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# Role of Taxes and Subsidies in Addressing NCDs: The Case of Tobacco

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Rachel Nugent  
University of Washington

# Outline

- Tobacco as a risk factor for NCDs
- Tobacco taxation: standard story
- Augmented story
  - Behavioral economics
  - Broad welfare measure
- Subsidies for tobacco cessation – HIC experience
- Conclusions on tobacco
- Application to alcohol
- Application to diet
- Final thoughts

# Tobacco's Shifting Burden: From the Rich to the Poor

More and more people in developing countries are taking up smoking, while people in developed nations are giving up the habit. This means tobacco-related deaths are shifting to low- and middle-income countries.

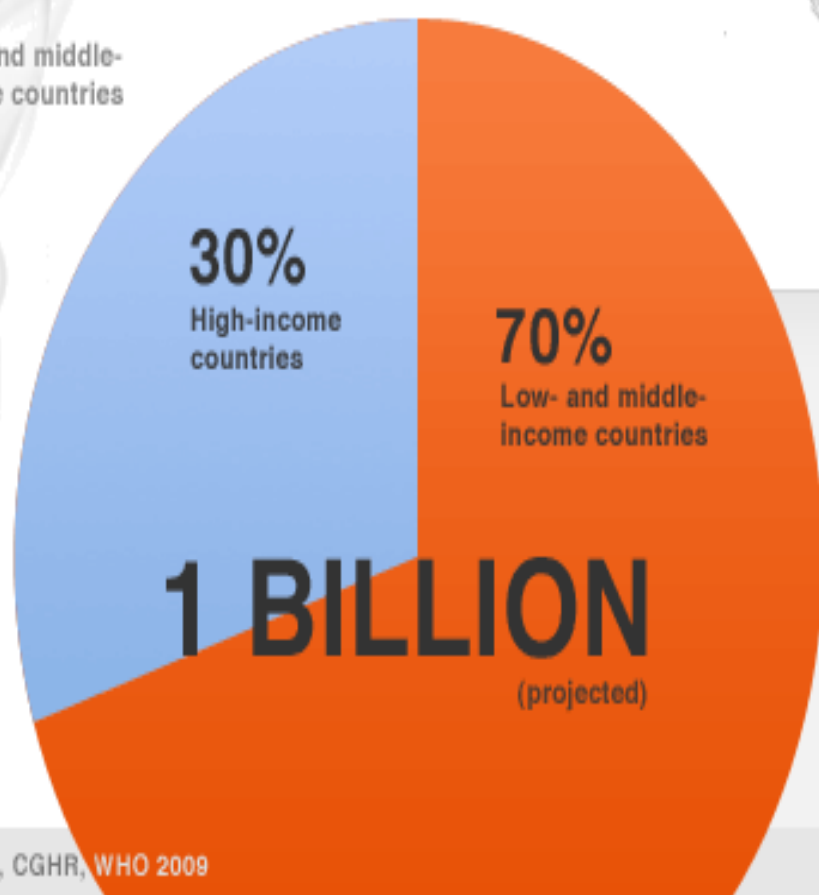
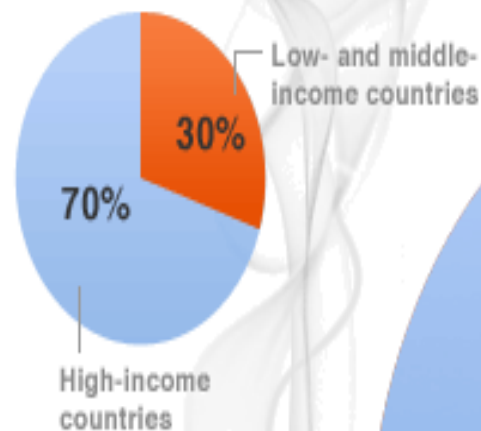
Where do most of the world's smokers live?

## GLOBAL TOBACCO-RELATED DEATHS

20th Century	21st Century
70% High-income countries	30% High-income countries
30% Low- and middle-income countries	70% Low- and middle-income countries

20th Century

21st Century

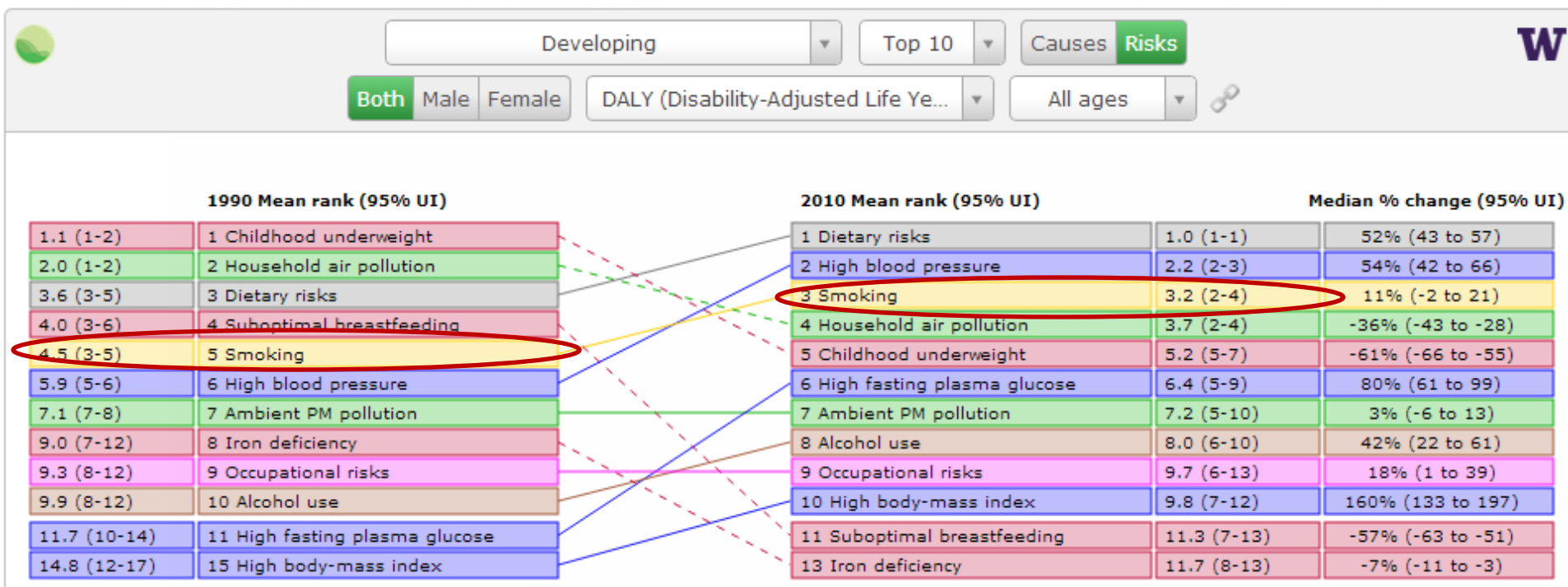


50%

More than 50% of all smokers live in just five low- and middle-income countries.\*

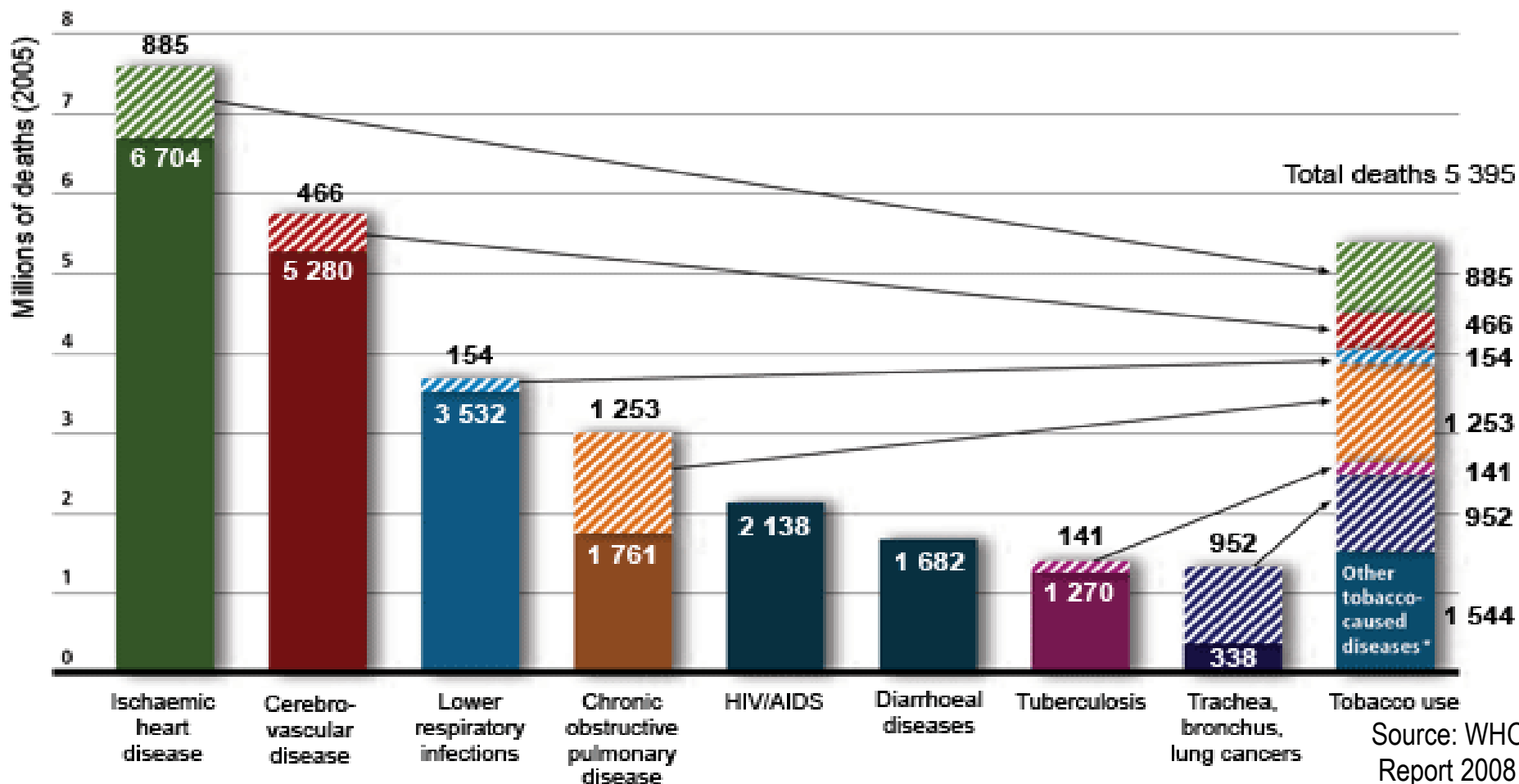
\* Brazil, China, India, Indonesia, Russia

# Tobacco as a risk factor

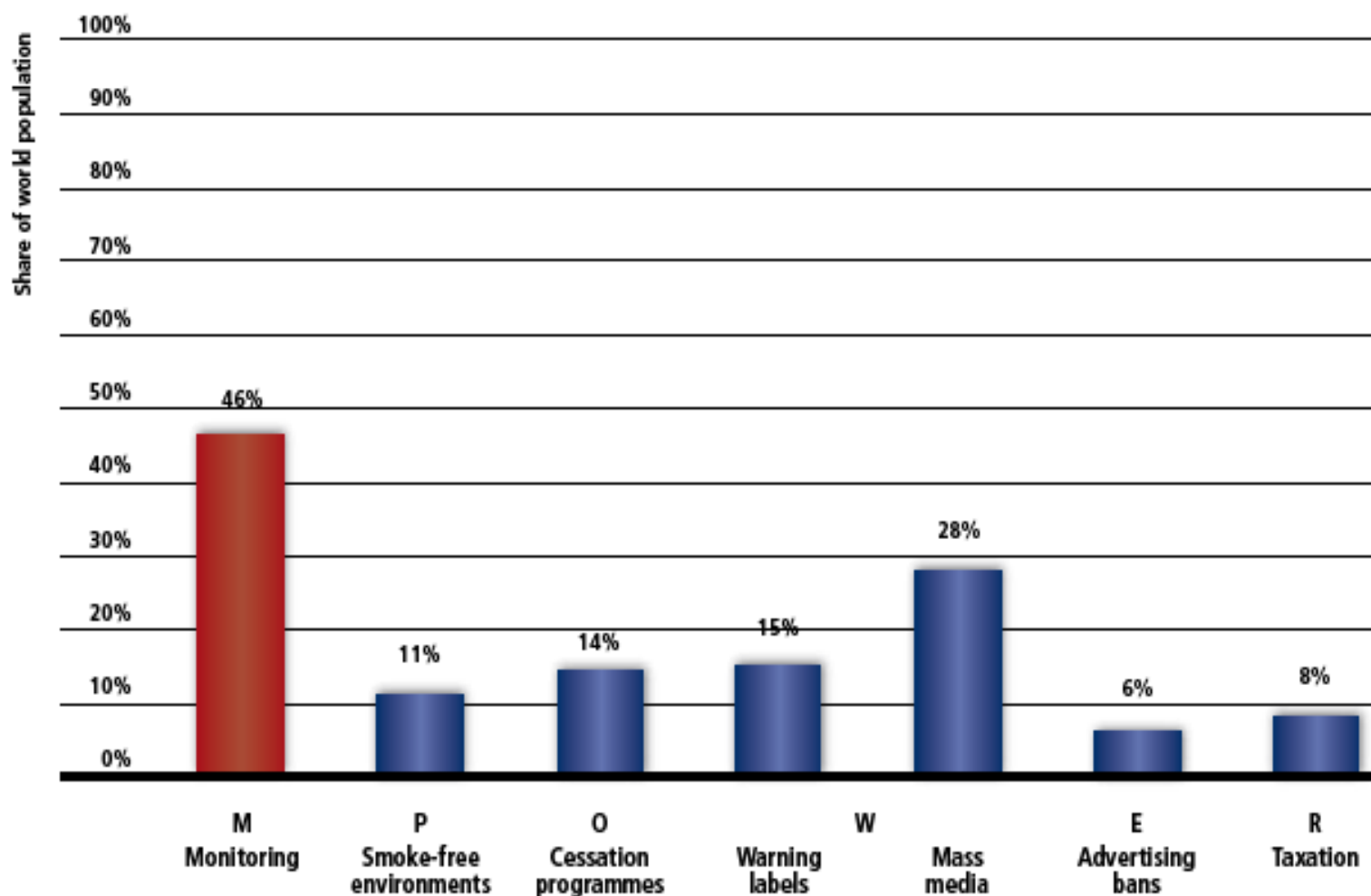


# Tobacco-related deaths, 2002-2030

## TOBACCO USE IS A RISK FACTOR FOR SIX OF THE EIGHT LEADING CAUSES OF DEATH IN THE WORLD

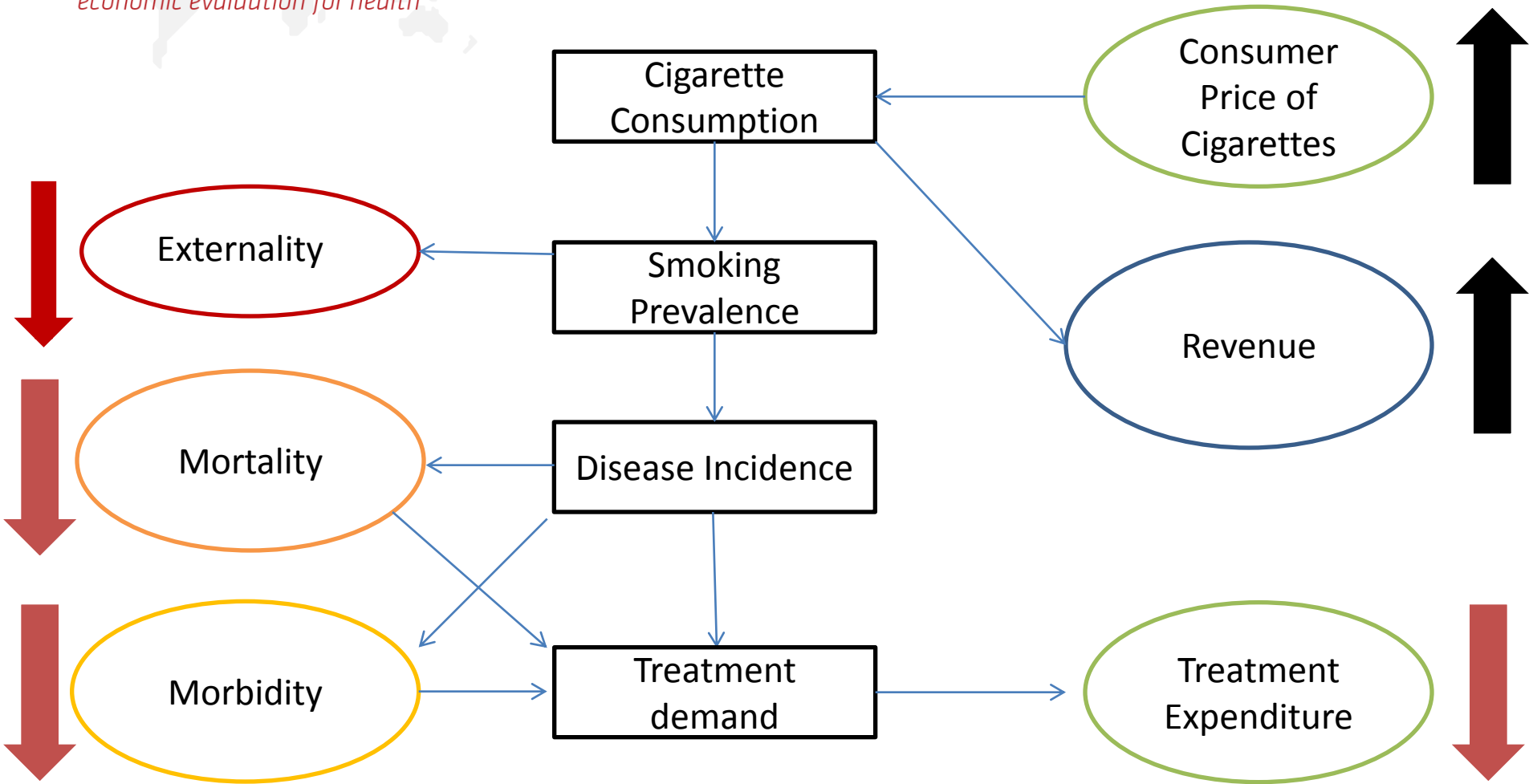


## SHARE OF THE WORLD POPULATION COVERED BY SELECTED TOBACCO CONTROL POLICIES, 2010



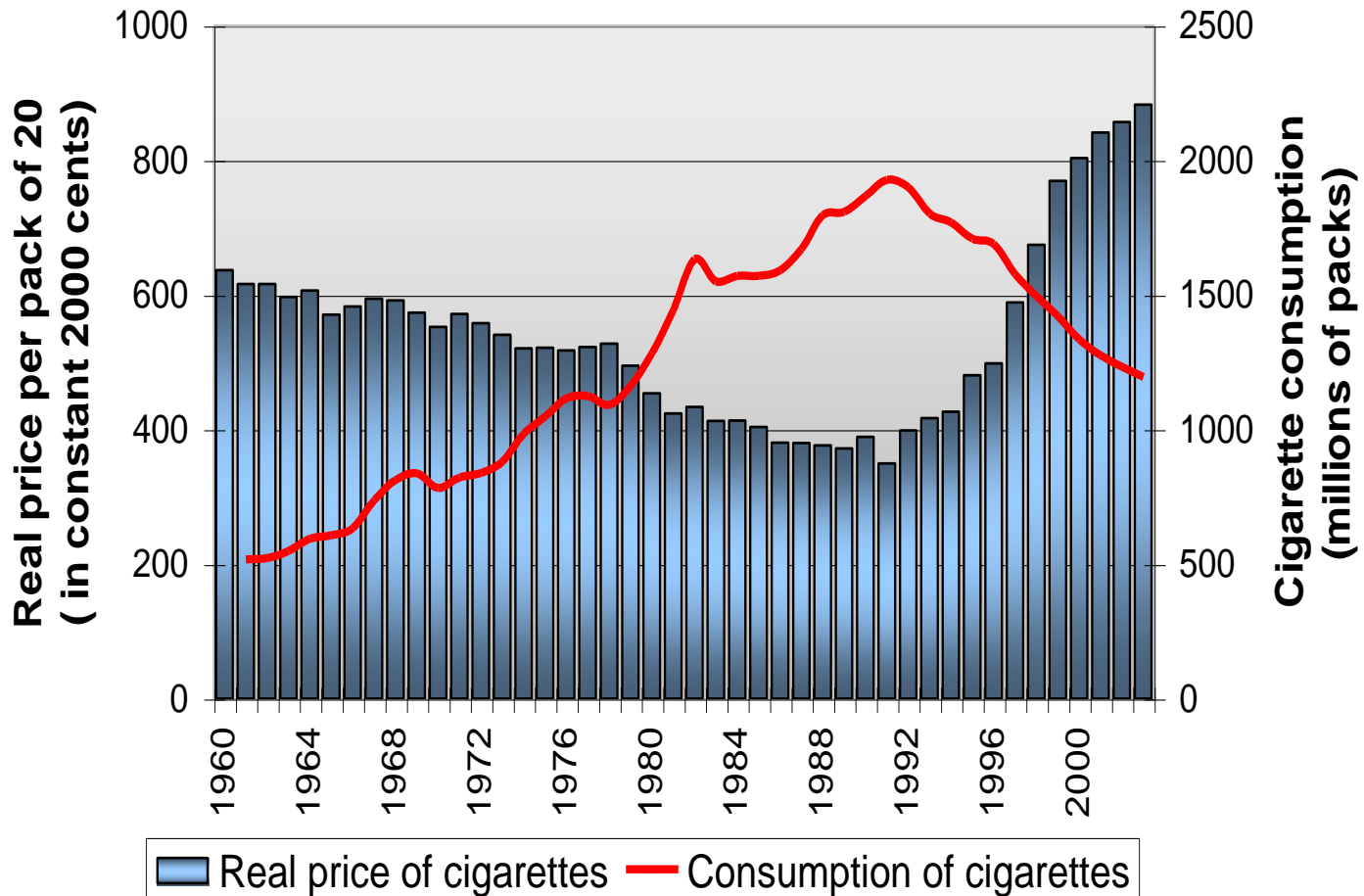
Note: The tobacco control policies depicted here correspond to the highest level of achievement at the national level; for the definitions of these highest categories refer to Technical Note I.

# Tobacco Taxation: Standard Story



# Tobacco taxation

Inflation Adjusted Cigarette Prices and Cigarette Consumption, South Africa, 1960-2003





# Tobacco Taxation: Issues

- Concerns: tax will disproportionately harm the poor, encourage smuggling, create efficiency loss (DWL), cause switching to more harmful products.
- More recent evidence from LMICs...
- Need to understand effectiveness of tax policy, incidence, admin and compliance costs, and revenue stability to make appropriate policy recommendations.

# Welfare effects: Elasticities

- Efficiency and fiscal effects depend on elasticity and price of cigarettes.
  - Participation elasticity:
    - How much being a smoker responds to a change in price.
  - Intensity elasticity:
    - How much the number of cigarettes a smoker smokes per day responds to a change in price.

	Income Quintile I	Income Quintile II	Income Quintile III	Income Quintile IV	Income Quintile V
Participation Elasticity	-0.5	-0.5	-0.4	-0.3	-0.2
Intensity Elasticity	-0.9	-0.9	-0.7	-0.4	-0.3

# Behavioral issues

- Deviations from “rational addiction” may arise due to:
  - Time inconsistent preferences
  - Poor predictive abilities about the future
- **Behavioral model** (Gruber and Koszegi, 2001) suggests the need to account for “internalities,” which greatly exceed external costs. Greater efficiency is still achieved with a tax, but optimal tax is derived differently.
  - Observe differentiated behaviors regarding addiction: sophisticated and naïve agents.
  - The former can benefit from commitment devices *if they work* (and therefore smaller optimal tax). The latter is a special class of hyperbolic discounters who don’t predict their future behavior well. They require a much higher tax.

*economic evaluation for health*

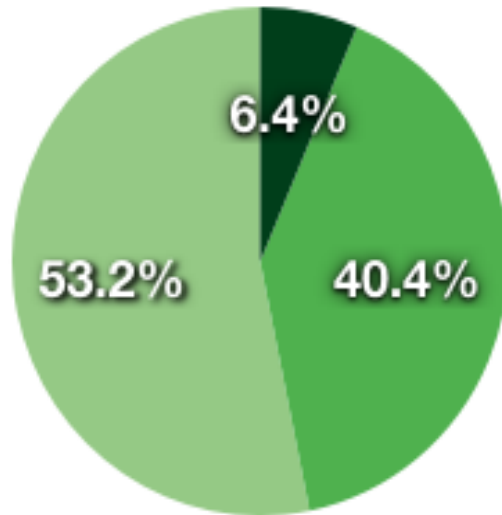
- Addresses concerns that poor will pay disproportionately more.
- Marginal effects may not be regressive. With a tax increase, poor reduce smoking more, gain more health, spend less on health care.
- Full benefit measure suggests far greater benefit from taxation

Priority Area	Indicative Benefit-Cost Ratio	Annual Costs (\$ billions)	Annual Benefits <sup>b</sup>
1. Cancer, heart disease, other: tobacco taxation	40:1	0.5	1 million deaths averted or 20 million DALYs

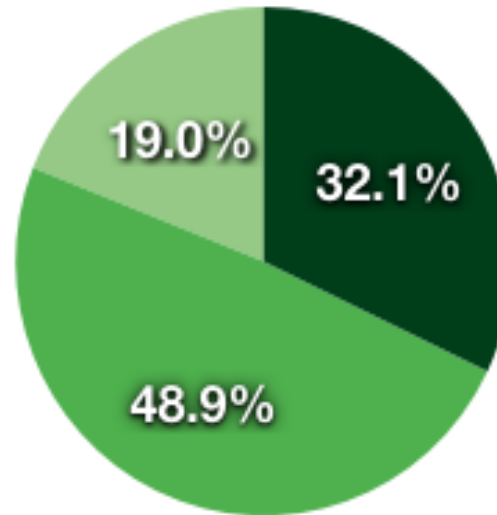
# People's Republic of China

## Distribution of marginal taxes and health benefits by SES group

Marginal taxes paid by SES



Deaths averted by SES



● Low ● Middle ● High

Low SES group:

Pays **6.4%** of increased taxes

Receives **32.1%** of health benefits

Health/tax ratio: **5.02**

# Subsidies for tobacco cessation

- Incentive programs, largely through employer-based insurance
  - MassHealth: smoking rates dropped 26%, CVD events dropped 46% in 2 years
- Likely to be high infra-marginal effects. Smokers with intent to quit are more likely to do so with incentives. (Hammar, 2005)

# Conclusions

- Tax increases should be large
- Country context is important, especially for political economy of tobacco tax, FCTC implementation.
- Consider financial transfers to hold harmless tobacco industry, farmers

# Application to alcohol

- Standard public finance taxation applies: consumers are price responsive, differentially by beverage and by consumer characteristics
- Special issues: drunk driving penalty preferred to general alcohol tax ...
  - “Normal” vs. binge drinking – different from tobacco (not all drinking is harmful)
  - Regressivity concern – similar to tobacco (tax increase not necessarily regressive with full benefit measure)
- ... unless fiscal component is large
  - Then tax is efficient and may be preferred to drunk driving penalties (Perry, West, Laxminarayan, 2009)



# Application to F&B

- The “internalities” notion of the basic behavioral model applies:
  - Time inconsistent preferences
  - Poor predictive ability
- Externalities may exist as well
  - Network effects of obesity
  - Poor knowledge of harmful behaviors (ingredients, portion size)
- Special issues:
  - “Harm” is relative, not absolute
  - Many highly substitutable products
  - Basic public finance tells us to tax the “bad” as directly as possible. Danish “fat” tax ignored that advice. Important for sugar taxes too.

# F&B Application (cont.)

- First, do no harm
  - Don't tax what's not bad (except for fiscal reasons)
  - Be sure the changes you get are the changes you want
- Subsidies are likely to work better, but need to be large
  - Even the playing field (vis a vis less healthy commodities)
  - Better targeting of a broad group of foods
  - No natural opposition

# Final thoughts

- Re externality as a justification for taxation, it doesn't work as well for F&B as for alcohol, and doesn't work as well for alcohol as for tobacco. But in all these cases, the majority of harm is to the individual, so the "internalities" become very important to understand in determining optimal taxation.
- Can strengthen arguments for the other justifications to (carefully) extend the use of pricing policies: revenue generation (properly used), equity (espec. Tobacco and F&B), and public health in LMICs.