



<http://www.tobaccoevidence.net>

**Economic Perspective on
Tobacco Control**

**National Institute of Public Health
Summer Course 2003**

Most smokers live in developing countries

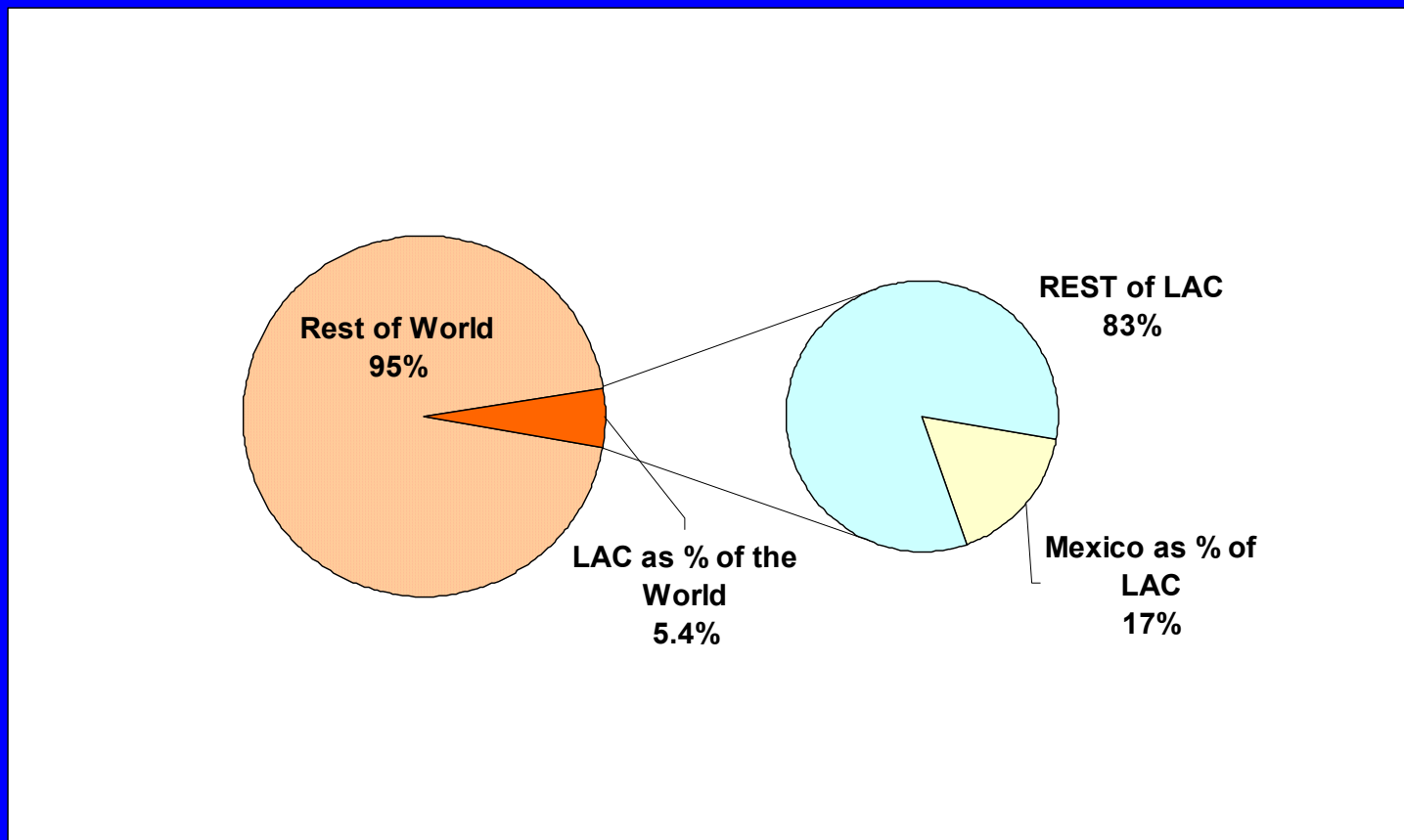
Current smokers in 1995 (in millions)

<u>Region</u>	<u>Number</u>
Low/Middle income	933
High Income	209
World	1,142

Quit rates low in low income countries

- ◆ 5-10% in China, India
- ◆ 30-40% in UK

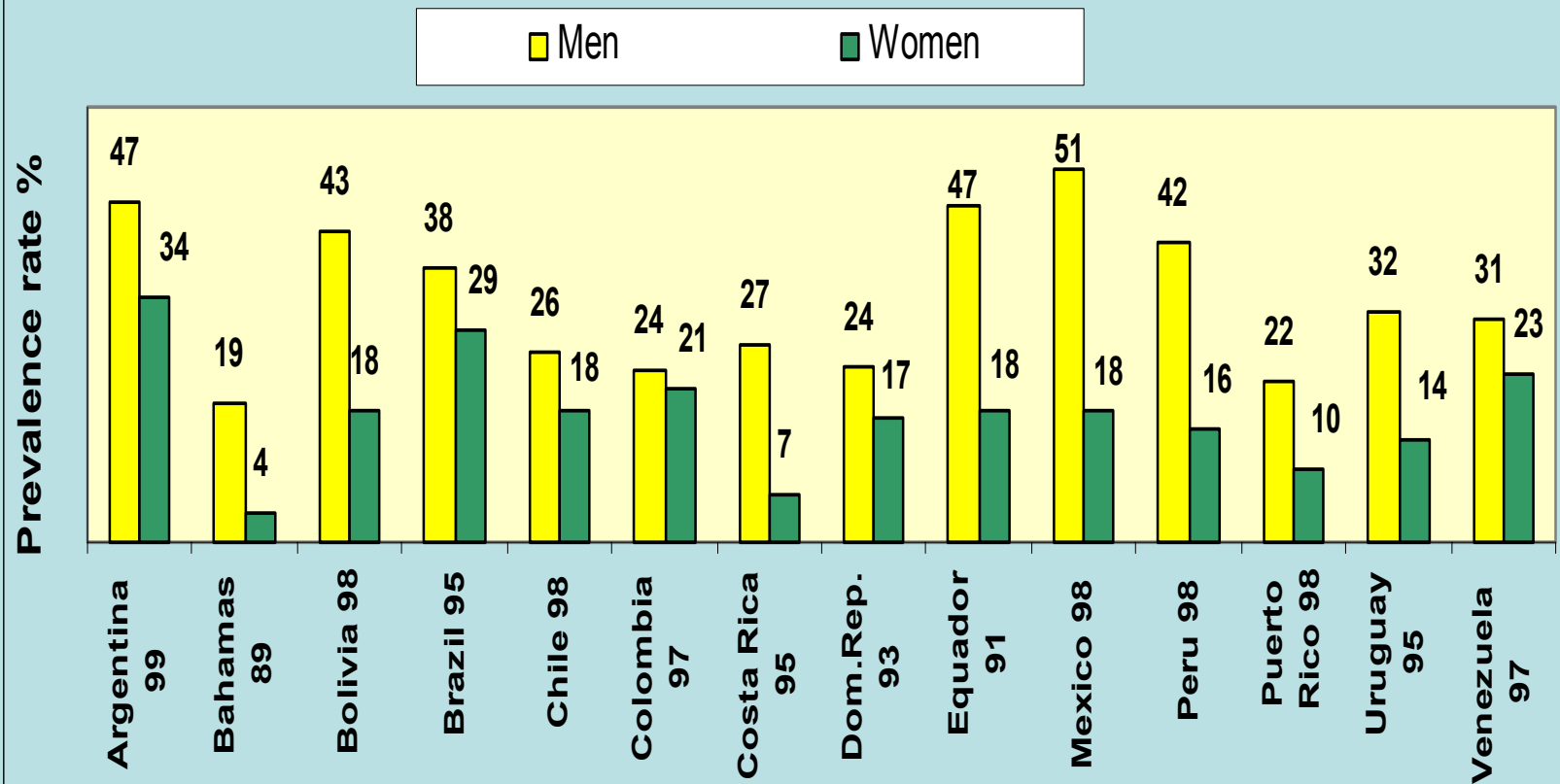
Global Share of the LAC and Mexico Cigarette Consumption in 1999



Source: USDA

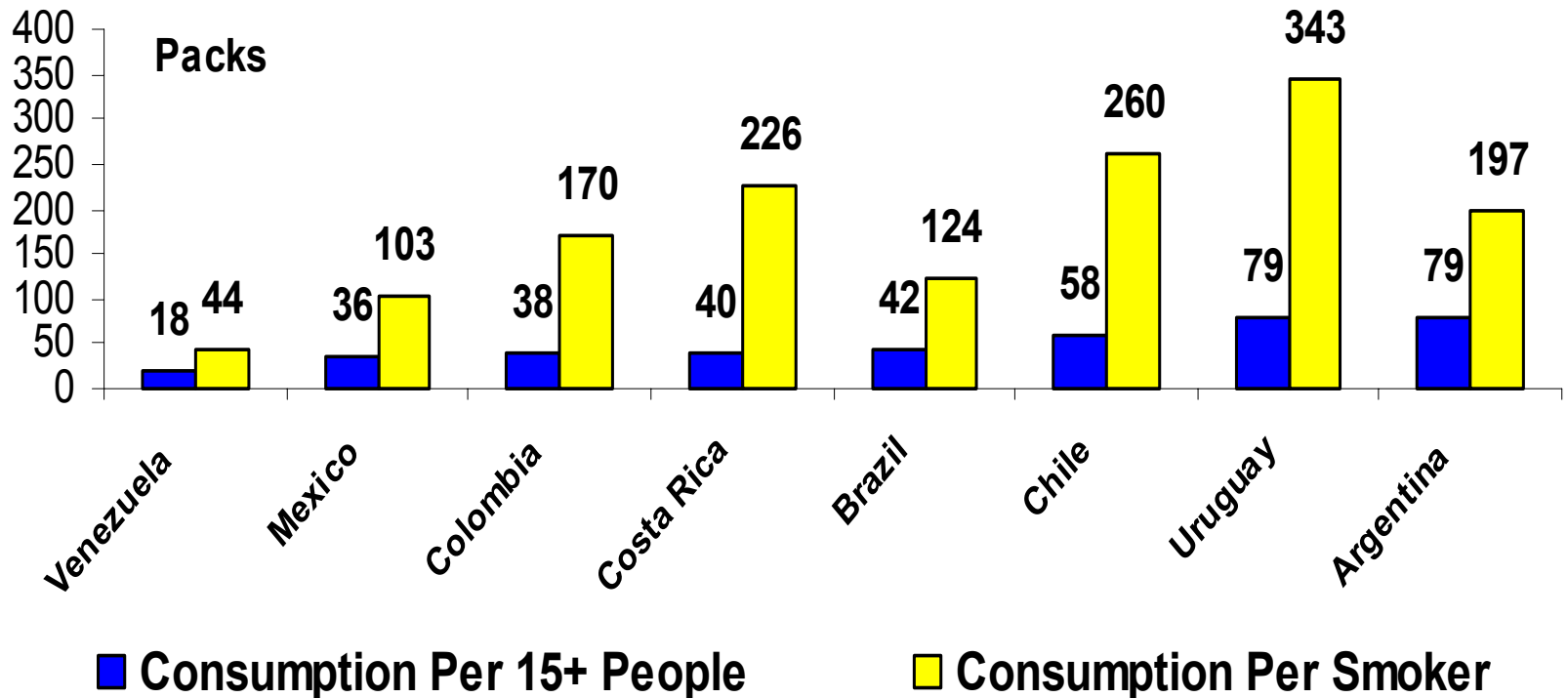
Higher Prevalence Rate in LAC

Prevalence Rate in Latin American Countries, 1990s



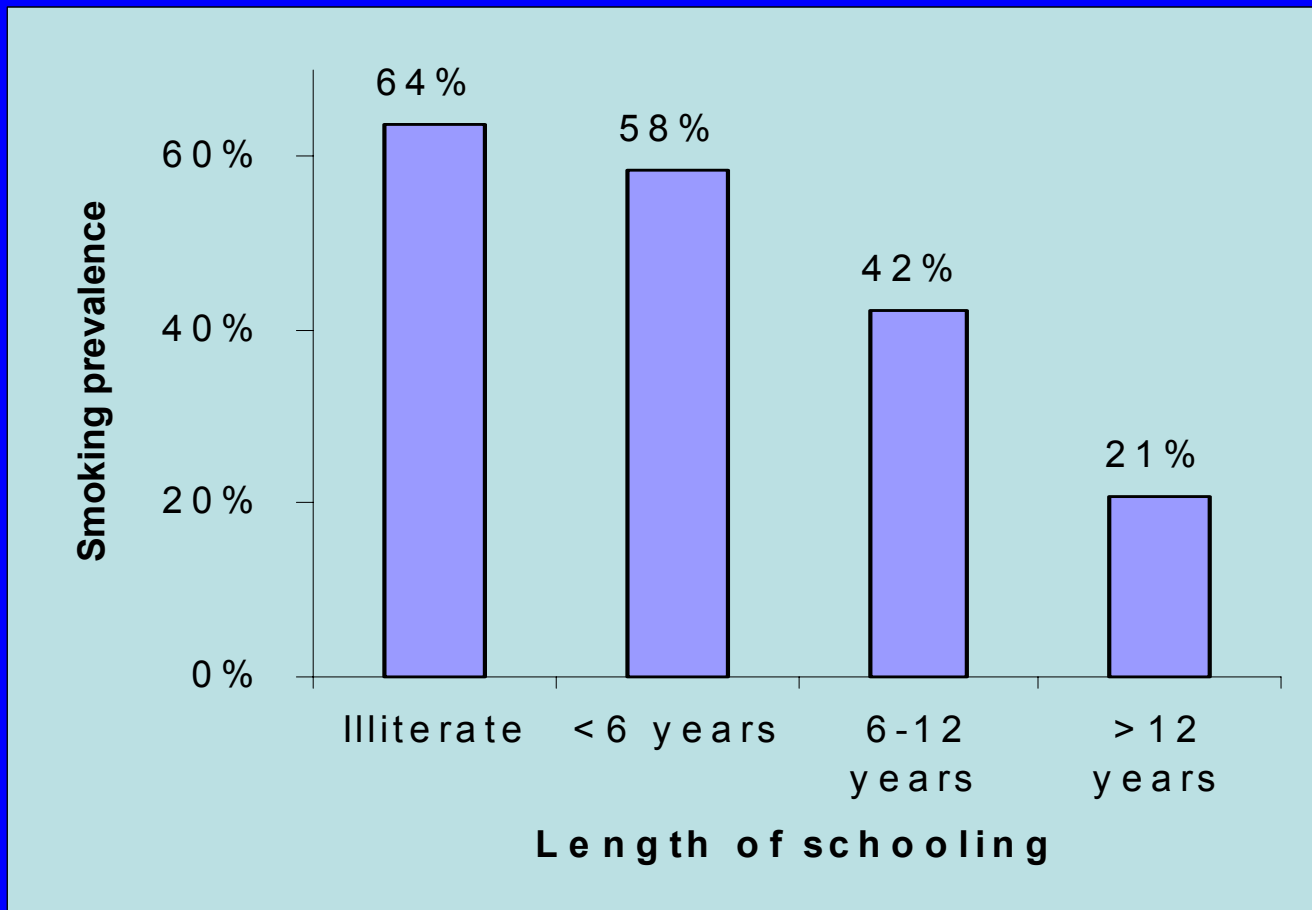
Heavy Smokers in Latin America

Cigarette Consumption Per Adult 15+ and Per Smoker for Selected Latin American Countries, 1999



Smoking is more common among the less educated

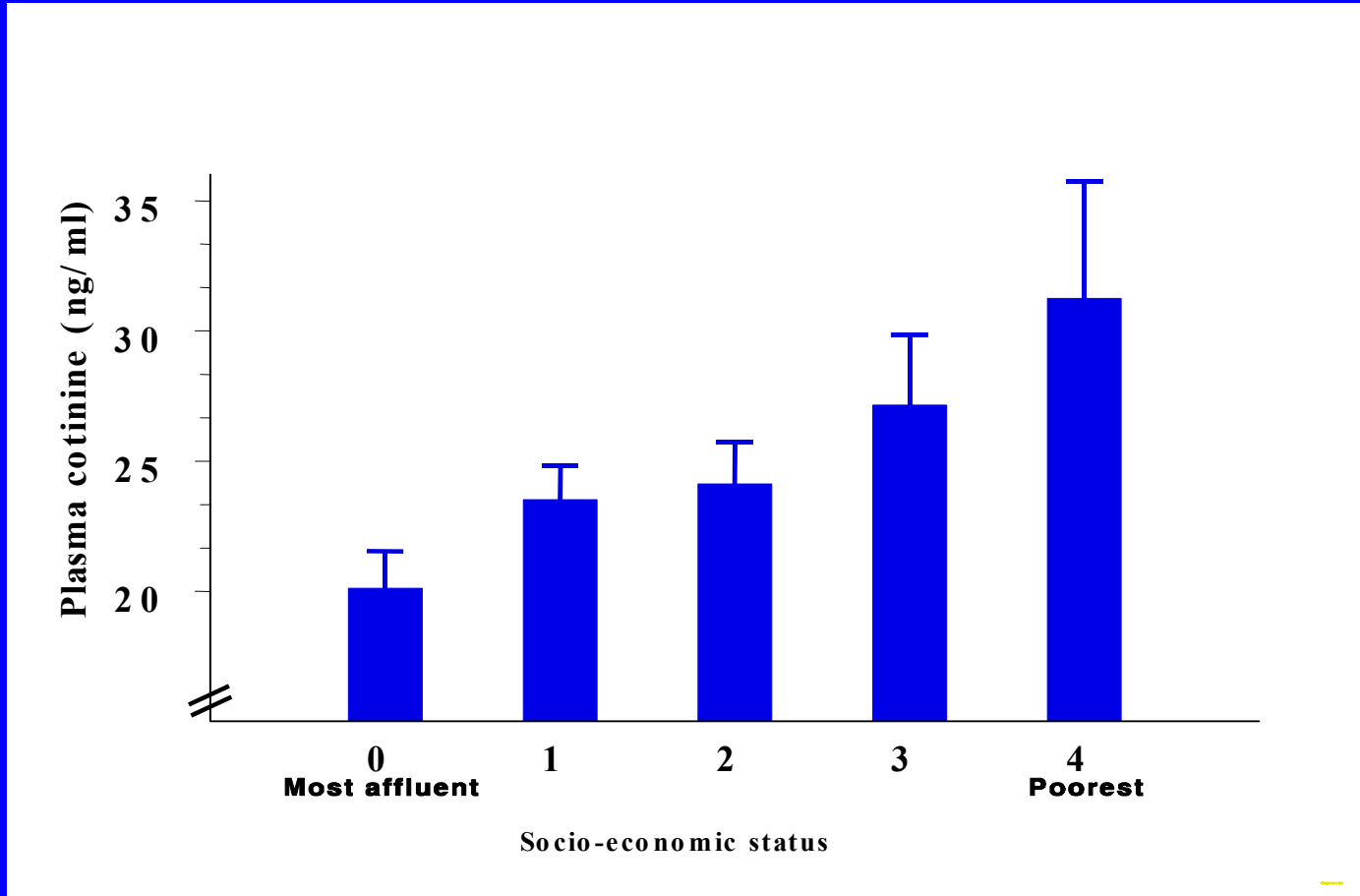
Smoking prevalence among men in Chennai, India, by education levels



Source: Gajalakshmi and Peto 1997

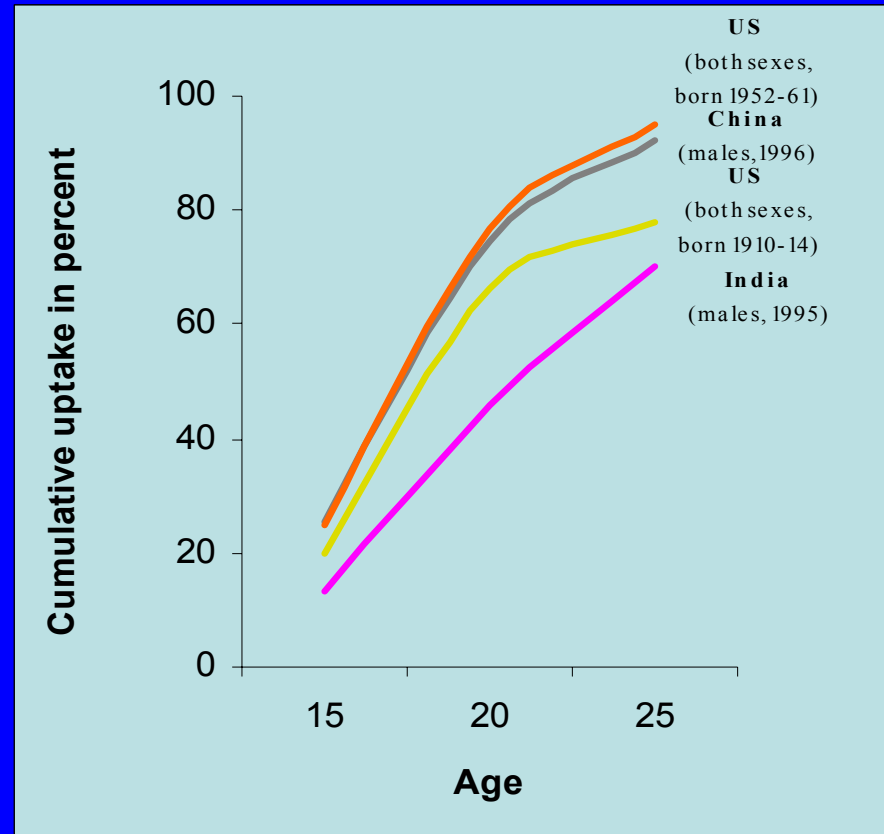
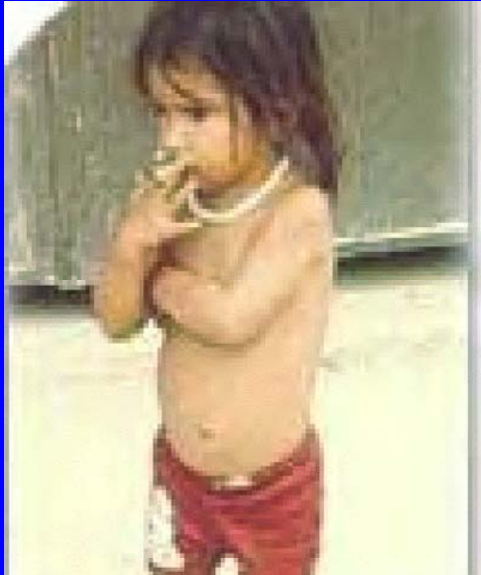
Nicotine addition and the poor:

Plasma cotinine in adult smokers by socioeconomic status



Source: Health Survey, England, 1999; Bobak *et al*, 2000

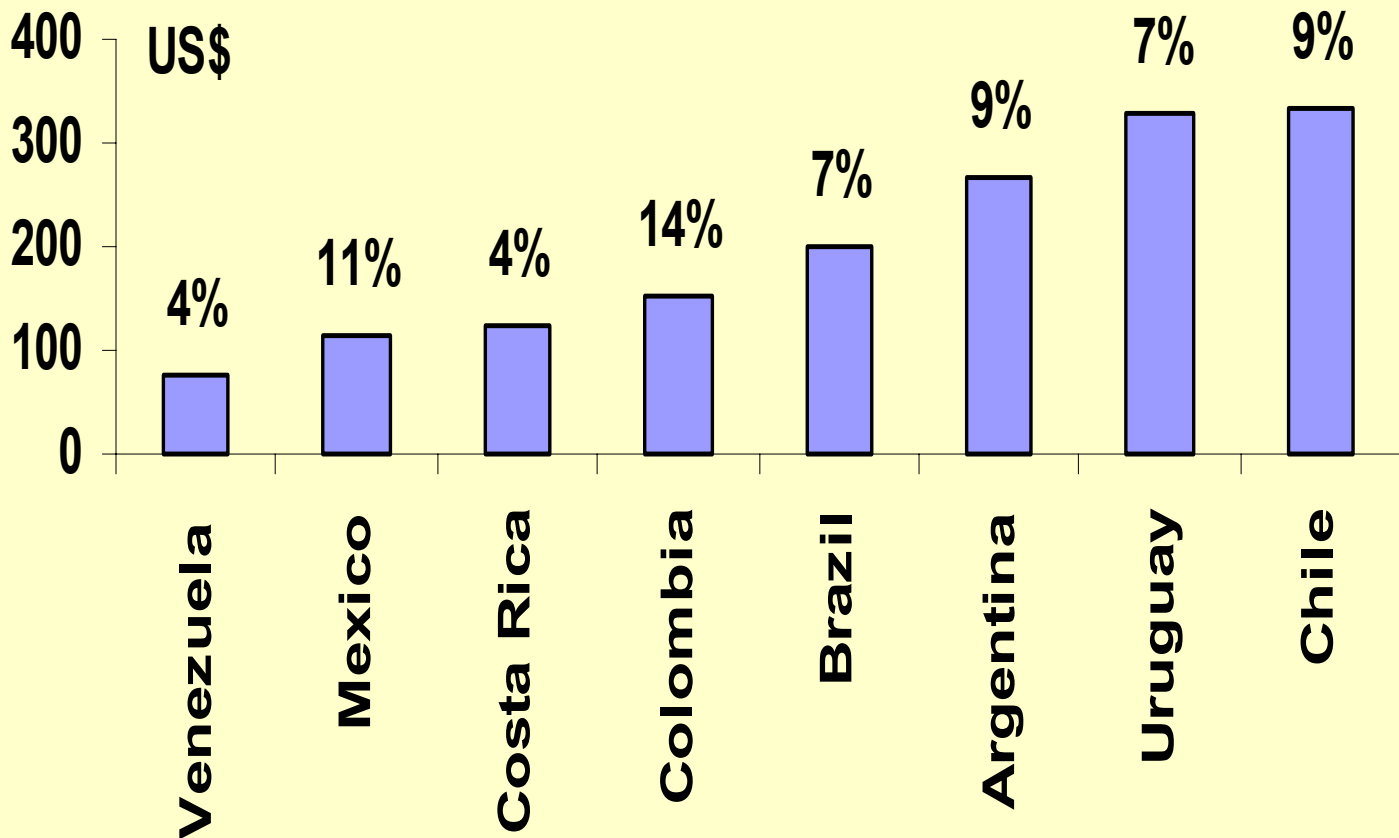
Tobacco addiction starts early in life



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

High Opportunity Costs

Annual Cigarette Expenditure and Its Share in Average Annual Salary of a Smoker in 1999



Large and growing number of deaths from smoking

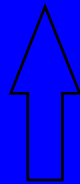
Past and future tobacco deaths (in billions)

<u>Time</u>	<u>Billions of deaths</u>	
1901-2000	0.1	(mostly in developed countries)
2001-2100	1.0	(mostly in developing countries)

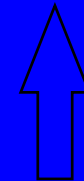
- ◆ 0.5 B among people alive today will die from tobacco
- ◆ 1 in 2 of long-term smokers killed by their addiction
- ◆ 1/2 of deaths in middle age (35-69)

WORLD: Annual Tobacco Deaths (in millions)

	1990	2030
Developed	2	~3
Developing	~1	~7
<i>World Total</i>	3	~10

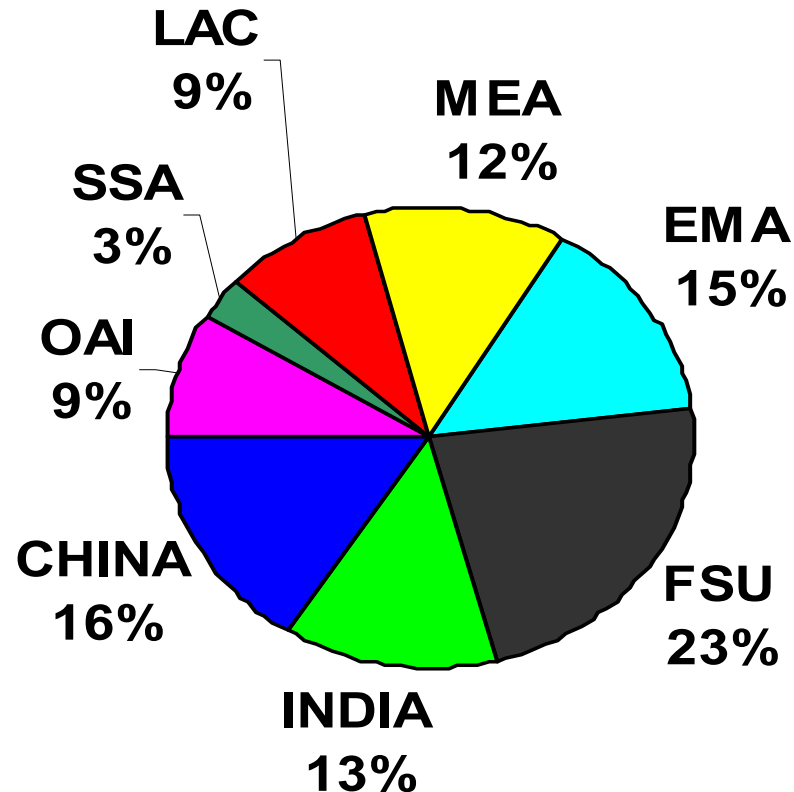


Past smokers, mainly adults

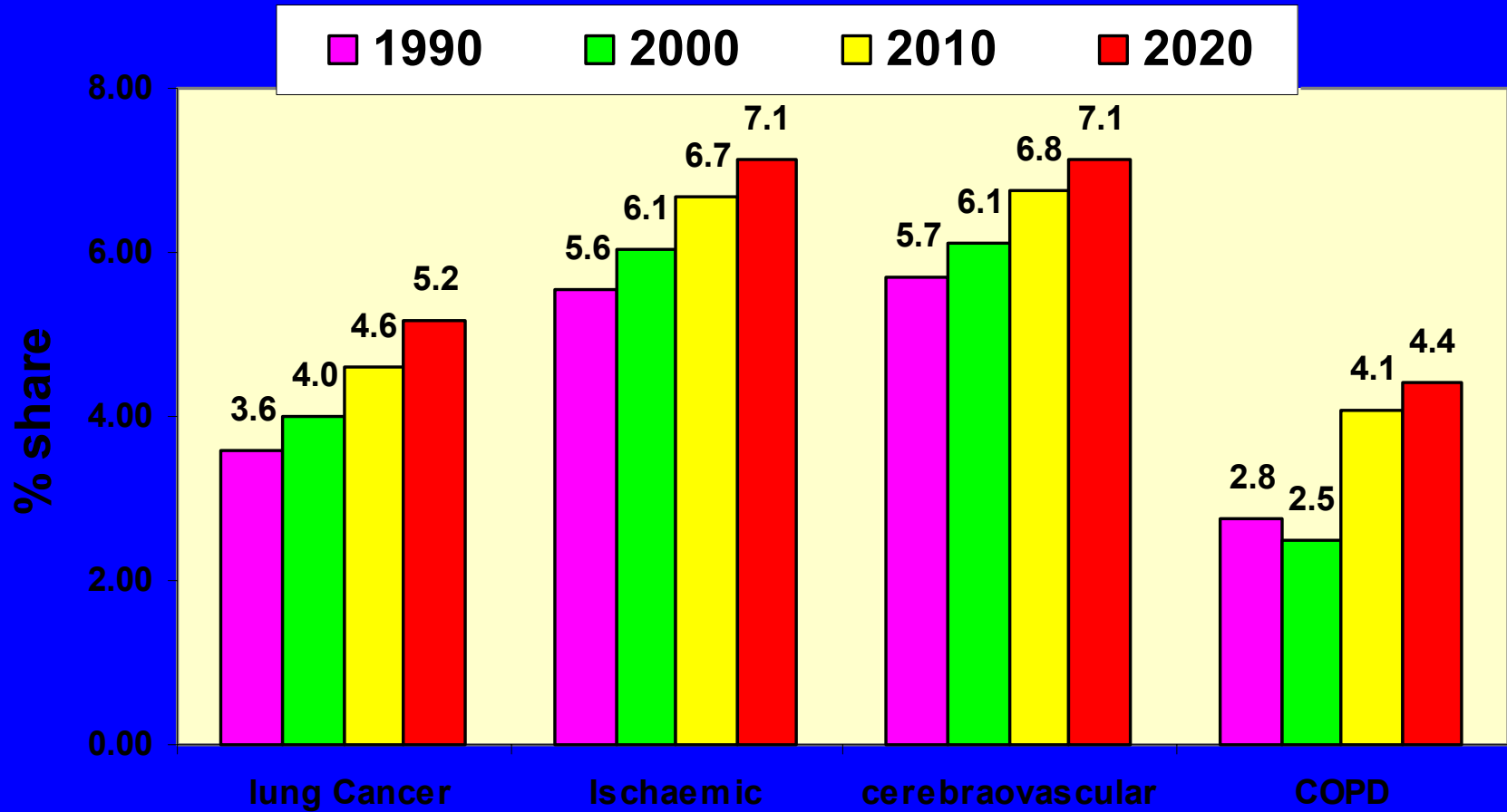


Current smokers, mainly teenagers and young adults

Percentage of Tobacco Attributable Deaths in 2020 by Region



% Share of World Deaths in LAC from Various NCD Diseases 1990-2020



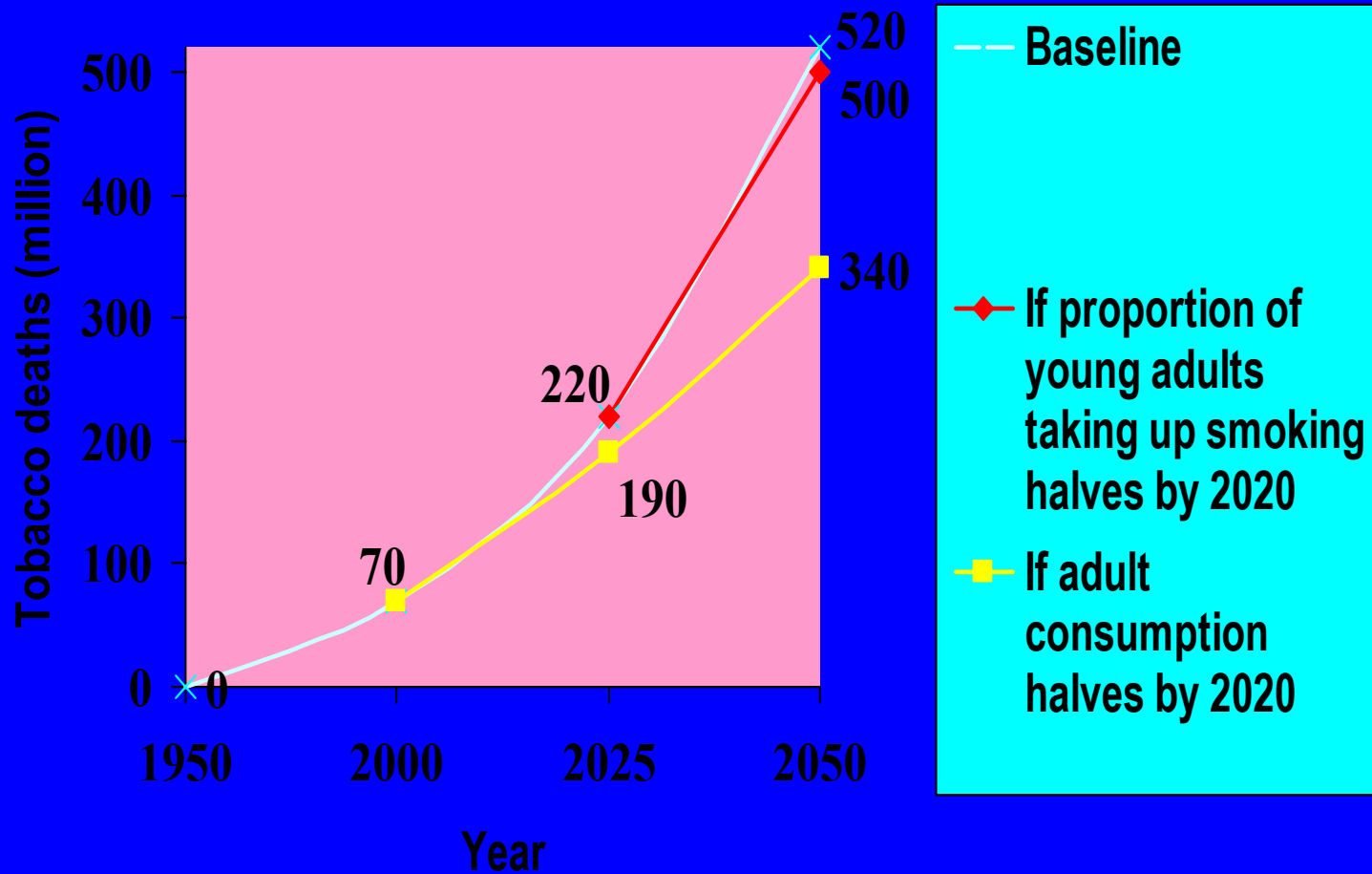
Smoking versus other risks (alcohol, fast driving)

Risk of addiction is greater for smoking than from other drugs/alcohol (no “learning” from youthful excesses)

Risk of death from smoking is much higher: of 1000 males smokers aged 15

- 125 die from smoking in middle-age
- 20 die from road accidents or violence (30 from all alcohol-related conditions)

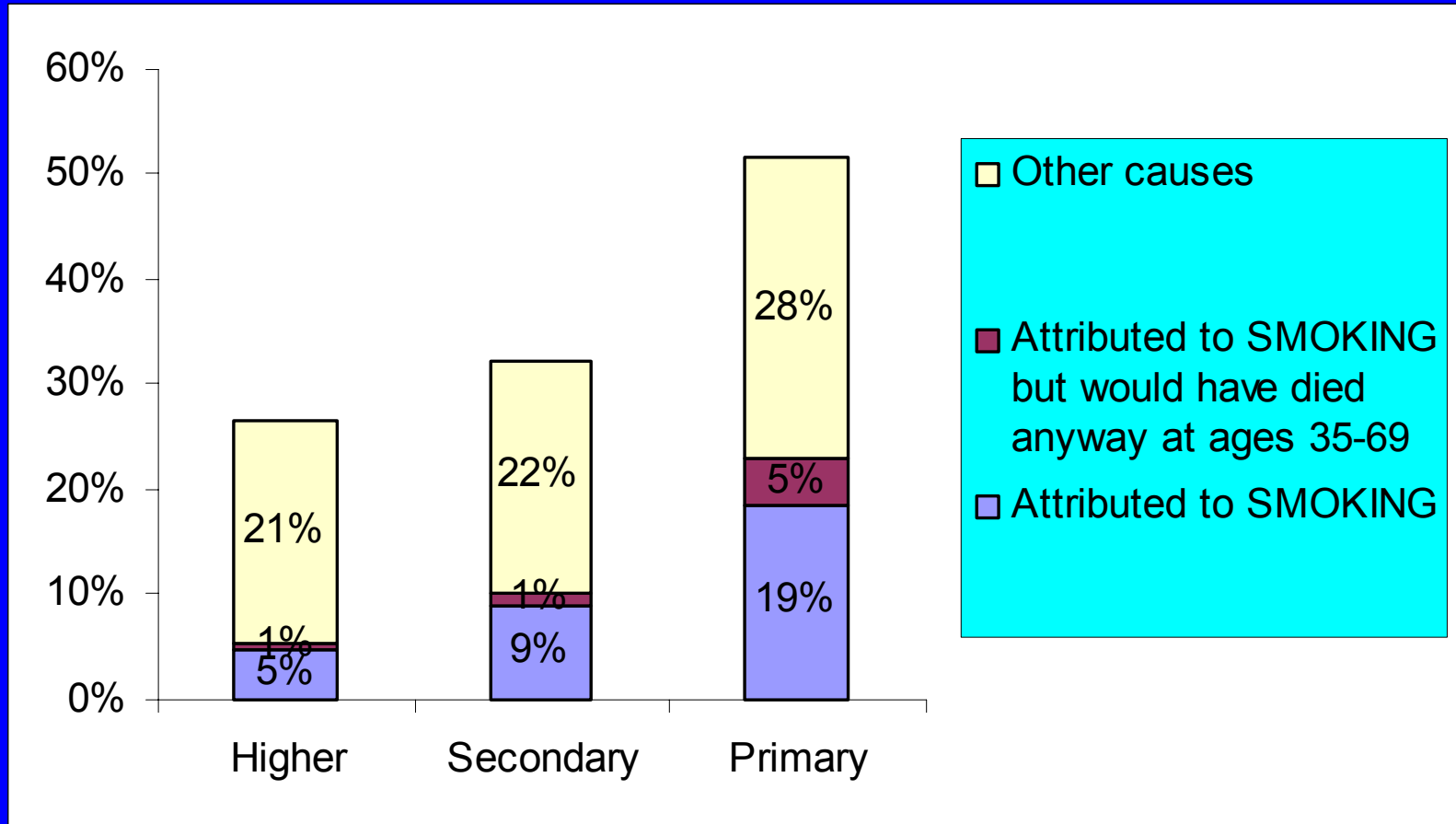
Unless current smokers quit, smoking deaths will rise dramatically over the next 50 years



Source: Peto and Lopez, 2001

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

Healthcare costs of 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

Income growth reduced by poor adult health

- **Survival rate improvement for adult male by 10 % points led to higher income growth by 0.23% per year (based on 52 countries between 1965 and 1990)**
- **Poor health leads to lower return on education, higher medical costs, and lower productivity = lower growth**

Estimated income growth from better adult health

- If adult male survival in FSE (72%) were that of OECD countries (86%), annual growth rates over the last three decades would have been about 1.4% vs. 1%
- 1990 per capita income:

Actual	\$2,700
With better male survival	\$3,000
-12% higher	
- \$140,000,000,000 greater	

Source: Prabhat Jha, based on Jamison et al, 2002, www.cmhealth.org/wg1.htm

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

Which interventions are effective?

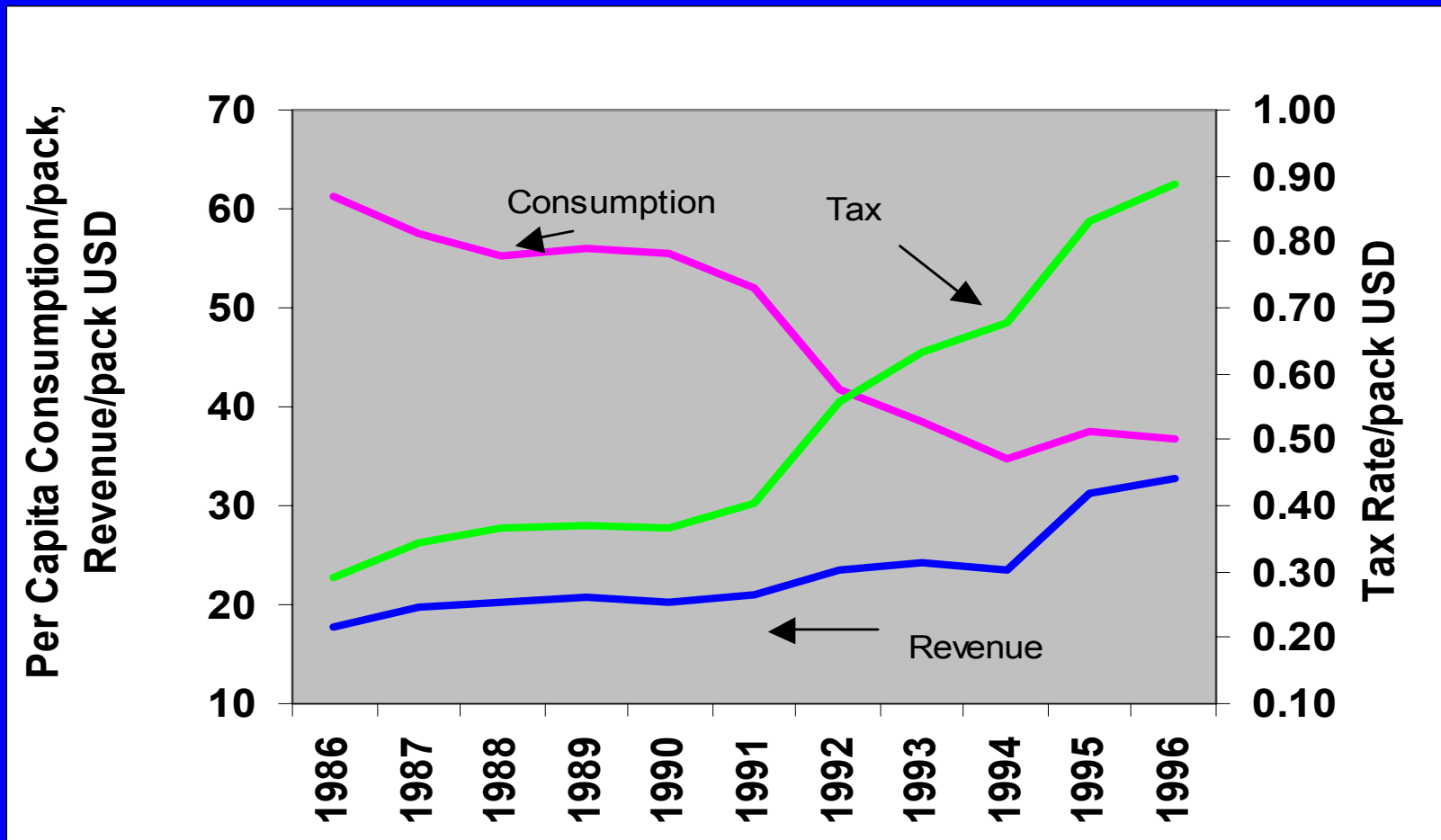
Measures to reduce demand

- 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 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
 - About half of the effect is on amount and half on initiation
 - Long-run effects may be greater
- Young people and the poor are the most price responsive

Cigarette price and consumption show opposite trends – case of Brazil



Source: World Bank

What is the “right” level of tax?

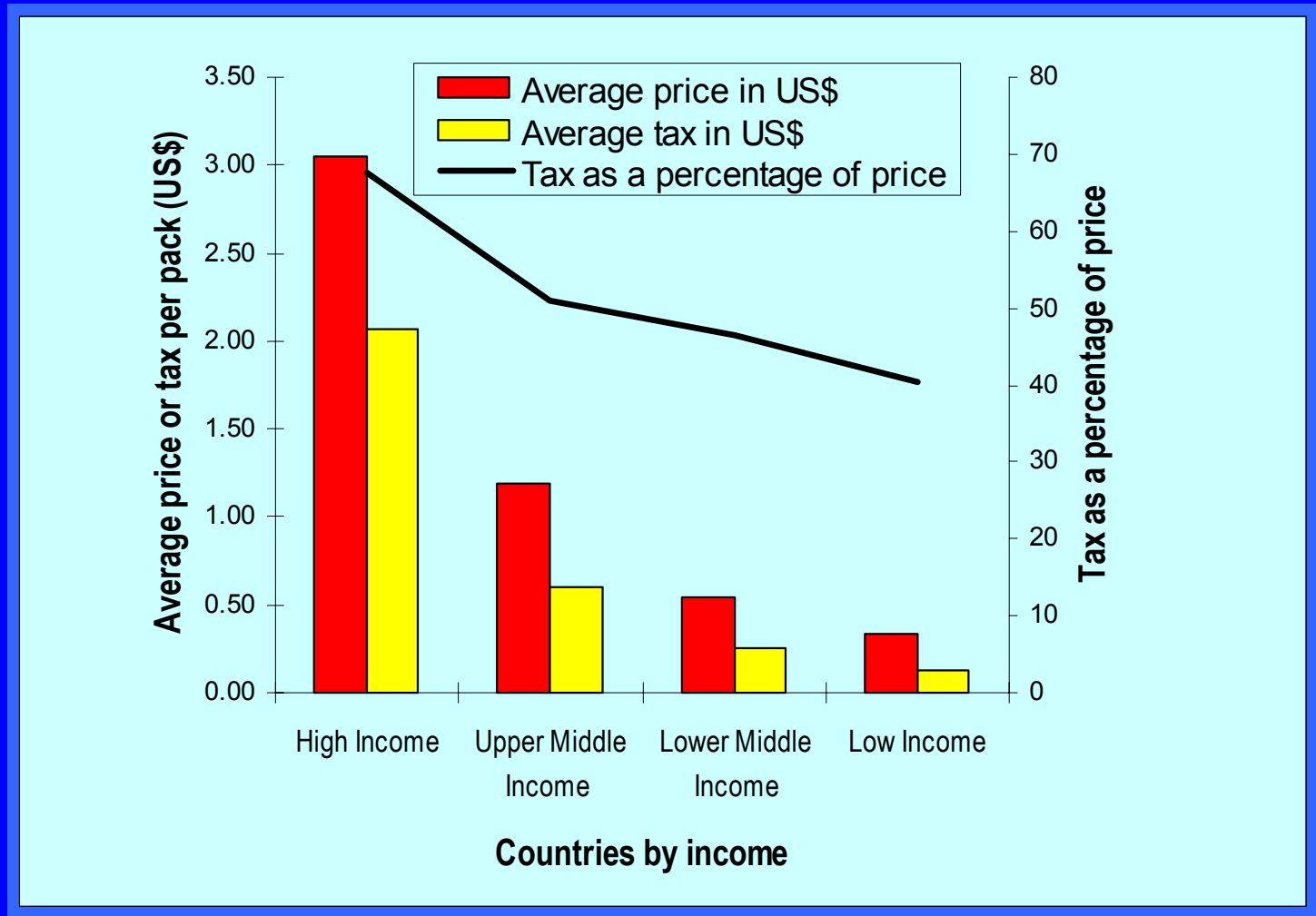
- **Complex question**

Many factors involved, e.g. how much does the society wants to protect children, revenue considerations, etc.

- **A yardstick:** in comprehensive programs, tax is at least $2/3$ to $4/5$ of retail price

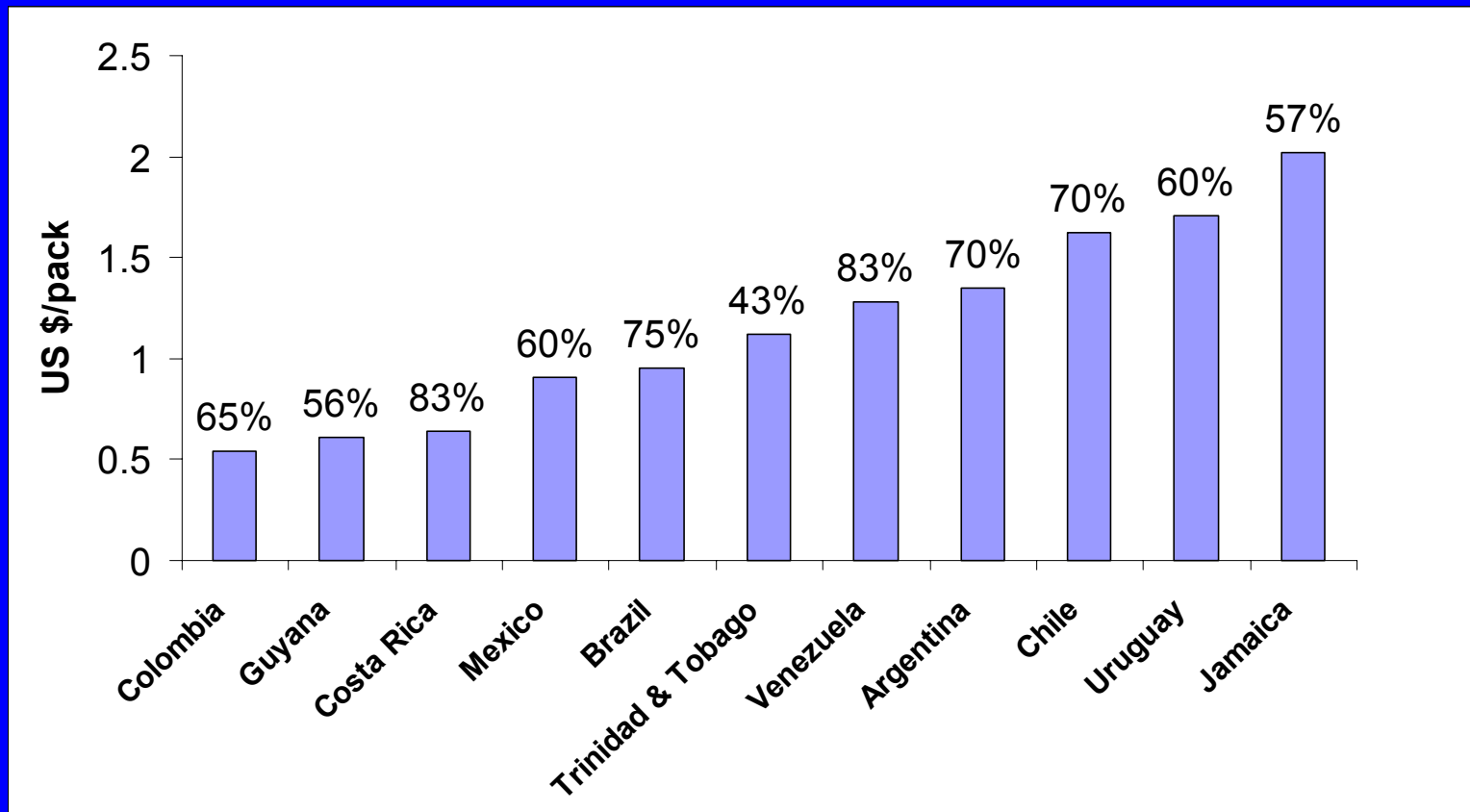
Source: Chaloupka *et al.*, 2000

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



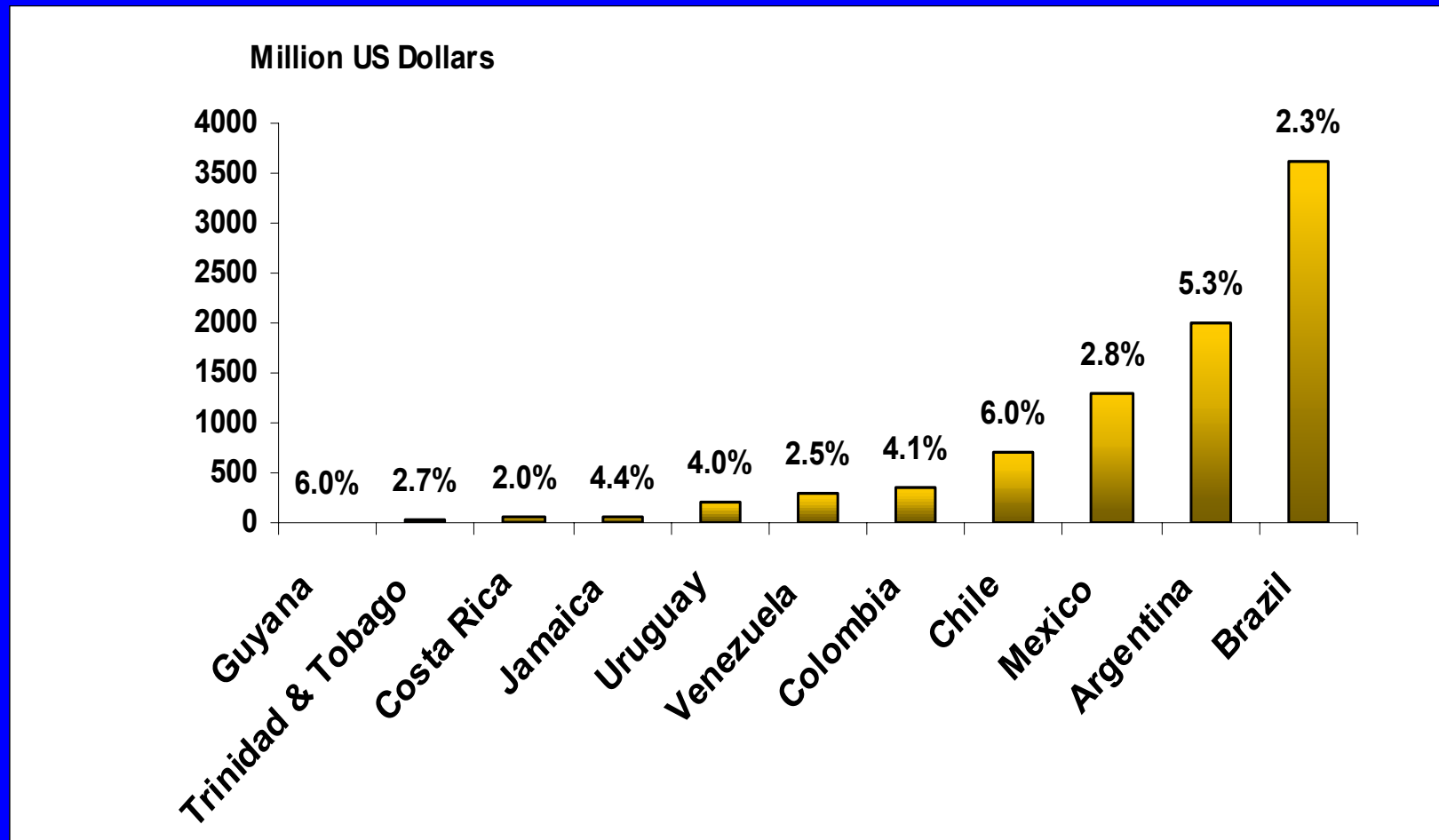
Source: Chaloupka *et al.*, 2000; data from 1996

Overall Cigarette Tax As % of Retail Prices for Selected LAC Countries, 1999



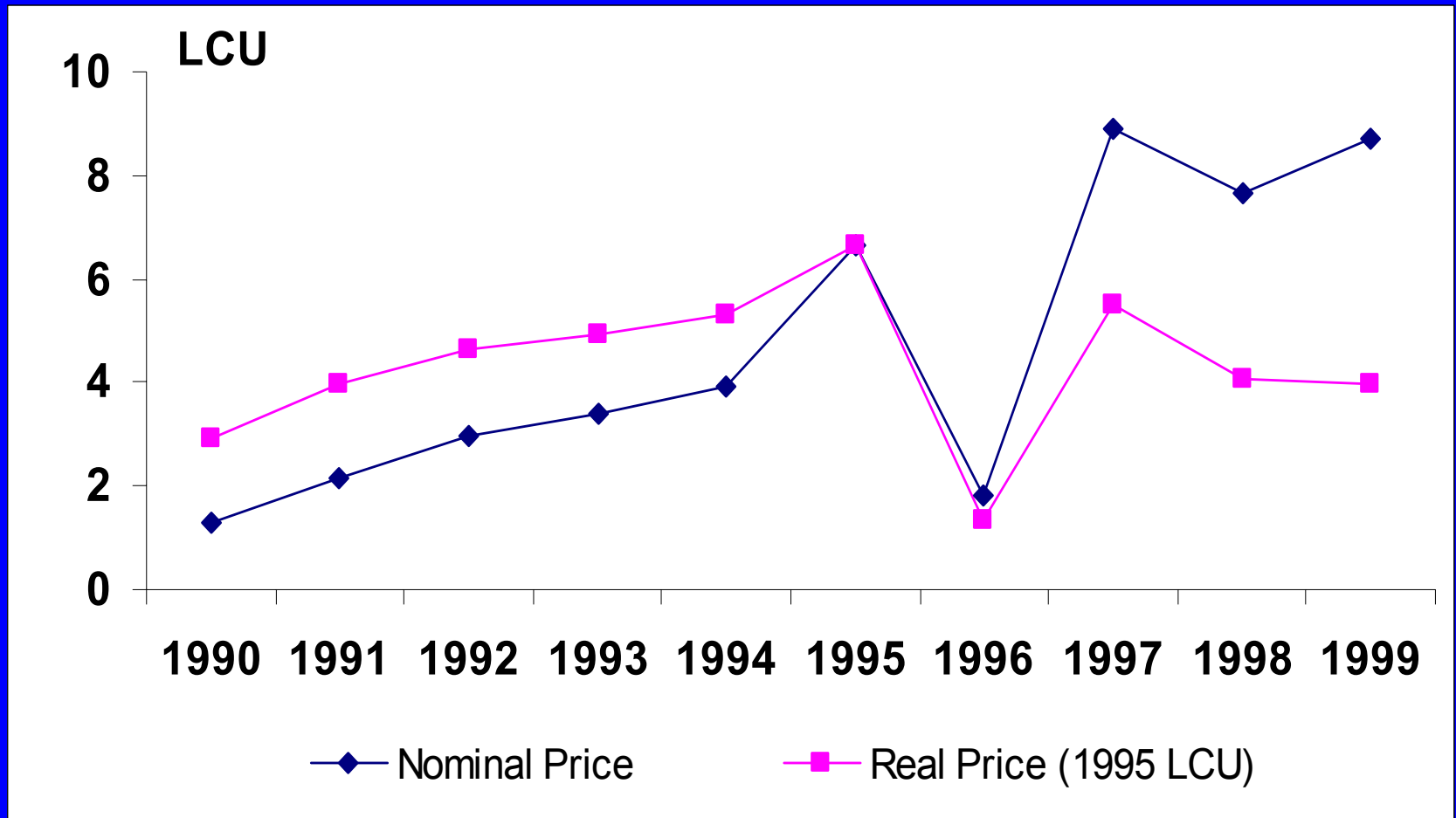
Source: The World Bank Estimates

Tobacco Taxes and Percentage Shares in Total Government Tax Revenue, 1999



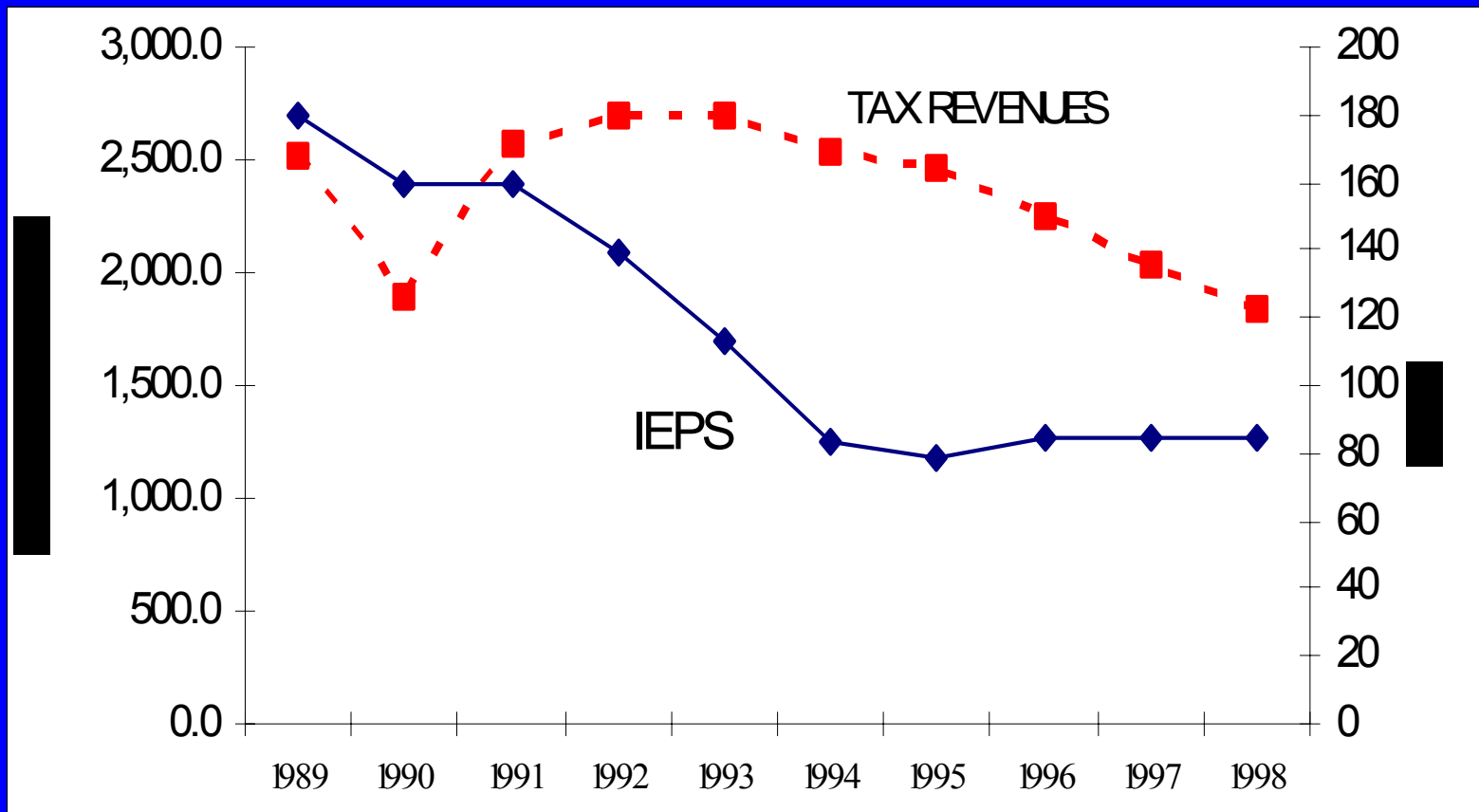
Source: The World Bank Estimates

Cigarette Prices in Mexico, 1990-1999



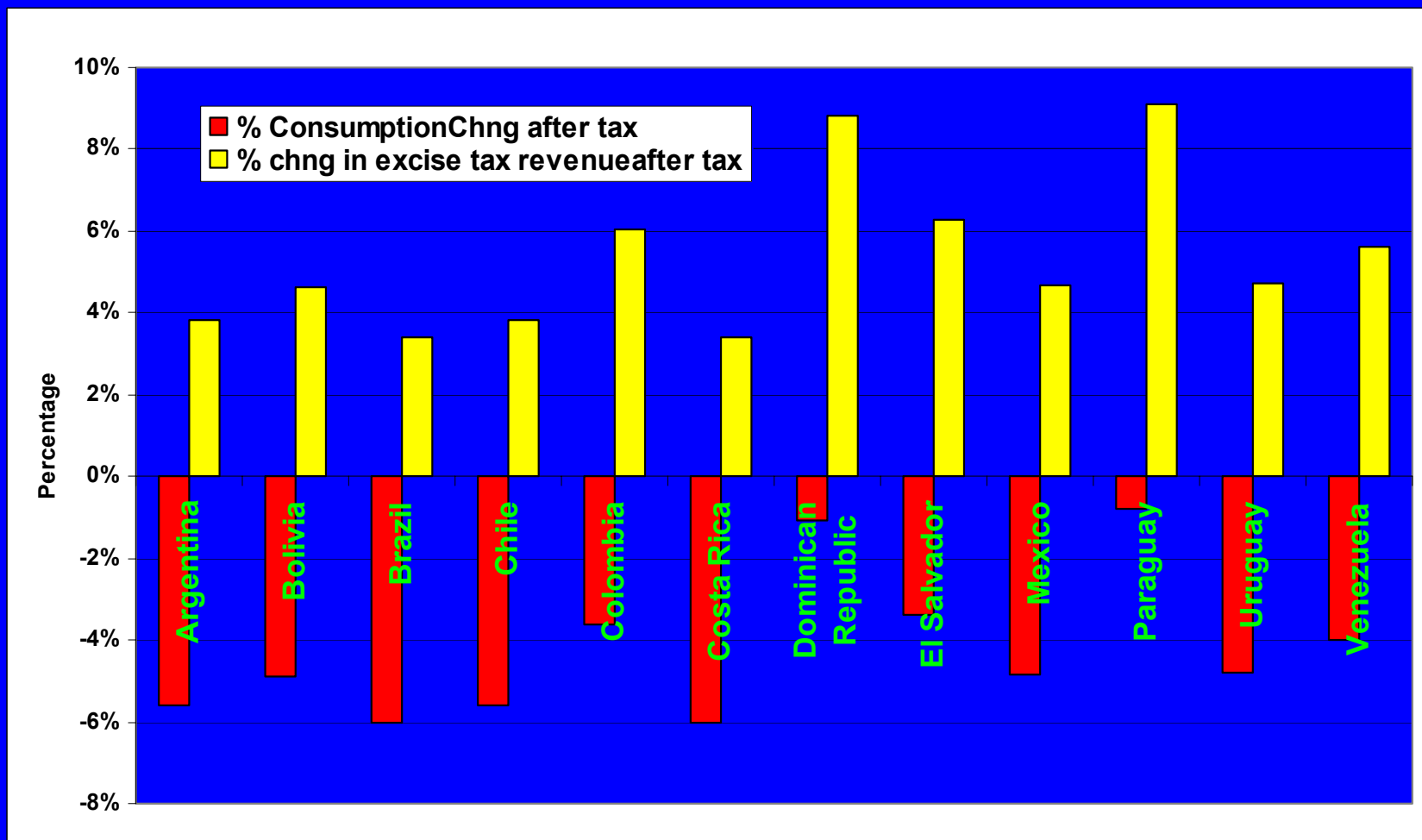
Source: EIU

Cigarettes Taxes and tax revenue in Mexico (1989 – 1998)



Source: Secretaría de Hacienda y Crédito Público (SCHP). Cuenta de la Hacienda Pública. Various years. México. Subsecretaría de Egresos.

10% Ex. Tax Increase - Lower on Cig. Consumption and Higher Tax Revenues

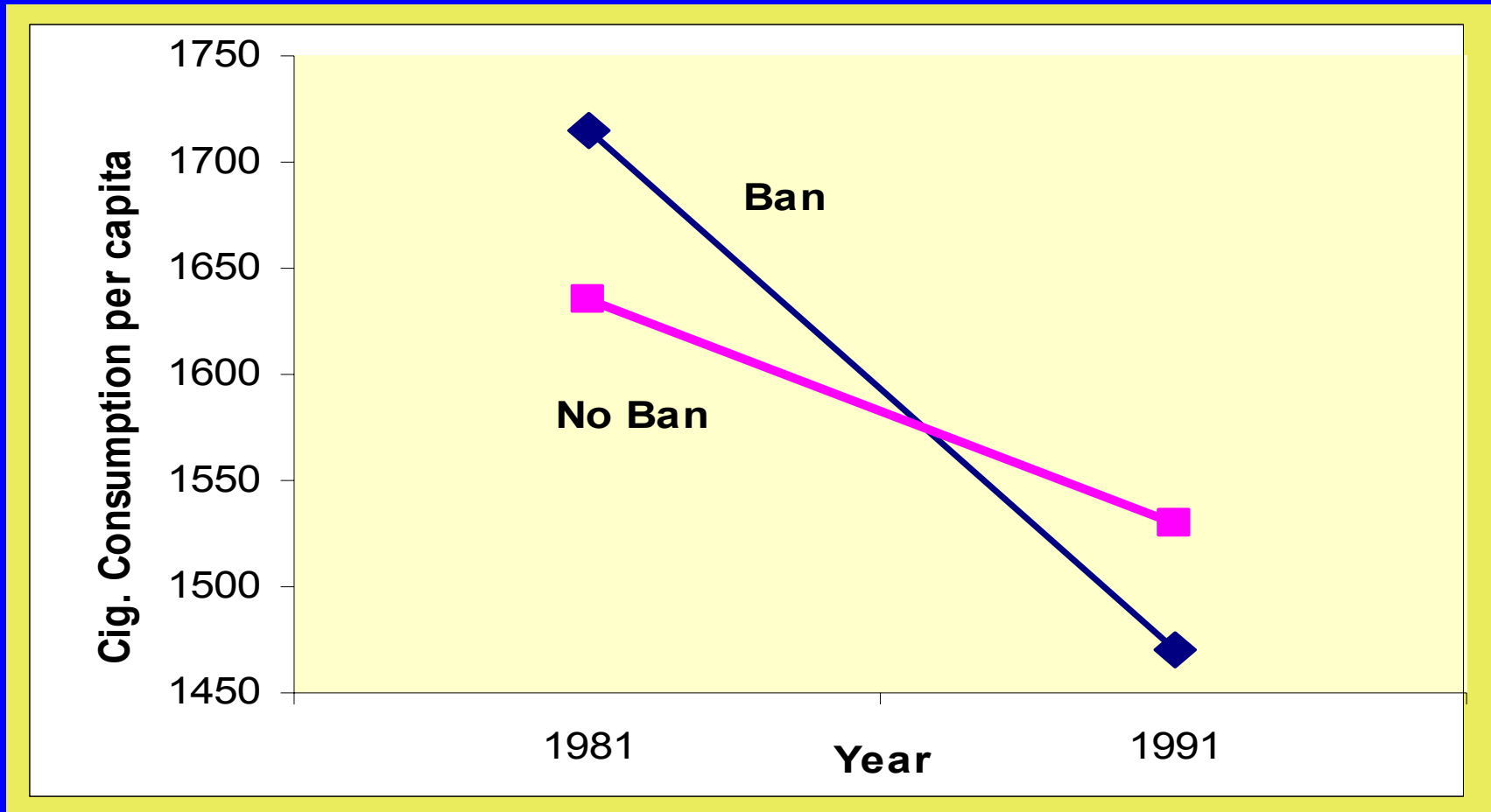


Effect of advertising bans and counter-advertising

- 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

Comprehensive advertising bans reduce cigarette consumption

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



Source: Saffer, 2000

Impact of interventions on initiation and cessation

Intervention	Initiation	Cessation
Price increases	10% increase=3-10% decrease	10% increase=11-13% shorter duration, 3% higher cessation
Anti-smoking media	Weak evidence	Increased number of attempts and success
Advertising and promotion bans	Reduces experimenting and initiation, higher effects on female	Complete ban reduces consumption by about 6%
Youth access	Weak evidence	No evidence
Smoking restrictions	Some evidence of lower initiation	Work and household restrictions most effective
NRT	No evidence	More decisions to quit and higher number of attempts

Source: Ross, 2002

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

Which interventions are ineffective at reducing consumption?

Mostly measures that reduce supply

- Prohibition
- Youth access restrictions
- Crop substitution
- Trade restrictions
- ***Control of smuggling is the only effective supply-side measure***

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
- **Smuggling**: crack down on criminal activity, not lower taxes
- **Impact on Income Distribution (the poor smoke more) ?**: partially offset by lower consumption

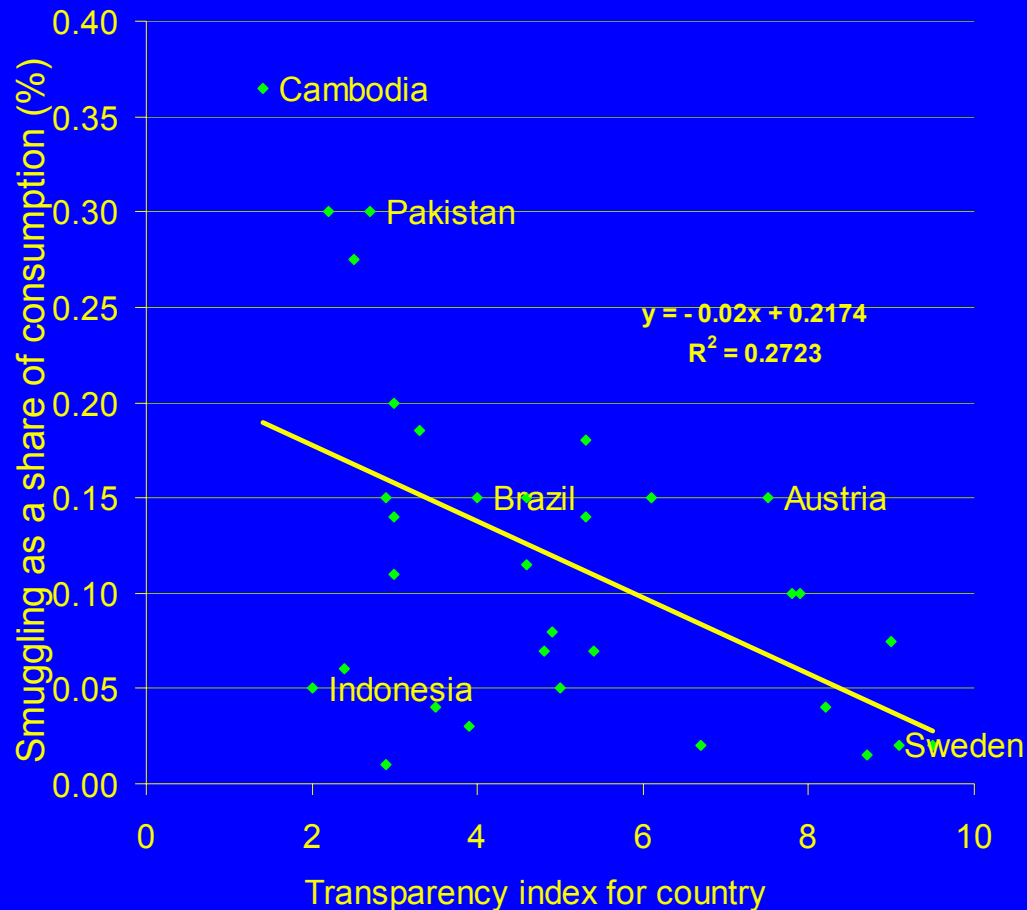
Smuggling of cigarettes

- **Industry has economic incentive to smuggle**
 - Increase market share and decrease tax rates
- **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

Effective control measures of smuggling exist

- Focus on large container smuggling
- Local language warnings and tax stamps
- Increase penalties
- Licensing and tracking of containers
- Increase export duties or bonds
- **Multilateral tax increases help combat smuggling**

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%

Jobs versus Health (1)

Farming - Net exporters most affected

- But, only few communities** heavily dependent on tobacco farming
- Gradual adaptation** will occur due to gradual decrease in demand for tobacco
- Government can help** with transition
- Tobacco companies** themselves reduce jobs in tobacco industry

Jobs versus Health (2)

Jobs in manufacturing, marketing and processing

- **Small percentage** of total employment
- **Automation** will also reduce jobs
- **Net importers** can expect positive effect on total employment as part of the demand shift will aim at the domestic market

Jobs versus Health (3)

Jobs in related industries

(suppliers, distributors, advertising, whole sale and retail, restaurants)

- Usually not heavily depend on tobacco production
- Shift in demand for other products will prevent job losses

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 *et al*, 1995; Irvine and Sims, 1997; McNicoll and Boyle 1992, Jacobs *et al*, 2000; Warner *et al*, 1996