

The Competition between Government Anti-smoking Campaign and Cigarette Advertising

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Abstract

Cigarettes were the promising commodity, but the impact of smoking related diseases caused the global issues. Many types of disease symptoms appear after a long time began smoking, make smokers fall in the real trap. For the sake of healthcare its people, Indonesian government had to conduct the anti-smoking campaign, include label salience, perceived expense, tobacco regulation, and tobacco-free environment.

This study investigated the effects of Government Anti-smoking Campaign and Cigarette Advertising on Behavior of Smoking in East Java, Indonesia. Research model was adopted from the Theory of Reasoned Action dan the Theory of Planned Behavior introduced by Ajzen and Fishbein modified by DeVries et al. by changing behavior control variabel with Bandura's self efficacy variable.

The population were smokers or someone who had experience with cigarette smoking in East Java, sampling method by Multistage Cluster Random Sampling in three stages. Data analysis utilized Structural Equation Modeling (SEM) used AMOS 4,01. SEM has capabilities to analyse structural model simultaneously and more efficient than the other multivariate methods. SEM can ditect direct effects, indirect effects and total effects simultaneously among variables.

Hypothesis analysis used regression Weight standardized estimates, compare p value in 5 percent significancy, if p value < 5 percent was mean significant. This study found six significant hypothesis and four not significant hypothesis. The effect of "Cigarette advertising" on "Attitude toward smoking behavior" (H1a) and the effect of "Cigarette advertising" on "Subjective norm of smoking" (H1b) were positive significant. The effect of "Attitude toward smoking behavior" on "Refusal skill" (H3), the effect of "Subjective norm of smoking" on "Refusal skill" (H4), were negative significant. The effect of "Refusal skill" on "Behavioral intention to smoke" (H5), and the effect of "Behavioral intention to smoke" on "Behavior of smoking" (H6) were also negative significant, while the effect of "Cigarette advertising" on "Government anti-smoking campaign" (H1c), the effect of "Government anti-smoking campaign" on "Attitude toward smoking behavior" (H2a), on "Subjective norm of smoking" (H2b) and on "Cigarette advertising" (H2c), were not significant. There were recommendations for government, cigarette companies, collaboration among government and cigarettes companies, general public, and for the next researchers.

Introduction

Cigarettes were the promising commodity, but the impact of smoking related diseases caused the global issues. Many types of disease symptoms appear after a long time began smoking,

make smokers fall in the real trap. Symptoms can appear within 15 - 40 years later, such as heart disease. Conversely, the more quickly someone stops smoking will avoid the risk of danger due to tobacco consumption. Within the next 10 years, ever smokers will have the same risk in the contract of disease with someone who had never smoked [1].

U.S. Environmental Protection Agency since 1992 have stated that tobacco smoke was carcinogenic, the material causes of cancer. Institutions reminded that cigarette smoke contains more than 4,000 chemical compound, 200 of them already known dangerous. Among the 200 kinds of hazardous chemical substances known, namely, nicotine, tar and carbon monoxide, can be mentioned some of the other chemical substances, including sulfur dioxide, ammonia, acetone, arsenic (the rat poison), toluene, cadmium and cyanide acid [2]. Nicotine can damage the nervous and circulatory system. This substance can also cause lung cancer. Carbon monoxide compound that is easy to bind with hemoglobin in the blood, so blood is not able to make binding oxygen. This will lead to lack of blood oxygen.

On the basic of health considerations, many countries apply antismoking campaign, according to [3] antismoking campaign was the initial stimulus for healthy behavior. According to [4], the state of California issued a California Tobacco Tax and Health Promotion Act., increase tax for each packet of cigarettes from the U.S. \$10 cents to U.S. \$35 cents, starting in January 1989. This causes increase in government revenue of 20% is used to promote health education program to reduce cigarette consumption. During April 1990 until June 1993, the country spent about U.S. \$ 26 million for the State antismoking campaign, an amount that has not been done by the United States government in a campaign to change behavior in relation to public health. Raising the price of cigarettes can also reduce cigarette consumption significantly [5]. According to [6] and [3], increase the cigarette tax is combined with a antismoking campaign will be more effective in pressing the consumption of cigarettes than the cigarette tax increase alone, while [7] and [3] said that raising tax will result in raising the price of cigarettes that must be paid by smokers, and according to [7] how the policy is effective for the young people smoking, because teenagers are very sensitive to price increase.

Similar with United States government, the Indonesian government also conducted a antismoking campaign by mandatory inclusion a warning label: "Government Warning: SMOKING CAN CAUSED CANCER, HEART ATTACK, IMPOTENCY AND INTERFERENCE ON PREGNANCY AND FETUS" on each pack of cigarettes. Beside the cigarette factory to include a warning label on each pack of cigarettes or in any advertisings, Indonesian government also apply a cigarette tax increase policy, caused the price of cigarettes more expensive, making the regulation of tobacco and creating smoke-free environment. In order to manage tobacco products and their derivates, Indonesian government issued Government Regulation No. RI. 19/2003 on the Security Cigarettes for Health.

Based on the above reasons, this study wanted to examine the influence of Government Antismoking Campaign and Cigarettes Advertising on Behavior of Smoking in East Java based on The Theory of Reasoned Action and The Theory of Planned Behavior [8, 9, 10, 11]. This study wanted to see the possibilities of the change of smokers behavior tend to "decreasing" or "quitting". There are four types of Behavior of Smoking, those are (1) wishes to reduce the frequency of cigarette smoke, (2) care with the danger level of incidence of a disease caused by smoking, (3) explore alternatives in cigarette smoke and (4) the desire to forgo smoking or even taking a decisive step forgo their smoking.

Research conducted in East Java, because East Java is the biggest area of cigarette factories so that the results expected to be representative. Behavior of Smoking is resultants of smoker's response to: (1) government antismoking campaign, and (2) cigarette advertisings.

Discussion and Hypothesis

Conceptual Framework

Conceptual Framework adopted the Theory of Reasoned Action and the Theory of Planned Behavior which developed by Ajzen and Fishbein [8, 11], two theories have been modified by [12] with changing the "behavior control" variable with Bandura's self-efficacy variable. Both theories explain that behavior is the result of behavioral intentions. In this view, smoking behavior occurs because of a prior behavioral intention to smoke. Although theorists acknowledge that behavioral intention will not precede a specific behavior 100% of the time, people generally perform in accordance with their intentions. The formation of behavioral intentions to smoke is a function of two variables: attitude and subjective norm [11]. Intentions are the immediate determinant of behavior. Intentions, in turn, are determined by three constructs: Attitudes Toward Behavior, Subjective Norms, and Self-efficacy. The Theory of Planned Behavior claims that other factors beyond the three constructs can only influence behavior by shaping Attitudes Toward Behavior, Subjective Norms, and Self-efficacy [13].

So, Cigarette advertisements and Government antismoking campaigns can only affect the smokers if that two variables joined with the three variables, Attitude towards smoking behavior, Subjective Norms of Smoking and Refusal Skill. According to these two theories, Attitudes Towards Smoking Behavior are a mathematical function of both the value and perceived consequences of cigarette smoking, and Subjective Norms of Smoking are the product of their perceptions of approval of smoking from significant others and their motivation to comply with significant others [13].

Classification of variable

There were seven variables, namely Cigarette advertisements, Government Antismoking Campaign, Attitude towards smoking behavior, Subjective Norms of Smoking, Refusal Skill, Behavioral Intention to Smoke, and Behavior of Smoking. These variables were classified into two groups, namely, *Exogenous variables* and *Endogenous variables*. *Exogenous variables* were the variables which were not influenced by previous variables. Cigarette advertising and Government antismoking campaigns were exogenous variable. The five other variables, namely Attitudes Towards Smoking Behavior, Subjective Norms of Smoking, Refusal Skill, Behavioral Intention to Smoke, and Behavior of Smoking were endogenous variable, the variables which were affected by the previous variables. The seven variables were unobserved variables which can not be measured directly, and in order they can be measured, each of these variables were described by their indicators.

Research conducted numerous synthesis, namely (a) determination of Exogenous variables in the model, Cigarette advertising (X1) and Government antismoking campaign (X2), had never been found in the research which adopted the Theory of Reasoned Action and the Theory of Planned Behavior, especially these two variables in a model of mutual influence (reciprocal), and (b) in determination of indicators, nine indicators adopted from [14] and [13] to 25 indicators.

Operational Definition of Research Variables

Cigarette Advertising (X1)

Advertising of cigarettes is the effort of cigarette industries / advertising impressions with the purpose of encouraging non-smokers (especially children and adolescents) to begin smoking cigarette, not just to try smoking cigarette, but in the future to become a regular smoker. The regular smokers are also encouraged to increase their daily consumption. Other goal was weaken regular-smoker's motivation to stop their smoking, so as to ensure that they do not embark on any attempts to quit. Also encourage the ever-smoker (ex-smokers) to resume the habit, soften the trend whenever sales start to decline [15,16].

In addition to the goals mentioned above, there were additional goals which were not less important, namely to provide a positive image for the smoker and increase the acceptance by the social environment [15, 17].

Government Antismoking Campaign (X2)

Government Antismoking Campaign (X2) is the effort made by governments to reduce cigarette consumption for each resident who has been a regular smokers or prevent children and non-smokers trying to smoke cigarette, which in turn could later be established / regular smokers [18]. The entry in the scope of the government antismoking campaign were: (a) enhancement of a warning label smoking hazards, both on cigarette packages or accompanies each advertising or promotion of cigarettes, (b) changes in tax/price, should affect perceived expense or costs of cigarettes, e.g. belief that cigarettes have become expensive, (c) regulation of tobacco products and alternative nicotine delivery products (e.g. Toxicant-reduced cigarettes and smokeless tobacco products) and (d) create cigarette smoke-free environment.

Attitude towards smoking behavior (Y1)

Attitude towards smoking behavior is perceived consequences of cigarette smoking [13, 15, 14]. Attitude towards smoking behavior is considered personal in nature, and is based on beliefs about smoking and consequences of smoking. For example, if one believes that the result (consequence) of smoking produces no detrimental effects, his/her attitude toward smoking would be a positive. If, however, one believes that smoking produces many detrimental effects, his/her attitude would be a negative [14].

Subjective Norms of Smoking (Y2)

Subjective norms of smoking are the product of their perceptions of approval of smoking from significant others and their motivation to comply with significant others [13]. Subjective norms of smoking is the social aspect of deciding on a behavior, and encompasses significant others' beliefs about smoking and one's motivation to comply with significant others' beliefs. These significant others may be parents, siblings, friends, or any significant person in the child's life. Research has shown that family relationships and school (peer) relationships correlate strongly to health behaviors Smoking also has been linked with peer pressure, having parents who smoke, and having siblings who smoke [14].

Refusal Skill (Y3)

For the purposes of this study, refusal skills were defined as the knowledge and the ability to successfully refuse offers to smoke cigarettes [13]. Combined within the Theory of Reasoned Action, refusal skills serve as a "filter" through which someone's attitude and subjective norm pass while leading to behavioral intention. If someone develops strong refusal skills, this may affect his attitude and subjective norm, and result in a behavioral intention that chooses to refuse smoking offers. If, however, someone lacks refusal skills, the behavioral intention may be to smoke when offered the opportunity [14].

Behavioral Intension to Smoke (Y4)

Intention to smoke strongly predicts subsequent regular use. In a review of nine studies measuring behavioral intention to smoke, 89% (8 out of 9) of the time, intention to smoke predicted onset in someone. The best single predictor of an individual behavior is a measure of the intention to perform that behavior [14, 13] and ask another person to let them try a cigarette [13].

Behavioral of Smoking (Y5)

Behavior of smoking is the behavior of smokers after they concerned to see or read the cigarettes advertisings and after the government began to promote the government antismoking campaign. Behavior of smoking described the "decreasing behavior" or "quitting behavior" [18].

Hypothesis

(H1) Cigarette Advertisings have significantly positive effect on: (a) Attitudes Towards Smoking Behavior, (b) Subjective Norms of Smoking, (c) Government Antismoking Campaign, (H2) Government Antismoking Campaign have significantly negative effect on: (a)

Attitudes Towards Smoking Behavior, (b) Subjective Norms of Smoking, and (c) significantly positive effect on Cigarette Advertisings, (H3) Attitudes Towards Smoking Behavior have significantly negative effect on Refusal Skill, (H4) Subjective Norms of Smoking have significantly negative effect on Refusal Skill, (H5) Refusal Skill have significantly negative effect on Behavioral Intension to Smoke, (H6) Behavioral Intension to Smoke have significantly negative effect on Behavior of Smoking.

Procedures for Collecting data

Location

Research was conducted in East Java, because East Java was the biggest region of cigarette industries, so that research results were expected to be representative. In East Java, exist three (75%) of four giant cigarette industries (Gudang Garam, Sampoerna and Bentoel), and 16 small scale cigarette factories (47%) of 34 small scale cigarette factories [19].

Population and Sample

Population in this research were all the people who have experience with a cigarette in the East Java, Indonesia. According to [20], the sample size depends on the number of indicators which were used in all the variables multiplied by 5 to 10. Structural Equation Modeling (SEM) was used where the sample size has an important role in the interpretation of SEM output [21]. Sample size provides a basis for estimating of sampling error. With the model estimates using the Maximum Likelihood (ML), minimum required sample were 100. If the sample were more than 100, ML increased sensitivity method to detect the differences between the data. Once the sample to be large (above 400 to 500), the MI, method becomes very sensitive and always result in a significant difference, so that the size of Goodness-of-fit to be ugly. Next, Ghozali recommended that the sample size ranged from 100 to 200 should be used for ML estimation method.

Questionnaires

The questionnaires were assigned to the respondents were the modifications of a variety of sources [22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33], adjusted to the data analysis techniques which use Structural Equation Modeling (SEM). Modifications were the conversion Guttman scoring into 5 Likert scale, scorings less / more than 5 scale were changed into 5 scale, and qualitative questionnaires were changed into quantitative.

Data Collection Procedure

Primary data collection were done by using the techniques and procedures of questionnaires and interviews. The questionnaires were the primary instrument in collecting primary data. After the questionnaire submitted to the respondents, the next step is to evaluate the questionnaires.

The questionnaires which had given to respondents were 284 bundles. Collection of 284 respondents who submitted on the earlier the re-collection of 221 (77.82%). From 221 the collection of questionnaires, there were 25 collection questionnaires stated not feasible, and the rest of the questionnaire 196 bundles (69.01%) qualified as a primary data source. Number of 196 bundles questionnaire were eligible [20, 21]. Collection of the questionnaires were from Surabaya (Metropolis) 38 bundles, Lamongan (northern part of East Java) 16 bundles, Mojokerto (middle part of East Java) 19 bundles, Jombang (western part of East Java) 18 bundles, Nganjuk (western part of East Java) 12 bundles, Kediri (southern part of East Java) 15 bundles, Malang (southern part of East Java) 18 bundles, Banyuwangi (eastern part of East Java) 21 bundles, Tuban (northern part of East Java) 11 bundles, Pasuruan (middle part of East Java) 13 bundles, and Jember (eastern part of East Java) 15 bundles. Distribution of the questionnaires was conducted in early January until March 2007.

Results

Goodness of Fit Model Test

After the model was modified by modification indices guidance, the results appear as in figure below. The evaluation results show that Chi square = 228.10 is relatively small with $p = 0.29 \geq 0.05$, GFI = $0.92 \geq 0.90$, RMSEA = 0.025 ≤ 0.03 , CFI = 0.99 ≥ 0.95 , TLI = 0.99 ≥ 0.95 , all categories were good, and AGFI = 0.87 almost approaching 0.90, meets with the critical value criteria specified. This shows that all criteria used showed good results, which means that the model fit the data, it mean feasible to use.

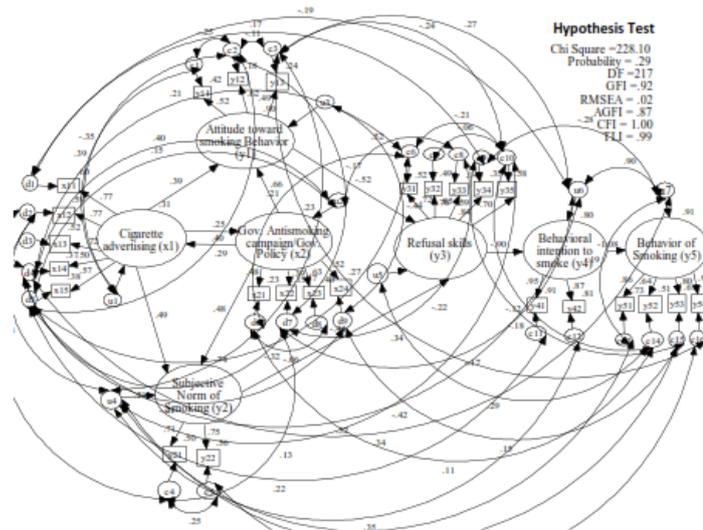


Figure: Final stage of SEM analysis

Hypothesis test

Structural Equation Modeling (SEM) was used in this research. SEM has abilities to analyse structural model simultaneously and more efficient than the other multivariate methods. SEM can detect direct effects, indirect effects and total effects simultaneously among variables [20]. Software Amos 4.01 was used in this research.

Hypothesis test results can be known from Standardized Regression Weight by to compare p-value with 5% significance level ($\alpha = 5\%$). Hypothesis said to have any significant if the probability value (p-value) $< 5\%$. The test results more clearly presented in **Appendix**.

Direct effects, indirect effects and total effects were presented in **Appendix**. If the direct effects of independent variables on intervening variables are significant and direct effect of intervening variables to dependent variables are significant, were called indirect effect was significant. If one or both of the direct effect were not significant, were called indirect effect not significant.

Conclusions

(1) Cigarettes advertisements directly had a significant positive effect on Attitude towards smoking behavior and Subjective Norms of Smoking. Cigarette advertisements also had direct positive influence on Government antismoking campaign, but not significant. Cigarette advertisements indirectly had negative effect on Refusal Skill, and Behavior of Smoking who described the "decreasing behavior" or "quitting behavior". Cigarette advertisements indirectly had positive effect on Behavioral Intention to Smoke, (2) Government antismoking campaign directly had not significant negative effect on both Attitude towards smoking behavior and Subjective Norms of Smoking. Government antismoking campaign reciprocally also had positive effect on Cigarette advertisements, but not significant. Government antismoking campaign indirectly had effects on Refusal Skill, Behavioral Intention to Smoke, and Behavior of Smoking in a pattern similar with indirect effects of Cigarette advertisements, (3) Attitude towards

smoking behavior directly had negative effect on Refusal Skill. Indirectly, Attitude towards smoking behavior had a positive effect on Behavioral Intension to Smoke. Indirectly, Attitude towards smoking behavior had a negative effect on Behavior of Smoking, (4) Subjective Norms of Smoking directly had significant negative effect on Refusal Skill. Indirectly, Subjective Norms of Smoking had a positive effect on Behavioral Intension to Smoke. Indirectly, Subjective Norms of Smoking had a negative effect on Behavior of Smoking, (5) Refusal Skill directly had a significant and negative effect on Behavioral Intension to Smoke. Indirectly, Refusal Skill had a positive effect on Behavior of Smoking, (6) Behavioral Intension to Smoke directly had a negatively significant effect on Behavior of Smoking.

Recommendation

Indonesian Government

(1) Antismoking slogan should had more saleable and more marketable than cigarette advertising slogans, (2) Hazard warning label due to smoking should be re-designed, (3) High cigarette price perception have to surely apply to the cigarette tax increase, (4) Regulation of tobacco should be executed. Environment free from cigarette smoke should be applied, (5) Tobacco regulations, the maximum content recommended of tar, nicotine and CO gas in a cigarette.

Cigarette Companies

(1) Cigarette companies had to find tobacco plant with low in nicotine, tar and the other dangerous substances, (2) Cigarette companies always seek and find tobacco machine for deleting or decreasing concentration of nicotine, tar and the other dangerous substances in the tobacco leaves.

Collaboration among government and cigarettes companies in:

(1) Tobacco Research Centre to find tobacco plant with low in nicotine, tar and the other dangerous substances through plant breeding, cell culture, tissue culture or cloning combined with genetic engineering, (2) Rehabilitation Centre for smoking-related diseases, (3) Phamaceutical companies produce medicine specifically for smoking-related diseases, and, (4) Service Centre for quitting.

General public

(1) For smokers, they were recommended smoke safer cigarettes, (2) For non-smokers, they were recommended as closely as possible to avoid or evade cigarette smoke.

Next researchers

(1) Research location can be extended to outside of East Java, (2) Longitudinal research, (3) Respondents were grouped into different strata, (4) Exogenous variables could be replaced with other variables, (5) Limit the optimum age for cigarette advertising and marketing influence someone in initiation of smoking, (6) Strategies used by cigarette industries to break the influence of antismoking campaign and other tobacco control strategy, (7) Characteristics of the antismoking campaign which had the largest affect in smokers forgo their smoking behavior, or to discuss them, (8) Strength and form of antismoking campaign which most influential in decreasing smoking behavior.

International and Managerial Implications

On the basis of health considerations, anti-smoking campaign has been one of the global issues, so almost all the countries in the world carrying out anti-smoking campaign. The good cooperation between countries are needed. Anti-smoking campaign has to more

attractive than cigarette advertising, raising excise tax, imposition of smoke free areas, ban on tobacco advertising near schools, raising awareness on the dangers of cigarettes, international conferences and seminars about the dangers of smoking should always be encouraged.

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Acknowledgment

The author would like to thank the cooperation and efforts of author's assistants who have helped in data gathering. As well as to Shmuel Batzri, Ph.D., and the organizing committee members who have given the opportunity to present this article. Fully appreciates any suggestions or notes regarding this article, at the following correspondence addresses:

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Appendix

Table 1: Hypothesis Test

Hypothesis	Variables	Estimate	P	S/NS *)
H1(a)	Attitude toward smoking behavior (Y1) <-- Cigarette advertising (X1)	0.392	0.034	S
H1(b)	Subjective norm of smoking (Y2) <-- Cigarette advertising (X1)	0.486	0.000	S
H1(c)	Government antismoking campaign (X2) <-- Cigarette advertising (X1)	0.248	0.515	NS
H2(a)	Attitude toward smoking behavior (Y1) <-- Government antismoking campaign (X2)	0.660	0.119	NS
H2(b)	Subjective norm of smoking (Y2) <-- Government antismoking campaign (X2)	0.479	0.193	NS
H2(c)	Cigarette advertising (X1) <-- Government antismoking campaign (X2)	0.403	0.327	NS
H3	Refusal skill (Y3) <-- Attitude toward smoking behavior (Y1)	-0.524	0.004	S
H4	Refusal skill (Y3) <-- Subjective norm of smoking (Y2)	-0.441	0.020	S
H5	Behavioral intention to smoke (Y4) <-- Refusal skill (Y3)	-0.896	0.000	S
H6	Behavior of Smoking (Y5) <-- Behavioral intention to smoke (Y4)	-1.080	0.000	S

Remarks *): S = Significant; NS = Not Significant

Table 2: Direct, Indirect and Total effects

Variables		X2	X1	Y2	Y1	Y3	Y4	Y5
X2	DE	0.000	0.248	0.000	0.000	0.000	0.000	0.000
	InDE	0.111	0.027	0.000	0.000	0.000	0.000	0.000
	TE	0.111	0.275	0.000	0.000	0.000	0.000	0.000
X1	DE	0.403	0.000	0.000	0.000	0.000	0.000	0.000
	InDE	0.045	0.111	0.000	0.000	0.000	0.000	0.000
	TE	0.448	0.111	0.000	0.000	0.000	0.000	0.000
Y2	DE	0.479	0.486	0.000	0.000	0.000	0.000	0.000
	InDE	0.271	0.186	0.000	0.000	0.000	0.000	0.000
	TE	0.750	0.672	0.000	0.000	0.000	0.000	0.000
Y1	DE	0.660	0.392	0.000	0.000	0.000	0.000	0.000
	InDE	0.249	0.225	0.000	0.000	0.000	0.000	0.000
	TE	0.909	0.617	0.000	0.000	0.000	0.000	0.000
Y3	DE	0.000	0.000	-0.441	-0.524	0.000	0.000	0.000
	InDE	-0.807	-0.619	0.000	0.000	0.000	0.000	0.000
	TE	-0.807	-0.619	-0.441	-0.524	0.000	0.000	0.000
Y4	DE	0.000	0.000	0.000	0.000	-0.896	0.000	0.000
	InDE	0.723	0.555	0.396	0.469	0.000	0.000	0.000
	TE	0.723	0.555	0.396	0.469	-0.896	0.000	0.000
Y5	DE	0.000	0.000	0.000	0.000	0.000	-1.080	0.000
	InDE	-0.781	-0.600	-0.427	-0.507	0.968	0.000	0.000
	TE	-0.781	-0.600	0.427	-0.507	0.968	-1.080	0.000

Remarks: X1: Cigarette advertising; X2: Government antismoking campaign; Y1: Attitude toward smoking behavior; Y2: Subjective norm of smoking; Y3: Refusal skill; Y4: Behavioral intension to smoke; Y5: Behavior of smoking; DE: Direct Effect; InDE: Indirect Effect; TE: Total Effect.