Economics of Tobacco Harm Reduction in Türkiye

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Economic Research Agenda Association (ERAA)

IDF International Research Forum
October 2024
Bali
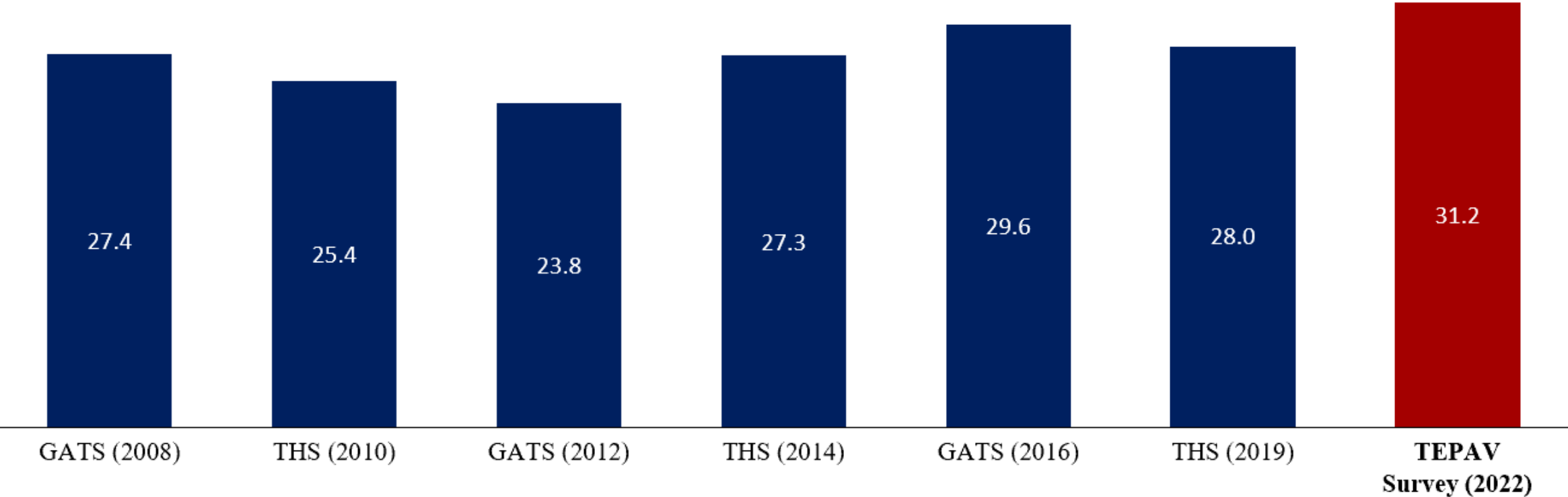
Disclosure

The Tobacco Control Policy Environment in Türkiye

- The 1st country to adopt all WHO tobacco control measures "MPOWER" at the highest level. (Monitor use, Protect from smoke, Offer help to quit, Warn about dangers, Enforce bans on advertising, Raise taxes)

- Smoking in public places has been banned since 1996, with coverage gradually expanding to include entertainment venues such as restaurants, cafes, and pubs

- Sales restrictions; restrictions on promotion and advertisement, taxation, …

- Ban on menthol cigarettes and other flavored tobacco products post-2020.

- Plain Packaging (PP) + intensified health warnings, graphic + text warnings: since January 2020.

- February 2020, Türkiye banned imports of all THRPs (e.g., e-cigarettes, HTPs).
    - Ban includes electronic devices, apparatus, spare parts and solutions to be used with e-cigarettes and HTPs.   (Reference: Official Gazzette February 25, 2020 no: 31050, decree no:2149)

- Exception: Personal imports, allowing one device per person along with cartridges or solutions up to 30ml. Alternatively, individuals can import up to 10 disposable e-cigarettes in total.

Smoking prevalence rate in Türkiye has not been decreasing.

The percentages of daily/regular smokers in Turkey by years, %

GATS (2008)	THS (2010)	GATS (2012)	THS (2014)	GATS (2016)	THS (2019)	TEPAV Survey (2022)
27.4	25.4	23.8	27.3	29.6	28.0	31.2

Reference: CDC, TurkStat, WHO, TEPAV survey 2022, TEPAV compilations and calculations

Smoking and Vaping Prevalence in Türkiye, 2022
(Reference: Health Research Survey by TurkStat, 2022*)*

Smoking prevalence:

	DAILY	OCCASIONAL	QUIT
MEN	41.31%	4.01%	13.02%
WOMEN	15.48%	3.55%	4.66%

Vaping prevalence:

	DAILY	OCCASIONAL	QUIT
MEN	0.52%	1.26%	2.91%
WOMEN	0.20%	0.75%	1.09%

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

Asena Caner, Berna Tarı Kasnakoğlu, Belgi Turan, Yenal Can Yiğit, Donald S. Kenkel, Alan D. Mathios

Data

- Online questionnaire administered by Istanbul Economy Research and Consultancy

- Participants of the survey: Randomly selected based on quotas to ensure a sufficient number of respondents across different ages, geographical regions (12 NUTS-1 regions), and genders.

- Young adults (18-30)

Products:

➢ Conventional cigarettes (factory-made and hand-rolled),

➢ Non-combustible products (e-cigarettes such as Vuse, Smok, Puff, ElfBar, Vozol, and heated tobacco products such as IQOS and GLO)

Data

- The questionnaire had experimental and non-experimental modules

- 3008 participants (1523 non-users and 1485 users of cigarettes or e-cigarettes)

- Users: Individuals who have consumed at least 100 cigs lifetime (or an amount equivalent of other products).

- Health risks, social acceptability, willingness to consume

Experimental Conditions

(Post-survey analysis confirmed that the randomization of
key characteristics across the four conditions was successful.)

- 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 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 <u>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.</u>

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?

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

Knowledge Indices

- Six questions were answered on a 2-point scale (Yes/No), with an "I don't know" option.

- A *Legal Knowledge* **index** was created by summing up the six responses, where each correct answer was worth +1 point, each incorrect answer was worth -1 point, and "I do not know" responses were ignored.

- Knowledge about the nature of nicotine is measured using a dummy variable based on participants' agreement with the statement, "I think nicotine is the substance in cigarettes and cigarette-like products that causes cancer." *Nicotine Knowledge index* takes the value of 1 if the respondent answered correctly by selecting either "Disagree" or "Strongly Disagree," and 0 if the respondent answered incorrectly by selecting either "Agree" or "Strongly Agree."

The Effect of Legal Status on Consumer Perceptions:
Users of Cigs or E-cigs

	Addictive	Causes Discomfort	Causes Disease	Socially Acceptable	Could use	Would quit	% Chronic Disease
Illegal Cigarette	-0.043	0.122	0.048	-0.161*	-0.387***	0.124	-0.500
	(0.087)	(0.085)	(0.083)	(0.097)	(0.093)	(0.100)	(2.174)
Legal E-cigarette	-0.081	-0.036	-0.115	-0.008	-0.110	-0.043	-1.444
	(0.086)	(0.086)	(0.084)	(0.093)	(0.090)	(0.097)	(2.155)
Illegal E-cigarette	-0.146*	0.008	-0.071	-0.153	-0.262***	-0.094	1.445
	(0.088)	(0.085)	(0.082)	(0.095)	(0.092)	(0.100)	(2.108)
Constant	3.946***	3.757***	3.936***	3.135***	3.613***	2.873***	51.043***
	(0.061)	(0.060)	(0.058)	(0.067)	(0.063)	(0.071)	(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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Users think illegal cigarettes are socially less acceptable (p-value<0.10) and they would be less interested in using illegal cigarettes (p-value<0.01) or illegal e-cigarettes (p-value<0.01) than smoking legally sold cigarettes. The magnitude of the effect is an 11 ppt decrease for illegal cigarettes and a 7 ppt decrease for illegal e-cigarettes compared to the sample mean.

Conclusion

- Regressions on the non-user group yielded similar findings.
- The results were robust to adding *Legal Knowledge and Nicotine Knowledge* as control variables.
- The results were mainly driven by the sales type (illegality) of the products.
- ➢ **The legal status of tobacco products significantly influences consumer perceptions. Users view illegal cigarettes and e-cigarettes as 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.

The Choice between Cigarettes, RYO, E-Cigarettes, and Quitting: Evidence from a Discrete Choice Experiment

(Work in progress)

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(TOBB University of Economics and Technology, Turkiye)

Donald S. Kenkel, Alan D. Mathios
(Department of Economics, Brooks School of Public Policy,
Cornell University, USA)

Data

Online Survey among adults (18 – 65) in Türkiye.

PART I: Product Consumption, Demographics, Actual price paid per pack

PART II: Discrete Choice Experiment (DCE) (For smokers/vapers)

- Choose among four options

- Products had three attributes (price, legal status, and flavor availability).

- Respondents were asked to state which option they would choose.

- There were 12 different choice sets, each presented twice (one for today and the other for 6 months later), totaling 24 choices per respondent.

- The attributes varied across choice sets.

Data

PART III: Post-DCE Questions

- Knowledge level of the participants regarding cigarette-like products and the current legal environment in Türkiye, as well their opinions about using the products.

- Perceptions regarding various nicotine products, (health risks, costs, practicality, and overall favorability for usage)

- Knowledge about nicotine (addictive and carcinogen).

- Motivations for usage (perceptions of health benefits, cost-effectiveness, practicality, pleasant aroma, indoor usability, customization options, and potential for aiding in smoking reduction or cessation efforts)

DCE Module Screen

🔍	Option 1	Option 2	Option 3	Option 4
	 (Packed Cigarettes)	 **(Roll Your Own)**	 **(E-cigarette or a heated tobacco product)**	None
PRICE	3 Levels	1 Level	3 Levels	I will quit smoking cigarettes and not use e-cigarettes.
SALE TYPE	1 Level	1 Level	3 Levels	
FLAVOR	2 Levels	1 Level	2 Levels	
Please select one option.	O	O	O	O

Empirical Framework

Panel mixed logit choice model

$$U_{ij} = ASC_j + \beta_{price} \cdot price_{ij} + \beta_{flavor} \cdot flavor_{ij} + \beta_{legal} \cdot legal_{ij}$$
$$+\alpha_{age,j} \cdot age_i + \alpha_{region,j} \cdot region_i + \alpha_{female,j} \cdot female_i + \alpha_{education,j} \cdot education_i + \epsilon_{ij}$$
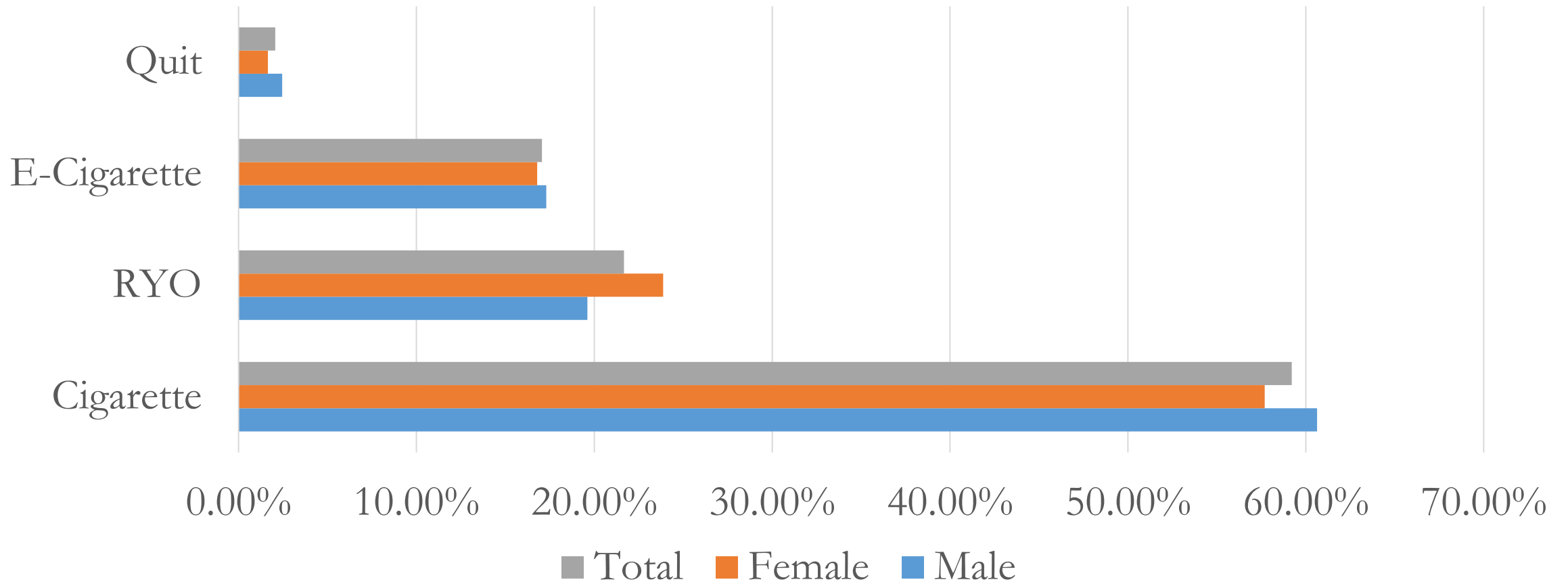
$\boldsymbol{ASC_j}$: *Alternative Specific Constant for product j* (*cigarette, RYO, E − cigarette, quit*)

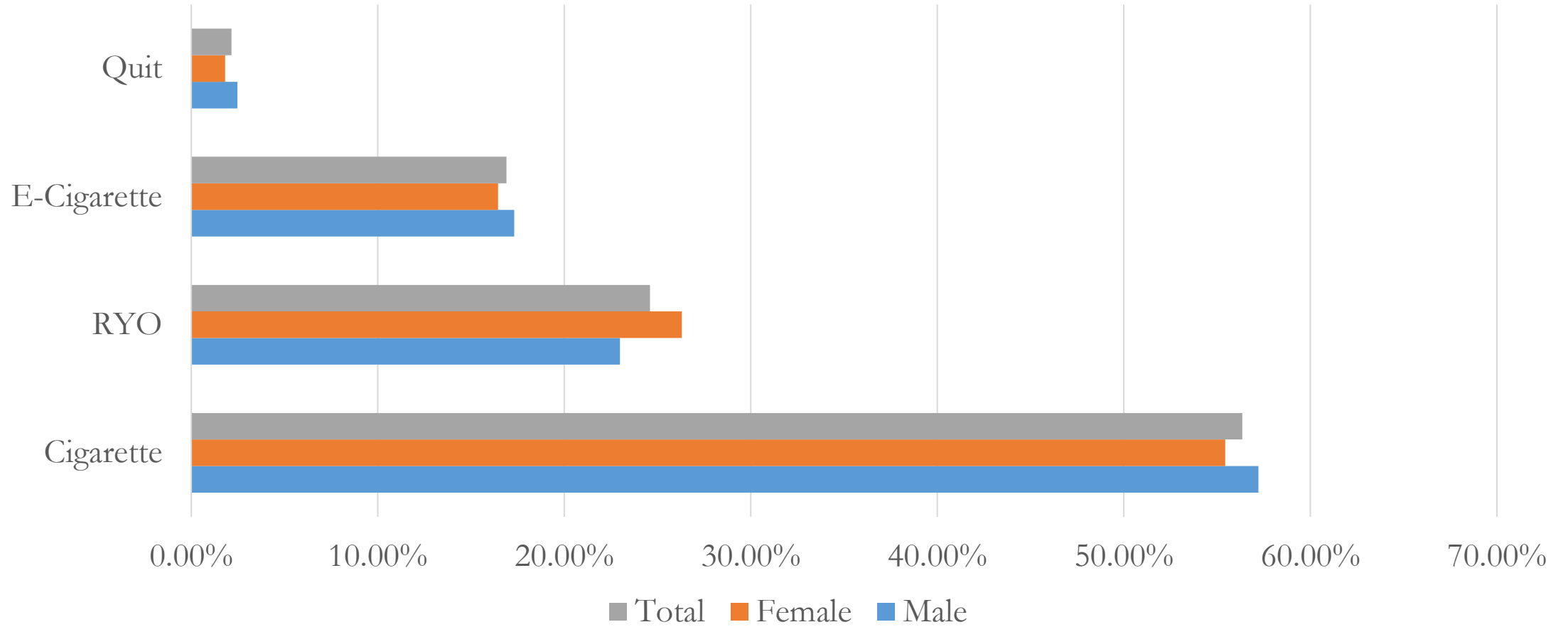$\boldsymbol{\beta.}$: *Coefficients for attributes* (*price, flavour, legality*)

$\boldsymbol{\alpha_{,j}.}$: *Individual attribute coefficient for product j*

$\boldsymbol{\epsilon_{ij}.}$: *error term*

Real-life Choices

Choices in the DCE

Panel Mixed Logit Choice Model

Attribute:	Utility
Price	**-0.0110***
	(0.000392)
Flavor (Base: Tobacco)	
Menthol	**-0.159***
	(0.0370)
Various Flavors	0.0760
	(0.0476)
Legality (Base: Legal with Bandrole)	
Illegaly Sold	**-0.178***
	(0.0575)
Strictly Banned	**-0.257***
	(0.0584)
Observations	53,808

	Cigarette	**RYO**	**E-Cigarette**
Age	0.00297	0.00301	-0.00363
	(0.00281)	(0.00281)	(0.00346)
Central	-0.151	0.180	-0.187
	(0.155)	(0.157)	(0.161)
South	-0.222	-0.111	-0.489**
	(0.182)	(0.186)	(0.192)
North	-0.600***	-1.086***	-1.038***
	(0.208)	(0.223)	(0.226)
East	0.452*	0.430*	-0.0515
	(0.249)	(0.253)	(0.259)
Female	0.263**	0.403***	0.218*
	(0.124)	(0.126)	(0.129)
High Sch or Vocational Higher Ed	-0.925***	-0.927***	-0.764**
	(0.316)	(0.320)	(0.326)
University and Above	-0.676**	-0.712**	-0.512
	(0.324)	(0.328)	(0.333)
Constant	4.803***	3.448***	3.584***
	(0.338)	(0.345)	(0.355)
Observations	53,808	53,808	53,808

Panel Mixed Logit Choice Model

Willingness to Pay

$$WTP_{Menthol} = -\frac{\beta_{Menthol}}{\beta_{Price}} = -\frac{-0,16}{-0.01} = -16$$

On average, respondents are willing to pay 16 TL less for menthol-flavored products.

$$WTP_{Illegal} = -\frac{\beta_{Illegal}}{\beta_{Price}} = -\frac{-0,18}{-0.01} = -18$$

On average, respondents are willing to pay 18 TL less for illegaly sold products.

$$WTP_{Banned} = -\frac{\beta_{Banned}}{\beta_{Price}} = -\frac{-0,26}{-0.01} = -26$$

On average, respondents are willing to pay 26 TL less for strictly banned products.

Conclusion

- **Alternative Specific Constant (ASC):**
  - For all 3 products, ASC term positive and statistically significant.
  - Packed cigarettes has more benefits than other products.

- **Attributes:**
  - Price is negative and statistically significant.
  - Compared to tobacco flavor, menthol-flavored products are less likely to be preferred.
  - Compared to a legally sold product, both an illegally sold and a strictly banned product are less likely to be preferred.