

Health Behaviors and Mortality

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Background

- Mortality rates will be affected by several factors:
 - Health behaviors (smoking, drinking, diet, risky sexual behavior, ...)
 - Environment (air pollution, income distribution [?])
 - Medical technology

- Our ability to forecast these factors differs.
 - Medical technology: very hard to forecast
 - Health behaviors: hard to forecast, but easier

Health behaviors are important

- A large share of deaths are a result of behaviors
 - CDC: up to 1/2.
- They pick up the demand for health, which could drive other factors such as medical technology and the environment
- There is enormous concern about the recent increase in obesity.



Our Goals

- Understand whether people are behaving in healthier ways than in the past.
- Simulate what changes in behavior would imply for the future.

Are We Behaving Better?

Yes

- Decline in smoking
- Reduction in heavy drinking
- [Taking medications]

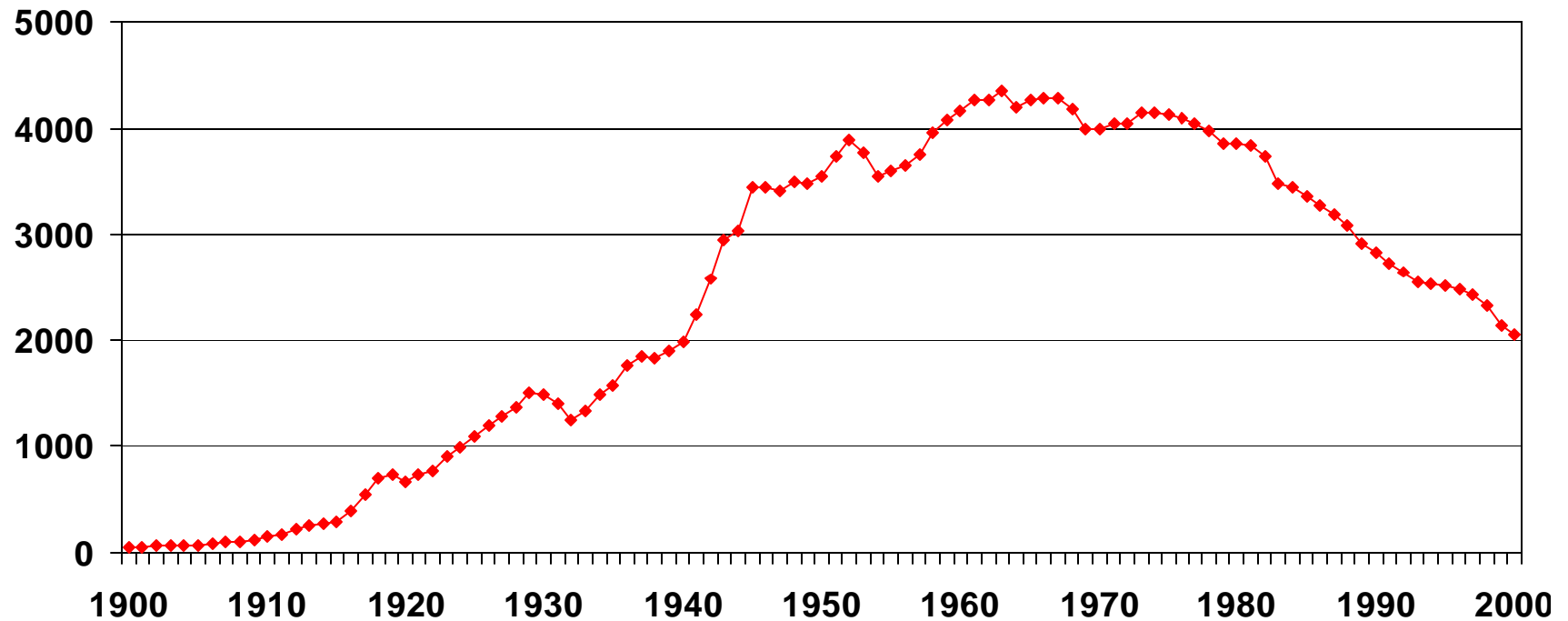
No

- People more obese
- [Risky sexual behavior]

We look at the major behaviors affecting mortality among the elderly: smoking, drinking, and obesity.

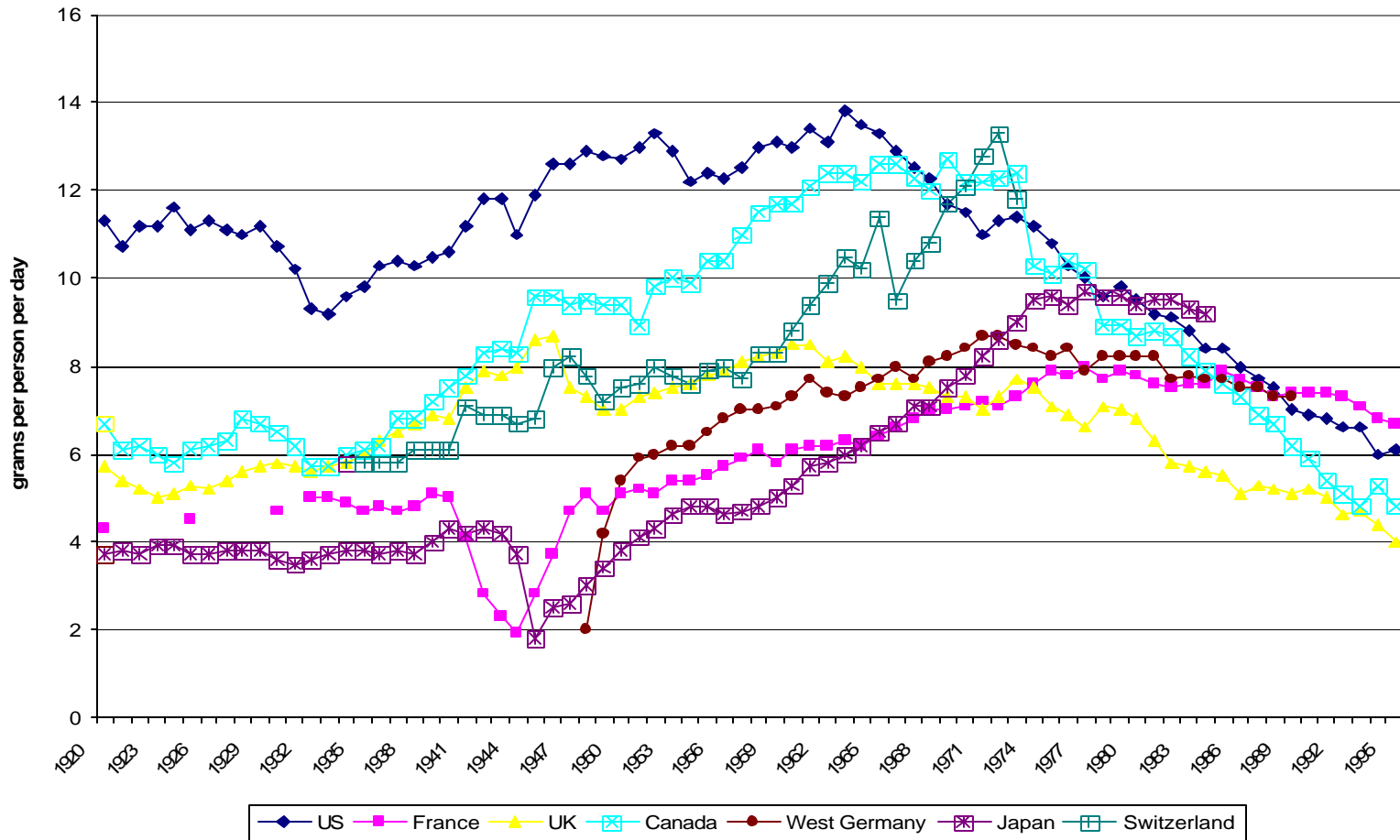
Smoking: The Great Success

Per Capita Cigarette Consumption



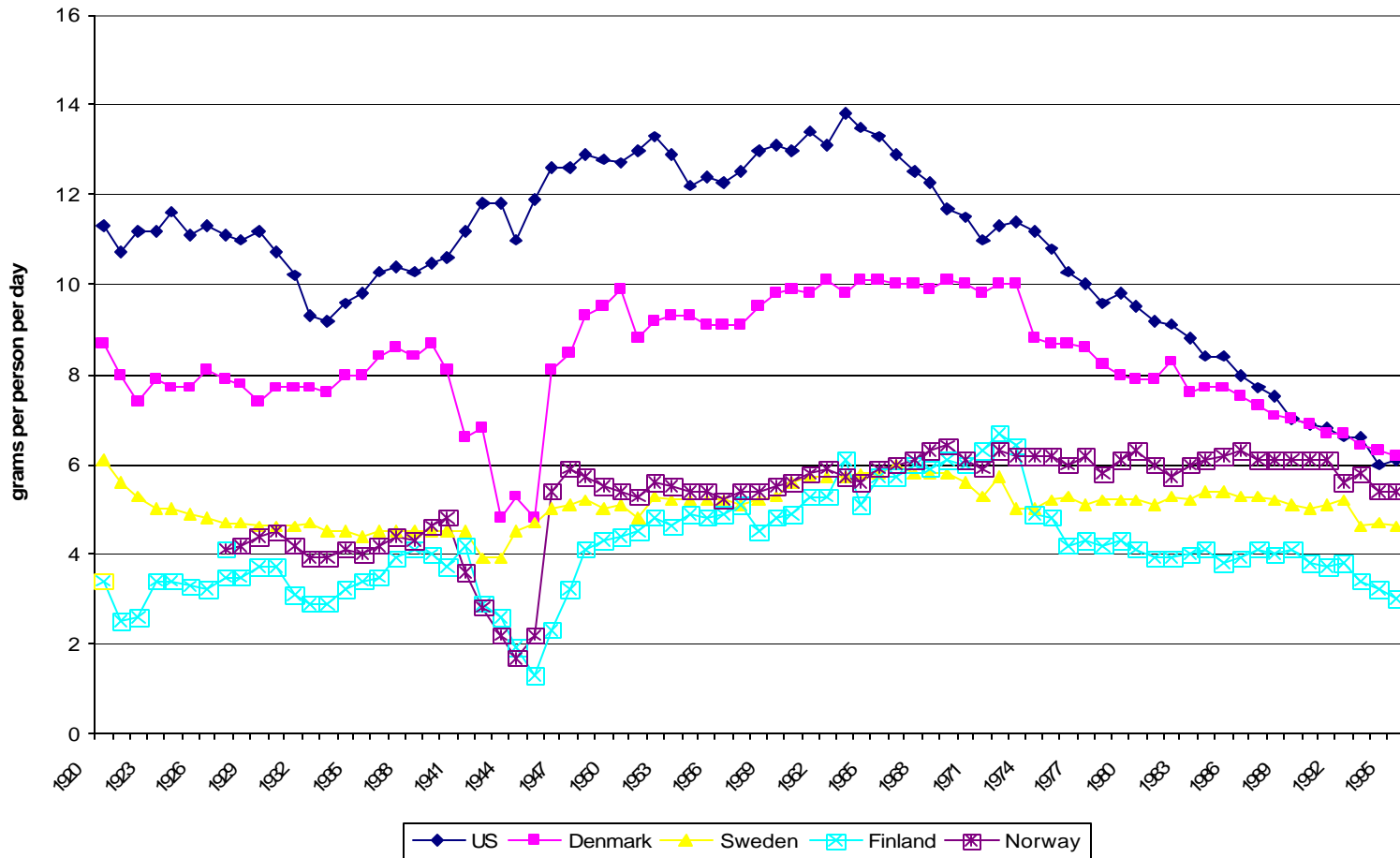
The US is Different

Tobacco Consumption in the Rich Countries



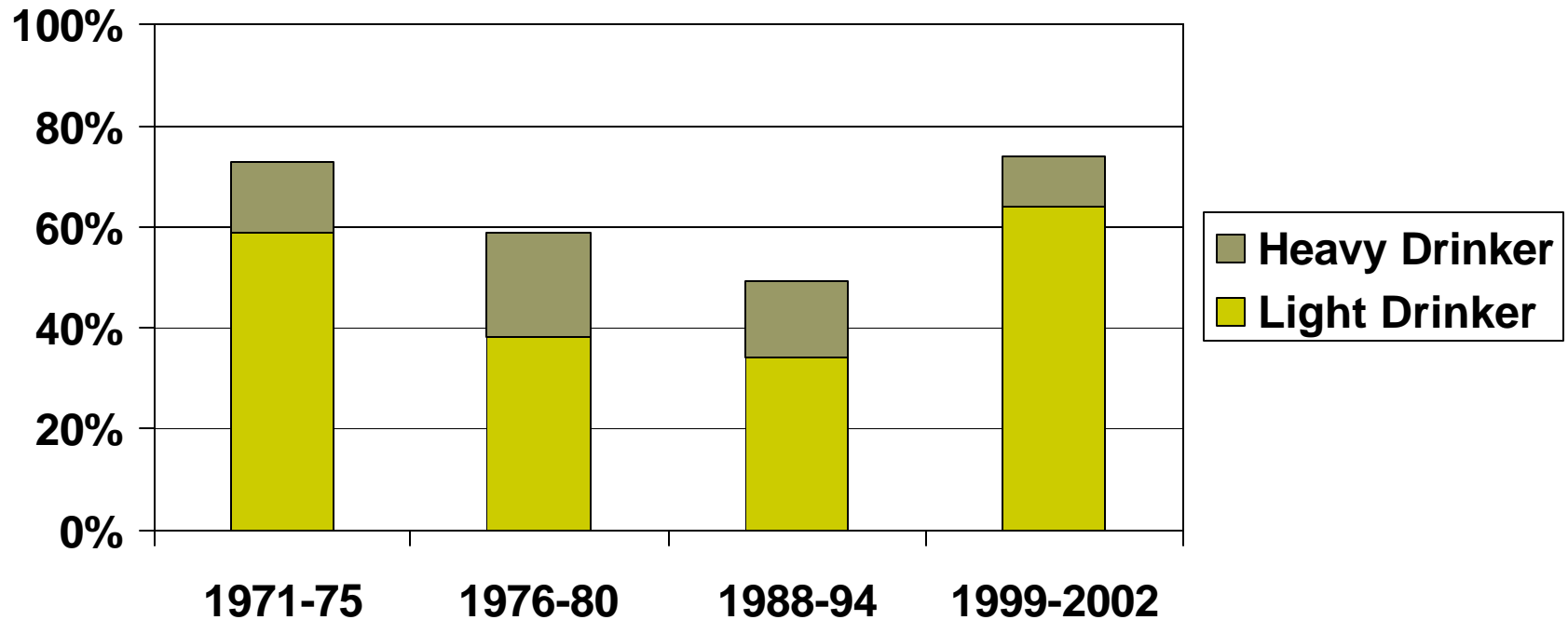
The US is Different

Tobacco Consumption in the US



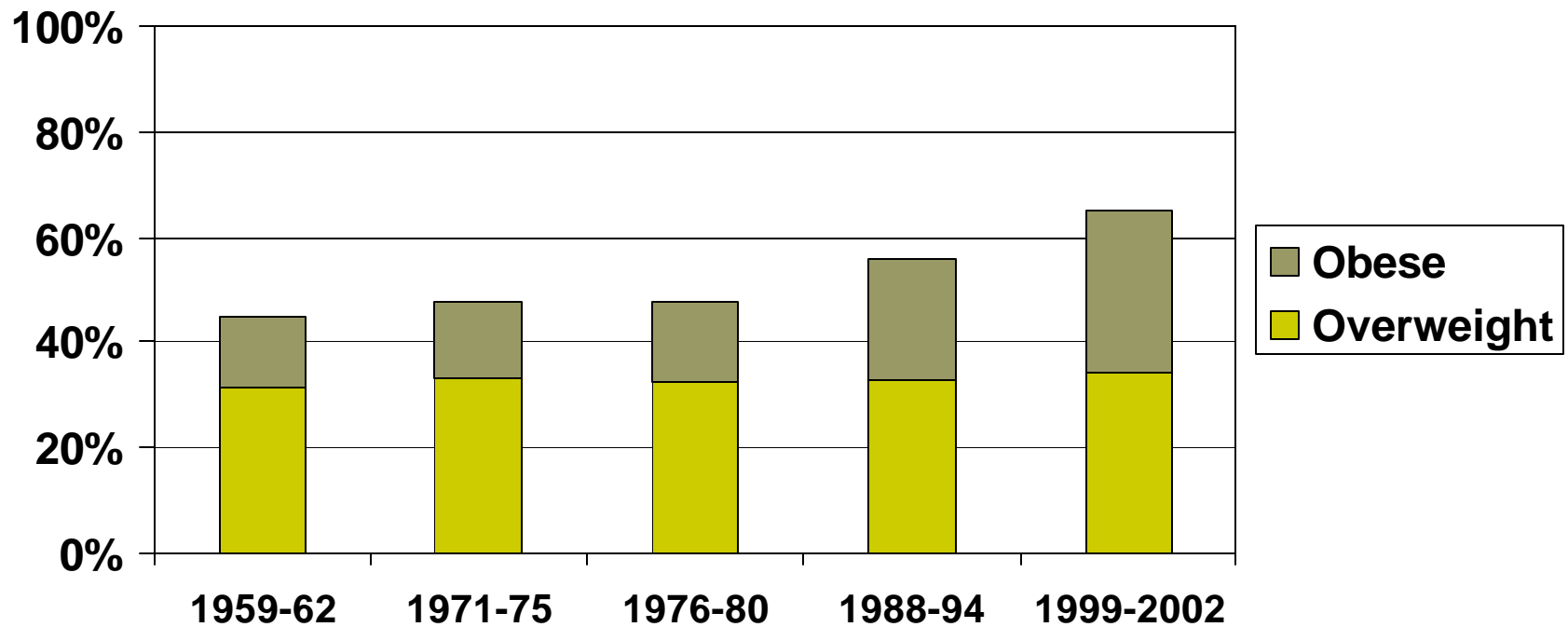
Alcohol: Large Decline in Heavy Drinking

Share of Population Drinking Heavily or Lightly



Obesity: Massive Increases

Share of Population Overweight or Obese





Questions

- On the whole, are we healthier?
- What is the impact of various trends that are in process?

Impact of Health Behaviors

$$\text{Pr}[\text{Mort in } k \text{ years}] = \text{Demogs} * \beta + \beta_1 * \text{Smoker} + \beta_2 * \text{Drinker} + \beta_3 * \text{BMI} + e$$

Demographics: age/sex; marital status; race; income (3 groups)

Look at death within 10 years

Data

- National Health and Nutrition Examination Survey (NHANES)
 - I: 1971-74 – follow up through 1992; N=3541
 - II: 1976-80 – follow up through 1992; N=8134
 - III: 1988-94 – follow up not publicly available
 - IV: 1999-02 – no follow up

- Use data from NHANES I and NHANES II to look at changes over time.

Effect on Mortality in 10 Years

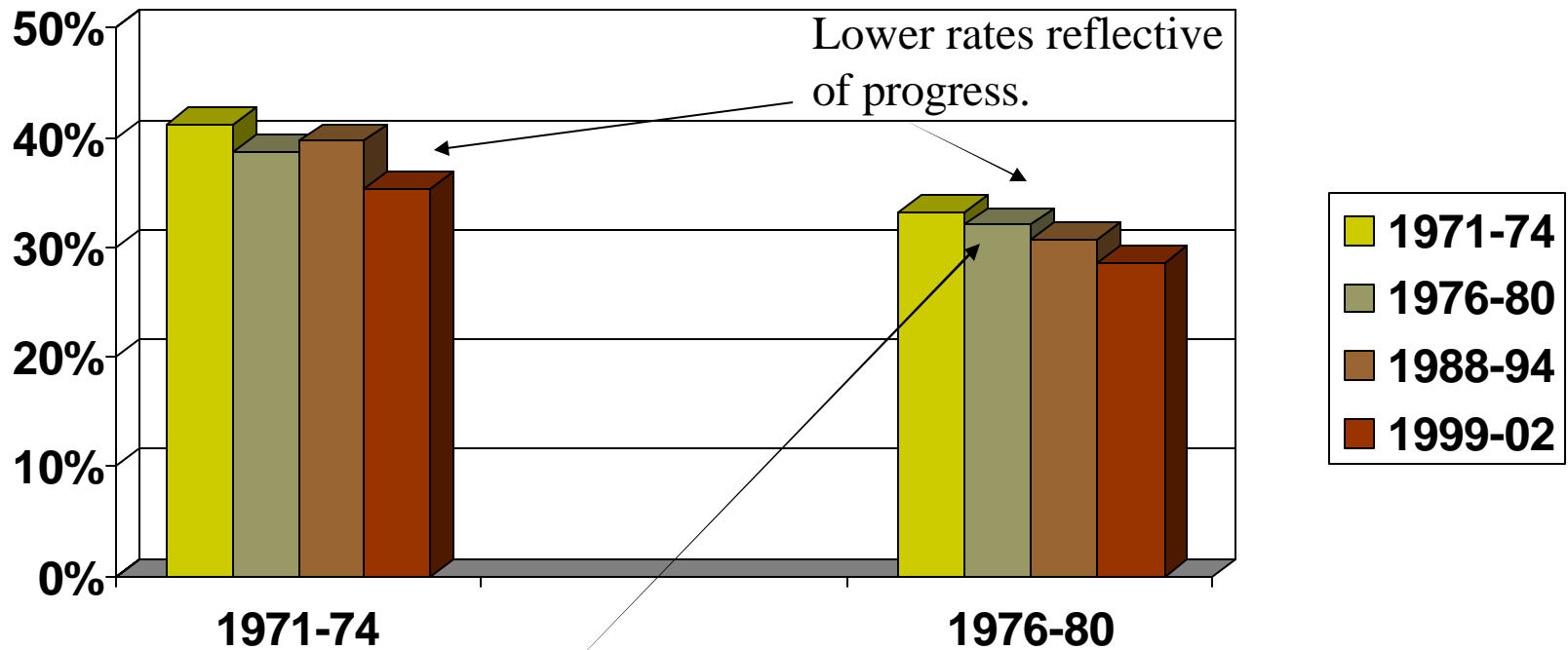
Independent Variable	1971-74	1976-80
Current smoker	.344**	.511**
Former smoker	.109	.169**
Heavy drinker	-.035	-.145**
Light drinker	-.106	-.151**
Underweight (BMI<18.5)	.511**	.182
Overweight (25<BMI<30)	-.162**	-.026
Obese (30<BMI)	.152**	.049

Some More Fun Results

Independent Variable	1971-74	1976-80
Lowest Income	.174**	.137**
Highest Income	.139	-.084
Married	-.296**	-.016
Widowed/Separated/Divorced	-.167	.048
High School	-.103	-.049
Some College +	-.123	-.118**
N	3,541	8,134

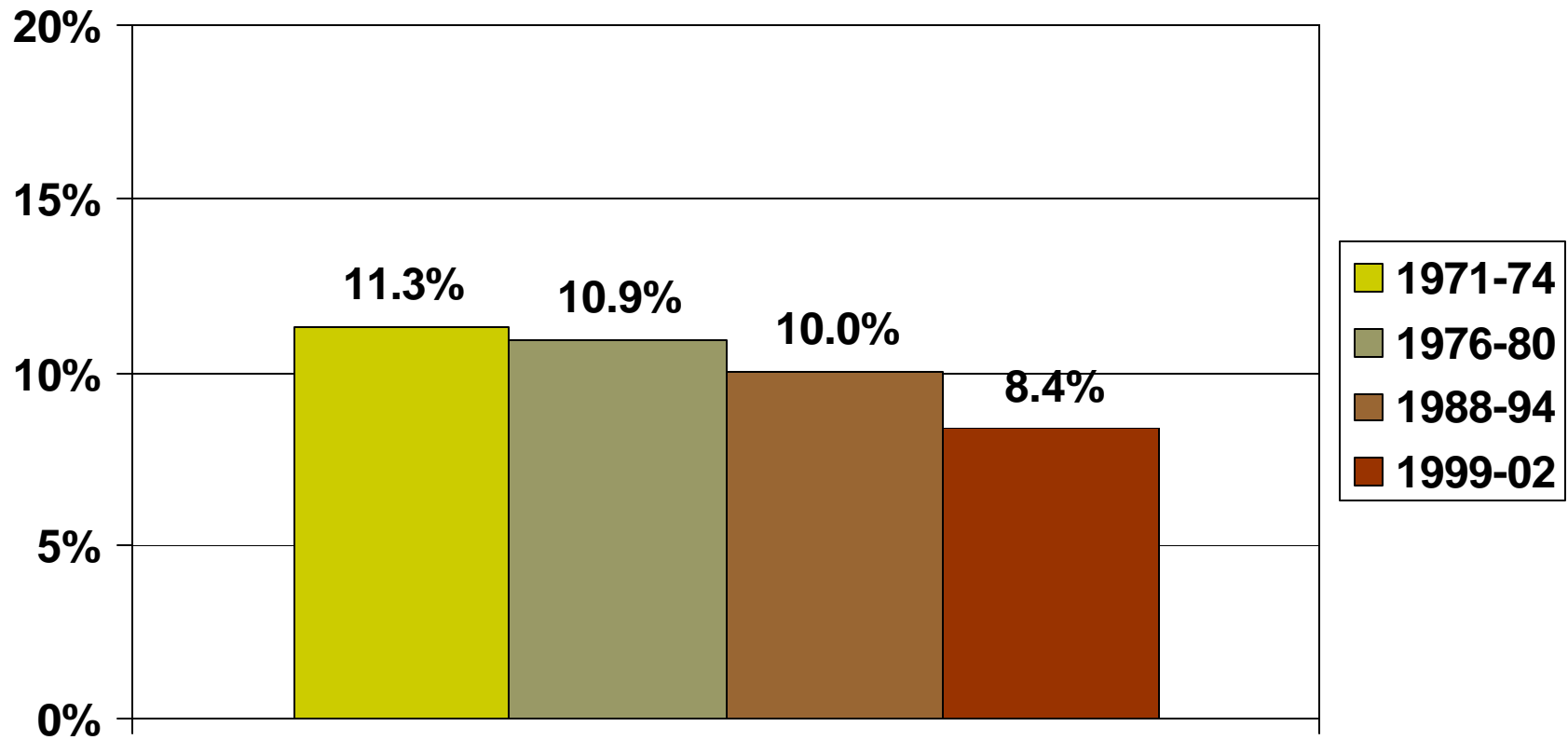
Impact of Changes in Behavior

Predicted Mortality in the Next Decade, 65-74 yo



Predicted mortality falls from 33% to 29%.

Change for the Population 20-74





Effect of Different Factors

	Ch(probability)
Decline in smoking	-0.7%
Decline in heavy drinking	---
Increase in obesity	0.3%

Note: Based on model using 1976-80 data. Baseline overall risk is 17 percent.



What Would Happen If...

Continued Trend in	Ch(probability)
Smoking	-0.6%
Drinking	---
Obesity	0.4%

Note: Based on model using 1976-80 data. Baseline risk is 13 percent.

Summary

- Health behaviors have on net improved, esp. smoking.
 - Consistent with a high demand for life.
 - This is but one part of health forecasts, albeit an important one.

- Obesity increase is threatening to catch up with smoking decline.

- As income rises, one might generally expect people to demand better health.