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Own-price and cross-price elasticities of demand for cigarettes and waterpipe tobacco in three Eastern Mediterranean countries: a volumetric choice experiment

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ABSTRACT

Background Waterpipe tobacco smoking rates in the Eastern Mediterranean region are among the highest worldwide, yet little evidence exists on its economics. Estimates of demand elasticities for tobacco products are largely limited to cigarettes. This study aimed to estimate own-price and cross-price elasticities of demand for cigarettes and waterpipe tobacco products in Lebanon, Jordan and Palestine.

Methods A volumetric choice experiment was conducted using nationally representative household surveys. The choice experiment elicited respondents' stated purchases of eight cigarette and waterpipe tobacco product varieties by hypothetically varying prices. Data were analysed using zero-inflated Poisson models that yielded demand elasticity estimates of cigarette and waterpipe tobacco consumption.

Results The study included 1680 participants in Lebanon (50% female), 1925 in Jordan (44.6% female) and 1679 in Palestine (50% female). We found the demand for premium cigarettes to be price elastic (range, -1.0 to -1.2) across all three countries, whereas the demand for discount cigarettes was less elastic than premium cigarettes in Lebanon (-0.6) and Jordan (-0.7) and more elastic in Palestine (-1.2). The demand for premium waterpipe tobacco was highly elastic in Lebanon (-1.9), moderately elastic in Jordan (-0.6) and inelastic in Palestine (0.2). The cross-price elasticity between cigarettes and waterpipe tobacco was near zero, suggesting that the two products are not considered to be close substitutes by consumers.

Conclusions These results serve as a strong evidence base for developing and implementing fiscal policies for tobacco control in the Eastern Mediterranean region that address cigarettes and waterpipe tobacco products.

all contribute to poverty, along with the diversion of household funds from necessary resources, such as food, shelter and education, to tobacco purchases.³ A growing body of evidence globally, including that from LMICs, clearly demonstrate that tobacco taxes are a powerful tool for reducing tobacco use while providing a reliable source of government revenues.⁴

The Eastern Mediterranean region has the lowest average prices of tobacco products among all WHO regions,⁵ and is the only region for which smoking prevalence has been projected to increase by 2025.⁶ Tobacco product prices are an important factor when considering that decreasing affordability is the most effective strategy to reduce the uptake of smoking among young people.⁷ In addition to the public health toll of cigarette smoking, there is a growing concern about the increased prevalence of waterpipe smoking in the region.⁸ The WHO Framework Convention on Tobacco Control recommends that taxation policy take into account price elasticity of demand to reduce tobacco consumption, and that all tobacco products be taxed comparably to avoid unintended consequences, such as product substitution.⁶

Despite the growing concern over tobacco use in LMICs across the Eastern Mediterranean and other regions, evidence on the economic determinants of smoking has mostly been limited to cigarette smoking and concentrated in high-income countries.⁹ Given that waterpipe smoking prevalence is on par with cigarette smoking prevalence across the region, there is a need for economic research that more accurately captures the unique context of waterpipe smoking.

Research from Lebanon has examined the effect of taxation on tobacco consumption and public revenues using the 2005 national survey of household living conditions, estimating the own-price elasticity for local cigarettes (-1.5), imported cigarettes (-0.2) and waterpipe tobacco (-1.4), as well as the cross-price elasticity between waterpipe tobacco and locally produced cigarettes (0.1) and imported cigarettes (0.2).¹⁰ The researchers projected that increasing taxes on all tobacco products so as to double the price of imported cigarettes would increase government revenues by 75%, and that a 50% increase in the price of tobacco through excise taxes would lead to an estimated 65 000



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