bridging the gap

Research Informing Policies & Practices
for Healthy Youth

Policy & Environmental Influences on Childhood Obesity

Healthy Eating Research Annual Meeting
February 3, 2011, Austin TX

Bridging the Gap is…

- A collaborative effort to assess the impacts of **policies**, **programs** & **other environmental factors** on a variety of adolescent health-related behaviors
- An RWJF initiative begun in 1997 with focus on adolescent alcohol, tobacco, and other drug use and related outcomes
- More recently expanded to include youth eating practices, physical activity, and weight outcomes
- Linked to the ongoing, NIDA-funded, *Monitoring the Future* study

University of Michigan
Lloyd Johnston, Project Director
Institute for Social Research

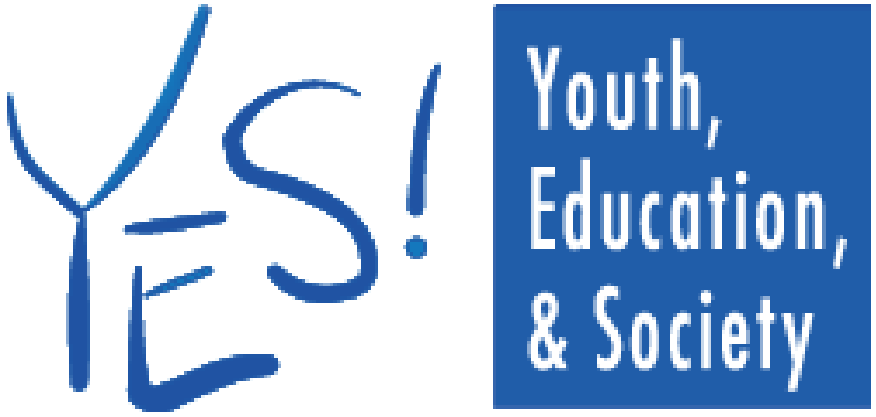
- Monitoring the Future (MTF)
- Youth, Education and Society (YES!)

University of Illinois at Chicago
Frank Chaloupka, Project Director
Health Policy Center

- ImpacTeen
- Food & Fitness

impacTEEN
A Policy Research Partnership for Healthier Youth Behavior

bridging the gap

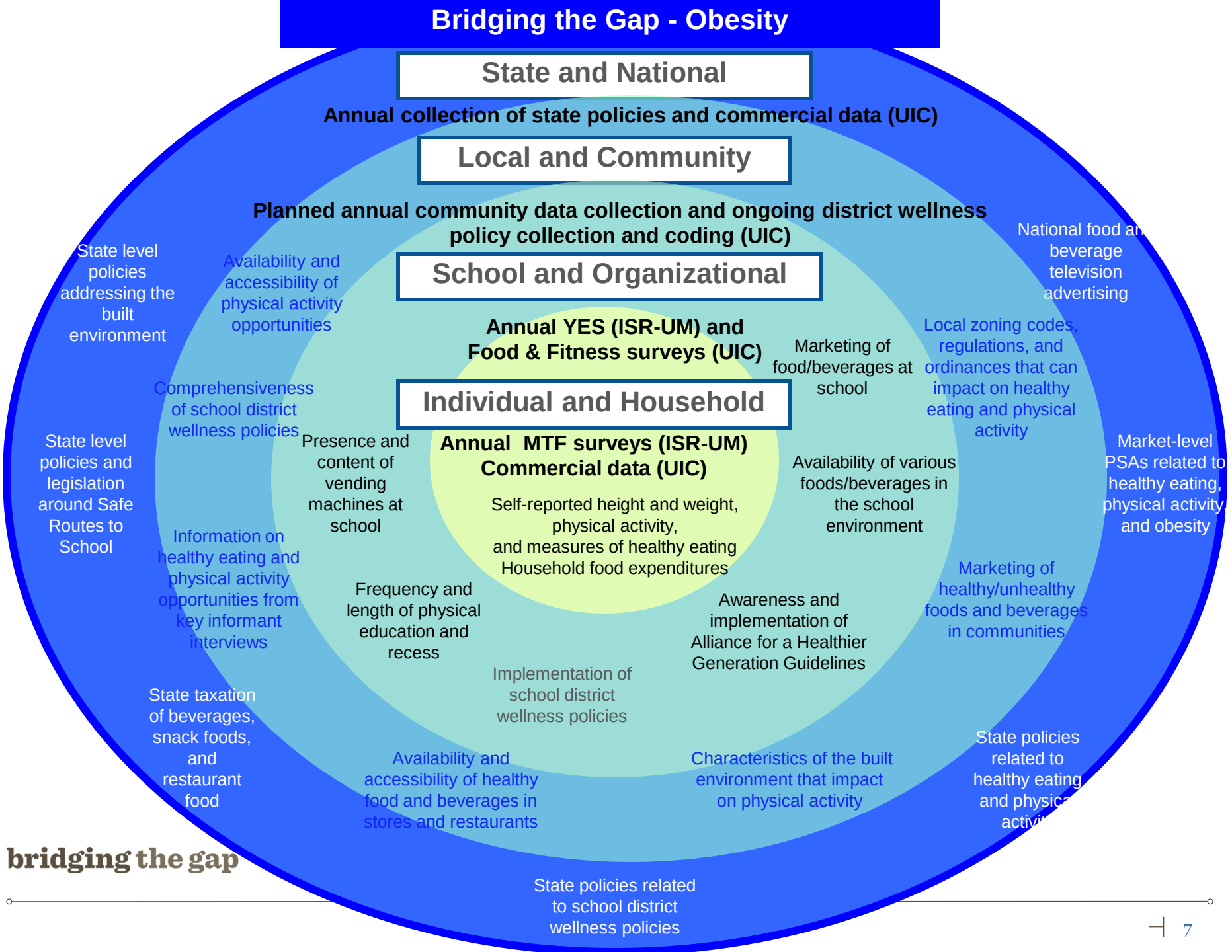


Co-Investigators and key staff include:
Patrick O'Malley, Jorge Delva
Jerald Bachman, John Schulenberg
Shelly Yee, Yvonne Terry-McElrath,
Deborah Kloska, Jonathan Brenner
and others……..

Co-Investigators and key staff include:
Lisa Powell, Jamie Chriqui, Lindsey Turner,
Dianne Barker, Leah Rimkus, Sandy Slater
Sherry Emery, Glen Szczypka, Lisa Nicholson,
Dan Taber, Roy Wada, Jidong Huang,
Anna Sandoval, and others…….

Bridging the Gap integrates across …

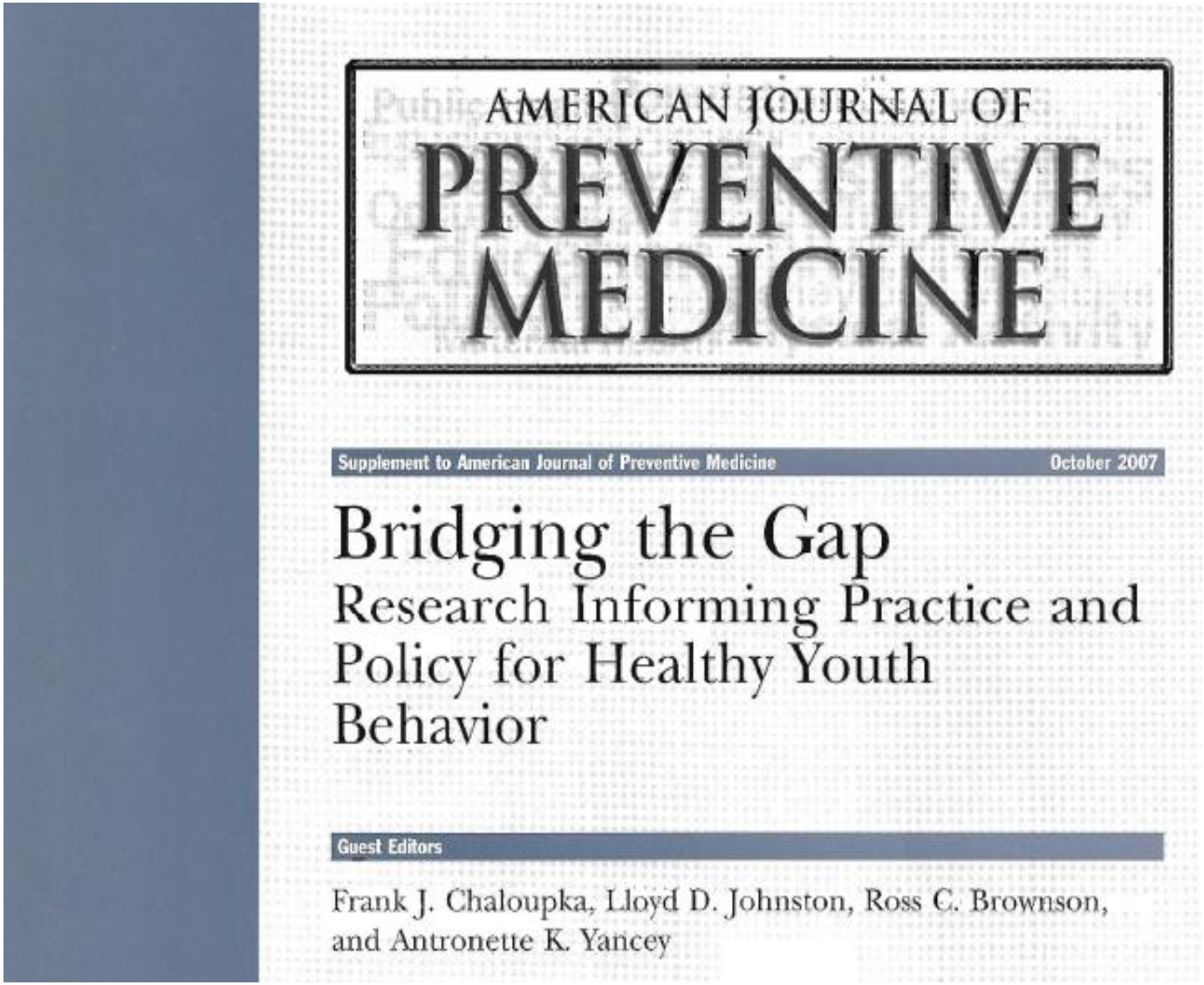
- *Multiple behaviors*
  - Healthy eating, physical activity, tobacco use, and related outcomes
- *Multiple disciplines*
  - Social psychology, economics, public health, epidemiology, political science, law, sociology, public policy, biostatistics, and more
- *Multiple levels of social organization*
  - Individual, schools, communities, states, and the nation
- *Multiple centers and collaborators*
  - UM, UIC, Mayatech, Public Health Institute, and others
- *Multiple funders*
  - RWJF, NIDA, NCI, NHLBI, USDA, CDC, ALF, ACS, and others
- *Multiple data sources*
  - Variety of originally collected and archival data



bridging the gap

Bridging the Gap data include …

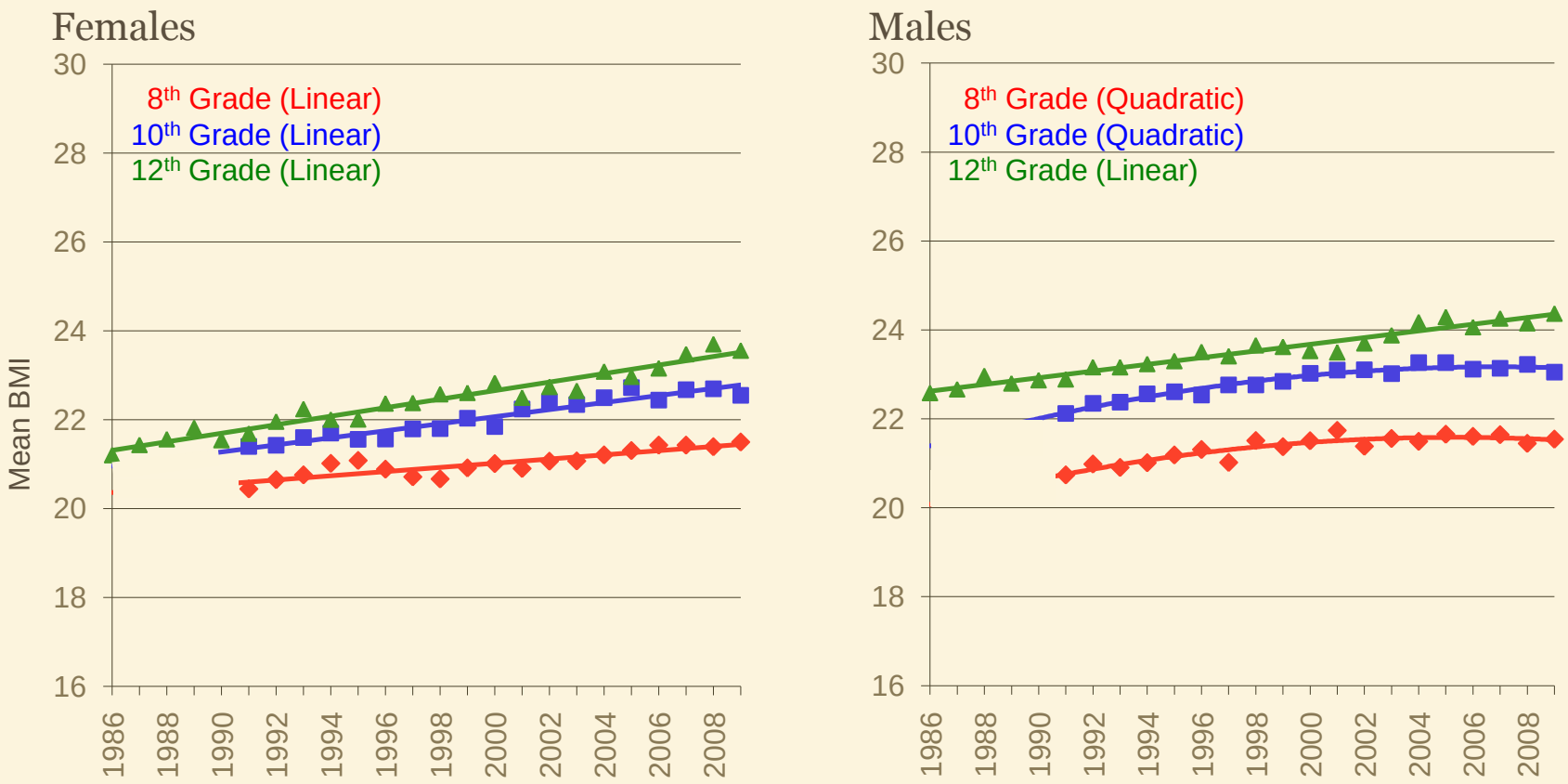
- Monitoring the Future Surveys of adolescents
- Household food purchases (HomeScan)
- Surveys of primary and secondary school administrators
- School district wellness policies
- Community-level observations
- Community-level ordinances and regulations
- Market and national level television advertising exposure
- State-level policies and regulations
- Variety of archival data


AMERICAN JOURNAL OF
PREVENTIVE
MEDICINE
Supplement to American Journal of Preventive Medicine
October 2007
Bridging the Gap
Research Informing Practice and Policy for Healthy Youth Behavior
Guest Editors
Frank J. Chaloupka, Lloyd D. Johnston, Ross C. Brownson, and Antronette K. Yancey

MTF Student Surveys

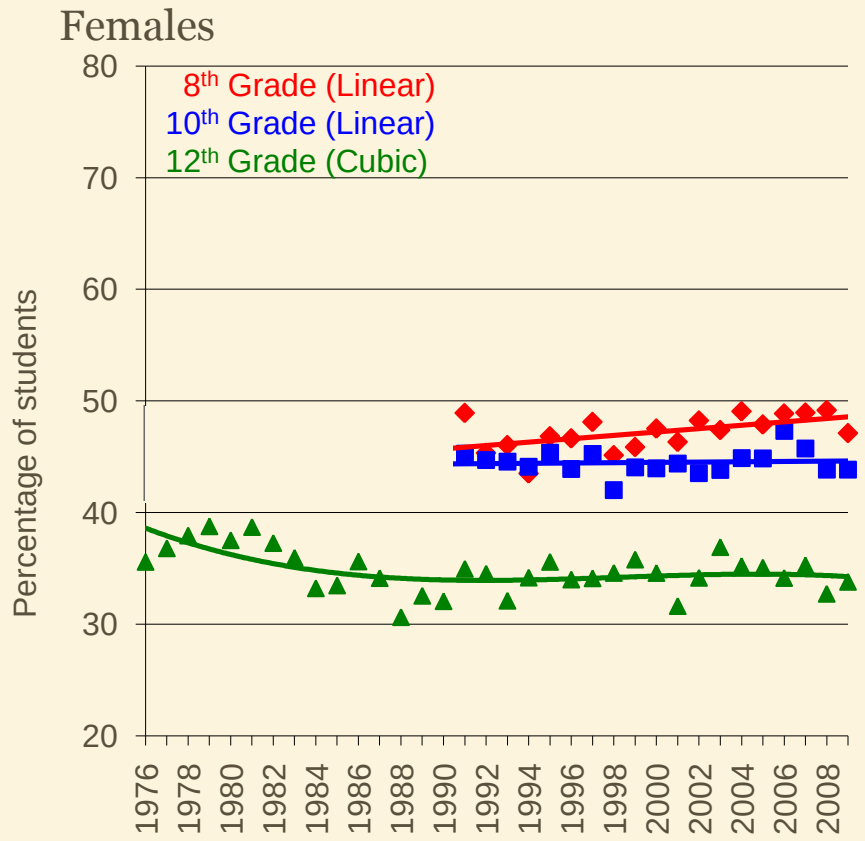
Nationally representative annual 8th, 10th, and 12th grade student surveys
(approximately 50,000 students in about 420 public and private secondary schools)

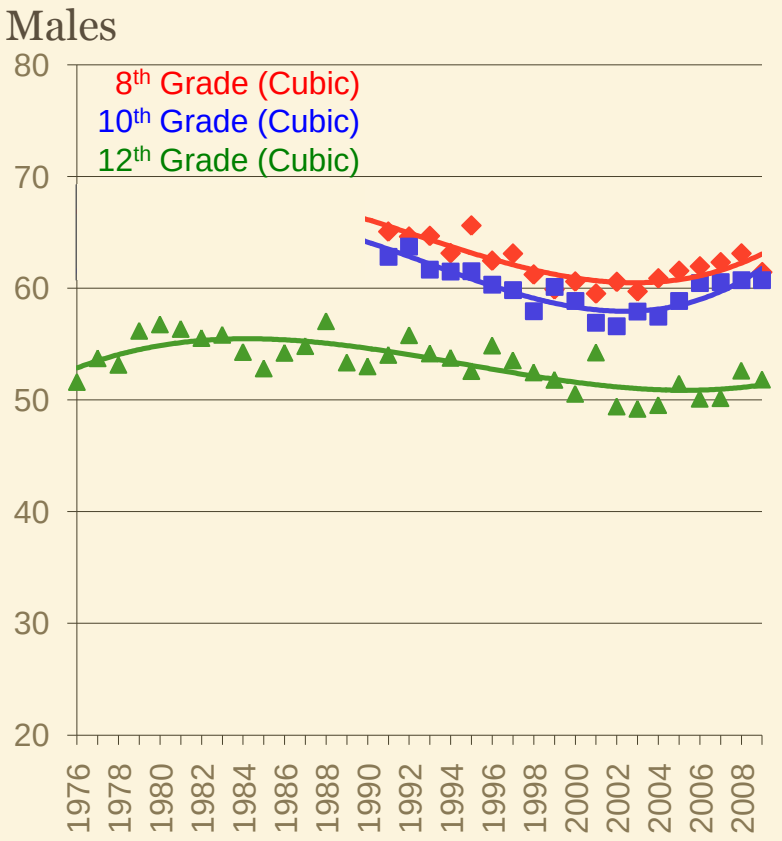
Trends in Mean BMI by Gender, 1986-2009



BMI = Body Mass Index (weight in kg / height in meters squared)

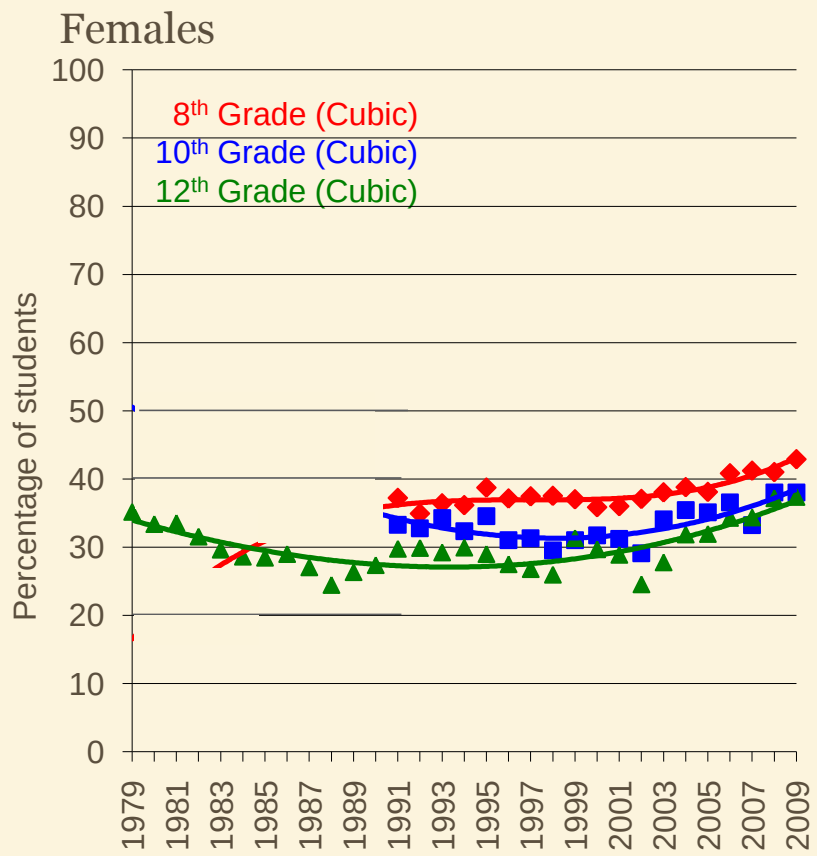
Sports, Athletics, or Exercising: Trends in the Percent of Students Participating by Gender, 1976-2009

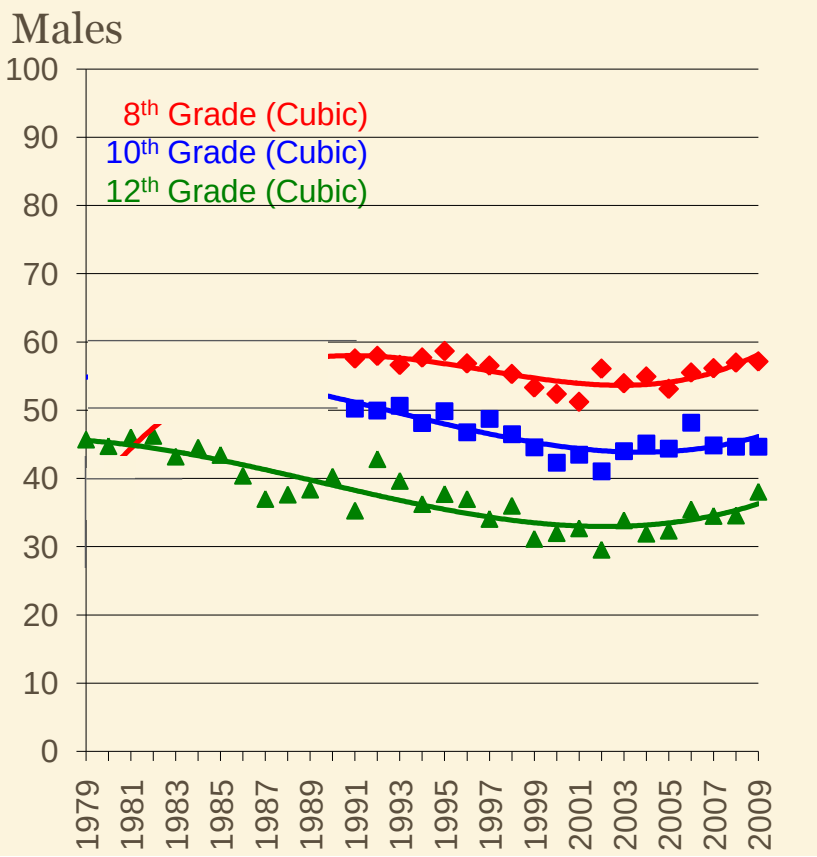




"Participating" defined as participating almost every day or daily.

Eating Breakfast Daily by Gender, 1979-2009

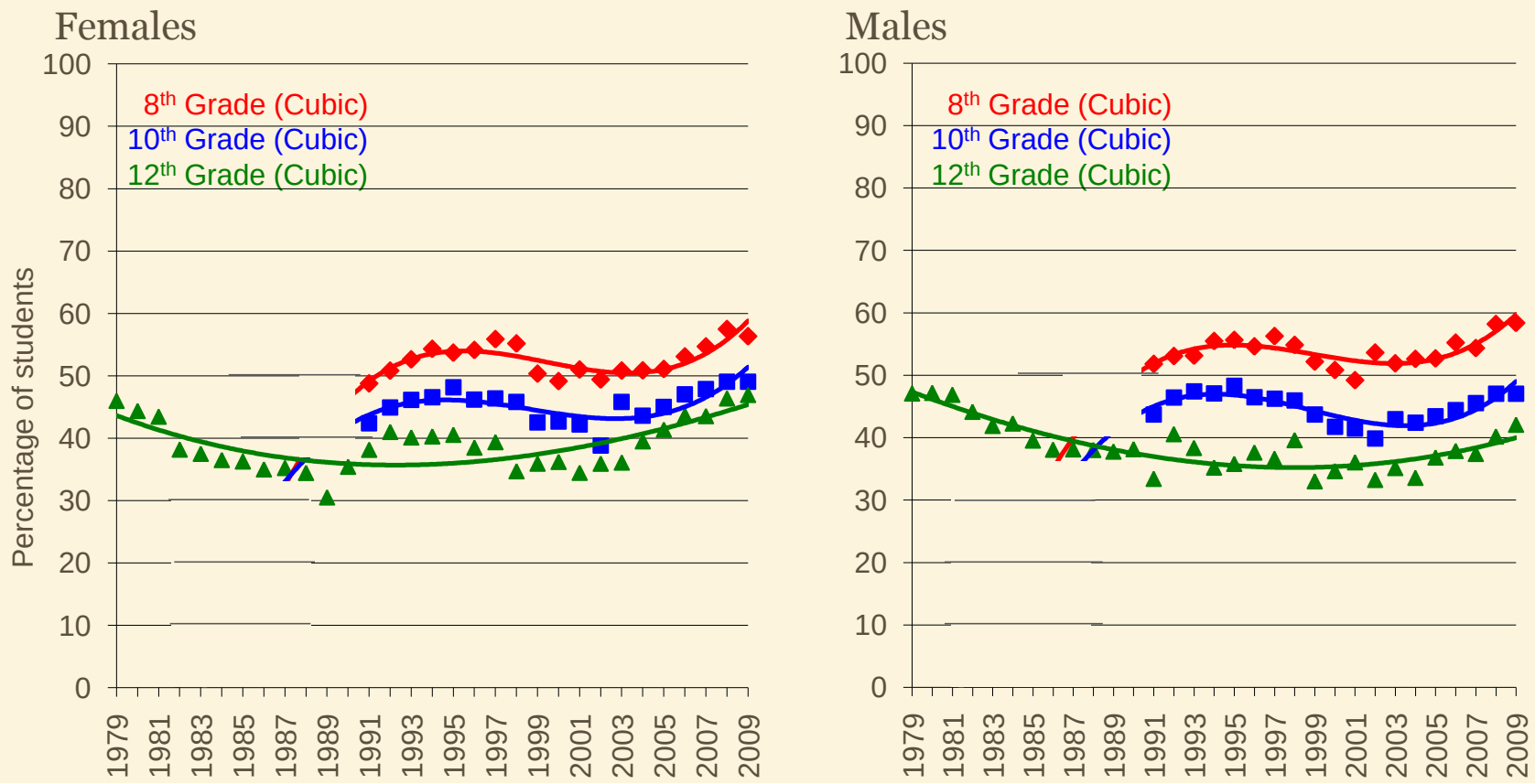




bridging the gap

"How often do you eat breakfast?" 1=Never, 2=Seldom, 3=Sometimes, 4=Most days, 5=Nearly every day, 6=Every day. "Daily" recode: 1=Nearly every day or every day; 0=Other.

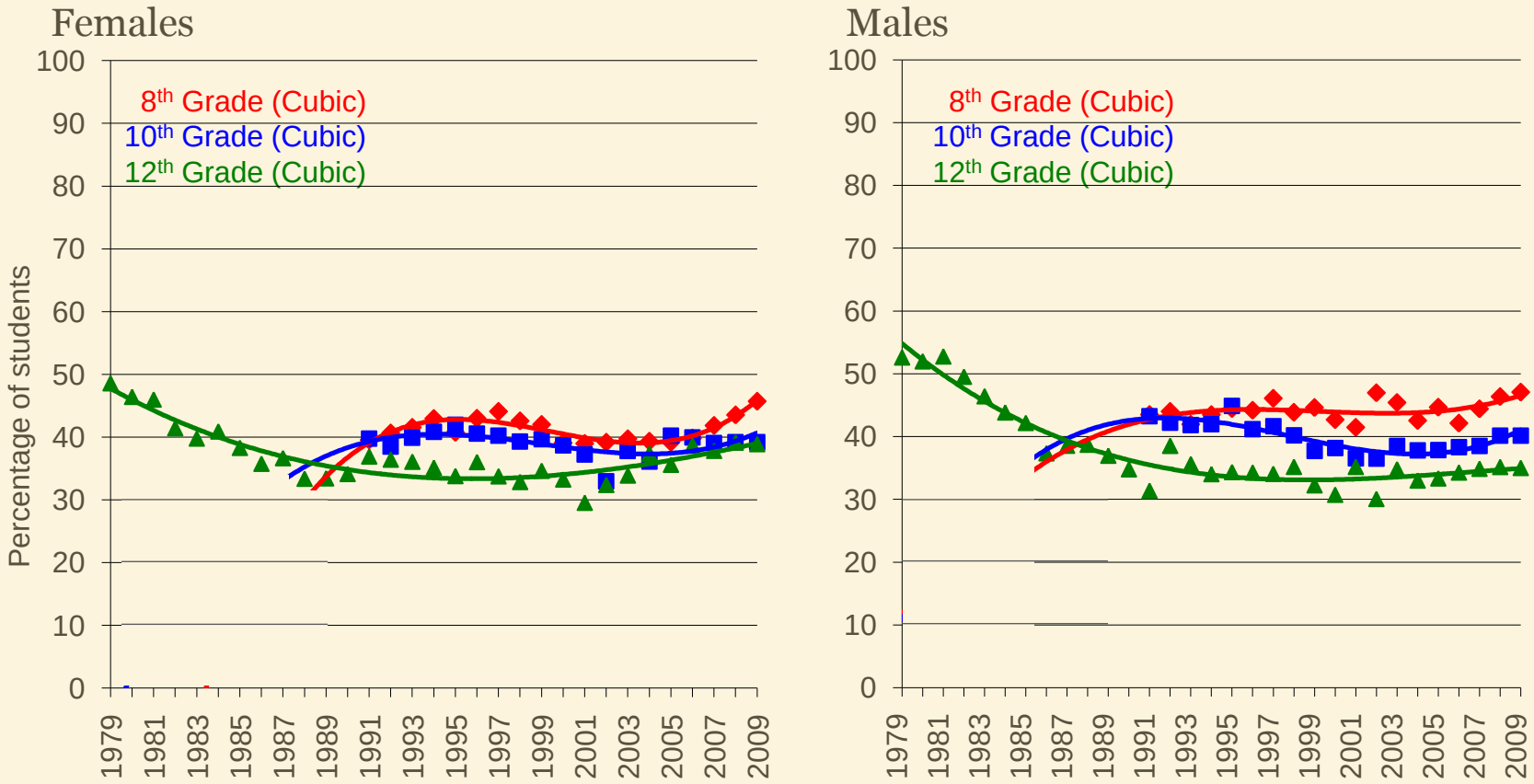
Eating Fruit Daily by Gender, 1979-2009



bridging the gap

"How often do you eat at least some fruit?" 1=Never, 2=Seldom, 3=Sometimes, 4=Most days, 5=Nearly every day, 6=Every day. "Daily" recode: 1=Nearly every day or every day; 0=Other.

Eating Green Vegetables Daily by Gender, 1979-2009



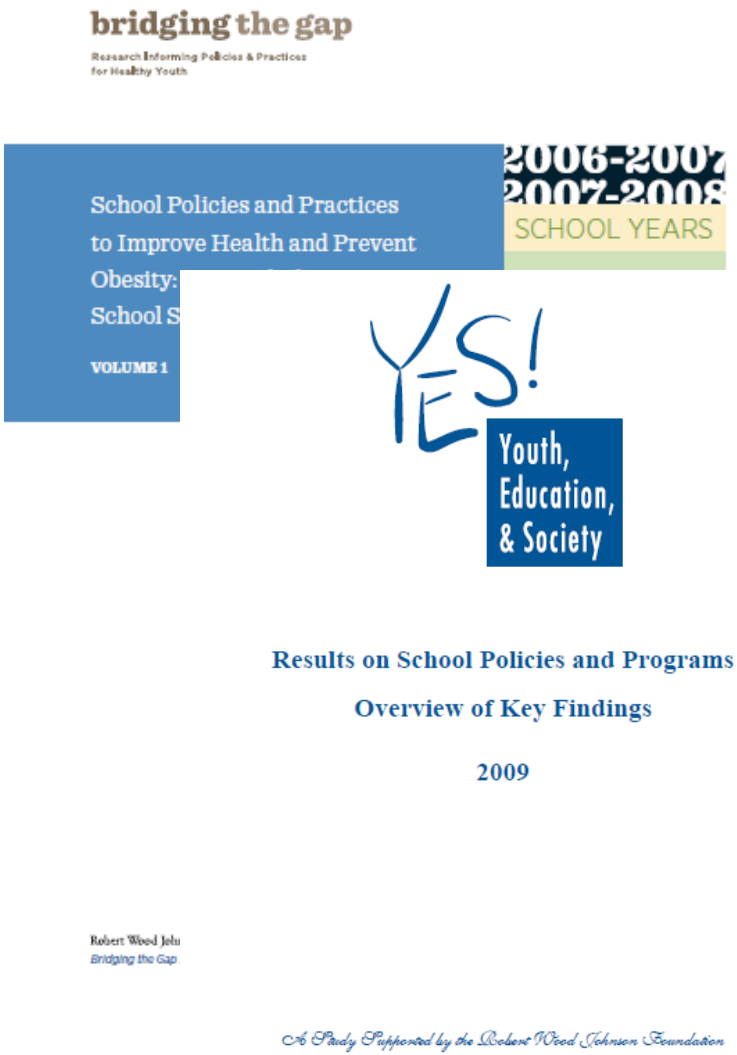
bridging the gap

"How often do you eat at least some green vegetables?" 1=Never, 2=Seldom, 3=Sometimes, 4=Most days, 5=Nearly every day, 6=Every day. "Daily" recode: 1=Nearly every day or every day; 0=Other.

YES School Administrator Surveys on Health Policies and Practices in Schools

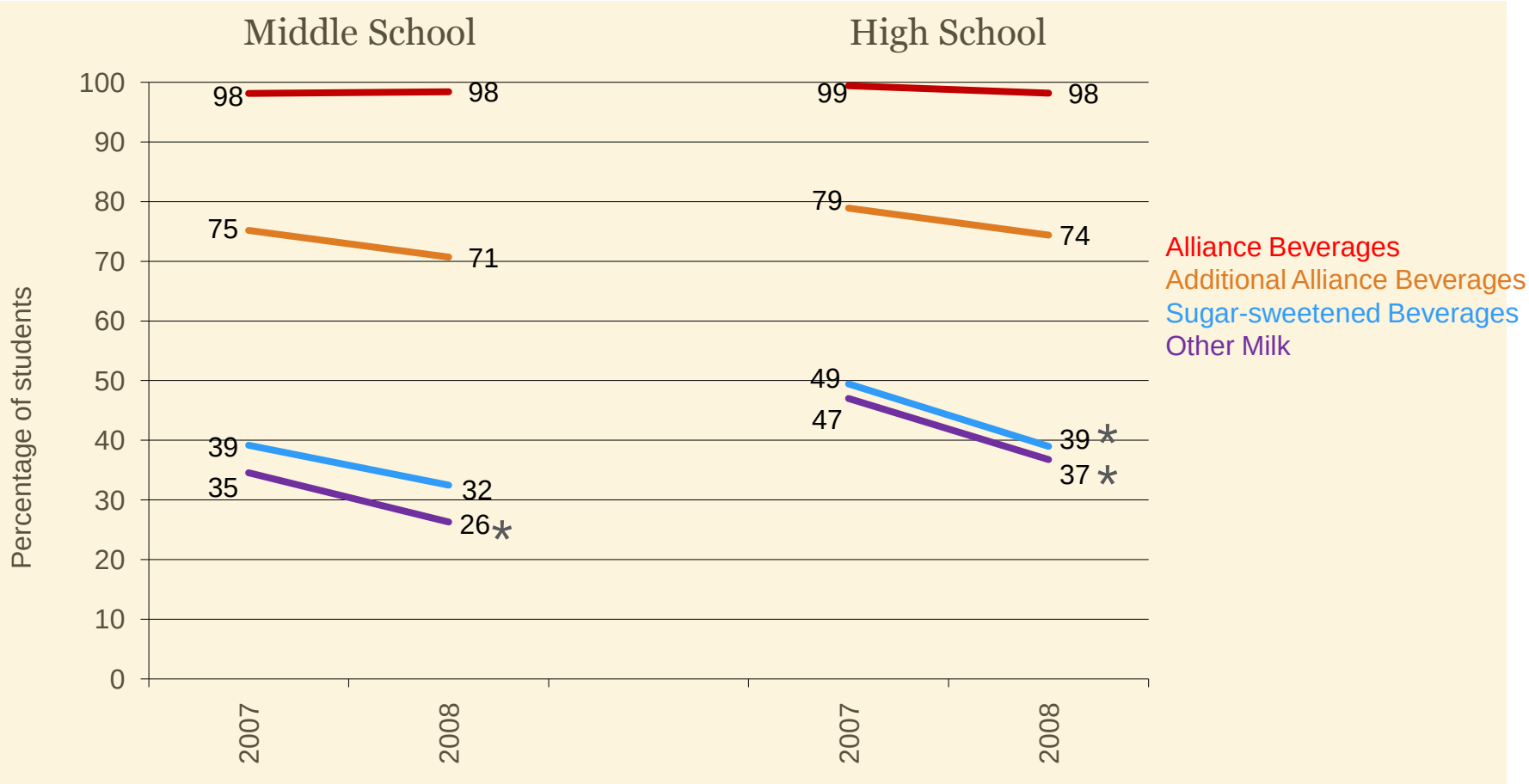
Nationally representative annual surveys of school administrators in approximately 550 secondary schools (about 280 8th grade schools, 135 10th and 135 12th grade schools)

bridging the gap



- Annual releases of key summary data
- First monograph to be released in coming weeks
- Full summary data on-line

Types of Beverages Available as Part of the School Lunch Meal, 2007-2008

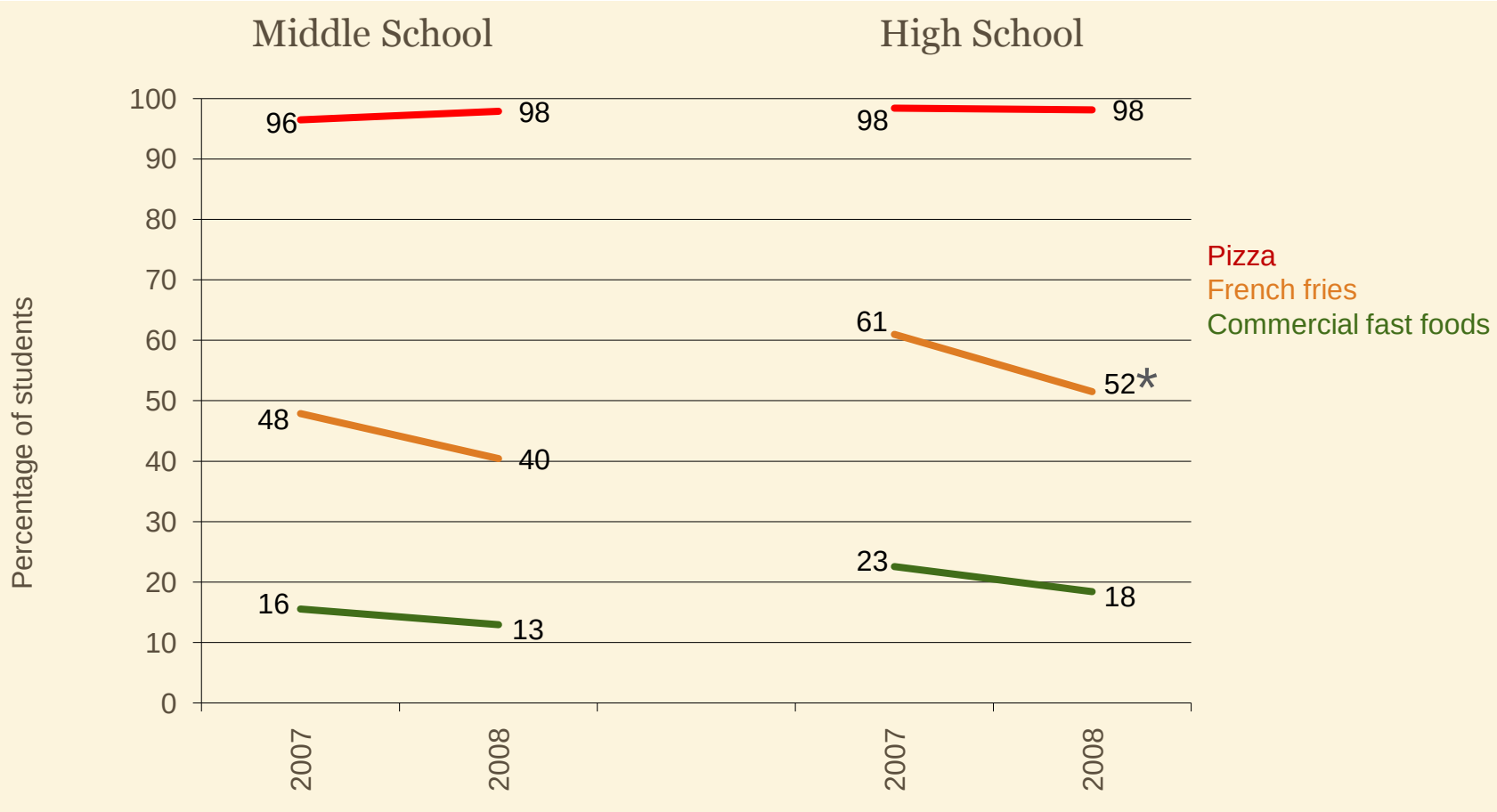


Alliance Beverages: bottled water; 100% fruit or vegetable juice, low-fat or non-fat milk. Additional Alliance Beverages: diet soft drinks; other no- or low-calorie beverages; "light" juices. Sugar-sweetened Beverages: regular soft drinks; sports drinks; fruit drinks that are not 100% fruit juice and that are high in calories. Other Milk: whole or 2% milk, or flavored milk.

bridging the gap

*p<.05

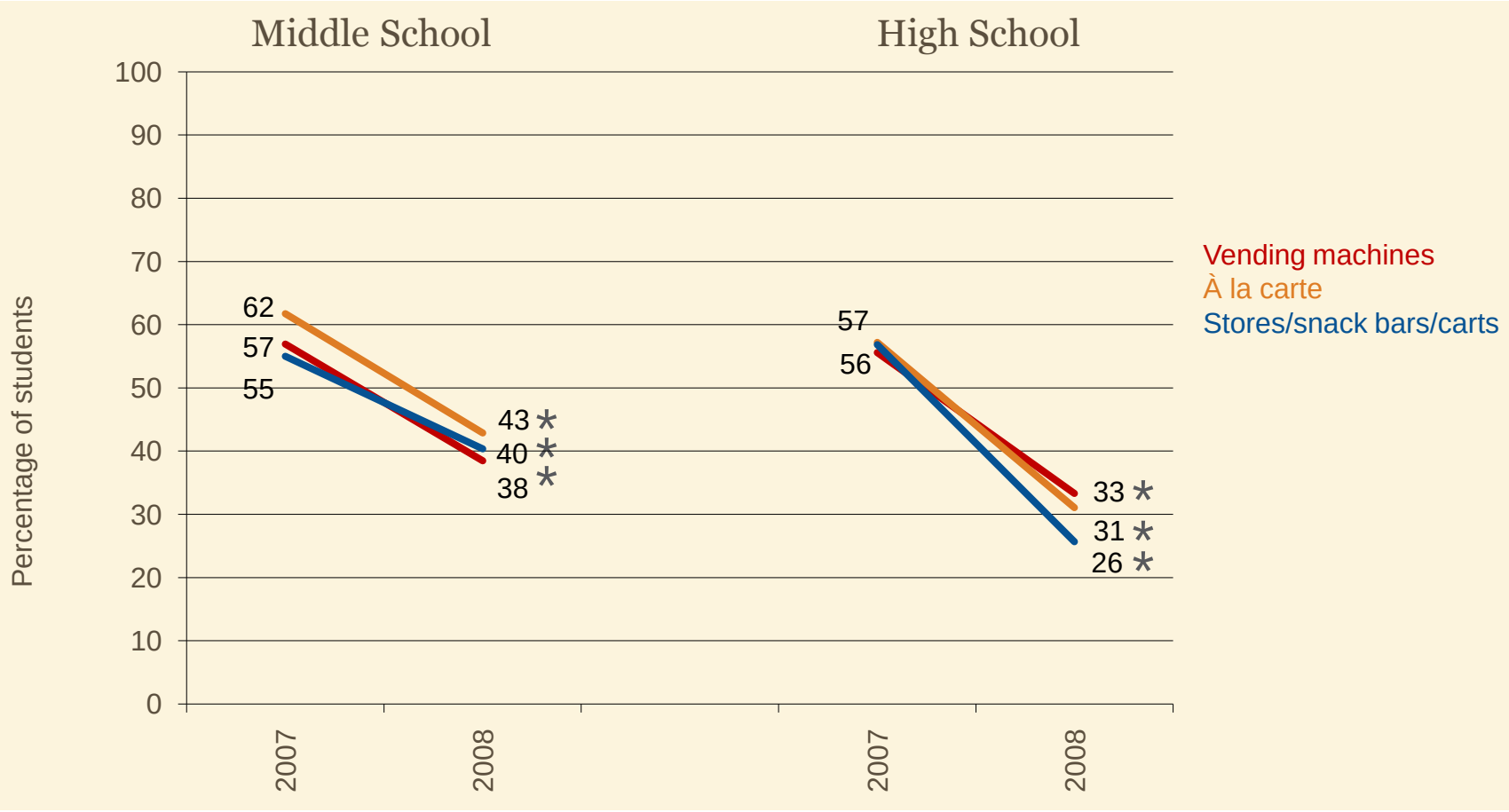
Student Access to Less Healthy Lunch Meal Foods, 2007-2008



bridging the gap

*p<.05

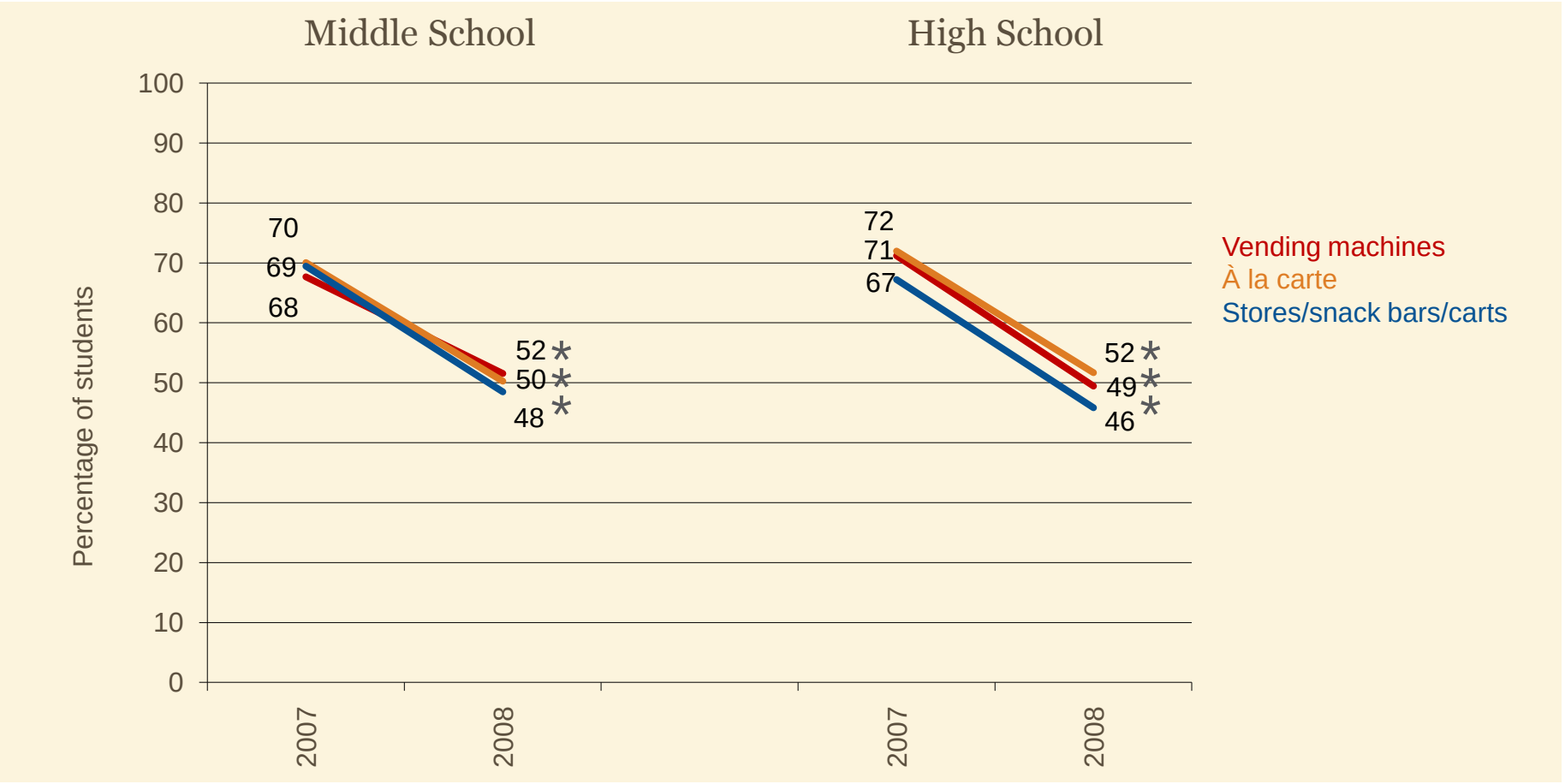
Student Access to Competitive Venues Not Implementing School Beverage Guidelines, 2007-2008



The 2007 value was 57% for high school students for both à la carte and stores/snack bars/carts.

*p<.05

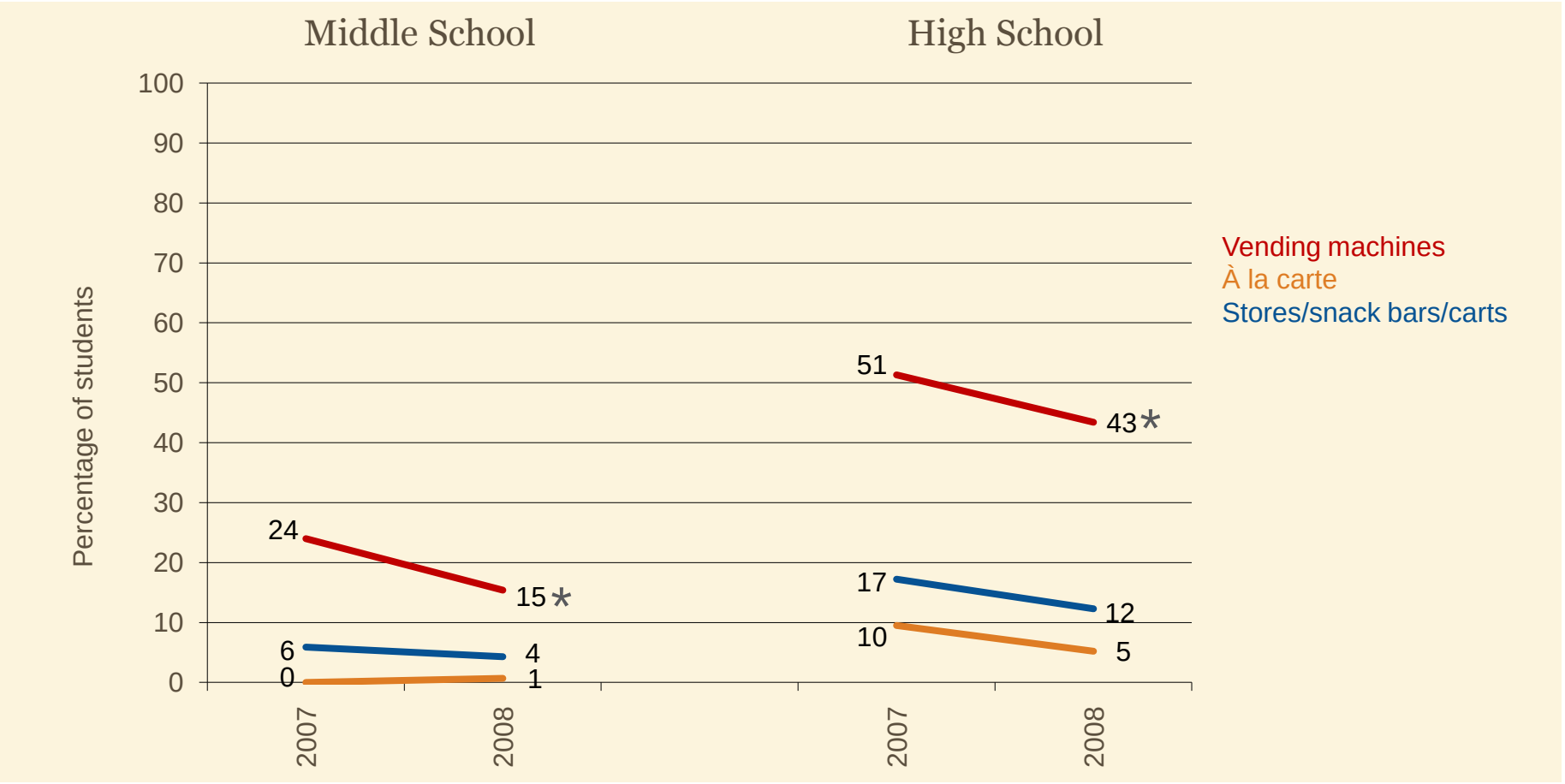
Student Access to Competitive Venues Not Implementing Nutritional Guidelines for Competitive Foods, 2007-2008



bridging the gap

*p<.05

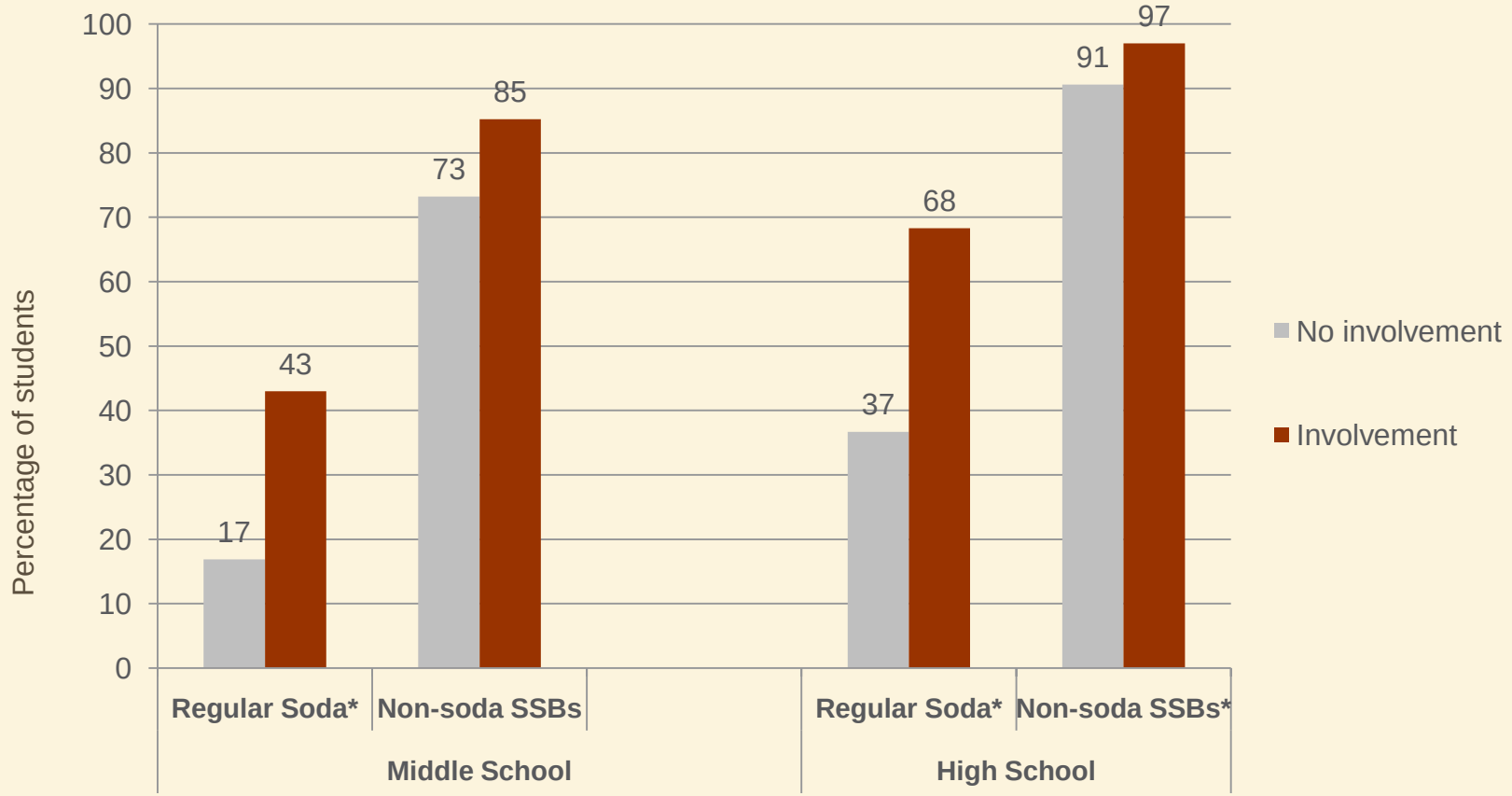
Student Access to Regular Soft Drinks by Competitive Venue, 2007-2008



bridging the gap

*p<.05

Competitive Venue SSB Availability by Beverage Supplier Involvement in Vending Beverage Choices, 2007-2009

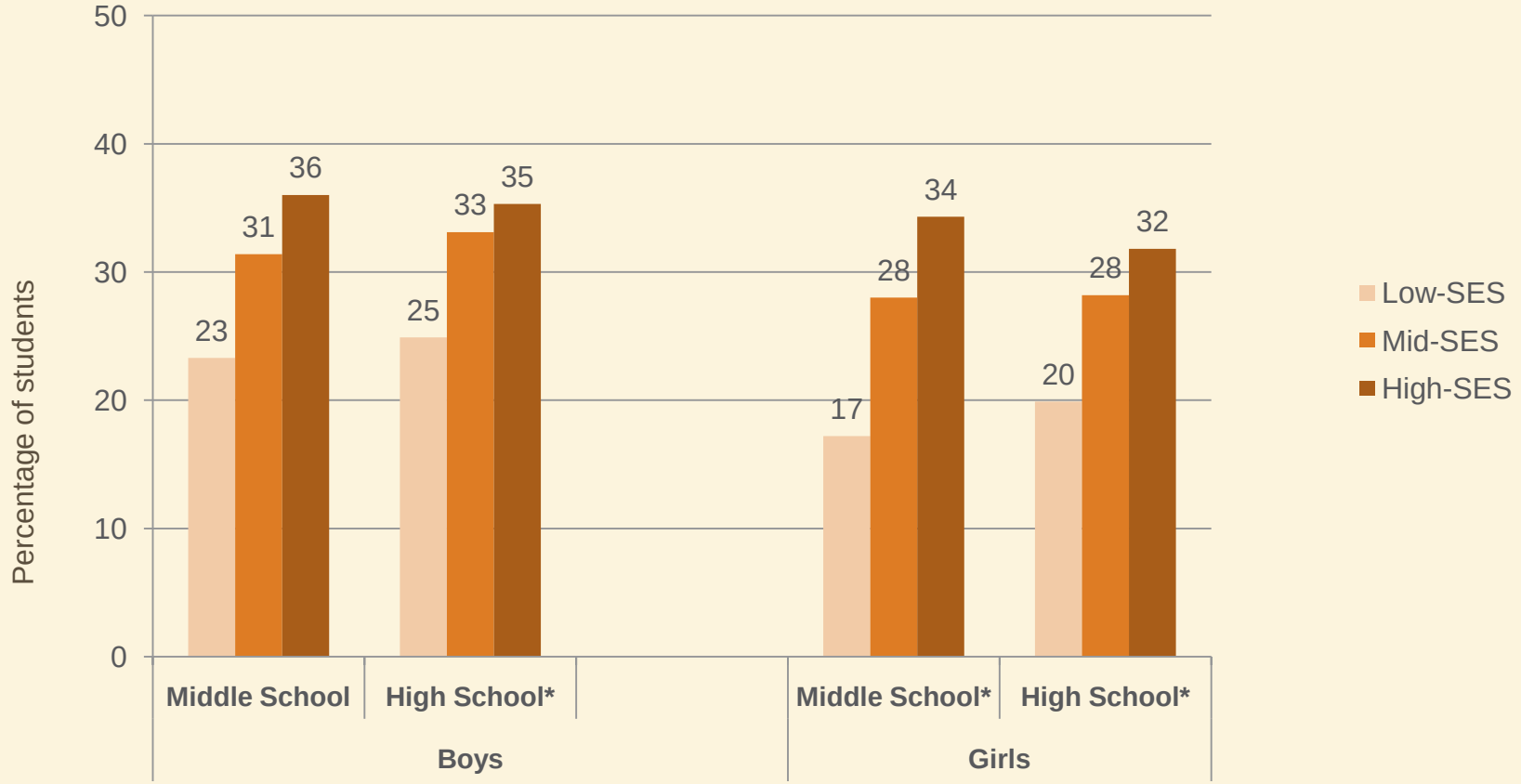


bridging the gap

SSBs: Sugar-sweetened beverages. Regular soda: regular soft drinks (such as Coke, Pepsi, or Dr. Pepper). Non-soda SSBs: sports drinks; fruit drinks that are not 100% fruit juice and that are high in calories.

*p<.05

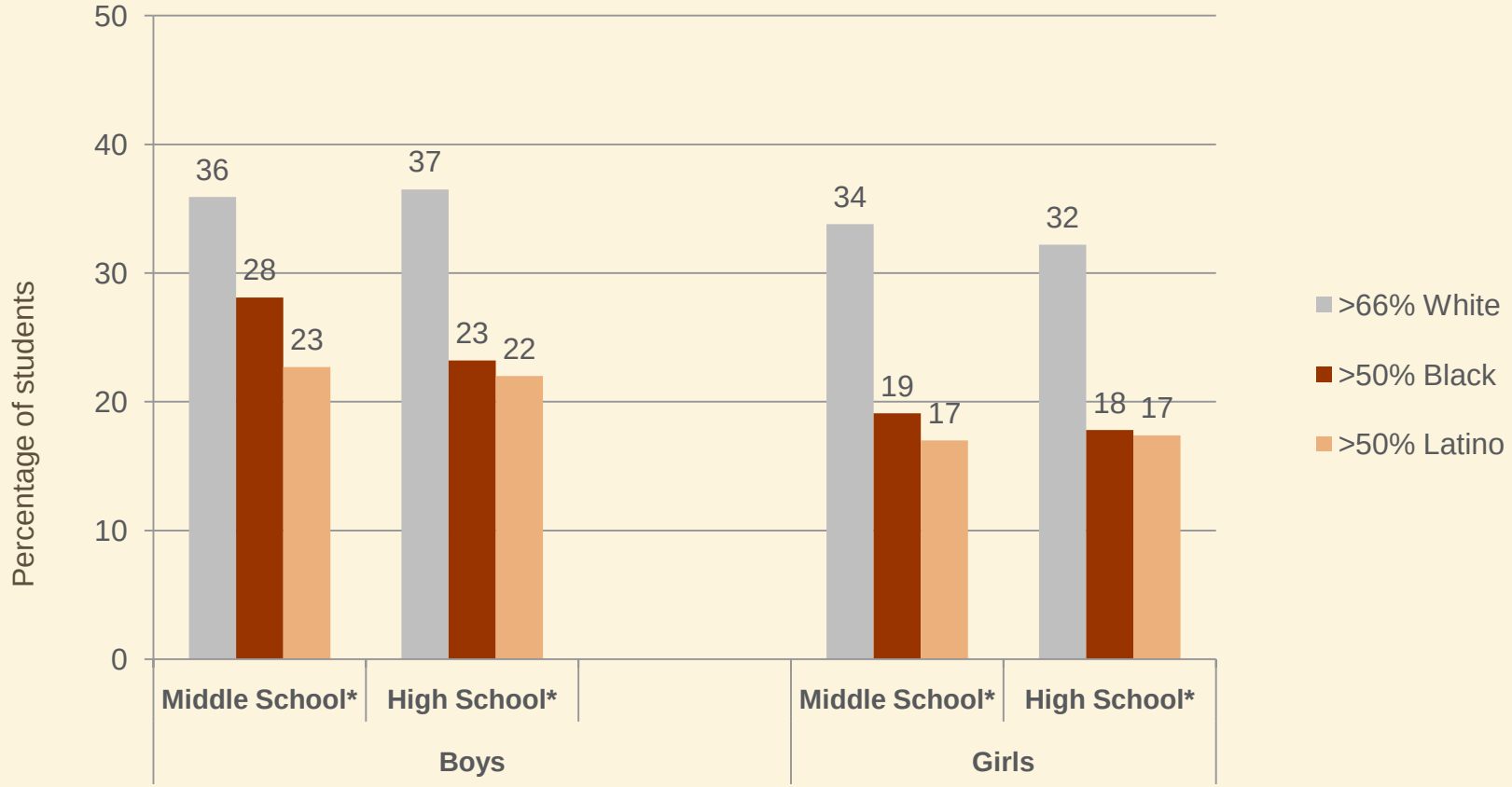
Students Participating in Interscholastic/Varsity Sports During the School Year by School SES, 2008



bridging the gap

*p<.05

Students Participating in Interscholastic/Varsity Sports During the School Year by School Racial and Ethnic Makeup, 2008



bridging the gap

*p<.05

Food & Fitness Administrator Surveys on Policies and Practices in Elementary Schools

Nationally representative annual surveys of school administrators

2006-07 school year (N = 578) and 2007-2008 school year (N = 748)

bridging the gap

Annual Primary School Administrator Survey

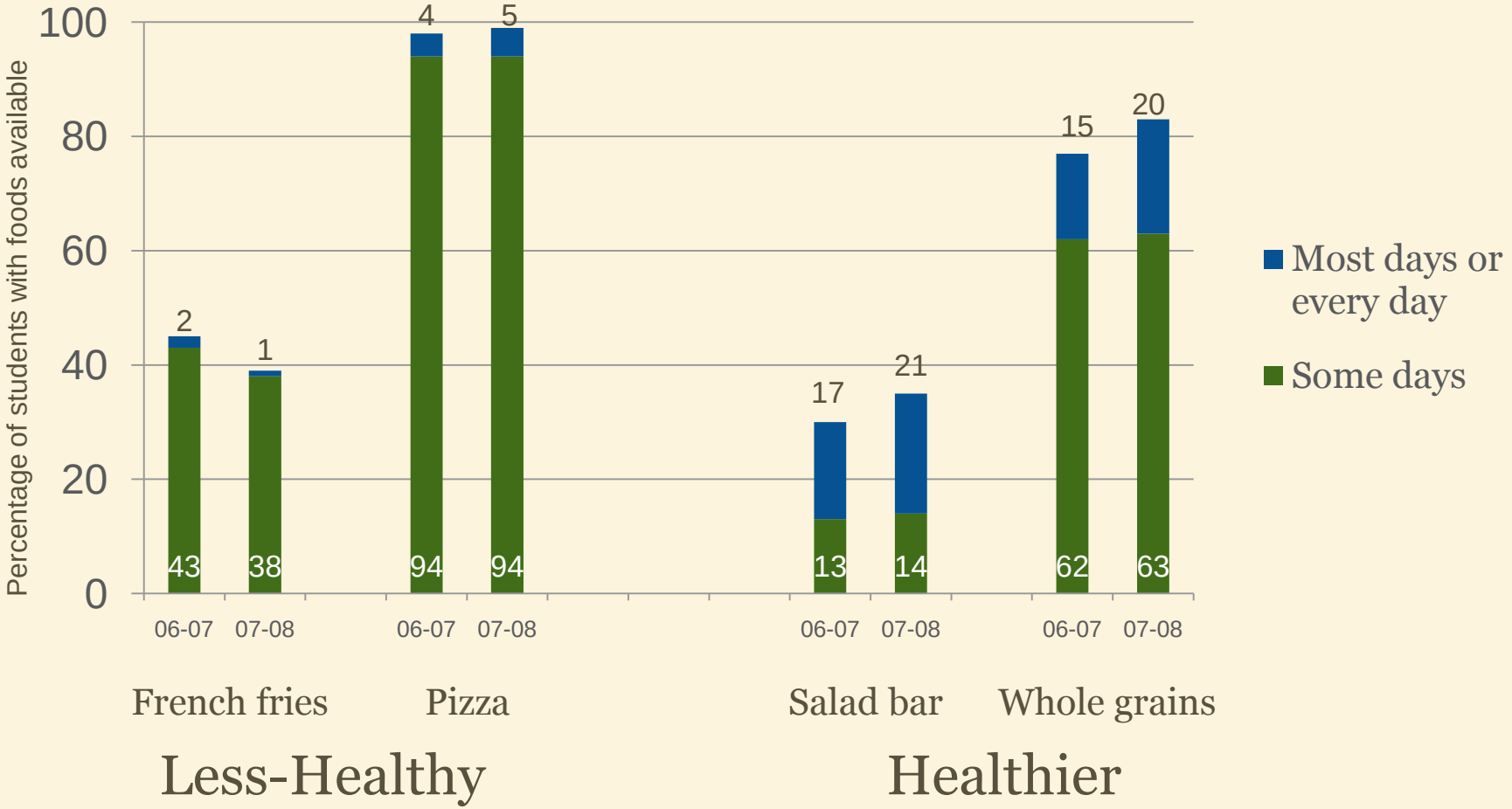
http://www.bridgingthegapresearch.org/research/elementary_school_survey//

- First monograph released fall 2010
- Full summary data on-line

Report 1:

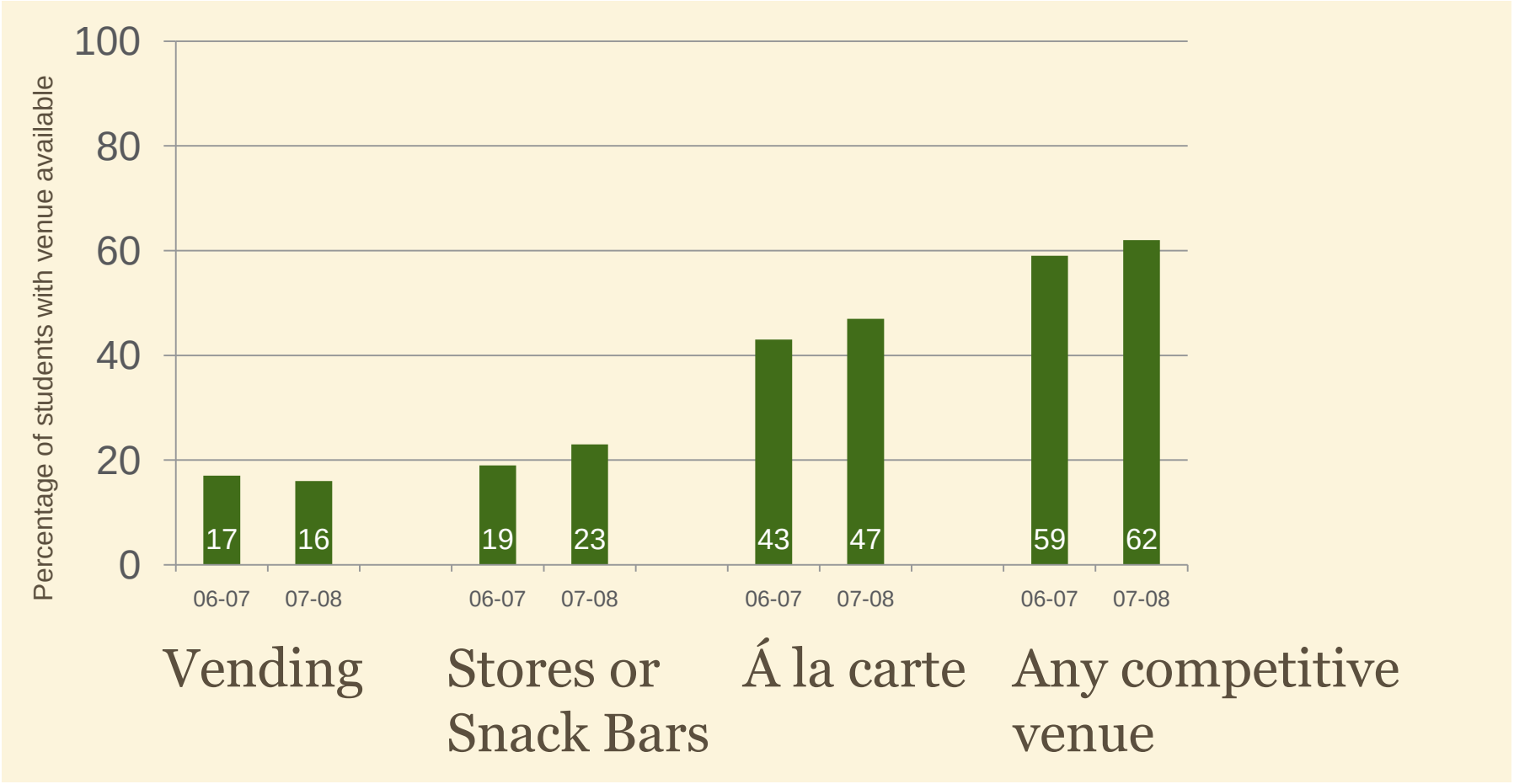
School Policies and Practices to Improve Health and Prevent Obesity. National Elementary School Survey Results, School Years 2006-07 and 2007-08.

Foods Available in Lunches Offered at Elementary Schools Participating in the National School Lunch Program



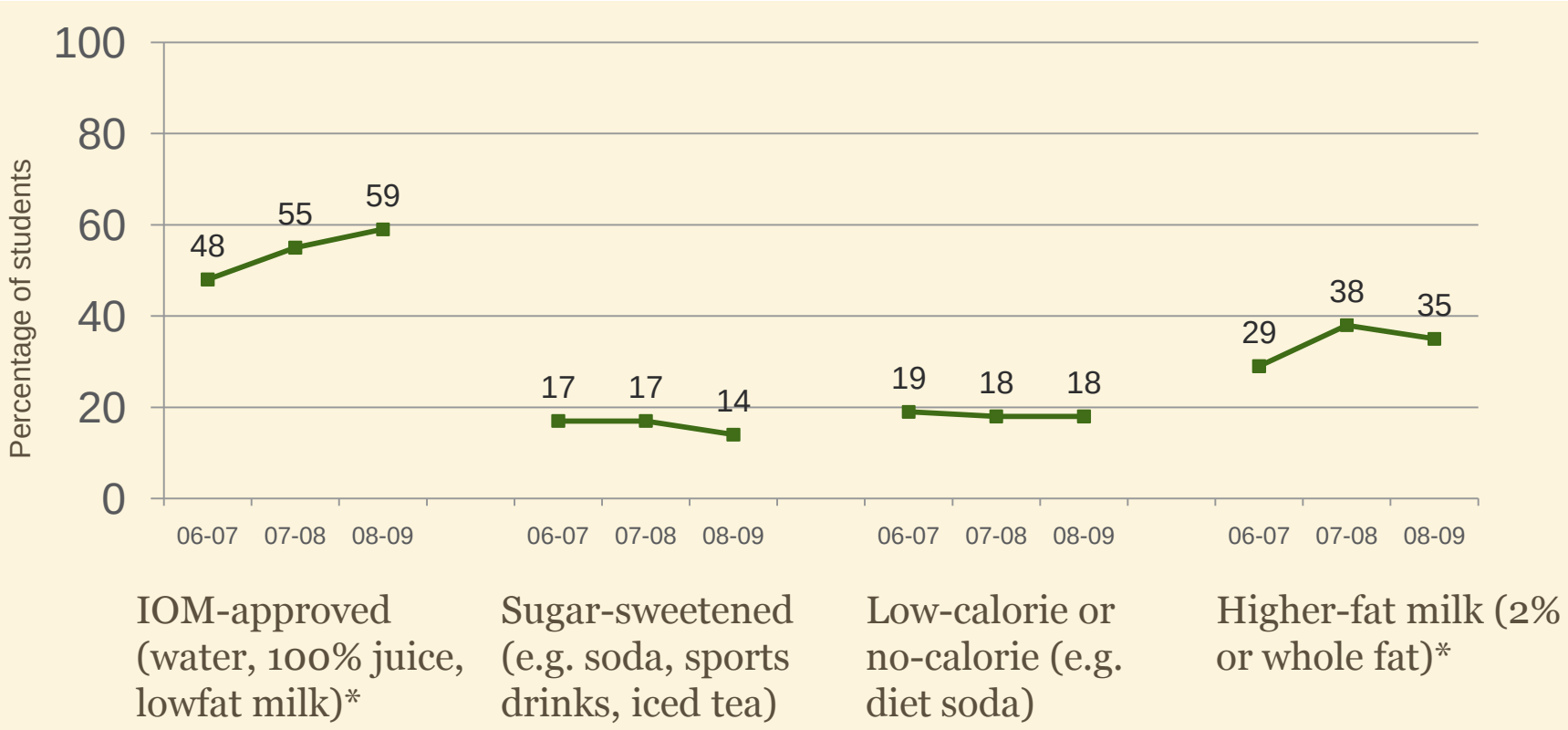
bridging the gap

Availability of Foods or Beverages in Competitive Venues in Elementary Schools



bridging the gap

Availability of Beverages in Any Competitive Venue (vending, stores/snack bar, à la carte) in Elementary Schools

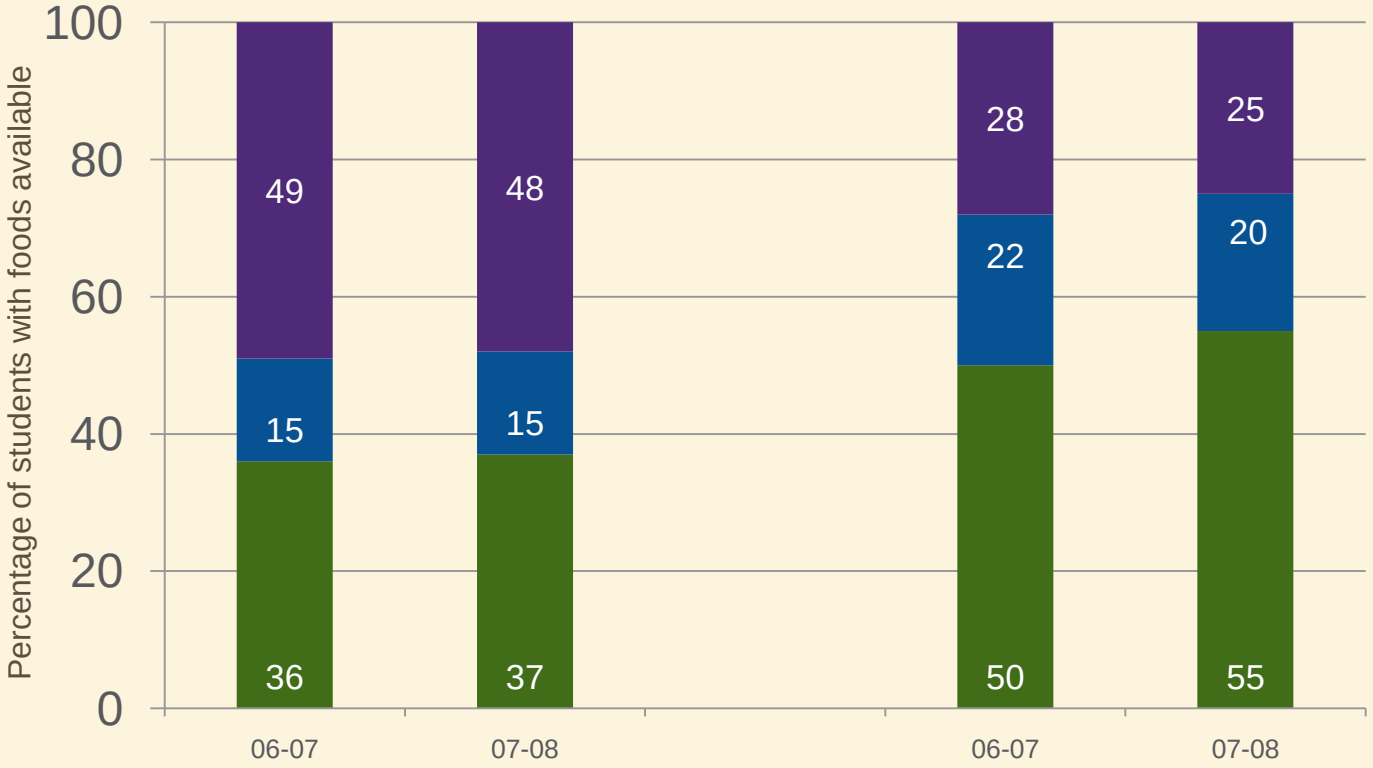


* 2007-08 and 2008-09 significantly higher than 2006-07, $p < .05$

bridging the gap

Turner, L. & Chaloupka, F.J. (2010). Wide Availability of High-Calorie Beverages in Elementary Schools. *Archives of Pediatric and Adolescent Medicine*, published online Nov 1, 2010.

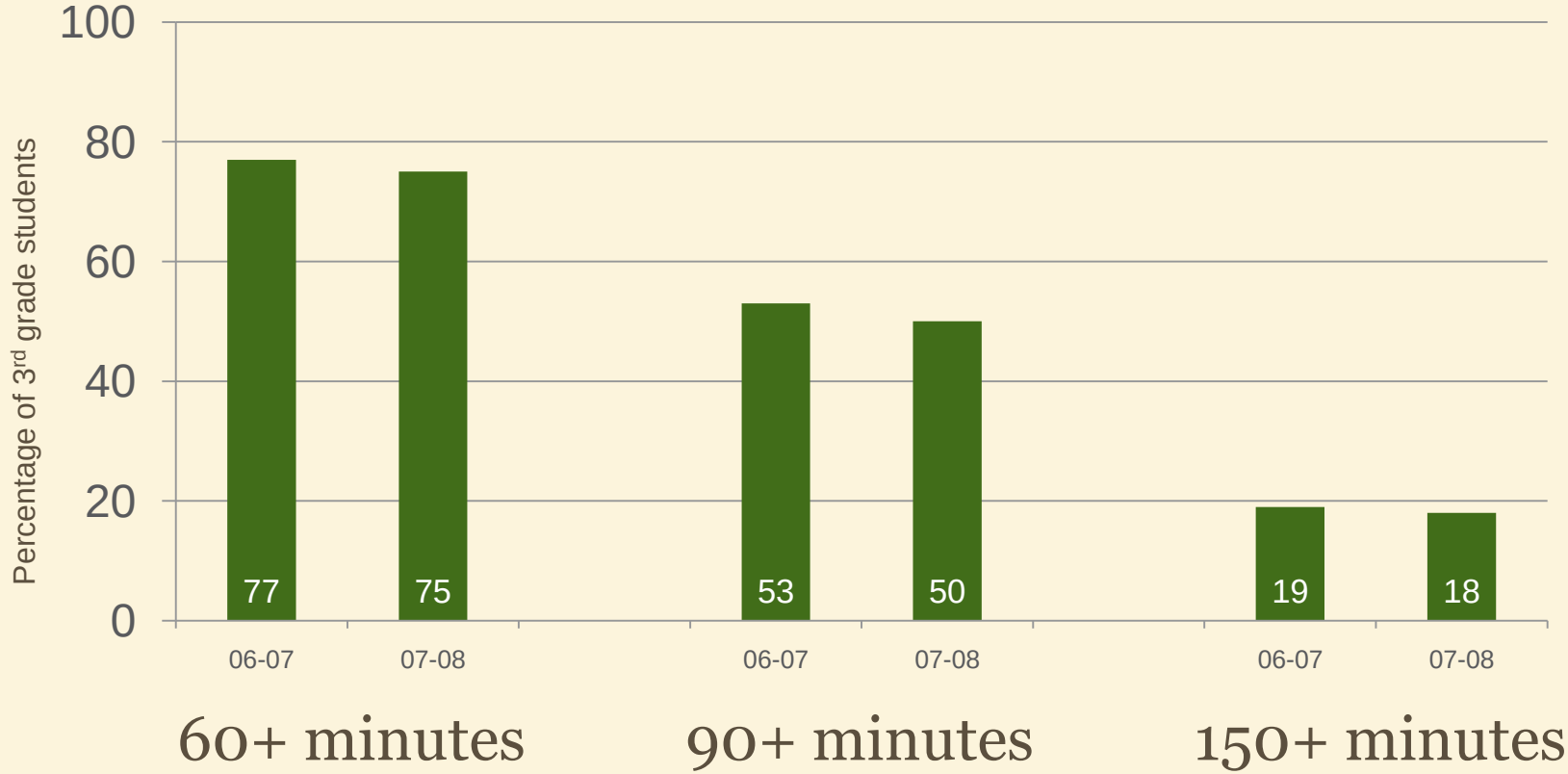
Policies or Restrictions on Sugary Foods During Parties and Snack Time in Elementary Schools



* Analyses limited to schools that offered snack time

bridging the gap

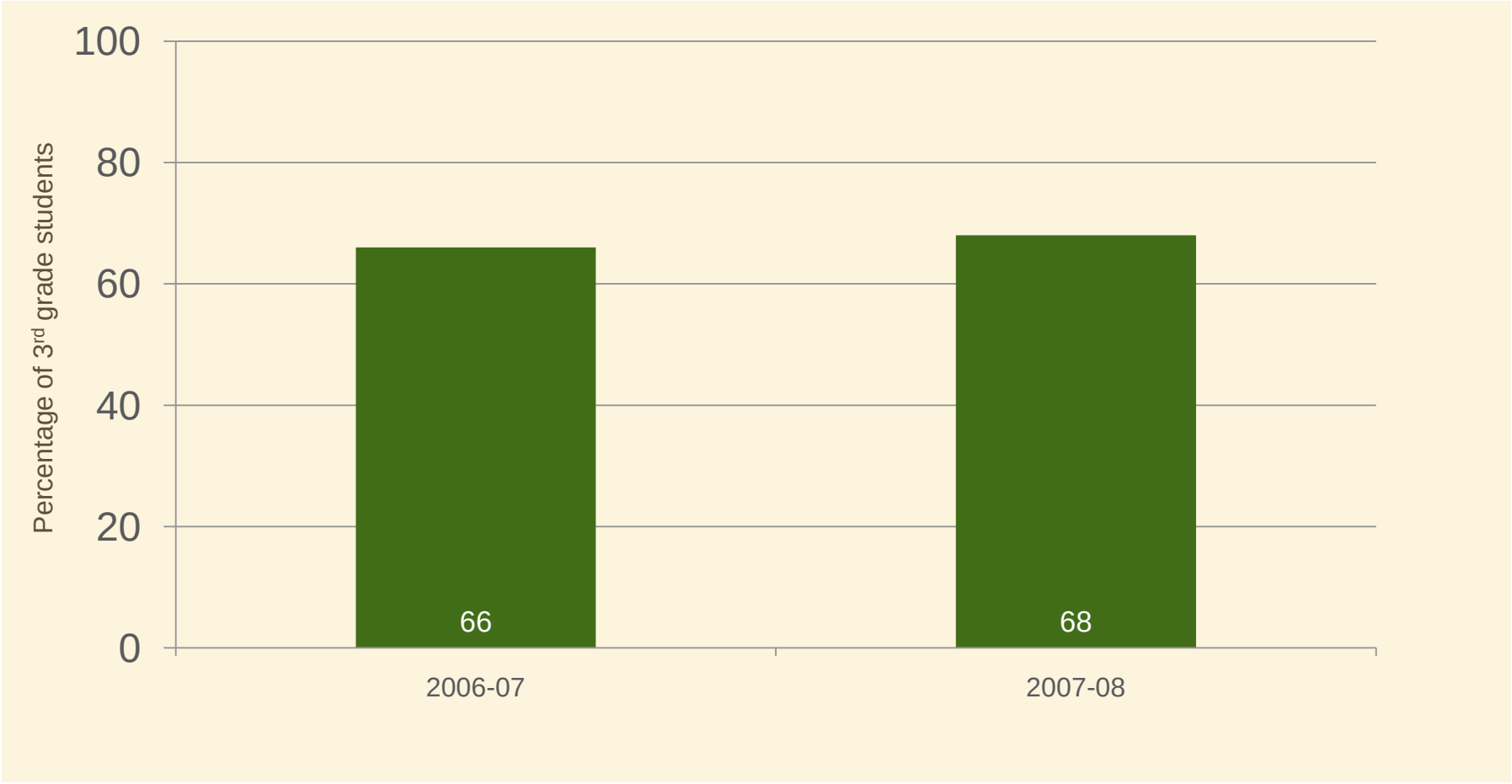
Minutes of Physical Education Class Time Per Week, 3rd Grade Students



Recommendations from the CDC, IOM and NASPE are for 150+ minutes of physical education per week

bridging the gap

Percentage of 3rd Grade Students Receiving 20+ Minutes of Recess Daily



bridging the gap

School District Wellness Policies

Approximately 600 School Districts Annually

bridging the gap

District Policy Study Overview

Ongoing nationwide evaluation of school district wellness policies

- **Nationally representative sample** of 579, 641, and 593 school districts, respectively, for school years 06-07, 07-08, and 08-09; 09-10 data being finalized
- 94% response (collection) rate for 06-07 and 07-08
- 97% response rate for 08-09
- Coded for policies effective as of the day after labor day of each year (proxy for 1st day of each school year)

Primary policy collection and analysis, included wellness policy and all associated regulations/guidelines/procedures

- Also included cross-referenced policies/models/embedded state laws

Related studies examining school-level policies and practices

Annual Nationwide Evaluation of District Wellness Policies

http://www.bridgingthegapresearch.org/research/district_wellness_policies/

Two reports issued to date:

Report 1:

Local Wellness Policies: Assessing School District Strategies for Improving Children's Health. School Years 2006-07 and 2007-08.

Report 2:

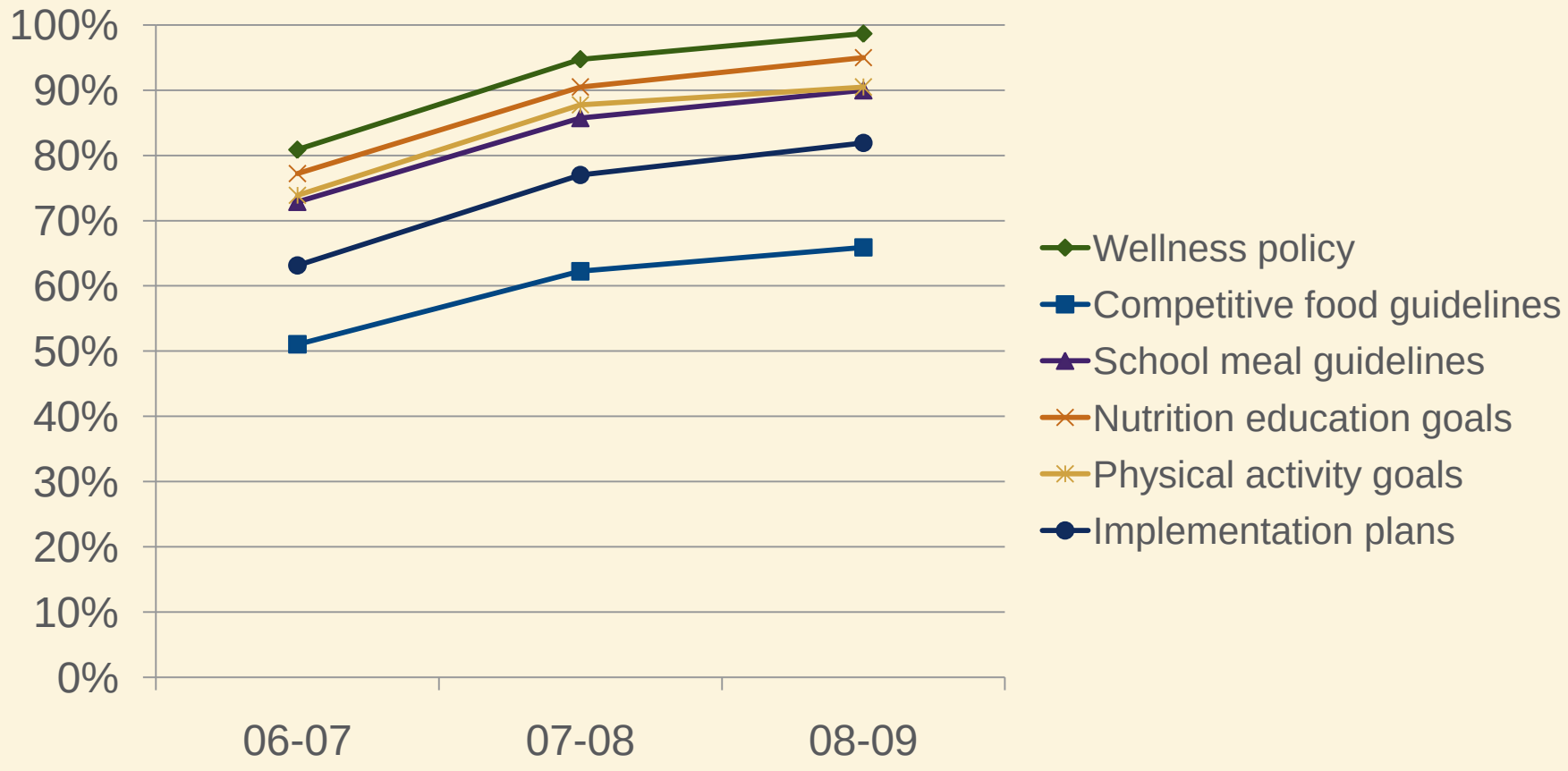
School District Wellness Policies: Evaluating Progress and Potential for Improving Children's Health Three Years After the Federal Mandate. School Years 2006-07, 2007-08 and 2008-09. Vol. 2.

Detailed data tables contained in the back of the report

bridging the gap

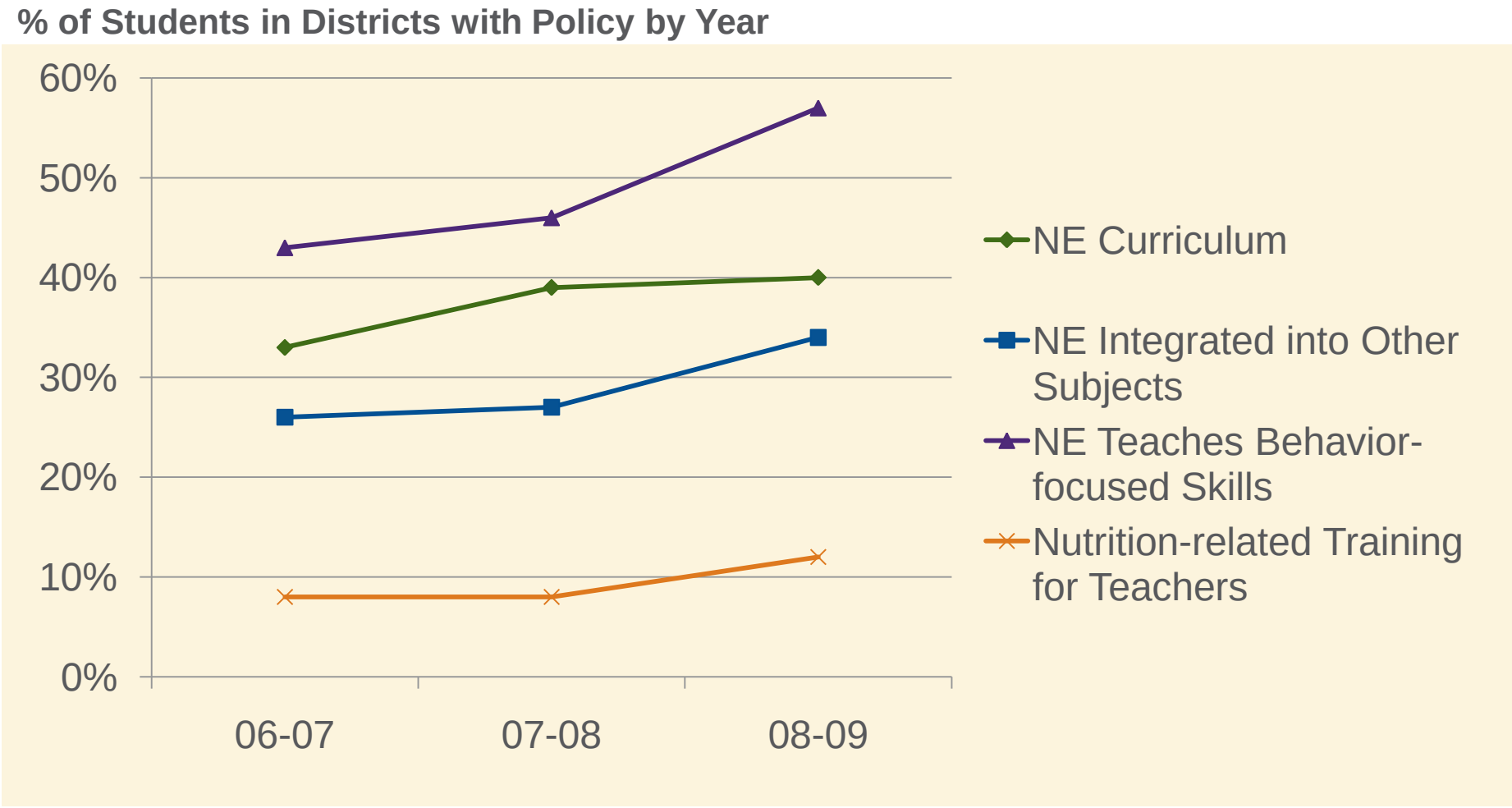
Wellness Policy Requirements

% of Students in Districts with Policy by Year



bridging the gap

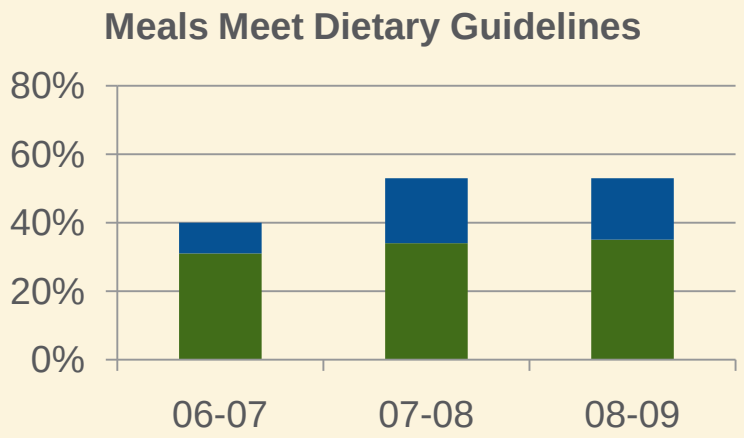
Selected Nutrition Education Policy Requirements

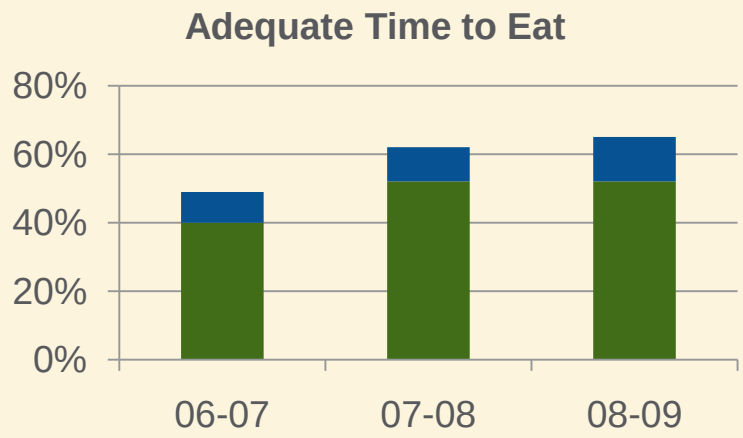


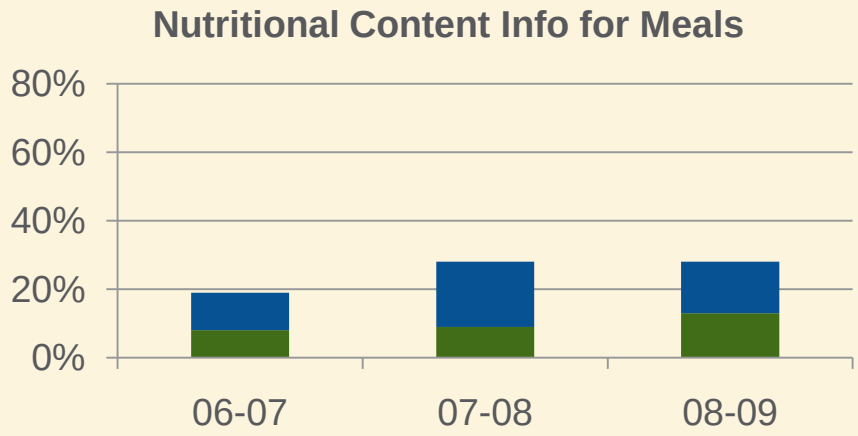
bridging the gap

Selected School Meal Policy Provisions

% of Students in Districts with Policy by Year







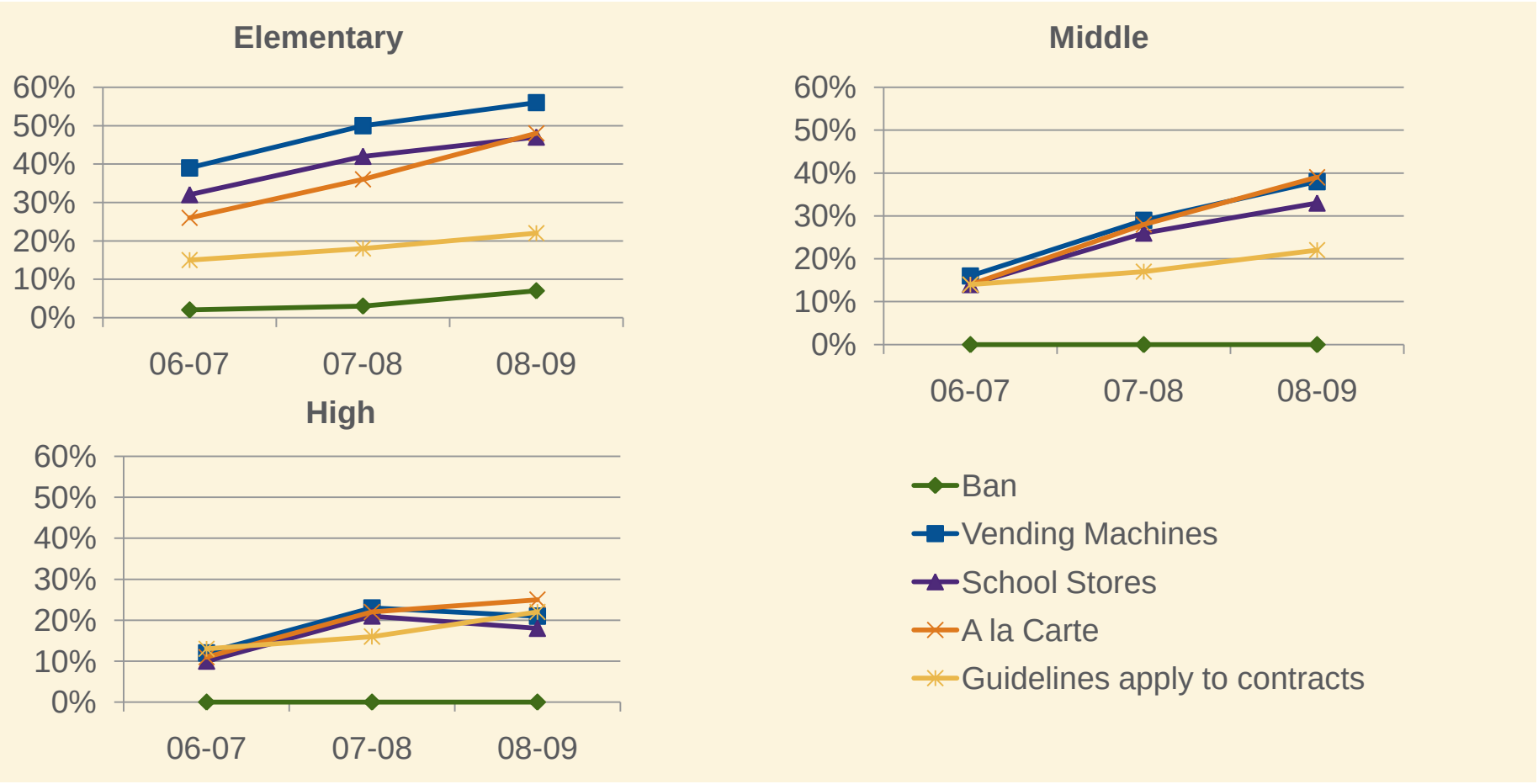
Strong policy (Required)

Weak policy

bridging the gap

Competitive Food & Beverage Location Restrictions by Grade Level and Year

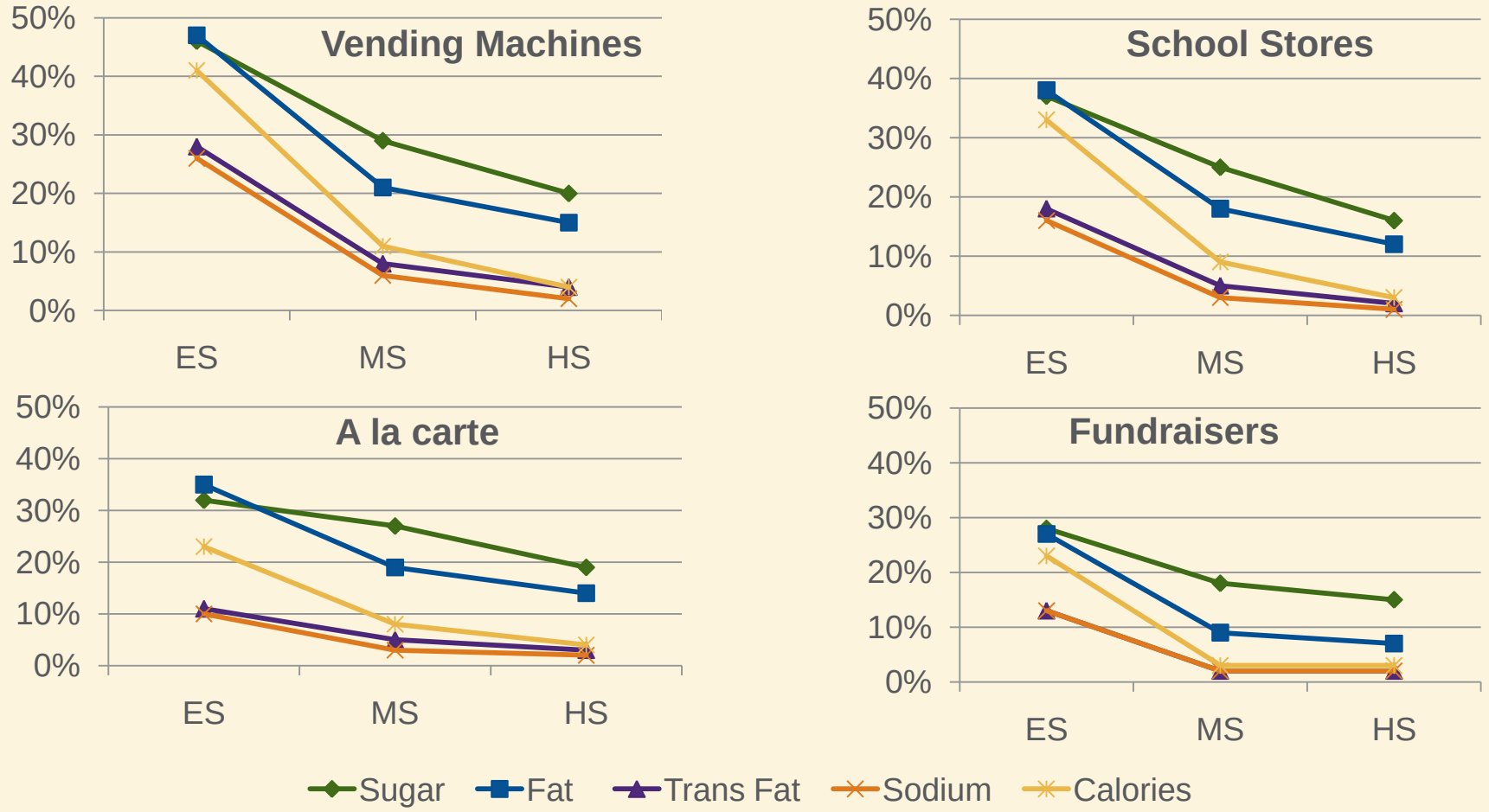
% of Students in Districts with Policy by Grade Level and Year



bridging the gap

Competitive Food Content Restrictions that Meet IOM Standards or Ban Such Sales, SY 2008-09

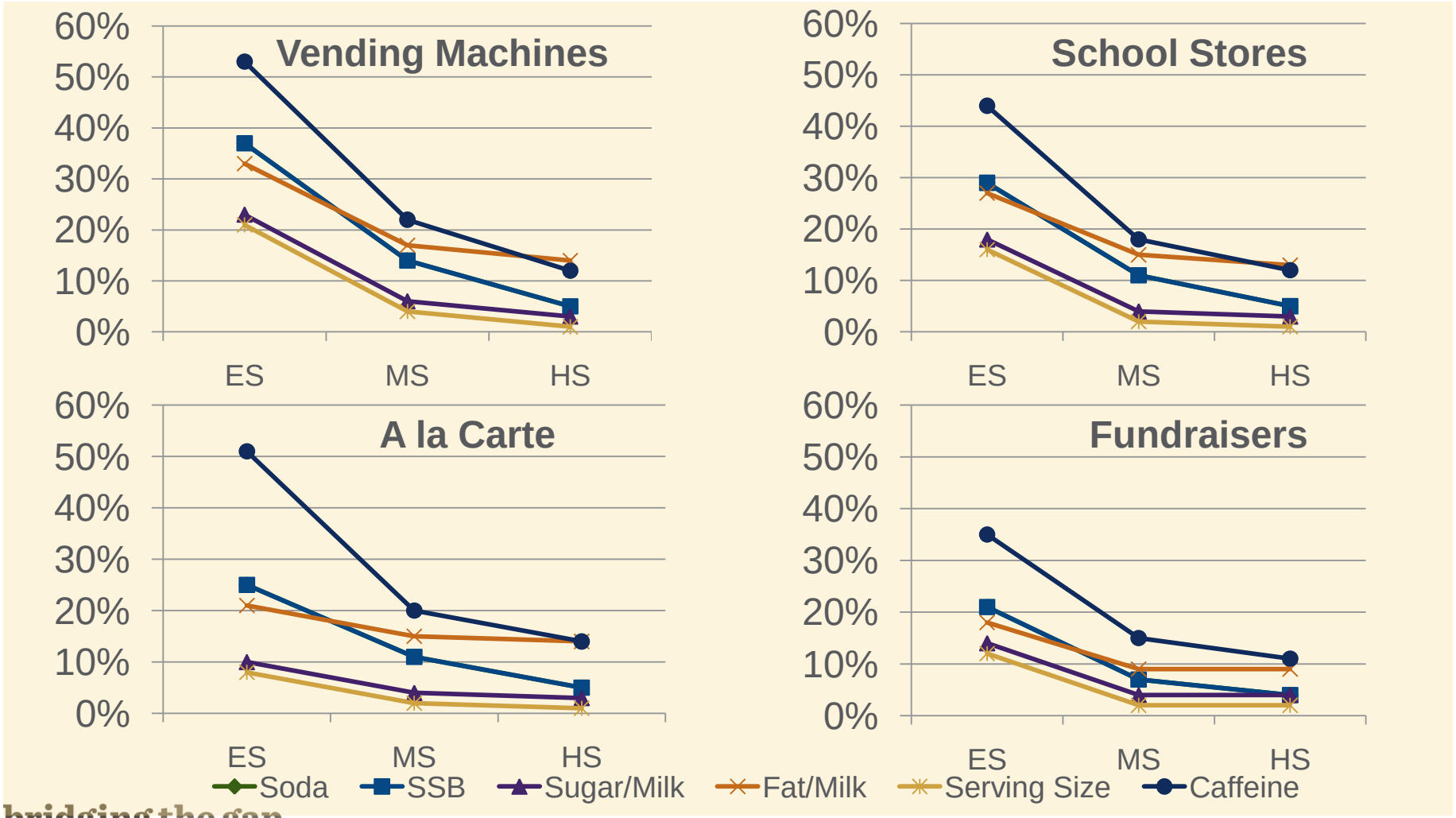
% of students in districts with policy by grade level



bridging the gap

Competitive Beverage Content Restrictions that Meet IOM Standards or Ban Such Sales, SY 2008-09

% of students in districts with policy by grade level



bridging the gap

***Note: Soda/SSBs overlap**

bridging the gap

Research Informing Policies & Practices
for Healthy Youth

Community Obesity Measures Project

150-180 communities surrounding MTF 2nd year half-sample schools

SITE ID:

BTG-COMP ▪ FAST FOOD OBSER 2010

BUSINESS ID :

BUSINESS NAME:

ADDRESS:

DATE ___-___-2010

START TIME ___:___ O AM O PM END TIME ___:___

STAFF 1 _____ STAFF 2 _____

A. GENERA

A1. Is the restaurant ...?	NO
a. In a Food Court or a Mall *IF YES, CODE A3 AND SKIP TO SECTION D.*	
b. In a shared space with a Grocery or Department Store *IF YES, COMPLETE A2*	
c. In a shared space with a Gas Station or Convenience Store *IF YES, COMPLETE A2*	
d. In a shared space with another Restaurant *IF YES, COMPLETE A2*	

A3. Restaurant Type *CODE ALL THAT APPLY FOR MULTI-BR*

- Burger and Fries
- Mexican / Latin American
- Fried Chicken / Fried Fish
- Sandwich or Sub Shop
- Sandwich/Pastry *(e.g., Panera, Cosi, Au Bon Pain)*
- Pizzeria
- Chinese / Pan-Asian
- Other, *SPECIFY:*

A4. Number of exterior walls visible from parkin lot or street *IF 4+, WRITE*

SITE ID:

BTG-COMP FOOD STORE OBSERVATI FORM – 2010

BUSINESS ID :

BUSINESS NAME:

ADDRESS:

DATE ___-___-2010

START TIME ___:___ O AM O PM END TIME ___:___ O AM O PM

STAFF 1 _____ STAFF 2 _____

NOTES:

A. GENERAL A

A1. TYPE OF STORE

- **Supermarket** (Jewel-Osco, Kroger, Safeway)
- **Grocery** (Aldi, Trader Joe's, "mom & pop")
- **Limited Service** *CODE A1a*

A1a. TYPE OF LIMITED SERVICE – *CODE ONLY IF A1=3*

- **Convenience Store** (7-11, White Hen, Royal Farms)
- **Small Discount Store** (Dollar General, 99 ¢ Store)
- **Drug Store/Pharmacy** (CVS, Rite Aid, Walgreens)
- Other (Specify):

A2. Are these available at CHECK-OUT?	NO	YE
a. Candy		
b. Refrigerated beverages		
c. Bottled water		
d. Sweetened beverages (soda, etc.)		

SITE ID:

BTG-COMP ▪ STREET SEGMENT OBSERVATION FORM ▪ 2010

SEG ID : __-___-___-____-____

SEGMENT ID :

ADDRESS RANGE:

DATE ___-___-2010

START TIME ___:___ O AM O PM END TIME ___:___ O AM O PM

STAFF 1 _____ STAFF 2 _____

STREET ADVERTISING

- Segment has relevant ads and Section E is filled out
- Segment has no ads at all – *NO SECTION E*
- Segment has other, irrelevant ads – *NO SECTION E*

NOTES:

COMPLETION CODE

- COMPLETED – *CODE MODE*
- PARTIALLY COMPLETED – *CODE MODE AND DISP*
- NOT STARTED – *CODE DISPOSITION*
- NOT ELIGIBLE – No such segment/address

MODE OF COMPLETION – CODES 01, 02 ONLY

- Completed by Walking
- Completed by Driving
- Completed by Walking and Driving

DISPOSITION CODE – CODES 02, 03 ONLY

- Temporarily not accessible
- Not safe
- Asked to leave
- Ran out of time
- Other *(SPECIFY):*

A. LAND USES

A1. Scan both sides of the street for presence of:	NO	YES, ONE SIDE	YES, BOTH SIDES
a. Housing – Single family			
b. Housing – Multifamily			
c. Housing – Mobile homes			
d. Public/Civic			
e. Office/Professional			
f. Institutional			
g. Service			
h. Retail			
i. Industrial/Manufacturing			
j. Recreation/Leisure/Fitness			
k. Public Parking			
l. Public Space			
m. Agricultural			
n. Undeveloped			
o. Vacant Building or Lot			
p. Other, describe below			

A2. Parking facilities	NO	YES
a. On-street angled or parallel		
b. Small lot (30 or fewer spaces)		
c. Medium to large lot/garage/structure		

A3. Natural Features	NO	YES
a. Large body of water - lake, river, ocean		
b. Small body of water - pond, stream		
c. Mountain or canyon		

A4. Physical Activity Venues	NO	YES
a. Indoor commercial PA facility		
b. Park with exercise/sport facilities/equip		
c. Park with sign, no equipment		
d. Stand-alone playing court		
e. Stand-alone playing field		
f. School /school yard (K through University)		
g. Golf Course		
h. Beach		
i. Outdoor pool		
j. Off-road trail		

A5. Do any buildings have...?	NO	YES
a. Bars on windows		
b. Broken/boarded up windows		
c. Graffiti/tagging		
d. Yard debris		

DESCRIBE A1p:

6937299555

Food Environment Measures

- Observational data collection
  - Food stores (supermarkets, grocery stores, convenience stores, gas stations, drug stores, dollar stores)
  - Fast food restaurants
- Measures and indices constructed
  - Availability, placement, pricing and quality of select food and beverage products and tobacco products
  - Food/beverage and tobacco advertising
  - Nutrition information

Physical Activity Environment Measures

- Observational data collection
  - Fitness centers (YMCA, B&G Clubs, JCCs, Commercial)
  - Community recreation centers and parks
  - PA Instructional schools (e.g., karate, dance)
  - Street segments
- Measures and indices constructed
  - Availability and quality of facilities; pricing
  - Safety, amenities, aesthetics
  - Walkability, bikability

Policy Environment Measures

- Local policy collection and coding:
  - Local ordinances and codes
  - Local zoning policies
  - Community master plans
  - Local taxes on soda and candy
  - School district wellness policies and joint use agreements
  - Menu labeling requirements
  - Restrictions on fast food, formula restaurants

Data Collection

- 2010 – Completed in 154 communities
- 2011 – Starting in April in 162+ communities
- Beyond 2011?

Inter-Rater Reliability of BTG-COMP Food Store and Fast Food Measures

Instrument	Category (# measures)	% measures Kappa/ICC ≥ 0.80	% measures Kappa/ICC ≥ 0.60
Food store	Product availability (56)	77%	92%
Food store	Product pricing (47)	62%	89%
Food store	Counts of fruits and vegetables (6)	100%	100%
Food store	Interior/exterior store characteristics (21)	62%	81%
Food store	Counts of exterior food and beverage ads (12)	67%	92%
Fast food	Characteristics of menu and kids' menu (20)	59%	88%
Fast food	Food and beverage items available (17)	94%	100%
Fast food	Availability of nutrition information (20)	36%	86%
Fast food	Interior/exterior restaurant characteristics (23)	57%	74%
Fast food	Counts of exterior food and beverage ads (12)	17%	67%

Inter-Rater Reliability of BTG-COMP Built Environment Food Policy Instrument

Instrument	Category (# measures)	% measures Kappa ≥ 0.80	% measures Kappa 0.60-0.79	% measures Kappa <0.60
Food	Stores Promoting F&B Access (18)	33%	67%	--
Food	Other Locations Promoting Food Access (e.g., Farmers' Markets, Mobile Vendors, Community Gardens) (5)	60%	40%	--
Food	Types of Food Stores (6)	33%	50%	17%
Food	Menu Labeling (8)	100%	--	--
Food	Other Food-Related Policy (5)	20%	60%	20%

Inter-Rater Reliability of BTG-COMP Built Environment Zoning & Master Plan Instruments

Instrument	Category (# measures)	% measures Kappa ≥ 0.80	% measures Kappa 0.60-0.79	% measures Kappa <0.60
Zoning	Types of Codes (25)	92%	8%	--
Zoning	Types of Zones/Districts (44)	93%	2%	5%
Zoning	Markers of Walkability (30)	93%	7%	--
Zoning	Bicycle/Trail-related Items (49)	88%	12%	--
Zoning	Complete Streets (2)	100%	--	--
Plan	Overall Plan Information (13)	77%	23%	--
Plan	Plan Elements/Status (34)	91%	9%	--
Plan	Markers of Walkability (35)	57%	40%	3%
Plan	Markers of Active Recreation (38)	53%	42%	5%
Plan	Bicycle, Trail, and Open-Space (76)	54%	42%	4%
Plan	Other BE/PA-related Items (2)	100%	--	--

Inter-Rater Reliability of BTG-COMP Street Segment Observation Form

Method	Category (# measures)	% measures Kappa/ICC ≥ 0.80	% measures Kappa/ICC ≥ 0.60	% No Presence
Inter-rater	Land Use/Opportunities for PA (34)	50%	35%	15%
Walk vs. Drive	Land Use/Opportunities for PA (34)	70%	21%	9%
Inter-rater	Traffic and Pedestrians (32)	56%	44%	--
Walk vs. Drive	Traffic and Pedestrians (32)	63%	22%	15%
Inter-rater	Aesthetics (13)	54%	31%	15%
Walk vs. Drive	Aesthetics (13)	70%	15%	15%
Inter-rater	Physical Disorder (4)	--	100%	--
Walk vs. Drive	Physical Disorder (4)	25%	75%	--
Inter-rater	**TOTAL Across all Measures**	**51%**	**33%**	**16%**
Walk vs. Drive	**TOTAL Across all Measures**	**68%**	**22%**	**10%**

State Policy Data

bridging the gap

BTG State Food/Beverage-related Tax Data

Topic	Years Available	Annual reference date
Taxation		
State sales/excise taxes on SSB and diet beverages	1997-2010 2011 in development	1/1/XXXX
State sales taxes on restaurant sales (includes fast food)	1997-2010 2011 in development	1/1/XXXX
State sales taxes on candy and chips	1997-2010 2011 in development	1/1//XXXX
State sales taxes on other snacks	1997-2010 Discontinued in 2011	1/1/XXXX
State “food” definitions and food exemptions	2008-2010 2011 in development	1/1/XXXX

Food Environment Atlas - Windows Internet Explorer

http://maps.ers.usda.gov/FoodAtlas/

Your Food Environment Atlas

Home | Go to the Atlas | About the Atlas | Documentation | Help | Download the Data | ERS Website

Map an Indicator: Create maps showing variation across counties

Zoom to State: Select State | Full View | Print Map

Advanced Query: Build county-selection criteria

✓ indicator to create map ; + to expand list & view key

- Access and Proximity to Grocery Store
- Availability of Food Stores
- Availability of Restaurants
- Expenditures on Food at Restaurants
- Food Assistance
- Food Eaten at Home
- Food Insecurity
- Food Prices (at stores not restaurants)
- Food Taxes
  - Soda sales tax, retail stores, 2008*
    - 0%
    - 0.01% - 5%
    - 5.01% - 6%
    - 6.01% - 7%
  - Soda sales tax, vending, 2008*
  - Chip & pretzel sales tax, vending, 2008*
  - General food sales tax, retail stores, 2008*
- Health
- Local Foods

Click map for county info

Geographic Level:

ISSUE REPORT

F as in Fat: HOW OBESITY THREATENS AMERICA'S FUTURE 2010

Trust for America's Health WWW.HEALTHYAMERICANS.ORG

JUNE 2010

PREVENTING EPIDEMICS. PROTECTING PEOPLE.

Robert Wood Johnson Foundation

Tax Rate for Soda and Chips/Pretzels - Kaiser State Health Facts - Wi

http://www.statehealthfacts.org/comparemapdetail.jsp?ind=

KAISER FAMILY FOUNDATION statehealthfacts.org Your source for state health data

Home | 50 State Comparisons | Individua

Soda/Snack Taxes - Windows Internet Explorer

http://www.bridgingthegapresearch.org/research/sodasnack_taxes/

bridging the gap

Research Informing Policies and Practices for Healthy Youth

HOME | ABOUT US | RESEARCH | RELATED SITES | NEWS | CONTACT US

District Wellness Policies | Elementary School Survey | Soda/Snack Taxes

Soda/Snack Taxes

This page highlights our research around state-level taxes on snack foods, soda, and other sweetened beverages.

To see products from other BTG research activities, click on the "Research" tab above.

Sugar-Sweetened Beverage Taxes and Public Health: Research Brief

DEFINITIONS

These files contain definitions of food and food

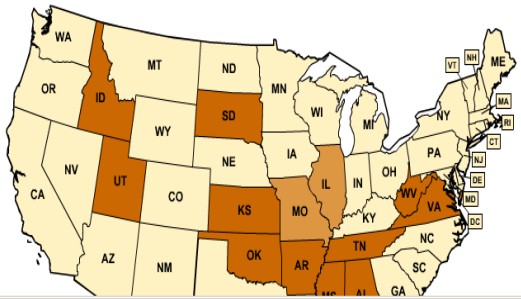
State Sales Tax Rates for Soft Drinks and Chips/Pretzels, 2009

Bar Graph | Table | Map | Map & Table

Map & Rank by: Region Name

Timeframe: 2009

General Food Tax



www.bri

Start | Inbox in UIC email - Micr... | Tax Rate for Soda an... | btg_state_policy_data_s... | 4:09 PM

BTG State School-based Laws/Regulation Data

Topic	Years Available	Annual reference date
Requirements for school-based nutrition education, school meals, competitive foods & beverages	2006-2009 2010 in development	9/XXXX (to reflect beginning of each school year)
State requirements for PE and PA outside of PE during the school day	2006-2009 2010 in development	9/XXXX
Safe Route to School-related Laws	2005-2009 2010/11 to be developed	1/1/XXXX
Minimum busing distance	2005-2009 2010/11 to be developed	1/1/XXXX
Farm-to-School and other local procurement laws	2006-2009 2010 in development	9/XXXX

bridging the gap

Other BTG State Law/Regulation Data

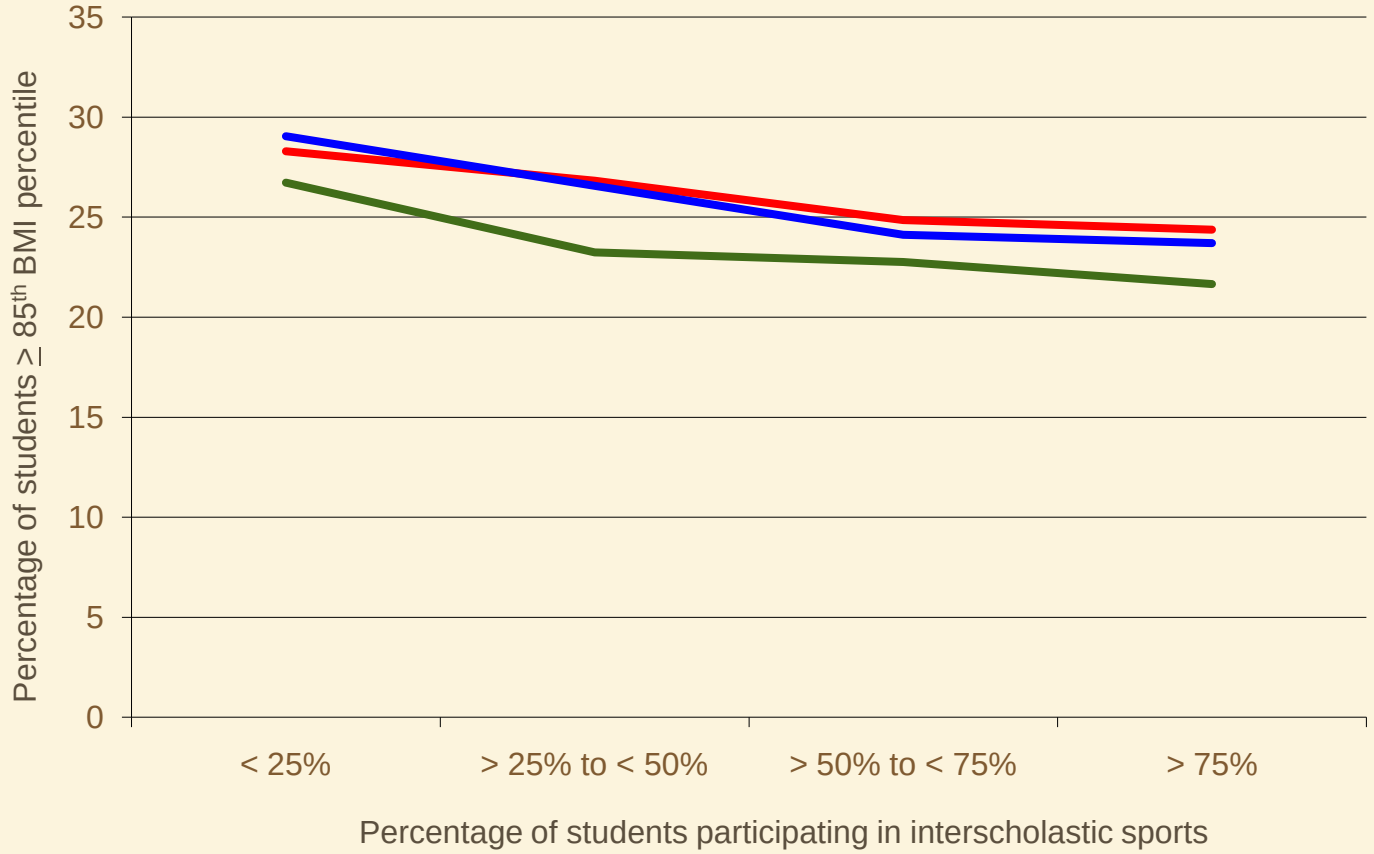
Topic	Years Available	Annual reference date
State requirements for county/municipal plans	2010 2011 TBD	1/1/XXXX
State laws governing county/municipal zoning authority	2010 2011 TBD	1/1/XXXX
Healthy foods in government worksites/ public places	Forthcoming	1/1/XXXX
Trans fat bans	Forthcoming	1/1/XXXX
Menu labeling	TBD based on fed regs	TBD
Complete streets	Forthcoming	1/1/XXXX

Combined MTF Student Surveys and School Administrator Surveys in MTF Schools

Approximately 19,600 students and about 170 secondary schools per year

bridging the gap

Percent of Students ≥85th BMI Percentile by Percent Participating in Interscholastic Sports, 2004-2007



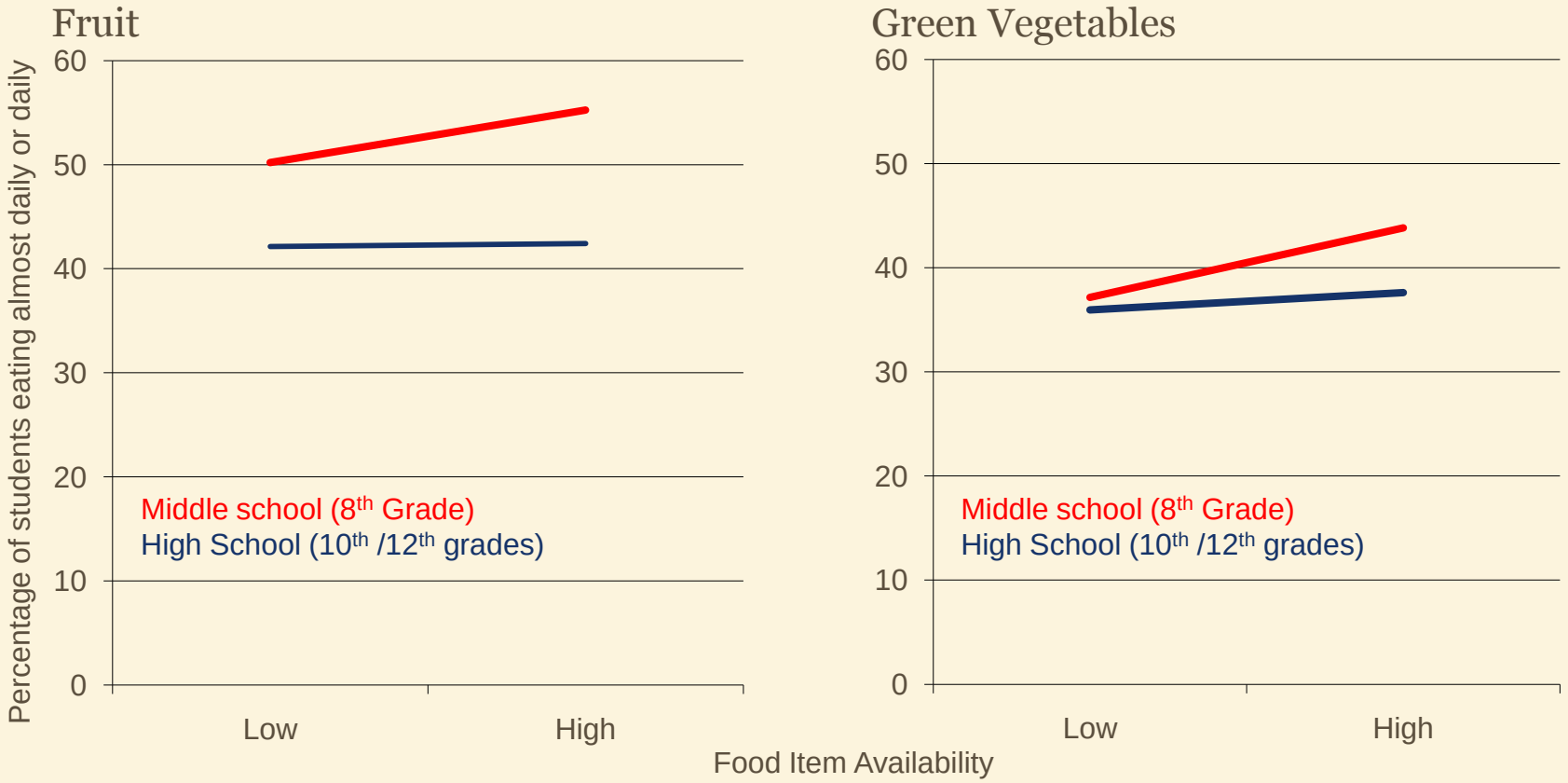
8th Grade
10th Grade
12th Grade

BMI = Body Mass Index (weight in kg / height in meters squared)

bridging the gap

O'Malley, P. M., Johnston, L. D., Delva, J., & Terry-McElrath, Y. M. (2009). School physical activity environment related to student obesity and activity: A national study of schools and students. *Journal of Adolescent Health, 45,*- S71-S81.

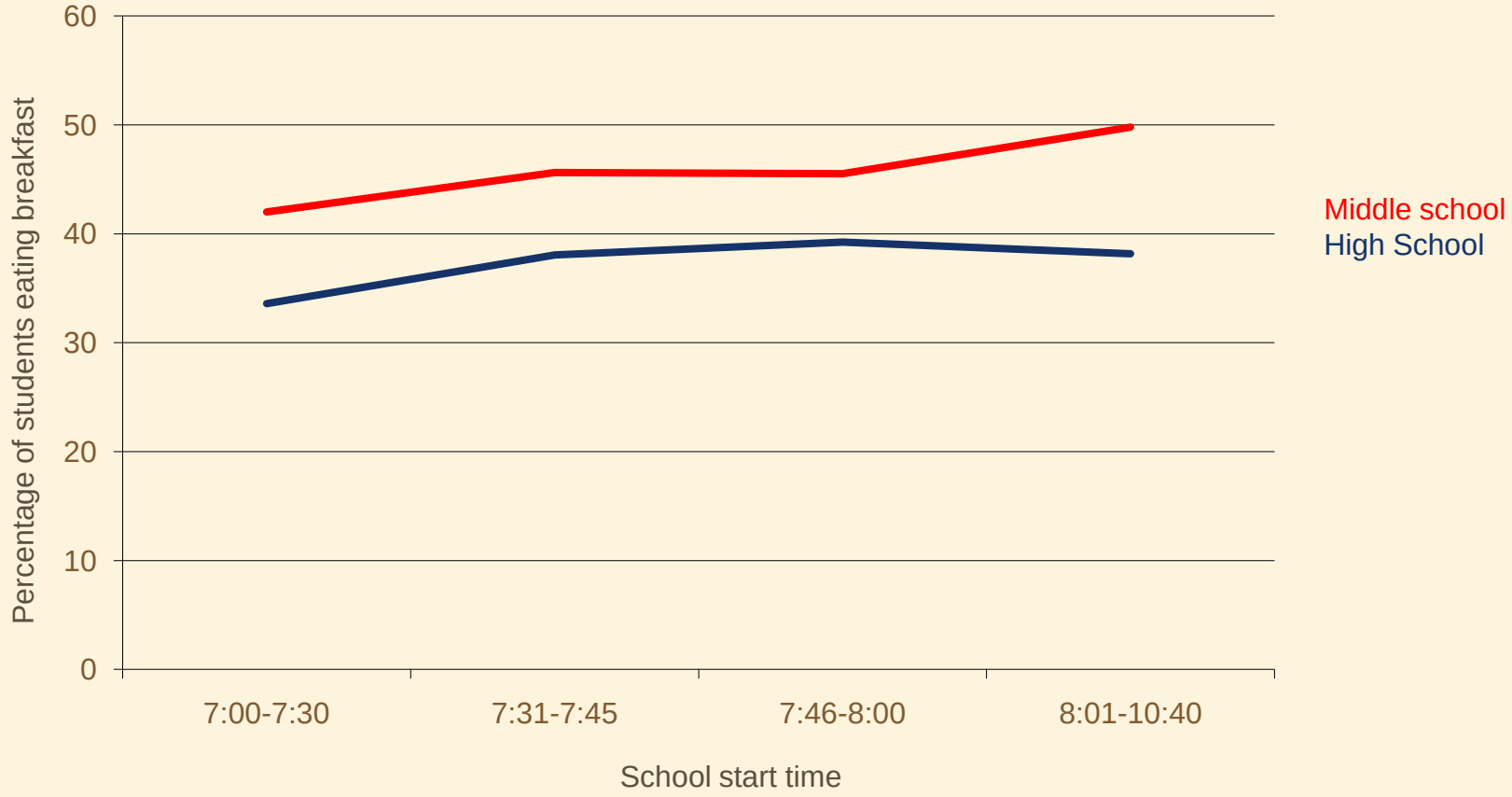
Student Consumption of Fruit and Vegetables by School Availability in Lunch Meal or À la Carte, 2004-2007



bridging the gap

Terry-McElrath, Y. M., O'Malley, P. M., Delva, J., & Johnston, L. D. (2009). The school food environment and student body mass index and food consumption: 2004-2007 national data. *Journal of Adolescent Health, 45,*- S45-S56.

Percent of Students Eating Breakfast Almost Daily/Daily by School Start Time, 2004-2007

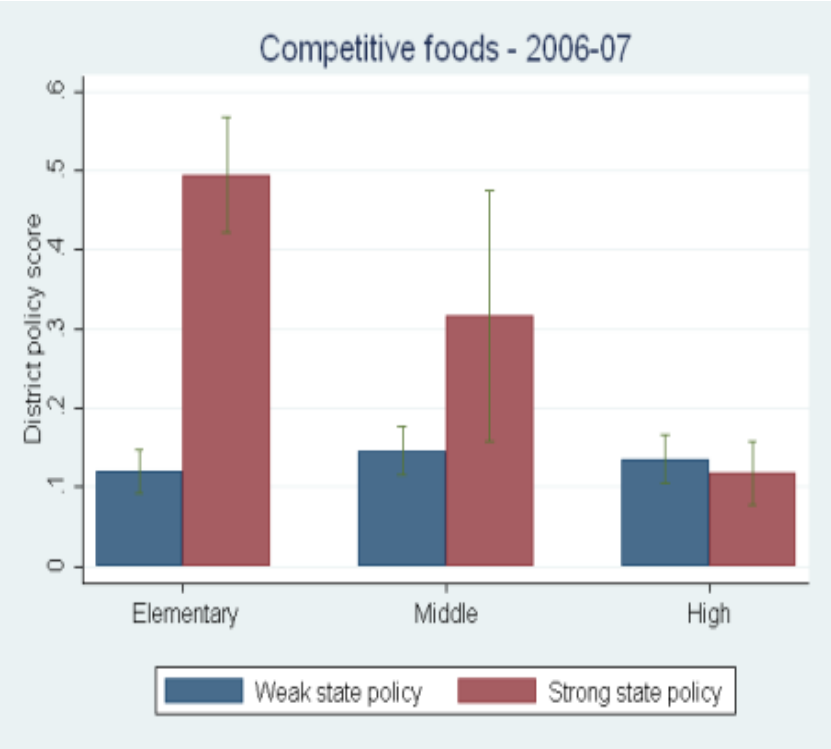


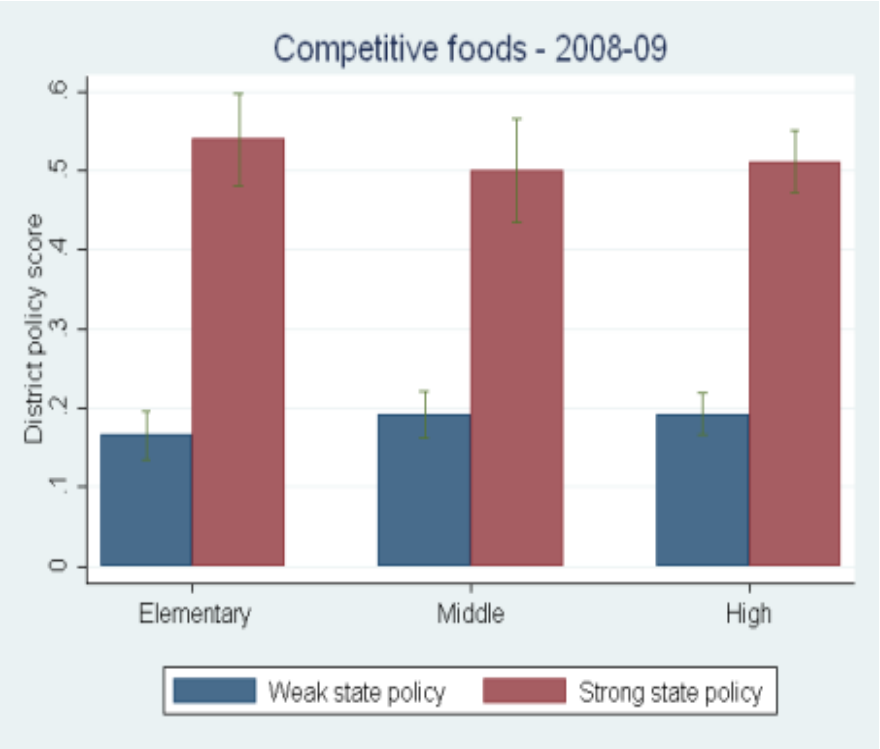
Terry-McElrath, Y. M., O'Malley, P. M., Delva, J., & Johnston, L. D. (2009). The school food environment and student body mass index and food consumption: 2004-2007 national data. *Journal of Adolescent Health, 45,*- S45-S56.

Combined State Policy, School District Policy and School Practice Data

bridging the gap

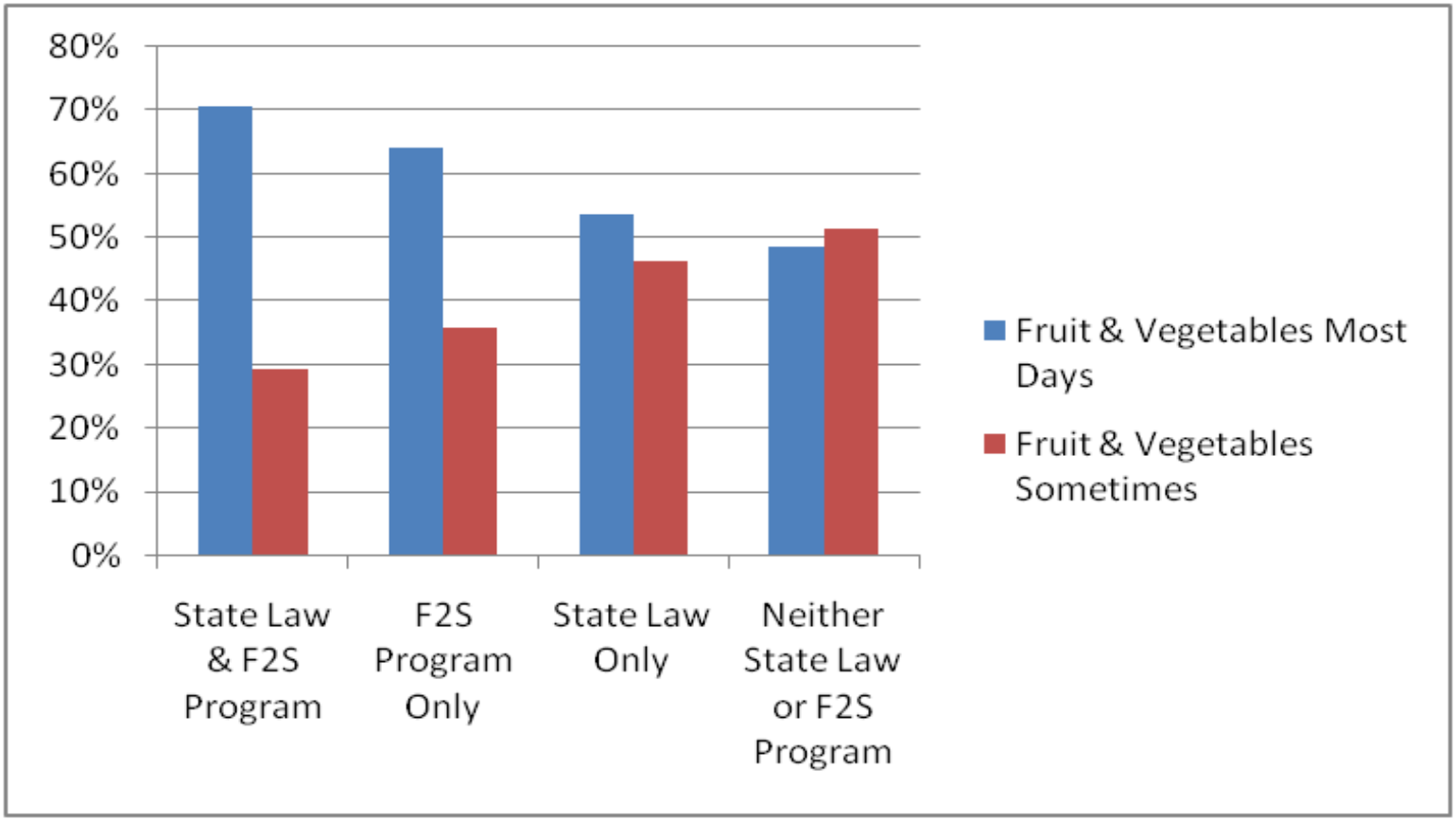
District competitive food policies are stronger in states with strong competitive food policies





Source: Taber, Chriqui, Chaloupka, under review

Fruits and vegetables are more commonly available in elementary school meals in states with Farm-to-School Laws and schools with Farm-to-School Programs



Source: Nicholson, Chriqui, Schneider, et al., in preparation

Television Advertising Data

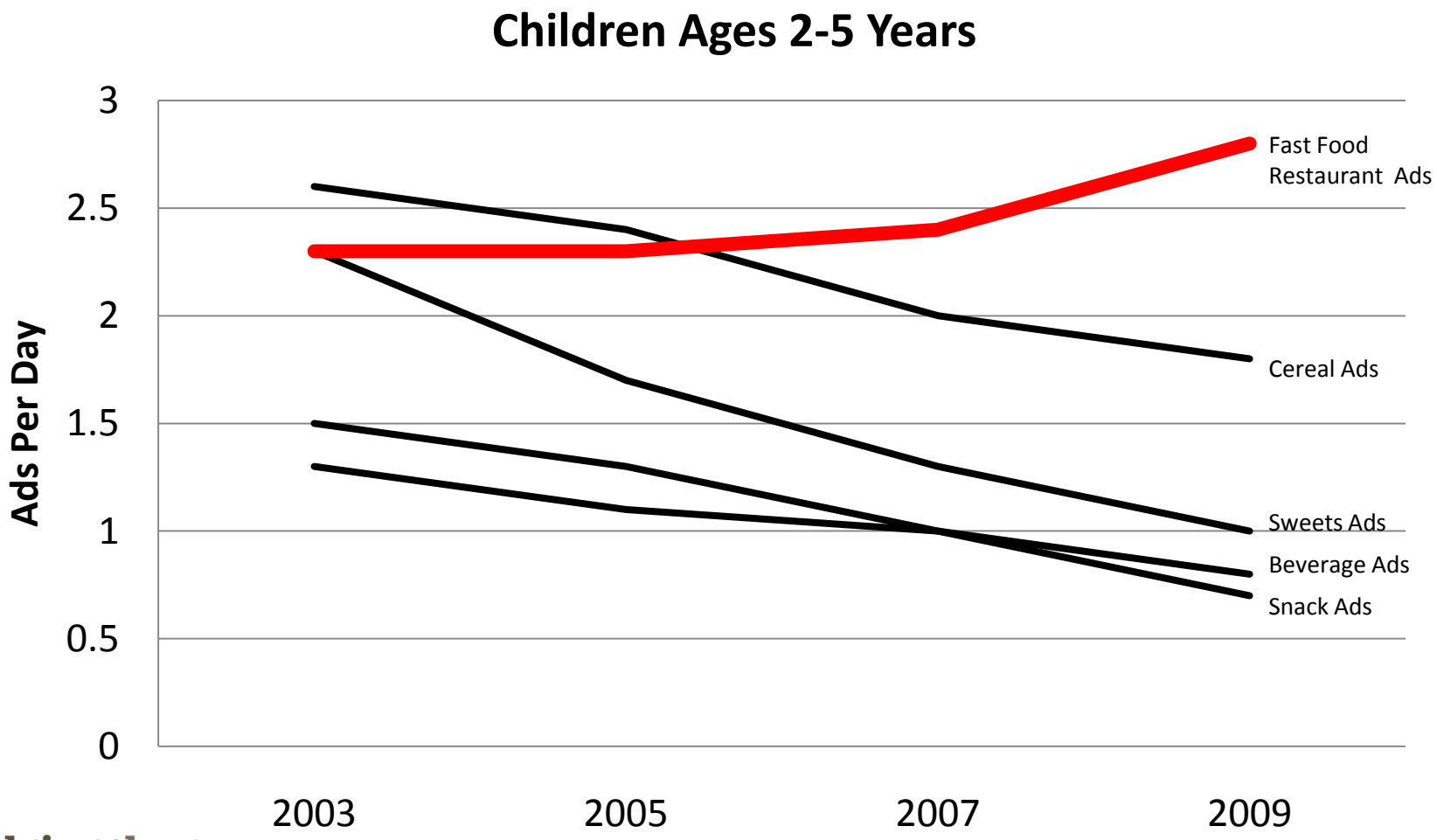
Nielsen Media Research Ratings Data

bridging the gap

Advertising Data

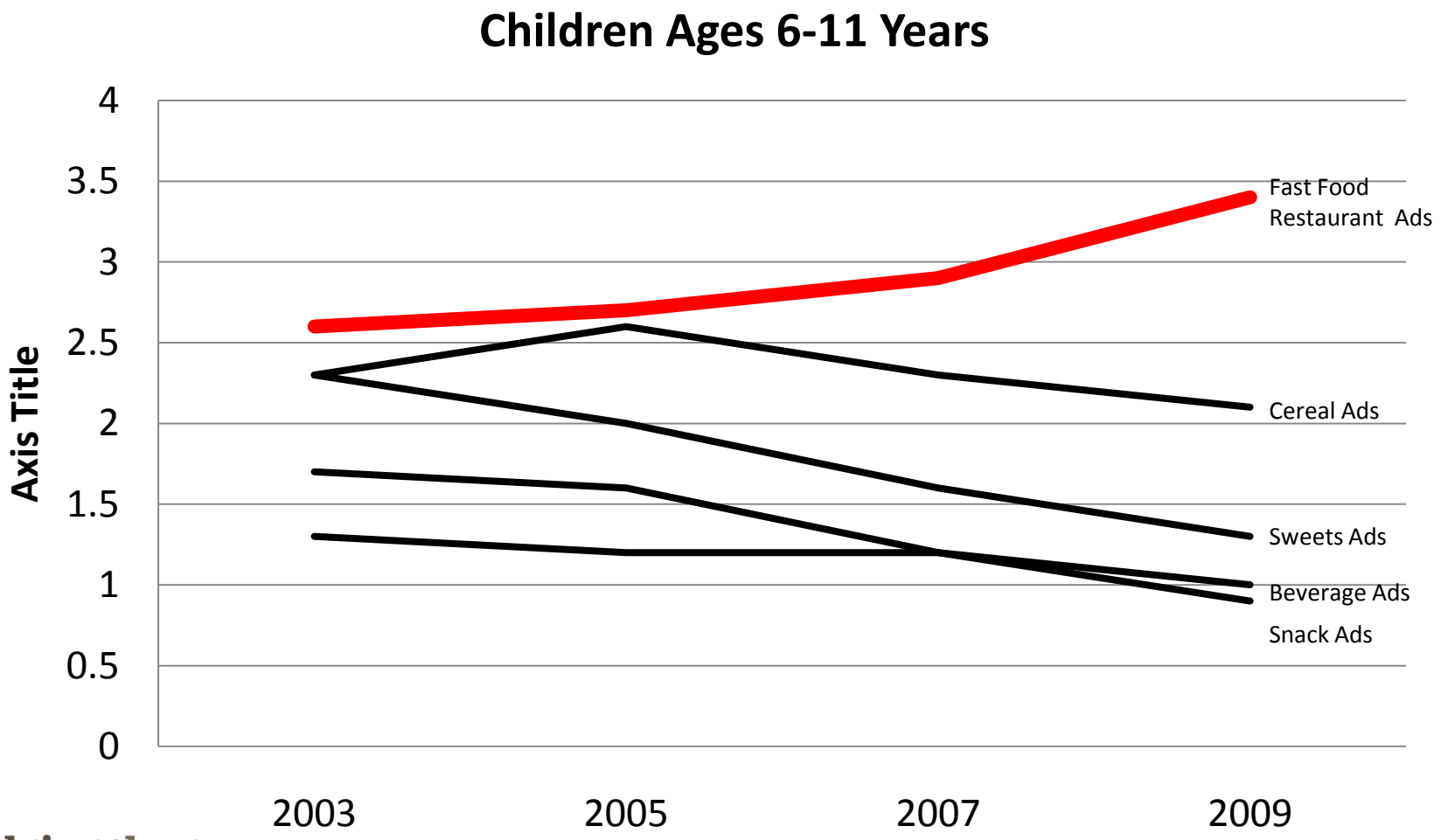
- Targeted Ratings Points (TRPs) data on exposure to ads seen on TV obtained from Nielsen Media Research
- Ratings cover all programming seen by children and teens
- Ratings points measure the reach and frequency of advertising. For example, a commercial with 80 TRPs for 2-5 year olds per month is estimated to have been seen an average of one time by 80% of children 2-5 over the defined period
- Ratings by:
  - Year: 2003, 2005, 2007, and 2009
  - Age Groups: 2-5 yr, 6-11yr, and 12-17 yr
  - Race: All children, separately by white and black. Study does not include separate ratings for Hispanic children nor does it cover Spanish Language TV
- Food-related advertising categorized as:
  - Cereal, Sweets, Snacks, Beverages, Fast Food Restaurants, Full-service Restaurants, and Other

Exposure to Food Advertisements per Day for Children by Year



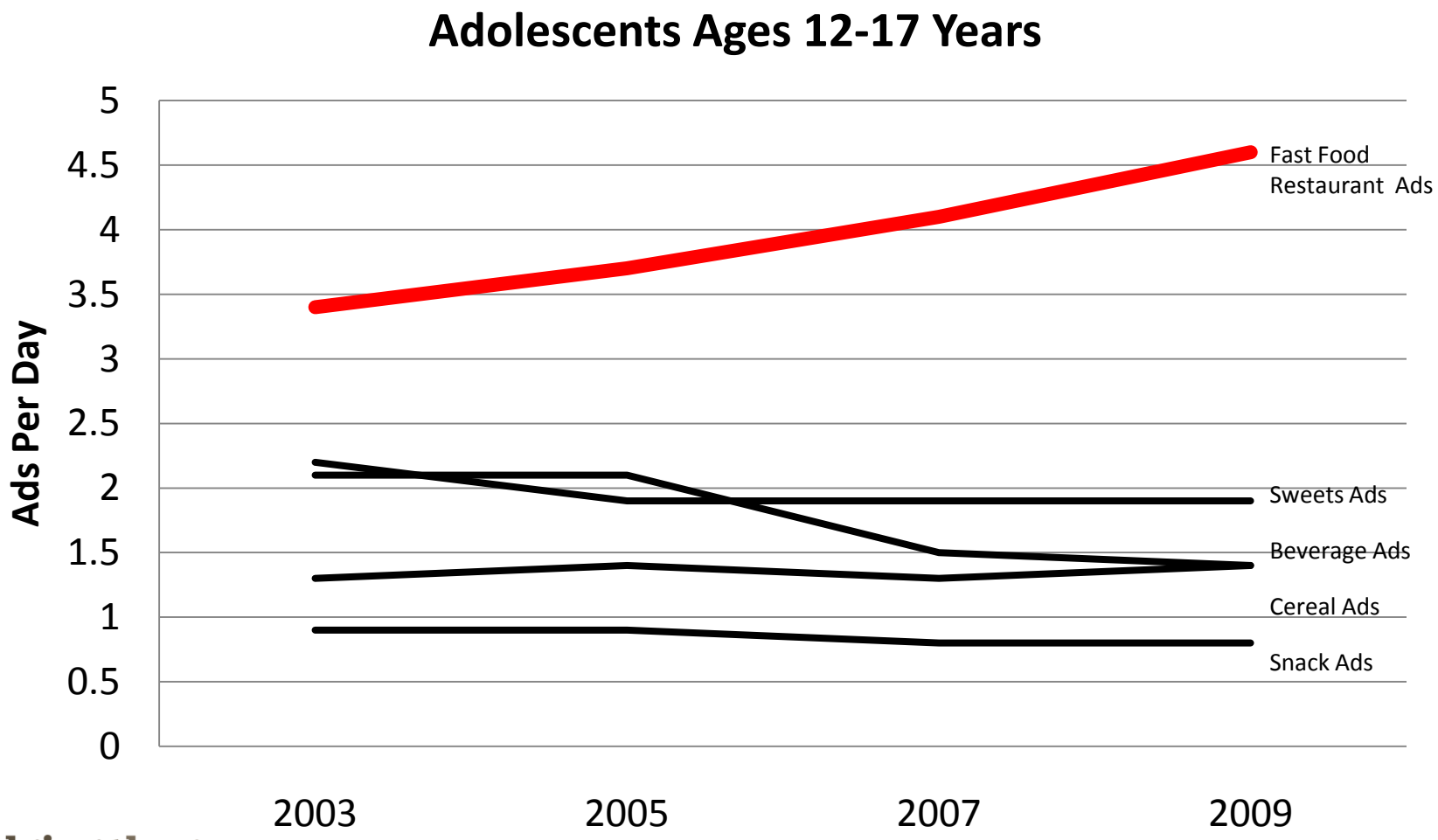
bridging the gap

Exposure to Food Advertisements per Day for Children by Year



bridging the gap

Exposure to Food Advertisements per Day for Adolescents by Year



bridging the gap

Nutritional Content Analysis

- Food and beverage advertisements were assessed on the basis of:
  - **Fat** (% Kcal): High > 35% Kcal from fat
  - **Saturated Fat** (% Kcal): High >10% Kcal from saturated fat
  - **Sugar** (%Kcal): High >25% Kcal from sugar
  - **Sodium** (mg per 50g portion): High >200mg of sodium per 50g portion
  - **Fiber** (g per 50g portion): Low <1.15g of fiber per 50g portion

- Nutritional Content was weighted by the ratings data to provide estimates of exposure to nutritional content

Nutritional Content : Mean of Selected Measures

All Food Ads Seen by Children and Adolescents

	% Kcal Fat		% Kcal Saturated Fat		% Kcal Sugar		Sodium (mg) per 50 g		Fiber (g) per 50 g	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Ages 2-5	21.2	19.6	7.3	6.8	43.4	36.7	193.8	222.1	0.8	1.4
Ages 6-11	21.1	19.7	7.3	6.9	44.1	36.7	190.6	222.3	0.8	1.3
Ages 12-17	21.7	21.8	7.7	7.9	44.2	34.3	181.1	215.1	0.8	1.2

Number of Ads Seen and Nutritional Content (%) of Ads for Selected Companies in the CFBAI

Children Ages 6-11 Years

	General Mills		Kellogg		Kraft Foods		Coca-Cola		Pepsi		Nestle	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Number of Ads Seen	2.2	2.3	1.4	0.9	1.3	0.8	0.2	0.1	0.6	0.2	0.4	0.3
High Fat	4.6	9.1	12.4	7.5	34.9	30.6	0.0	0.0	20.5	24.4	55.3	37.8
High Sat Fat	14.9	19.1	15.4	11.9	40.5	30.6	0.0	0.0	15.2	3.0	70.7	55.5
High Sugar	90.5	81.6	71.8	66.4	64.9	36.8	83.9	44.8	66.3	57.4	60.1	18.7
High Sodium	50.4	60.8	73.9	60.4	38.0	60.0	0.0	0.0	37.8	25.0	17.1	20.2
Low Fiber	67.0	43.0	69.7	26.0	76.9	80.3	100	100	56.2	59.4	90.1	93.4
High Sat Fat, Sugar or Sodium	96.6	97.3	98.7	88.7	97.5	94.9	94.5	44.8	90.8	82.4	92.6	73.7

bridging the gap

Number of Ads Seen and Nutritional Content (%) of Ads for Selected Companies in the CFBAI

Children Ages 6-11 Years

	General Mills		Kellogg		Kraft Foods		Coca-Cola		Pepsi		Nestle	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Number of Ads Seen	2.2	2.3	1.4	0.9	1.3	0.8	0.2	0.1	0.6	0.2	0.4	0.3
High Fat	4.6	9.1	12.4	7.5	34.9	30.6	0.0	0.0	20.5	24.4	55.3	37.8
High Sat Fat	14.9	19.1	15.4	11.9	40.5	30.6	0.0	0.0	15.2	3.0	70.7	55.5
High Sugar	90.5	81.6	71.8	66.4	64.9	36.8	83.9	44.8	66.3	57.4	60.1	18.7
High Sodium	50.4	60.8	73.9	60.4	38.0	60.0	0.0	0.0	37.8	25.0	17.1	20.2
Low Fiber	67.0	43.0	69.7	26.0	76.9	80.3	100	100	56.2	59.4	90.1	93.4
High Sat Fat, Sugar or Sodium	96.6	97.3	98.7	88.7	97.5	94.9	94.5	44.8	90.8	82.4	92.6	73.7

Number of Ads Seen and Nutritional Content (%) of Ads for Selected Companies in the CFBAI

Children Ages 6-11 Years

	General Mills		Kellogg		Kraft Foods		Coca-Cola		Pepsi		Nestle	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Number of Ads Seen	2.2	2.3	1.4	0.9	1.3	0.8	0.2	0.1	0.6	0.2	0.4	0.3
High Fat	4.6	9.1	12.4	7.5	34.9	30.6	0.0	0.0	20.5	24.4	55.3	37.8
High Sat Fat	14.9	19.1	15.4	11.9	40.5	30.6	0.0	0.0	15.2	3.0	70.7	55.5
High Sugar	90.5	81.6	71.8	66.4	64.9	36.8	83.9	44.8	66.3	57.4	60.1	18.7
High Sodium	50.4	60.8	73.9	60.4	38.0	60.0	0.0	0.0	37.8	25.0	17.1	20.2
Low Fiber	67.0	43.0	69.7	26.0	76.9	80.3	100	100	56.2	59.4	90.1	93.4
High Sat Fat, Sugar or Sodium	96.6	97.3	98.7	88.7	97.5	94.9	94.5	44.8	90.8	82.4	92.6	73.7

bridging the gap

Number of Ads Seen and Nutritional Content (%) of Ads for Selected Companies in the CFBAI

Children Ages 6-11 Years

	General Mills		Kellogg		Kraft Foods		Coca-Cola		Pepsi		Nestle	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
Number of Ads Seen	2.2	2.3	1.4	0.9	1.3	0.8	0.2	0.1	0.6	0.2	0.4	0.3
High Fat	4.6	9.1	12.4	7.5	34.9	30.6	0.0	0.0	20.5	24.4	55.3	37.8
High Sat Fat	14.9	19.1	15.4	11.9	40.5	30.6	0.0	0.0	15.2	3.0	70.7	55.5
High Sugar	90.5	81.6	71.8	66.4	64.9	36.8	83.9	44.8	66.3	57.4	60.1	18.7
High Sodium	50.4	60.8	73.9	60.4	38.0	60.0	0.0	0.0	37.8	25.0	17.1	20.2
Low Fiber	67.0	43.0	69.7	26.0	76.9	80.3	100	100	56.2	59.4	90.1	93.4
High Sat Fat, Sugar or Sodium	96.6	97.3	98.7	88.7	97.5	94.9	94.5	44.8	90.8	82.4	92.6	73.7

bridging the gap

Policy Implications of Trends in Ad Content

- Children, on average, continue to see more than 10 food-related ads on TV every day (teens see almost 15 ads per day)
- Children and teens continue to be exposed mainly to food and beverage ads for products that are high in saturated fat, sugar or sodium
- These results suggest that industry self-regulation is limited in its effectiveness to substantially improve food-related advertising seen by children on TV
- Key issues of concern for policymakers regarding CFBAI self-regulation:
  - No uniform nutritional standards
  - No uniform definition of child audiences
  - Does not address reach of ads in non-child programming
  - Does not apply to children age 12 and over

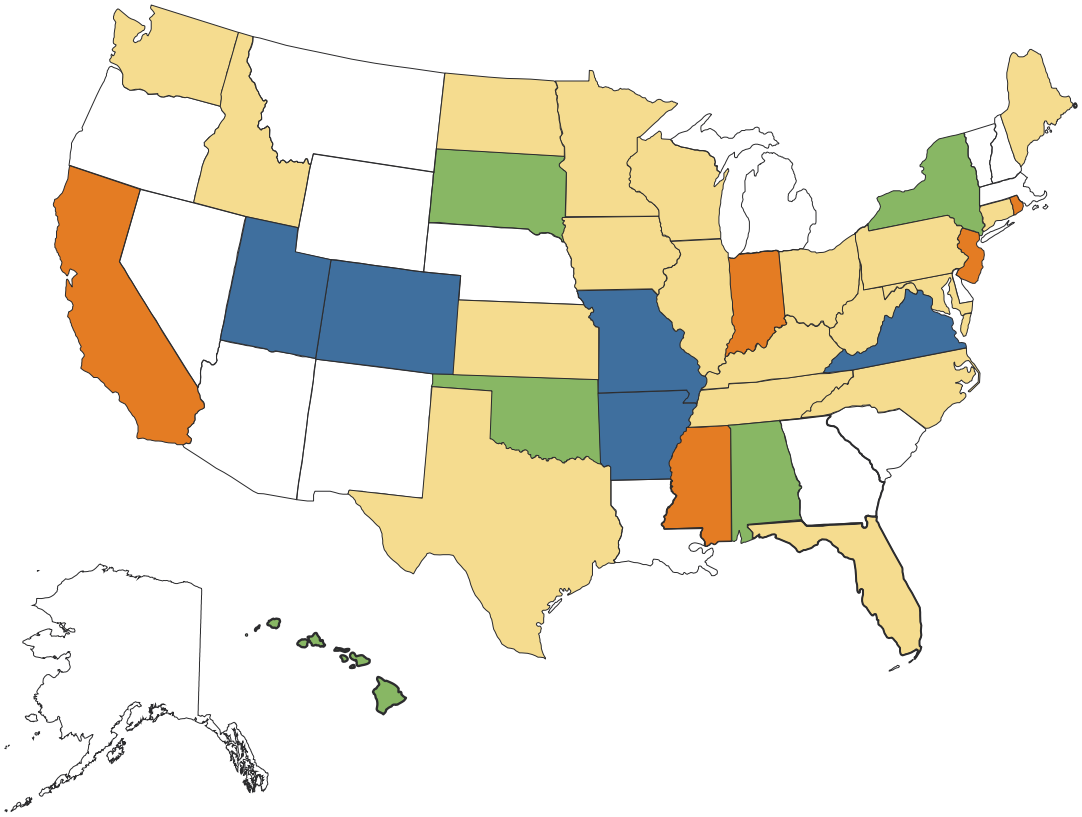
Analyses of State Policy and Household/Youth Data

bridging the gap

Sales taxes applied to vending machines sales, selected beverages (as of July 1, 2010)

	Mean all states (%)	Max (%)	N	Mean taxing states (%)
Soda	4.14	8.00	40	5.28
Diet Soda	4.14	8.00	40	5.28
≤ 50% fruit juice	4.02	8.00	39	5.26
Isotonic beverages	4.02	8.00	39	5.26
Sweetened teas (bottle/can)	3.90	8.00	38	5.24
Bottled water	3.38	8.00	34	5.07
>51% fruit juice, but < 100% fruit juice	3.30	8.00	33	5.10
100% fruit juice	3.30	8.00	33	5.10

State Sales Taxes on Regular and Diet Soda as of July 1, 2010



MAP LEGEND

- ≥ 7% (n=5 states)
- ≥5% to < 7% (n=19 states)
- ≥ 3% to < 5% (n=5 states)
- ≥1% to < 3% (n=5 states)
- 0% (n=16 states plus DC)

Note: Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).

bridging the gap

Overview

- Empirically examine associations between state-level soda taxes and consumption and weight outcomes, using nationally representative data sets including:
  - A.C. Nielsen Homescan Data
  - Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K)
  - Monitoring the Future (MTF)
  - National Longitudinal Survey of Youth 1997 (NLSY97)

Objective

- To examine the association of soda taxes with household soda purchases; HomeScan data

Data Description

- Cross-section of household purchase information based on scanner data from a variety of stores, 2nd Q 2007
- Household demographic data
- Final sample includes 66,211 non-military households
- Outcome variable: soda volume in ounces of carbonated beverages purchased per household over the sample period (m=566 ounces ~ 2 cases of 12 oz cans)
- Control variables: household income, size, race, educational attainment, presence of children/age, female head of household employment status, and census regions

Policy Simulation Example: Household Regular Soda Purchases

- Study results imply very small tax elasticities for purchases of -0.06.
- If all states increased sales taxes to the maximum tax rate of 7% (an increase of 60.6% from the current sample mean of 4.36%), household purchases of regular soda are estimated to be 3.6% lower.
- Consider the imposition of a **new 20% tax** → assuming constant elasticity, household regular soda purchases are estimated to be **33% lower**.
  - The extent to which this applies to all regular soda consumption depends on constant elasticity noted above, and whether regular soda consumed away-from-home is similarly price/tax responsive.

Objective

- To examine association between soda taxes, consumption and weight of children ; ECLS data

Data Description

- Nationally representative panel of elementary school students.
- Food consumption 5th grade; measured height and weight
- Final sample:7,414 children who reported their food consumption and 7,300 children for which height and weight information exists
- Outcome variables: soda consumption in last week (m=6), soda purchases at school (m=0.4), and weight change 3rd to 5th grade (m=1.9)
- Control variables: age in months, race/ethnicity, family income, mother's education level, physical activity, TV watching, parent-child interactions.

Associations by Sub-populations

Outcome Variable	Total Consumption		School Consumption		BMI Change	
	Higher Soda Tax Amount	Higher Soda Tax Indicator	Higher Soda Tax Amount	Higher Soda Tax Indicator	Higher Soda Tax Amount	Higher Soda Tax Indicator
Full Sample	-0.004	-0.006	-0.010	-0.064*	-0.013*	-0.085**
At Risk of Overweight	-0.026	-0.078	-0.011	-0.067	-0.033**	-0.222**
Low-Income	-0.142*	-0.811	-0.039**	-0.239**	-0.000	-0.005
African American	-0.125	-0.767	-0.103**	-0.585**	0.029	0.086
9+ Hrs TV	-0.073	-0.376	-0.029**	-0.178**	-0.014	-0.091

Source: Sturm, Powell, Chriqui, and Chaloupka, *Health Affairs*, 2010

bridging the gap

Objective

- To examine association of soda taxes with youths' BMI using cross-sectional *and* longitudinal models; NLSY data

Data Description

- Nationally representative longitudinal data on youth aged 12 to 17 in 1997; 4 waves of including 1997, 1998, 1999 and 2000
- Estimation sample includes 11,900 person-year observations living at home
- Information on parental characteristics available from parental questionnaire and annual household roster data
- Outcome variable: weight status: BMI and overweight prevalence
- Control variables: age, gender, race, ethnicity, income, mother's education, mother's employment status
- Neighborhood controls: median household income

Preliminary Regressions Results-Cross Sectional Analysis

	Female		Male	
	BMI	Overweight	BMI	Overweight
Full Sample				
0<tax≤4%	0.0552	0.0019	-0.0337	-0.0055
4%<tax≤5%	0.1339	0.0017	-0.1457	-0.0160
5%<tax≤6%	-0.0797	-0.0105	0.2203	0.1010
tax>6%	-0.0548	-0.0053	0.5410*	0.0257
Low Income				
0<tax≤4%	-0.5963	-0.0371*	-0.5030	-0.0556**
4%<tax≤5%	0.2401	-0.0094	-0.2245	-0.0073
5%<tax≤6%	-0.3359	-0.0436**	-0.1683	-0.0470**
tax>6%	-0.4483	-0.0369*	-0.4099	-0.0435**

Preliminary Regressions Results-Longitudinal Analysis (FE)

	Female		Male	
	BMI	Overweight	BMI	Overweight
Full Sample				
0<tax≤4%	-0.7805**	-0.0078	-0.4054***	-0.0503
4%<tax≤5%	-0.7938**	-0.0153	-0.0942	-0.0369
5%<tax≤6%	-0.2033	0.0308*	-0.2297	-0.0591
tax>6%	-0.5647	0.0667*	0.4693	-0.0212
Low Income				
0<tax≤4%	-2.1950***	-0.0628***	-1.0196***	-0.0922***
4%<tax≤5%	-2.3600***	-0.0737**	-0.5907*	-0.0732***
5%<tax≤6%	-1.1818	-0.0162	-1.5229***	-0.0879***
tax>6%	-0.2139	0.0847	0.5069	-0.0969**

Source: Powell et al., *in progress*, 2010

Summary: Policy Implications of Empirical Results

- Generally very small associations between soda taxes and consumption or weight outcomes based on the existing low tax rates which range up to just 7% in the study samples.
- Larger associations for populations at greater risk for obesity.
- *Substantial* increases in soda tax rates may have some measureable effects on outcomes and even greater effects at the population level.

Frank Chaloupka
fjc@uic.edu

ImpacTeen
http://www.impacteen.org

Bridging the Gap
http://www.bridgingthegapresearch.org