

Price elasticity is the percentage change in the quantity consumed in response to a 1% change in the price of the product. It is the cornerstone of using excise tax increases as a means of reducing tobacco consumption.

Excise tax increases typically increase the retail price, and increases in the retail price reduce the demand for tobacco products. The price elasticity indicates by how much consumption is likely to decrease:

- Price elasticity estimates vary from country to country but are nearly always in the inelastic range i.e. between 0 and -1
- For high-income countries: clustered around -0.4
- For low- and middle-income countries: between -0.2 and -0.8 (IARC, 2011)



The importance of price elasticity in tobacco taxation



- Price elasticity measures the population's response to increases in the retail price. Some sub-populations' consumption of cigarettes is more responsive (elastic) to changes in the retail price, especially (1) young people and (2) the poor. This makes excise tax increases, that increase the retail price, a particularly effective means to reduce tobacco consumption (and its associated negative health impacts) on the most vulnerable groups.
- The reduction in cigarette consumption resulting from an increase in the retail price can be divided into two components: (1) a reduction in the number of smokers (i.e. smoking prevalence), and (2) a reduction in the number of cigarettes smoked by remaining smokers (i.e. smoking intensity). In many countries these two effects are about equal in magnitude.

The win-win nature an excise tax increase:



- Unless absorbed by the industry, a tax increase raises the retail price, which decreases the consumption of cigarettes, which is a win for public health.
- Because the demand for cigarettes is relatively inelastic, an increase in the excise tax results in a proportionally smaller decrease in cigarette consumption. As a result, total government revenue increases.

Other important elasticities:



- The consumption of cigarettes is not just determined by the price of cigarettes, but also by the average level of income and the price of other tobacco products (like roll-your-own tobacco). The extent to which these two factors influence the demand for cigarettes is measured by the income elasticity and the cross-price elasticity of demand respectively. When setting the excise tax level, policy makers should be aware of these other determinants.
- Income elasticity: At the population level, an increase in average incomes increases the demand for cigarettes, but at a less than proportional rate. The income elasticity lies between 0 and +1.
- Cross-price elasticity: An increase in the price of one type of tobacco product (e.g. cigarettes), increases the demand for another kind of tobacco product (e.g. roll-your-own tobacco), indicating that different types of tobacco are substitutes. It is thus important to ensure that tobacco tax increases are consistent across all products to avoid substitution to cheaper alternatives

SOURCE

IARC Handbooks of Cancer Prevention, Tobacco Control, Vol. 14: Effectiveness of Tax and Price Policies for Tobacco Control (2011: Lyon, France)

NOTES

Price elasticities are measured using a number of different econometric techniques and different data:

- * Time series (usually aggregated data over an extended period of time)
- * Cross-sectional (a survey of a large number of individuals or households, taken at one point in time)
- * Panel data (a survey of a large number of individuals or households; the same individuals or households are interviewed at multiple periods)