Price and Income Sensitivity and Stability of Cigarette Demand Amidst Economic Crisis: Evidence from Lebanon

Policy Brief

Key Messages

Overall, cigarette demand elasticities remained stable despite Lebanon's economic collapse, with own-price elasticities and smoking prevalence virtually unchanged from 2019.

- Differences in demand exist for foreign vs. local brands:
    - Foreign cigarette demand is elastic (-1.019), while local brands remain inelastic (-0.735), signaling differing consumer responses based on brand type and affordability.
    - Income elasticity is negligible for local brands but significantly positive (0.403) for foreign brands, indicating that foreign cigarettes are normal goods while local brands are inferior goods.
- Differences are also apparent by sociodemographic characteristics:
    - Lower-income and older smokers show higher price sensitivity, suggesting that increased excise taxes on cigarettes would likely reduce consumption more effectively among vulnerable groups.

Policy implications include:

- Substitution towards foreign brands is stronger than substitution towards local ones, underscoring the need for harmonized taxation across brands. This should include a

sizeable initial increase and automatic annual hikes that outpace inflation and economic growth.

- Economic hardship alone is insufficient to deter smoking—significant tobacco tax increases are urgently needed to reduce smoking and improve public health. Taxes should be high, specific, and uniform to raise prices and limit substitution, alongside stronger supply chain enforcement to curb illicit trade.

Background

Tobacco consumption remains a leading cause of preventable death and disease worldwide. According to the World Health Organization (WHO), more than eight million people die annually due to tobacco use, including 1.3 million from secondhand smoke exposure (WHO, 2023). While smoking rates have declined in many high-income countries due to strong tobacco control measures, low- and middle-income countries continue to face high prevalence and weak regulation—particularly in the Eastern Mediterranean Region (EMR), where tobacco prices are low and tax structures remain inadequate (Chalak et al., 2023).

Lebanon stands out with one of the highest smoking rates globally: recent estimates show that 48.6 percent of men and 21.5 percent of women smoke cigarettes, while waterpipe use is also widespread (Nakkash et al., 2022). Despite ratifying the WHO Framework Convention on Tobacco Control (FCTC) in 2005 and enacting Law No. 174 in 2011, enforcement has been inconsistent. Tobacco taxes in Lebanon remain among the lowest globally, with domestic cigarettes often priced below $1.00 per pack and the overall tax burden at just 45.6 percent—far below the WHO's recommended minimum of 75 percent (Chalak et al., 2023).

Since 2019, Lebanon has endured one of the most severe economic and financial crises in recent history, marked by rapid currency depreciation, inflation, and widespread poverty. These shocks have significantly altered consumer purchasing power and raised questions about behavioral responses to addictive products like cigarettes. While economic hardship could reduce consumption by lowering affordability, it may also increase tobacco reliance as a coping mechanism (Kaiser, Reutter, Sousa-Poza, & Strohmaier, 2018).

Previous research in Lebanon has examined tobacco demand, but most studies predate the crisis and rarely distinguish between cigarette brand types (Chalak et al., 2023). This study addresses that gap by using a nationally representative volumetric choice experiment (VCE) to estimate own- and cross-price elasticities for local and foreign cigarette brands. This study also estimates income elasticities alongside own- and cross-price elasticities—an addition not examined in earlier studies. The findings aim to inform more effective fiscal and public health interventions, especially in contexts of economic fragility where regulatory inertia and affordability perpetuate high smoking rates and their associated health and economic burdens (UNDP & Secretariat of the WHO FCTC, 2024).

Findings

Despite Lebanon's ongoing economic collapse, the demand behavior and price responsiveness governing cigarettes has remained remarkably stable. The prevalence of cigarette smoking in 2024 (35.5 percent) is nearly identical to the rate recorded in 2019 (35.1 percent), with no significant change among men (48.6 percent) or women (19.2 percent) (Nakkash et al., 2022). These findings suggest that even severe macroeconomic shocks may not significantly affect overall smoking prevalence in contexts where cigarettes remain under-taxed and affordable.

Price sensitivity also appears resilient to crisis conditions. The own-price elasticity of demand is -0.733 for local brands and -1.061 for foreign brands—statistically indistinguishable from 2019 estimates of -0.639 and -1.157, respectively (Chalak et al., 2023). These results indicate inelastic demand for local (cheaper) brands and elastic demand for foreign (premium) brands, consistent with global evidence from similar income settings (Mena & Paraje, 2024).

Cross-price elasticities are significant in both directions, confirming brand substitution behaviors. However, substitution is stronger from local to foreign brands (0.299) than from foreign to local ones (0.144), indicating smokers are likelier to upgrade rather than downgrade when prices change, reinforcing the case for a high, uniform specific tax to effectively reduce consumption.

In addition to price elasticities, the study estimates income elasticities of demand. Income elasticity is insignificant for local brands but significantly positive (0.402) for foreign brands, suggesting

that increases in income drive higher consumption of foreign cigarettes while leaving local cigarette demand largely unchanged.

Subgroup analysis reveals that older smokers, particularly those over age 50, and those with intermediate smoking histories (19–35 years) display greater price and income sensitivity than other subgroups (Franz, 2008). In contrast, gender-based differences in price responsiveness are not statistically significant, indicating similar demand behavior between men and women.

These findings underscore the persistent affordability of tobacco products in Lebanon and the untapped potential of fiscal policies—not only to reduce consumption but also to deliver progressive public health benefits, as low-income individuals stand to gain the most from reduced smoking rates. With the total economic losses from smoking estimated to be 13 times higher than government tobacco revenue (UNDP & Secretariat of the WHO FCTC, 2024), the case for robust tax reform remains urgent and evidence-based.

Conclusions

This study provides updated and policy-relevant estimates of cigarette demand elasticities in Lebanon, using a nationally representative volumetric choice experiment conducted years into the country's prolonged economic crisis. A key finding is the surprising stability in smoking behavior and price responsiveness, despite dramatic declines in income, soaring inflation, and widespread poverty (UNDP & Secretariat of the WHO FCTC, 2024).

Own-price elasticities for local and foreign cigarette brands in 2024 are virtually unchanged from 2019, with persistent inelastic demand for local brands and elastic—but stable—demand for foreign brands (Chalak et al., 2023). The inclusion of income elasticity estimates reveals that demand for foreign brands increases with income, reinforcing the need for taxation policies that narrow the price gap between local and imported products. These findings, coupled with unchanged smoking prevalence, suggest that economic hardship alone is insufficient to curb tobacco use in contexts where cigarettes remain cheap and tax rates remain low.

Subgroup analysis reveals that price sensitivity is greatest among older smokers and those with intermediate smoking histories (19–35 years), reinforcing the case for well designed, high, uniform specific taxes that reduce consumption while delivering progressive health and economic benefits

(Jankhotkaew, Pitayarangsarit, Chaiyasong, & Markchang, 2021). Strong substitution effects between brands further highlight the risks of tiered or differential excise taxes, which have consistently encouraged down-trading rather than quitting, particularly among price-sensitive populations. Moreover, tiered systems are harder to administer and more susceptible to industry manipulation, further undermining their effectiveness.

Lebanon's case illustrates a broader truth in global tobacco control: without significant and sustained increases in tobacco excise taxes, even severe economic shocks are unlikely to alter entrenched smoking behaviors. Cigarette affordability—enabled by low taxes and market dominance by the state-owned tobacco monopoly—continues to undermine public health and fiscal sustainability (UNDP & Secretariat of the WHO FCTC, 2024).

This evidence should galvanize policy makers to adopt robust fiscal reforms, aligned with WHO recommendations, to raise prices, reduce smoking, and recover the considerable economic costs of tobacco-related disease and disability. As other low- and middle-income countries confront similar crises, Lebanon's experience underscores the urgent need for proactive, evidence-based health tax policy rather than reliance on economic hardship to modify harmful consumption.

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