

Approach to cigarette tax change analysis (As of April 2019)

- (1) Commonly accepted price elasticity of cigarette consumption is - 0.4
Stamped cigarette price elasticity is higher - we are dealing with stamped elasticity
- (2) Recent literature survey reveals more elastic response
- (3) Smoking minors add to elasticity
- (4) Price difference between WA and OR and commuting workers provide an incentive for WA residents' purchase of OR stamped cigarettes (casual smuggling)
- (5) Lower rate in ID is attractive to OR residents
- (6) Recent articles focus on directly estimating lost revenue and sales using case studies.
- (7) The availability of other tobacco and alternative products leads to higher elasticity
- (8) Price elasticity tends to be higher when prices go up - when there is a dramatic price increase, using negative add factors are warranted
- (9) Orzechowski and Walker (1970-2017) data offers panel study. We have done simple but quite revealing **panel regressions** to confirm some recent findings in the literature.
[..\Cig\Cross Border Effects\OW 2017.WF1](#)

The fitted equations are for:

*Consumption response**:

1. All states, all periods or since 1994 or 2000; nominal and or real average cigarette prices
2. Cost per pack: all prices, and over \$6 or \$8 since we are talking about adding \$2 per pack and resulting price would be over \$8, all other things being equal
3. Combination of first two

*Revenue response**:

All states, all periods or since 1994

*Equations are specified in logs. So coefficients are elasticities. More refinements are needed - adding additional explanatory variables, etc. However, if the relation is robust, as indicated in the literature, basic relations remain the same.

Reference

<https://www.cbpp.org/research/higher-tobacco-taxes-can-improve-health-and-raise-revenue?fa=view&id=3978>

... CBO has found that lower-income people are "more responsive to price increases than higher income people are." [15] Other studies agree. One leading study estimates that *people with incomes below the median reduce their cigarette consumption by four times more than people with incomes above the median in response to cigarette price increases.* [16]

<https://pdfs.semanticscholar.org/a825/34adc2950fbe6368f68430c03a2078399eb6.pdf>

Traditional economic analysis implies that because the net externalities* from tobacco use are small and tobacco taxes are borne disproportionately by lower-income individuals, taxes on tobacco products should be relatively low.

*externality: <https://www.investopedia.com/terms/e/externality.asp>

We reexamine these arguments in the framework of a more accurate model of human behavior, where in each period a person has a taste for immediate gratification she would not have approved of earlier.

This conflict between short-run desires and long-run goals leads to over-consumption of tobacco products from the person's own point of view.

Since tobacco taxes reduce consumption, they help with this over-consumption problem. *Furthermore, if lower-income individuals are more price sensitive, taxes have a larger benefit for them in reducing over-consumption, so that tobacco taxes are less regressive than traditional analysis suggests — and perhaps even progressive.*

We estimate that in the U.S. context, both of these effects are extremely large. According to our calculations, the monetary value of the health damage from a pack of cigarettes is over \$35 for the average smoker, implying both that optimal taxes should be very large and that cigarette taxes are likely progressive.

<https://www.nber.org/papers/w22251>

... This research is the first econometric study to examine the price elasticity of cigarette demand at different price levels. We use aggregate state-level data for years 1991 – 2012 and employ generalized linear models with log link and gamma distribution to estimate cigarette demand equations. We find that *the absolute value of the price elasticity of demand monotonically increases with price.*

https://www.jstor.org/stable/41790429?seq=1#page_scan_tab_contents
<http://www.siepr.stanford.edu/repec/sip/06-040.pdf>

... I find demand *elasticities* with respect to the home state price are indistinguishable from zero on average and *vary significantly with the distance individuals live to a lower-price border.* ... I also estimate *between 13 and 25 percent of consumers purchase cigarettes in border localities.* The central implication of this study is cross-border smuggling confounds many of the potential health and revenue gains from cigarette taxation.

<https://journals.sagepub.com/doi/abs/10.1177/1091142114548265?journalCode=pfrb>

... *Our estimate of the taxable sales elasticity is - 0.36 and - 1.02 for convenience stores and tobacco stores, respectively, on the border.*

*The papers cited here and more are found in [..\Cig\Cross Border Effects](#)