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HOW EFFECTIVE IS CIGARETTE WARNING LABELING IN CHANGING SMOKING BEHAVIOR? EVIDENCE FROM MEXICO

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ABSTRACT

This thesis aims to measure the effectiveness of tobacco warning labeling as a policy to reduce smoking by identifying the characteristics of smokers who changed their consumption of tobacco in direct response to this policy. Using a sample of smokers from the 2011 National Addiction Survey of Mexico, ordered probit models were employed for five different dependent variables to measure the effectiveness of the health warning labels. Over 56 independent variables were used in the analysis relating to: demographic characteristics, smoking behavior, additional complementarity anti-smoking policies, alcoholic and drug-use behavior, and mental health. The results of the thesis identify three main characteristics of smokers for which the labeling policy is effective: past attempts to quit smoking, dislike for second-hand smoke, and receiving additional information about prevention of addictions.

Keywords: public policy; smoking behavior; tobacco policy; cigarette packaging; warning labeling.

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I. INTRODUCTION

The consumption of tobacco products represents a serious health problem throughout the world. The statistics are alarming. Today, over one billion people regularly smoke. Smoking is responsible for the death of nearly 6 million people each year,[1] accounting for 1 in 10 adult deaths (WHO, 2014). Nearly 80% of all smokers now live in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest. Even more frightening, recent projections suggest that half of all current smokers will die of a tobacco-related disease (WHO, 2014). Consequently, policymakers face sizeable economic problems relating to the public expenditure requirements needed to deal effectively with the consequences of smoking. These include, but are not limited to, the treatment of smoking-related illnesses and decreases in labor productivity. In the United States, the Centers for Disease Control and Prevention estimate the losses in productivity attributable to premature death from smoking alone to be $107.6 billion dollars.

In Mexico, the General Law on Tobacco Control (GLTC), implemented in 2008, is the principal law governing tobacco control. This law accepts the provisions agreed by the World Health Organization Framework Convention on Tobacco Control in 2003, which by 2011 more than 165 countries had ratified the treaty (Hammond, 2011). Among several dispositions, this treaty stipulated the obligation of all tobacco companies to cover a percentage of their cigarette packages with health warning labels (including both text and pictorial messages). The aim of this policy is to change smoking behavior in a cost-effective by increasing public awareness about the dangers of tobacco use. In Mexico, the GLTC law covers many aspects of tobacco control including tobacco advertising, promotion, sponsorship, packaging and labeling. In December 2009, the Secretary of Health issued an agreement published in the Official Journal of the Federation (DOF, in its Spanish acronym) making public the provisions for the formulation, approval, application, utilization, and incorporation of legends, images, pictograms, health messages, and information which must appear on all tobacco product packages including outside

[1] Approximately 600,000 deaths are a result of non-smokers being exposed to second-hand smoke.

packaging and labeling *(*see Annex1*).* Beginning in September 2010, tobacco manufacturers in Mexico were required by the GLTC to begin printing health warnings on all cigarette packages.

The scientific literature has attempted to measure the effectiveness of these tobacco health warning labels. Existing evidence suggests that labeling can help inform smokers about health hazards of smoking (see, for example, Reid, et al., 2010 and Shanahan and Elliott (2009), encourage smokers to quit (see, for example, Hammond, 2003; 2007) and prevent nonsmokers from starting (see, for example, Chaiton et al., 2004 and Moodie, et al. 2010). However, while a number of studies have been conducted for a variety of countries, little is known about the impact and effectiveness of this policy in Mexico. The aim of this thesis is to help fill this void. Specifically, we make use of a novel dataset on nicotine addiction to determine the key individual characteristics of smoking behavior in Mexico.

This dataset, the 2011 National Addiction Survey, held by the National Public Health Institute, consists of a randomized, multistage probabilistic study designed to estimate the prevalence of consumption of tobacco, alcohol and prescription and illicit drugs in a population of 16,249 respondents aged between 12 and 65. It contains information relating to the interviewees socio-demographic features, smoking habits, influence of other public policies, alcohol and drugs consumption, and mental health. This survey is representative at a national level. The sample of study includes people who had smoked over the last 12 months when they were interviewed (named active smokers). In total these active smokers represent approximately 20% (3,180 observations) of the sample. Active smokers were the only asked direct questions about the health warning labels.

Employing an ordered probit model, the thesis aims to measure the effectiveness of tobacco warning labeling as a policy to reduce smoking by identifying (if any) the group(s) of smokers that this policy has had the largest impact on. In the ordered probit model, we define five dependent variables, consistent with the studies of Thrasher et al. (2007) and Borland et al. (2009), to help measure the impact of tobacco labeling on smoking behavior. These dependent variables measure pack warning salience (1. noticing and 2. paying attention), cognitive responses (3. thoughts of harm and 4. quitting), and a behavioral response (5. forgoing a cigarette). Then, the structure of the study was oriented to first finding the extent to which health

warning labels are actually noticed by active smokers. Once noticed, how do these smokers process the information? Does tobacco labeling change smoking behavior? and if so, are such behavioral changes significant? Of particular interest, the study attempts to uncover which groups of smokers are most likely to be influenced by tobacco labeling. To achieve this we selected a set of 56 variables which can be classified in five categories: demographic characteristics, smoking behavior, influence of additional complementarity anti-smoking policies, alcoholic and drug-use behavior, and mental health.

The main results of the thesis are as follows. The findings consist of a set of 17 variables, showing significance in at least one of five models. Three out of the 17 variables were significant for all five models, which in this case means that smokers with such characteristics are more reactive to the labeling on cigarette packages in all five measures of health warning effectiveness. These three variables are: 1) attempted to stop smoking before (for any reason); 2) are bothered if someone is smoking nearby; and 3) have received information about the prevention of addictions from another source. In particular, our results suggest that for Mexican smokers who have previously attempted to stop smoking, tobacco labeling is an effective policy is encouraging this group to try again.

The remainder of the thesis is as follows. Section II discusses a summary of the relevant literature. Section III provides a description of the data and Section IV outlines the econometric methodology. Section V presents the main results. Finally, Section VI briefly concludes.

II. LITERATURE REVIEW

Given the significant health and economic costs of tobacco consumption, it is unsurprising that a huge multi-disciplinary literature now exists. This literature ranges from measuring the social costs of smoking, to discussions relating to possible public policies to reduce the incidence of smoking via helping current smokers quit and preventing people from starting in the first place.

Since tobacco labeling is viewed at the time of smoking, nearly all smokers are exposed to these health warning labels and pack-a-day smokers could be exposed to the warnings more than 7,000 times per year (Hammond et al., 2003). This means that labeling could have a significant impact on smoking behavior and may be an effective policy in reducing the incidence of smoking.

Under the provisions of the World Health Organization Framework Convention on Tobacco Control, text and pictorial messages on cigarette packages came into force in many countries during 2005. These provisions stipulated that the minimum requirements of implementing health warnings on cigarette packages are that they cover at least 30% of the surface and are "large, clear, visible, and legible". However, the FCTC also recommends that warnings "should" cover 50% or more of a package's principal surfaces[2]. While the specific application of this disposition varies across countries, it outlines the framework of tobacco policy in each country and made it easier to compare with other countries to evaluate effectiveness.

Research investigating the impact of these tobacco health warnings has grown significantly since the implementation of the WHO regulations. By far the most studied issue in the existing literature relates to measuring the effectiveness in changing smoking behavior of the health warnings.[3] The general consensus to emerge from this strand of the literature is that youth and adult smokers report that large text and pictorial health warnings have reduced their consumption levels, and increased their likelihood of remaining abstinent following a quit attempt (Hammond, 2011).

Hammond, et al. (2007) conducted a comparison of the effects of tobacco control policies in four countries, Canada, United States, United Kingdom and Australia, between the periods 2002 and 2005. Hammond et al. (2007) concluded that more prominent health warnings are associated with greater levels of awareness, perceived effectiveness, knowledge of smoking harms and change in behavior (i.e. avoiding having a cigarette) among smokers. In particular, their findings provide strong support for the effectiveness of new health warnings implemented on UK packages that were enhanced to meet the minimum international standards.

Thrasher, et al (2007) compared the reactions of smokers to cigarette package warnings with graphic imagery and warnings with only text warnings. Using data of adult smokers in Canada

[2] World Health Organization. WHO Framework Convention on Tobacco Control. Geneva, Switzerland, 2005

and Mexico from 2002 to 2005 drawn from the International Tobacco Control Policy Evaluation Project (ITC), in which period pictorial warnings had only been implemented in Canada, bivariate and logistic multivariate adjusted models were used to measure warning labels salience and health knowledge, respectively. Their main findings are that Canadian smokers reported higher warning label salience (i.e., noticing labels and processing label messages) than Mexican smokers, and warning label salience independently predicted intention to quit. Moreover, they found that Canadians had higher levels of knowledge than Mexicans about smoking-related health outcomes that were included as content on cigarette packaging.

Fathelrahman, et al. (2009) surveyed 2,006 adult smokers in Malaysia, conducting face-to-face interviews, to evaluate the effects of warnings labels on quitting intentions. They examined whether different responses among smokers toward the labeling could predict quitting intentions and self-efficacy in quitting (the dependent variables). Quitting intentions was measured using the responses to the question: "Are you planning to quit smoking?", while self-efficacy was measured via the question: "If you decided to give up smoking completely in the next 6 months, how sure are you that you would succeed?" In terms of the independent variables, they considered as relevant two measures of warning salience: "noticing warning labels during last month" (notice) and "reading or looking closely at warning labels" (read); and four kinds of reactions to the warnings. Of the reactions, two were cognitive—"thinking about health risks of smoking because of the warning labels" (think harm), and "more likely to quit because of the warning labels" (quit-likely)—and two were behavioral—"avoiding looking at labels during last month" (avoid), and "stopping from having a cigarette when about to smoke because of the labels" (forego). After using Chi-square and binary logistic statistics (for quitting intentions) and multiple logistic regressions (for self-efficacy) they reached the conclusions that less intense processing of the information may be important in initiating thoughts, but cognitions about quitting and foregoing cigarettes are the key mechanisms by which warnings stimulate quitting intentions and help smokers feel capable of succeeding. As a remark, they affirm that Malaysia appears to have different effects on quitting interest compared to studies from developed countries.[4]

[3] For example, Hammond (2003, 2006) and Shanahan and Elliott (2009)
[4] Similar studies were conducted by Borland (1997) for Australia and by Hammond et al. (2003) for Canada.

While much of the experimental research has been direct to the above issue, a growing literature has alternatively considered other issues relating to tobacco warning labeling. Specifically, studies have considered: 1) the impact of message content and themes;[5] 2) the direct comparison on the effectiveness between text-only messages versus pictorial warnings;[6] and 3) the impact on the young and adults.[7]

With respect to the impact of message content and themes, Shanahan and Elliott (2009) and Thrasher, et al. (2010) among others have found that tobacco labeling significantly raises the awareness of both smokers and non-smokers, depending on the message they try to transmit. For instance, in both Australia and Uruguay, large pictorial warnings have been adopted to highlight the health dangers of smoking. In Australia, they covered 90% of the front and 30% of the back of packs, whereas in Uruguay they covered 80% of both the front and back of packs. Shanahan and Elliott (2009), using data of 1,304 Australians in 2008, found that approximately 86% of smokers and 59% of non-smokers reported to having noticed the new labeling images that were introduced to cigarette packs since 2006.

Pictorial warnings appear to be more effective than text-only messaging. This is due to the fact that warning imagery results in greater information processing and improved memory of the health message.

With the objective of evaluating the impact of the first pictorial health warning labels in Mexico, Thrasher, et al. (2012) conducted a cross-sectional survey of a representative sample of 1,765 adult smokers from Guadalajara, Mexico in 2010. They applied logistic regression models to determine the association between recall of the warning labels on tobacco packages and psychosocial variables indicating their impact. They found that pictorial warning labeling had made smokers think more about the risks of smoking and about quitting smoking. Exposure to pictorial health warning labeling was also associated with a greater acceptability of health warning labels as a means of communicating with smokers, as was the perception that the government communicates well about tobacco-related health risks.

[5] For example, Moodie, et al. (2010), Strahan, et al.(2002), and Sweet, et al. (2003).
[6] For example, Hammond, et al. (2007), Thrasher, et al (2007), and Vardavas, et al. (2009).
[7] For example, Chaiton (2004) and Health Canada (2008).

Thrasher, et al. (2010) conducted a cross-country study that compared the effects of health warnings labels in Brazil, Uruguay and Mexico (pictures of human suffering and diseased organs; abstract pictorial representations of risk; and text-only messages, respectively). Differently, this study also included the importance of the *kind* of images used in the warnings. They found that the salience, as indicated by noticing and reading or looking closely at the package, in Uruguay was significantly higher than in either Brazil or Mexico. This was due to fact that in Uruguay the images were prominent on the packaging (i.e., on both the front and back of the pack) and included emotionally engaging imagery that illustrates negative bodily impacts (or human suffering) caused by smoking. People with higher levels of educational attainment in Mexico were more likely to read the text-only health warnings, whereas education was unassociated with salience in Brazil or Uruguay. Brazilian health warnings had greater cognitive impacts than they did in either Uruguay or Mexico. Health warning labels in Uruguay generated lower cognitive impacts than the text-only warning labels in Mexico. In Brazil, cognitive impacts were strongest among smokers with low educational attainment.

Alternative research has focused on attempting to find evidence of differentiated reactions to the tobacco warnings across different age groups. A population-based survey conducted by the European Commission (2008) indicated that younger respondents, of all kind of smokers (non-smokers, former smokers, and current smokers), appear to be slightly more perceptive to health warnings on tobacco packs than older respondents. For the 15-24 age group 41% of those who have never smoked, 39% of former smokers and 29% of current smokers thought that health messages effectively informed them about the health effects of tobacco. The corresponding proportions for the over 54 year-olds were, respectively, 28%, 28% and 25%. However, young smokers are less likely than their older counterparts to change smoking behavior after viewing health warnings.

Overall, the existing research for this topic in Mexico is low, especially compared with other countries. The few serious studies found in the literature for Mexico are the listed above related to effect of health warning labels on changes on smoking behavior, mainly.

III. DATA

The data used in this study is from the National Addiction Survey (ENA 2011) held from June 13 to August 29 in 2011 by the National Institute of Public Health of Mexico (INSP) and the National Institute of Psychiatry "Ramón de la Fuente Muñiz" under request from the Ministry of Health through its National Center for the Prevention and Control of Addiction (CENADIC) and its National Council against Addictions (CONADIC). The ENA study is the first to be undertaken since all tobacco manufacturers in Mexico were required by the GLTC to begin printing health warnings on all packages (in September 2010).

The ENA study is a randomized, multistage probabilistic study and is representative at a national level. The sample includes 16,249 respondents aged between 12 to 65, who answered a computerized version of a standardized questionnaire relating to the usage of tobacco, alcohol, medical drugs (opiates, tranquilizers, sedatives, amphetamines), and illegal drugs (marijuana, cocaine, crack, hallucinogens, inhalants, heroin and methamphetamines).

Since the principle objective of this thesis is to obtain a better understanding of smoking behavior in Mexico, we consider socio-demographic and smoking characteristics as determinants of smoking decisions. However, we also use other potentially relevant aspects encompassed in the same survey, such as alcohol and drug-use behavior, their complementarity with other smoking prevention policies, and issues of mental health.

III.1 SAMPLE

I used the largest sample possible, only deleting observations that did not have information on the variables that I strictly wanted to analyze. I manually completed with correct values the gaps in some replies that were not asked because of their obvious response regarding to previous questions. "I do not know" replies were taken as missing values.

In the ENA survey, a person that has smoked at least once in her entire life was considered as a smoker. People were first classified into ex- smokers and active smokers, based on the time elapsed since their last cigarette, more and less than a year, respectively.[8] The section of the survey that measures the reactions of people to smoking caveats on cigarette packages was made only for active smokers, so I restricted the sample to the 3,180 active smokers in the survey (see Figure 1 for a graphical representation of this fragmentation). As Figure 1 shows, from all the 16,249 interviewed by ENA 2011, 9,347 (57%) had never smoked a cigarette, 3,722 (23%) had smoked more than one year ago and 3,180 (20%) had smoked over the last 12 months. This 20% represents all the people that manifested their reactions to the health tobacco warning labels. Thus, the questions (detailed below) that measure such reactions were only asked to these active smokers.

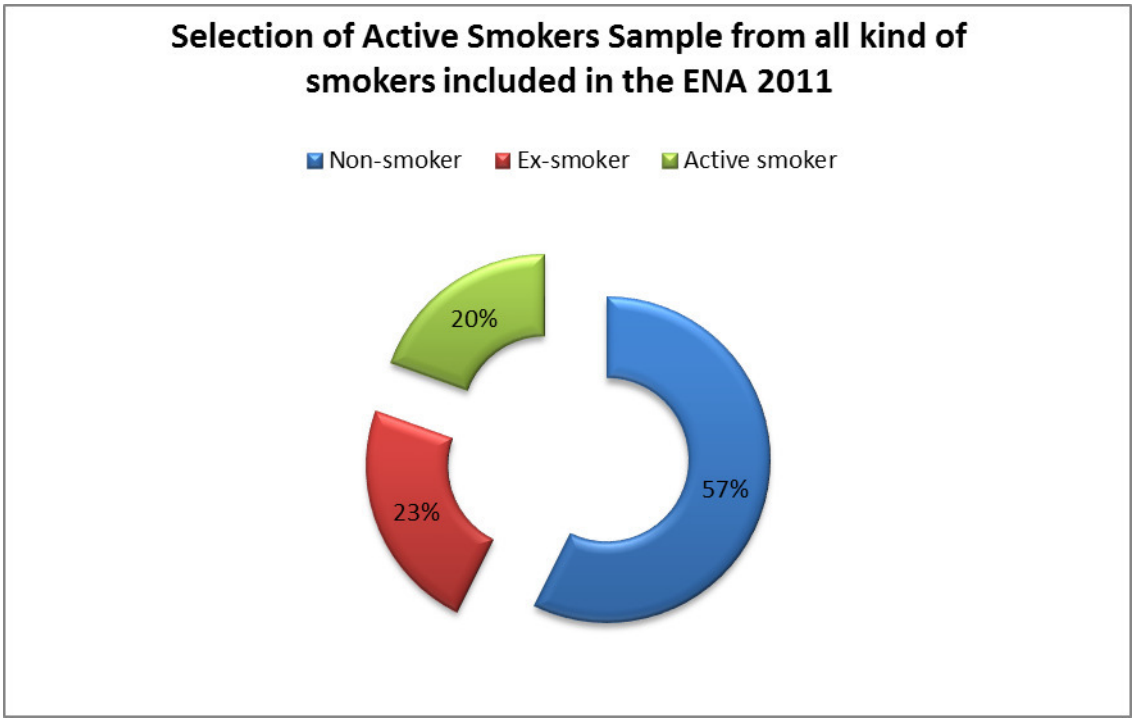

Figure 1. Selection of the sample. Active smokers represent the 20% of the participants in the ENA 2011, non-smokers, 57%, and Ex-smokers, 57%.

[8] For further purposes I took another, more detailed classification, of the types of smokers based on the definitions taken from Centers for Disease, Control and Prevention (CDCP). As explained in greater detail below, I differentiate both classifications by referring to "kind of smokers" as those smokers who were classified with the first criteria and "type of smokers" as those smokers classified by the second.

III.2 DESCRIPTION OF DEPENDENT AND INDEPENDENT VARIABLES

(a) Dependent Variables

The interest of the study is to first know the extent to which health warning labels are noticed by active smokers. Once noticed, do these smokers process the information and actually change their behavior? Are such behavioral changes significant? Which groups of individuals are most likely to be influenced by tobacco labeling?

To measure the exposure and responsiveness of tobacco warning labels, the dependent variables used in the empirical analysis is as follows. If participants had seen or paid attention to the warnings, and to what extent the warnings had made them think about the dangers caused by smoking, considered to quit and actually avoided smoking a cigarette when they were about to light one. To be more explicit, the dependent variables are based on the responses to the following questions:

- SEEN – In the past month, how often have you realized the health warning labels on cigarette packages?

- PAID ATTENTION – In the past month, have you read or paid attention to the warning labels on the cigarette packages?

- THOUGHT IN DANGER – To what extent, do the warning labels make you think about the damage that smoking causes to your health?

- THOUGHT TO QUIT – To what extent, do the warning labels make you think of stopping smoking?

- AVOID SMOKING – In the past month, have warnings on packages prevented you from smoking as you were about to light a cigarette?

For the SEEN and PAID ATTENTION variables the possible response categories were: never, sometimes, frequently and very frequently; for THINKING ABOUT THE DANGERS CAUSED

BY SMOKING and CONSIDER QUITTING variables were: nothing, little, enough and a lot; and finally, for AVOID SMOKING the possible responses were as follows: never, once, few times, many times. All specifications of the set of options are ordered in an increasing way. Figure 2 provides a descriptive picture for these five dependent variables. On the basis of these graphs, most of active smokers interviewed replied to have noticed the warning labels more frequently than they paid attention to them; however, they reported that health warnings made them think about the damages that smoking causes more often than they had paid attention to, unlike they considered quitting from the caveats. Apart from the responses observed for the first four variables, they answered the most that the cigarette caveats had made them avoid smoking a cigarette when they were just about to light in the lowest category of intensity among they were offered to choose, never. The measure tends to capture, in general, a great exposure and reflexive reaction of participants but a very low reactive response in the sense that they were less likely to reduce their effective cigarette consumption because of the caveats.

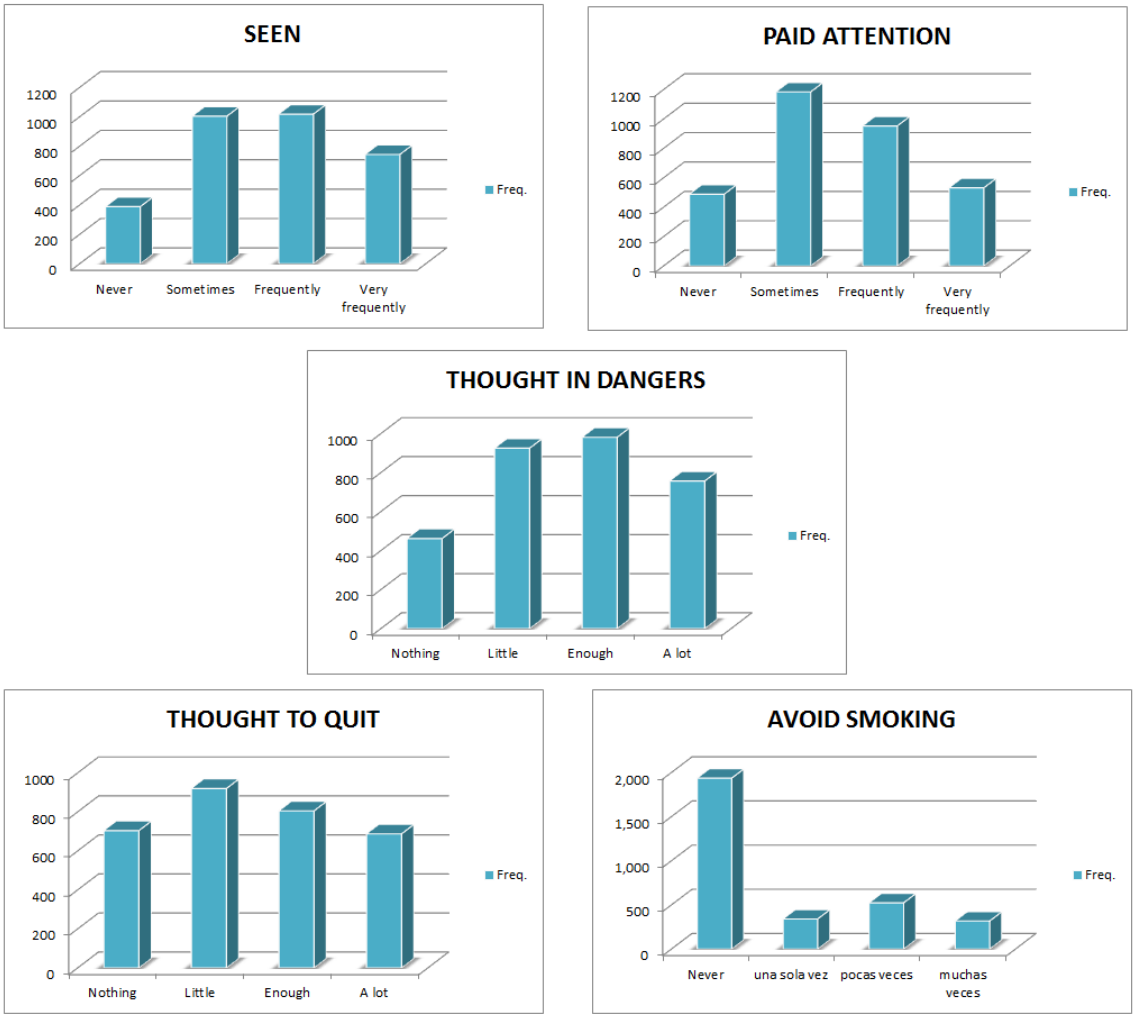

Figure 2. Frequency distribution of the five dependent variables which measure the exposure and reactions to the health warning labels in active smokers. It is observed a disimilar behavior of reactions to health warnings on active smokers

(b) Independent Variables

In this subsection I will explain in general the independent variables or covariates used in the empirical analysis

For the demographic characteristics category, respondents were asked to report their age, gender, income, education level, among other demographic individualities. The smoking behavior group was assessed by considering aspects, such as the starting age of smoking, the frequency of smoking (i.e. daily, monthly, occasionally, yearly), brand preference, weekly expenditure on

cigarettes, the number of attempts to quit smoking, etc. With respect to the alcoholic and drug-use behavior set, people were asked about their alcohol and drugs consumption, mostly in terms of quantity and frequency of consumption. The mental health group includes aspects such as recent feelings of hopelessness and suicide attempts.

The complementarity policies considered were several oriented to reducing tobacco consumption and the prevalence of addictions. Some of these implemented policies are also due to the provisions of the WHO Framework Convention on Tobacco Control of 2004. a) **smoke free places**: which states that smoking is completely prohibited indoors in primary and secondary schools and in federal government facilities; and for "places with public access" and "interior public or private work areas", smoking is allowed only in isolated indoor areas designated exclusively for smoking; b) **tobacco advertising: promotion and sponsorship**: refers to the law that bans most means of tobacco advertising and promotion which non-adults are likely to see; c) **tax policy**: tobacco has often been used as a source of raising tax revenues. However, as the effect of this policy is already captured by the cigarette price, I analyze this policy through the expenditure on cigarettes by smokers; d) **campaigns against smoking:** several campaigns have been initiated by the Mexican government via radio, television, and advertising in public places. In addition, a series of workshops have also been financed informing the population about the harms of addiction.

As for their construction, the name of each variable indicates a specific characteristic and takes the value 1 if the individual has it, and zero if not. There are variables such as those that indicate the level of income and last purchase (store) that must be explained:

Level of income: I take as a base measure the quantity of minimum wages earned by the head of household in a month. Starting from the variable labeled as "level of income 1", which represents the lowest salary that a person receives throughout a single month, the income range within this category is less than the minimum wage (m.w.), no matter if the value on pesos changes over the region to which the person belongs. The variables "level of income2"=one m.w.; "level of income3"= until 2 m.w.; "level of income4"= from 2 to 4 m.w; and "level of income5"=more than 4 m.w.

DESCRIPTIVE STATISTICS OF THE MAIN SOCIO-DEMOGRAPHIC CHARACTERISTICS BY TYPE OF SMOKER, (ENA 2011)						
	ACTIVE SMOKERS		EX-SMOKERS		NON-SMOKERS	
	(n=3180)	(%)	(n=3772)	(%)	(n=9347)	(%)
Gender						
Female	1075	34%	1684	45%	6249	67%
Male	2105	66%	2047	55%	3085	33%
Age						
Adolescent	424	13%	329	9%	3096	33%
Adult	2,756	87%	3,393	91%	6,251	67%
Civil Status						
Married	1685	53%	2368	64%	4302	46%
Divorced/widowed	319	10%	325	9%	612	7%
Single	1176	37%	1042	28%	4393	47%
Religion						
No catholic	553	17%	772	21%	1975	21%
Catholic	2627	83%	2940	79%	7384	79%
Studying when the interview was made						
Yes	484	15%	485	13%	3104	33%
No	2696	85%	3282	87%	6263	67%
Education						
No education	345	11%	500	13%	1329	14%
Primary school	783	25%	845	23%	3268	35%
Middle school	1167	37%	1264	34%	2985	32%
High school	585	18%	672	18%	1183	13%
University and higher	295	9%	436	12%	588	6%
Head of household						
Yes	1791	56%	1974	53%	2384	26%
No	1386	44%	1773	47%	6017	74%
Occupation						
Working in Primary Sector	231	7%	324	9%	441	5%
Working in Secondary Sector	933	29%	833	22%	1253	13%
Working in Tertiary Sector	1237	39%	1434	38%	2150	23%
Unpaid work	394	12%	744	20%	2729	29%
No working when interviewed	385	12%	421	11%	2749	29%
Level of income						
Income not reported	509	16%	605	16%	1928	21%
Level of income 1	1687	54%	2112	56%	5609	60%
Level of income 2	744	23%	799	21%	1503	16%
Level of income 3	131	4%	154	4%	193	2%
Level of income 4	76	2%	55	1%	61	1%
Level of income 5 & higher	33	1%	31	1%	27	0%
Children living at the house						
Yes	1512	48%	1433	39%	5059	54%
No	1668	52%	2300	61%	5234	56%

Table 1. Descriptive statistics of the mean socio-demographic through kind of smokers of the whole ENA 2011 survey.

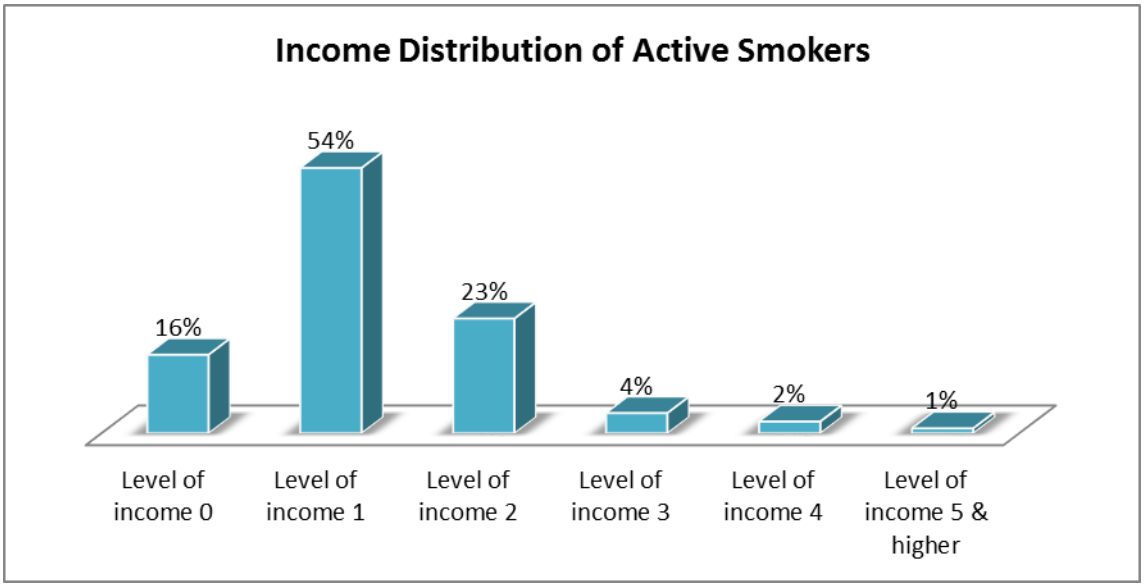

Figure 3. Income distribution of active smokers. Active smokers are more likely to have belong to the first or second level of income

Similar to many of the studies that use a survey as its data source, it is common that people do not report their salary. Therefore, I created the variable "income not reported" that takes a value of 1 if people did not report their salary and 0 otherwise.

The income distribution of active smokers is shown in Figure 3. Income distribution is concentrated mainly in level 1, to the people who earn one minimum salary, what means that a bit more than half of all active smokers received less than $1,793 (Mexican pesos of 2011), followed by level 2 (earnings between $1,701 to 1,794 Mexican pesos of 2011). Upper income levels do not represent a large proportion of active smokers compared with the observations for the first two income levels. It must be made clear that even if the ranges of earnings represented in pesos might be seen as overlapping this does not change the analysis. The variables were created over the level of income and it has different ranges depending on the region to which the individual belongs. Figure 3 highlights the importance of not eliminating observations where the level of income was not reported, as this would have represented a loss of approximately 16% of the sample.

At first sight it could be the case that the income distribution could make it impossible to extend the conclusions that we will obtain in the study to ex-smokers and non-smokers.

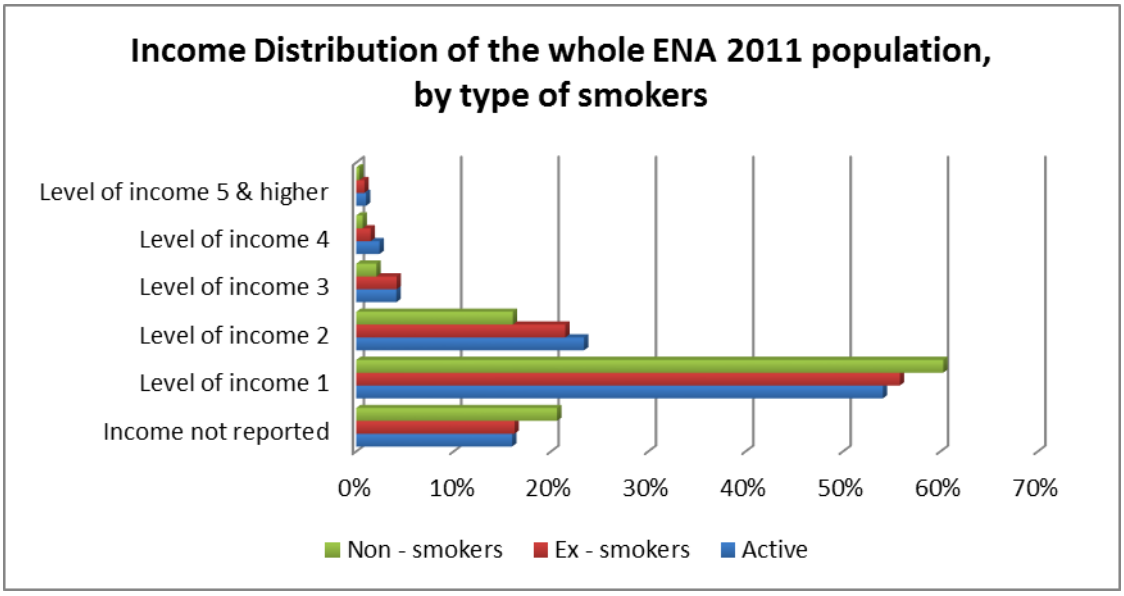

Figure 4. Income distribution of the whole population surveyed in the ENA 2011 by kind of smokers. Active, ex and non-smokers present the same behavior in their income distributions: they are concentrated in the first two levels of income.

However, by inspection of Table 1 which describes the principal socio-demographic characteristics through active, ex and non-smokers, we can see that the behavior of the income distribution is practically the same. This is illustrated in Figure 4 where it is visible that the concentration of income observed for active smokers is preserved for the other kinds of smokers. Additionally, among the non-smokers the share of lower income (level1) is higher than among the active smokers, which means that being an active smoker is not a characteristic of poor people, and this reminds true given that we do not know to which income the "not reporting income" people belong.

Last purchase (store): Thus refers to the last place where the interviewee bought his or her cigarettes. The formal place variable represents mostly the grocery stores.

Moreover, from Table 1 we can compare the sample studied here to the sample of ex-smokers and non-smokers to see if they are similar or different to make extensive a policy focused on active smokers in relation to the other two kinds of smokers. For example, for the case of the education variable, we effectively can extend the conclusions that we obtain from analyzing the sample of active smokers only. By inspection of Figure 5, the distribution of the level of schooling is very similar between the three groups of different kind of smokers. This means that

the schooling of people interviewed is independent of the kind of smokers they are. It is noteworthy that the behavior of active smokers through the education levels in this survey is highly consistent with the findings published by the Centers for Disease Control and Prevention from the National Health Interview Survey of the United States of 2002.

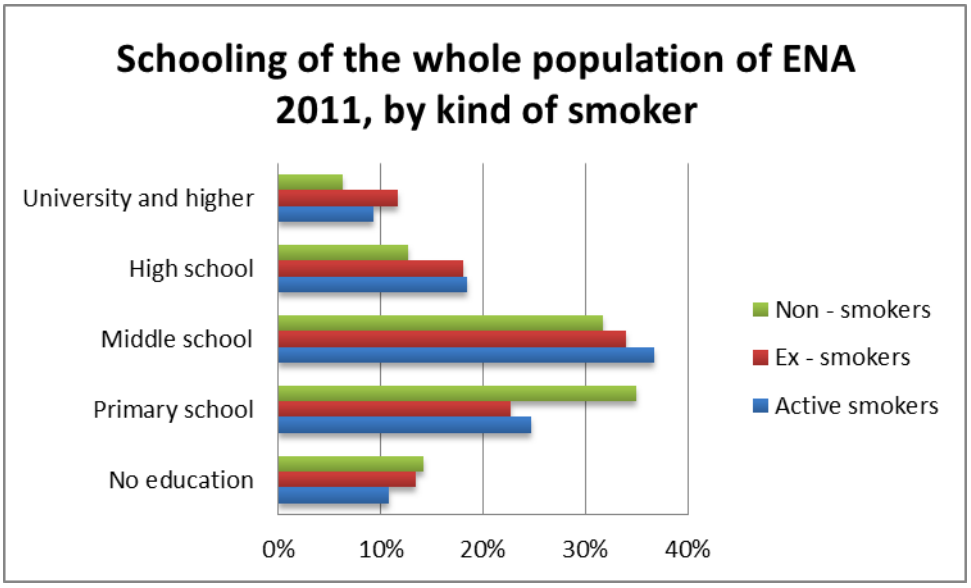

Figure 5. Schooling equally distributed for the three kinds of smoker of the ENA 2011

They found the highest smoking prevalence at the middle school level (General Education Development, in the US), while the lowest was located in people who had the highest level of education, graduate degrees. So, also here, smoking is not a poor (low-educated) man's habit, as found in the income-kind of smoker analysis.

In Table 2, I give an overview of the descriptive characteristics of the mean variables of the sample of study, the active smokers interviewed in the ENA 2011 survey. On the basis of this raw data, we can see that most active smokers are men (66%), adults (more than 17 years old, 87%), married (53%), workers of the tertiary sector (39%) and earning one minimum wage per person (54%), Catholics (83%), heads of households (56%), and do not have any child living at home (52%).

I analyze the remaining characteristics in a more detailed way and by category.

CHARACTERISTICS OF ACTIVE SMOKERS (ENA 2011) GROUPED BY CATEGORY

SOCIO-DEMOGRAPHICS

	Study sample (n=3180)	(%)
Gender		
Female	1075	34
Male	2105	66
Age		
Adolescent	424	13
Adult	2756	87
Civil Status		
Married	1685	53
Divorced/widowed	319	10
Single	1176	37
Religion		
No catholic	553	17
Catholic	2627	83
Studying when the interview was made		
Yes	484	15
No	2696	85
Education		
No education	345	11
Primary school	783	25
Middle school	1167	37
High school	585	18
University and higher	295	9
Head of household		
Yes	1791	56
No	1386	44
Occupation		
Working in Primary Sector	231	7
Working in Secondary Sector	933	29
Working in Tertiary Sector	1237	39
Unpaid work	394	12
No working when interviewed	385	12
Level of income		
Income not reported	509	16
Level of income 1	1687	54
Level of income 2	744	23
Level of income 3	131	4
Level of income 4	76	2
Level of income 5 & higher	33	1
Children living at the house		
Yes	1512	48
No	1668	52

SMOKING BEHAVIOR

	Study sample (n=3180	(%)
Reasons to start smoking		
Curiosity	1752	55
To relax	147	5
Peer pressure	1270	40
Type of smoker		
Never smoker	1062	33
Former smoker	208	7
Some days smoker	846	27
Every day smoker	1039	33
Age of start smoking daily		
before 20 years old	2638	83
20 years old and after	542	17
Cigarettes smoked a day (if daily)		
>=16 cigarettes a day	224	7
<16 cigarettes a day	2956	93
Frequency of smoking		
Use to smoke daily	1416	44
Use to smoke weekly	544	17
Use to smoke monthly	158	5
Use to smoke occasionally	1062	33
Last cigarette purchase unit		
Buy by single	1444	45
Buy by package	1388	44
Buy in other cigarette unit	21	1
No buy cigarette	327	10
Brand		
Marlboro Light	434	14
Other filtered cigarettes	1035	33
Other non-filtered cigarette	147	5
Marlboro	1564	49
Last purchase (store)		
Formal store	2638	83
Other store	542	17
Weekly expenditure		
< 40 pesos	2195	69
41-70 pesos	318	10
> 70 pesos	667	21
Looked for cheaper cigarettes		
Yes	267	8
No	2913	92
Tried to stop smoking		
Yes	1842	58
No	1338	42

OTHER POLICY ALCOHOL MENTAL HEALTH

	Study sample (n=3180	(%)
Bother if someone is smoking around		
Yes	1184	37
No	1996	63
Smoking at home is allowed		
Yes	1141	36
No	2021	64
Have smokers in workplace		
Yes	2160	69
No	988	31
Listened campaign against smoking (radio)		
Yes	1262	40
No	1918	60
Saw campaign against smoking (newspaper)		
Yes	1324	42
No	1856	58
Saw campaign against smoking (advertising)		
Yes	1819	57
No	1361	43
Received prevent addictions information		
Yes	1395	44
No	1861	56
Ever drunk alcohol		
Yes	2935	92
No	245	8
Frequency of drinking alcohol		
daily	694	22
(weekly)	642	20
(monthly)	1033	33
(yearly)	806	25
Felt nervous		
Yes	1607	51
No	1573	49
Felt hopeless		
Yes	950	30
No	2230	70
Felt worthless		
Yes	595	19
No	2585	81
Thought/ attempt to suicide		
Yes	441	14
No	2739	86

Table 2. Descriptive statistics of the sample of study grouped by category, ENA 2011

Smoking behavior

Reasons for starting smoking: More than half of active smokers, 55%, reported to have started to smoke out of curiosity, while 40% started because of peer pressure from friends, relatives and other social groups. Just 5% started to relax themselves. This can be seen from inspection of Figure 6 below.

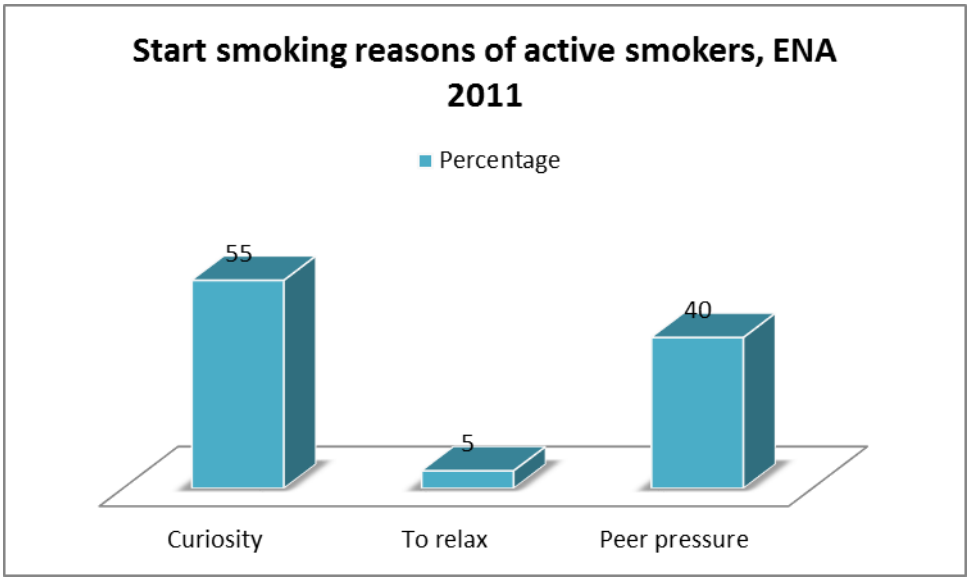

Figure 6. Start smoking reasons of active smokers, ENA 2011

Type of smokers: (First, an explanation of the meaning of each type of smoker)

I take the next definitions provided by the Centers for Disease, Control and Prevention from their website, and add some considerations for the specific case of this study:

- *Never smoker: A person who has never smoked, or who has smoked less than 100 cigarettes in his or her lifetime (*which, in this study, is the characteristic that would, effectively, determine if an individual is a never smoker or not, given that we are studying active smokers (people who have never smoked a cigarette are clearly not included in our sample of study)). The importance of using this classification is that we allow treating differently a smoker who could have smoked her first cigarette just the day

before the interview and so entered into the "active smokers" group. In other studies this smoker would even be classified as a "non-smoker".

- *Former smoker: A person who has smoked at least 100 cigarettes in his or her lifetime but who had quit smoking at the time of the interview, while for the sample definition this person still may qualify as active smoker to be included in the analysis.*
- *Some days smoker: A person who has smoked at least 100 cigarettes in his or her lifetime, who smokes now, but does not smoke every day.*
- *Every day smoker: A person who has smoked at least 100 cigarettes in his or her lifetime, and who now smokes every day.*

Active smokers that have smoked less than 5 cigarette packages represent the same proportion of the total of active smokers than those who have smoked at least 100 cigarettes in their lifetime and that were smoking every day when the survey was held, 33%. A little lower is the proportion of smokers that are some days smokers (27%). Smokers that had smoked at least 100 cigarettes in their lifetime but had quit when they were interviewed, former smokers, is the less representative accounting for only 7% of the sample. This is represented in Figure 7. This suggests that the sample is too wide

Frequency of smoking: When active smokers were asked to report their cigarette consumption by frequency and quantity, the sample was composed mainly by daily smokers (those who have smoked daily at least one period in their lifetime, so a daily smoker is not necessarily an everyday smokers), 44%, and by occasionally smokers (People who reported a frequency of smoking even lower than one-yearly) 33%. Weekly smokers represent just 17% of the sample and monthly smokers an even lower 5%. This is illustrated in Figure 8.

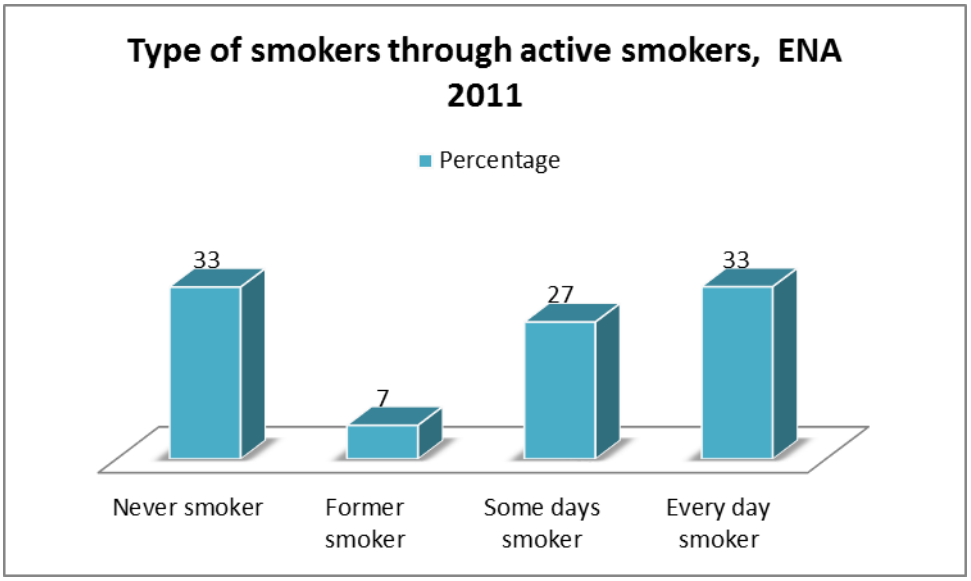

Figure 7. Type of smokers (CDCP classification) through active smokers, ENA 2011

Last cigarette purchase: On the information about the last purchase of cigarettes, participants reported a strong preference for Marlboro red cigarettes than for any other brand (almost 49% of active smokers). 14% preferred Marlboro Light and the remaining 38% had a preference for other brands (this included more than 20 brands in this category). This is illustrated in Figure 9. Single and package units were the most prominent forms of cigarette purchase and 83% of all purchases were made in formal establishments (grocery and 24h/7 stores, mainly).

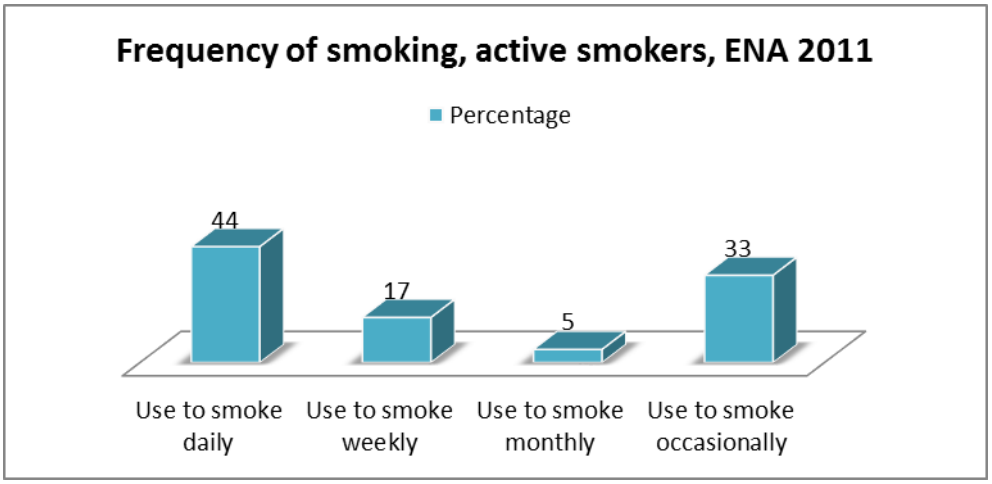

Figure 8. Frequency of smoking through active smokers, ENA 2011

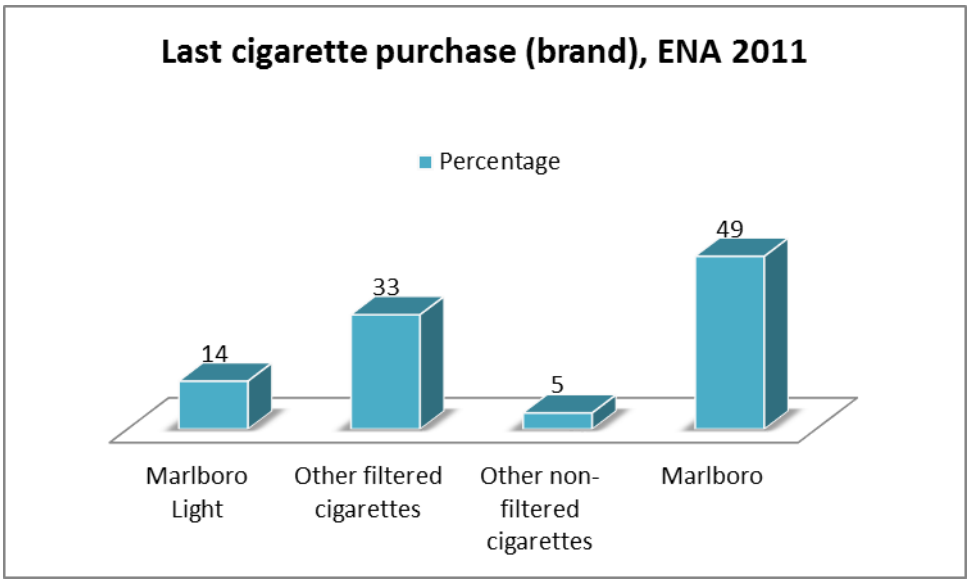

Figure 9. Last cigarette purchase (brand), active smokers, ENA 2011

Looked for cheaper cigarettes: By inspection of Figure 10, only 8% of all active smokers surveyed looked for cheaper cigarettes during the last 6 months. The price elasticity is low because just at the beginning of 2011 was an increase in the price of tobacco by the "Impuesto Especial sobre Producción y Servicios (IEPS)" initiated.

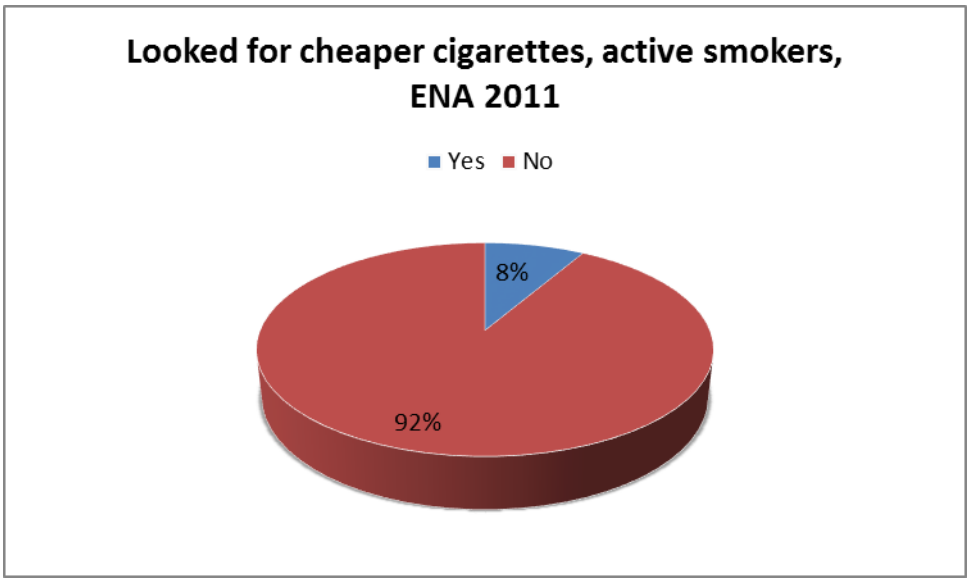

Figure 10. Looked for cheaper cigarettes active smokers, ENA 2011

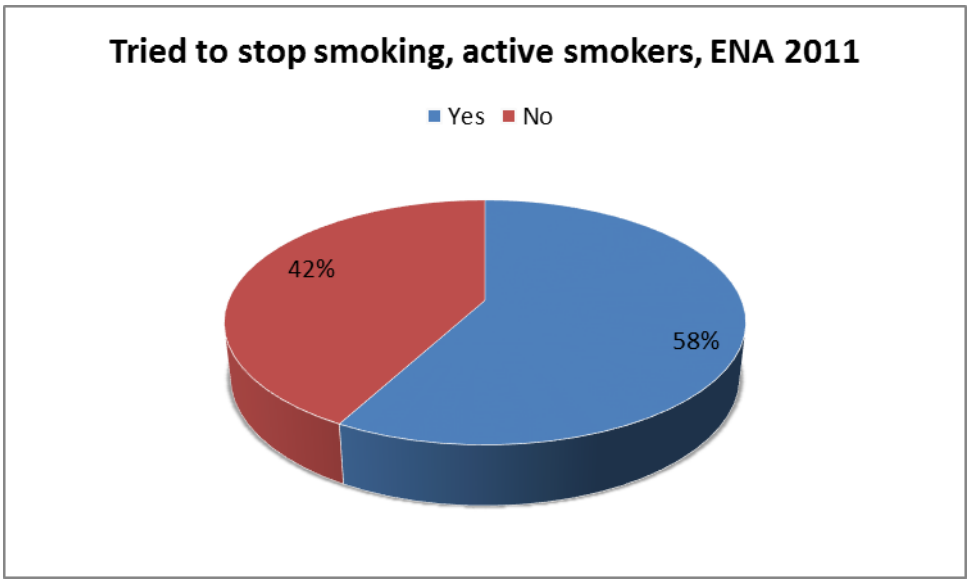

Figure 11. Tried to stop smoking, active smokers, ENA 2011

Tried to stop smoking: By inspection of Figure 11, more than half of all active smokers mentioned to having had intentions to quit smoking during their lifetimes. This represents 58% of the sample of study.

Other smoking issues: By inspection of Figure 12, more than a third of active smokers do not like someone else smoking close to them, 37%. Smokers of the sample who has as a rule at home "smoking indoors is allowed" represent 36% of the total sample. Nearly two thirds (69%) of participants reported having smokers at their workplace.

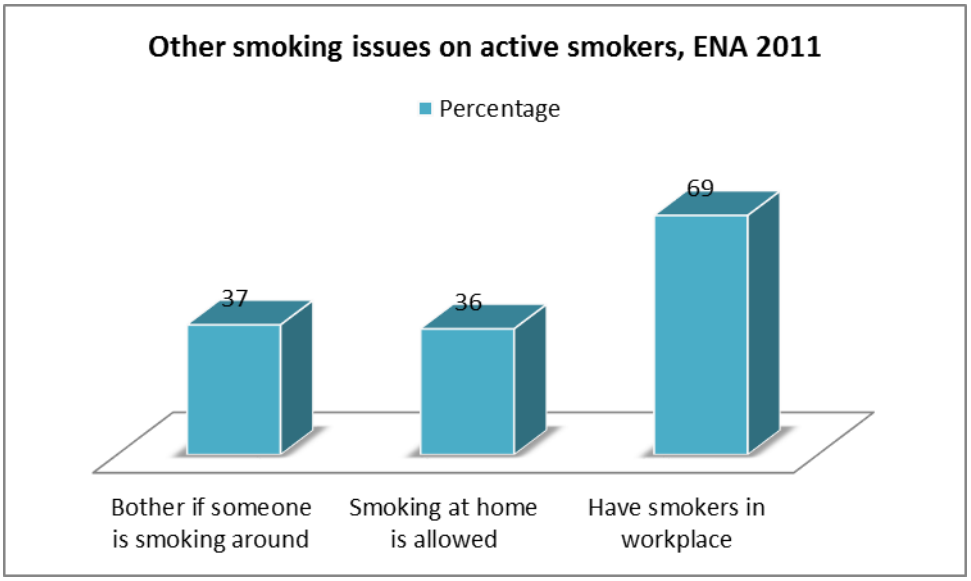

Figure 12. Other smoking issues on active smokers, ENA 2011

Other tobacco policies

As summarized in Figure 13, 57% of active smokers reported to having seen advertising campaigns against smoking, followed by newspaper adverts (42%) and radio announcements (40%). Many of the active smokers (44%) appear to have received addiction preventive information from radio/TV, diffusion material, at school, at place of employment, friends/relatives, among others.

Frequency of drinking alcohol

From inspection of Figure 14, from the 92% of active smokers who drink alcohol (more than one glass), the majority drink alcohol on a monthly frequency (33%).

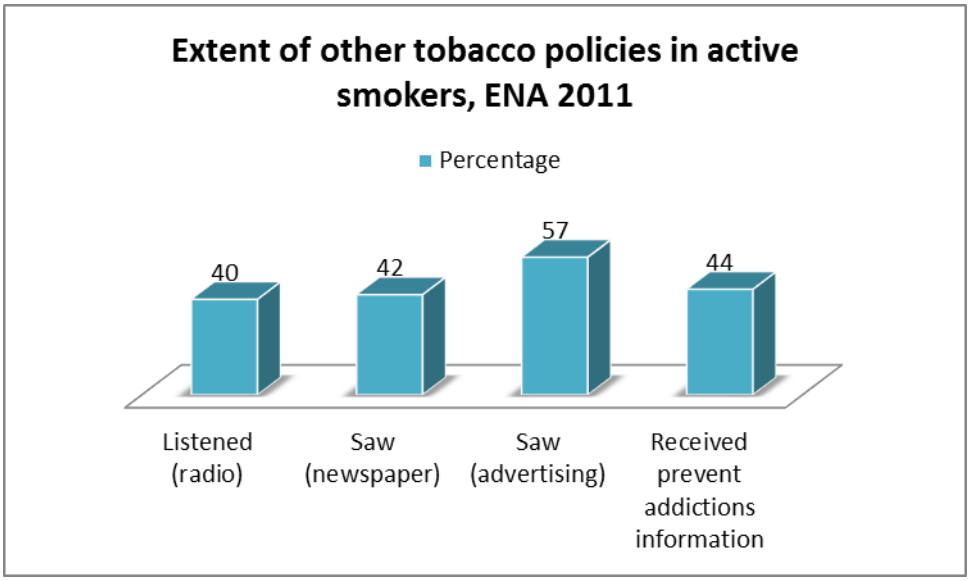

Figure 13. Extent of other tobacco policies active smokers, ENA 2011

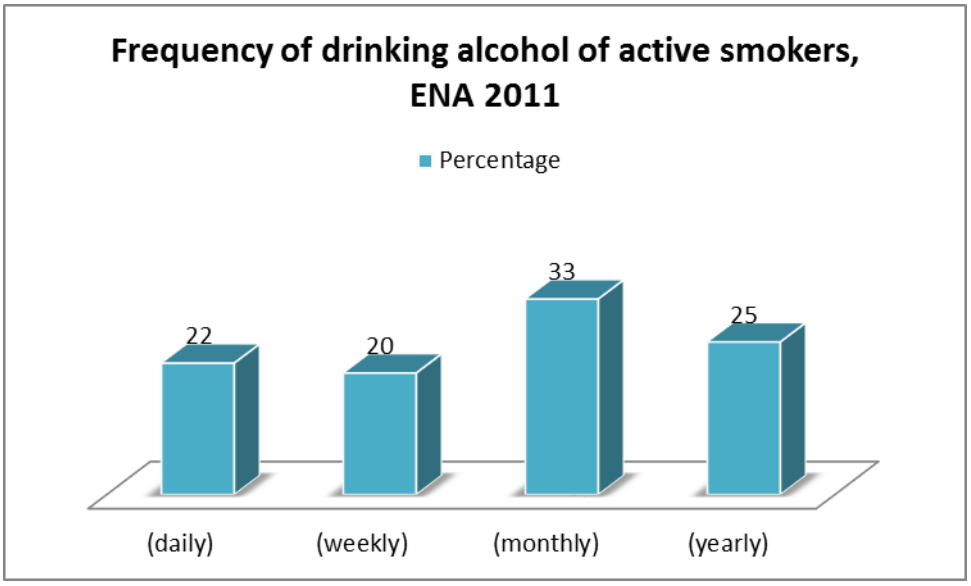

Figure 14. Frequency of drinking alcohol of active smokers, ENA 2011

Mental health

Half of all active smokers had felt nervous 30 days before the interviews, 30% felt hopeless, 19% felt worthless, and 14% manifested to having thought or even made suicide attempts (see Figure 15).

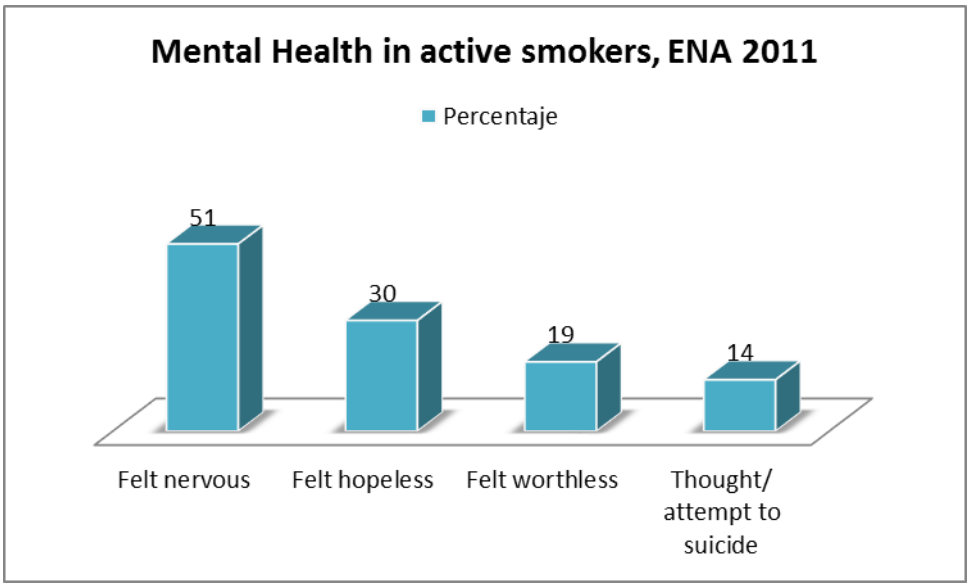

Figure 15. Mental Health in active smokers, ENA 2011

IV. METHODOLOGY

To attempt to capture the profile of smokers that may be more reactive to each of the five aspects just listed above, I created 88 candidate independent variables. These variables were based on the information concerned to socio-demographic characteristics (gender, age, civil status, income, etc…), smoking behavior (frequency of smoking, brand preferences, place of cigarettes purchase, expending on cigarettes, etc…), other policies (effectiveness of other campaigns against smoking and addictions in general), other addictions (habits of alcohol and drug, mainly) and mental health aspects (recent moods of the participants). All 88 variables were dummies, from which 32 were taken as base variables. This means that they will play the role of the comparable variables needed to interpret the other 56 remaining variables which composed the set of explanatory variables. Every reply "I do not know" was taken as missing value in the corresponding variable.

A crucial feature is the description of the variables that measure the exposure and response to the warning labeling on cigarette packages. The respondents have a continuous intensity of reactions to each aspect that they would express if they were not forced to provide only a given range, which will be represented as a "latent variable" symbolized by y^*, where $-\infty < y^* < \infty$. Therefore, the observed rated responses represent a censored version of the true underlying intensities. The corresponding observed variables will be represented by the same lateral but without the star, y. The responses to each question about the reactions to health warning labels were codified in numeric values in order to rate them given their intensity. In this way, dependent variables can take values from 1 to 4, increasing in their intensity. For example, the dependent variable SEEN takes a value 1 if smokers have never seen the warning labels, 2 sometimes, 3 if frequently and 4 if they have seen them very frequently.

This particularity of the data: qualitative outcome that takes continuous values but, for the impossibility of being measured in that way, they are mapped from this continuous scale to a discrete, hierarchically ordered, have been treated in the literature with ordered choice models. Ordered choice models have been used to analyze multiple varied issues such as: drug reactions (Fu et al., 2004), happiness (Winkelmann, 2005), health status (Riphahn et al, 2003), political efficacy (King et al., 2004), among others.

I now discuss the theoretical specifications of the ordered choices models employed. In the discussion below, I closely follow Greene and Hensher (2010).

The ordered choice model provides a useful description of the observed rating in the sense that it utilizes the observed variable y for the estimation of its latent y^*. Any individual brings their own set of characteristics (such as socio-demographics, smoking behavior, other addictions etc…) to the exposure and response functions, such as those descripted above, which I denote $x_{i1}, x_{i2}, \dots x_{iK}$, where i denotes the individual, $i = 1, \dots, n$, K denotes the number of explanatory variables, and m denotes the dependent variable (SEEN, PAID ATTENTION, THINKING ABOUT THE DANGERS CAUSED BY SMOKING, CONSIDERING TO QUIT and AVOID SMOKING).

The independent variables mentioned also bring their own aggregate of unmeasured idiosyncrasies, denoted ε_{im}, which is assumed to be a continuous random disturbance with conventional cumulative distribution function (CDF) with support equal to the real line, $F(\varepsilon_{im}|x_{ik}) = F(\varepsilon_{im})$. This means equally that the components $x_{i1}, x_{i2}, \dots x_{iK}$ are a set of K covariates that are assumed to be strictly independent of ε_{im}. To complete the ordered choice model one either assumes a standard normal distribution for ε_{im}, producing the ordered probit model, or a standardized logistic distribution (mean zero, variance $\pi^2/3$), which produces the ordered logit model. Given that historically in the literature of preferences, which is the closest topic to the study addressed here, have typically been studied from the ordered probit approach, I decided to follow suit. The advantage of the usage of logit instead of probit, is mainly one of mathematical convenience.

How these features enter the reaction functions is uncertain, but it is conventional to use a linear function:

$$y^*_{im} = \beta_{i0} + \beta_{i1}x_{i1} + \beta_{i2}x_{i2} + \cdots \beta_{iK}x_{iK} + \varepsilon_{im}$$

or using vector notation:

$$y^*_{im} = \boldsymbol{\beta}'_i \boldsymbol{x}_i + \varepsilon_{im} \qquad i = 1, \dots, n$$

in which the continuous latent outcomes y^*_{im} are observed in a discrete way, since participants were asked to rate the different reactions to the five mean questions according to their intensity or frequency from one to four (where one is attributed to the lowest intensity answer and four is the highest). Logically, then, the translation from the underlying function to a rating could be viewed as a censoring of the underlying function:

$$y_{im} = 1 \ \ if \ \ -\infty < y^*_{im} \leq \mu_{i1}$$
$$y_{im} = 2 \ \ if \ \ \mu_{i1} < y^*_{im} \leq \mu_{i2}$$
$$y_{im} = 3 \ \ if \ \ \mu_{i2} < y^*_{im} \leq \mu_{i3}$$

$$y_{im} = 4 \ \ if \quad \mu_{i3} < y^*_{im} \leq \infty$$

Note that in general the thresholds, μ_{ij}, are specific to the person, where $j = 1, \ldots, J$, with $J = 4$, and J denotes the number of possible ratings with $J - 1$ values needed to divide the range of utility into J cells.

The thresholds are an important element of the model; they divide the range of the exposure and reactions to the warning labels into cells that are then identified with the observed ratings. Given the characteristics of the qualitative values that the dependent variables can take in this study (as they are ranked into just four stages), it is reasonable to assume that those threshold values are the same for all individuals. Such an assumption would be less credible if the variables could take more values, since it would have been more likely that individuals define their thresholds differently from each other.

It important to note that the difference between two levels of a rating scale (e.g., one compared to two, two compared to three) is not the same on an intensity scale. Hence, we have a strictly nonlinear transformation captured by the thresholds, which are estimable parameters in an ordered probit model.

Also note that the model accommodates the intrinsic heterogeneity of individuals by allowing the coefficients to vary across them. In my estimations the coefficients are not individual-specific, so as in so many econometric work, I estimate one-size-fits-all. Making this assumption is confirmed to be reasonable later in the robustness checks made for subgroups.

It is also noteworthy that even if the model is expressed as an apparently common regression, it does not directly describes the relationship between y_i and the covariates $\boldsymbol{x_i}$, instead it describes probabilities of outcomes as do most of the discrete choice models as those cited before.

Even though both estimation and inference for probit models of binary choices are usually based on maximum likelihood estimation, it is also valid to use the same procedure for probit models

with more than two options that are ordered, by just taking into account a set of normalizations to make the ordered probit fit the original binary probit model.

By the laws of probability, the probabilities associated with the observed outcomes are:

$$Prob[y_i = j|\boldsymbol{x}_i] = Prob[\varepsilon_i \leq \mu_i - \boldsymbol{\beta}'\boldsymbol{x}_i] - Prob[\mu_{i-1} - \boldsymbol{\beta}'\boldsymbol{x}_i], \qquad j = 0,1,\dots,J$$

After having made the corresponding normalization, the likelihood function for estimation of the model parameters is based on the implied probabilities:

$$Prob[y_i = j|\boldsymbol{x}_i] = [F(\mu_i - \boldsymbol{\beta}'\boldsymbol{x}_i) - F(\mu_{i-1} - \boldsymbol{\beta}'\boldsymbol{x}_i)] > 0, \qquad j = 0,1,\dots,J$$

In our particular case with four outcomes,

$$Prob[y_i = 1|\boldsymbol{x}_i] = F(\mu_1 - \boldsymbol{\beta}'\boldsymbol{x}_i) - F(-\infty - \boldsymbol{\beta}'\boldsymbol{x}_i) = F(\mu_1 - \boldsymbol{\beta}'\boldsymbol{x}_i)$$
$$Prob[y_i = 2|\boldsymbol{x}_i] = F(\mu_2 - \boldsymbol{\beta}'\boldsymbol{x}_i) - F(0 - \boldsymbol{\beta}')$$
$$Prob[y_i = 3|\boldsymbol{x}_i] = F(\mu_3 - \boldsymbol{\beta}'\boldsymbol{x}_i) - F(\mu_2 - \boldsymbol{\beta}'\boldsymbol{x}_i)$$
$$Prob[y_i = 4|\boldsymbol{x}_i] = F(\infty - \boldsymbol{\beta}'\boldsymbol{x}_i) - F(\mu_3 - \boldsymbol{\beta}'\boldsymbol{x}_i) = 1 - F(\mu_3 - \boldsymbol{\beta}'\boldsymbol{x}_i)$$

Estimation of the parameters is a straightforward problem in maximum likelihood estimation. However, as I mentioned at the begging of this section, there is a vast number of independent variables, 56 to compute, and they were all computed using STATA. Even if the estimation that STATA adopts is log-likelihood and the model needs to be solved through maximum likelihood, I remind to le reader the association that exists between both of them: because the logarithm is a monotonically increasing function, the logarithm of a function achieves its maximum value at the same points as the function itself. Hence, the log-likelihood can be used in place of the likelihood in maximum likelihood estimation and related techniques.

The procedure of estimation of the parameters used by STATA is straightforward once the variable set is composed by the selected potential explanatory variables. These are created from every question that, after an exhaustive revision over the whole survey, might have captured

crucial information for the determinants of the personal profile under which the policy of health warning labeling might attain its large effectiveness.

In order to define a personal profile that represents something really useful and applicable to policymakers I just kept the most significant variables. I pooled all the 56 variables already separated from their respective base variable. These 56 variables where selected from a bigger set that were not significant. This issue is discussed in detail below.

The statistical significance test that applies for this study is the z-test. This means that the distribution of the test statistic under the null hypothesis can be approximated by a normal distribution. Because of the central limit theorem, many test statistics are approximately normally distributed for large samples, which applies to our case.

The criteria used to differentiate a significant variable from a non-significant was to choose as significant the variable with p-value<0.05. This means that we would reject the null hypothesis that the estimated coefficient of that variable is zero given that the rest of the predictors are in the model. We can then conclude that the estimated coefficient for this variable has been found to be statistically different from zero given that the rest of the variables of the variable set are in the model.

The interpretation of each variable is based on a comparison with its respective base variable. Base variables were not included in the model because they play the role of a reference variable to the interpretation of the ones included. For example, the interpretation of the female variable will be read as “females are more/less likely to have a reaction to (any of the five dependent variables) than males”, depending on the sign of the estimator. For an easier interpretation I included base variables in the table with the final results to give the reader a better understanding.

V. RESULTS

The econometric results of the ordered probit model for the five dependent variables are summarized in Table 3. For lucidity, the subsequent discussion and interpretation of the key findings will be structured according to the following characteristic groups: socio-demographic, smoking behavior, other policies, drinking alcohol frequency and mental health.

SOCIO-DEMOGRAPHIC:

From the socio-demographic characteristics of active smokers, it appears that participants with lower education tend to see and pay less attention to the health label warnings than people with higher levels of education. The higher the education level of an active smoker, the greater is their exposure to tobacco labeling. This finding is consistent with the studies of Thrasher, et al. (2007) and Hammond, et al. (2007) who also found that higher education levels were associated with greater label salience.

This positive relationship between education and label exposure could be linked to the result that workers in the primary sector have exactly the same relation with tobacco labeling when they are compared with workers at the tertiary sector ($p<0.001$). Since people in the primary sector in Mexico are generally less qualified, this means lower education. Therefore, even though we controlled for education, the sector of employment is still strongly significant. We can make this argument extensive to workers of the secondary sector knowing that they are more educated than workers in the primary sector but less so than those in the tertiary ($p<0.05$). For people who work for no earnings (most of them housewives) or those who do not work, they are not statistically different from the tertiary sector employment group. It is also noteworthy that the level of education and sector of employment have no effects at all on behavior: although the higher educated are more likely to see the label warnings, and pay attention to them, there is no significant effect relating to thinking about the dangers smoking or actually quitting.

Head of households are more likely to have more potential pressures and stresses, such as providing money and security to their families, that they could be expected to be less aware of

the warning labels. This is confirmed by the analysis: head of households tend to see less the warning labels than the other members of family, so it is reasonably that they think about the smoking harms and consider quitting less, as well. They might not even ponder on their smoking habits.

Finally, it is curious that the level of income does not represent a big issue on the effects of tobacco labeling. Only for the interviewees who refused to report their income is a degree of awareness found. This group is more likely to pay attention to the labels than individuals that report to having a salary less than the minimum (level 1) ($p<.001$). One possible explanation of this finding is that income is probably correlated with both education and sector of employment. Therefore, after controlling for these variables, income does not have additional explanatory power.

As discussed in Section III, men are strongly represented among the active smokers, and women among the non-smokers, suggesting different behavioral decisions. Nevertheless, when they are both active smokers, we find no difference in their reactions to the warning labels.

SMOKING BEHAVIOR:

With respect to the type of smoker, we observe that never smokers (active smokers who had smoked less than 100 cigarettes in their lifetime) are less likely to see the warning labels than every day smokers. This is quite intuitive since they frequently buy less cigarettes. Consistent with the results, never smokers, since they are in the "smoking initiation" step, they are more likely to think to quit and to reject smoking a cigarette when they are about to light one after have seen the health warnings than every day smokers; they are not addicts yet.

The same effect is showed for former and some days smokers but a little bit stronger in frequency for the first and weaker for the second ($p<0.05$).

For people who had smoked daily at any point of their lifetime and that started doing so at the age of 20 or younger, tend to see more the health warnings and considered quitting more than people who started smoking older ($p<0.05$).

As one would expect, interviewees that reported having bought their last cigarettes in a pack are more likely to see and pay attention to the labels than people who bought a single cigarette ($p<0.001$).

Turning our attention to smokers of specific brands, we find that for those who smoke *light* cigarettes (Marlboro light smokers), which in itself suggests that these smokers have a higher awareness of the risks of smoking, tobacco labeling does not appear to be any more effective for invoking behavioral changes. It is only relevant in the sense that Marlboro light smokers are more likely to see the caveats than those who smoke another brand ($p<0.01$).

The only variable that maintains the highest level of significance among the five dependent variables corresponds to the "try to stop smoking" variable. This could be a little confusing as this independent variable (at first glance) appears quite similar to our last dependent variable (and perhaps even with the fourth dependent variable), which suggest possible issues of endogeneity. However, careful reading of the fourth and fifth dependent variables (repeated here)

- "To what extent do the warning labels make you think of stopping smoking?" (THOUGHT TO QUIT)
- "In the past month, have warnings on packages prevented you from smoking as you were about to light a cigarette?" (AVOID SMOKING)

makes clear that these questions do not ask if the respondents did actually *try to quit smoking*. Besides, the explanatory variable derived from the question "*Have you ever tried to quit smoking?"*, allows for more possible reasons for quitting other than the influence of tobacco labeling in their decision. From Table 3, it appears that people who have intentions about quitting are more likely to see, pay attention, think about the damages that tobacco consumption causes, to "reconsider" to quit after seeing the warnings and to avoid lighting a cigarette due to the warning labels. The biggest effects are seen in the reactions of thinking of the damages to health and consider quitting ($p<0.001$).

We might expect that if an active smoker feels bothered by someone smoking nearby that they are probably trying to stop smoking. This is verified in Table 3 as for all five dependent variables (except SEEN) this effect is highly significant ($p<0.05$).

Finally, for this section, if participants have as a home rule that people can smoke indoors, they are probably not interested in changing their smoking behavior. Negative coefficients in every regression support this hypothesis.($p<0.05$)

OTHER POLICIES:

Campaigns against smoking transmitted via radio appear to be a good complementary policy to tobacco labeling. We find evidence that radio helped increase the effectiveness of the warning labels. People who had listened to the radio campaigns against smoking tended to avoid smoking after seeing a health warning label ($p<0.01$). A similar effect is observed with campaigns through advertisements. Moreover, they also appear to increase the effectiveness in thinking about tobacco damages and pondering to quit ($p<0.05$). The greatest and more significant effects are obtained when smokers have also received some kind of addiction preventive information (e.g. from TV, friends or relatives, diffusion material, DIF, at school, work, among others.). This variable increases the effectiveness of tobacco labeling and makes active smokers think more about the health dangers of smoking. Furthermore, they are more likely to consider to quit smoking after seeing the warnings ($p<0.01$).[9]

DRINKING ALCOHOL FREQUENCY:

None of the drinking alcohol frequency variables are a good explanation of the five dependent variables of interest. This means that consumption behavior relating to alcoholic beverages does not say anything about the effect of cigarette warning labels on smoking behavior.

MENTAL HEALTH:

As it would be expected, if a smoker is contemplating suicide or has had any attempt, she is not worried about health; this is why health warning labels had not any impact on them. This result is

[9] For the "avoid smoking" question radio and advertising campaigns seem to be more effective in increasing the impact of the warning labels than general addiction information ($p<0.01$).

sustained even if we change the specification of the model: I took out the worthless and hopeless variables, they could have been "stealing" some effect to the "thought/attempt suicide" variable, but after doing this "thought/attempt" variable did not recover any significance.

However, if people had felt nervous in the last month they were more likely to see and pay attention to the warnings than people who had not ($p<0.05$).

Robustness checks

- I made an alternative formation of the independent variables using the same questions. Even though it is a different specification, there are variables from some questions that are included in a similar way in both specifications. However, others variables are created in a different way. For example, by rearranging the replies of some questions in a different distribution of base and effective variables. Finally, there are some other variables that corresponded to completely different questions.

  Under this alternative specification the following was found. As there were so many more variables to deal with, even after dropping the respective base variables (of which there were 48), I conducted a "depuration" (i.e. after running the model, a new variable set was created which only included the variables that were significant at the p-value<0.1. Then, I ran again each regression using these new set of variables and just keeping the time variables with a level of significance of p-value<0.05.) At the end there were 52 variables which belonged to the same questions as the 56 independent variables. This means that although the procedure of identification of the significant variables to de model would have been another, the information would have been the same than in the original specification, but arranged differently.

- As shown in the description of the variables, the active smokers group includes never smokers (have smoked less than 5 packs of cigarettes), former smokers (have smoked at least 5 packs of cigarettes but had quit when they were interviewed), some days

smokers (have smoked at least 5 packages, smokes now but does not smoke every day) and every day smokers. The results that I obtained may be thought to have a lack validity given this specification. For instance, it could be the case that active smokers, taken as a whole, represent completely different reactions to tobacco labeling than if I had analyzed them separately. Therefore, to make sure this did not happen, I re-run the model using only every day smokers. I did not find significant differences in the results compared to the original specification.

Group Base	Dependent Variable	ORDERED PROBIT MODEL				
		Seen	Paid attention	Thought Danger	Thought To quit	Avoid smoking
SOCIO-DEMOGRAPHIC						
Male	Female	0.0645	0.0230	0.0963	0.0780	-0.125*
		(1.17)	(0.42)	(1.75)	(1.41)	(-1.98)
Single	Married	-0.0107	-0.00300	0.161**	0.135*	0.0808
		(-0.17)	(-0.05)	(2.58)	(2.16)	(1.12)
	Divorced/widowed	-0.128	-0.216**	-0.0962	0.000162	0.0699
		(-1.58)	(-2.68)	(-1.19)	(0.00)	(0.74)
Catholic	No catholic	-0.0687	0.0272	-0.0930	-0.0376	-0.159**
		(-1.30)	(0.52)	(-1.76)	(-0.71)	(-2.59)
NO	Studying when interviewed	0.0668	0.0465	0.174	0.0530	0.0795
		(0.75)	(0.53)	(1.93)	(0.59)	(0.80)
Middle school	No education	-0.165*	-0.194**	-0.0758	-0.0987	0.00941
		(-2.28)	(-2.67)	(-1.03)	(-1.34)	(0.11)
	Primary school	-0.108*	-0.0729	0.0180	0.0703	0.134*

		(-2.05)	(-1.39)	(0.34)	(1.32)	(2.26)
	High school	0.0977	0.0522	-0.0273	-0.0697	-0.0274
		(1.68)	(0.91)	(-0.47)	(-1.20)	(-0.41)
	University and higher	0.157*	0.150	-0.0468	-0.0420	0.0471
		(1.97)	(1.92)	(-0.59)	(-0.53)	(0.52)
NO	Head of household	-0.161**	-0.103	-0.176**	-0.144**	-0.114
		(-2.91)	(-1.87)	(-3.17)	(-2.59)	(-1.80)
Working in Tertiary Sector	Working in Primary Sector	-0.319***	-0.342***	0.0627	0.0636	0.0736
		(-3.67)	(-3.93)	(0.71)	(0.72)	(0.75)
	Working in Secondary Sector	-0.138**	-0.123*	-0.0404	0.00979	0.0227
		(-2.68)	(-2.41)	(-0.79)	(0.19)	(0.39)
	Unpaid work	-0.116	-0.112	-0.0970	-0.00551	0.0558
		(-1.41)	(-1.38)	(-1.18)	(-0.07)	(0.61)
	No working when interviewed	-0.185	-0.146	-0.207*	-0.0809	-0.00257
		(-1.86)	(-1.48)	(-2.06)	(-0.80)	(-0.02)
Level of income 1	Income not reported[10]	0.0813	0.164**	0.0515	0.0276	0.0375
		(1.39)	(2.83)	(0.88)	(0.47)	(0.57)
	Level of income 2	0.0229	0.0512	0.00361	0.0146	0.0316
		(0.44)	(0.99)	(0.07)	(0.28)	(0.54)
	Level of income 3	-0.0625	-0.00493	0.0672	-0.0951	-0.0475
		(-0.59)	(-0.05)	(0.64)	(-0.89)	(-0.38)
	Level of income 4	-0.0920	-0.0670	0.237	-0.0412	-0.239
		(-0.68)	(-0.49)	(1.73)	(-0.30)	(-1.39)

[10] Level of income 0 is an auxiliary dummy variable that indicates if people did not report his level of salary.

	Level of income 5	-0.132	0.118	0.243	0.292	-0.0676
		(-0.65)	(0.59)	(1.17)	(1.36)	(-0.27)
NO	Children at the house	-0.0831	-0.105	-0.105	-0.0543	-0.0872
		(-1.43)	(-1.82)	(-1.80)	(-0.92)	(-1.31)
SMOKING BEHAVIOR						
Start smoking because of peer pressure[11]	Start smoking out of curiosity	0.105*	0.0376	0.0105	-0.000602	0.0146
		(2.54)	(0.91)	(0.25)	(-0.01)	(0.31)
	Start smoking to relax	0.0958	0.0641	0.186	0.219*	0.103
		(0.97)	(0.66)	(1.87)	(2.21)	(0.94)
Every day smoker	Never smoker	-0.214**	-0.136	0.143	0.295***	0.469***
		(-2.59)	(-1.67)	(1.74)	(3.58)	(5.13)
	Former smoker	-0.366***	-0.337***	-0.0336	0.197*	0.204
		(-3.76)	(-3.50)	(-0.34)	(2.00)	(1.86)
	Some days smoker	-0.208**	-0.153*	0.0200	0.0645	0.240**
		(-2.77)	(-2.05)	(0.27)	(0.86)	(2.82)
Started to smoke daily at 20 years old and older	Started to smoke daily before 20 years old	0.153**	0.0995	-0.0206	0.118*	-0.00612
		(2.69)	(1.76)	(-0.36)	(2.05)	(-0.10)
Smoked more than 16 cigarettes a day (if daily)	Smoked 16 cigarettes a day or more (if daily)	0.0822	-0.0350	-0.0576	-0.114	-0.228*
		(0.98)	(-0.42)	(-0.69)	(-1.36)	(-2.27)

[11] As peer pressure I considered reasons like: group pressure, someone of their family or friends group used to smoke, to pretend being an adult and if they did not remember the reason

Use to smoke daily	Use to smoke weekly	-0.0496	-0.0892	0.00442	0.0457	-0.0761
		(-0.65)	(-1.17)	(0.06)	(0.59)	(-0.88)
	Use to smoke monthly	0.0560	0.0721	0.245*	0.259*	0.134
		(0.52)	(0.67)	(2.24)	(2.35)	(1.15)
	Use to smoke occasionally	-0.0822	-0.103	0.0610	-0.0180	0.00981
		(-1.14)	(-1.44)	(0.84)	(-0.25)	(0.12)
Buy single cigarette	Buy by package	0.286***	0.236***	0.0847	0.0414	0.00144
		(5.63)	(4.67)	(1.67)	(0.81)	(0.03)
	Buy in other cigarette unit	0.304	0.0510	-0.165	0.0335	0.115
		(1.18)	(0.20)	(-0.64)	(0.13)	(0.39)
	No buy cigarette	-0.217*	-0.187	0.0462	0.113	-0.0986
		(-2.02)	(-1.74)	(0.42)	(1.03)	(-0.83)
Marlboro	Marlboro Light	0.173**	0.102	0.103	0.0711	-0.0359
		(2.72)	(1.63)	(1.64)	(1.13)	(-0.50)
	Other filtered cigarettes	0.0132	0.0716	0.0345	-0.0101	-0.0373
		(0.27)	(1.48)	(0.71)	(-0.21)	(-0.68)
	Other non-filtered cigarettes	-0.0640	0.0638	0.171	0.124	-0.0833
		(-0.65)	(0.65)	(1.73)	(1.25)	(-0.72)
Formal store	Other store[12]	-0.103	-0.0672	-0.0977	-0.0476	0.0958
		(-1.28)	(-0.83)	(-1.20)	(-0.58)	(1.07)
Weekly expenditure (less than 40 pesos)	Weekly expenditure (41-70 pesos)	-0.127	-0.141	-0.159*	-0.228**	-0.0798

[12] Informal stores, mostly

		(-1.74)	(-1.94)	(-2.18)	(-3.10)	(-0.94)
	Weekly expenditure more than 70 pesos	0.0826	0.00445	0.0813	-0.0297	-0.0546
		(1.23)	(0.07)	(1.23)	(-0.45)	(-0.70)
NO	Looked for cheaper cigarettes	0.148*	0.0750	0.0549	0.206**	0.0504
		(2.00)	(1.02)	(0.74)	(2.77)	(0.60)
NO	Tried to Stop smoking[13]	0.382***	0.307***	0.426***	0.516***	0.379***
		(9.07)	(7.33)	(10.12)	(12.12)	(7.81)
NO	Bother if someone is smoking around	0.0905*	0.182***	0.231***	0.236***	0.224***
		(2.06)	(4.16)	(5.23)	(5.33)	(4.62)
NO	Smoking at home is allowed	-0.117**	-0.161***	-0.199***	-0.207***	-0.115*
		(-2.67)	(-3.70)	(-4.55)	(-4.70)	(-2.28)
NO	Have smokers in workplace	-0.125**	-0.106*	-0.0706	-0.0631	-0.00281
		(-2.73)	(-2.33)	(-1.54)	(-1.37)	(-0.05)
OTHER POLICIES						
NO	Listened campaign against smoking (radio)	0.000126	0.0393	-0.0297	0.0559	0.155**
		(0.00)	(0.88)	(-0.66)	(1.23)	(3.07)
NO	Saw campaign against smoking (newspaper)	0.0422	0.0679	0.0501	0.0414	0.00798
		(0.90)	(1.45)	(1.06)	(0.87)	(0.15)
NO	Saw campaign against smoking (advertising)	0.0715	0.0254	0.117**	0.101*	0.159**

[13] People who had tried to stop smoking at least once in their lives. Note that this variable allows for people who tried to stop smoking from other reasons than the warning labels

		(1.59)	(0.57)	(2.59)	(2.24)	(3.10)
	Received prevent addictions information	0.196***	0.189***	0.136**	0.137**	0.0850
		(4.54)	(4.41)	(3.16)	(3.15)	(1.75)
DRINKING ALCOHOL FREQUENCY						
Never drunk alcohol	Ever drunk alcohol	0.121	0.0357	-0.0305	-0.164	-0.184
		(1.32)	(0.39)	(-0.33)	(-1.76)	(-1.79)
	Use to drink alcohol (weekly)	0.112	-0.00251	-0.0318	-0.00757	-0.140
		(1.59)	(-0.04)	(-0.45)	(-0.11)	(-1.72)
	Use to drink alcohol (monthly)	0.0401	-0.0375	0.00707	0.0495	-0.0146
		(0.62)	(-0.58)	(0.11)	(0.76)	(-0.20)
	Use to drink alcohol (yearly)	0.0728	0.0356	0.0772	0.107	0.0356
		(1.09)	(0.54)	(1.15)	(1.59)	(0.47)
MENTAL HEALTH						
NO	Felt nervous	0.111*	0.106*	0.0536	0.0411	0.0284
		(2.46)	(2.36)	(1.19)	(0.90)	(0.56)
NO	Felt hopeless	-0.117*	-0.0729	-0.0771	-0.0322	-0.0142
		(-2.16)	(-1.35)	(-1.41)	(-0.59)	(-0.23)
NO	Felt worthless	0.115	0.0566	-0.0995	-0.0377	0.128
		(1.86)	(0.92)	(-1.60)	(-0.61)	(1.87)

NO	Thought/ attempt to suicide	0.0866	0.0490	0.0934	0.0923	-0.00330
		(1.38)	(0.79)	(1.47)	(1.45)	(-0.05)
	cut1					
	_cons	-0.874***	-0.890***	-0.724***	-0.256	0.760***
		(-5.91)	(-6.07)	(-4.89)	(-1.72)	(4.59)
	cut2					
	_cons	0.249	0.290*	0.250	0.636***	1.090***
		(1.69)	(1.98)	(1.69)	(4.27)	(6.56)
	cut3					
	_cons	1.198***	1.237***	1.167***	1.446***	1.827***
		(8.10)	(8.41)	(7.84)	(9.64)	(10.87)
	N	3049	3053	3024	3016	3014

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. Results of the 5 probit ordered models to active smokers, ENA 2011

Summary

We found a set of characteristics for Mexican smokers that made them be more reactive to the health warning labels on cigarette packages in all the measures of health warning effectiveness (salience, health knowledge and change in behavior). These characteristics are: Attempting to stop smoking before (for any reason), becoming bother if someone is smoking nearby and having received information about the prevention of addictions from another source (e.g. friends, relatives, DIF, school).

However, for Mexico, considering the distribution of this group of individuals that labeling has been beneficial, compared to the general sample of active smokers (presented in Table 2), a policy of tobacco labeling appears not to have a sizeable impact. Smokers with the last two characteristics do not represent the majority of the Mexican active smoker population. On the other hand, for smokers that have had attempted to stop smoking this policy is "socially" effective given that the proportion of smokers with that characteristic is greater than those who

have not attempted to stop smoking. Indisputably, health warning labeling is a beneficial policy for people who have attempted to stop smoking in the past.

VI. CONCLUSION

Governments in many countries, including Mexico, have attempted to reduce tobacco consumption via the use of health warning labels on cigarette packages. This thesis attempted to evaluate the effectiveness of this policy in reducing smoking incidence in Mexico, and to uncover the characteristics of the type of smoker that are most influenced by this policy.

Using data from the 2011 National Addiction Survey and employing an ordered probit model, the thesis analyzed the reactions of smokers to the introduction of tobacco health warning labels. A variety of independent variables including socio-demographic, smoking and other addictions characteristics, reactions to other anti-smoking public policies and mental health, were included in the analysis.

The analysis found that tobacco warning labeling is significant in at least one of the measures of health warning effectiveness (salience, health knowledge and change in behavior) on smokers with the following set of characteristics: Attempting to stop smoking before (for any reason); becoming bother if someone is smoking nearby; having received information about the prevention of addictions from another source; working in primary sector; having higher levels of education; not being a head of household; being a never, former or some days smoker; having started smoking daily younger than 20 years old; buys cigarettes in a pack; having preferences for Marlboro light cigarettes; not being allowed to smoke at home; having listened to radio campaigns against smoking; and having tendencies to nervousness.

Principally, the results suggest that tobacco labeling has been most effective on the smoking behavior of Mexicans who either: have made attempts to stop smoking at least once in their lifetime; become bothered if someone else is smoking nearby; or have received additional information about the prevention of addictions from another source.

Considering the distribution of this group of smokers that appear to benefit from tobacco labeling, it appears that this policy does not have significant widespread effects. Only for smokers that have attempted to stop smoking in the past, will labeling have a sizable effect on smoking behavior. This is consistent with findings of Thrasher et al. (2007). Therefore, our analysis suggests that a number of other policies are needed to reduce tobacco consumption in Mexico.

The economic costs of addiction (be it alcohol and drug abuse, smoking and even overeating) are large and are increasing rapidly. Understanding the behavior of addicts and helping them overcome their addictions, via the implementation of specific public policies, is crucial in reducing these costs. This thesis has made a first attempt at trying to gain some important insights into smoking behavior in Mexico. It is hoped that in the near future many more studies relating to addiction in Mexico and public health will be forthcoming.

ANNEX

ANNEX: HEATLH WARNING LABELS SPECIFICATIONS THAT TOBACCO PRODUCT PACKAGES HAD TO MEET IN MEXICO IN 2011. DIARIO OFICIAL DE LA FEDERACIÓN

ANEXO 1 DEL ACUERDO MEDIANTE EL CUAL SE DAN A CONOCER LAS DISPOSICIONES PARA LA FORMULACION, APROBACION, APLICACION, UTILIZACION E INCORPORACION DE LAS LEYENDAS, IMAGENES, PICTOGRAMAS, MENSAJES SANITARIOS E INFORMACION QUE DEBERA FIGURAR EN TODOS LOS PAQUETES DE PRODUCTOS DEL TABACO Y EN TODO EMPAQUETADO Y ETIQUETADO EXTERNO DE LOS MISMOS.

A) CARACTERISTICAS QUE DEBERAN OBSERVAR LOS PAQUETES DE PRODUCTOS DEL TABACO Y TODO EMPAQUETADO Y ETIQUETADO DE LOS MISMOS.

PICTOGRAMA Y MENSAJE SANITARIO 1

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

PICTOGRAMA Y MENSAJE SANITARIO 2

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

PICTOGRAMA Y MENSAJE SANITARIO 3

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

Pictograma y mensaje sanitario 4

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

FUMANDO AUMENTAS VEINTE VECES TUS PROBABILIDADES DE MORIR POR CÁNCER DE PULMÓN

90% de los muertos por cáncer de pulmón fumaban como tú.

CONTIENE AMONIACO
Sustancia tóxica que facilita la absorción de nicotina, lo que aumenta tu adicción.

Deja de fumar, te conviene
01800 966 3863

EL CÁNCER DE PULMÓN ES MORTAL

Pictograma y mensaje sanitario 5

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

SI FUMAS TE ARRIESGAS A SUFRIR GANGRENA

Fumar dificulta tu circulación sanguínea, provoca la formación de coágulos, gangrena y la amputación de un miembro.

CONTIENE CADMIO
Causa cáncer, es un metal empleado en baterías y acumuladores.

Deja de fumar, te conviene
01800 966 3863

FUMAR DAÑA TUS ARTERIAS

Pictograma y mensaje sanitario 6

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

FUMANDO TE BUSCAS UNA MUERTE LENTA Y DOLOROSA

El tabaco que fumas contiene más de 4,000 sustancias que dañan gravemente tu organismo.

CONTIENE CIANURO
Veneno mortal utilizado como raticida.

Deja de fumar, te conviene
01800 966 3863

FUMAR MATA

PICTOGRAMA Y MENSAJE SANITARIO 7

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

FUMANDO MULTIPLICAS POR CINCO TU RIESGO DE PADECER CÁNCER DE BOCA

Fumando manchas tus dientes y tienes alto riesgo de padecer cáncer de boca y labios.

CONTIENE POLONIO 210
Sustancia radioactiva, tóxica y cancerígena.

Deja de fumar, te conviene
01800 966 3863

FUMAR TE CAUSA CÁNCER DE BOCA Y LABIOS

PICTOGRAMA Y MENSAJE SANITARIO 8

PICTOGRAMA
La imagen del pictograma deberá cubrir al menos el 30% de la parte superior frontal de la cajetilla o empaque de cigarros.
TEXTO DEL PICTOGRAMA
Helvética Neue Bold 10 pt., en altas, condensada al 75% máximo,100% mínimo.

SI FUMAS DEBILITAS LAS ARTERIAS Y DUPLICAS EL RIESGO DE MORIR POR UN ATAQUE AL CORAZÓN

Cuando fumas se forman coágulos que tapan las arterias hasta provocarte un infarto.

CONTIENE TOLUENO
Potente tóxico utilizado como solvente de pinturas.

Deja de fumar, te conviene
01800 966 3863

SI FUMAS TE EXPONES A UN INFARTO

MENSAJE SANITARIO
100% de la parte anterior del paquete o la cajetilla.

ENCABEZADO
Helvética Neue Bold 11 pt., interlineado en 14 pt., al 100% a lo alto y 100% a lo ancho, texto centrado. Ningún doblez de la cajetilla deberá cruzar una línea de texto.

MENSAJE CENTRAL
Helvética Neue Bold 9 pt., interlineado en 12 pt., al 100% a lo aito y 100% a lo ancho, interletraje normal o cero, en altas y bajas, texto alineado a la izquierda, a 4 mm. del doblez. Centrado verticalmente entre el encabezado y el recuadro.

RECUADRO
Contenido:
Helvética Neue Bold 9 pt., interlineado en 11 pt., al 100% a lo alto y 100% a lo ancho, texto alineado a la izquierda, sin corte de palabras.
Se ubica: a la izquierda a 2 mm. del recuadro; abajo, a 2 mm., medido desde la línea base del último renglón; hacia arriba, a 2 mm. del recuadro, medido desde la altura x del primer renglón.
Recuadro:
Rectángulo de ancho y altura variable, según los renglones del párrafo y tamaño del paquete o cajetilla, a efecto de que las proporciones del recuadro correspondiente a la leyenda sanitaria se asimilen a las características presentadas en el prototipo anterior, con línea de 1 pt. de grosor. El recuadro se ubicará a 6 mm. de la línea de la base de la recomendación y a 2 mm. del doblez izquierdo de la cajetilla.

RECOMENDACIÓN Y NÚMERO DE AYUDA
Helvética Neue Bold 9.5 pt., interlineado en 12 pt., al 100% a lo alto y 100% a lo ancho, texto centrado, el teléfono de ayuda en 10 pt.
Entre la línea base del número de ayuda y la línea de doblez del límite inferior de la cajetilla debe haber 4 mm. de espacio libre.

ADVERTENCIA LATERAL
Helvética Neue Bold 11 pt., interlineado en 13 pt., al 100% a lo alto y 100% a lo ancho, texto centrado.

COLOR
El color de la tipografía y la línea del recuadro deberá ser Pantone 115 o en selección de color (CMYK) en 10% magenta y 80% amarillo.

TIPOGRAFÍA PERMITIDA:
Helvética Neue Bold (puede sustituirse por Helvética Bold o Arial Bold).

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