Differential Demand for Conventional, Very-Low Nicotine, and Electronic Cigarettes in the Netherlands

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INTRODUCTION

- Cigarettes are the most commonly consumed tobacco product globally, accounting for 92% of the manufactured tobacco market share
- Nicotine delivery is the primary mechanism through which cigarettes attain their reinforcement value and addictive potential
- Conventional factory made cigarettes (FMC) have enhance the efficiency of nicotine delivery
- There are 2 methods to reduce factory made cigarettes (FMC) cigarette consumption
  - Introducing very low nicotine cigarettes (VLNC)
  - Conversion to non-combustible nicotine products such as electronic cigarettes (EC)

VLNCs reduce cigarette consumption and may have value as smoking cessation aids
- Smoking-related morbidity and mortality might be reduced if smokers switched from FMC to EC
- EC reduce cravings to smoke, cigarette consumption, and increase the odds of quitting smoking
- Demand for such products may allow forecasting of product uptake and impact on the FMC use

OBJECTIVE

To assess whether smokers had differential demand for FMC, VLNC, and EC using a behavioral economic approach.

METHODS

- Participants were recruited by a commercial online survey research firm
- 1512 participants in a web-based consumer panel in the Netherlands of current smokers
- Current smoking status was defined as cigarette use within the past 30 days
- Participants completed purchase tasks for FMC, VLNC, and EC
- Demographics, interest in using different products, perceptions & attitudes towards smoking, and quitting history were assessed
- Participants indicated the number of FMC, VLNC, or EC they would consume if they each cost: €0, €0.05, €0.15, €0.30, €0.45, €0.60, €0.90, €1.20, €3.30

RESULTS

Test of adjusted overall type 3 model effects for indices of demand.

<table>
<thead>
<tr>
<th>Product</th>
<th>Elasticity</th>
<th>Intensity</th>
<th>Omax</th>
<th>Breakpoint</th>
<th>Pmax</th>
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<tbody>
<tr>
<td>Quit Motivation</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>E-cigarette use in the past 30 days</td>
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<td>✓</td>
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<tr>
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<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sex</td>
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<tr>
<td>Income</td>
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</table>

Presented as mean estimates of elasticity as moderated by age, factory-made roll-your-own cigarettes, heaviness of smoking index, and use of e-cigarettes in the past 30 days

CONCLUSIONS

- Five demand indices were generated:
  - Intensity: cigarette consumption at the lowest price
  - Breakpoint: first price at which cigarette consumption is zero
  - Omax: price at which consumption starts to decline
- Elasticity: sensitivity of consumption to increases in cost
- Multivariable analyses of demand were modeled using repeated-measures generalized estimating equations (GEE)
- Moderation by age, HSI, factor-made-roll-your-own (FM-RYO) cigarette use, quit motivation, and past 30-day use of EC were examined

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REFERENCES