
Three- Variable Model of Adolescent Smoking Behavior in Pakistan
Econometric Three- Variable Model of Adolescent Smoking Behavior

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Abstract

This paper describe the econometric three variable model of adolescent smoking which includes the importance of peer effect, price & policy and depression on youth smoking behavior. Identification is also made by using the degree of selection on observables as a proxy for the degree of selection on unobservable .It was a quantitative research that measure the above mentioned hypothesized variables relation. Data are drawn from different colleges and universities of Pakistan. The empirical research model tested by, using convenient data collection

approach for sampling. Our finding shows the result that peer, and depression is positively related with youth smoking behavior. Which peer have more strong positive relation comparatively depression with youth smoking behavior. Price and policy negatively related with youth smoking behavior. This study involves only the youth mostly under the age of 19-25 years of students. The samples of this study not represent the whole population. The result reveals that a comprehensive approach and implication of standard tobacco / cigarette control policies reduces effectively the youth smoking behavior. The restriction of smoking on adolescent strictly examined by Government parents and elders are the way to reduce the behavior of youth toward smoking.

Key Words: Peer Effect, Price, Policy, Depression, Smoking, adolescent behavior

1. Introduction

The increasing frequency of smoking among adolescent is a major public health concern. If this trend of cigarette consumption among youth continues, many of children may die before the age of 25 or may suffer from many diseases. The serious effect and health outcomes associated with adolescent smoking have emphasized the need for the establishment and maintenance of wide-ranging tobacco control program to reduce use and encourage tobacco termination among youth.

The average smoking behavior at peer level can increase the probability of individual smoking behavior it means if a group consist five friends and three of them are already smoked then their behavior can attract the other two toward the smoking (Lisa, Johns, andHanna, 2003). Parental smoking and youth has the positive relationship. If the parents involve in smoking 70% chance that their children would involve in smoking. (Lisa and Frank, 2003). Prior economic research

provides evidence on the impact of cigarette prices on youth smoking. There is inverse relationship between price and youth smoking. If the price is high the demand is low and vice versa.(Hanna and Frank, 2001).Chaloupka and Grossman (1996) confirmed the finding that youth and young adults are more responsive to pricechanges than are adults.It is the goal of this paper to shed light on the importance of peer smoking effects onindividual youth smoking decisions and the extent of the multiplier effect with respect tocigarette prices and tobacco control policies on such decisions.

1.A. Significance

This paper will covers comprehensively all the determinants of smoking and incorporate the direct and indirect impact of peer, price, polices and depression on youth smoking behavior.

Youth plays a vital role in the development of a country and they would more damage if involve in bad activities. There is few research studies conducted on this Alarming situation in Pakistan.Our research will be based on the current body of economic smoking literature to explore the causes that leads the adolescents to involve in smoking which is 70% of Pakistani population.

2. Literature Review

2. A. Peer effect on Adolescent smoking

The body of the literature review provides the details that individuals behavior depends on his or her reference or peer group because social relations may be major determinant of many youth behavioral outcomes. The satisfaction of consumable good may increase if the same good consuming by other individual in his or her reference or peer group. Hence the questions arise, whether the average behavior in a group affects the behavior of the individuals in that particular group. If the average

behavior in particular group dominance the behavior of others may lead to increase the probability of such as (smoking, crime, educational outcomes, substance use, etc) at the individual youth level. (Man ski, 1993). Similarly another research conducted the analysis that the mostly teenagers involve in smoking by impressing from their friends who are already involve in smoking (Cheryl, Joel and Michael, 1980). There is a positive relation between peer effect and youth smoking (Rao Nakajima, 2004). Similarly another result reveals that peer smoking has a strong positive effect on adolescent smoking, if we move a student from a school where no one is smoked to a school where 50% student are already smoked the smoking probability may increase. (Powell, Ross and Taurus, 2003). However another study suggests that peers have some weak influence on young person smoke decision. (Brian Krauth, 2004). Meanwhile, another study reveals that peers have significant positive impact on young people toward the smoking (Petter Lundborg....)

2. B. Price and Policy effect on adolescent smoking

Price is associated with consumption of everything it is more related when a person going to make his first purchase decision cigarette price is more effected tool to discourage the youth smoking behavior (Lan and Chaloupka, 2001.).

Similarly another research has shown the result that the price is inversely proportional to demand. If the price increases 10% the demand of the cigarette would decrease about 4% and vice versa in overall adult cigarette consumption. (Powell, Johns, and Chaloupka, 2003). Meanwhile, some studies found the result that the price has more affected on adolescence purchase decision of cigarette (Chaloupka, 1998). Similarly, the tobacco controlled policies may effect on decreasing the attraction of youth towards cigarette (Decicca, Kenkel, Mathios, Shin,

and Lim, 2008). Moreover, the price policy has directly related to smoking behavior change in policies like tax may change the consumption of cigarette among youth (Philip,2007). Meanwhile, the single most consistent conclusion from the economic literature on the demand for cigarettes are that consumers react to price changes according to general economic principles.

An increase in price leads to a decrease in consumption. Prices not only control the quantity of Cigarettes consumed, but they also affect smoking frequency among the young population. (Hanna, and Chaloupka, 2001)

2. C. Depression effect on adolescent smoking

Psychological disturbance and social factors are associated with adolescent smoking. Stress has strong positive connection with youth smoking behavior. (Kenneth, Doldman, and Audran,2002). Similarly, most of studies show the strong association between the depression and youth smoking. (Breslau,1993). Similarly another research provides the result stress is a major factor for first cigarette use (Naomi, Peterson, Schultz, and Ski, 1998). However some studies provided the result of null association between depression and smoking behavior. (Goodman and Capitan, 2000). However, some studies also concluded that there is a null relation between depression and youth smoking, because he think previous has not deeply study the psychological factor technique to measure the adolescent behavior towards smoking.(Jones, Laura and Paronis, 2006). Another study also concludes, youth start smoking under depression and they want to reduce their stress by doing that. (Brian, Borelli, Chargue, and spring, 2003).

The conclusion of the study is to learn from negative effect of smoking. The impact of cigarette smoking in youth is they don't interest in any constructive activity and even not play their role in development of country and yourself as well. The significance of those variables has a much importance and these are the basis of these addictions.

3. Methodology

3. A. Theoretical Frame Work

In this research, youth smoking is dependent variable and peer, price and policies, and depression effects are independent variables. Youth smoking can be control with the control of these variables. we shall examine the determinants of smoking among youths incorporating the importance of peer influences and allowing cigarette prices and other tobacco control policies and depression to have a direct effect and an indirect effect on smoking behavior.

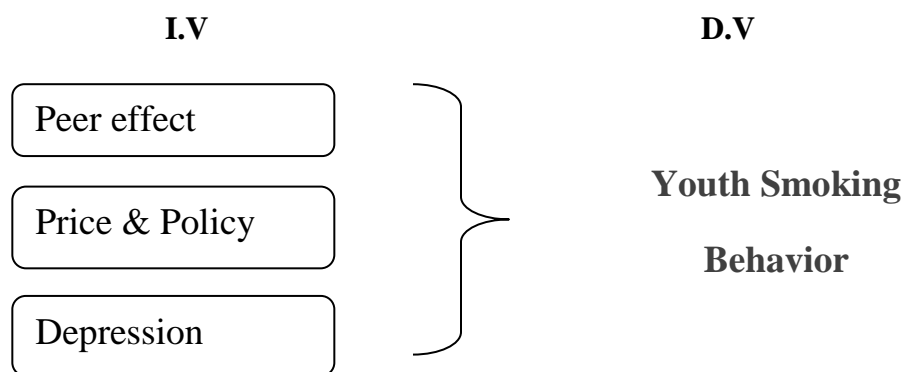
3. A.1. Hypothesis statements

H₁ There is a positive relationship between peer effect and youth smoking.

H₂ There is a inverse relationship between price and youth smoking behavior.

H₃ There is a positive relationship between depression and youth smoking behavior.

3. A.2 Model of Research



3. B. Sample and Procedures

This is a quantitative research with aim to evaluate the importance of peer effect, price and policy and effect of depression on smoking behavior of youth. Our goal is to develop the standard empirical economic model of the determinant of youth smoking behavior to simultaneously include the cigarette price and tobacco control policies and peer effect. The respondents of our research are students or youth from different cities. Information got through the Questioners that have been received from sample group.

The respondents have been classified into five categories in context to their age group :(a) “below 14” (b) “14-18” (c) “19-24” (d) “25 and above”. Other control variables are qualification, designation, gender and marital status. Questionnaire is of two pages in length, divide in five sections demographic, youth smoking, peers effect, price and policy, and depression. Dependent variable is youth smoking. The respondents in the age group of below 14 are null, 14-18 is of 5%, 19-24 has contribution of 79%, and the age group of 25 above has contribution of 16%. 99% of respondents in our research are male and only 1% is female. 1%, 56%, 43% of the respondents have the qualification of secondary, graduation and master. And from matric no one is included in our respondents. 13% of the respondents are married and large sample of 87% are unmarried. Demographic variables show that respondents belong to different gender, age group, qualification and designation. After collecting the answered questionnaires, these questionnaires were indexed and entered into SPSS sheet for further correlation, regression analysis and also to determine the reliability of data. The scales used to measure the hypothesis in this study were derived from the instruments designed for previous studies and it calculate the reliability and validity of data. In the study each item in the scale for each hypothesis has been evaluated to identify whether it is appropriate or not to measure the youth smoking behavior.

3. B.1 Youth smoking behavior

To measure the youth smoking behavior we use questionnaire that is also used by Thomas H Brandon(1991) and report the reliability .550. Each item for this scale has measured through five point likert scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. Cronbach alpha of Youth smoking behavior has the value of .564.

3. B.2 Peer affects

To measure the effect of peer on youth smoking behavior we use questionnaire that developed by Johanna M Lewis (1998) and report reliability .77 that is more than from standard value .70 Each item for this scale has measured through five point likert scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. Cronbach alpha of Peer affect has the value of .768 in our result.

3. B. 3. Depression

To measure this variable we use questionnaire that is developed by Thomas H Brandon(1991) and report reliability .74. Each item for this scale has measured through five point likert scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. Cronbach alpha of depression has the value of .624 in our research.

3. C. Statistical Method

3. C. 1 Pearson Correlation

To measure the “interdependency” of the variables discussed in the model figure. 01 We used the Pearson Correlation, because it best describes the association of variables given in theoretical framework.

3. C. 2 Regression Analysis

To measure the relative association of independent variables (I.V’s) on dependent variables (D.V’s) and significance of the model linear regression used because there are more than one I.V’s exist in the model.

4.Result

The results are discussed in the following section

Correlation (Table 1)

Peer	effect	Price & Policy	Depression	Ysb
Peer effect	1			
Price & Policy	.094	1		
Depression	.354**	-.055	1	
Ysb	.626**	-.084	.409**	1

**Correlation is significant at the 0.01 level (2 tailed)

* Correlation is significant at the 0.05 level (2 tailed)

The Pearson correlation matrix shows that depression is positively and significantly related with peer effect (0.354**, P <0.01)but depression is not significantly correlated with price and policy

(-.055). Price and policy is not correlated with peer effect(.094) and negatively related with youth smoking behavior(-.084). Depression is positively and significantly related with youth smoking behavior (.409**, P <.0.01) peer effect is positively and significantly related with youth smoking behavior (.626**, P <.0.01) if we make inter comparison the peer effect is more related with youth smoking behavior than depression and it is proved as a strongest relationship in model.

Correlation(Table 2)Descriptive Statistics

Peer	effect	Price & Policy	Depression	Ysb
Mean	3.22	2.85	3.05	3.05
Std.Deviation.99	1.09	.69	1.06	
N=84				

Table 2 shows the mean and standard deviation of all variables actually it shows the direction of peer effect, price and policy and depression toward the youth smoking behavior. This table shows that peer effect have highest mean (3.22) with respect to youth smoking behavior and capital N shows the total number of samples in the research.

Model summary(Table 3)Regression analysis

R Square	Adjusted R Square	F-value	significance	Durbin-Watson
.447.42721.578	.000	1.569		

a. Predictor (constant) Peer, P&P, Dep.

- b. Dependent variable Ysb
- c. N=84
- d. Significant at <0.05

Coefficient (table 4)

Model independent variable	Beta	t	Sig
(Constant)		1.049	.297
Peer	.566	6.328	.000
PP	-.126	-1.4948	.138
Dep	.201	2.255	.027

Dependent variable Ysb

- a. Predictor (constant) peer, parent,adv, P&P,dep.
- b. Dependent variable Ysb
- c. N=84
Significant at <0.05

Table 3 shows that regression analysis accounted for 42% change is caused by peer, price and policy and depression to youth smoking which is dependent variable. value of beta shows that peer, and depression (.56,.20) is positively relate to youth smoking with significant value of (.000,.027) but out of these two variables peer is more strong predictor of youth smoking as 56% of dependent variable is effected by peer and 20% by depression and the beta value price and policy (-.126) shows that it is negatively relate to youth smoking behavior but not significantly.

5. Discussion and Implications

The purpose of this study is to measure the relationship between the peer effect, advertisement, parental smoking, depression, price & policy and impact on youth smoking behavior of different peoples of different areas of Pakistan. The key finding of the research is that the I.V's influence

plays a significant role in youth smoking decision. As we have hypothesized in H1. The results support that there is a positive association between the peer effect and youth smoking behavior. The positive relation between these two has been proven by (Rao Nakajima, 2004). So our H1 is sustained as there is a significant relationship found. The findings of H2 are also accepted as the inverse relation between the price & policy and youth smoking behavior. There is a strong negative relation between the price and policy and youth smoking behavior also approved by (Powell, Johns, and Chaloupka, 2003). The result of H3 is also sustained because the results support a positive relation between the depression and youth smoking behavior (Breslau, 1993) the positive association between the depression and youth smoking behavior.

6. Limitations

The research has many limitations. It is inconsistent with those studies using instrumental variables, which generally find no evidence for endogeneity bias in naive estimators of peer effects. The sample is less in numbers, and respondents don't want to show their status through participation in this kind of investigation by questionnaire. This research covers a limited area and number of people that do not represent the whole population. The other variables like point of purchase, taxes and tobacco control policy and fattiness or bulkiness of youth also play a key part of our findings. The main limitation is lack of time and some possible sources of errors might exist in data.

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Youth Smoking Consequences Questionnaire

We are conducting a survey regarding the youth smoking behavior. You are requested to respond frankly and honestly. Your response will be kept strictly confidential.

Email _____

Gender

Male	Female
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Designation _____

Marital status

Married	Single
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Age

Below 14 years	14 - 18 years	19 - 24 years	25 & Above
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Educational Level

Matric	Secondary	Graduation	Master
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Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
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1. When I smoke, the taste is pleasant 1 2 3 4 5.
2. If I have nothing to do, a smoke can help kill time. 1 2 3 4 5
3. I become more addicted the more I smoke 1 2 3 4 5
4. Smoking is taking years off my life. 1 2 3 4 5
5. My mouth tastes bad after smoking 1 2 3 4 5
6. If one of your best friends was to offer you a cigarette, would you smoke it 1 2 3 4 5

Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
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-
- | | | | | | |
|--|---|---|---|---|---|
| 7. When I smoke, I always share a cigarette with others | 1 | 2 | 3 | 4 | 5 |
| 8. Smoking makes a person more friendly or outgoing | 1 | 2 | 3 | 4 | 5 |
| 9. I enjoy parties more when I am smoking. | 1 | 2 | 3 | 4 | 5 |
| 10. My all closest friends smoke cigarettes | 1 | 2 | 3 | 4 | 5 |
| 11. Hanging out with friends is more fun if everyone is smoking | 1 | 2 | 3 | 4 | 5 |
| 12. Do you think it would be difficult for you to get cigarettes | 1 | 2 | 3 | 4 | 5 |
| 13. There is no restriction on smoking where I live | 1 | 2 | 3 | 4 | 5 |
| 14. Smoking helps calm an angry person down | 1 | 2 | 3 | 4 | 5 |
| 15. When someone is sad, smoking helps him/her feel better | 1 | 2 | 3 | 4 | 5 |
| 16. Smoking makes people look ridiculous or silly. | 1 | 2 | 3 | 4 | 5 |
| 17. Smoking makes people look tough or cool. | 1 | 2 | 3 | 4 | 5 |
| 18. Smoking helps me deal with depression. | 1 | 2 | 3 | 4 | 5 |

Thank you for your precious time