

A Survey Experiment on How the Legal Status of Nicotine Products Influences Young Adults' Perceptions and Choices

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Introduction

- Curbing the consumption of tobacco-related products is a significant aspect of international agreements.
- Despite global efforts, smoking prevalence remains troubling, with 1.3 billion tobacco users worldwide, half of whom face the risk of tobacco-related illnesses if they do not quit (WHO, 2023).
- In Türkiye, about one in three adults are current smokers (TURKSTAT, 2022).
- Consequently, there persists an urgent need to explore effective strategies for curbing smoking.
- Noncombustible products, like e-cigarettes, offer a harm reduction alternative to traditional smoking.

Motivation

- Despite evidence that e-cigarettes are less risky than traditional cigarettes (Allcott & Rafkin, 2022), many countries, including Türkiye, have implemented bans and restrictions.
- Despite bans on non-combustible products like e-cigarettes in Türkiye, enforcement gaps have fostered a thriving illicit market.
- Traditional combustible cigarettes also face bans, but similar challenges exist with under-the-counter sales.
- The perception of these products' legality may influence consumer behavior, particularly among young adults, by signaling health risks and acceptability.
- Therefore, understanding how legal status impacts product perception is crucial for informing public health policies.

This Paper

- This study addresses the gap in the literature by exploring the effects of legal status on consumer attitudes towards both combustible and non-combustible nicotine products.
- Using an experimental approach with scenario-based surveys of young adults in Türkiye, we compare their perceptions of legally sold cigarettes and e-cigarettes with their illicit counterparts.
- Our findings suggest that the legality of a product, rather than its type, significantly influences its perceived health risks and social acceptability, providing important insights for policymakers.

Tobacco Control in Türkiye

- Türkiye was an early adopter of the WHO FCTC and MPOWER measures.
- Smoking bans in public places since 1996, expanding to entertainment venues.
- Plain packaging and graphic warnings implemented in 2020.
- Ban on menthol cigarettes and other flavored tobacco products post-2020. E-cigarettes, heated tobacco products (HTPs), and related devices are banned for import and production, with exceptions for personal use.
- Despite regulations, 35% of adults are regular smokers (TURKSTAT, 2022). Vaping rates: 1.9% for ages 15-24.

Data

- Online questionnaire administered by Istanbul Economy Research and Consultancy
- Young adults (18-30)
- Conventional cigarettes, non-combustible products (e-cigarettes, heated tobacco)
- Health risks, social acceptability, willingness to consume
- 3008 participants, with 1523 non-users and 1485 users of cigarettes or e-cigarettes,
- Users- were defined as individuals who have consumed an amount equivalent to at least 100 cigarettes and/or cigarette-like products in their lifetime, regardless of whether they have quit or not

Experimental Conditions

- Condition 1: (Legal Cigarette) A legally sold cigarette
- Condition 2: (Illegal Cigarette) A cigarette that is sold unrecorded (under-the-counter)
- Condition 3: (Legal E-Cigarette) A legally sold cigarette-like product (such as an e-cigarette or a heated tobacco product)
- Condition 4: (Illegal E-Cigarette) A cigarette-like product that is sold unrecorded (under-the-counter)

Experimental Conditions

One of the following four texts was shown to respondents in each condition:

Condition 1 / 2 / 3 / 4:

Imagine that you wanted to use a nicotine product. The product that is available for your purchase is **legally sold cigarettes / cigarettes that are sold under-the-counter (an unrecorded sale) / a non-combustible nicotine product that is sold legally / a non-combustible nicotine product that is sold under-the-counter.**

This is the only product currently available for you to purchase. The product is the same in terms of price, nicotine content, warning labels, and flavor as an average pack of legally sold cigarettes normally found in supermarkets or grocery stores.

- In Conditions 2 and 4, the following sentence was added to the text:

The only difference is that the sale of this product will be unrecorded and under-the-counter.

Outcome variables (1-5 Likert scale)

- 1) I think this product is addictive.
- 2) I think this product may cause medical complaints such as a bad cough, cold, trouble catching breath, mouth sores.
- 3) I think this product may cause serious diseases such as lung cancer.
- 4) I think this product is socially acceptable; it is OK to use this product in a social setting.
- 5) I would be interested in using/trying this product.
- 6) If this product were the only one available on the market, I would prefer using nothing to using this product.
- 7) Among 100 users of this product, how many do you think will die from lung cancer, heart disease, throat cancer and all other illnesses because of using this product?

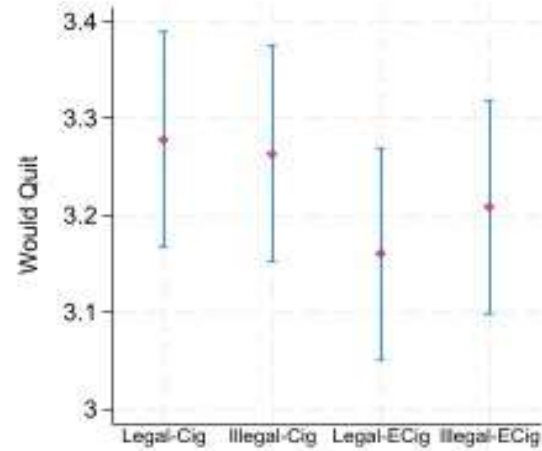
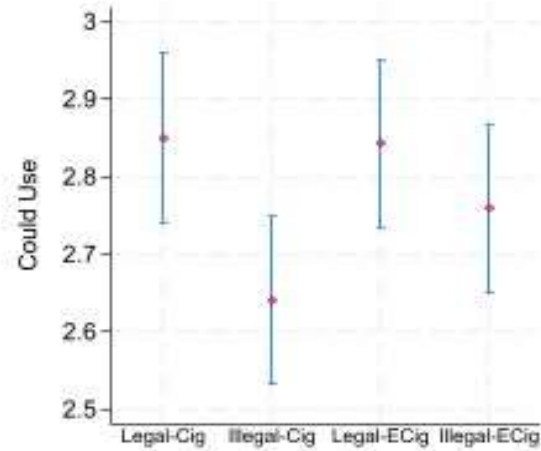
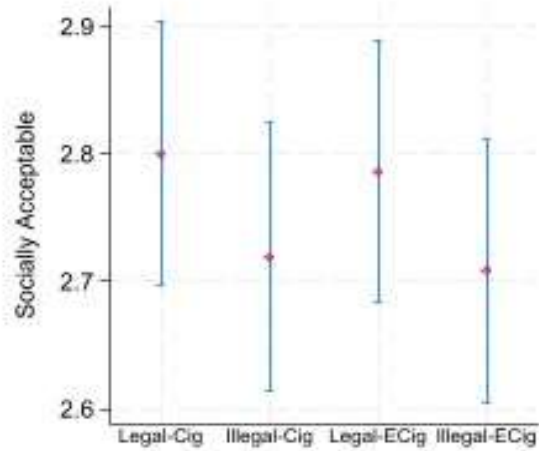
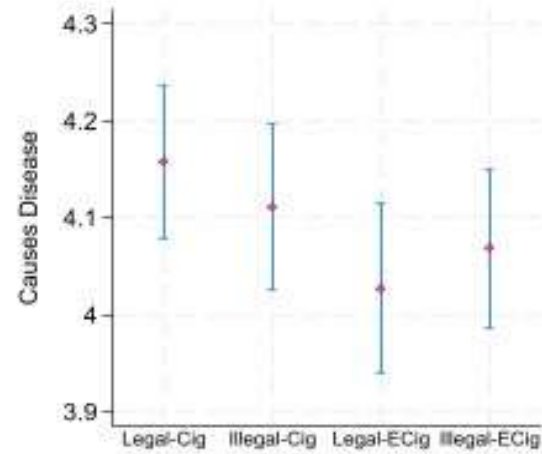
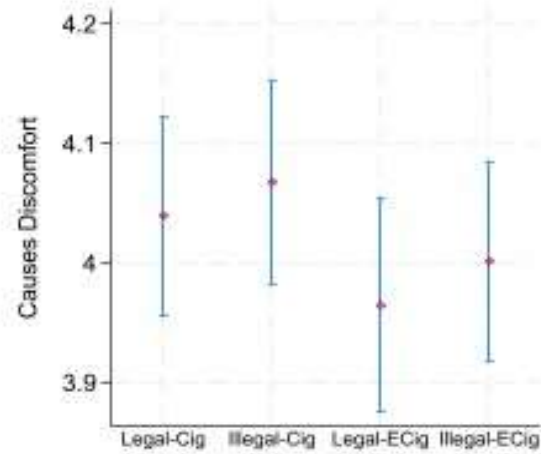
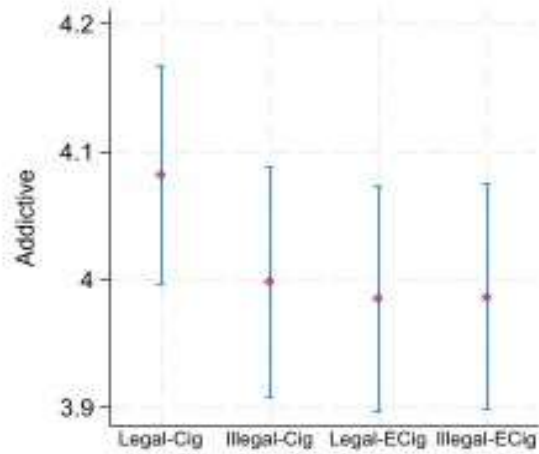
Descriptive Statistics

Panel B	N	Mean	Std. Dev	Min	Max	p-value
Addictive	2,933	4.013	1.212	1	5	0.385
Causes Discomfort	2,925	4.018	1.171	1	5	0.171
Causes Disease	2,915	4.091	1.147	1	5	0.065
Socially Acceptable	2,916	2.753	1.429	1	5	0.830
Could Use	2,908	2.773	1.499	1	5	0.283
Would Quit	2,844	3.226	1.496	1	5	0.263
% Chronic Disease	3,008	55.93	29.75	1	100	0.050
Legal Knowledge	3,008	0.823	1.974	-5	6	0.90
Nicotine Knowledge	2,103	0.253	0.435	0	1	0.20

Knowledge Statistics

Panel A: Questions on Legal Framework		% of Correct Answers					
		Correct answer	E-Cig Only	Cigarette Only	Dual User	Never User	Quitter
SAMPLE SHARE			% 3.6	%21.4	%19.9	%50.6	%4.5
The sale of packaged cigarettes is legal in Türkiye	True		85.85	96.08	92.23	93.05	88.97
The sale of e-cigarettes is legal in Türkiye	False		49.46	30.66	29.42	26.70	33.91
The sale of hand-rolled cigarettes is legal in Türkiye	False		36.71	36.63	34.12	35.60	36.94
The sale of packaged flavored cigarettes is legal in Türkiye	False		51.09	49.61	37.71	32.52	45.13
In Türkiye, the possession and use of e-cigarettes is permitted /not illegal.	True		77.65	82.26	85.90	83.26	75.00
In Türkiye, indoor use of e-cigarettes is permitted	False		57.47	75.54	44.75	69.39	67.59
Average Legal Knowledge			0.935	1.253	0.504	0.768	0.804
Panel B: Question on Nicotine		% of Correct Answers					
		Correct answer	E-Cig Only	Cigarette Only	Dual User	Never User	Quitter
I think nicotine is the substance in cigarettes and e-cigs that causes cancer.		False	34.57	25.61	30.42	23.75	33.94

Perceptions of Survey Participants by Product Group



Empirical Framework (OLS estimation)

$$\text{Outcome}_i = \beta_1 + \beta_2 \cdot C2_i + \beta_3 \cdot C3_i + \beta_4 \cdot C4_i + \beta_5 \cdot S_i + \beta_6 \cdot S_i \cdot C2_i \\ + \beta_7 \cdot S_i \cdot C3_i + \beta_8 \cdot S_i \cdot C4_i + \mu X_i + \varepsilon_i$$

- β 's are the coefficients to be estimated.
- C2: Dummy variable for being assigned to Condition 2. (Condition 1 omitted)
- C3: Dummy variable for being assigned to Condition 3.
- C4: Dummy variable for being assigned to Condition 4.
- S : Dummy variable for being an ever-user of a cigarette or a cigarette-like product.
- X_i includes gender, age group, region, disposable income, individual's education, mother's education and father's education

The Effect of Legal Status on Consumer Perceptions: Users

	Addictive	Causes Discomfort	Causes Disease	Socially Acceptable	Could use	Would quit	% Chronic Disease
Illegal Cigarette	-0.043 (0.087)	0.122 (0.085)	0.048 (0.083)	-0.161* (0.097)	-0.387*** (0.093)	0.124 (0.100)	-0.500 (2.174)
Legal E-cigarette	-0.081 (0.086)	-0.036 (0.086)	-0.115 (0.084)	-0.008 (0.093)	-0.110 (0.090)	-0.043 (0.097)	-1.444 (2.155)
Illegal E-cigarette	-0.146* (0.088)	0.008 (0.085)	-0.071 (0.082)	-0.153 (0.095)	-0.262*** (0.092)	-0.094 (0.100)	1.445 (2.108)
Constant	3.946*** (0.061)	3.757*** (0.060)	3.936*** (0.058)	3.135*** (0.067)	3.613*** (0.063)	2.873*** (0.071)	51.043*** (1.540)
Sample Mean	3.910	3.824	3.949	3.134	3.521	3.003	50.920
N	1,572	1,561	1,556	1,550	1,533	1,524	1,593

Notes: Coefficient estimates from ordinary least squares regressions. Legal cigarette is the omitted category. Users are current users of cigarettes or e-cigarettes. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The Effect of Legal Status on Consumer Perceptions: Non-Users

	Addictive	Causes Discomfort	Causes Disease	Socially Acceptable	Could use	Would quit	% Chronic Disease
Illegal Cigarette	-0.171* (0.094)	-0.140* (0.084)	-0.185** (0.083)	0.042 (0.117)	0.056 (0.108)	-0.197 (0.126)	-1.814 (2.203)
Legal E-cigarette	-0.137 (0.093)	-0.132 (0.085)	-0.166** (0.084)	-0.024 (0.115)	0.098 (0.106)	-0.176 (0.124)	-4.029* (2.209)
Illegal E-cigarette	-0.044 (0.088)	-0.107 (0.079)	-0.117 (0.079)	-0.044 (0.116)	0.096 (0.107)	-0.030 (0.121)	-1.219 (2.147)
Constant	4.261*** (0.060)	4.393*** (0.054)	4.436*** (0.052)	2.398*** (0.081)	1.951*** (0.074)	3.760*** (0.085)	63.469*** (1.498)
Sample Mean	4.246	4.362	4.390	2.522	2.122	3.823	62.370
N	1,269	1,272	1,267	1,274	1,286	1,230	1,322

Notes: Coefficient estimates from ordinary least squares regressions. Legal cigarette is the omitted category. Non-users are never-users. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The Effect of Legal Status on Consumer Perceptions: Controlling for Knowledge: Non-Users

	Addictive	Causes Discomfort	Causes Disease	Socially Acceptable	Could use	Would quit	% Chronic Disease
Illegal Cigarette	-0.096 (0.110)	-0.103 (0.095)	-0.139 (0.092)	0.126 (0.141)	0.214 (0.132)	-0.190 (0.151)	0.552 (2.591)
Legal E-cigarette	0.030 (0.107)	-0.005 (0.095)	-0.046 (0.094)	0.063 (0.137)	0.195 (0.128)	-0.013 (0.145)	-1.028 (2.570)
Illegal E-cigarette	0.117 (0.095)	0.024 (0.085)	-0.008 (0.081)	-0.060 (0.136)	0.122 (0.126)	0.091 (0.140)	2.418 (2.447)
Legal Knowledge	-1.204*** (0.120)	-1.289*** (0.110)	-1.276*** (0.110)	-0.253** (0.111)	-0.056 (0.108)	-0.791*** (0.128)	-10.682*** (2.360)
Nicotine Knowledge	0.025 (0.021)	0.050*** (0.019)	0.053*** (0.018)	-0.081*** (0.027)	-0.065** (0.027)	0.027 (0.028)	-2.283*** (0.508)
Sample Mean	4.211	4.324	4.363	2.556	2.145	3.643	62.517
Observations	912	913	910	914	925	886	944

Notes: Coefficient estimates from ordinary least squares regressions. Legal cigarette is the omitted category. Non-users are never-users. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The Effect of Legal Status on Consumer Perception: Controlling for Knowledge: Users

	Addictive	Causes Discomfort	Causes Disease	Socially Acceptable	Could use	Would quit	% Chronic Disease
Illegal Cigarette	-0.065 (0.105)	0.059 (0.098)	-0.035 (0.094)	-0.171 (0.122)	-0.328*** (0.113)	0.076 (0.122)	-1.546 (2.577)
Legal E-cigarette	-0.142 (0.107)	-0.085 (0.102)	-0.188* (0.101)	-0.061 (0.119)	-0.207* (0.113)	0.068 (0.120)	-2.222 (2.600)
Illegal E-cigarette	-0.113 (0.108)	-0.009 (0.099)	-0.129 (0.095)	-0.190 (0.124)	-0.247** (0.116)	-0.134 (0.124)	-0.504 (2.581)
Legal Knowledge	0.051*** (0.017)	0.052*** (0.017)	0.060*** (0.017)	-0.054*** (0.021)	-0.030 (0.020)	-0.056*** (0.020)	-0.916** (0.441)
Nicotine Knowledge	-0.065 (0.105)	0.059 (0.098)	-0.035 (0.094)	-0.171 (0.122)	-0.328*** (0.113)	0.076 (0.122)	-1.546 (2.577)
Sample Mean	3.910	3.824	3.949	3.134	3.521	3.003	50.920
Observations	1,572	1,561	1,556	1,550	1,533	1,524	1,593

Notes: Coefficient estimates from ordinary least squares regressions. Legal cigarette is the omitted category. Users are current users of cigarettes or e-cigarettes. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Product Type vs Product Legality: Users

	Addictive	Causes Discomfort	Causes Disease	Socially Acceptable	Could use	Would quit	% Chronic Disease
E-cigarette (Cig Omitted)	-0.089 (0.061)	-0.075 (0.060)	-0.121** (0.058)	0.002 (0.068)	0.010 (0.066)	-0.136* (0.069)	0.203 (1.503)
Illegal Products (Legal Omitted)	-0.040 (0.061)	0.102* (0.059)	0.078 (0.057)	-0.152** (0.068)	-0.262*** (0.066)	0.008 (0.070)	0.670 (1.510)
Sample Mean	3.910	3.824	3.949	3.134	3.521	3.003	50.920
N	1,572	1,561	1,556	1,550	1,533	1,524	1,593

Conclusion

- Our study highlights that the legal status of tobacco products significantly influences consumer perceptions. Users view illegal cigarettes and e-cigarettes as less socially acceptable and less desirable to use than legal cigarettes.
- Despite these shifts in acceptability and use intentions, we found little impact on perceptions of addictiveness, discomfort, or disease risk.
- The findings underscore the complexity of tobacco regulation. While bans may reduce the appeal of products, they often drive consumers to illicit markets.
- Effective policies should address both legal and illegal markets while enhancing public knowledge of the health risks associated with all tobacco products.

Thank you for listening...

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The reasons for using non-combustibles (e-cigarettes, HTPs)

