



# MARYLAND

## FAMILY POLICY IMPACT SEMINAR

### Do Food Programs Make Children Overweight?

*Sixteen percent of children 6-11 years of age were classified as overweight in 1999-2002, quadruple the percentage in 1965. Although poverty has traditionally been associated with underweight as a result of poor diet, researchers have pointed recently to a paradox in the U.S., which is that low income and obesity can coexist in the same population. This policy brief examines whether income is linked to overweight in school-age children and then explores whether federal food programs such as the Food Stamp Program, the National School Lunch Program, and the School Breakfast Program are associated with overweight among children in different income groups.*

#### **Overweight among children**

- The percentage of overweight children 6-11 years of age quadrupled from 1965 to 1999-2002—from 4 to 16 percent.<sup>1</sup>
- Per capita food energy availability has increased by about 15% since 1970<sup>2</sup>; children's physical activity is believed to have declined.<sup>3,4</sup>
- There is a paradox of coexistence of low income and obesity, at least among adults.<sup>5</sup>
- Have public food programs (food stamps, school lunches and breakfasts) contributed to the problem?

#### **Low income and overweight**

A link has been found between low income and overweight for adults. This may extend to children also through the following mechanisms:

- Low-income children may eat a higher proportion of low-quality, high-fat food than children from higher-income families
- Inadequate food may lead to binge eating when food is available

**Food programs such as Food Stamps (FSP), the National School Lunch Program (NSLP), and the School Breakfast Program (SBP) may contribute to overweight if:**

- the FSP provides too much food
- the NSLP provides the wrong kinds of food (too fatty) and too many overall calories
- the SBP has the same effect as the NSLP

#### **Data and Methods**

#### **1997 Child Development Supplement (CDS) to the Panel Study of Income Dynamics (PSID)**

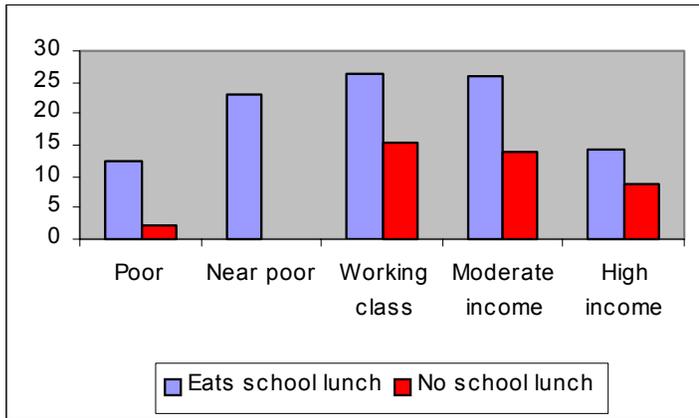
- Data for up to 2 children per household 6-12 years of age (N=1,268)
- Overweight defined as Body Mass Index (BMI) greater than 95<sup>th</sup> percentile for child's age and gender
- Information on whether the family participated in the FSP and whether the child participated in the NSLP and/or SBP
- Detailed information on the income of the family

#### **Classified gross income into five categories:**

- **Poor** - Less than 100% of poverty line  
Eligible for FDS and free NSLP/SBP
- **Near poor** - 100%-<130% of poverty line  
Eligible for FDS and free NSLP/SBP
- **Working class** - 130%-<185% of poverty line  
May be eligible for FDS and free or reduced NSLP/SBP
- **Moderate income** - 185-<300% of poverty line  
May be eligible for reduced NSLP/SBP
- **High income** - 300% of poverty line or higher  
Not eligible for any programs

## Bivariate Results

**Figure 1. Percent overweight by income and whether eats a school lunch**



Note: Too few cases of near poor--no school lunch (<20) to make a reliable estimate

Figure 1 shows that in every income category, the percent of children who were overweight was always higher when they ate a school lunch than when they did not.

## Multivariate results

### **Two outcomes:**

- Child's overweight status (1=yes, 0=no) using logistic regression
- Child's BMI using OLS regression

### **Food program variables:**

- Food stamp dollars received per year
- Eats a hot school lunch
- Eats a school breakfast

### **Control variables:**

- Parent characteristics - Race/ethnicity, age and education
- Child characteristics - age and gender, whether low birth weight
- Family characteristics - size, income, structure/work status

## Regression coefficients by income groups

|                  | Poor   | Near poor | Working class | High income |
|------------------|--------|-----------|---------------|-------------|
| Child overweight | -0.83* | -0.01     | 0.05          | -0.56+      |
| Child's BMI      | -1.27+ | 0.10      | -0.17         | -0.55       |

\*p<.05 +p<.10 omitted group=moderate income

It is possible that children who tend to be overweight prefer the hot school lunch. To control for selectivity on who eats a school lunch, we used a two-stage regression model and predicted school lunch receipt based on an instrumental variable: **Whether the child attends a public school**. This variable predicts school lunch participation but does not predict overweight/BMI.

We ran the regression in two stages:

- Using observed school lunch receipt
- Using predicted school lunch receipt

## Regression coefficients by participation in food programs

### **Using observed school lunch:**

|                  | Food stamp \$\$ | School lunch | School breakfast |
|------------------|-----------------|--------------|------------------|
| Child overweight | -0.06           | 0.46+        | 0.17             |
| Child's BMI      | 0.11            | 0.69*        | 0.61             |

### **Using predicted school lunch:**

|                  | Food stamp \$\$ | School lunch | School breakfast |
|------------------|-----------------|--------------|------------------|
| Child overweight | -0.07           | -0.50        | 0.33             |
| Child's BMI      | 0.10            | -0.53        | 0.84             |

## Summary and Conclusions

- Children from poor families AND children from high-income families are less likely to be overweight than children from moderate-income families.
- Food stamp \$\$ were NOT associated with a higher chance of child overweight.
- School lunch participation (but not school breakfast) was associated with a greater chance of child overweight and greater BMI. HOWEVER, this disappeared when we adjusted for selectivity. Overweight children are more likely to eat a hot lunch at school than non-overweight children.
- This does not mean that we should ignore the nutritional characteristics of school food programs, because they may reinforce the tendency of some children to be overweight.

### References:

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