The Impact of School Policies on Childhood Obesity

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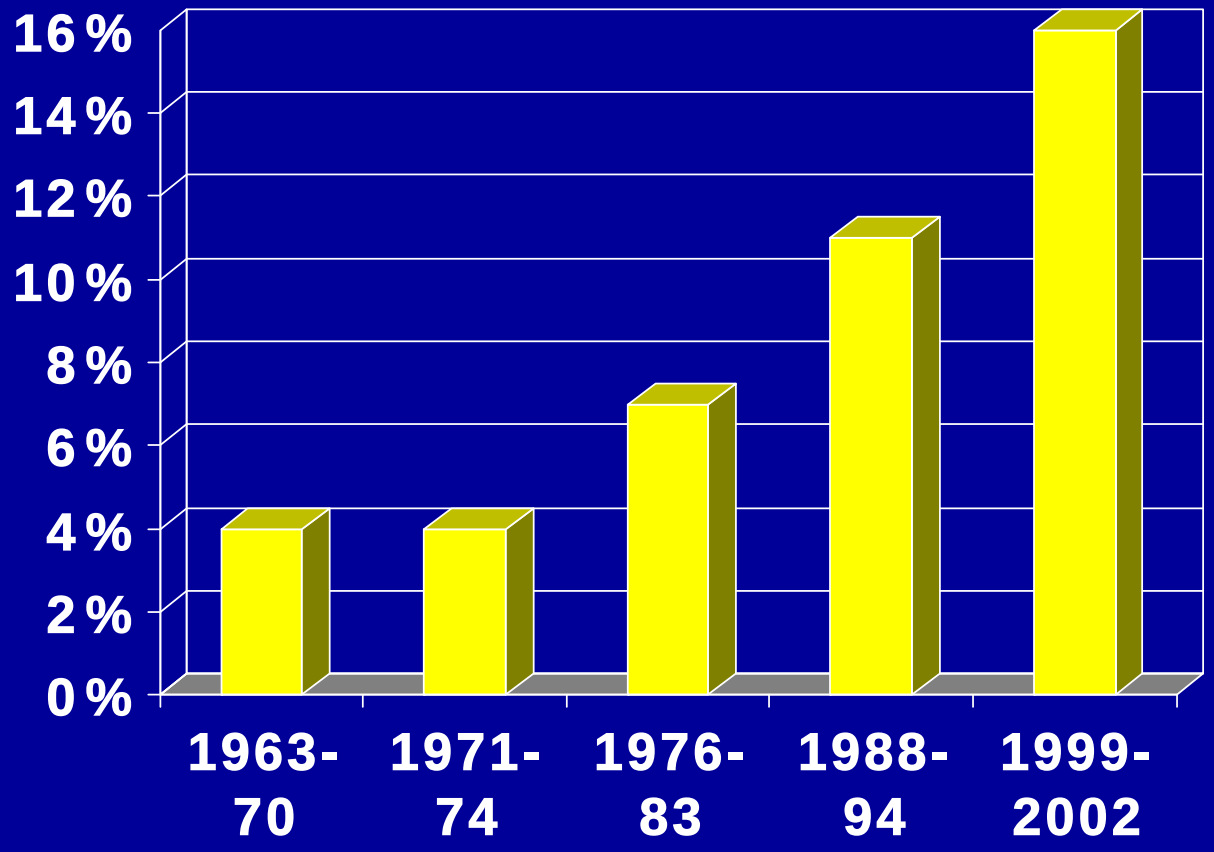
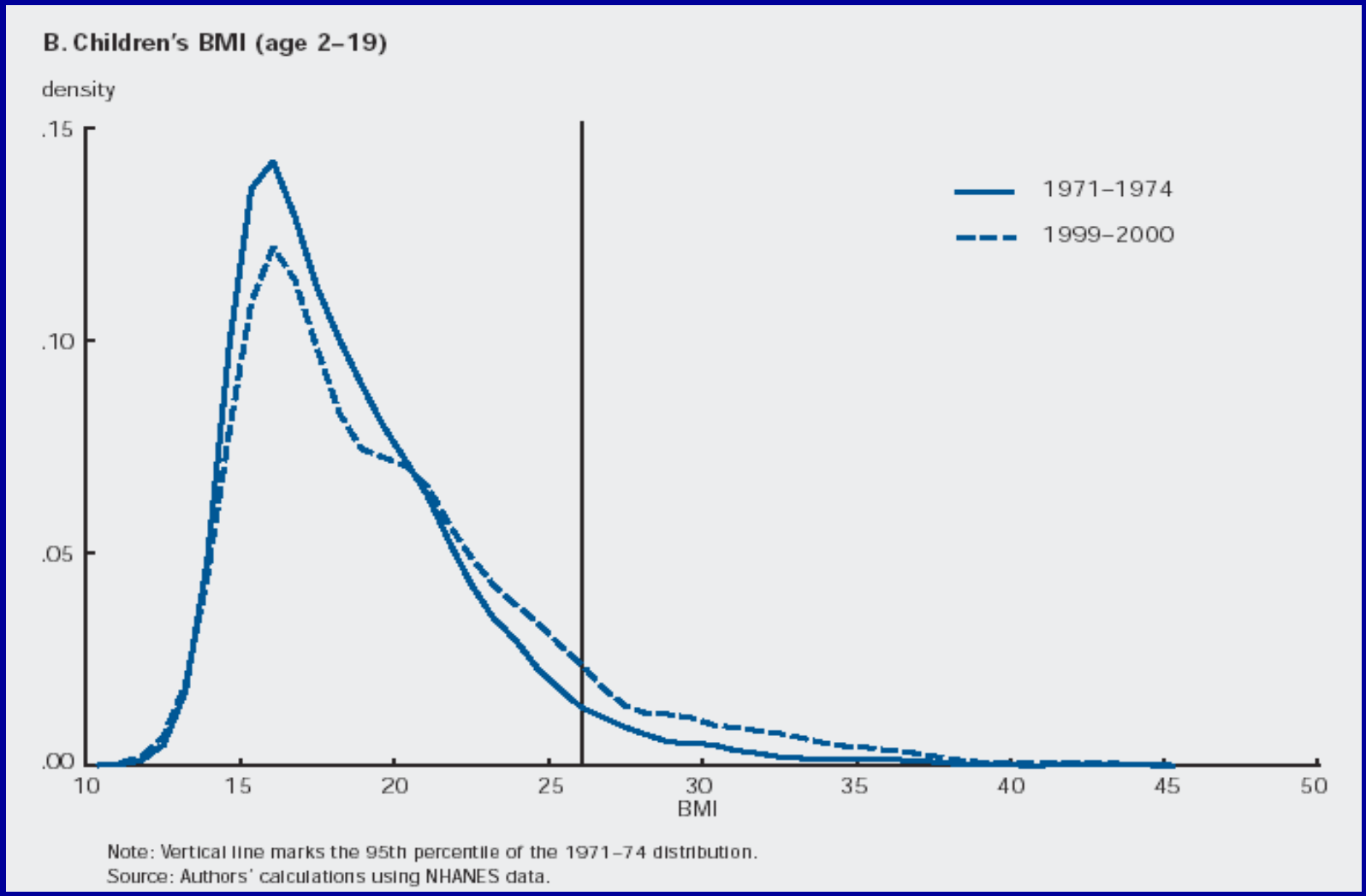
Overweight among 6-11 year olds



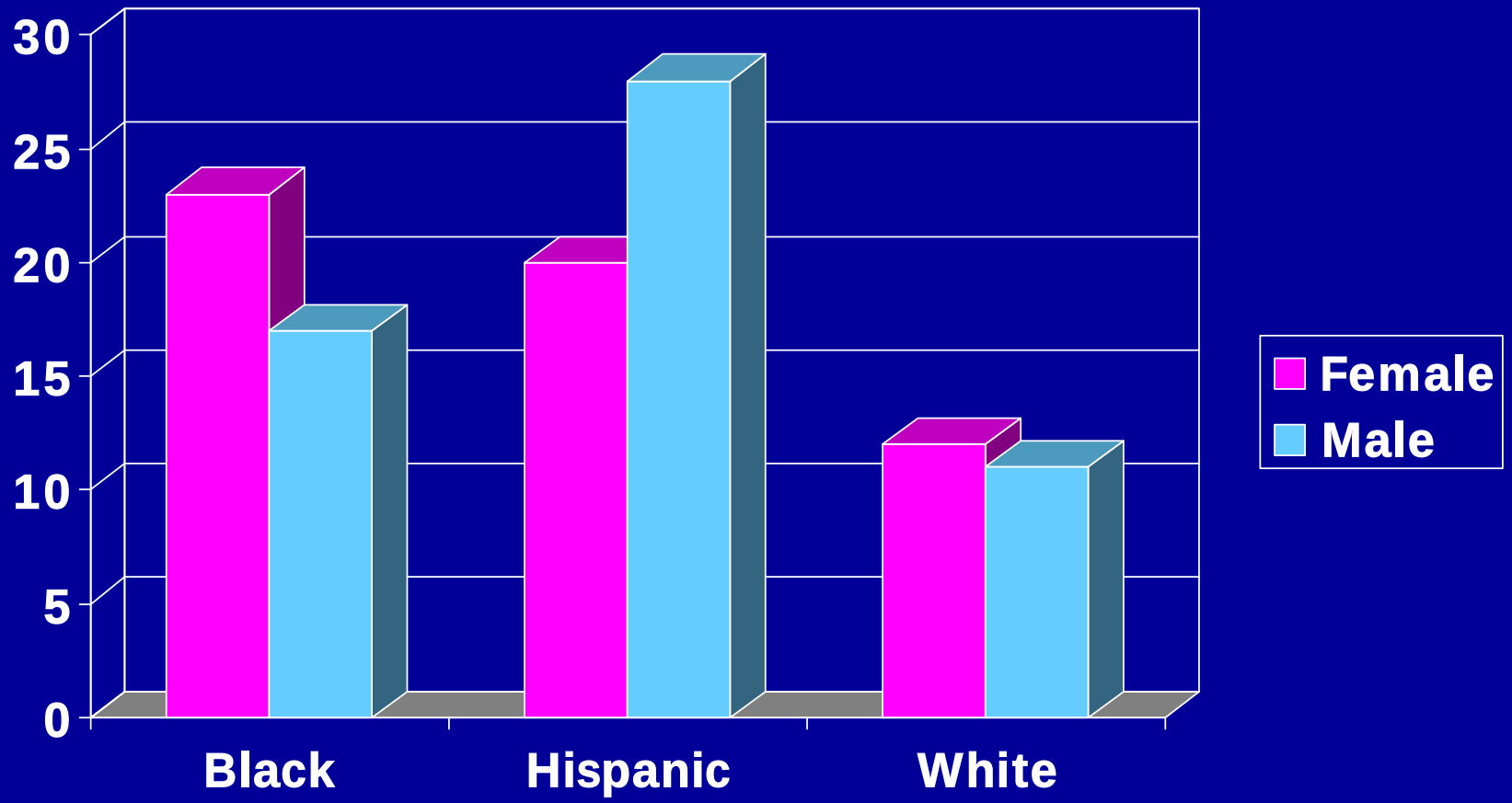
Source: NHANES, various years. Reported in *The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity 2001.*

Changes in the Distribution of BMI

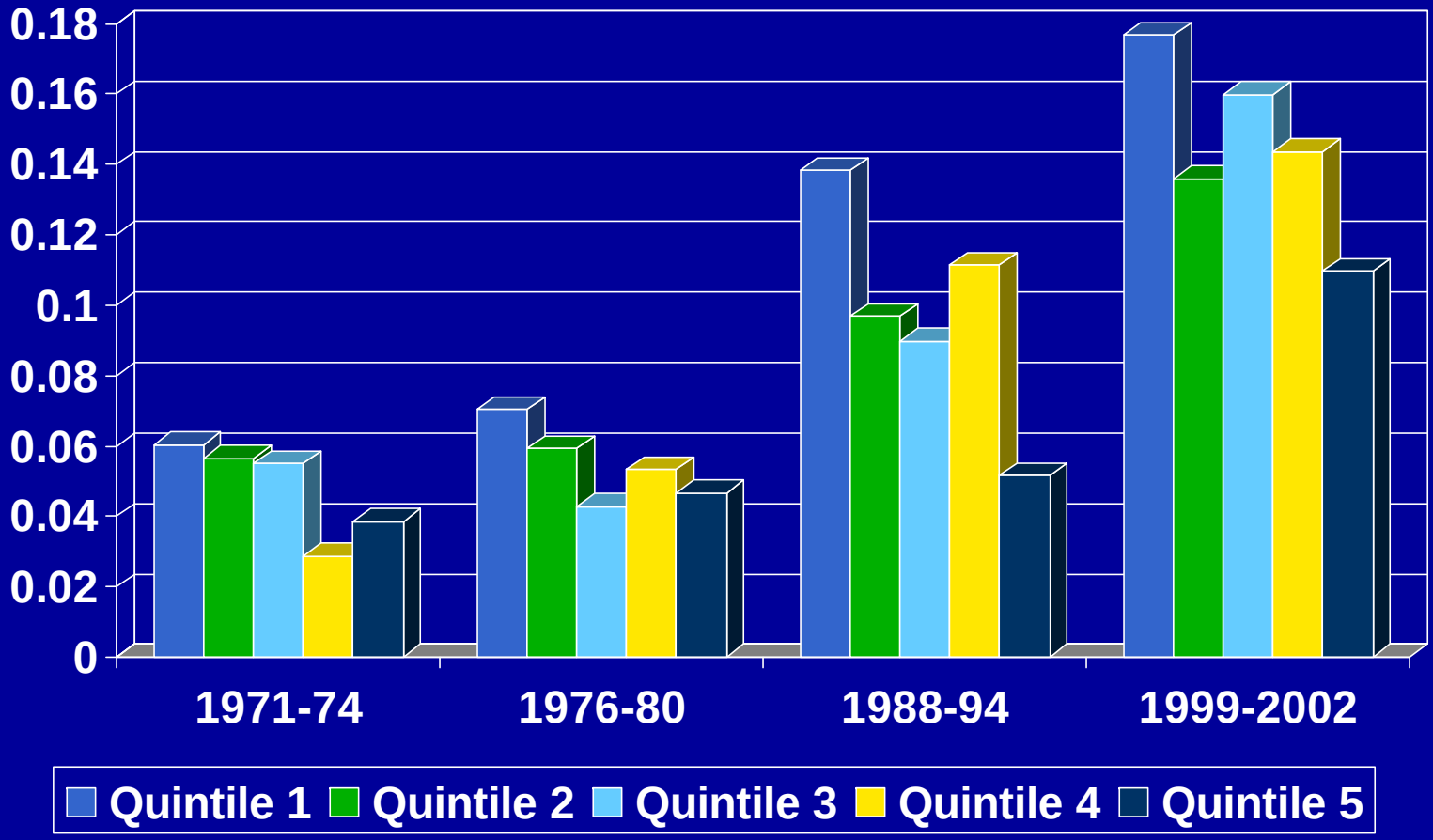


Notes: Anderson, Butcher, Levine (2003). Vertical line is original 95th percentile.

Overweight by Race/Gender in 2000, Age 6-11

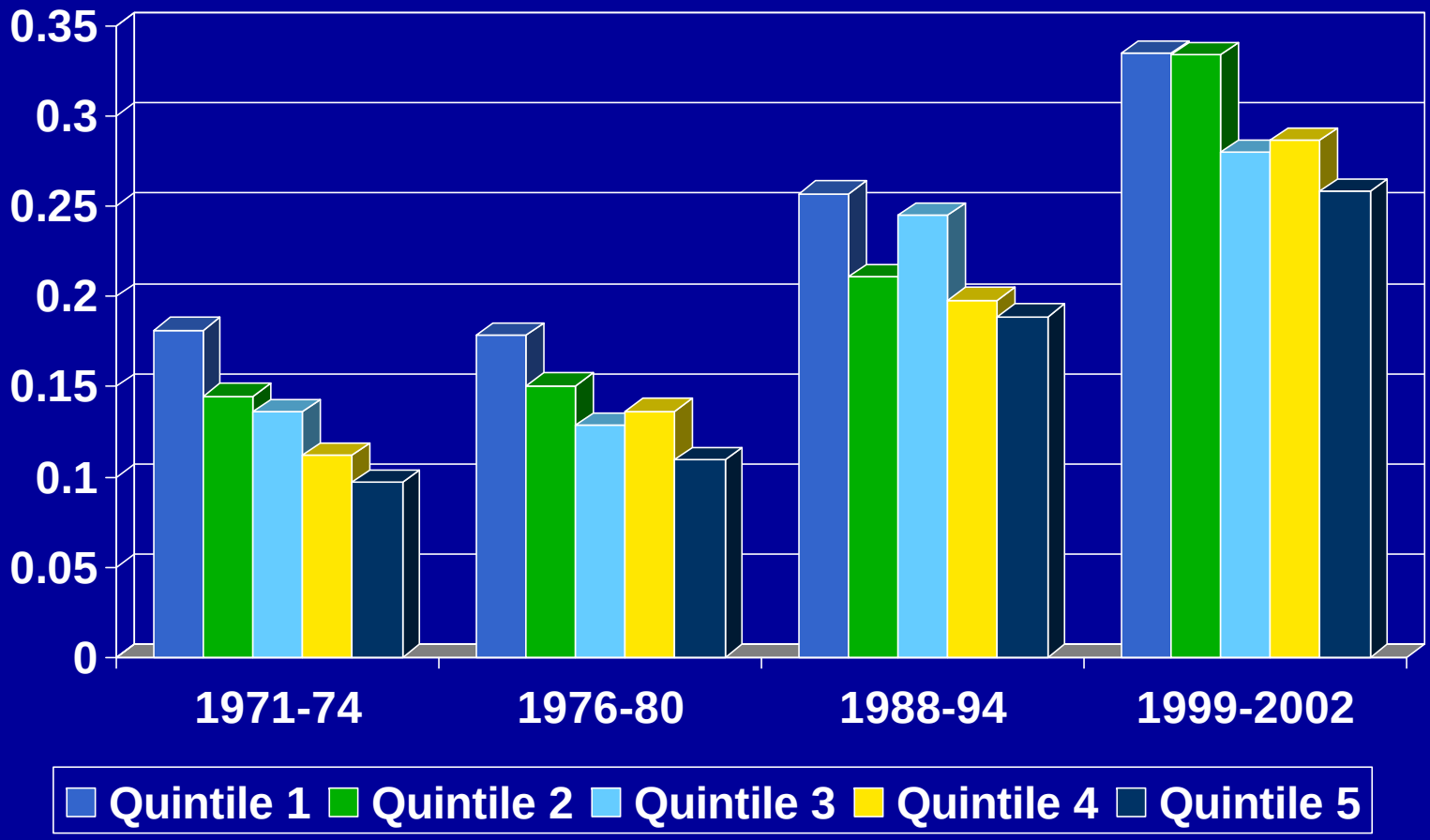


Children's Obesity Growth by Family Income

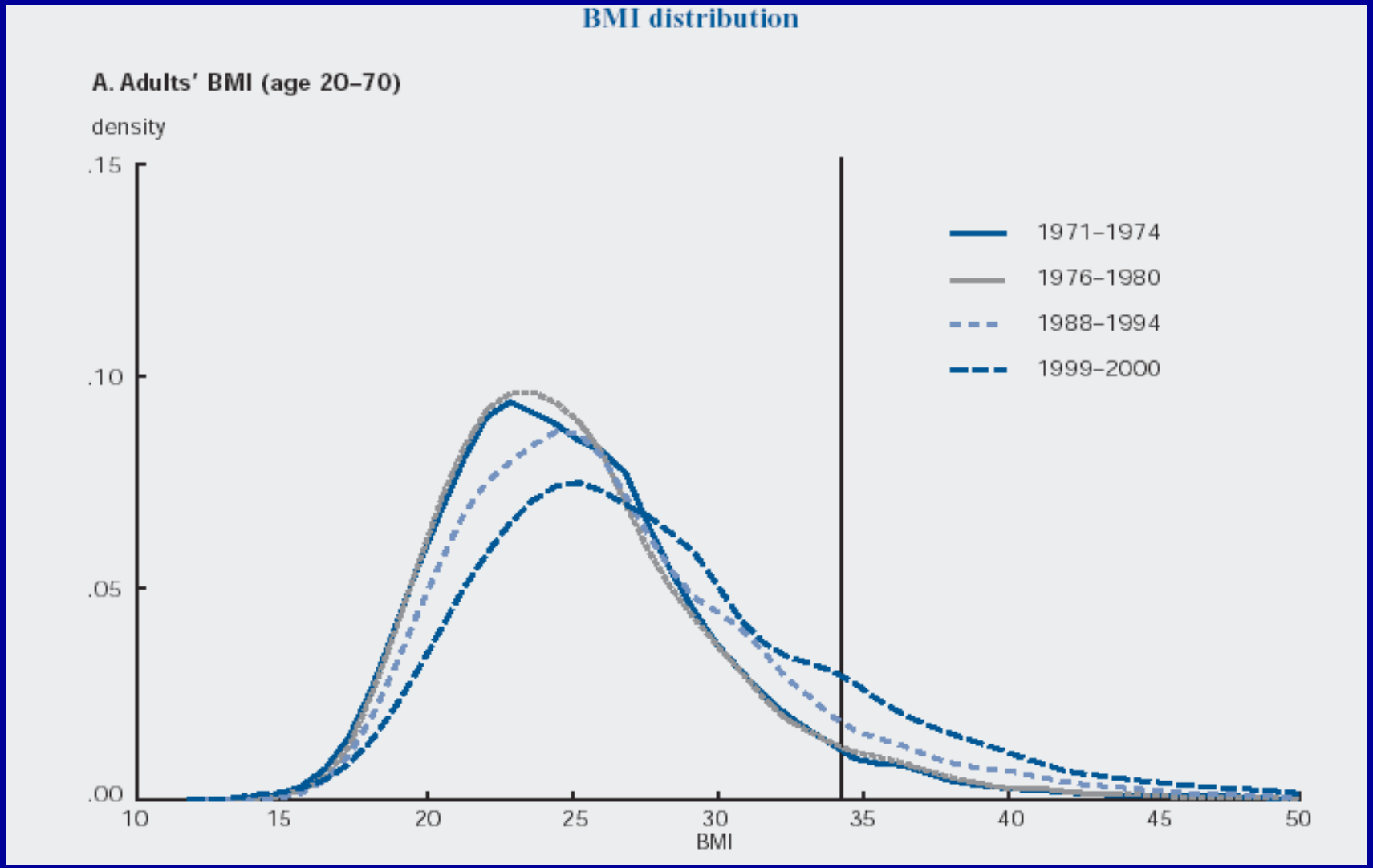


Note: Ages 2-19. From Anderson, Butcher and Schanzenbach (2006a).

Adult Obesity Growth by Family Income



Changes in the Distribution of Adult BMI



Notes: Anderson, Butcher, Levine (2003). Vertical line is original 95th percentile.

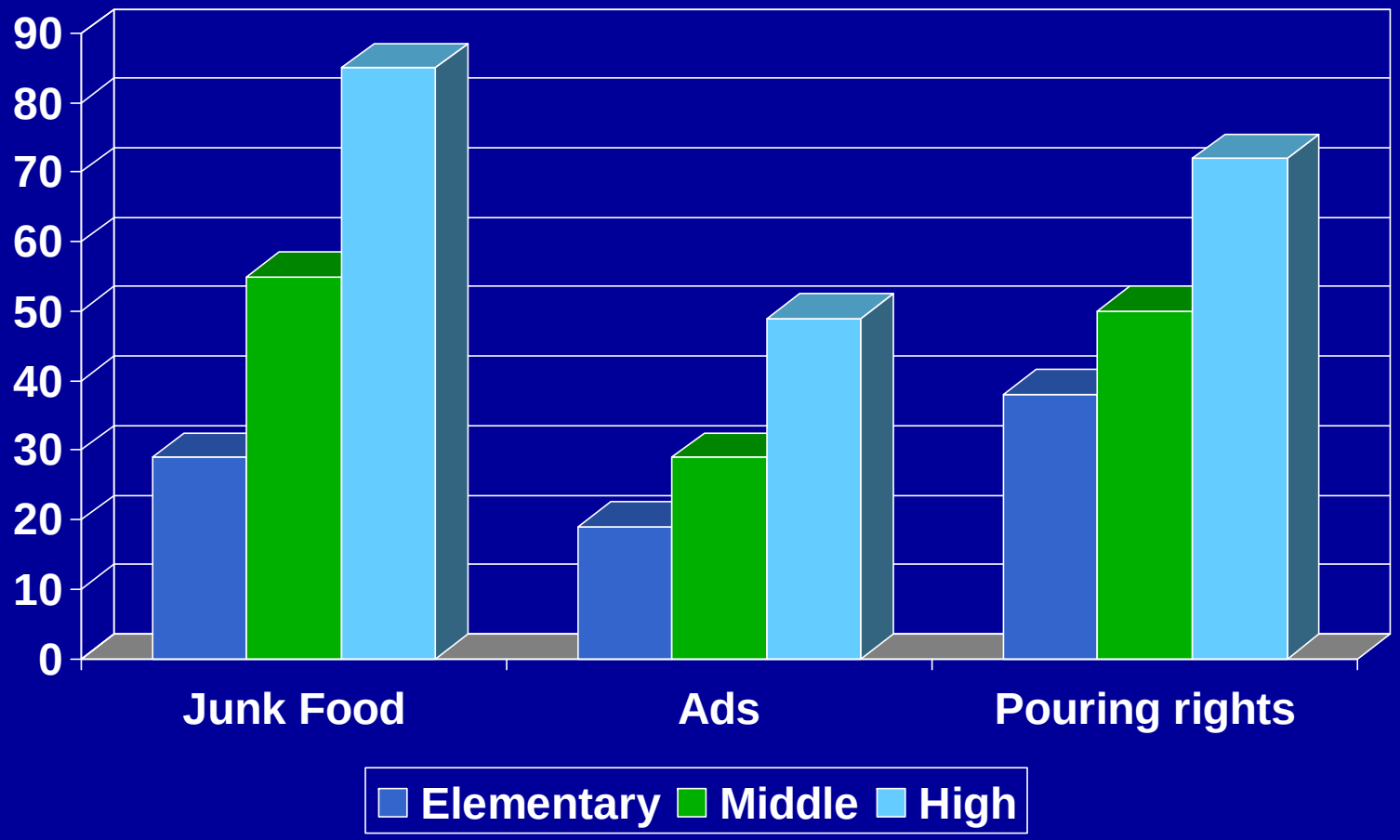
Families/Neighborhoods vs. Schools?

- Over time, the correlation between parents' and children's BMI has increased
  - Suggests larger role of genetics, shared environment
- For disadvantaged children (low income, parental education, Black and Hispanics), parental "influence" over child BMI is lower
  - Suggests relatively larger role for schools, other settings to influence

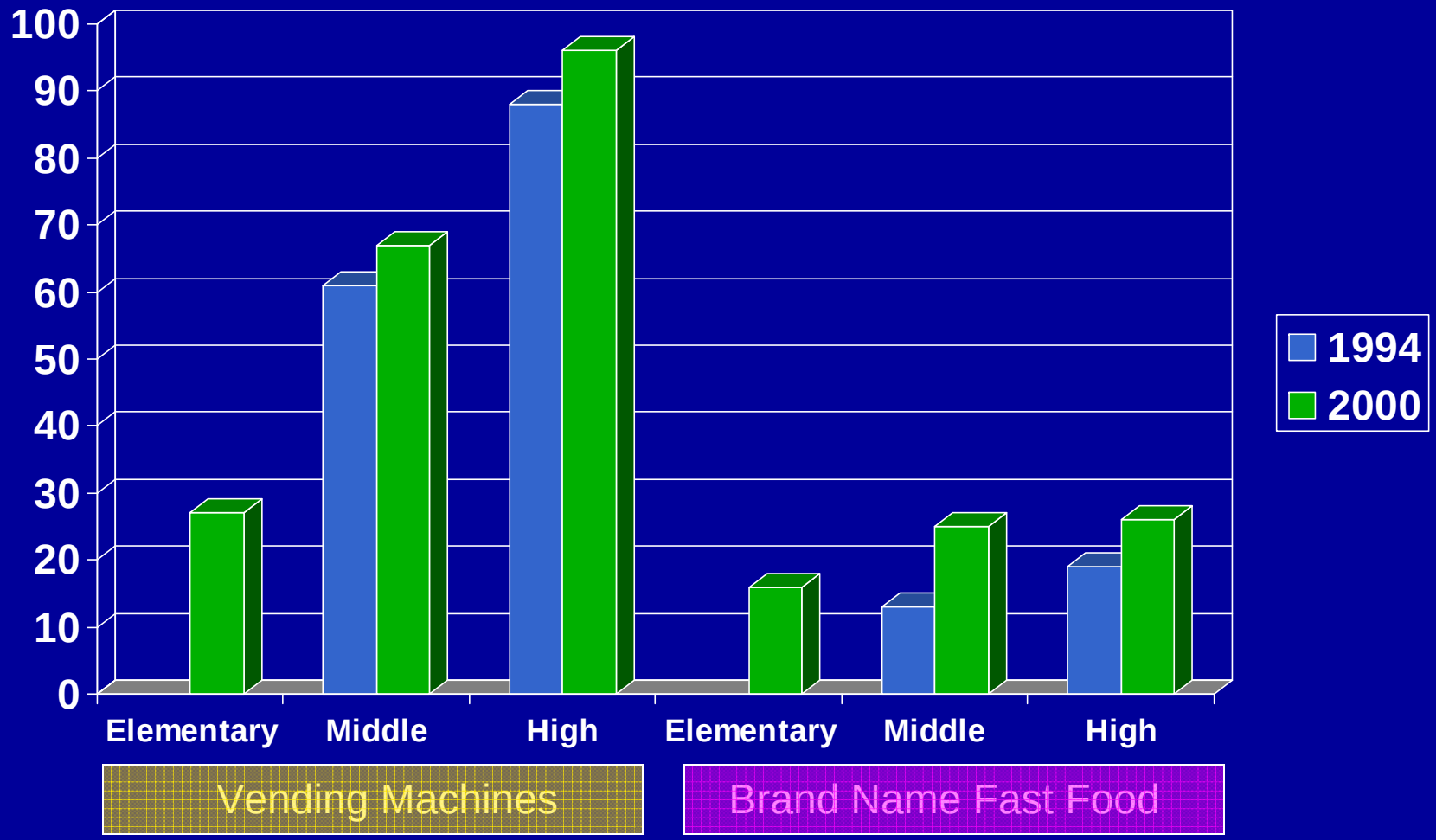
Research on Vending Machines

(Anderson and Butcher, 2006)

Food and Drink Access, 2000



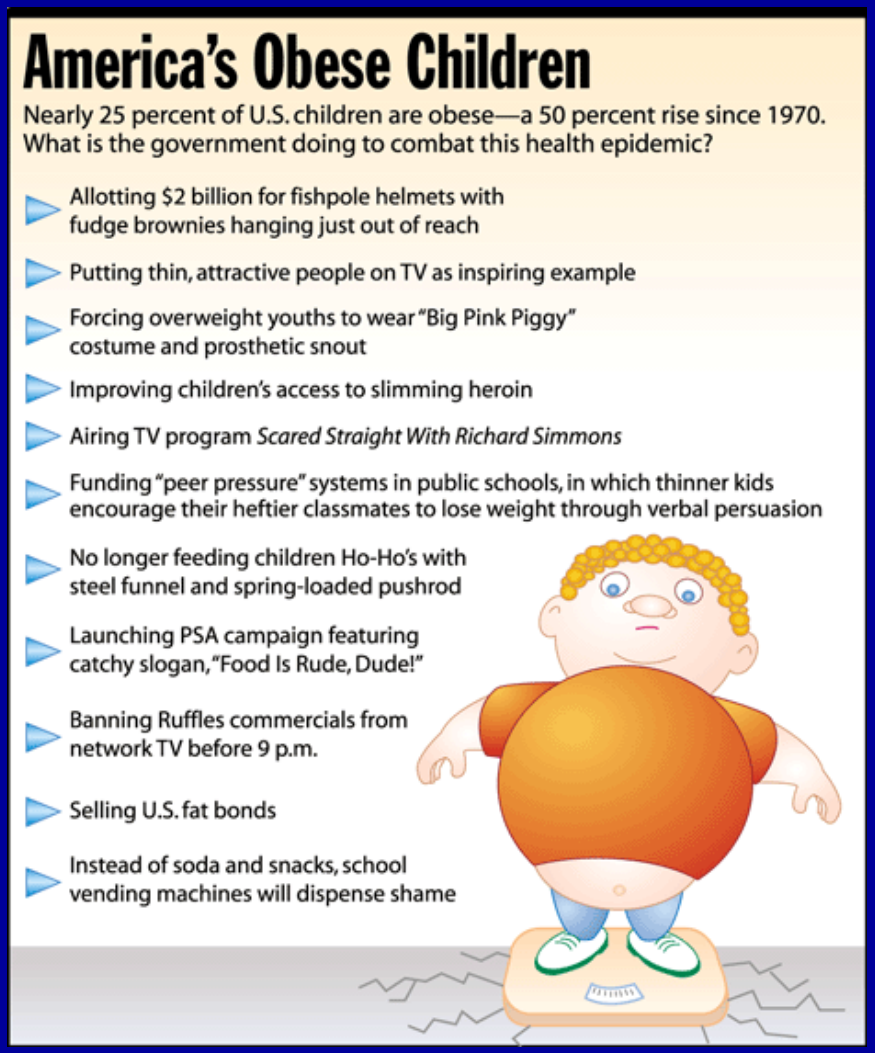
Changes in Access, 1994-2000



Vending Machine Findings

- A 10 percentage point increase in the proportion of schools in a county that make junk food available to students is correlated with a nearly 1 percent increase in BMI
  - The effect translates into about 1.5 lbs on average
  - The impacts are twice as large on children with overweight parents (genetic component?)
- For the same increase in pouring rights, the increase in BMI is .75 percent
- The effect of advertising is smaller and not significant at conventional levels

Possible New School Vending Policy?



America's Obese Children

Nearly 25 percent of U.S. children are obese—a 50 percent rise since 1970. What is the government doing to combat this health epidemic?

- Allotting $2 billion for fishpole helmets with fudge brownies hanging just out of reach
- Putting thin, attractive people on TV as inspiring example
- Forcing overweight youths to wear "Big Pink Piggy" costume and prosthetic snout
- Improving children's access to slimming heroin
- Airing TV program *Scared Straight With Richard Simmons*
- Funding "peer pressure" systems in public schools, in which thinner kids encourage their heftier classmates to lose weight through verbal persuasion
- No longer feeding children Ho-Ho's with steel funnel and spring-loaded pushrod
- Launching PSA campaign featuring catchy slogan, "Food Is Rude, Dude!"
- Banning Ruffles commercials from network TV before 9 p.m.
- Selling U.S. fat bonds
- Instead of soda and snacks, school vending machines will dispense shame

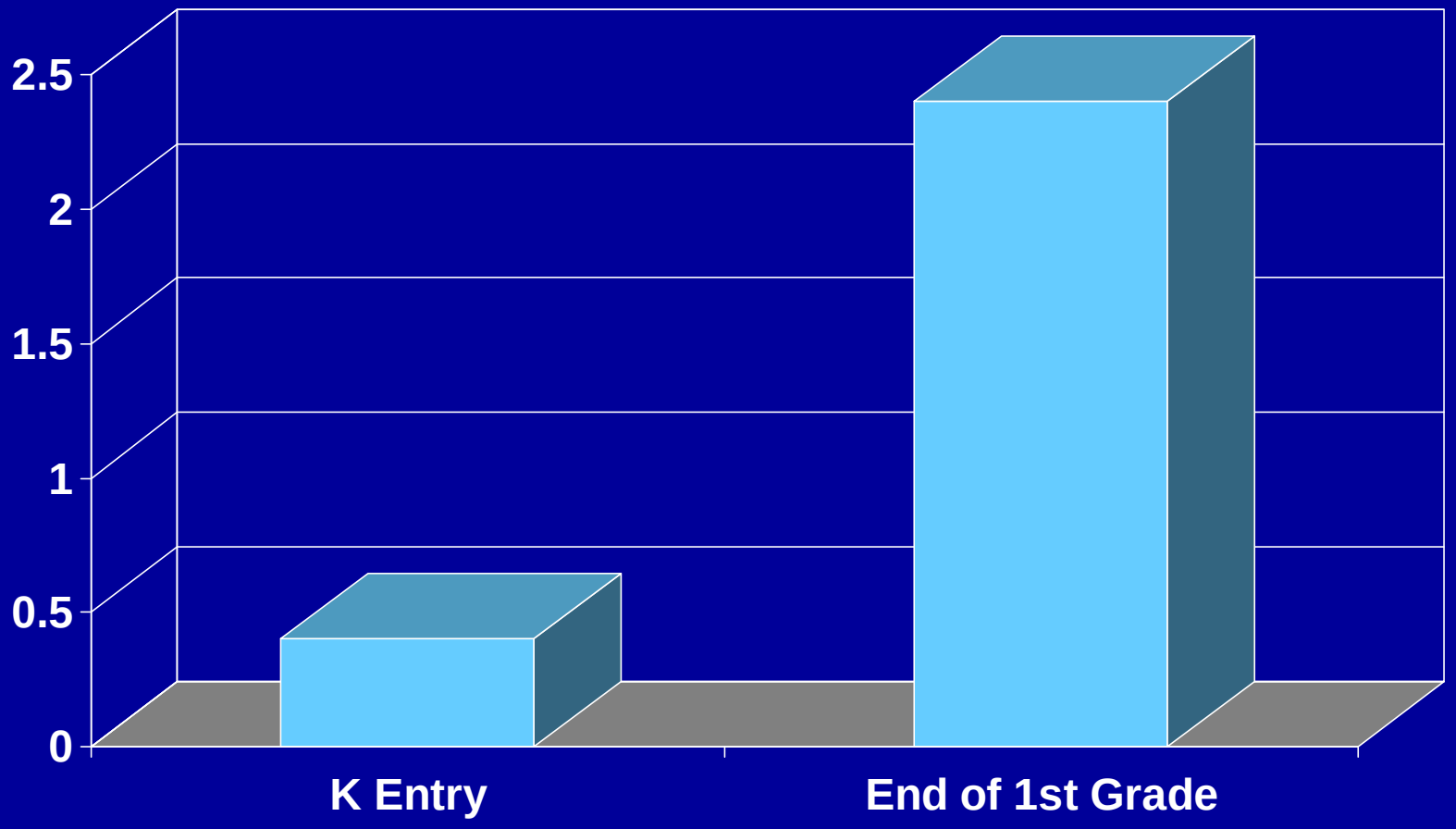
Back of the envelope calculations indicate junk food access in schools might explain at most a fifth of the increase in average teen BMI from 1988-1994. It is unclear whether current efforts to ban vending machines will have the desired effect of reducing children's obesity *even if strictly enforced*.

"Infograph" from The Onion, http://www.theonion.com

School Lunch Research

Schanzenbach, 2006

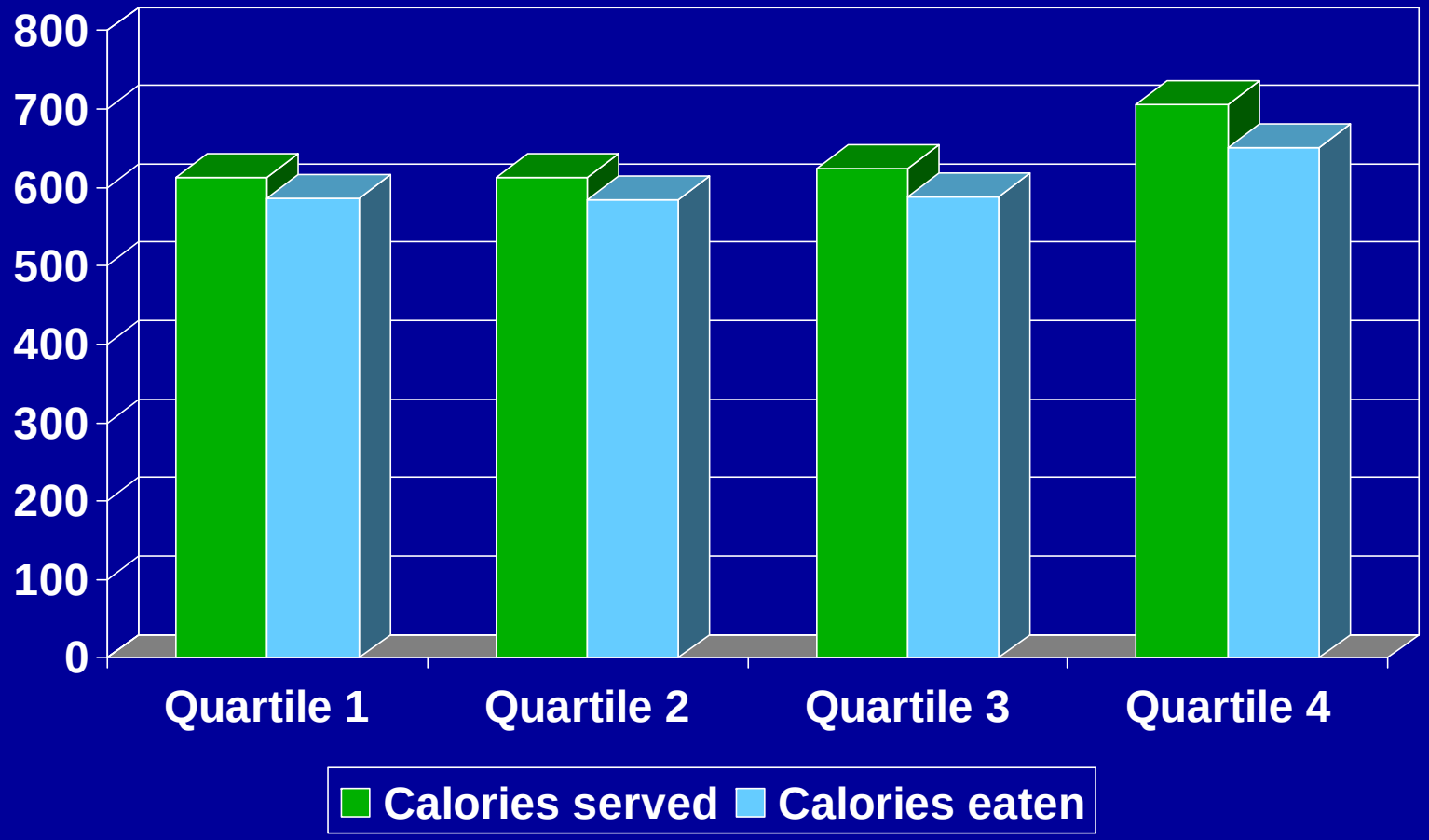
Comparing Obesity Rates of School Lunch Eaters to Brown Baggers in the Same School



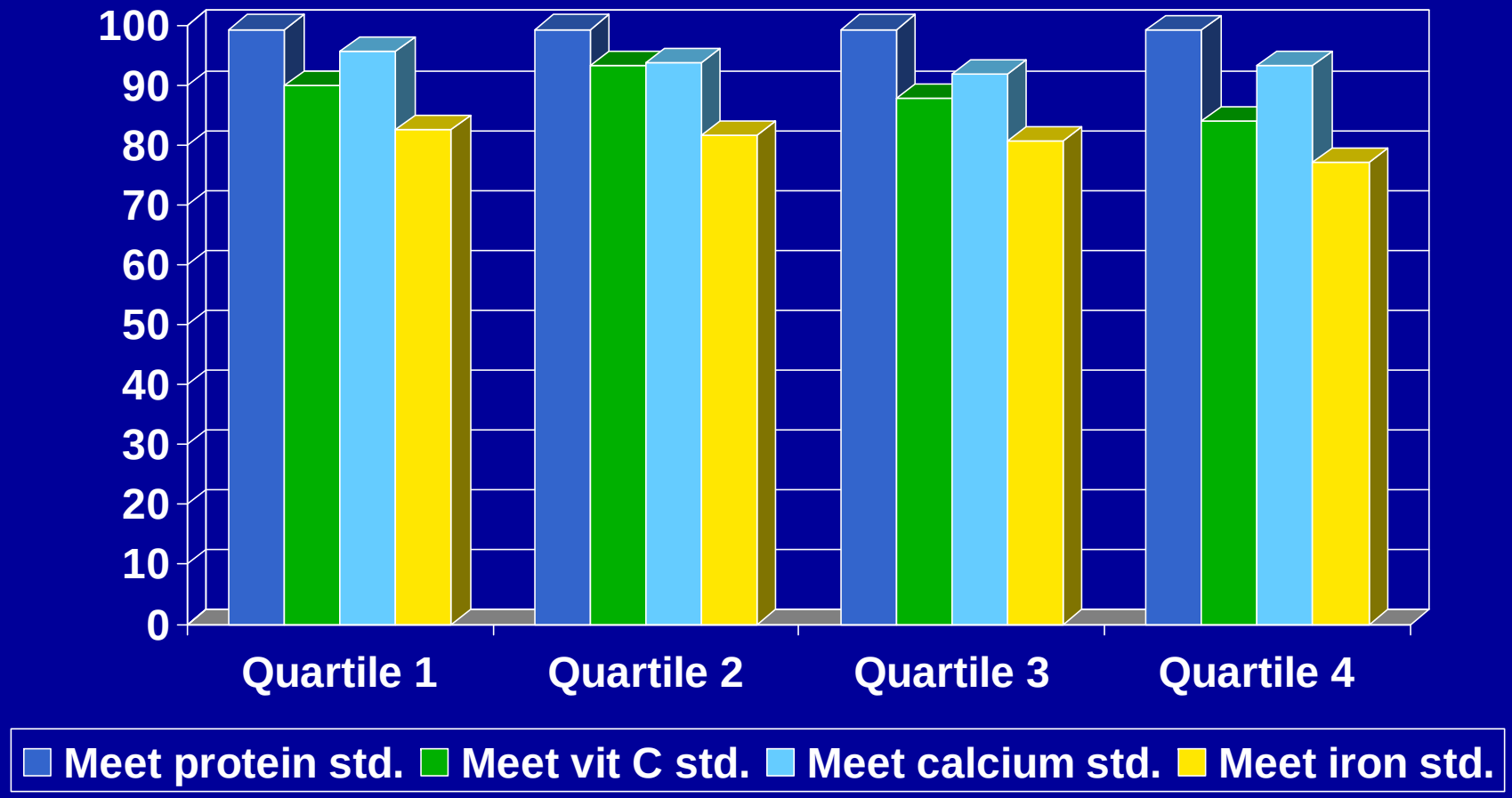
Could School Lunches Really Impact Obesity?

- Lunch eaters consume ~45 extra calories each day relative to brown baggers
  - All those calories consumed at lunch, not dinner, breakfast, non-school
- That small imbalance in calories in kids can lead to a 0.4 BMI increase, or 1.7 percentage point increase in obesity

Lunch Calories by School Socio-Economic Status



Lunch Nutrient Quality by School Socio-Economic Status



School Accountability Research

Anderson, Butcher and Schanzenbach (2006)

Accountability Policy: No Child Left Behind

- Standards in math & reading
  - Standardized tests
  - Standards increase over time
  - Standards vary across states
- Increasing penalties for failure
  - Mandatory school choice
  - Reconstitution of school

How Accountability Might Effect Obesity

- Time for physical activity
  - Recess cut
  - Gym class
    - Texas: 1995 stopped requiring daily gym to “improve academic performance”
    - 2001 reinstated to “combat childhood obesity”
- Time for lunch
  - Unclear which way this will impact
- Mandated summer school
  - Kids gain weight more in summer
- Small and charter schools without play space

General Identification Strategy: Regression Discontinuity

- School-level test scores continuous
- Sharp line where accountability takes effect
  - in Chicago, 20% meeting standard
- While schools just above and just below cutoff are similar, exposed to different incentives afterwards that may impact kids' obesity
- Test for discontinuity in obesity rates associated with cutoff
- Used successfully to measure impact of accountability (Jacob, Roderick, etc.)

Studies Planned

- Nationwide: ECLS data
  - Can match up to status under NCLB
  - Can match up with other school characteristics
- Arkansas
  - Very complete data
- Chicago Public Schools
  - Still assessing whether possible

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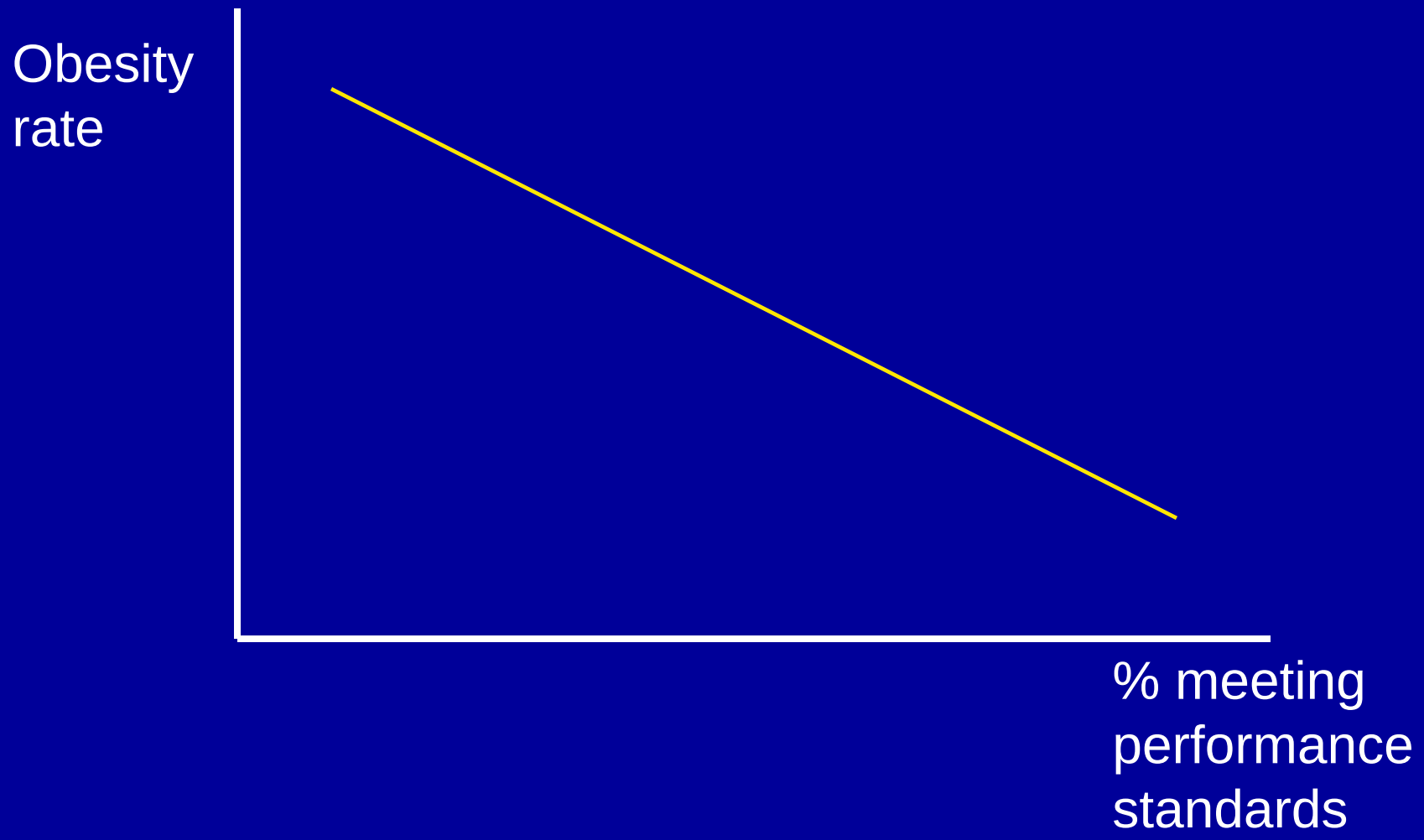
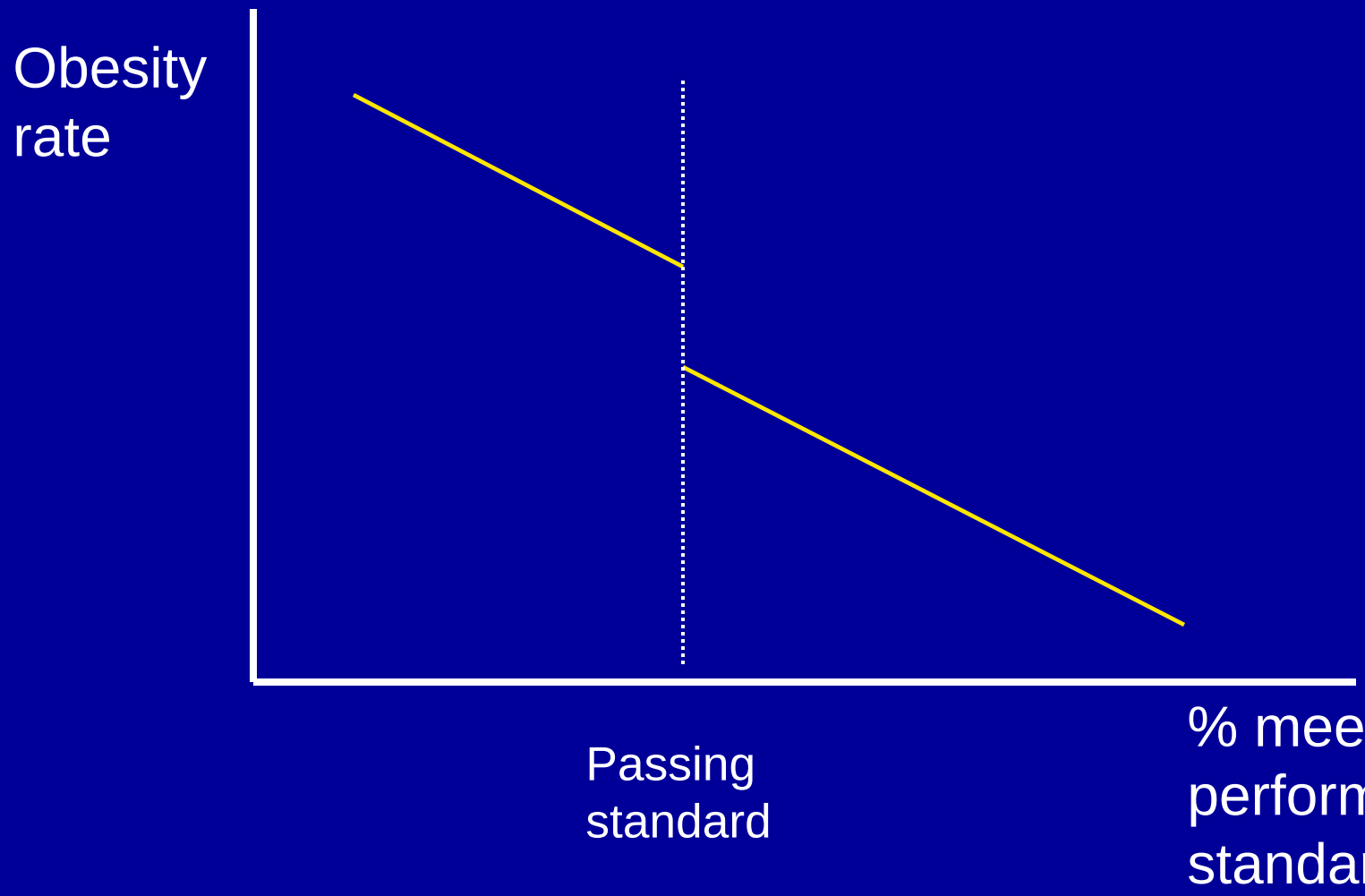
Relationship Between Obesity and Performance, No Accountability



Relationship Between Obesity and Performance, With Accountability



Arkansas Preliminary Results (2004)

	% of students in school overweight	% of students in school at risk of overweight +
Indicator for failure under NCLB = 1	.017 (.007)	.021 (.009)

Notes: Standard errors in parenthesis. Other independent variables include the percent passing math and reading for the school's worst-performing subgroup, and polynomials in those variables to the 8th degree.