

Factors affecting consumer behavior of purchasing tobacco products



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Introduction

- The demand for a product means how much of the product consumers are willing and able to purchase.
- The determinants of individuals' demand generally include price of the product, prices of related products, consumers' income and tastes.
- This presentation discusses the major determinants of tobacco demand, in particular the relationship between tobacco demand and the price of tobacco products and consumer income.



Outline

- **Determinants of demand for tobacco products**
- **Price elasticity of demand**
- **Higher prices influence the demand for tobacco products in two ways**
- **Global evidence on price sensitivity of tobacco consumption**
- **Law of demand-Negative relationship between price and consumption**
- **Price elasticity by age group**
- **Price elasticity by income/education/socioeconomic status**
- **Price elasticity by price band**
- **Short-run vs long-run price elasticity**
- **Decomposition of price responsiveness**
- **Income elasticity of demand**
- **Positive relationship between income and consumption**
- **Changing consumers' taste and increasing purchasing power**



Determinants of consumer demand for tobacco products

The consumption of tobacco depends on

- Price of the tobacco product
- Disposable income of the consumer
- Demographic characteristics of the population (e.g., gender, age, ethnicity)
- Socio-economic status of the population (e.g., education, occupation, employment status)
- Rural versus urban area of residence
- Tobacco control interventions (e.g., smoking restrictions, bans on advertising and promotion of tobacco products)
- Knowledge and information about the health effects of tobacco use



Price elasticity of demand

- The effect of price change on demand is measured by price elasticity.
- Price elasticity is defined as the percentage change in consumption in response to 1% change in price.
- A price elasticity of -0.4 indicates that when price increases by 10%, demand reduces by 4% in a reasonable period of time that allows the consumers to adjust that tobacco use behavior. In effect, the cut down in aggregate consumption is expected to appear in the monthly or annual sales data available from government sources.
- The methods of estimating the price elasticity of demand are summarized in the presentation 2.2 “Estimating Price and Income Elasticity of Demand”.



Higher prices influence the demand for tobacco products in two ways:

1. They reduce the prevalence of tobacco use

- by discouraging non-users from taking up tobacco use;
- by encouraging existing users to quit;
- by helping former users to stay quit;
- by preventing occasional smokers from turning into regular smokers.

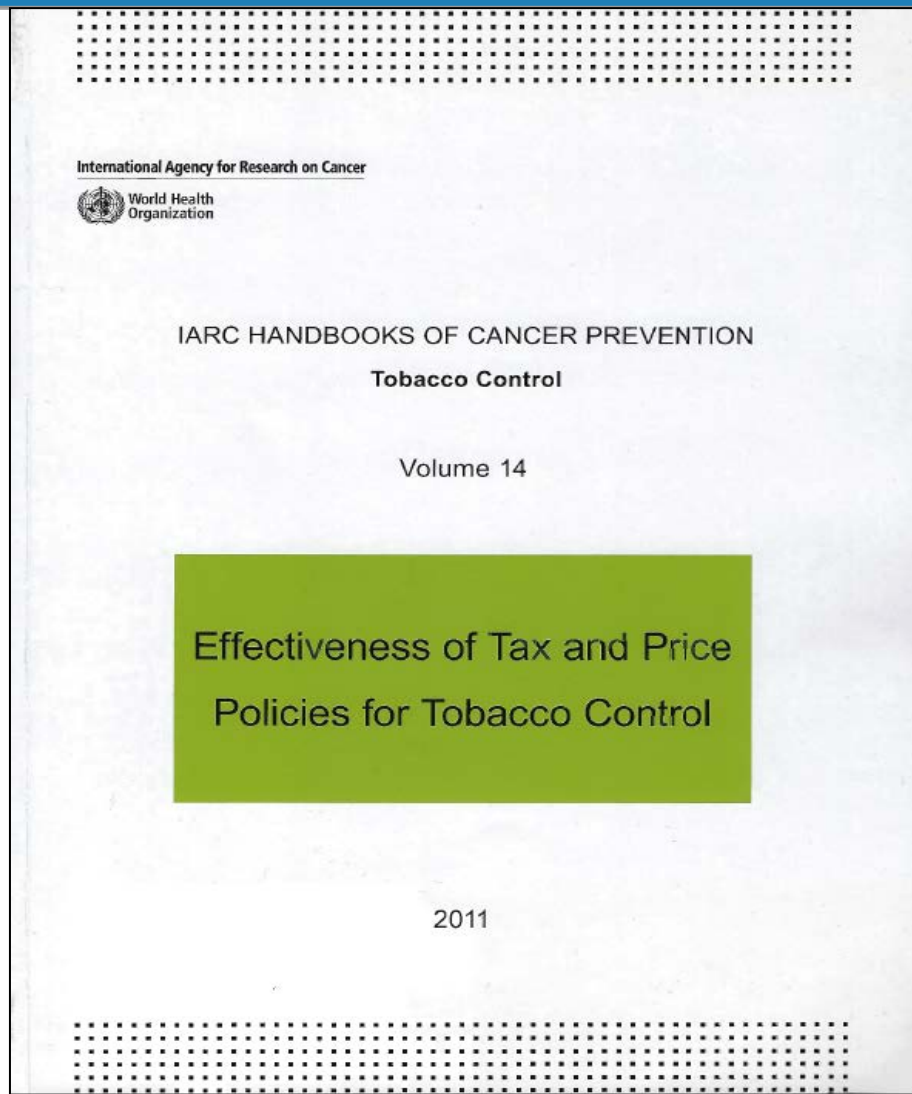
2. Higher tobacco prices reduce the consumption of tobacco products among those who continue to use tobacco after a price increase.

Total price elasticity = Price elasticity of smoking prevalence +
Price elasticity of smoking intensity



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Global evidence on price sensitivity of tobacco consumption



Increases in tobacco excise taxes that increase prices result in decline in overall tobacco use by

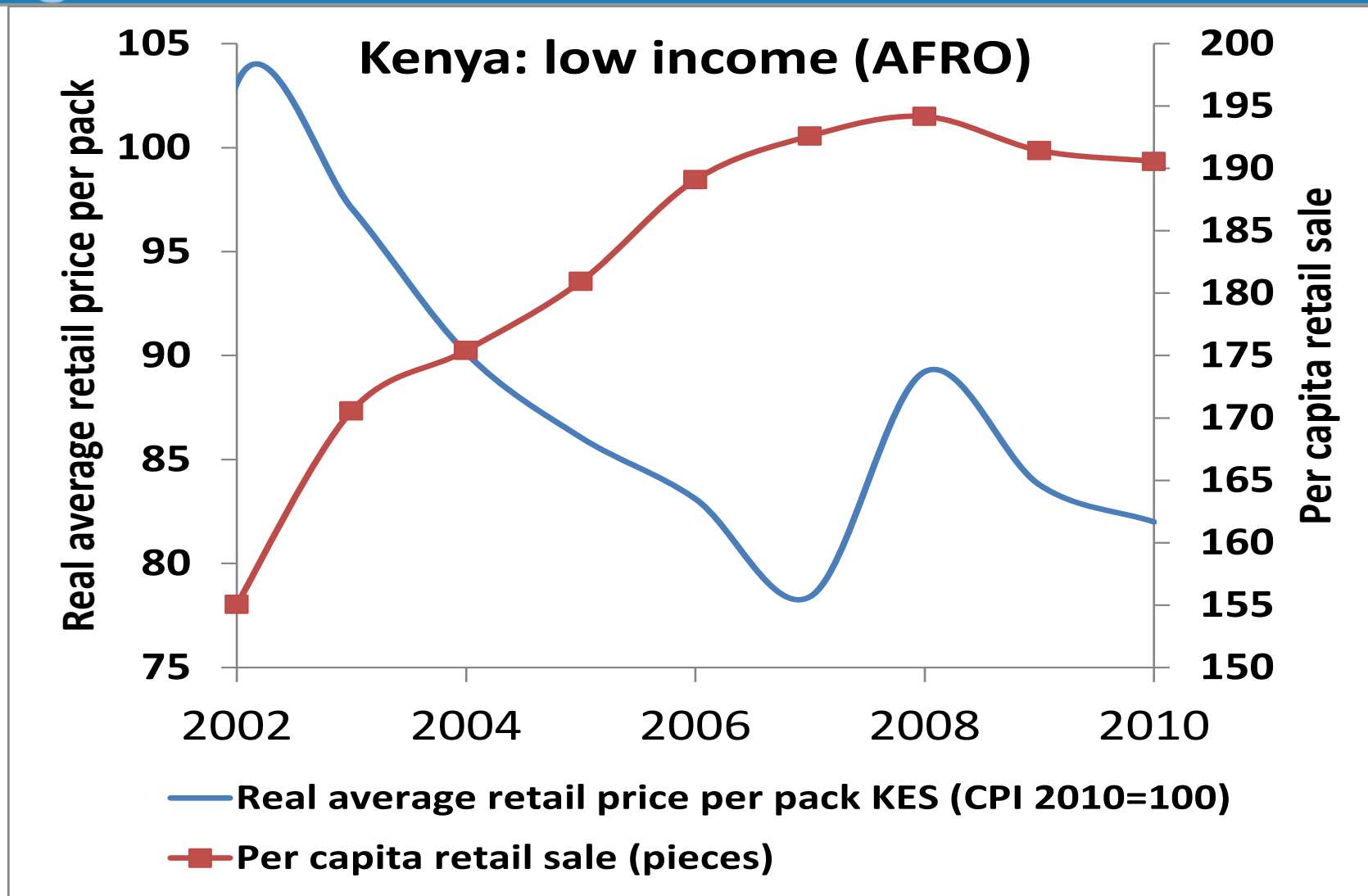
- Inducing current tobacco users to quit
- Lowering the consumption of tobacco products among continuing users
- Reducing the initiation and uptake of tobacco use among young people, with a greater impact on the transition to regular use



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Price: Law of demand

Negative relationship between price and consumption regardless of income status of the countries



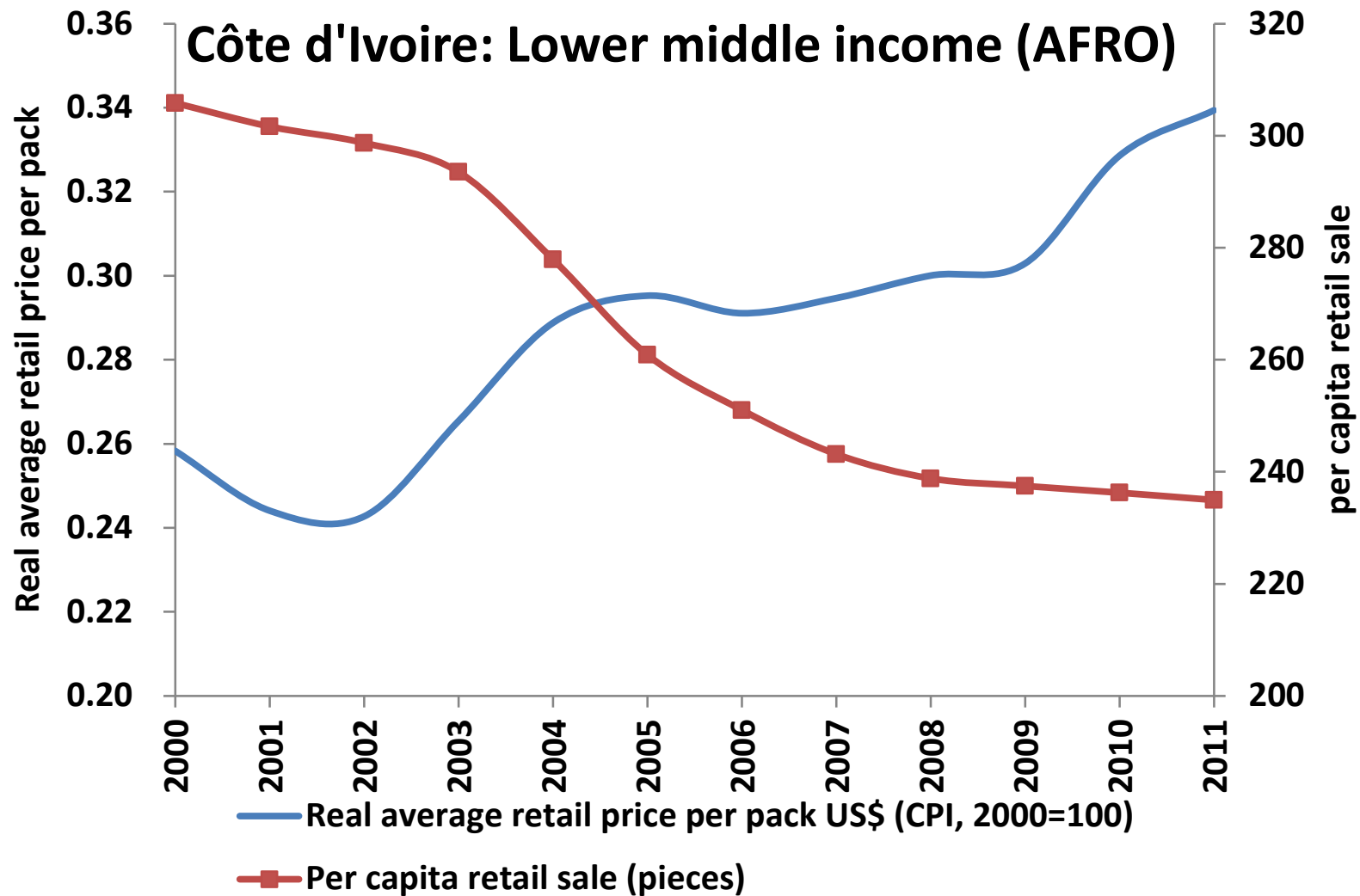
Source: WHO calculations based on WHO, TMA and World Bank data, 2011



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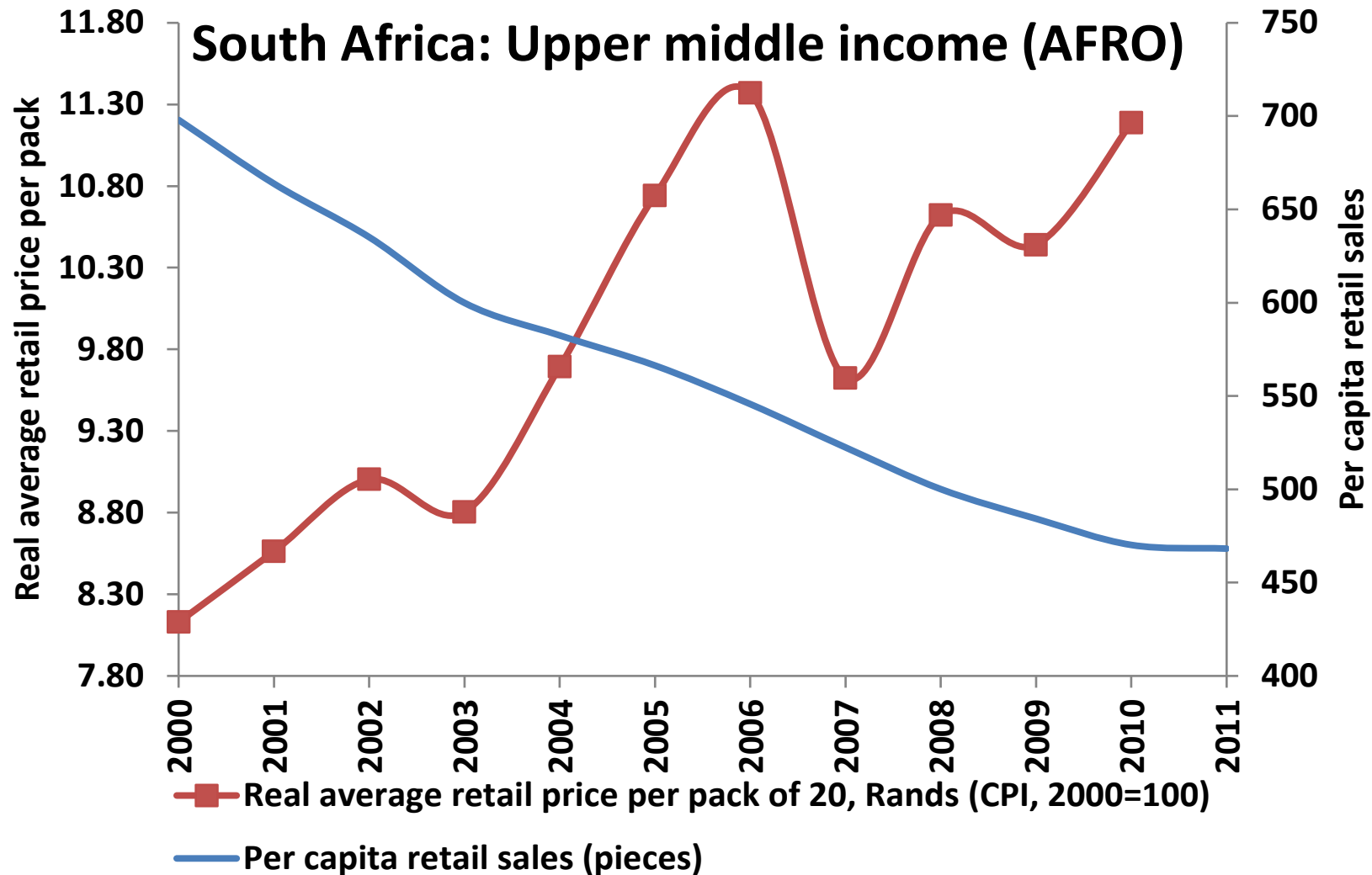
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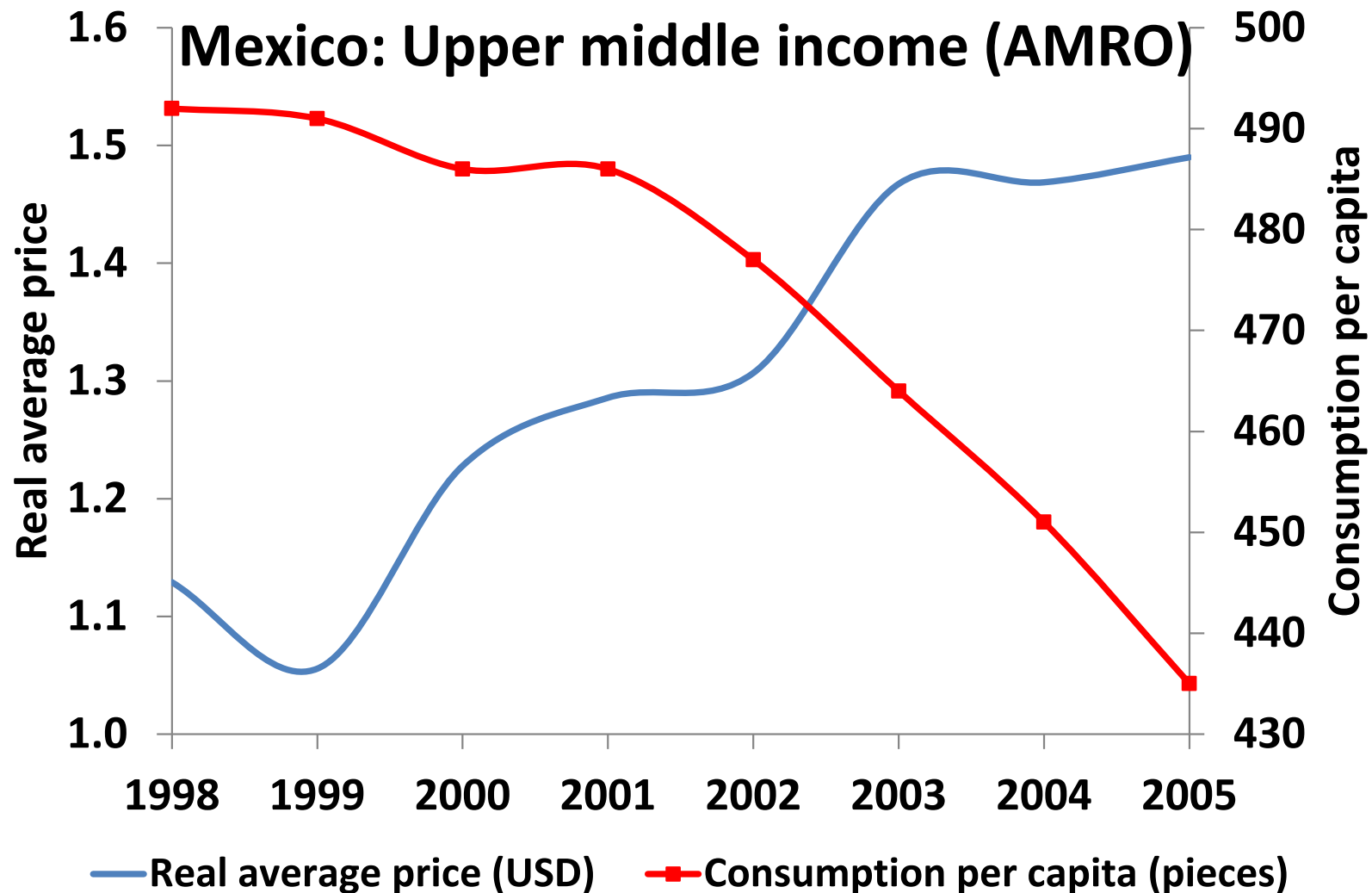
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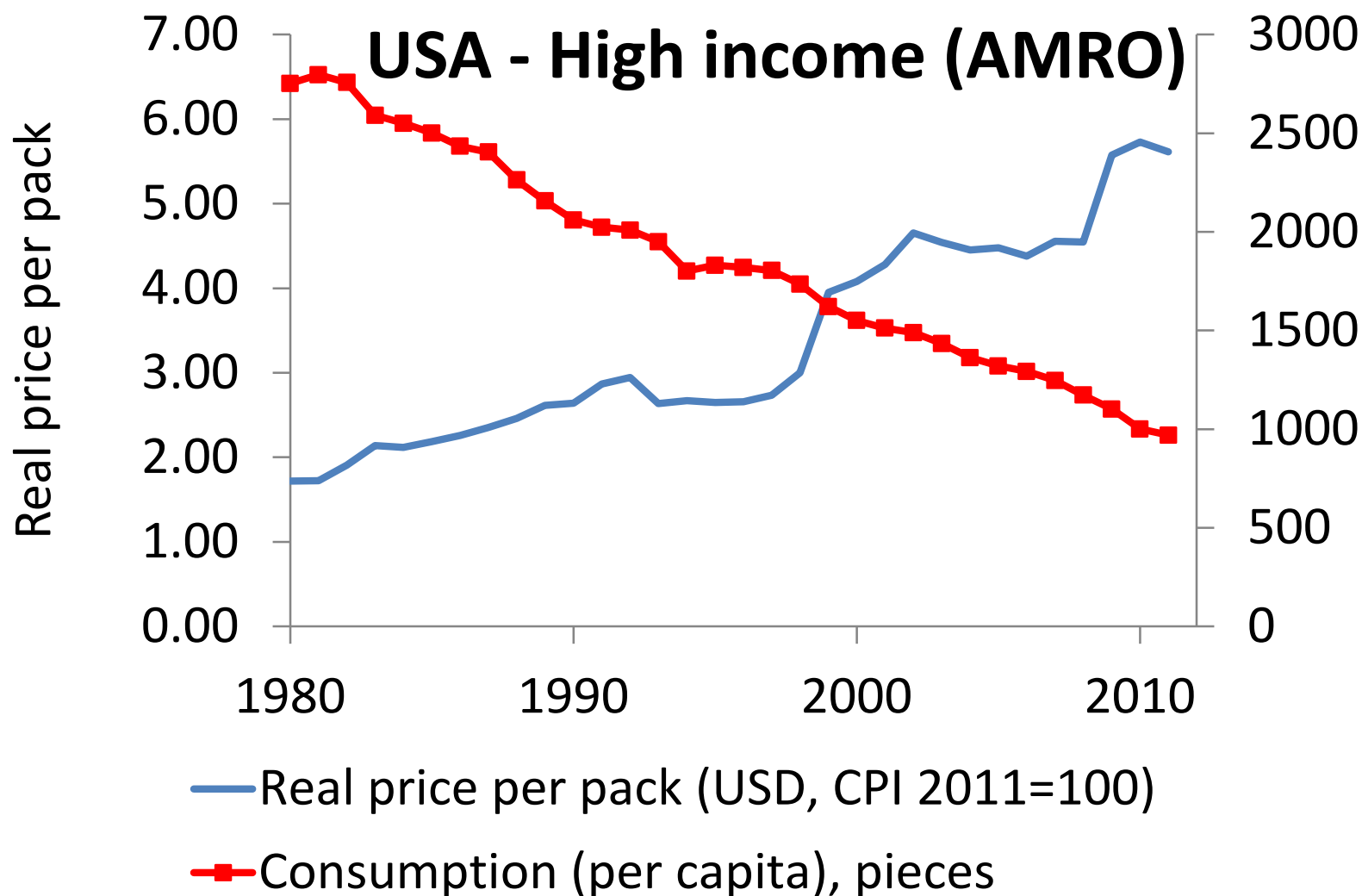
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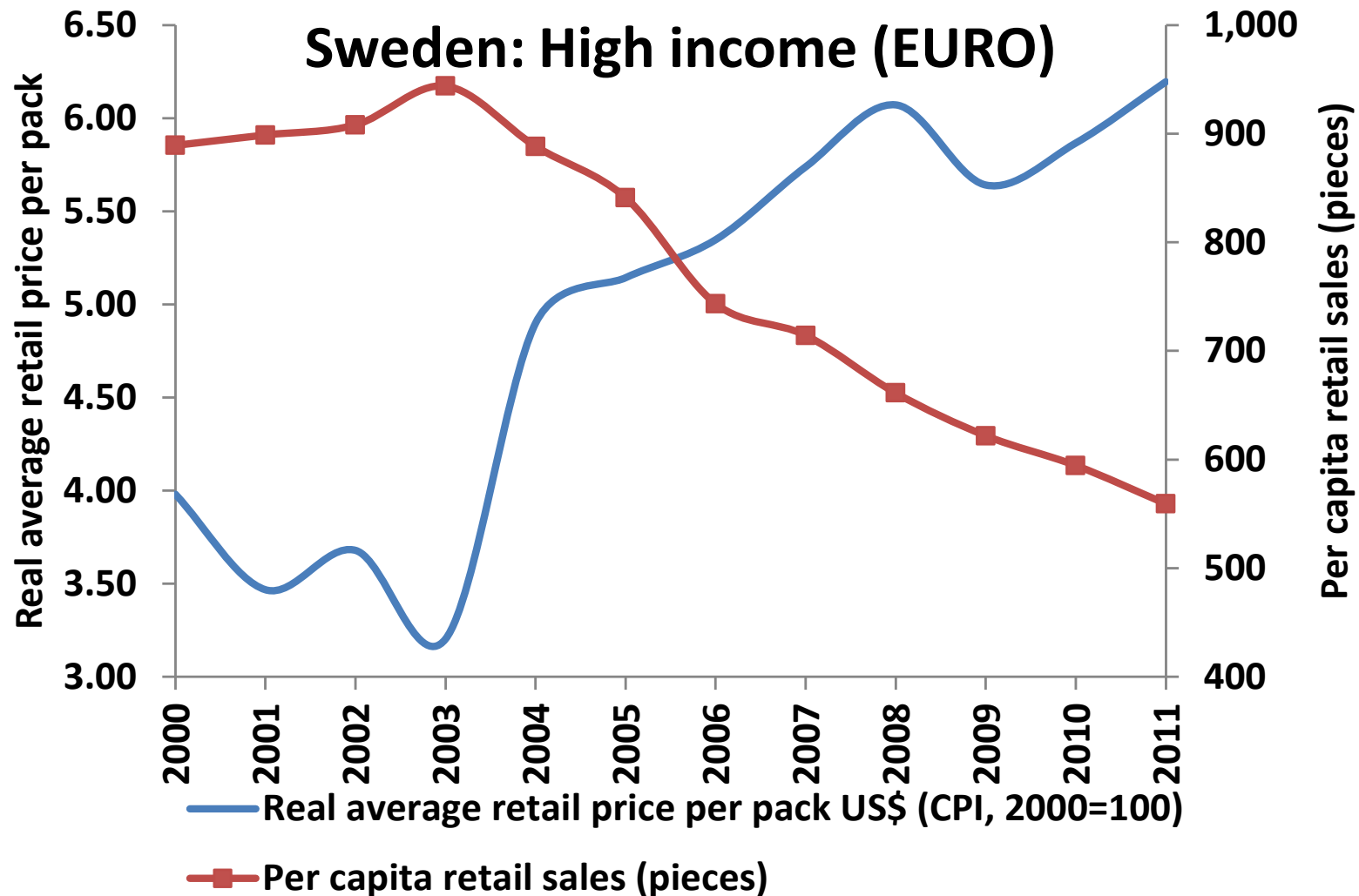
Source: WHO calculations based on data from Tax Burden on Tobacco, 2011



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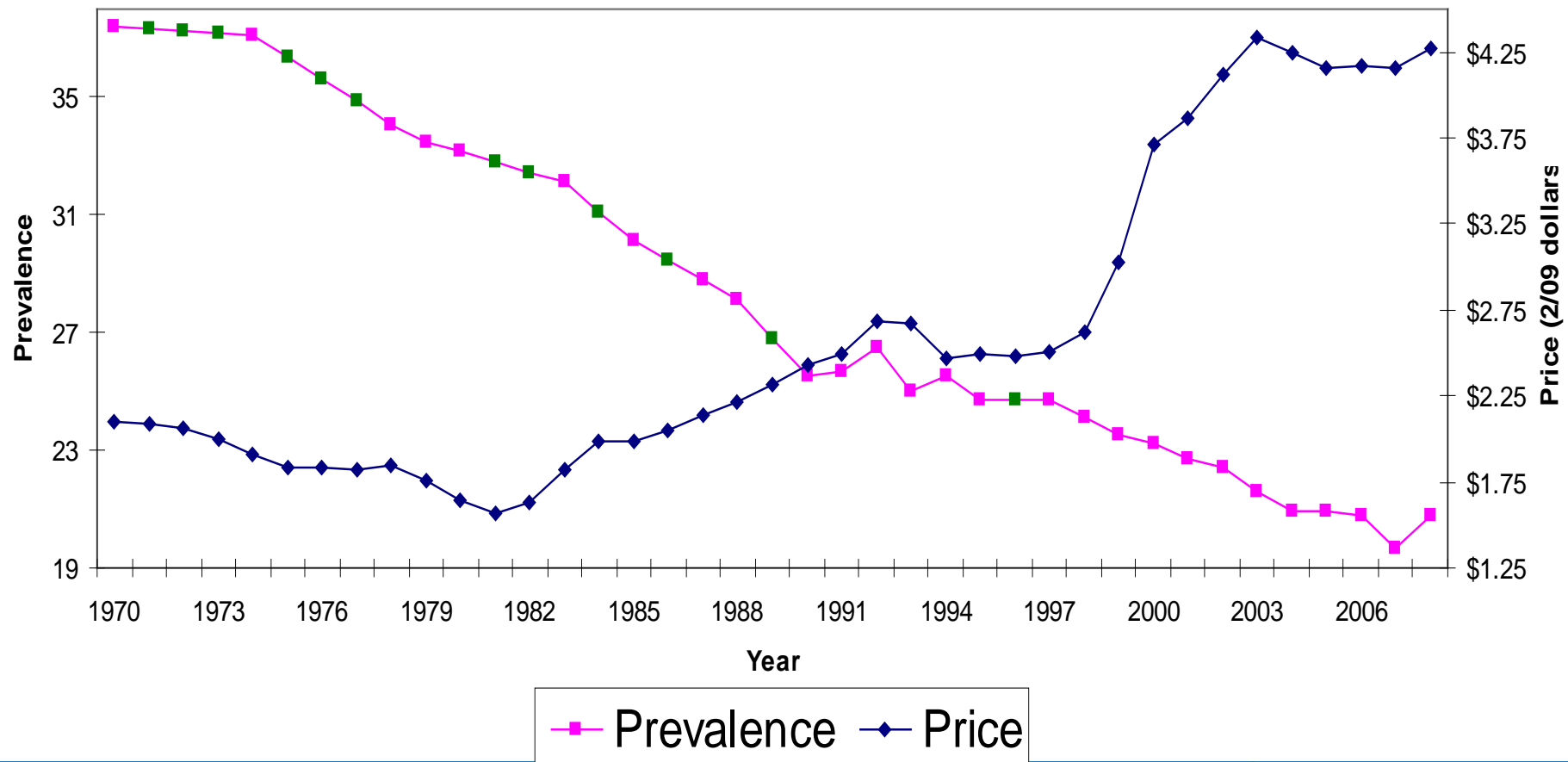
Source: WHO calculations based on data from Tax Burden on Tobacco, 2011



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Cigarette price and adult smoking prevalence in USA

Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2008



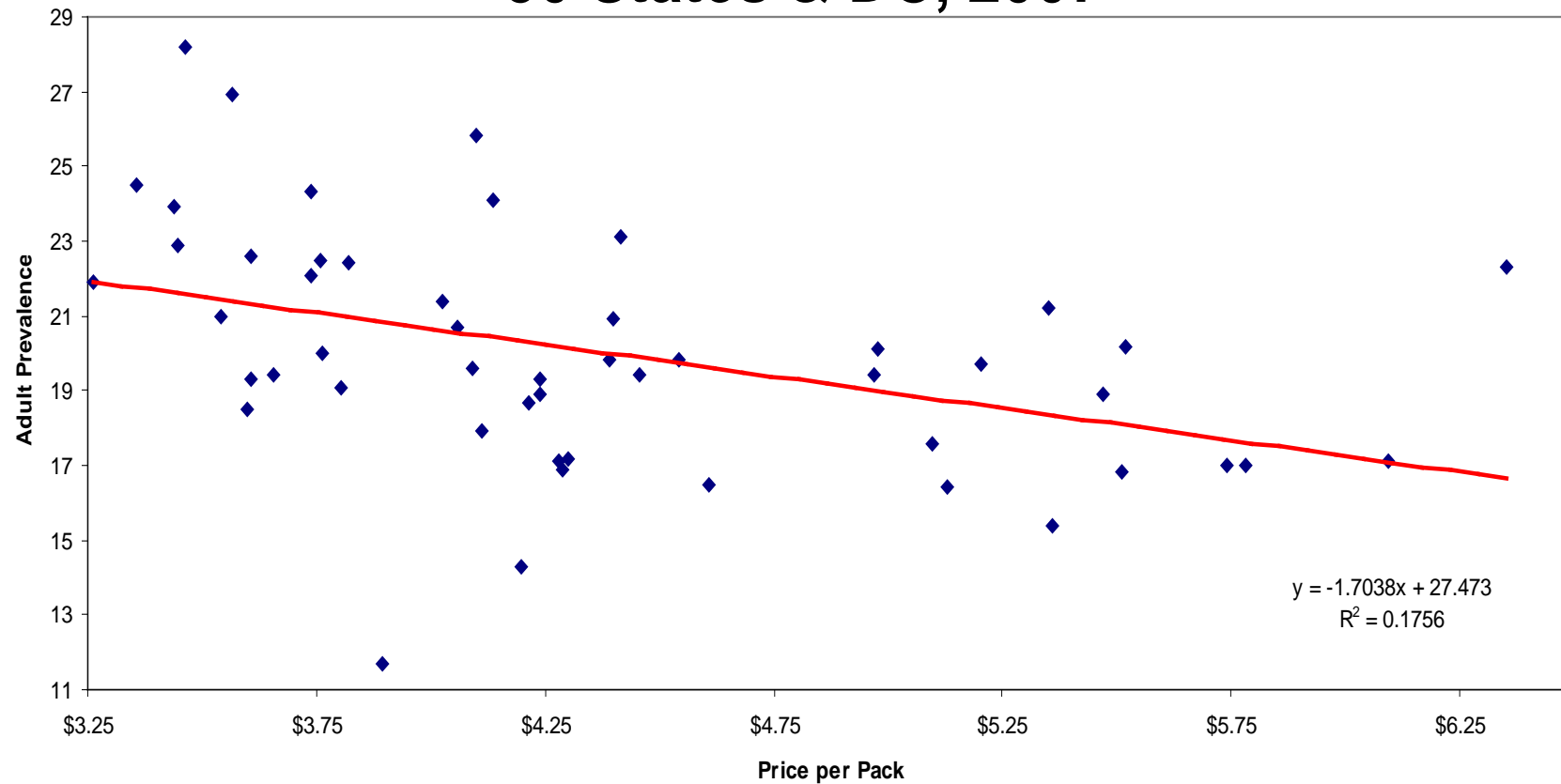
Source: Frank Chaloupka



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Negative relationship between cigarette prices and adult smoking prevalence in USA, 2007

Cigarette Prices and Adult Prevalence, 50 States & DC, 2007



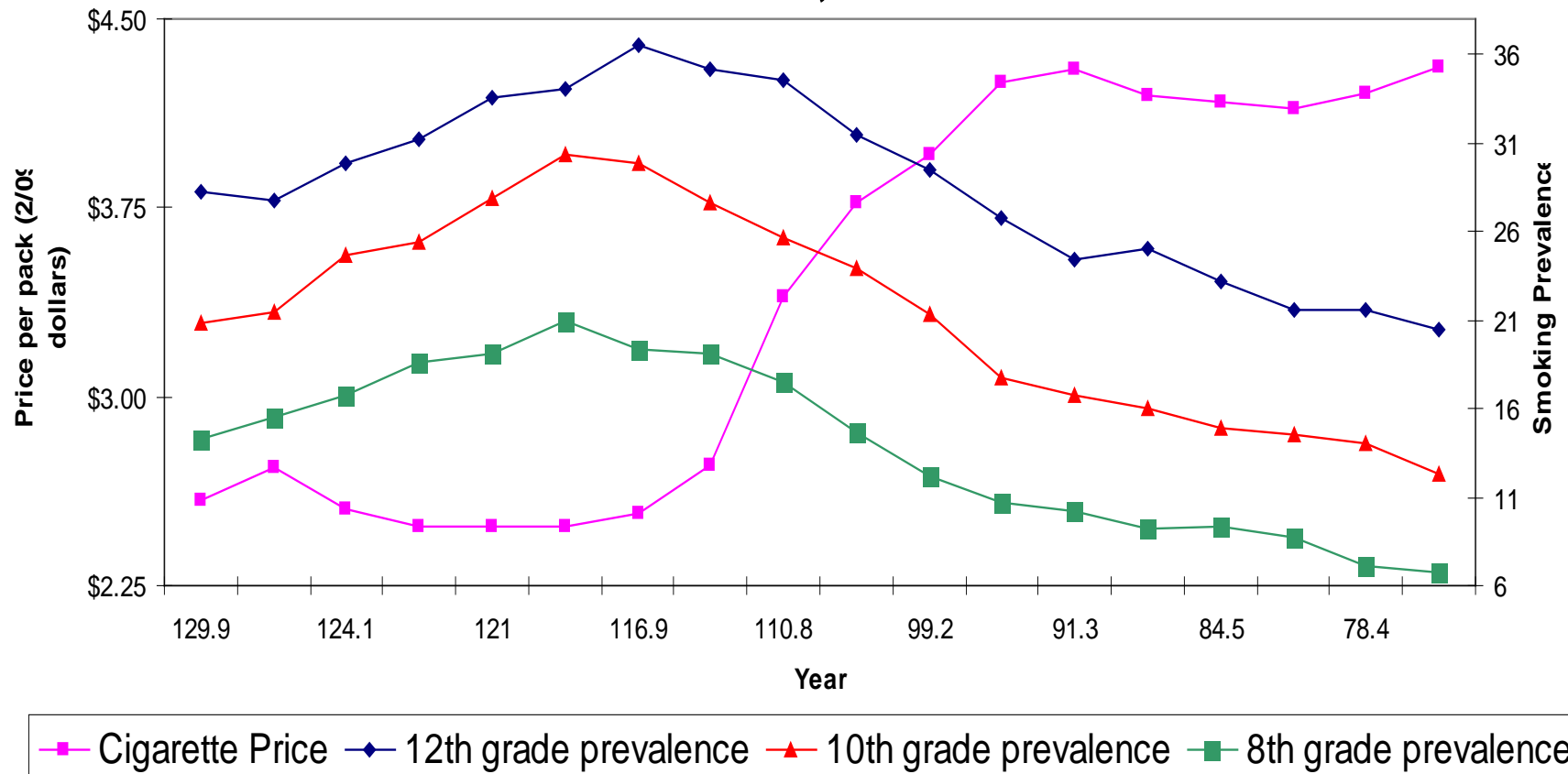
Source: Frank Chaloupka



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Cigarette price and youth smoking prevalence, USA

Cigarette Price and Youth Smoking Prevalence, United States, 1991-2008



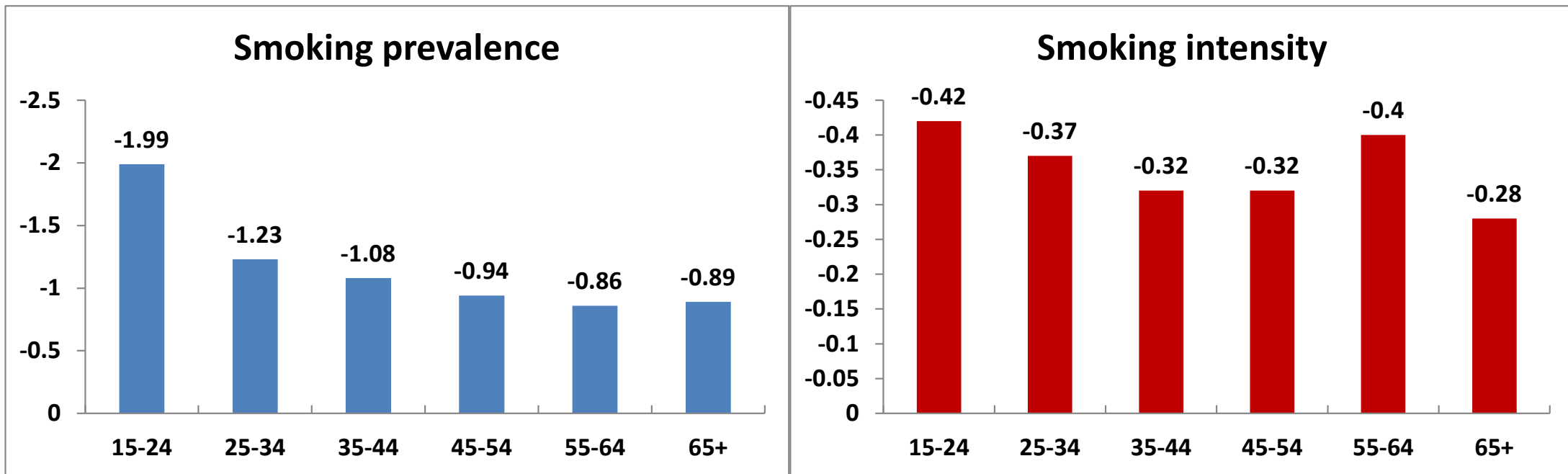
Source: Frank Chaloupka



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Price elasticity by age group

- The youth are more price sensitive than the adults, particularly with respect to smoking prevalence, which signifies the role of price and tax measures in smoking prevention.
- Example: Myanmar price-elasticities

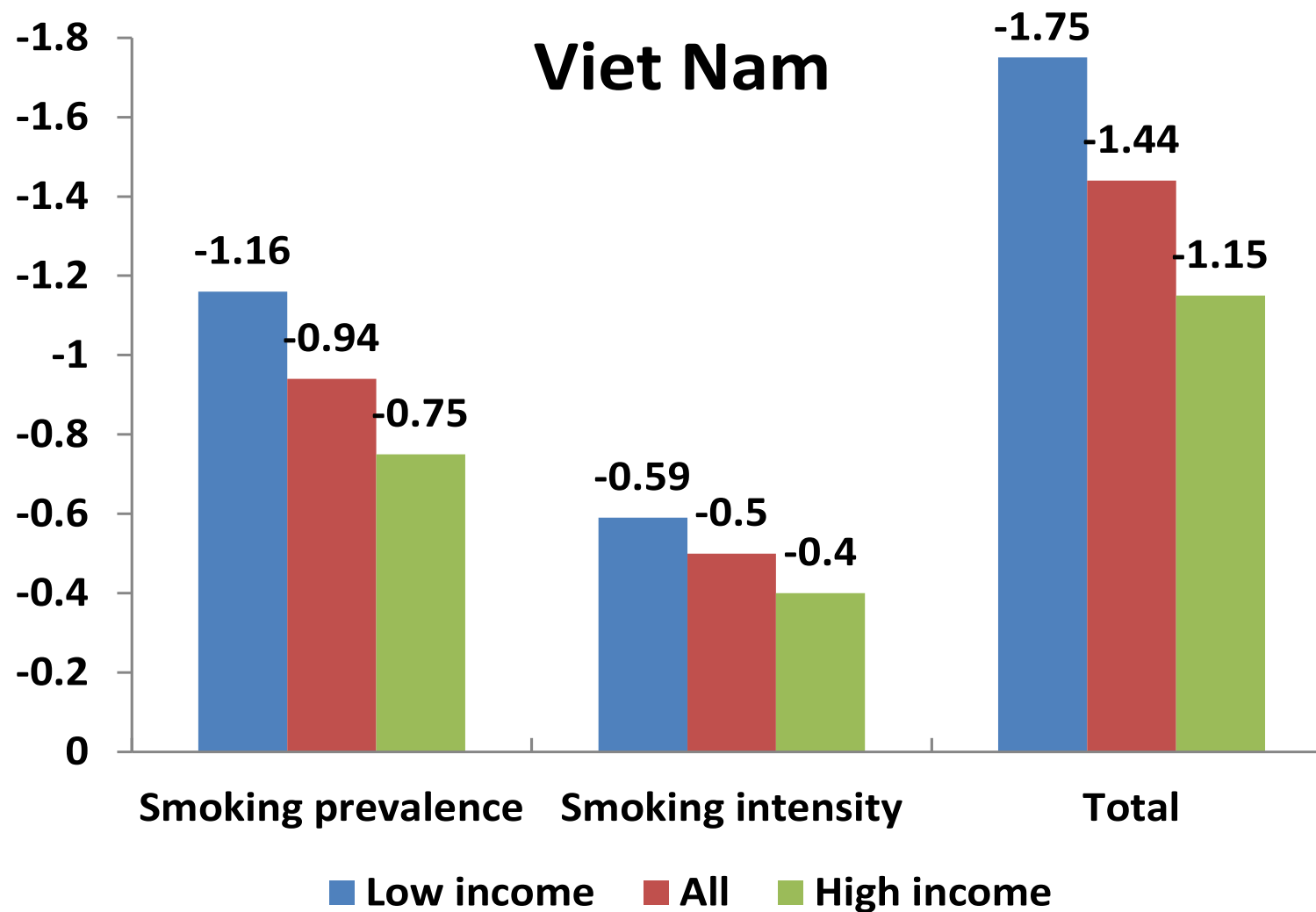


Source: Kyaing, 2003.



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Price elasticity by income/education/socioeconomic status

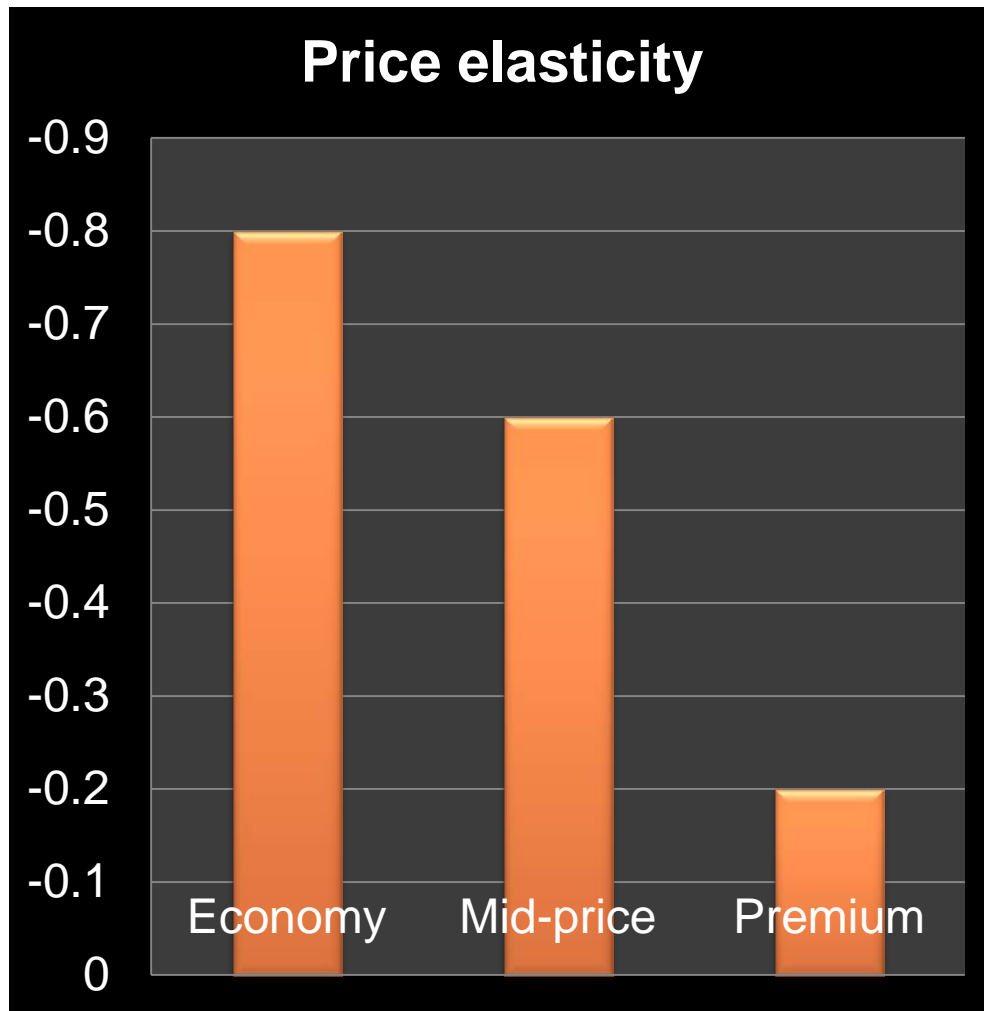


Source: Kinh et al., 2006.



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Price elasticity by price band



The gradient of price elasticity by SES can be translated into similar gradient for price elasticity by price bands for economy, mid-price and premium brands of cigarettes for example. The underlying assumption is that high income smokers purchase premium brands, middle income smokers purchase mid-price brands and low-income smokers purchase economy brands. Thus the consumption of economy brands is most price sensitive and the consumption of premium brands is the least price sensitive.



Time matters in price sensitivity: Short-run vs long-run price elasticity

Country	Short-run elasticity	Long-run elasticity	Source
Turkey	-0.21	-0.37	Tansel (1993)
Brazil	-0.11 to -0.35	-0.48 to -0.80	Da Costa e Silva (1998)
China	-0.35	-0.66	Hu and Mao (2002)
Republic of Korea	-0.28	-0.35	Kim and Seldon (2004)
Chile	-0.22	-0.45	Debrott and Sanchez (2006)



Decomposition of price responsiveness

Country	Elasticity of smoking prevalence	Elasticity of smoking intensity	Total price elasticity	Source
United Kingdom	-0.192	-0.370	-0.562	Jones (1989)
China	-0.213	-0.250	-0.463	Bishop et al (2007)
Mexico	-0.06	-0.45	-0.52	Jimenez-Ruiz et al. (2008)
Nepal	-0.46	-0.42	-0.88	Karki et al. (2003)
USA	-0.193	-0.191	-0.374	Franz (2008)
Canada	-0.02	-0.41	-0.45	Gruber et al. (2003)
Republic of Korea	-0.02	-0.64	-0.66	Chung et al. (2007)
Russia	-0.106	-0.026	-0.132	Lance et al. (2004)
Turkey	-0.03	-0.39	-0.41	Onder (2002)

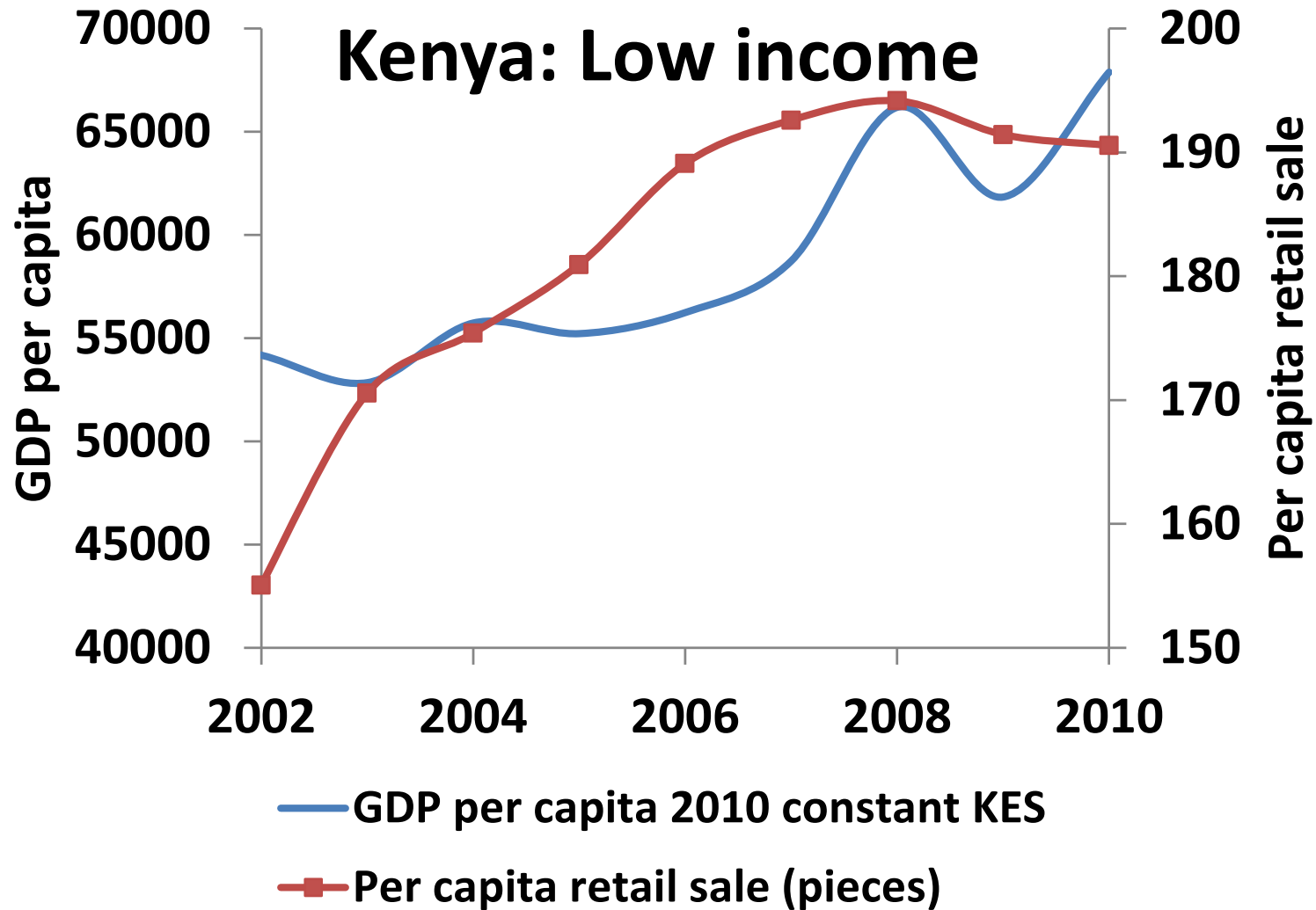


Income elasticity of demand

- The effect of income change on demand is measured by income elasticity.
- An income elasticity of 0.2 indicates that when income increases by 10%, demand increases by 2% in a reasonable period of time that allows the consumers to adjust that tobacco use behavior. In effect, the growth in aggregate consumption is expected to appear in the monthly or annual sales data available from government sources.
- For tobacco products, income elasticity is usually positive, signifying that tobacco is a normal good. Besides, with growing income, consumers tend to switch to higher-priced tobacco products.
- The methods of estimating the income elasticity of demand are summarized in presentation 2.2 “Estimating Price and Income Elasticity of Demand”.



Income: Positive relationship between income and consumption

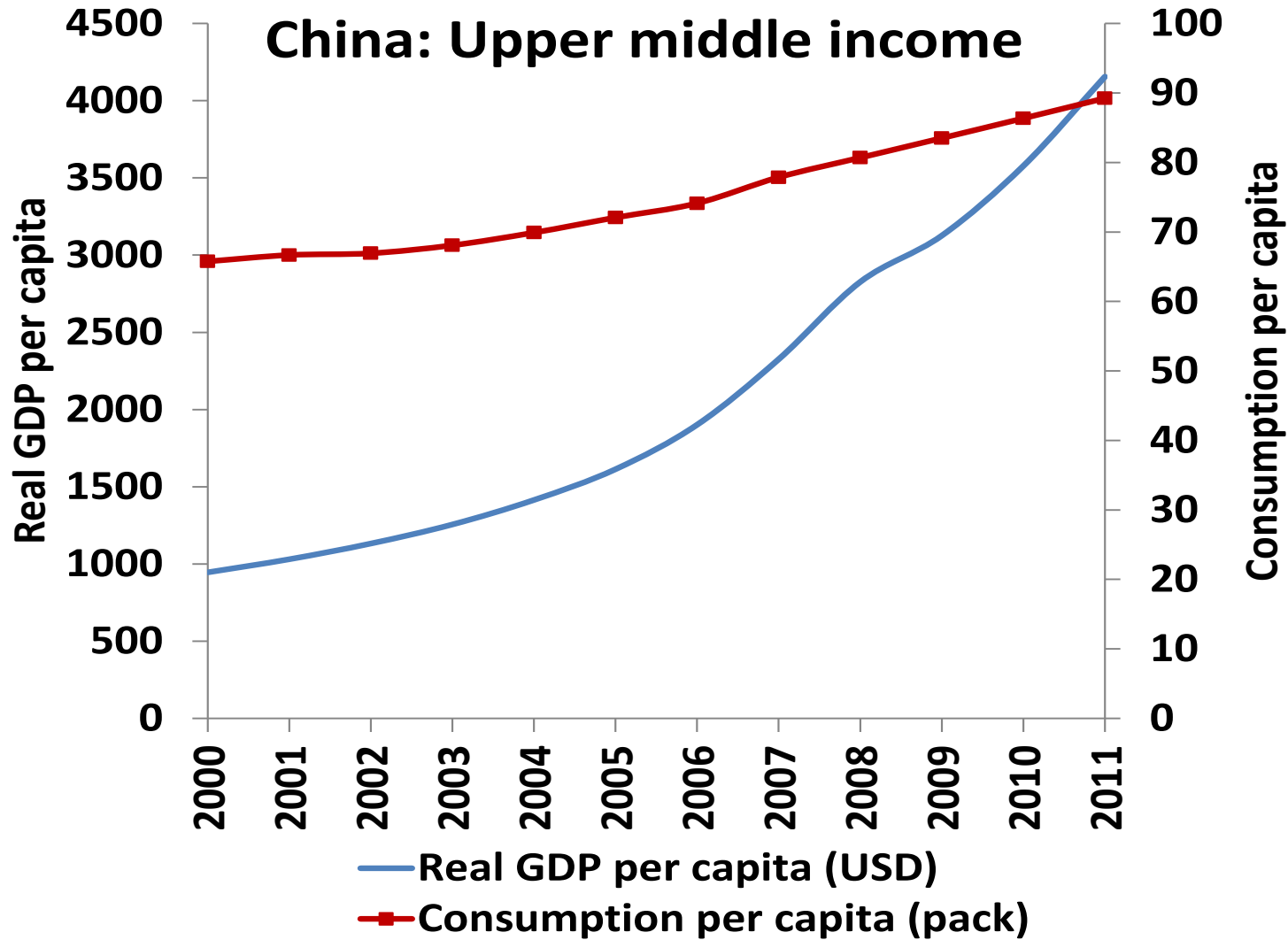


Source: WHO calculations based on WHO, TMA and World Bank data, 2011.



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Income: Positive relationship between income and consumption

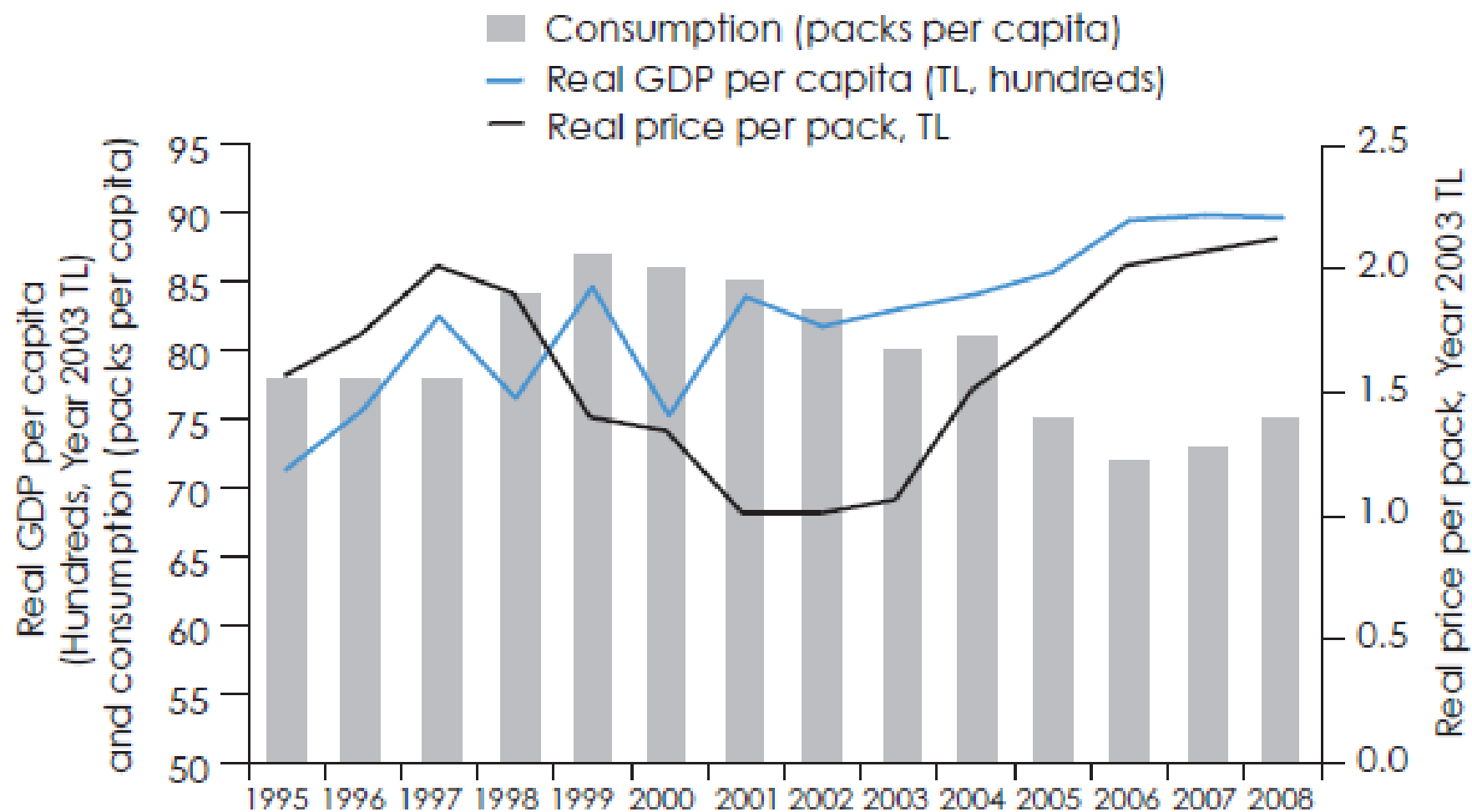


Source: WHO calculations based on WHO, TMA and World Bank data, 2011.



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Cigarette prices, consumption and income in Turkey 1995-2008 (CPI 2003=100)

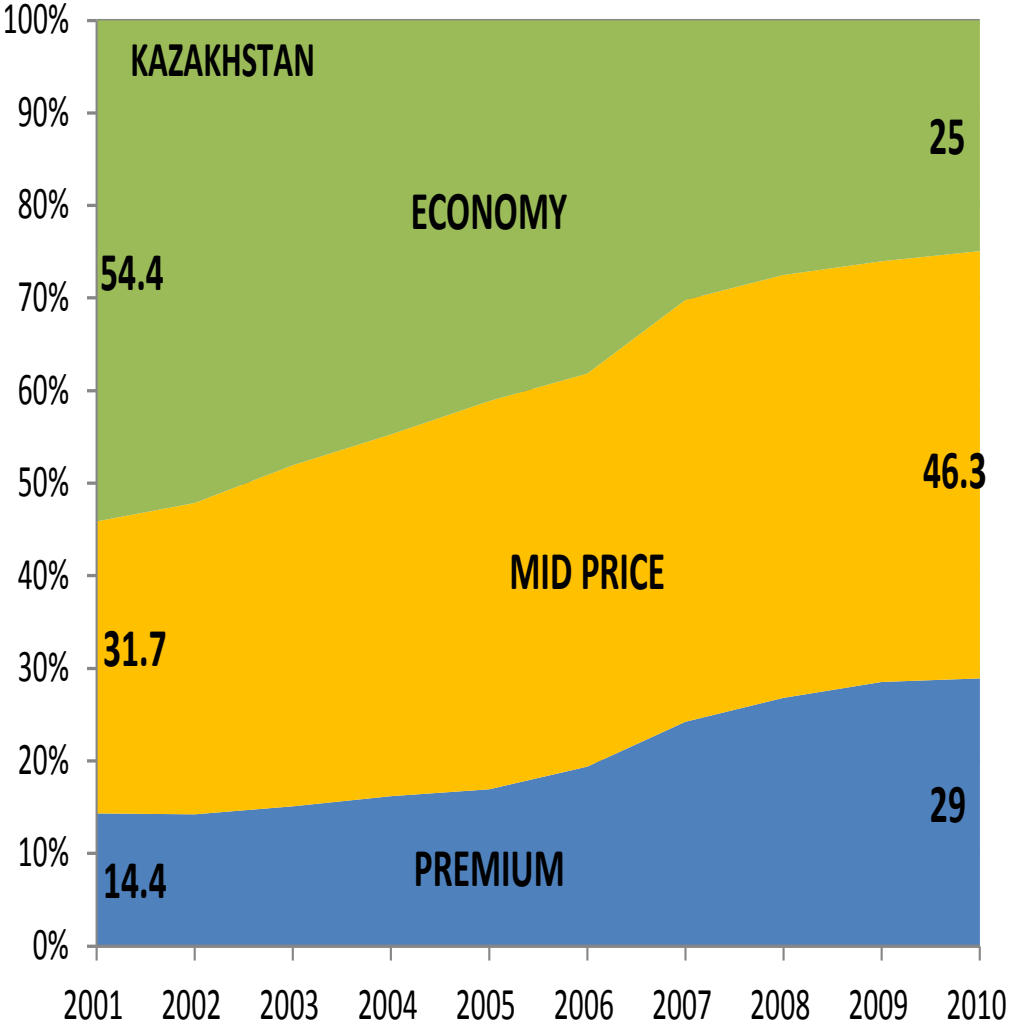
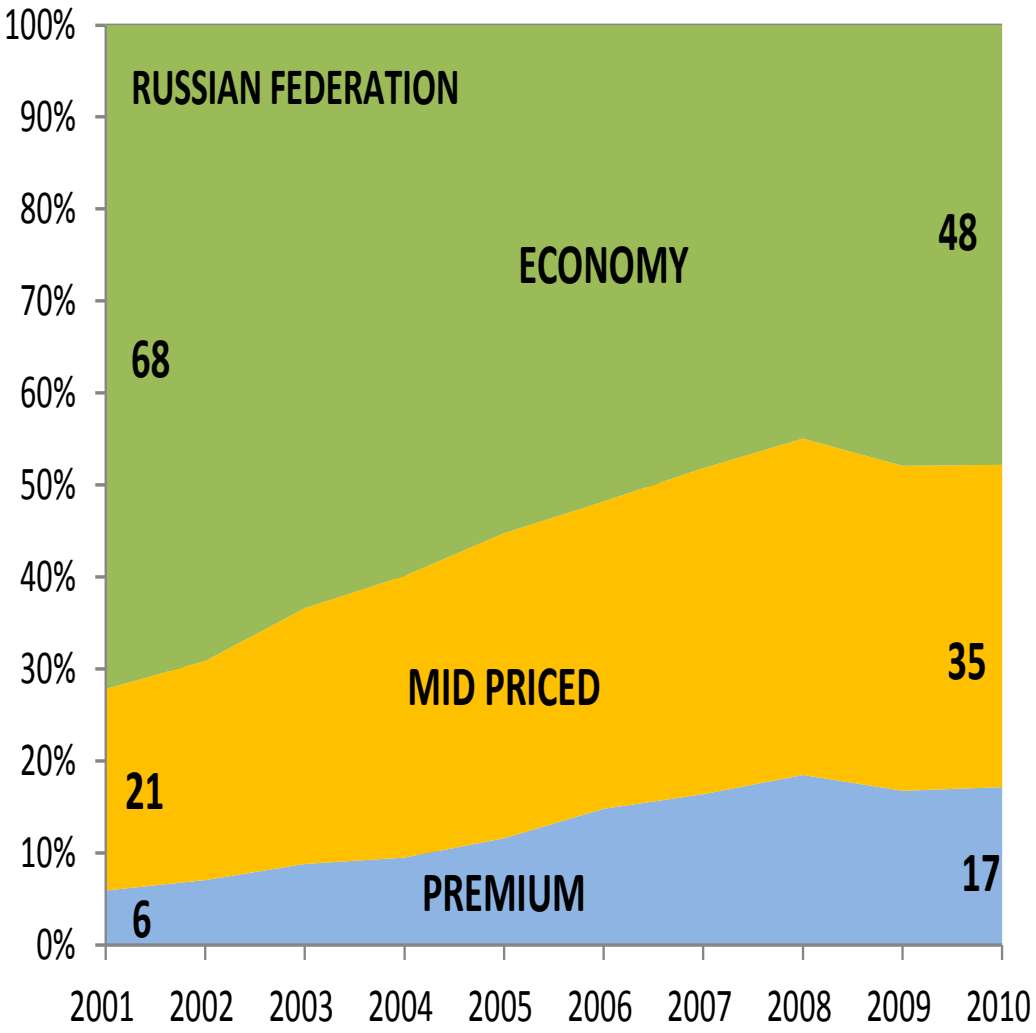


Source: Bloomberg Report on the Economics of Tobacco and Tobacco Taxation in Turkey, 2010.



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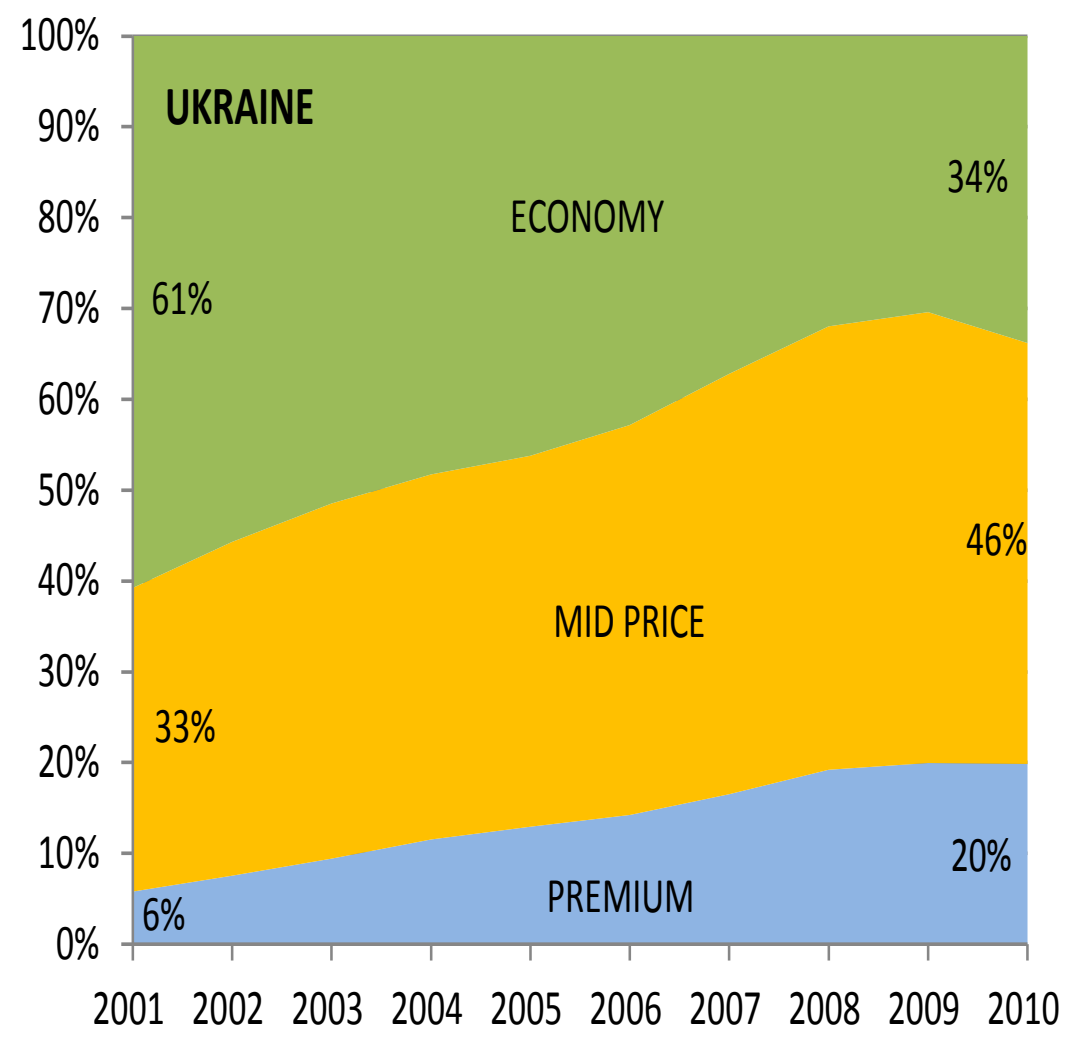
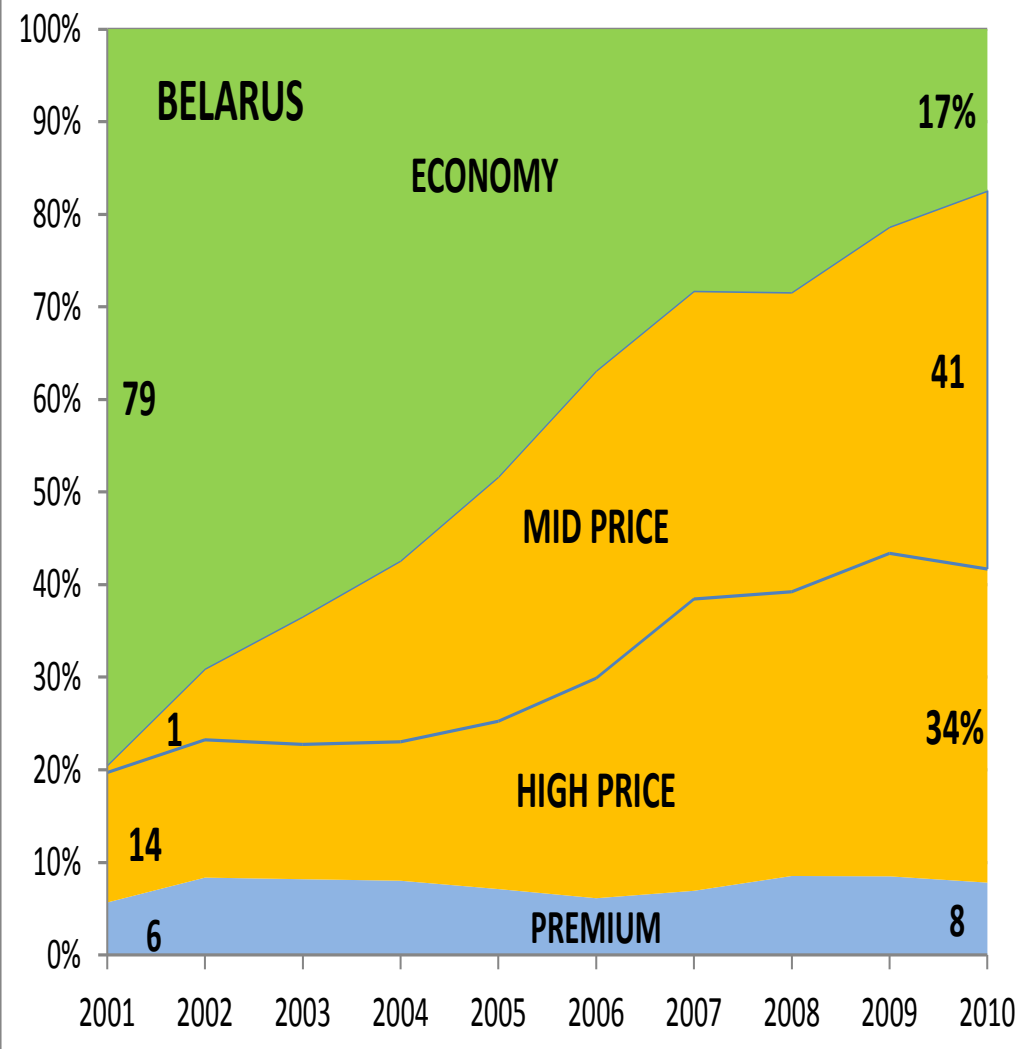
Changing consumers' taste and increasing purchasing power



Source: WHO calculations based on Euromonitor data.



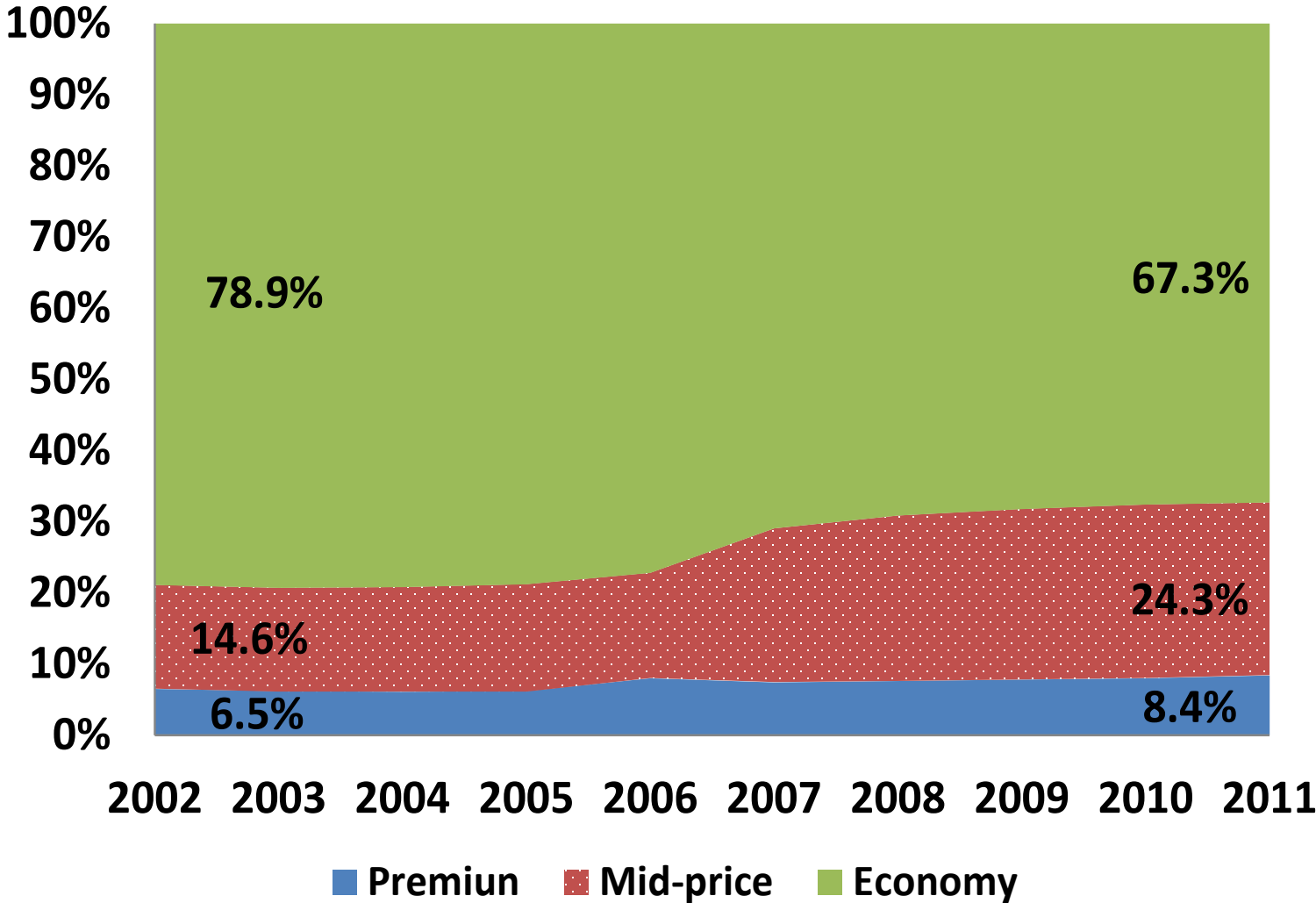
Changing consumers' taste and increasing purchasing power



Source: WHO calculations based on Euromonitor data.



Changing consumers' taste and increasing purchasing power: Case of Kenya



Source: WHO calculations based on Euromonitor data.



Summary

- Price and consumer disposable income are the two major determinants of demand for tobacco products.
 - Increase in price causes tobacco consumption to decrease irrespective of the income status of countries.
 - Increase in income leads to increase in tobacco consumption particularly in low income settings.
- With growing income, consumers' preference shift to higher priced tobacco products.

