

The impact of vaping and regulatory environment on cigarette demand: Behavioral economic perspective across four countries

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Abstract

Background and Aims: Government regulations of nicotine vaping products (NVP) have evolved rapidly during the past decade. The impact of NVP regulatory environment and vaping on cigarette demand is unknown. The current study aims to investigate whether or not respondents' reported cigarette demand, as measured by a hypothetical cigarette purchase task, varies with (1) smoking status, (2) vaping status or (3) NVP regulatory environment (country used as proxy).

Design: Cross-sectional survey data from wave 1 of the International Tobacco Control (ITC) Four Country Smoking and Vaping (4CV) Survey (2016).

Setting: Australia, Canada, England and the United States.

Participants: A total of 10 316 adult smokers.

Measurements: A hypothetical purchase task asked smokers to estimate how many cigarettes they would purchase for consumption in a single day across multiple cigarette prices. Responses were used to derive measures of cigarette demand. Overall sensitivity of cigarette consumption to price increases was quantified to index cigarette demand elasticity, whereas estimated consumption when cigarettes are free was used to index cigarette demand intensity.

Findings: A majority of the non-daily smokers had previously smoked daily (72.3%); daily vapers were more likely to be former daily smokers (89.9%) compared to non-daily vapers (70.1%) and non-vapers (69.2%) ($P < 0.001$). The smoking status \times vaping status interaction was significant for cigarette demand intensity ($F = 4.93$; $P = 0.007$) and elasticity ($F = 7.30$; $P = 0.001$): among non-daily smokers, vapers reported greater intensity but lower elasticity (i.e. greater demand) relative to non-vapers ($P_s < 0.05$). Among daily smokers, daily vapers reported greater intensity relative to non-vapers ($P = 0.005$), but vaping status did not impact elasticity ($P_s > 0.38$). Intensity was higher in Australia compared with all other countries ($P_s < 0.001$), but elasticity did not vary by country ($F = 2.15$; $P = 0.09$).

Conclusions: In a hypothetical purchase task, non-daily smokers showed lower price elasticity if they used e-cigarettes than if they did not, while there was no clear difference in elasticity between e-cigarette users and non-users among daily smokers or according to regulatory environment of their country with regard to e-cigarettes.

Recommended Citation

Heckman, B., Fong, G.T., Borland, R., Hitchman, S.C., O'Connor, R.J., Bickel, W.K., Stein, J.S., Yong, H.H., Nahhas, G., Pope, D.A., Shang, C., Cheng, K-W., Levy, D., Cummings, K.M. (2018). The impact of vaping and regulatory environment on cigarette demand: Behavioral economic perspective across four countries. *Addiction*, [Published online, doi:10.1111/add.14538].

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