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Do School Nutrition Programs Influence Child Weight? A Treatment Effect Analysis

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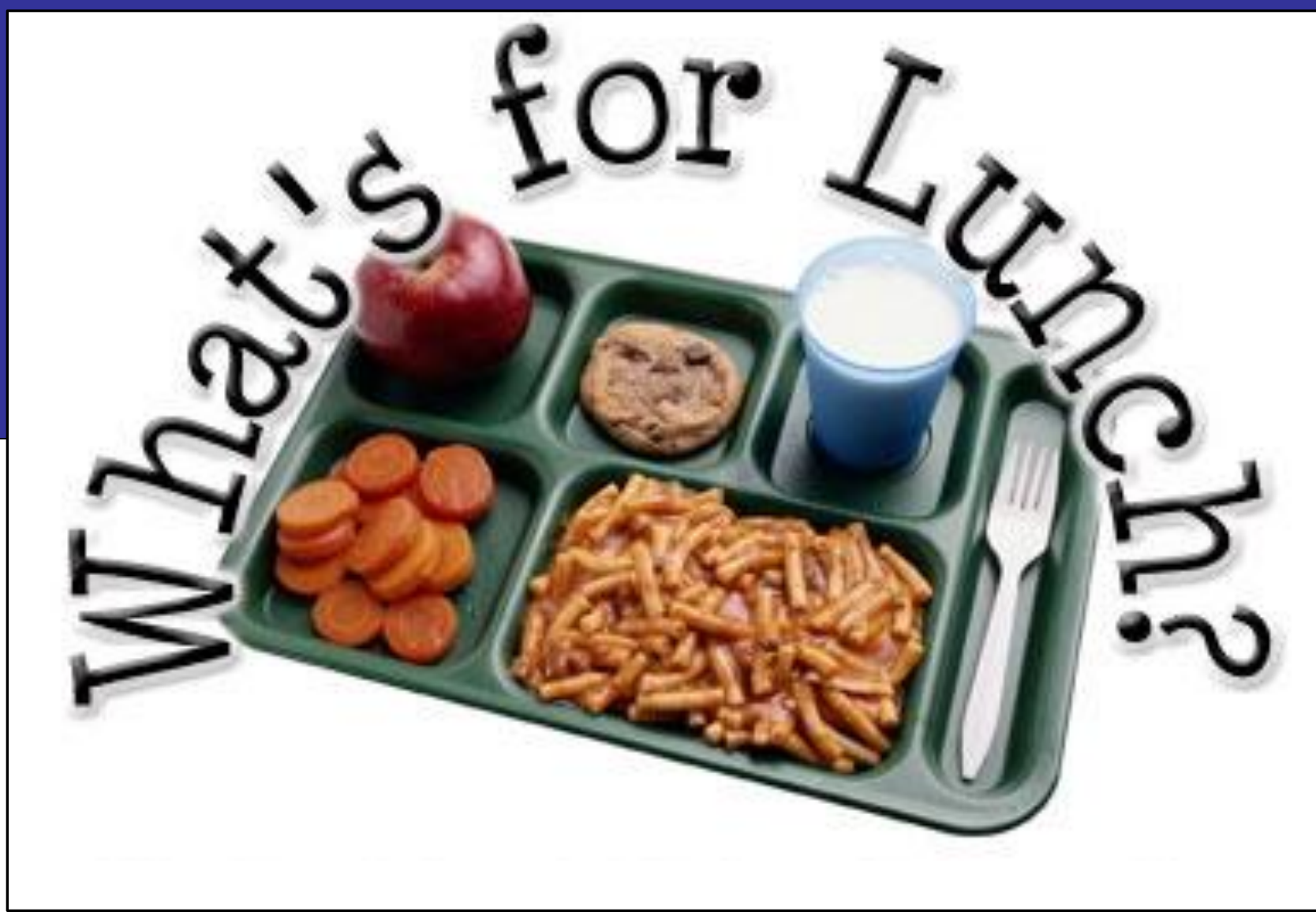
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RESEARCH QUESTIONS

- TO WHAT EXTENT DO SBP AND NSLP CONTRIBUTE TO THE OBSERVED OUTCOME OF CHILD WEIGHT?
- DO IMPACTS DIFFER IF A CHILD PARTICIPATES IN BOTH PROGRAMS COMPARED TO ONLY ONE PROGRAM?
- COULD DIFFERENCES IN FOOD QUALITY ACROSS LOCAL EDUCATION AGENCIES BE IMPACTING RESULTS?

ANALYSIS APPROACH

Multiple Simultaneous Treatments

- Impacts on child weight could vary depending on whether the child participates in one or both programs
- Important to account for self-selection into multiple programs
- 25% of the sample participates in both programs

Average Treatment Effect on the Treated (ATT)

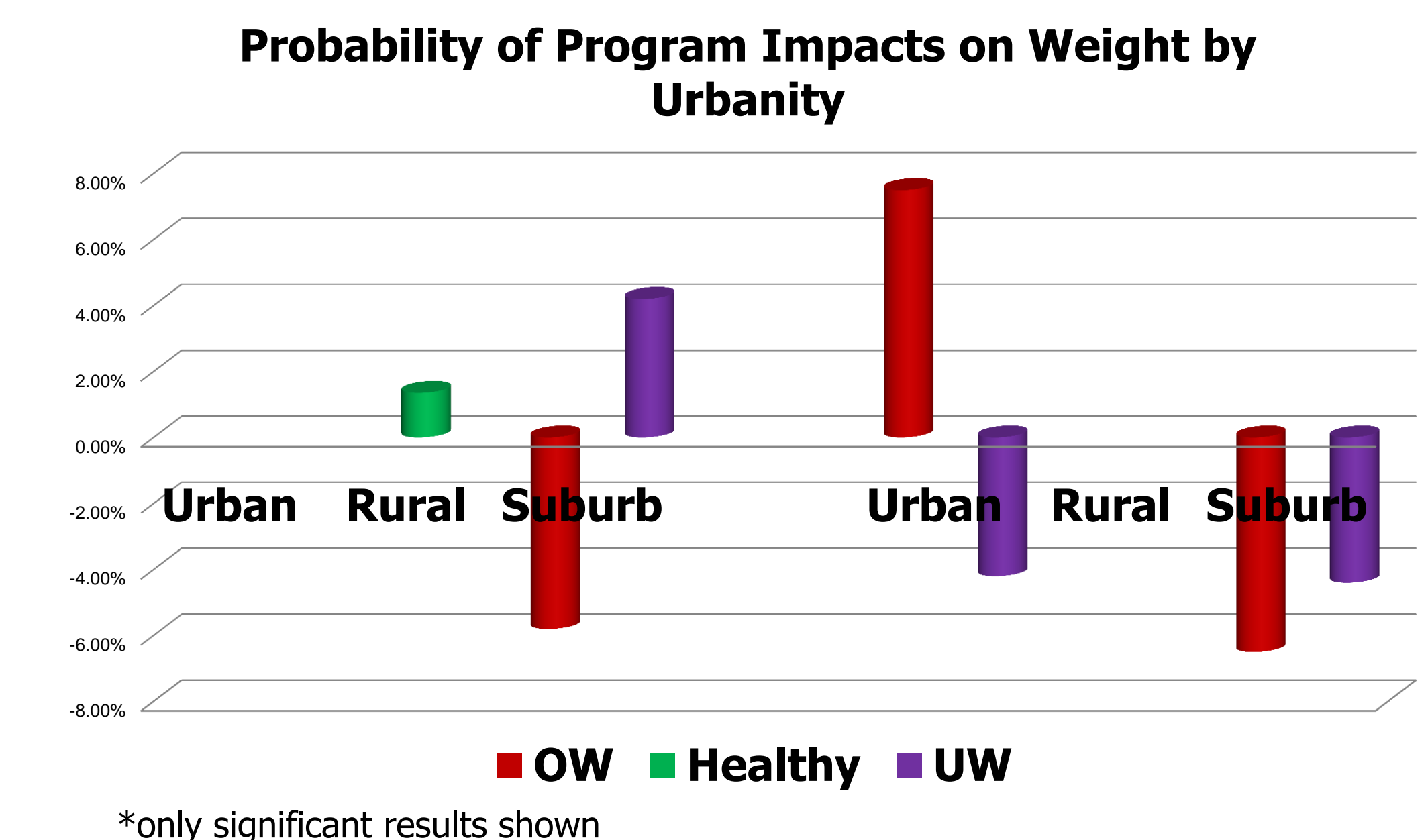
- Examines program effects on a well-defined population exposed to the treatment where individuals are not obligated to participate
- Utilizes propensity score matching and conditional probabilities
- Three treatment categories:
 - No participation over the entire period
 - NSLP only over the entire period
 - SBP and NSLP over the entire period

Difference-in-Differences (DID)

- Examines impacts on child weight induced by a change in school meal program participation status; accounts for trends over time
- Controls for selection through a two-stage model
- Method being more frequently used with observational data

ROBUSTNESS CHECKS

- Elementary versus Middle School Results
 - Minimal impacts of meal programs on 5th grade child weight (i.e., end of elementary school)
 - Most impacts occur in middle school
- Control Proxy for Food Quality
 - Results do not differ when controlling for food expenditure per pupil in each local education agency or by separating sample by percentage of FRP eligible students at school
- Control for Region
 - Midwest: participating in SBP & NSLP increases weight
 - South & West: NSLP only participation increases weight
- Control for Urbanity
 - Rural: only NSLP participation increases weight
 - Urban: participation in SBP & NSLP increases the probability of overweight
 - Suburbs: NSLP only participation decreases probability of overweight



POLICY IMPLICATIONS

- Critics of SBP and NSLP not entirely correct
 - Participating in only NSLP decreases probability of being overweight
- Concentration on meal quality in South and West as well as in rural areas
- Need a closer examination of the quality of school breakfasts in elementary versus middle schools
- What can we do?
 - Gradual changes to menus
 - Continue campaigns that encourage children to take an interest in where food comes from and how it is prepared
 - Chefs Move to Schools
 - Small Farms/School Meals Initiative
- Healthier meals may entice more participation



SUMMARY OF FINDINGS

- ATT and DID results are similar
- Participation in only NSLP:
 - Decreases probability of being overweight and obese
 - Increases probability of being healthy weight
 - No differences between free- and reduced price (FRP) recipients and students paying full-price
- Participation in SBP and NSLP increases the probability of overweight and decreases the probability of healthy weight
 - Particularly for FRP students

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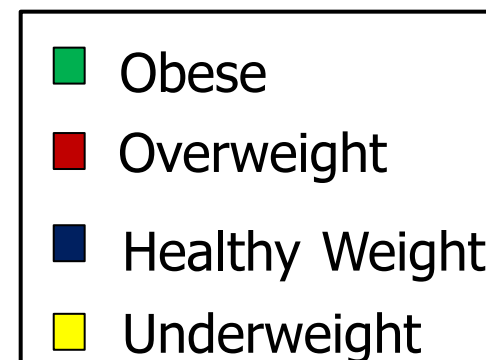
DATA

- Early Childhood Longitudinal Study-Kindergarten Class
- Nationally representative sample of 21,260 children followed from kindergarten (98-99) to 8th grade
- Information on children, parents, teachers and schools
- Staff measured weight and height of the students
- SBP and NSLP participation info

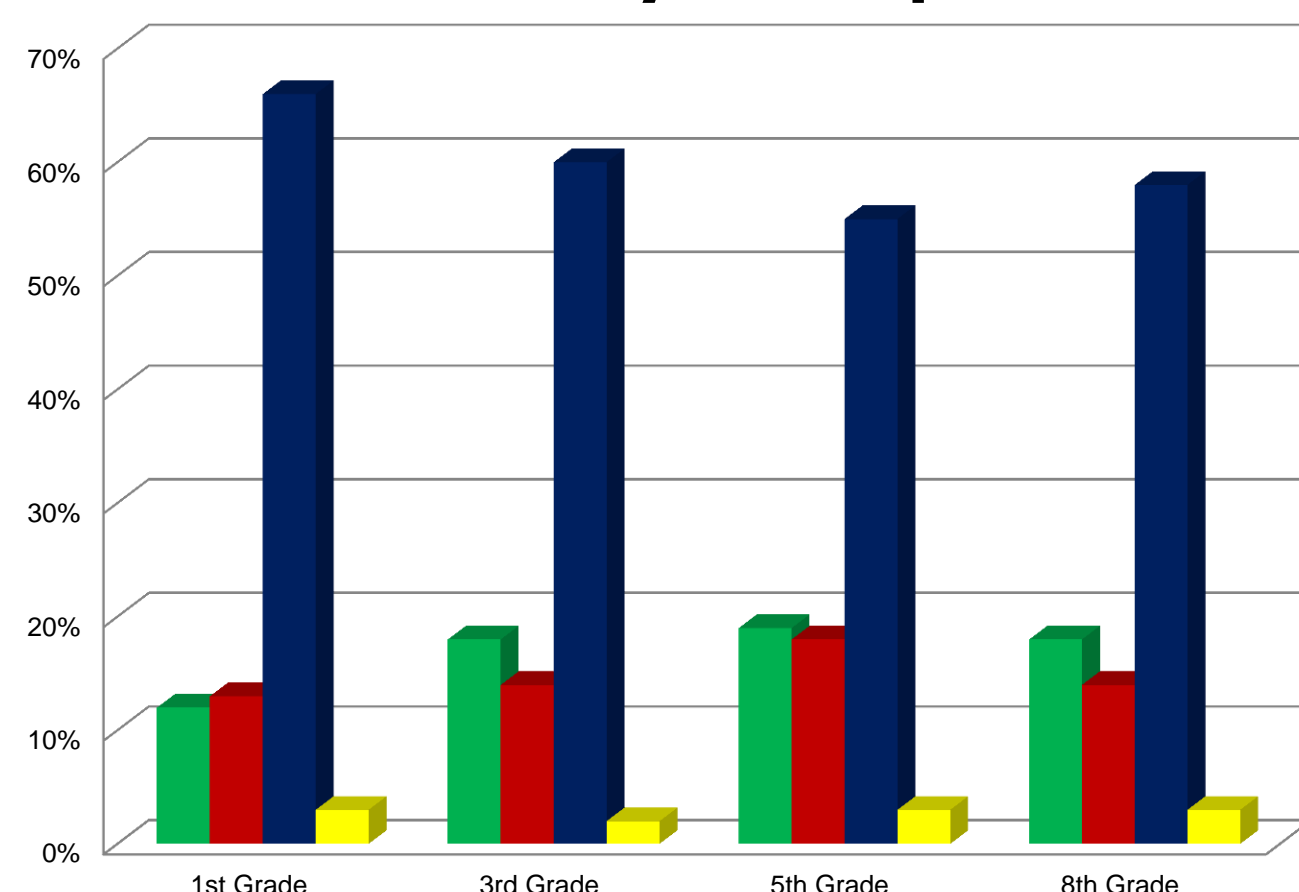
INTRODUCTION

- Childhood misnourishment:
 - Caused by insufficient nutritional quality
 - Includes overweight, obese and underweight
- United States estimates:
 - 13+ million overweight children
 - 2.4 million underweight children
- Childhood misnourishment brings serious health consequences:
 - Chronic diseases
 - Weaken immune system → more frequent and worse infections
- School Breakfast Program (SBP) & National School Lunch Program (NSLP)
 - Good potential intervention targets
 - However mixed results on relationship between meal program participation and child weight
- Innovation:
 - Interdisciplinary theoretical framework;
 - Multiple simultaneous treatment effects;
 - Acknowledge self-selection into SBP and NSLP;
 - Examine longer-term impacts of participation (1st to 8th grade)

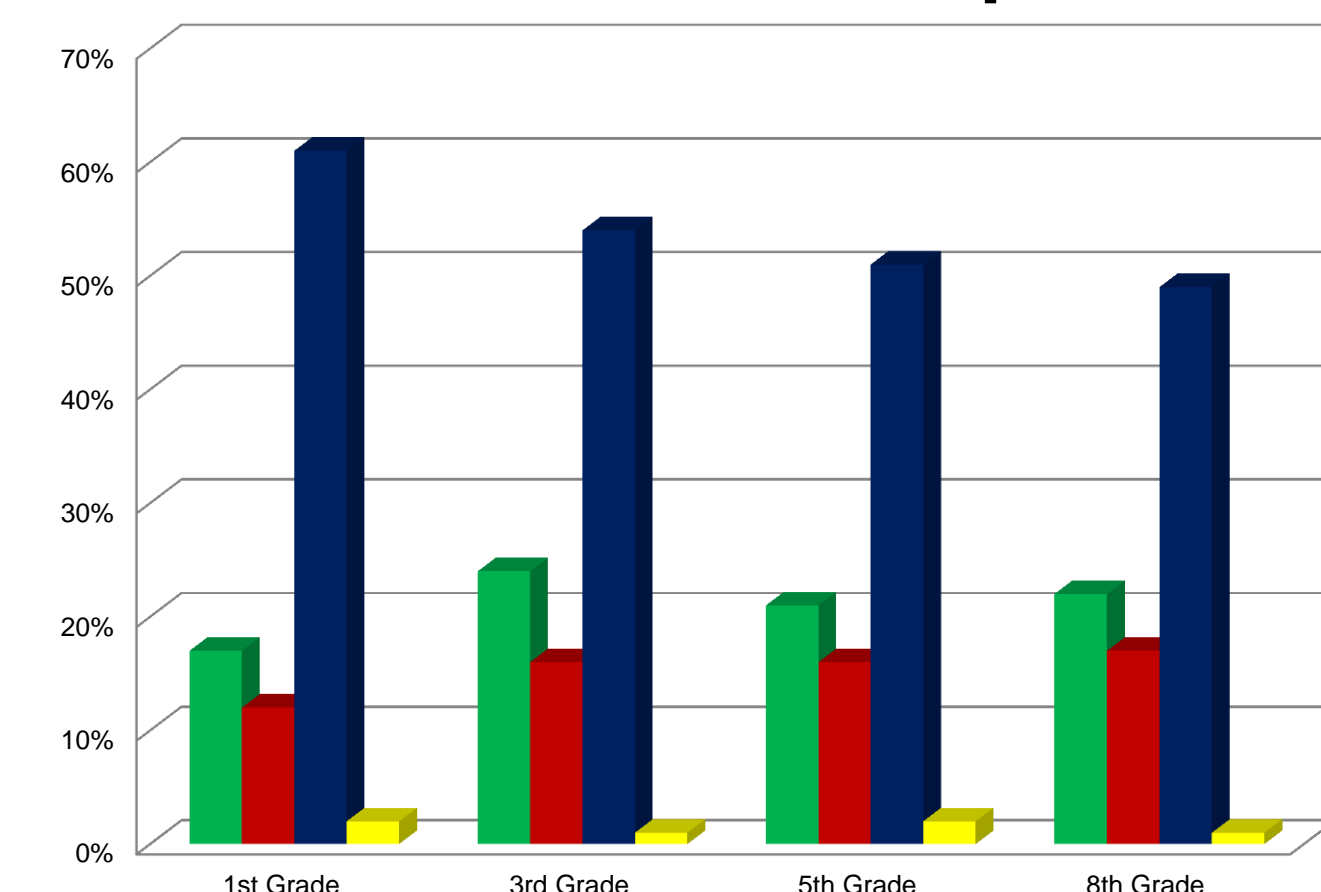
Percent of Students by Weight and Participation Status



NSLP Only Participation



SBP and NSLP Participation



No Participation

