deploy a sample of 540 questionnaires analyzed by catreg method. Dependence from smoking is the under examination variable related to a set of variables based on state preventing measures and demographic characteristics of the sample. Four of them (Ban effect on number of cigarettes, Respect on previous measures, possible total ban on entertainment frequency and smoking at closed places) seem to have negative effect on smoking dependence while other two (State insufficiency and discriminations against smokers) have positive. Women seem to be more addicted on the other hand higher educated people along with married people with children are less smoking fond.

Keywords: *Dependence, Greek crisis, Smoking, State legislation.*
JEL Classification: F64, Q48, Q53

Introduction

Fagerstrom test introduced in [1,2] as a smoker's nicotine dependence ranking score from zero (0) to ten (10). The initial test had four simple questions based on smoking habits as shown on the appendix. The results were initially discriminated in five categories. The lower categories (0-2 points, 3-4 points) indicate very low to low dependence of nicotine. A moderate score (5-6 points) shows possible future serious addiction and patients must act to reduce its dependence. Finally, the last categories (scores over 6) rate high dependence of nicotine and patients should contact their doctor to break their addiction. Before its development smoking was not regarded as an addiction. The evidence early appeared stimulated the research of nicotine's importance on smoking habit and educating the public on it.

Review of Literature

The FTCD scale has been adapted globally due its ease of understanding and rapidity of application and applied in different cultural settings. Several studies have related strict smoking legislation imposed to the smoking reduction. European Union developed a quitting program based on 20 countries research results based on the majority of the respondents and smoking consequences on public health. Anti-tobacco campaign becomes a priority for health legislation worldwide by banning smoking in public places. Aggregate data on cigarette consumption has been used [3] where cigarette consumption in the US has been found reduced despite the absence of prohibition framework. The legal framework on bans [4] is not sufficiently supported research findings. Intensity seems to be lowered by measures but not participation as [5] fixed effects and air laws combination stated in private working places has been recently studied [6] presenting the laws in Canada for the 2000-8 period noticing that none significant change has been noticed. Similar results had also further research based on working places [7] while in earlier period analysis (1997-2004) on blue collar workers show significant environmental tobacco smoke(ETS) reduction and public place smoking laws in Germany before [8] and after [9] ban implications. Cottine a metabolite of nicotine in saliva elements is examined to bars and restaurants and

workplace customers after measure applications [10] and show that children had significant increase on ETS exposure and the amount of time spent in bars and restaurants decreased based on a 100% smoke free policy. Despite the American and German samples results a similar research in the UK [11] the reduction on the number of smokers was higher than expected. In an Australian sample [12] the measures surprisingly stimulated smoking. We assume that possible correlation between legislation and ETS varies between different countries. Finally Alexias , Simoudi and Tsekeris. [13] confirmed that threatening messages on smoking health effects raised intention to quit smoking. The present research is done for first time in Greece according to our knowledge and its result can be random.

Theoretical Model Framework and Methodology

In order to correlate possible effects on ETS and legal framework we decided to deploy systematic sampling. The normal distribution could have the same mean and variance to a large sample like ours. The observations are independent the estimator has a scaled binomial distribution. The maximum variance is $0.25/n$ when the true parameter is estimated. In practice where P is unknown an interval of the form:

$$\left(\hat{P}-2\sqrt{\frac{0.25}{n}},\hat{P}+2\sqrt{\frac{0.25}{n}}\right) \quad (1)$$

With the wide (W) limited to:

$$4\sqrt{0.25/n}=W \quad (2)$$

It can be solved to n:

$$n = 4/W^2 = 1/B^2 \quad (3)$$

Where B notes the error bound of the estimate. So for B= 5% the sample size for the population of Greece the sample reaches 400 in our sample we deployed 540 questionnaires as presented on the second appendix on randomly selected sample between February and April 2011. We used Categorical Regression on SPSS to analyze the sample results due its advantages.

Categorical Regression model (CAT.REG.) [14] alternates lest squares and quantifies categorized under the optimal scaling framework resulting for the modified variables. The current multivariate regression method is extremely flexible on nonlinear model development allowing multivariating eliminating possible effect on the results. This is the major advantage of this method compared to LOGIT or PROBIT models.

Multiple regression is a linear technique where a dependent variable can be interpreted using a set of explanatory variables. In contrast CATREG is a non-linear technique where nonlinearity is based on independent variables modification from numeric to categorical. The model permits a set of modifications in order to rank them to a dependent's variable category. The model is summing the categories, the independent variables along with degrees of freedom to maximize the objective function:

$$\sigma(y_r;b_j;y_j)=\left(G_r y_r-\Sigma_{j\in J_p} b_j G_j y_j\right)' W\left(G_r y_r-\Sigma_{j\in J_p} b_j G_j y_j\right) \quad (4)$$

Where y_r and y_j is the category quantification for the response (i) and predictor (j) variable respectively, b the regression coefficient for the predictor variables.

Discretization is done on initially unweighted data and it's multiplying its effect on finally transformed ordinal variables and its grouping to categories targeting to uniform distribution fitting target frequency as possible.

Optimal scaling depends on variable's nature under its final restrictions and its level. The general requirement for all options is that equal category indicators receive equal quantifications.

Model, Results and Implications

As presented by a dissertation [15] Questionnaire consists of thirty (30) questions divided to two parts as presented on second appendix where 23 questions belong to the first part dedicated to prospects on smoking legislation and FTCD scale specification and 7 to the second part based on demographic data respectively).

There is high multicollinearity among specific variables as expected. The results on important and non-collimated variables for the first part is given on the first table:

Table 1:First part results

Variable	Coeff. (std. error)
Ban effect on number of cigarettes	-0.086 (0.036)
Discriminations against smokers	0.160 (0.040)
State Insufficiency	0.087 (0.033)
Respect on previous measures	-0.568 (0.045)
Total ban entertainment frequency	-0.106 (0.030)
Smoking at closed places (winter)	-0.134 (0.032)
N	540
R^2	0.623

Determination of the proposed model seems to be high (0.623). As shown on the table above four proposed independent variables seem to have negative effects on nicotine dependence. The ban effect on number of cigarettes seems to have negative effect on FTCD scale score. "Quotas" on cigarette consumption imposed by personal, household, workplace or entertainment smoking restrictions official or unofficial seems to have effect on dependence score lowering.

Similar the smoker's level on respect on previous ban measures seem to reduce the level of smoking dependence. We can conclude that the rising strictness on smoking measures could have positive effect on FTCD reduction. The results show that government in Greece can deploy total ban on entertainment places in order to reduce the nicotine dependence. Finally, the ban of smoking in closed places for the winter can reduce the FTCD scale score because of the negative effect of leaving the closed and heated place to smoke outdoors in cold. On the other hand, two variables seem to have positive effect on nicotine dependence.

The discriminations against smokers raise their opposition to the discriminant expressed by increased consumption. The state inefficiency and incapability to imply anti-tobacco legislation raises consumption and dependence.

The second part results are shown below:

Table 2: Second part results

Variable	Coeff. (std. error)
Gender	0.251 (0.074)
Educational level	-0.258 (0.02)
Family Status	-0.214 (0.103)
Number of children	-0.080 (0.067)
N	540
R^2	0.296

The fraction of variance seems to be relatively low. Important and positive value of the "Gender" variable means that men seem to be more dependent than women. Statically the men smokers in Greece count twice to women. Educational level seems to be important and on negative relationship to the nicotine dependence. Higher educated people as expected are less dependent to the nicotine. Married with children seem to be less dependent. The higher number of children itself also seems to be important.

Parents tend to smoke less in front of their children or in the houses that they live.

Conclusions

The present work indicated that the possible banning measures imposed by state can reduce smoking dependence. The number of cigarettes under a strict framework is reduced following by the smoking addiction. When the state is characterized as inefficient, smokers raise their dependence. The feedback from previous measures can cause reduction dependence as long as people respected looser measures at the past and they will respect future measures. The connection between entertainment and smoking seem to be high. A possible legislation of total banning in public places will reduce the frequency of entertainment in the country. The possible ban in closed places is also a negative factor. The ban will reduce dependence of smoking especially within winter where the open air places are closed.

In Greece the number of women smokers is double compared to men. Thus being a woman in Greece makes you more dependent from smoking. Higher educated people tend to be less addicted compared to the lower ones. Married people tend to be less addicted than divorced or singles. Finally the number of children seem to have negative effect on smoking addiction for their parents.

In a future similar research author should make regular research on possible effects during the years using questions related to long term physical situation of the participants and their perspectives about smoking. In any case economic crisis seem to have affected the legislation and the possible legal framework which become striker and made people that comply with state law to be less and less dependent from bad habit of smoking.

References

1. Fagerstrom KO (1978) Measuring degree of physical dependency to tobacco smoking with reference to Individualization of treatment. Addictive Behaviors, 3, pp. 235-241.
2. Heatherton tf, Kozlowski lt, Frecker rc , Fagerstrom k-o (1991) The Fagerström Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. British Journal of Addiction, 86:1119–1127.doi:10.1111/j.1360-0443.1991.tb01879.x
3. Yurekli, Ayda A, Zhang Ping (2000) The Impact of Clean indoor air laws and cigarette smuggling on demand for cigarettes: An empirical model. Health Economics .9:159-170.
4. Lambert T (2007) The Case Against Smoking Bans. Regulation winter 2006-7. University of Missouri.
5. Tauras j (2006) Smoke-Free air laws, cigarette prices, and adult cigarette demand Economic Inquiry 44(2):333–342.
6. Carpenter C, Postolek S, Warman C (2010) Public Place Smoking Laws and Exposure to Environmental Tobacco Smoke (ETS), The Open Access Publication Server of the ZBW – Leibniz Information Centre for Economics. 32-33.
7. Bitler M, Carpenter C, Zavodny M (2010) Venue-Specific Clean Indoor Air Laws and Occupation-Specific Smoking Outcomes, Health Economics 19(12):1425-1440.
8. Schumann A, Ulrich j, Thyrian j et.all (2006) Attitudes towards smoking policies and tobacco control measures in relation to smoking status and smoking behaviour. European Journal of Public Health. 16(5): 513–519.
9. Anger S, Kvansnica M, Schidler T (2010) One Last Puff? Public Smoking Bans and Smoking Behavior, Ruhr Economic Papers #180.
10. Adda J, Cornaglia F (2010) the Effects of Bans and Taxes on Passive Smoking.
11. Desousa C (2011) Legislation and smoking: assessing the impact of the English smoking ban on smoking behaviours. Proc. 58th World Statistical Congress, 2011, Dublin.
12. Buddelmeyer H, Wilkins R (2005) The Effects of Smoking Ban Regulations on Individual Smoking Rates. IZA DP No. 1737.
13. Alexias G, Simoudi C, Tsekeris C (2014) Threating messages, risk perception and the intention of smoking cessation. The case of student smokers at Athens Panteion University. [Italian Sociological Review. 4 (1):71-91.
14. Barlow RE, Bartholomew DJ, Bremner JM, Brunk HD (1972) Statistical inference under order restrictions. New York: John Wiley & Sons, Inc.
15. Papantonis N (2013) Social Analysis of acceptability on limitations of smoking in Greece, Msc Thesis Hellenic Open University, Patras, Greece.