
Are Tobacco Taxes Really Regressive? Overall Impact of Tobacco on Poverty

Empirical evidence on distributional effects from
the Extended-Cost Benefit Analysis

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Poverty and Equity

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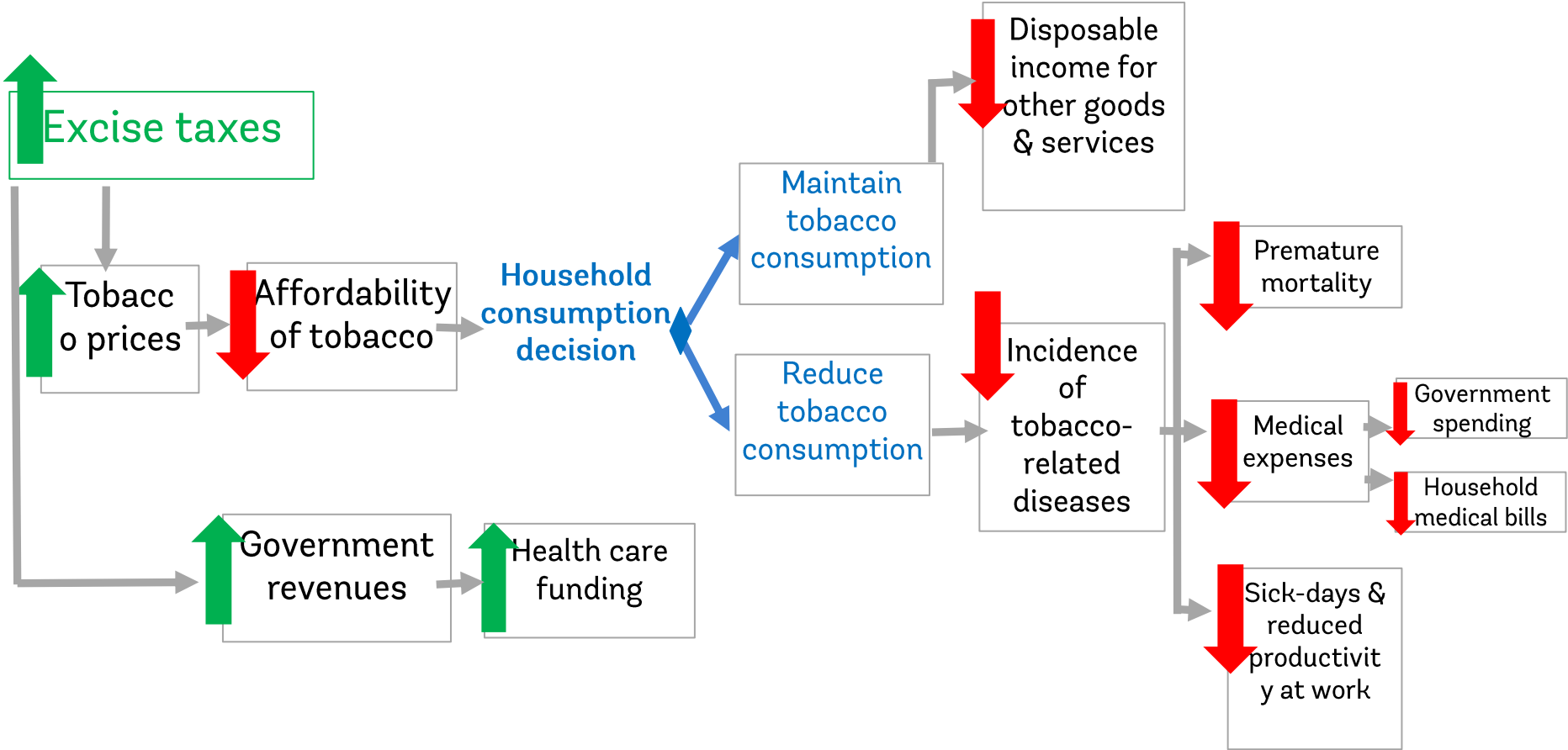
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Key Take-Away Messages

- **What are the distributional effects of Tobacco Taxes?**
- **Are they regressive? progressive?**
 - Poor households allocate larger budget shares to purchase tobacco
 - Taxation may seem *regressive* in the short-run
 - However, taxes and high prices **discourage tobacco use** (price elasticity), offsetting adverse effects that burden households
- **Contribution of the Extended Cost Benefit Analysis (ECBA):**
 - Incorporate price-responses to evaluate distributional impact
 - Incorporate effects of reducing tobacco-related:
 - (a) Medical expenses + (b) Years of working life lost
- **Empirical findings suggest potential for progressive and welfare-improving effects of increasing taxes on tobacco**

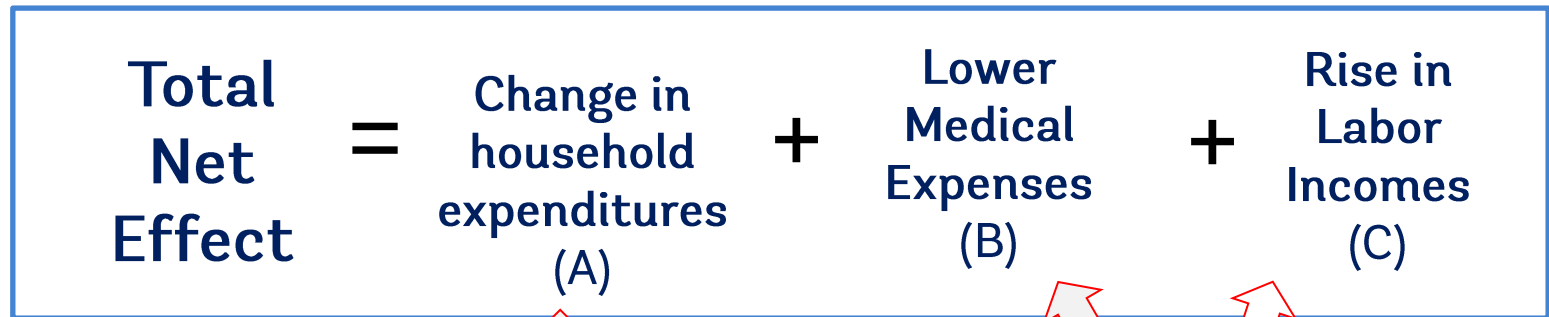


Framework: Economic Channels of Tobacco Taxes



Empirical application of the ECBA

Extended Cost-Benefit Analysis to assess effect of health taxes



Household expenditure surveys



Simulate income gains from adverted medical costs + increased work years

Complement with administrative data



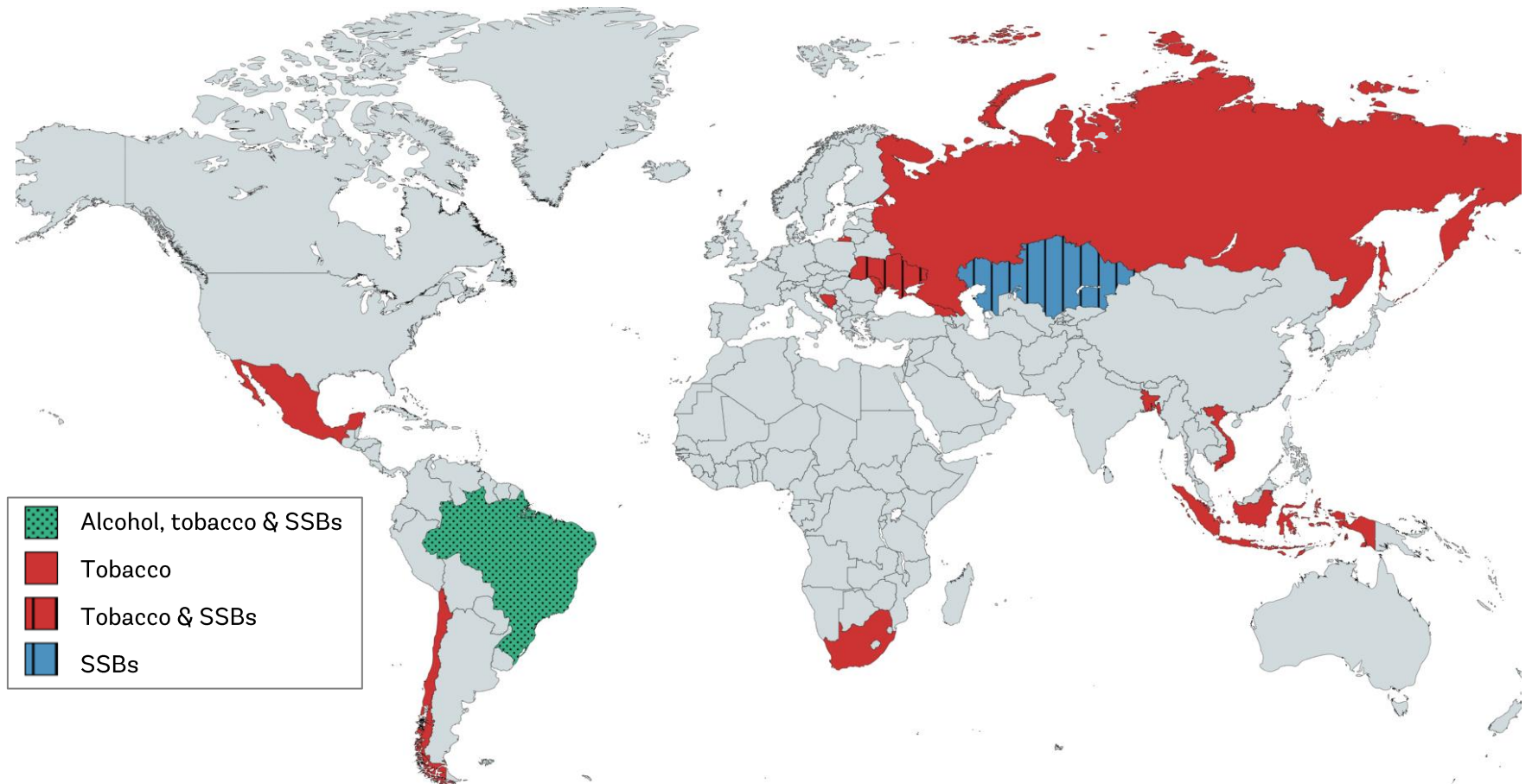
- mortality
- incidence
- treatment costs
- PAF's

$$\epsilon_p = \frac{\% \Delta Q}{\% \Delta p}$$

- Ultimately, effects depend on **behavioral responses**
- Estimate **price elasticities** by age and income group
 - Lower-income groups have higher elasticities
 - Younger groups are more sensitive to price increases

Country applications of the ECBA

- **Tobacco taxation** in 11 countries: Bangladesh, Bosnia and Herzegovina, Chile, Georgia, Indonesia, Mexico, Moldova, Russian Federation, South Africa, Ukraine, and Vietnam.
- **Taxes on SSBs** in Kazakhstan & Ukraine.
- Additionally, a study in Brazil analyzed all three excise taxes on **tobacco, alcohol & SSBs**.



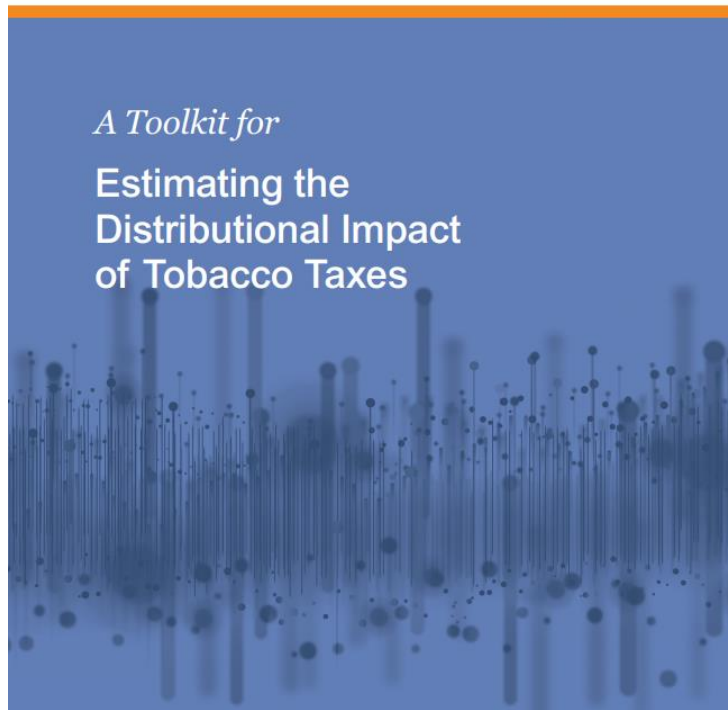
Country applications of the ECBA



Links:

- <https://pubmed.ncbi.nlm.nih.gov/3734366/>
- <https://documents1.worldbank.org/curated/en/358341554831537700/pdf/Distributional-Effects-of-Tobacco-Taxation-A-Comparative-Analysis.pdf>
- <https://openknowledge.worldbank.org/handle/10986/26238?show=full>
- <https://openknowledge.worldbank.org/handle/10986/32062>
- <https://openknowledge.worldbank.org/handle/10986/31249?show=full&locale-attribute=es>
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- https://papers.ssrn.com/sol3/paper.cfm?abstract_id=3144091
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- https://papers.ssrn.com/sol3/paper.cfm?abstract_id=3116474
- <https://openknowledge.worldbank.org/handle/10986/33970>

A Toolkit for Estimating the Distributional Impacts of Tobacco Taxes

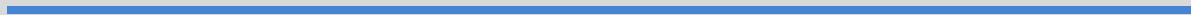


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- World Bank Poverty Team
Tobacconomics @ UIC collaboration
- **Objective:** guide researchers in the analysis of the distributional impacts of tobacco taxation
- **Presents the ECBA:** incorporates impacts of behavioral changes on health and productivity in analyzing distributional impact of tobacco tax
- **Provides** step-by-step instruction of application as well as country example with Stata Codes and results

ECBA Applications & Examples

Taxes on Tobacco



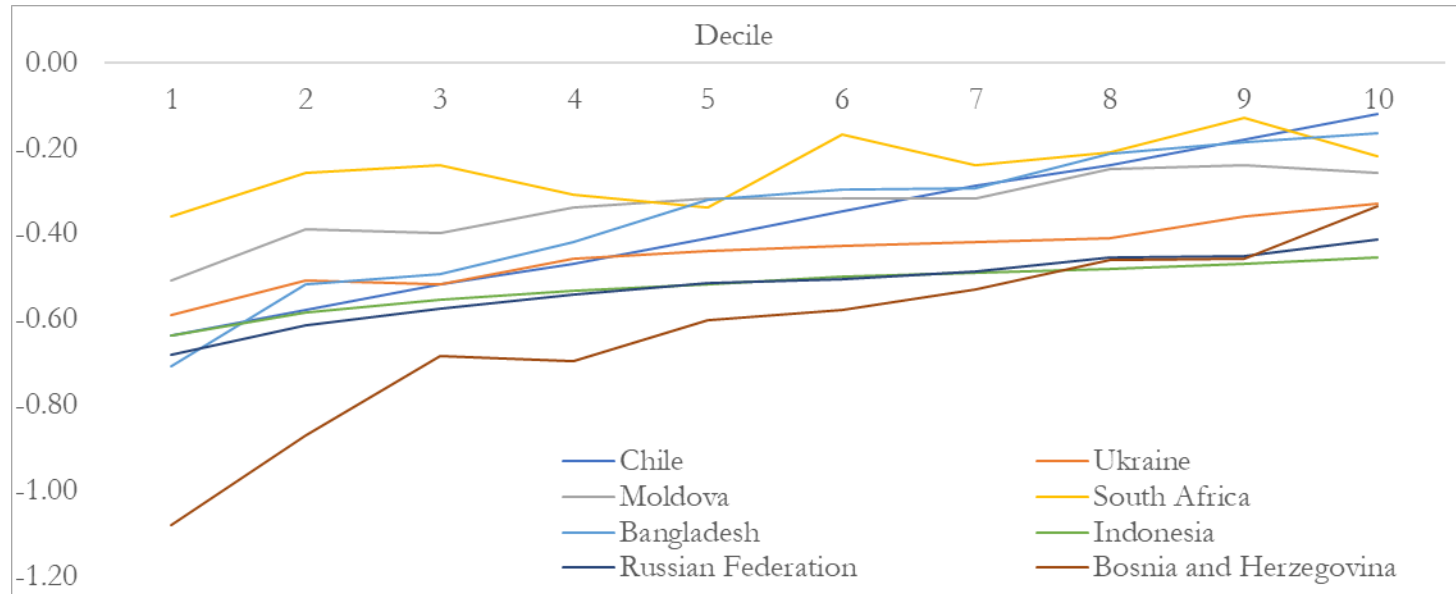
Example: Consumption of Tobacco across deciles

Country	Decile	1	2	3	4	5	6	7	8	9	10	All
Bangladesh	Consumption per capita (US\$)	543	726	849	961	1,081	1,217	1,386	1,615	2,008	3,524	1,391
	Share of tobacco expenditures*	5.40%	5.30%	5.00%	4.90%	4.70%	4.50%	4.40%	4.20%	4.10%	3.60%	4.50%
	Share of smoker households***	18.50%	25.70%	27.30%	28.50%	31.30%	32.10%	29.20%	32.20%	30.90%	27.90%	28.60%
Chile	Consumption per capita (US\$)	1,538	2,540	3,320	3,990	4,799	5,698	6,861	8,824	12,149	22,289	7,198
	Share of tobacco expenditures*	7.70%	6.50%	5.80%	4.50%	4.70%	4.10%	3.60%	3.70%	2.70%	2.20%	4.30%
	Share of smoker households***	21.90%	26.60%	29.20%	27.90%	33.20%	33.00%	32.60%	29.80%	27.50%	23.40%	28.40%
Indonesia	Consumption per capita (US\$)	650	887	1,062	1,278	1,532	1,803	2,179	2,704	3,537	7,062	2,269
	Share of tobacco expenditures*	11.60%	12.70%	12.80%	13.00%	13.10%	13.20%	12.70%	11.90%	10.90%	8.80%	12.10%
	Share of smoker households***	56.20%	63.50%	65.60%	68.80%	69.30%	69.30%	67.80%	65.60%	62.20%	52.90%	63.90%

Source: Based on national household budget surveys of most recent date (generally 2016). Note: Deciles are based on household per capita consumption. * Average household per capita consumption in 2016 PPP U.S. dollars; excludes identifiable rents and lumpy expenses. ** Average share of tobacco in household consumption, conditional on the household reporting positive tobacco expenditures. *** Share of households reporting positive expenditures on tobacco

Example: Price Elasticities of Tobacco

Price Elasticity of Demand for cigarettes, by Decile



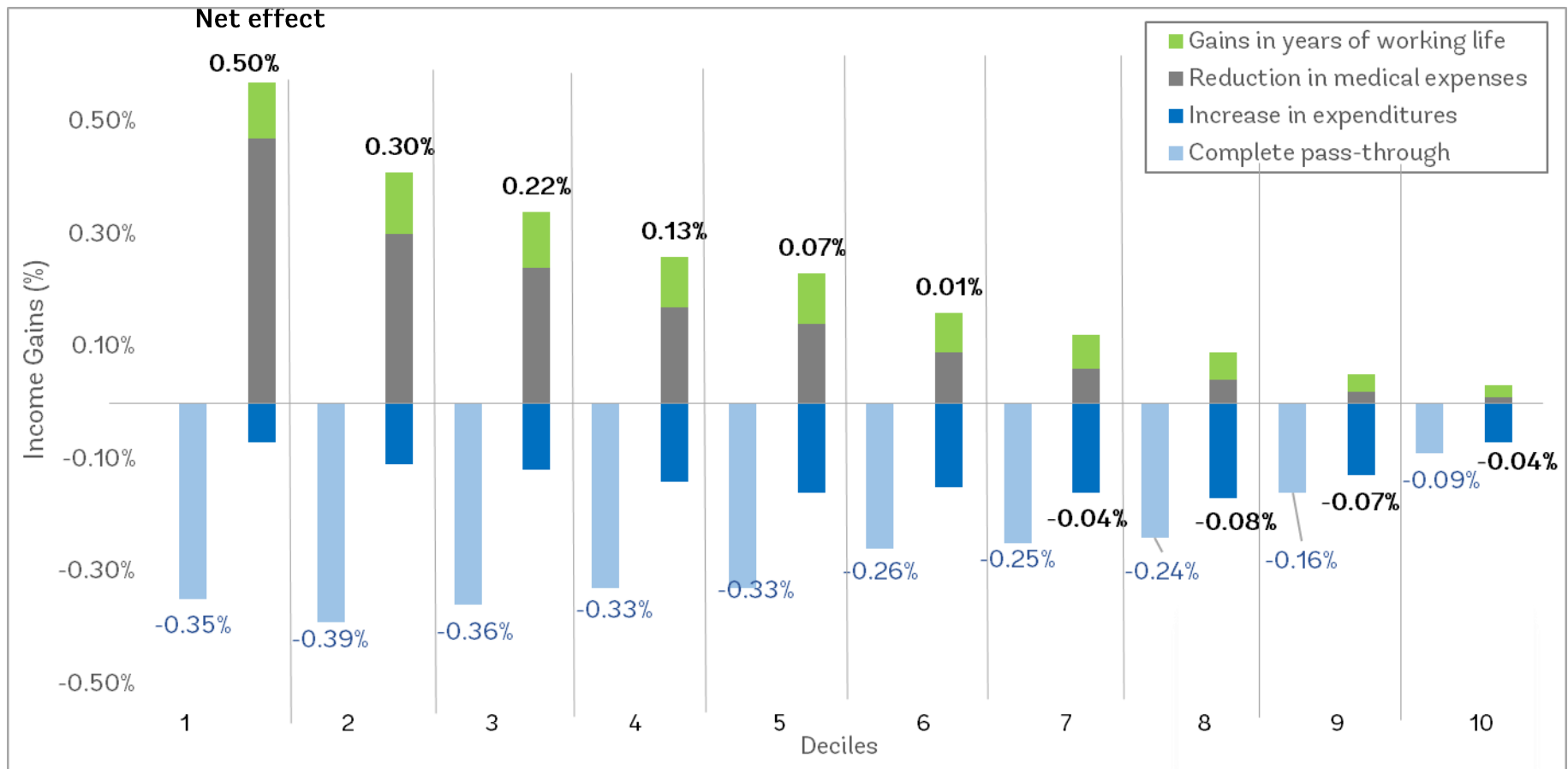
Country	Decile									
	1	2	3	4	5	6	7	8	9	10
Bangladesh	-0.71	-0.52	-0.50	-0.42	-0.32	-0.30	-0.29	-0.22	-0.19	-0.17
Bosnia and Herzegovina	-1.08	-0.87	-0.69	-0.70	-0.60	-0.58	-0.53	-0.46	-0.46	-0.34
Chile	-0.64	-0.58	-0.52	-0.47	-0.41	-0.35	-0.29	-0.24	-0.18	-0.12
Indonesia	-0.64	-0.59	-0.55	-0.53	-0.52	-0.50	-0.49	-0.48	-0.47	-0.46
Moldova	-0.51	-0.39	-0.40	-0.34	-0.32	-0.32	-0.32	-0.25	-0.24	-0.26
Russian Federation	-0.68	-0.61	-0.58	-0.54	-0.52	-0.51	-0.49	-0.46	-0.45	-0.41
South Africa	-0.36	-0.26	-0.24	-0.31	-0.34	-0.17	-0.24	-0.21	-0.13	-0.22
Ukraine	-0.59	-0.51	-0.52	-0.46	-0.44	-0.43	-0.42	-0.41	-0.36	-0.33

Source: Fuchs, Paz & Gonzalez (2019). Note: Estimates based on national socioeconomic surveys. In most cases, a multiple time cross-section model with time fixed effects is used. Demographic controls include the age, education, and gender of the household head, the share of individuals by age-group in each household, and urban status. Deciles based on per capita household expenditure.

Example: Tobacco Taxes in Chile

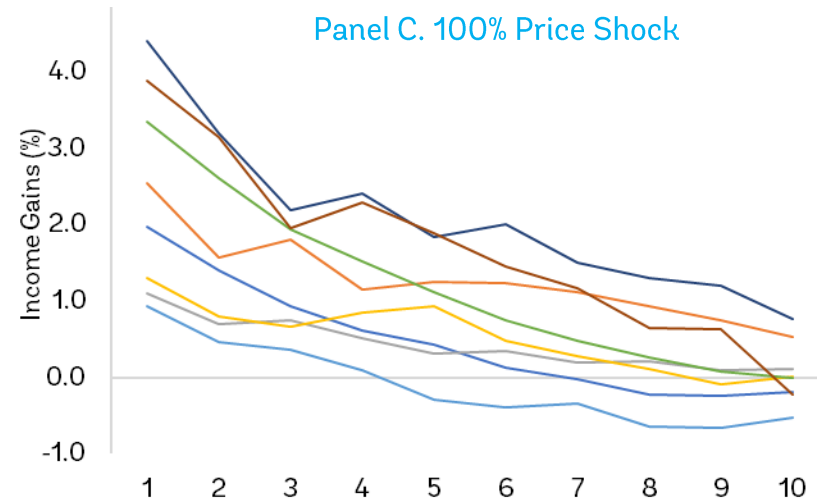
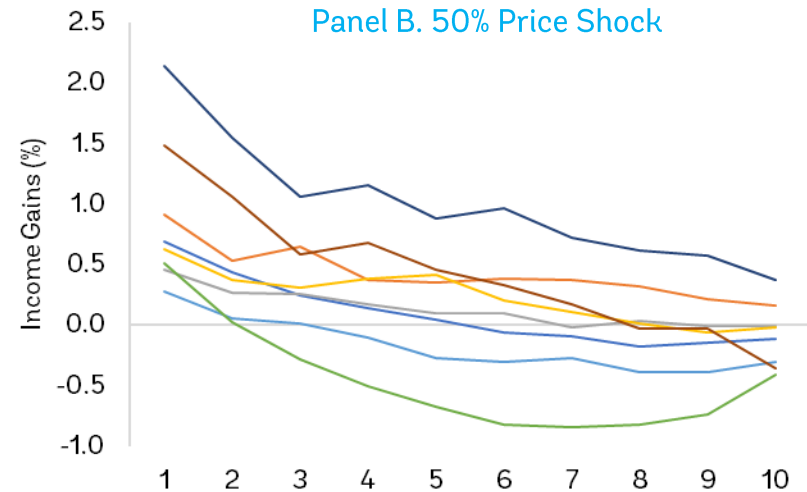
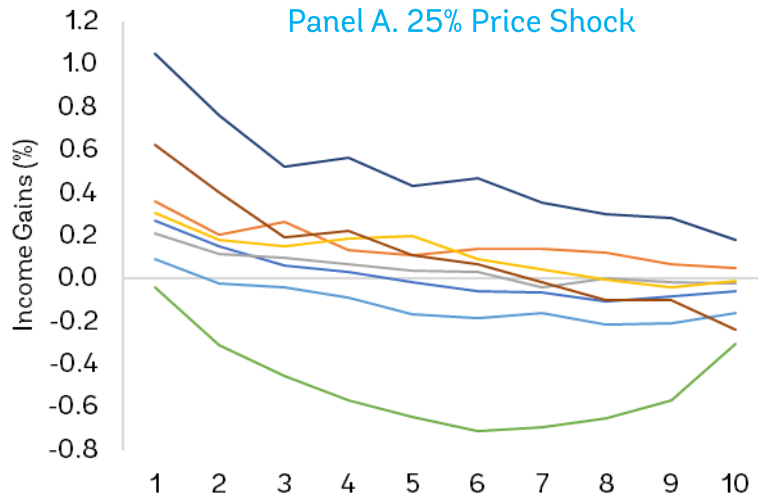
Simulated effects of $\uparrow P$ by 25%

$$\text{Total Net effect} = \boxed{\text{Increase in Tobacco Expenditure (A)}} + \boxed{\text{Lower Medical Expenses (B)}} + \boxed{\text{Rise in Labor Income (C)}}$$



Example: Comparative ECBA of Tobacco Taxes

Simulated net effect of $\uparrow P$ of tobacco, by Decile



- Chile
- South Africa
- Russian Federation
- Ukraine
- Bangladesh
- Bosnia and Herzegovina
- Moldova
- Indonesia

Policy Implications

- Analyzed in isolation, tobacco taxes **increase household expenditures**, a direct welfare loss to households.
- However, tobacco taxes **discourage consumption + induce quitting**.
- In medium/long-term, **gains in health + productivity offset the direct price effects**.
- Moreover, net effects tend to be **progressive and can even be positive**.
 - Net effects depend on magnitude & distribution of price elasticities.
Lower-income consumers are more price-responsive.
 - Need for complementary policies to induce behavioral responses.
- Large weight of **medical expenses** in the net long-term effects.
 - Need for disaggregated high-quality estimates.
- Side benefit of **increased tax revenues**.
 - Improved fiscal balance + fiscal space → Poverty reduction; UHI; social programs.

Thank you!

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