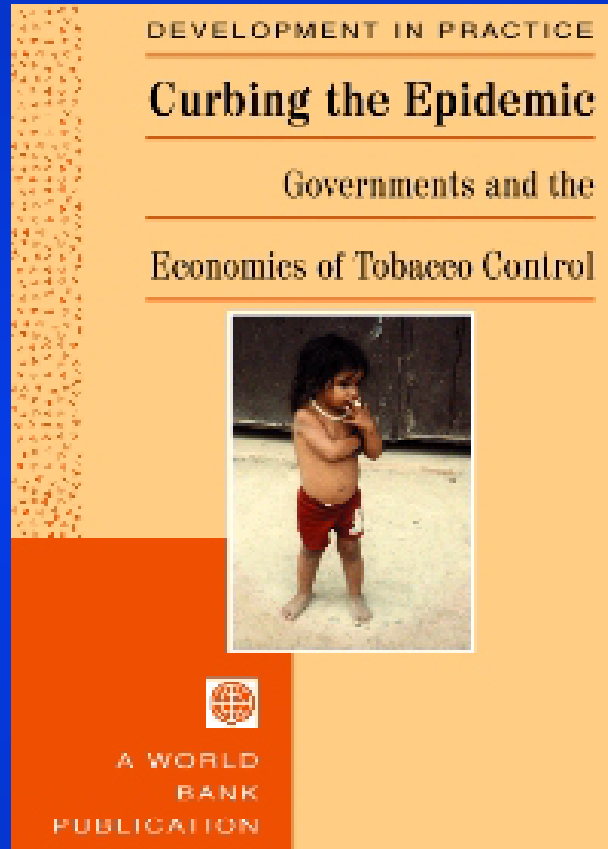
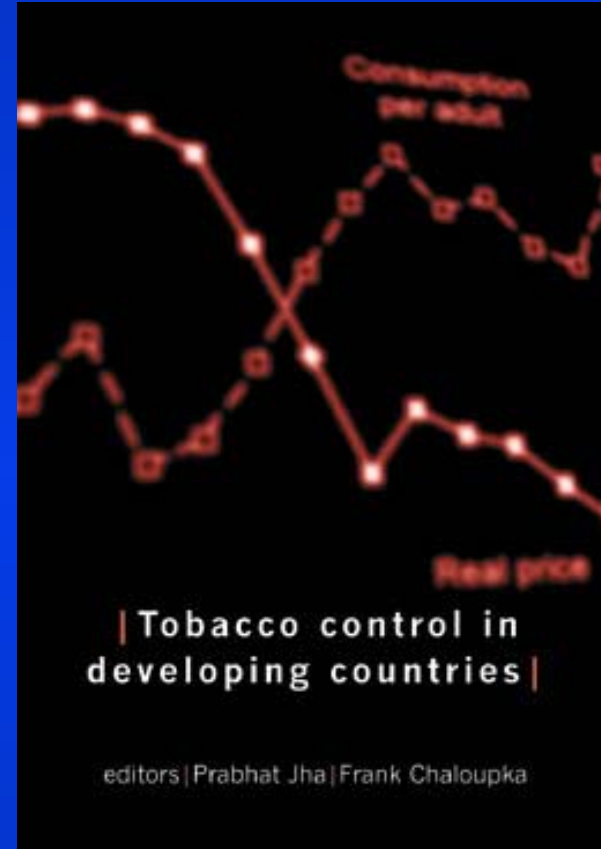


# Curbing the Epidemic: Governments and the Economics of Tobacco Control



The World Bank



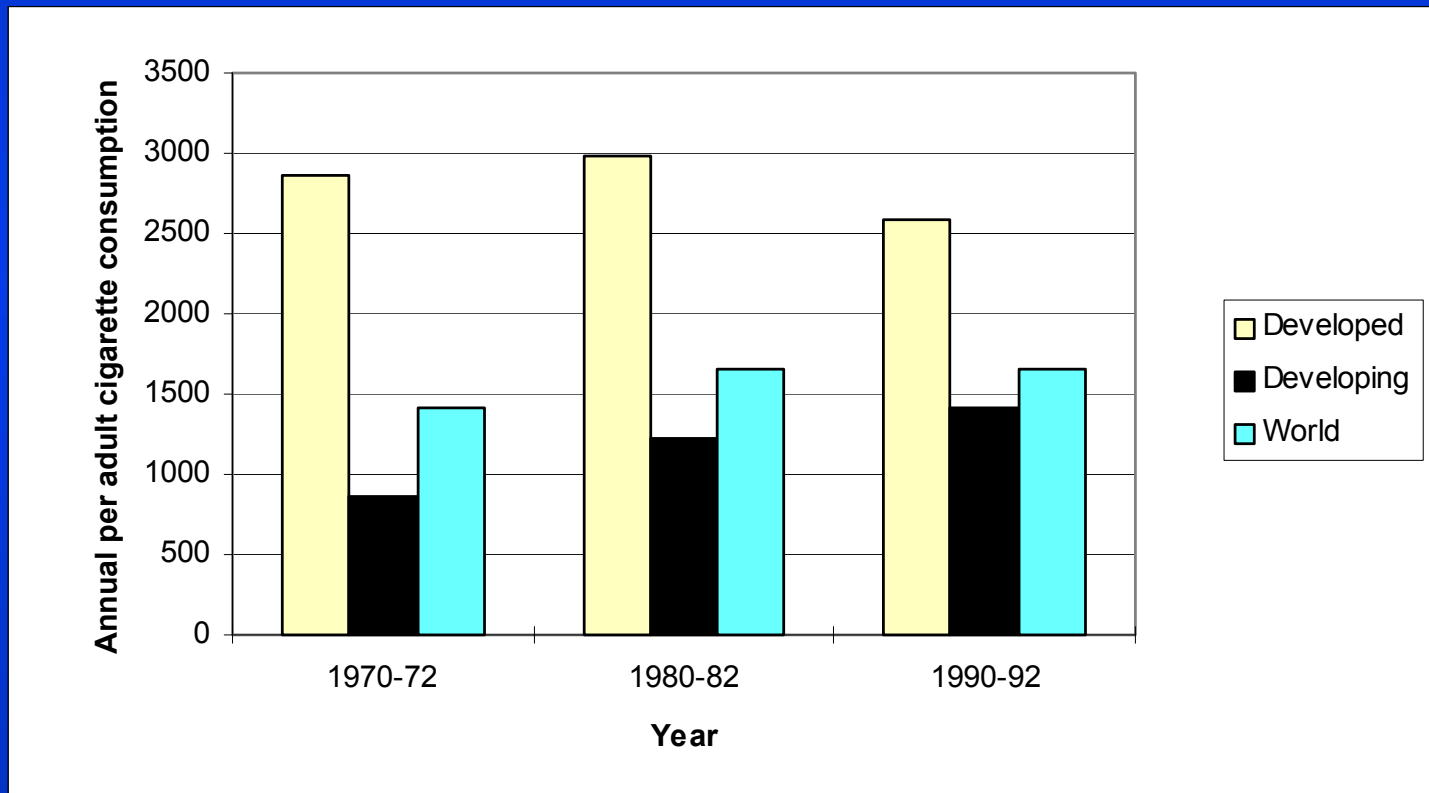
World Health Organization

# Why this work?

## Economic arguments around tobacco control are unclear and often debated

- In 1996, an Asian Health Minister stated “cigarette producers are making large contributions to our economy... we have to think about workers and tobacco farmers”
- In 1997, *The Economist* commented “most smokers (two-thirds or more) do not die of smoking-related disease. They gamble and win. Moreover, the years lost to smoking come from the end of life, when people are most likely to die of something else anyway”

# Per capita cigarette consumption has increased in developing countries



Source: WHO 1997

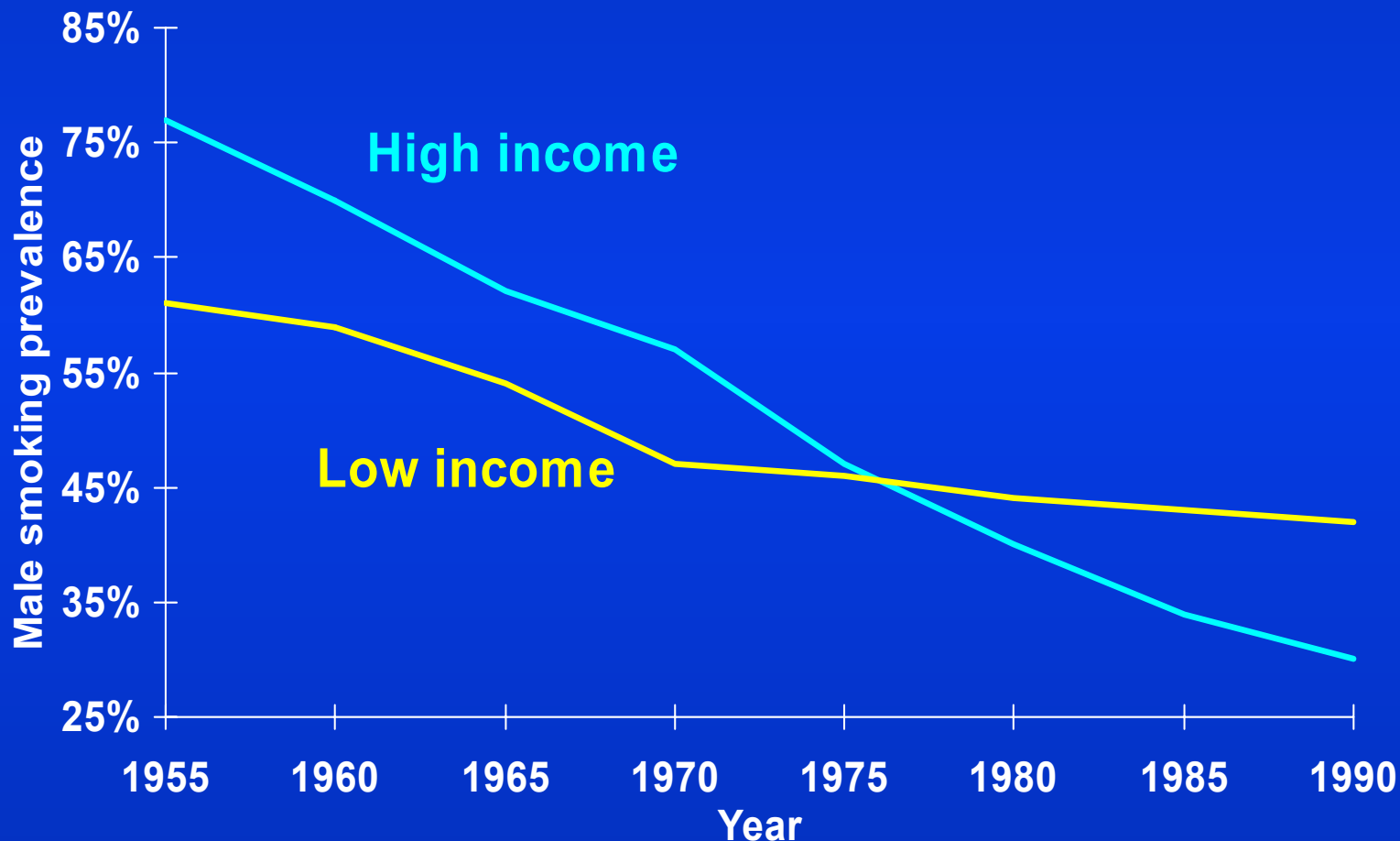
# Large and growing number of deaths from smoking

## Past and future tobacco deaths (in millions)

<u>Time</u>	<u>Millions of deaths</u>
1901-2000	<b>100</b> (mostly in developed countries)
2001-2100	<b>1,000</b> (mostly in developing countries)

- ◆ **500 M among people alive today**
- ◆ *1 in 2 of long-term smokers killed by their addiction*
- ◆ *1/2 of deaths in middle age (35-69)*

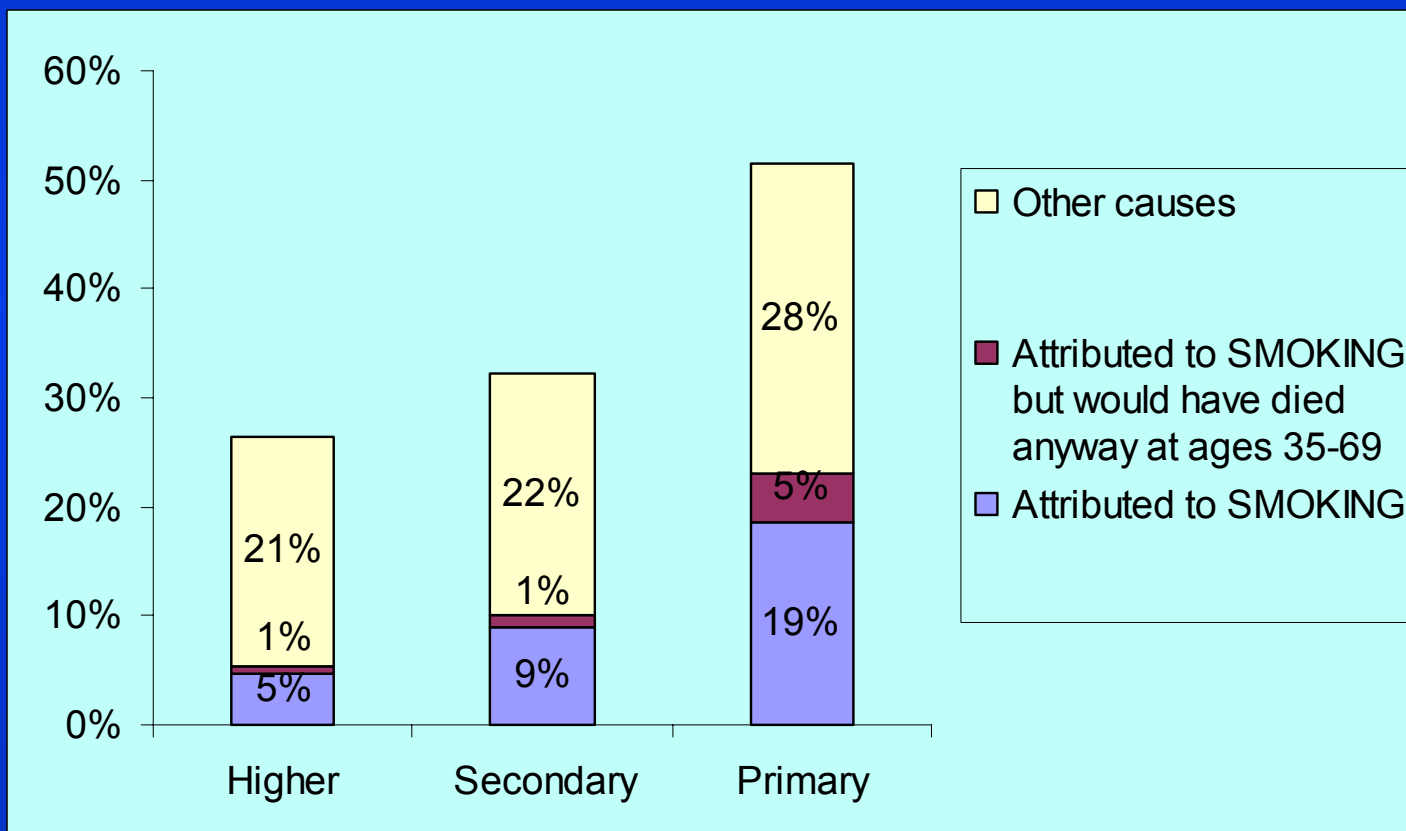
# Trends in Smoking in Norwegian Males by Income Group



Source: Lund *et al.*, 1995

# Smoking accounts for much of the mortality gap between rich and poor

Risk of death of a 35 year old male before age 70, by education levels in Poland, 1996



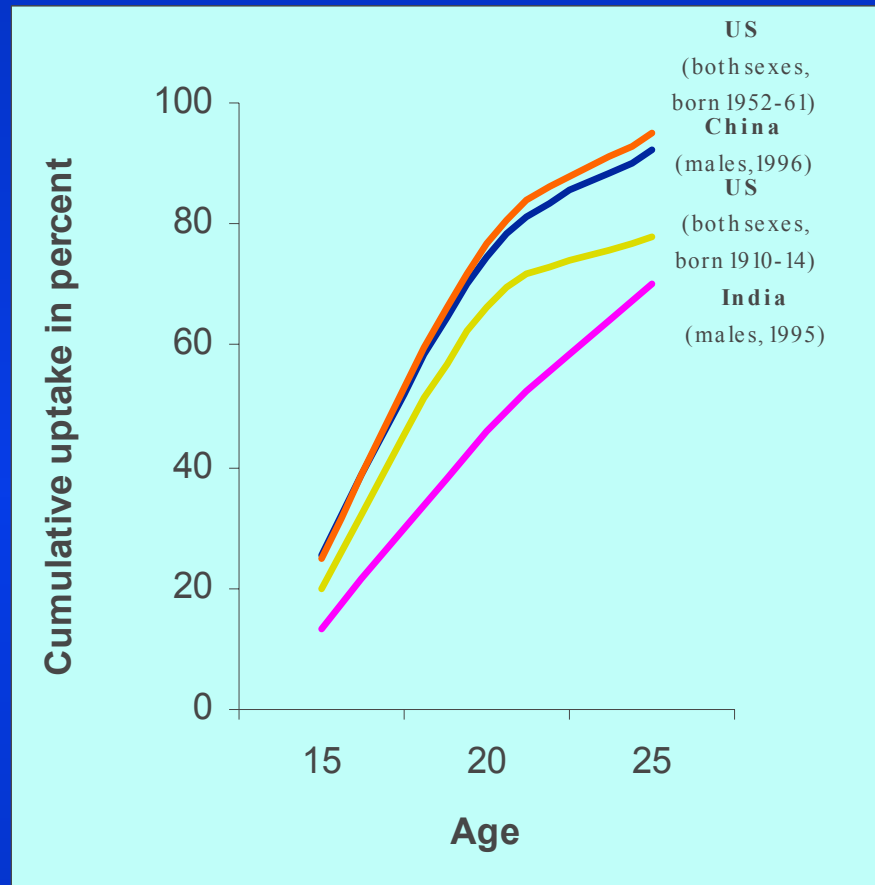
Source: Bobak *et al.*, 2000

# Why should governments intervene?

## Economic rationale or “market failures”

- **Smokers do not know their risks**
- **Addiction and youth onset of smoking**
  - ◆ Lack of information and unwillingness to act on information
  - ◆ Regret habit later, but many addicted
- **Costs imposed on others**
  - ◆ Costs of environmental tobacco smoke and health costs

# Tobacco addiction starts early in life



- **Every day 80,000 to 100,000 youths become regular smokers**

Source: Chinese Academy of Preventive Medicine 1997, Gupta 1996, US Surgeon General Reports, 1989

# Underestimated risks of smoking

- ◆ 7 in 10 of Chinese smokers thought smoking does them “little or no harm”
- ◆ Risks not internalized: personal risks perceived lower than average risks
- ◆ Risks of addiction downplayed: only 2 in 5 of US adolescents intending to quit actually do
  - ◆ in high-income countries, 7 in 10 smokers wish they had not started

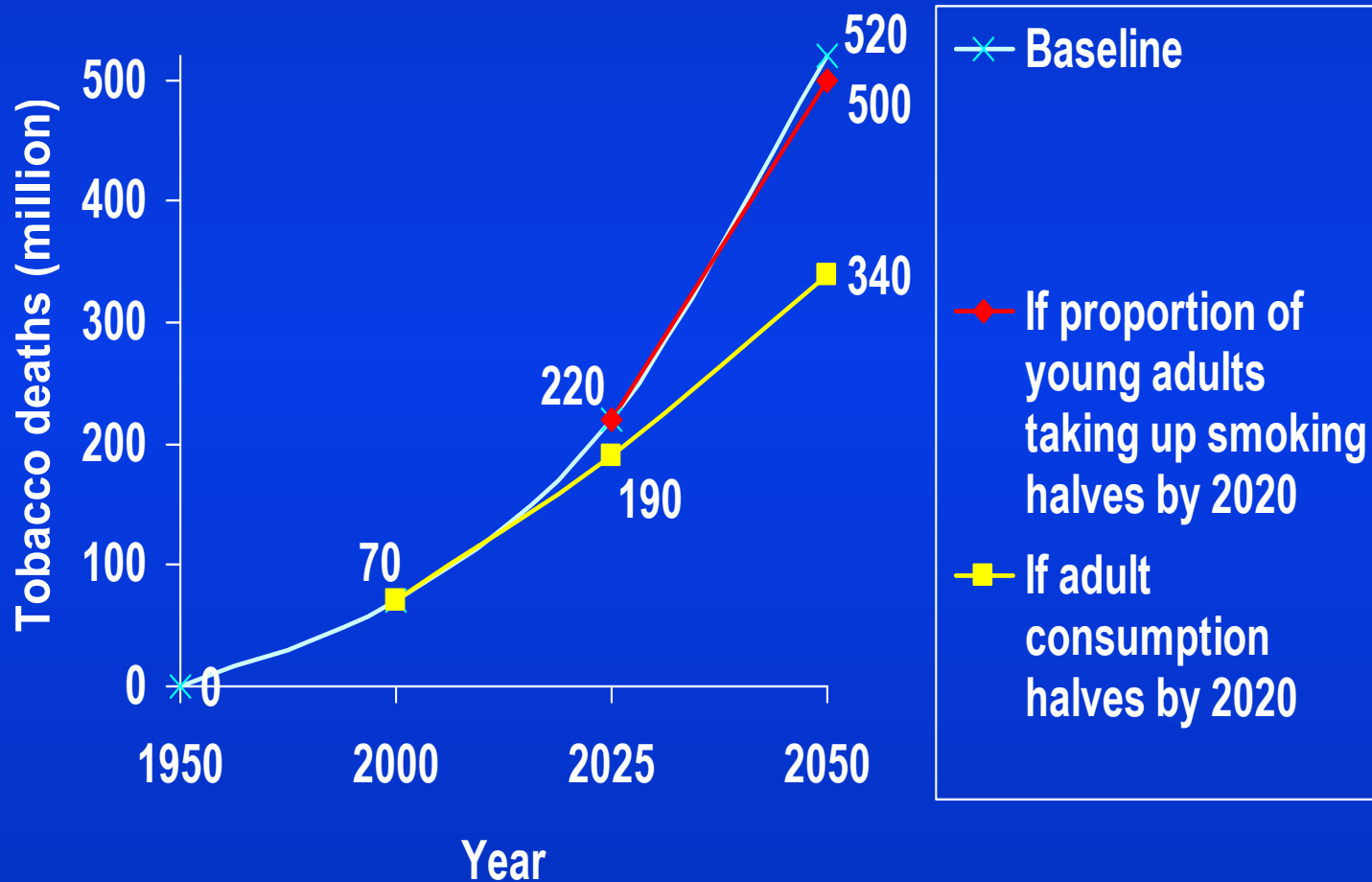
# Healthcare costs from smoking

- Annual (gross) healthcare costs:
  - ◆ 0.1-1.1% of GDP, or 6 -15% of total health costs in high-income countries
  - ◆ proportionally similar in lower-income countries
- Net (lifetime) healthcare costs:
  - ◆ Differences in lifetime costs are smaller than annual costs
  - ◆ Best studies do suggest there are net lifetime costs
  - ◆ Pension or “smokers pay their way” arguments are complex

# Government roles in intervening

- To deter children from smoking
  - To protect non-smokers from others' smoke
  - To provide adults with necessary information to make an informed choice
- 
- ◆ *First-best instrument, such as youth restrictions, are usually ineffective. Thus, tax increases are justified, and are effective.*
  - ◆ *Tax increases are blunt instruments.*

# Unless current smokers quit, smoking deaths will rise dramatically over the next 50 years



Source: Peto and Lopez, 2000

# Which interventions are effective?

## Measures to reduce demand

- Higher cigarette taxes
- Non-price measures: consumer information, research, cigarette advertising and promotion bans, warning labels and restrictions on public smoking
- Increased access to nicotine replacement (NRT) and other cessation therapies

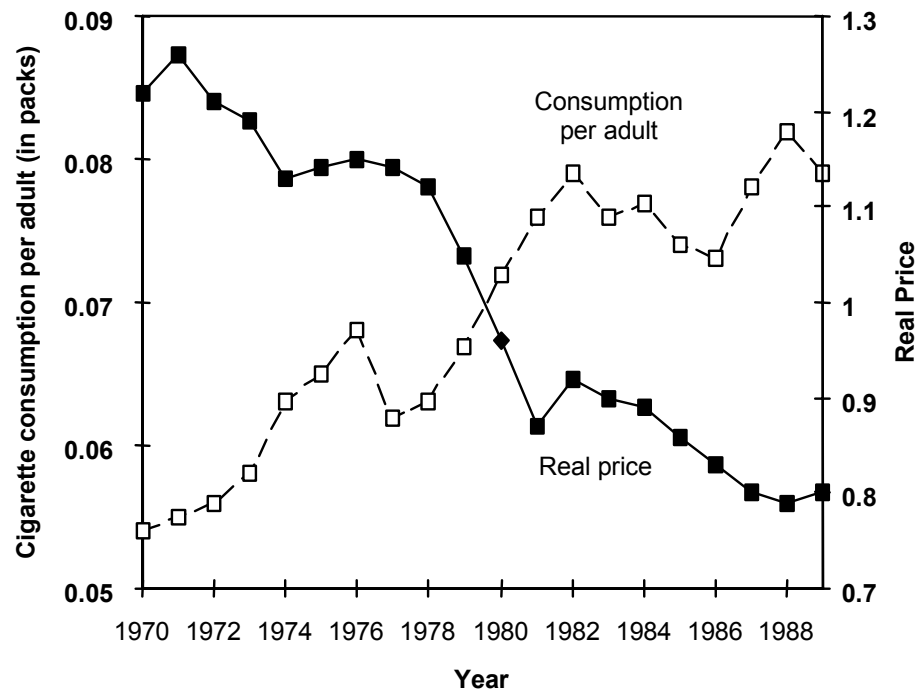
# Taxation is the most effective measure

- Higher taxes that result in higher prices induce quitting, reduce consumption and prevent starting
- A 10% price increase reduces demand by:
  - ◆ 4% in high-income countries
  - ◆ 8% in low or middle-income countries
- Young people and the poor are the most price responsive

Source: Chaloupka *et al.*, 2000

# Cigarette price and consumption show opposite trends (1)

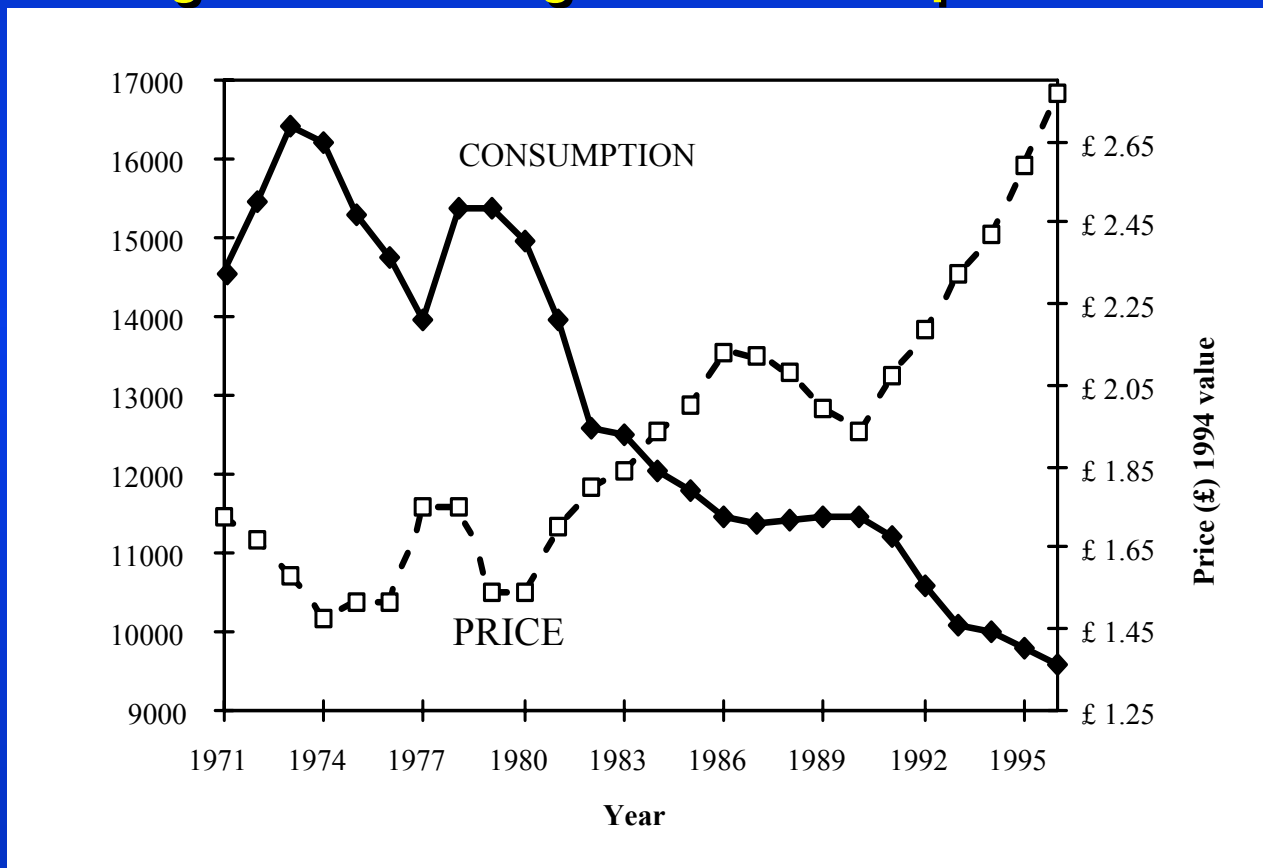
Real price of cigarettes and annual per adult cigarette consumption in South Africa 1970-1989



Source: Saloojee 1995

# Cigarette price and consumption show opposite trends (2)

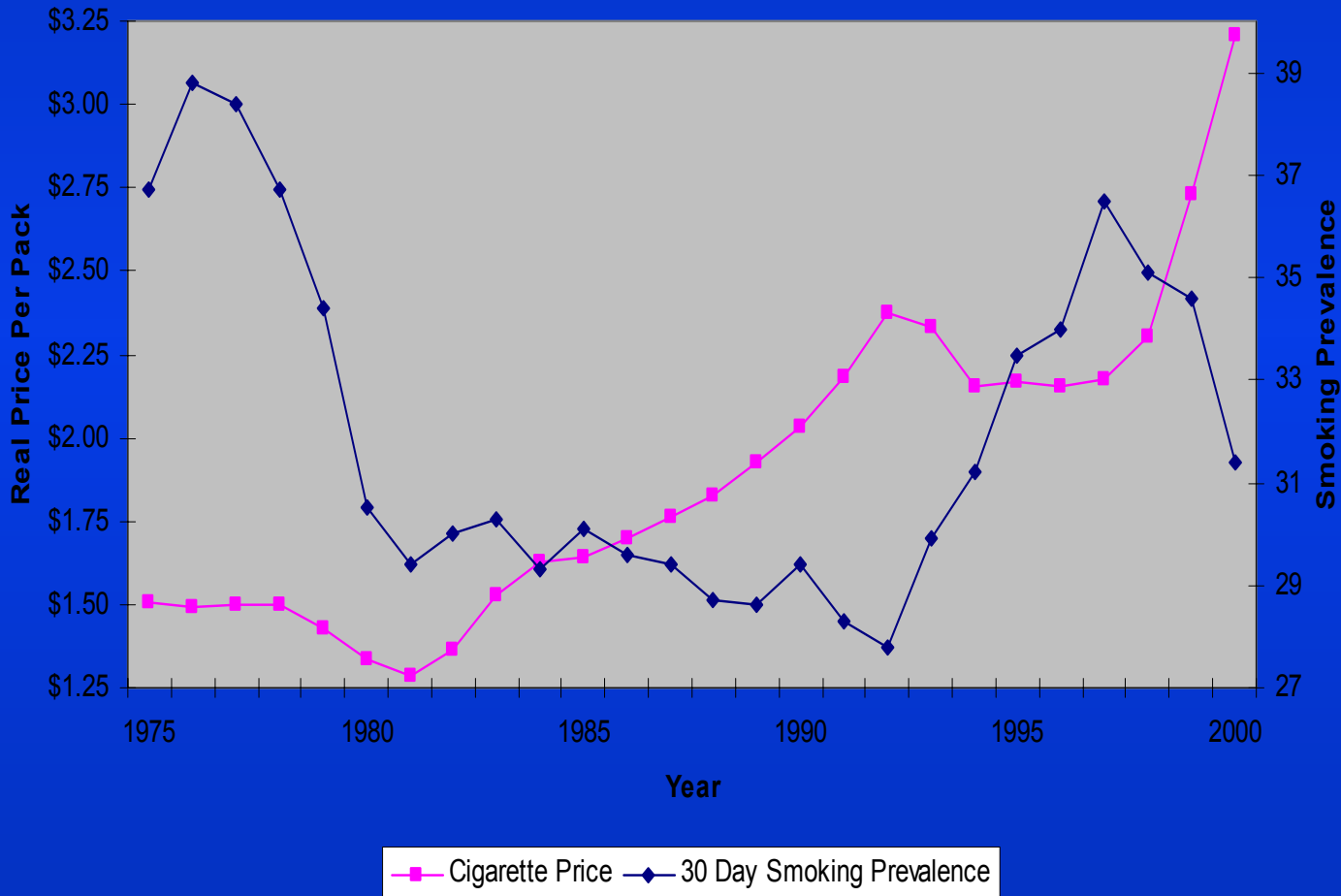
## Real price of cigarettes and cigarette consumption in the UK, 1971-96



Source: Townsend 1998

# Cigarette price and youth smoking show opposite trends

Real price of cigarettes and youth smoking prevalence, US, 1975-2000



Source: ImpacTeen Project, 2001

# What is the “right” level of tax?

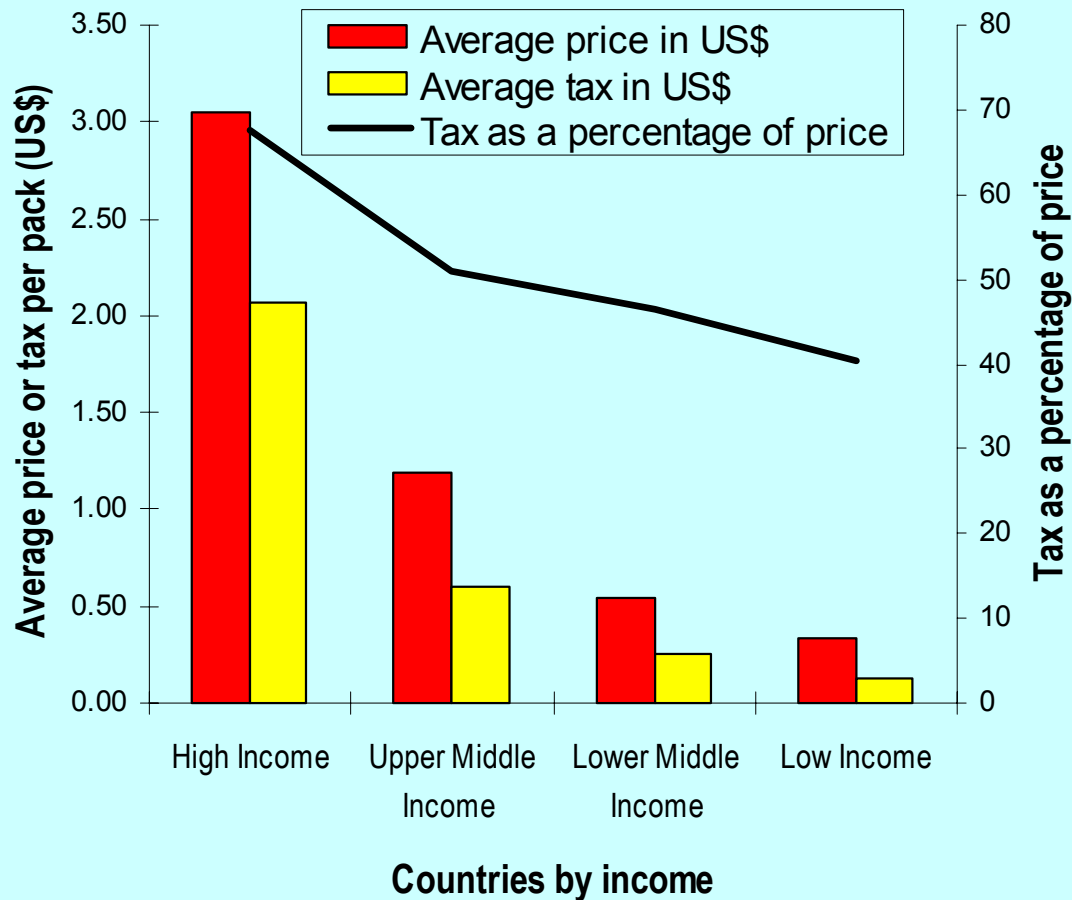
- **Complex question**

- ◆ Depends on various factors, such as degree to which society wishes to protect children, revenue considerations, etc.

- **Useful yardstick: where comprehensive programs used, tax is at least 2/3 to 4/5 of retail price.**

Source: Chaloupka *et al.*, 2000

# There is still ample room, especially in lower-income countries, to raise cigarette taxes



Source: Chaloupka *et al.*, 2000

# Non-price measures to reduce demand

- Increase consumer information:  
dissemination of research findings, warning labels, counter-advertising
- Comprehensive ban on advertising and promotion
- Restrictions on smoking in public and work places
- Increase access to nicotine-replacement therapies (NRT)

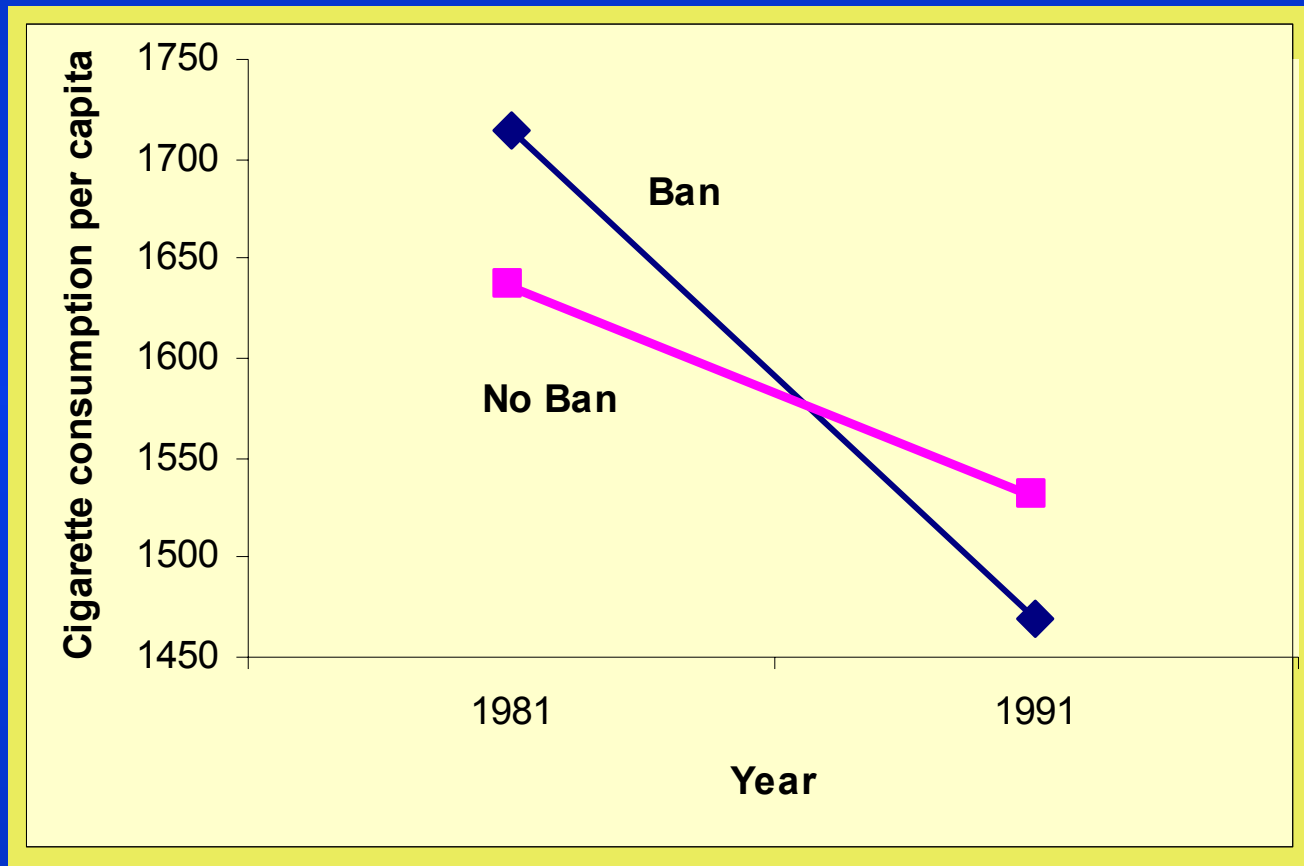
# Health information reduces the demand for cigarettes

Country	Time	Event	Immediate reduction in cigarette consumption
The US	1964	Surgeon General Report	1-2%
UK	1962	1 <sup>st</sup> report of the Royal College of Physicians	5%
Switzerland	1966	An anti-smoking campaign	11%
Turkey	1982	Implementation of health warning labels	8%

Source: Kenkel and Chen, 2000

# Comprehensive advertising bans reduce cigarette consumption

Consumption trends in countries with such bans vs. those with no bans  
(n=102 countries)



Source: Saffer, 2000

# Effect of advertising bans and counter-advertising

- A comprehensive set of tobacco advertising bans can reduce consumption by 6.3%
- Counter-advertising messages (set at 15% of the total number of advertising messages) can reduce smoking by about 2% a year

Source: Saffer and Chaloupka, 2000

# Clean indoor-air laws and youth access restrictions

## ■ Clean indoor-air laws:

- ◆ can reduce cigarette consumption
- ◆ can be self-enforcing
- ◆ work best with social consensus against smoking

## ■ Youth access restrictions:

- ◆ mixed evidence of effectiveness
- ◆ require aggressive reinforcement

# NRT and cessation therapies

- **NRTs double the effectiveness of cessation efforts and reduce individuals' withdrawal costs**
- **Governments may widen access to NRT and other cessation therapies by:**
  - ◆ **Reducing regulation**
  - ◆ **Conducting more studies on cost-effectiveness (especially in low/middle income countries)**
  - ◆ **Considering NRT subsidies for poorest smokers**

Source: Novotny *et al.*, 2000

## Potential impact of a price increase of 10% and a package of non-price measures

Region	Change in number of smokers (millions)		Change in number of deaths (millions)	
	Price increases	Non-price measures	Price increases	Non-price measures
Low/Middle Income	-38	-19	-9	-4
High Income	-4	-4	-1	-1
World	-42	-23	-10	-5

Source: Ranson *et al.*, 2000

# Comprehensive Programs and Tobacco Use

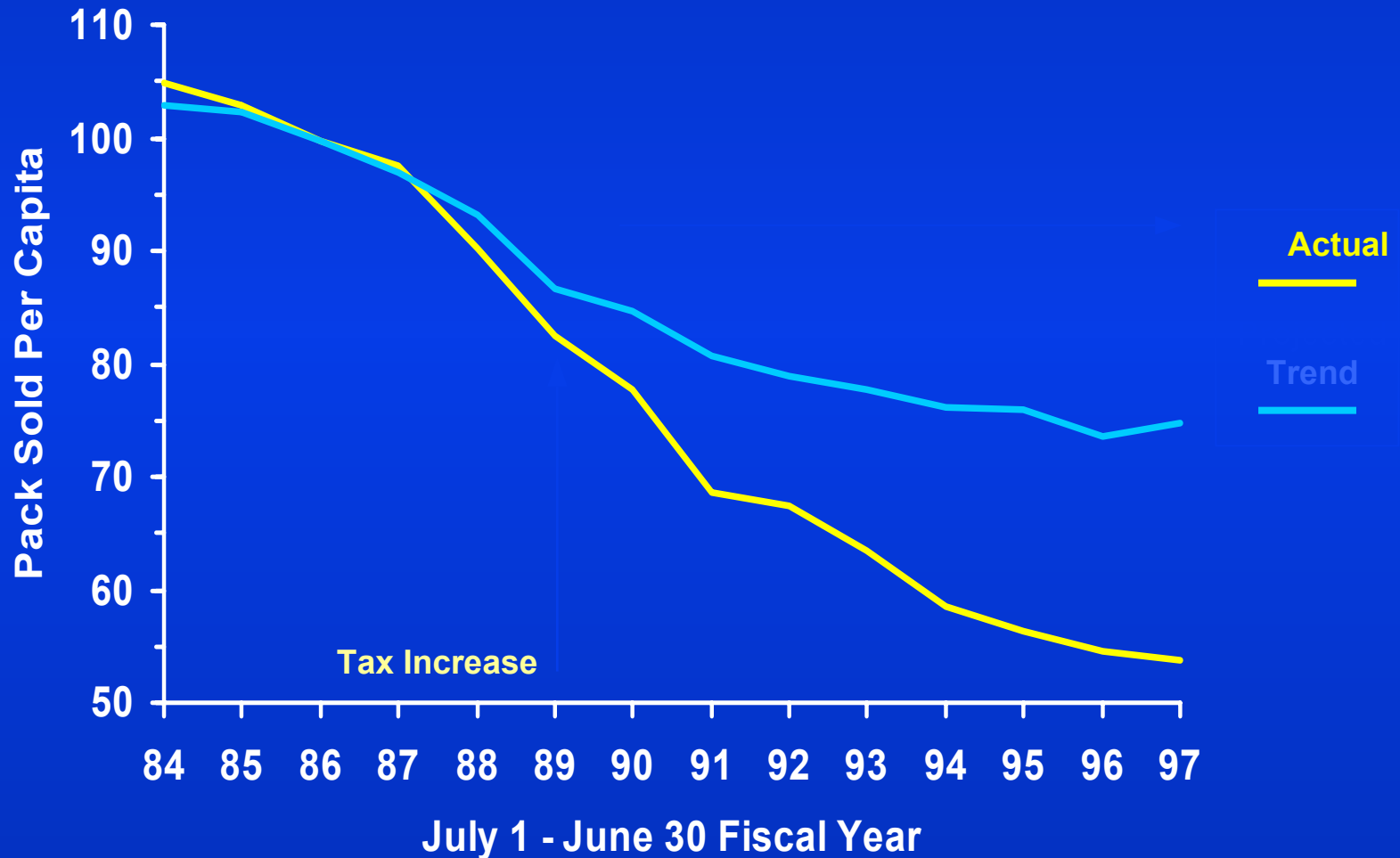
- **Comprehensive programs include several components:**
  - ◆ Mass-media information/counteradvertising campaigns
  - ◆ support for cessation
  - ◆ school and community-based efforts
  - ◆ policy interventions
  - ◆ Surveillance and evaluation
- **Often funded by dedicating some tobacco tax revenues to program**
  - ◆ Several US states, Thailand, Australia, many others

# Comprehensive Programs and Tobacco Use

- **Well-funded comprehensive programs:**
  - ◆ Increase cessation, prevent initiation, and reduce tobacco consumption
  - ◆ Significantly reduce disease, disability and death caused by tobacco use

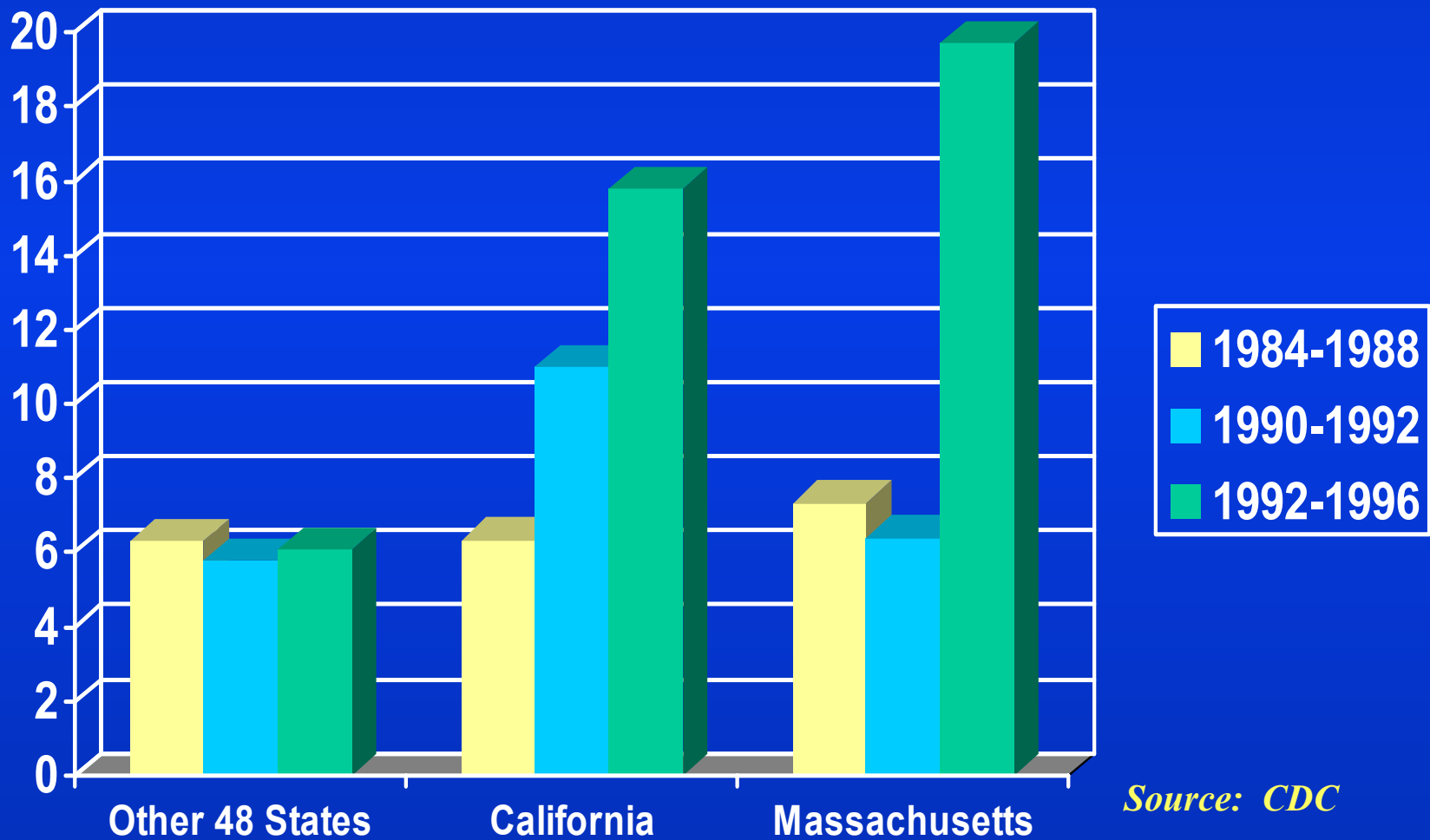
Source: U.S. Centers for Disease Control and Prevention, 2001;  
U.S. Department of Health and Human Services, 2000

# Per Capita Consumption Trends California versus Projected Trend, 1984-1997



Source: CDC

# Change in Per Capita Cigarette Consumption Before and After an Excise Tax Increase and an Antismoking Campaign California & Massachusetts versus Other 48 States, 1986 to 1996



Source: CDC

# Which interventions are ineffective at reducing consumption?

## Most measures to reduce supply

- Prohibition
- Youth access restrictions
- Crop substitution
- Trade restrictions
- *Control of smuggling is the only exception and it is the key supply-side measure*

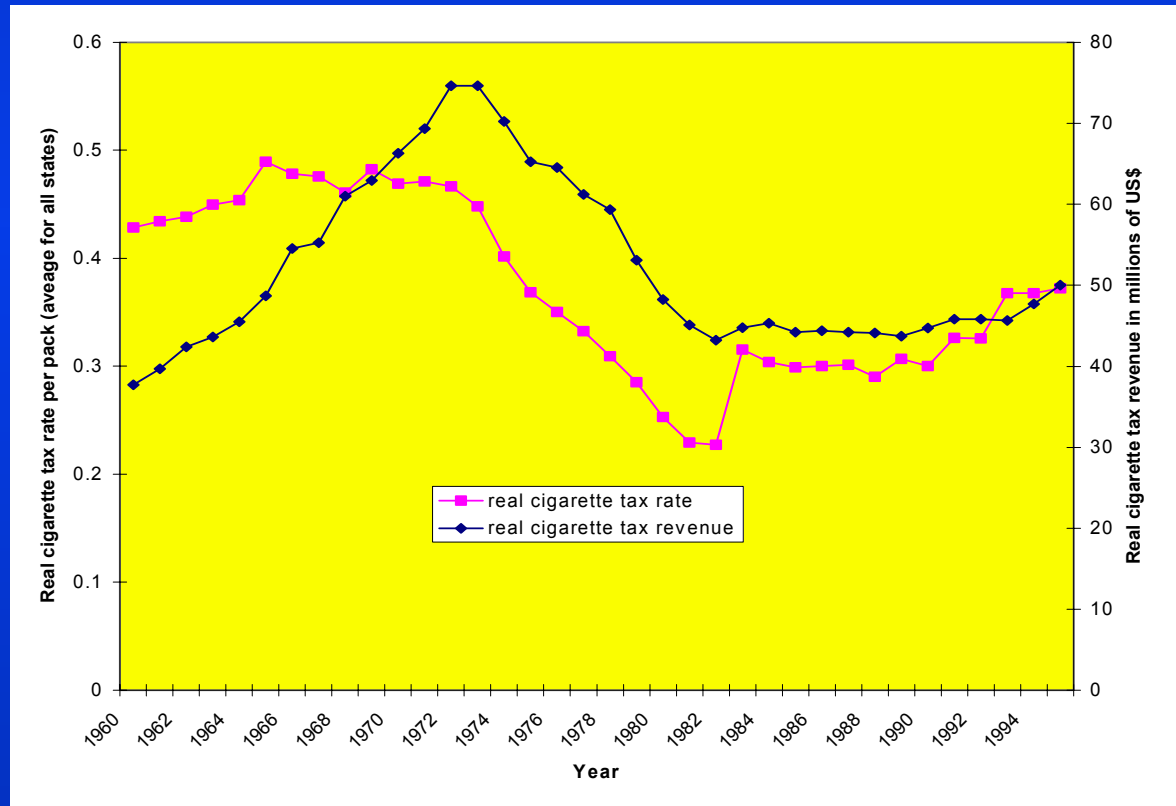
Source: Jacobs *et al.*, 2000; Woolery *et al.*, 2000; Taylor *et al.*, 2000

# What are the costs of tobacco control?

- **Revenue loss**: likely to have revenue gains
  - ◆ a 10% tax increase would raise revenue by 7%

# Cigarette tax increases result in higher tax revenues (1)

Real cigarette tax rate and real cigarette tax revenue in the US 1960-95

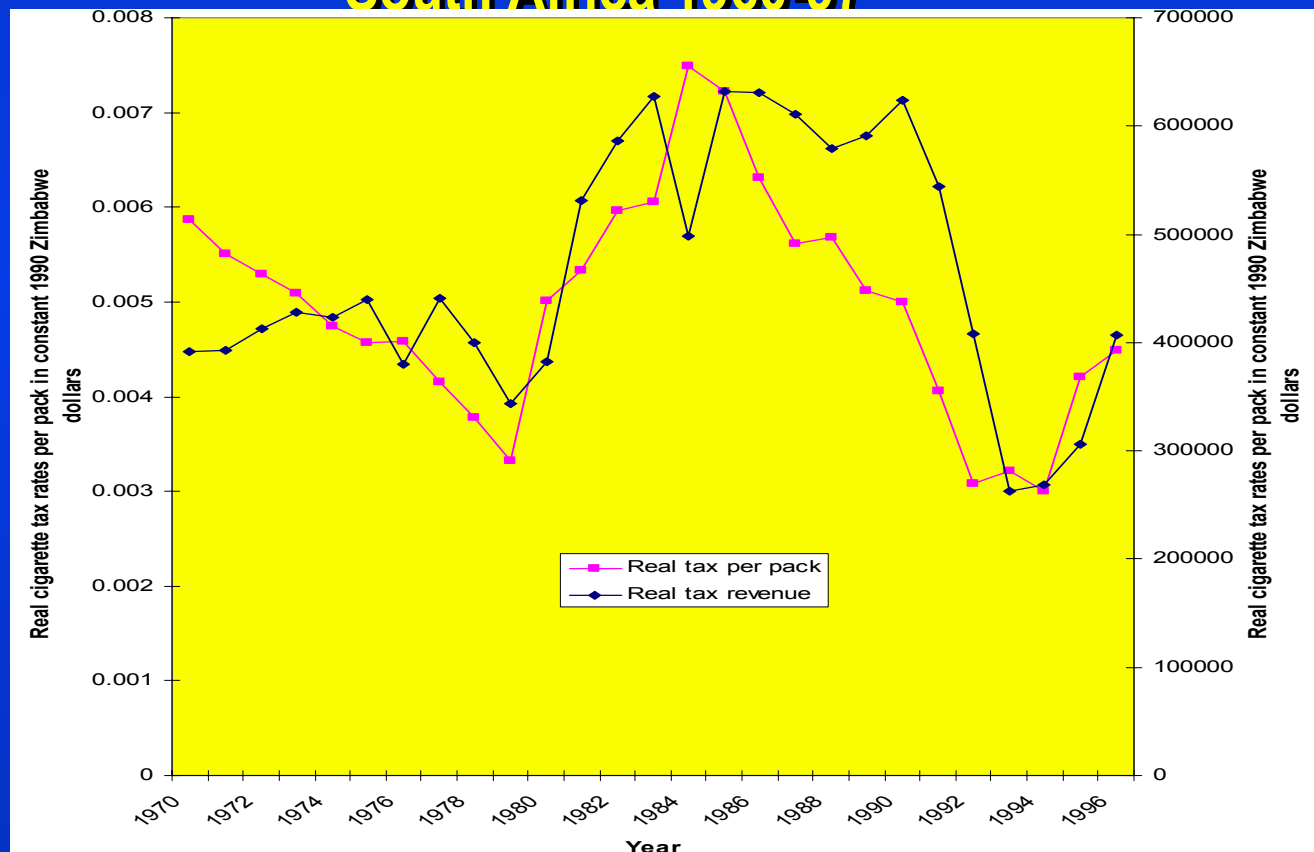


Source: Sunley *et al.*, 2000

# Cigarette tax increases result in higher tax revenues (2)

Real cigarette tax rate and real cigarette tax revenue in

## South Africa 1960-97



Source: Sunley *et al.*, 2000

# What are the costs of tobacco control?

- **Revenue loss:** likely to have revenue gains
  - ◆ a 10% tax increase would raise revenue by 7%
- **Job loss:** temporary, minimal, and gradual

## Studies on the employment effects of dramatically reduced or eliminated tobacco consumption

<i>Type of country</i>	<i>Name and year</i>	<i>Net change as % of economy in base year given</i>
Net Exporters	US (1993)	0%
	UK (1990)	+0.5%
	Zimbabwe (1980)	-12.4%
Balanced Tobacco Economies	South Africa (1995)	+0.4%
	Scotland (1989)	+0.3%
Net Importers	Bangladesh (1994)	+18.7%

Source: Buck and others, 1995; Irvine and Sims, 1997; McNicoll and Boyle 1992, van der Merwe and others, background paper; Warner and others 1996

# What are the costs of tobacco control?

- **Revenue loss**: likely to have revenue gains
  - ◆ a 10% tax increase would raise revenue by 7%
- **Job loss**: temporary, minimal, and gradual
- **Possible smuggling**: crack down on criminal activity, not lower taxes

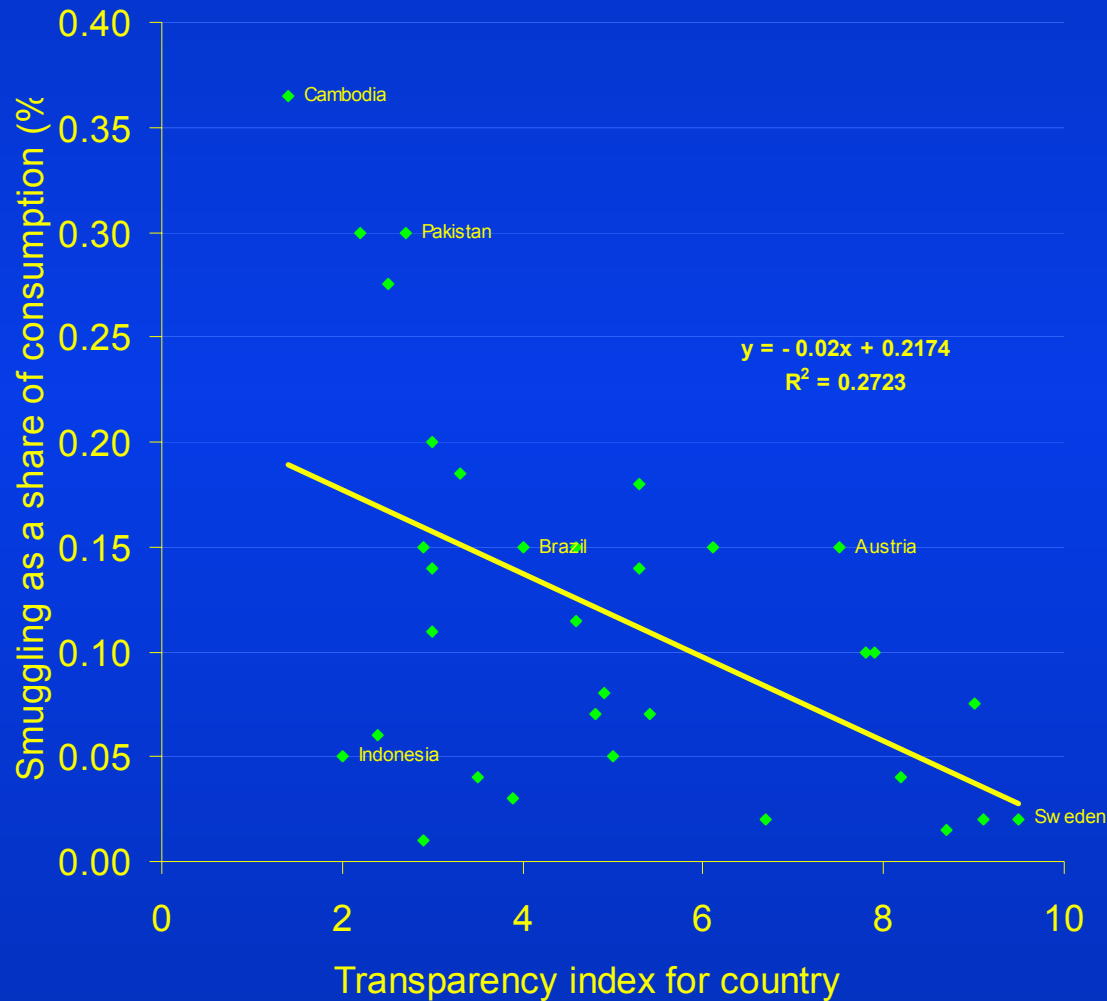
# Smuggling of Cigarettes

- **Industry has economic incentive to smuggle**
  - ◆ Increase market share and decrease tax rates
- **Best estimate: 6 to 8.5% of total consumption**
- **Non-price variables important**
  - ◆ Perceived level of corruption more important than cigarette prices
- **Tax increase will lead to revenue increase, even in the event of increased smuggling**

Source: Merriman *et al.* 2000; Joosens, 2000; BAT, 1998

# Tobacco smuggling tends to rise in line with the degree of corruption

## Smuggling as a function of transparency index



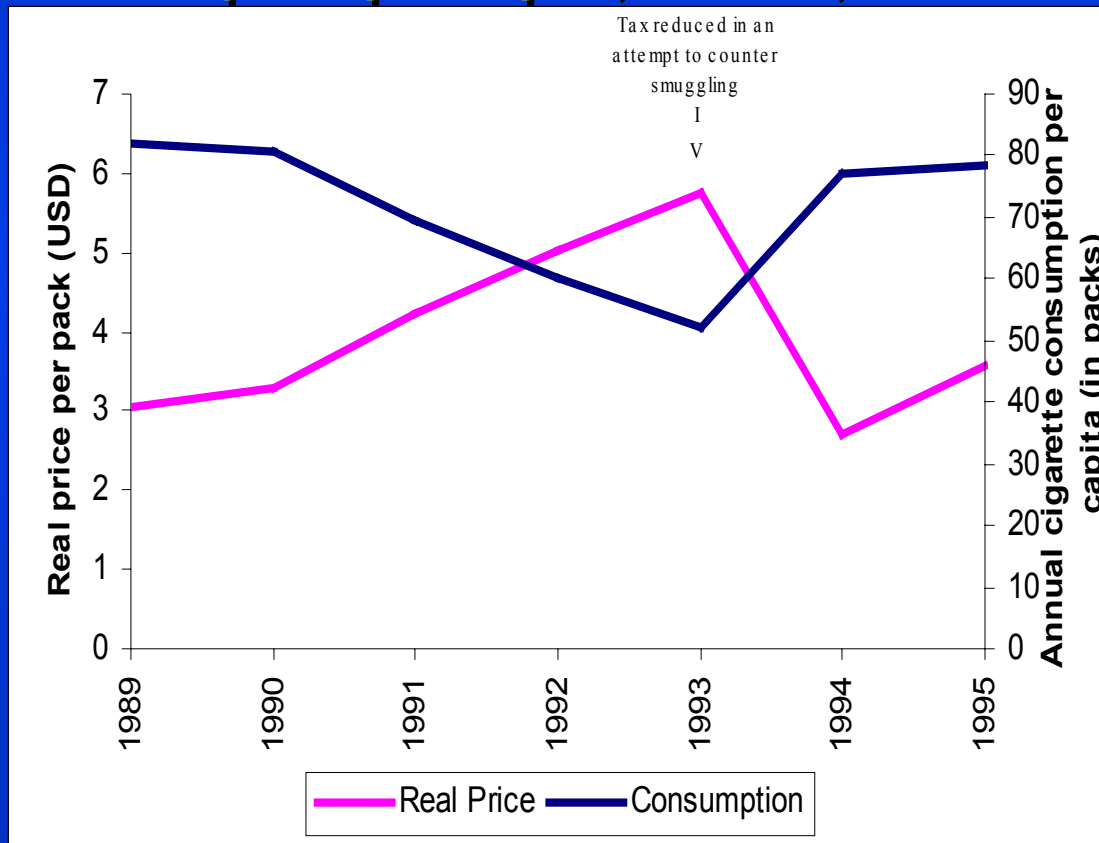
Source: Merriman *et al.*, 2000

# Control of Smuggling

- **Countries need not make a choice between higher cigarette tax revenues and lower cigarette consumption**
  - ◆ Higher tax rates can achieve both
- **Effective control measures of smuggling exist**
  - ◆ Focus on large container smuggling
  - ◆ Prominent local language warnings and tax stamps
  - ◆ Increase penalties
  - ◆ Licensing and tracking of containers
  - ◆ Increase export duties or bonds
- **Multilateral tax increases help combat smuggling**

# Lower tax rates in Canada in response to smuggling

Real price of cigarettes and annual cigarette consumption per capita, Canada, 1989-1995



Source: World Bank, 1999

# Smuggling and Tax Revenue (1)

## SOUTH AFRICA, 1990s

- Increased excise tax from 38 to 50% of retail price
  - ◆ Smuggling rose from 0 to 6%
  - ◆ Sales fell 20%
  - ◆ Revenue went up 2 fold

## CANADA, 1993-94

- Lowered tax in response to organized smuggling
  - ◆ Retail price fell by half
  - ◆ Total consumption rose 48%, more so in young
  - ◆ Average revenue per capita fell by 35%

# How cost-effective are tobacco control measures?

US dollars per healthy year life gained

<i>Region</i>	<i>Price increases of 10%</i>	<i>Non-price measures with effectiveness of 5%</i>	<i>NRT (publicly provided) with 25% coverage</i>
Low / middle income	4 to 34	68 to 272	276 to 297
High Income	165 to 1,370	1,347 to 5,388	746 to 1,160

Note: 3% discount rate, costs for non-price measures and all benefits projected over 30 years

Source: *Ranson et al.*, 2000

# Summary

- Tobacco deaths worldwide are large and growing, and have higher burdens among the poor
- Specific market failures support government intervention
- Demand measures, chiefly tax increases, information, and regulation are most effective to reduce consumption
- Control of smuggling is the major supply-side intervention
- Tobacco control is cost-effective

# Key recommendations

- **Governments:** adopt multi-pronged strategy, tailored to each country
  - ◆ cigarette tax increases: 2/3 to 4/5 of retail price
  - ◆ consumer information, research, advertising and promotion bans, warning labels and restrictions on public smoking
  - ◆ widen access to NRT and other cessation therapies
- **International agencies:** review policies, sponsor research, address cross-border issues and support the FCTC