# Absolute vs. relative

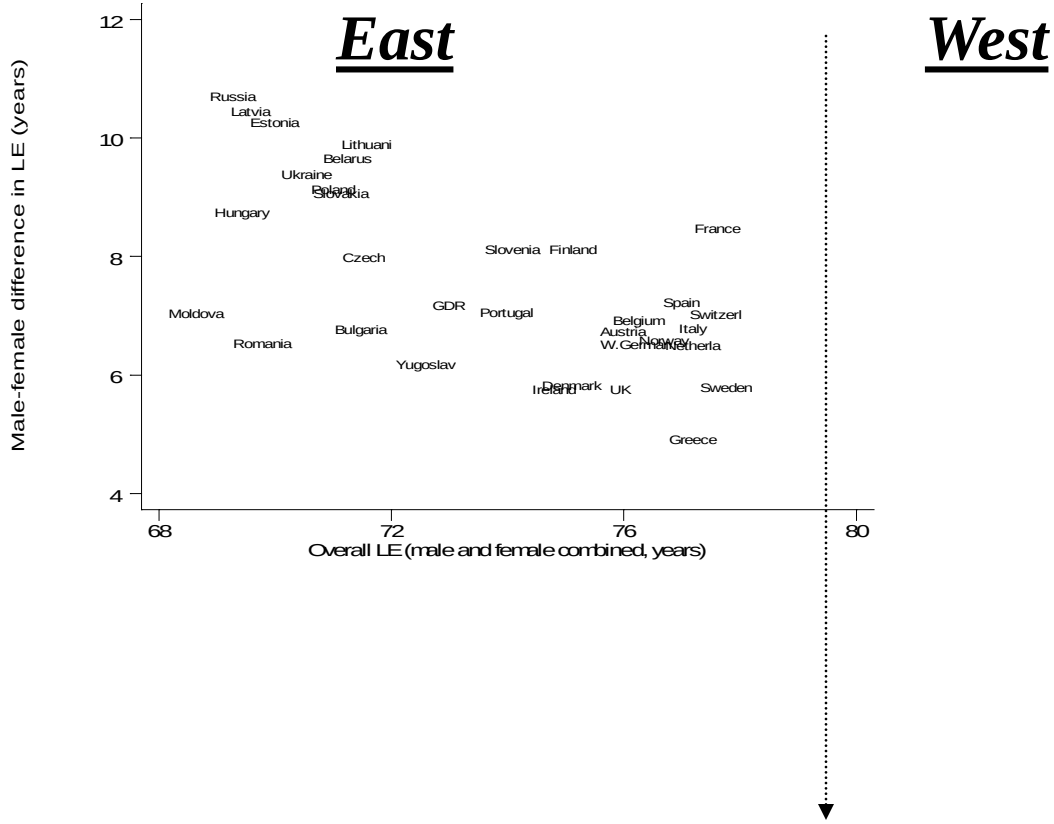
# Practical

# 1. Gender gap

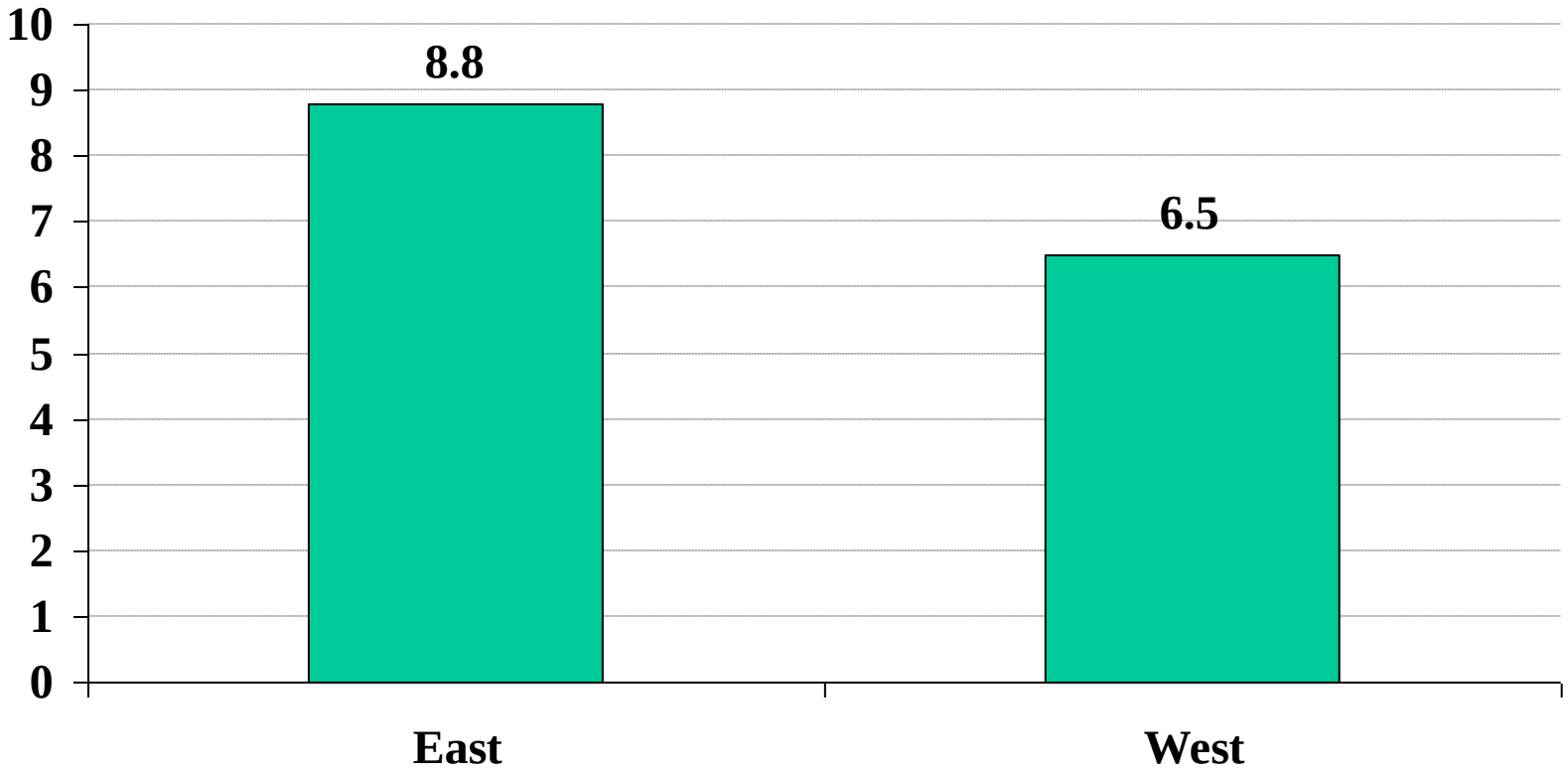
# Gender differences in mortality

- Gender differences in all-cause mortality are not fully understood
- Differences over time and place
- Extensive literature; proposed explanations include genetic, biological, behavioural, social and psychological factors
- Gender gap seems particularly large in eastern Europe

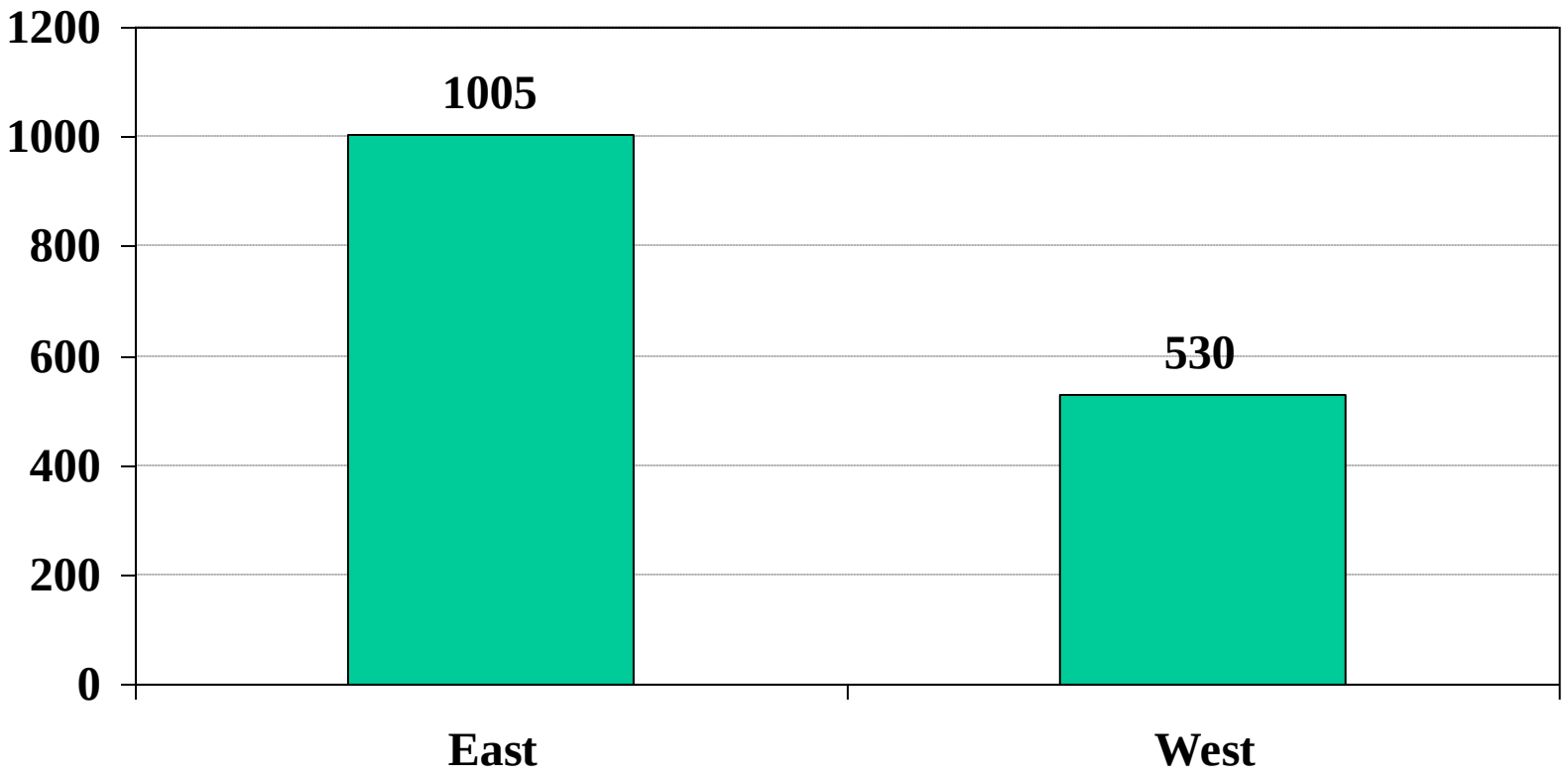
# Gender gap in life expectancy at birth by overall (combined) life expectancy in 1990 ($r=-0.64$, $p<0.001$).



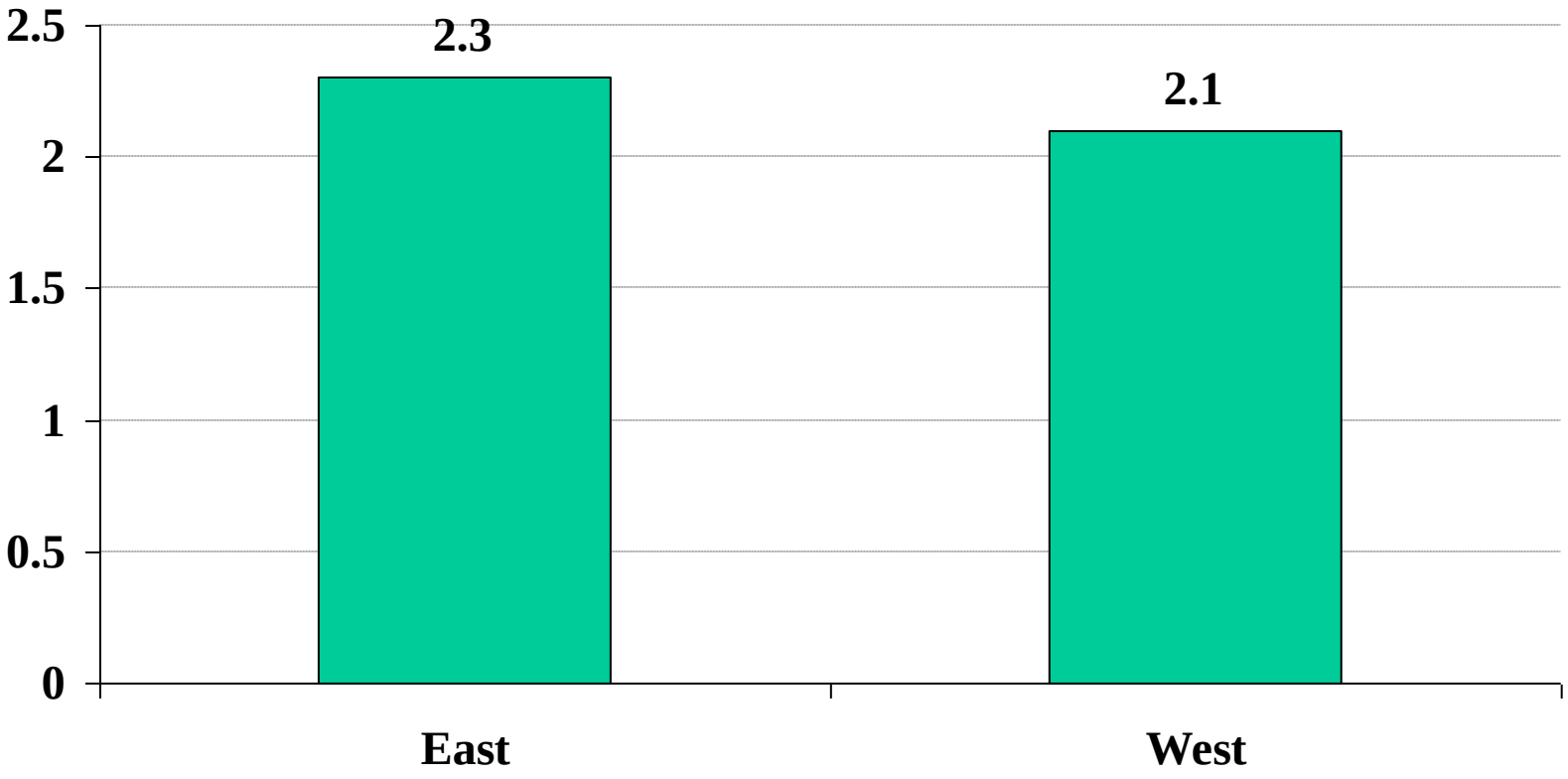
# Male-female difference in life expectancy at birth (years)



# Male-female mortality difference (absolute gap, per 100,000)



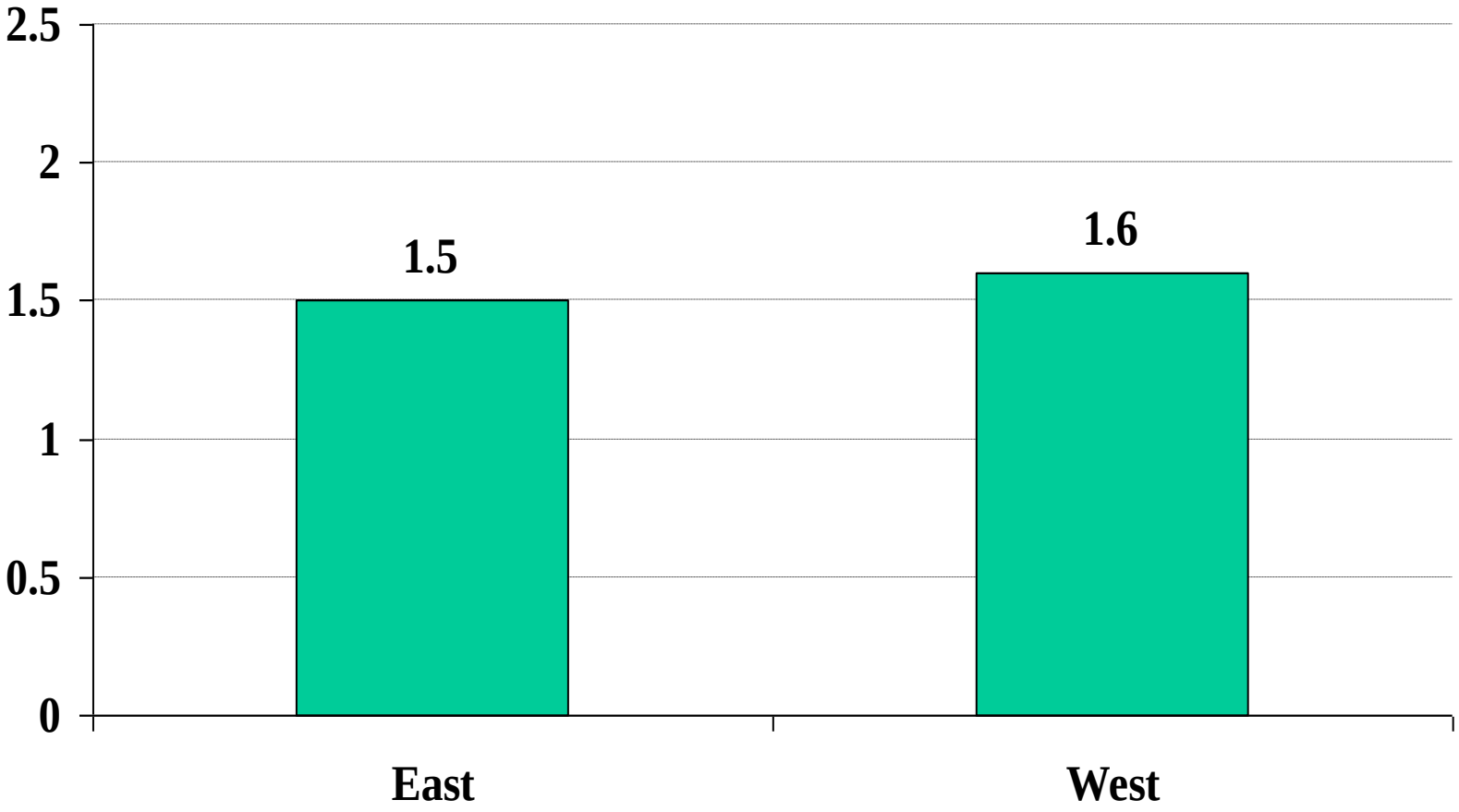
# Male / female mortality ratio (relative gap)



# Peto & Lopez method (Peto et al 1992)

- *Absolute lung cancer* rates used to indicate the proportions of deaths from other diseases attributable to tobacco
- Exclude all deaths under 35, all external causes and cirrhosis
- All the difference between *lung cancer* rate in each country and in non-smoker in CPS taken as attributable to tobacco
- *Other deaths* due to tobacco:
  - mixture of smokers and non-smokers with CPS rates to obtain lung cancer rates equal to those in a country
  - this provides a proportion of smokers in a country
  - PARF using RRs from CPS, divided by 2

# Male / female mortality ratio (relative gap) after excluding death attributable to tobacco



# Questions

- Are the differences in LE between western and eastern Europe real?
- Absolute or relative?
- Which is more important?
- Did smoking make any contribution to
  - LE?
  - Differences in LE between east and west?

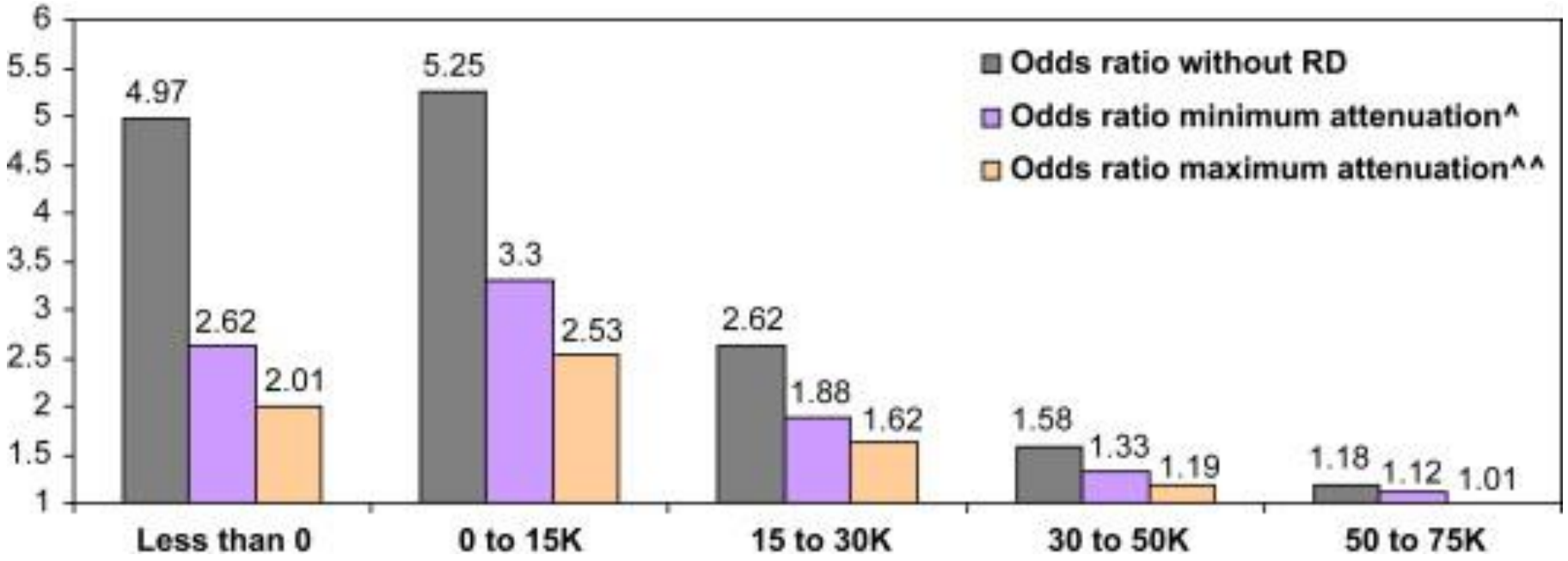
- The perception that gender gap in mortality in EE is larger than in WE is driven by the high mortality rates of both men *and* women in EE
- this gave rise to the large LE difference (analogous to absolute gender gap)
- relative gender gap similar in east and west
- Tobacco contributes to LE and differences in LE

# 2. Relative deprivation

Relative deprivation in income and self-rated health in the United States

Malavika Subramanyam [1], Ichiro Kawachi, Lisa Berkman, S V Subramanian

Soc Sci Med 2009




Fully adjusted odds ratios (95% CI) of reporting fair-poor health associated with differences in absolute household income, with and without adjustment for relative deprivation in individual income.

The first column in each set is from a model that adjusted for age, gender, education, race, marital status, health insurance status, year of survey and state of residence.

The second and third columns in each set are from models that additionally adjust for relative deprivation.

**Relative deprivation in income**

was derived using the Yitzhaki index

For a person *i* with income $y_i$ who is part of a reference group with *N* people, Yitzhaki-index is given as: RDi=1/N∑j(yj−yi), ∀yj>yi, where the amount of relative deprivation (RD) for individual *i* is the sum of differences in incomes between individual *i* and the *j* individuals who have incomes higher than individual *i*.

The summation∑j(yj−yi) is divided by the number of people in the reference group, *N*, making the measure invariant to the size of the reference group. Individual income to the nearest cent was used to calculate RD which was further divided by 5000 to get estimates in units of $5000.

We make the assumption that an individual compares him/herself to others in his/her reference group based on their own income. We make this assumption based on the belief that when it comes to social comparisons, individuals are more likely to evaluate themselves in terms of their paychecks and other income

# Questions

- Interpretation of the graph
- How can the findings be explained?