Effects on Childhood Obesity of Participation in Multiple Federal Nutrition Assistance Programs

Contractor and Cooperator Report No. 74
March 2012

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Abstract

We investigate the relationships between participation in the School Breakfast Program (SBP), National School Lunch Program (NSLP), Supplemental Nutrition Assistance Program (SNAP) and childhood obesity. Our focus is on the effects of simultaneous participation in multiple programs while attempting to address non-random selection into each program. Using Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 data we find: (1) there exists evidence of selection into the SBP and NSLP on the basis of unobservable attributes; (2) among low-income students this non-random selection disappears once we condition on school fixed effects; (3) participation in the NSLP alone contributes to childhood obesity in low-income households; and, (4) simultaneous participation in all three programs (relative to participation in no programs) is unrelated to childhood obesity in low-income households. That said, we show that identification of the causal effects of participation in different combinations of these programs is quite difficult since participation decisions in the three programs are highly correlated.

This study was conducted by Georgia State University and Southern Methodist University under a cooperative research contract with USDA's Economic Research Service (ERS) Food and Nutrition Assistance Research Program (FANRP): contract number 5000-8-0097 (ERS project representative: Jessica Todd). The views expressed are those of the authors and not necessarily those of ERS or USDA.

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Executive Summary

The rise in childhood obesity has recently come to the forefront of many policy debates. While the prevalence, burdens, and costs of childhood obesity are becoming increasingly well-documented, the causes of childhood obesity are less well understood. In addition, it is not clear what tools might be available to policymakers to prevent further increases in childhood obesity as well as reverse the recent trends.

This report presents findings from the analysis of the effects of participation in federal nutrition assistance program on childhood obesity. Specifically, we analyze participation in three programs, namely the National School Lunch Program (NSLP), School Breakfast Program (SBP), and Supplemental Nutrition Assistance Program (SNAP). Our analysis differs from much of the prior literature in two salient ways. First, rather than focusing on just one of these programs in isolation, we assess the effects of participation in multiple programs simultaneously. Moreover, we allow for the possibility of spillovers across programs (i.e., the effect of participating in multiple programs is not necessarily the sum of the individual program effects). Second, we attempt to address the possibility of non-random selection into each of the programs.

To proceed, we use data on over seven thousand children attending public schools participating in NSLP and SBP, available in the ECLS-K. In addition, through use of the restricted version of the ECLS-K, we are able to combine the data with zip code-level information from the Census 2000 and data collected by the USDA Economic Research Service on county-level SNAP participation. In our analyses, we assess the causal impact of program participation in the spring of first grade on various measures of child weight in the spring of third and fifth grades, thus focusing on relatively "long term" effects.

We conduct four levels of analyses:

1) Selectivity analyses. We investigate the relationship between the weight of children and trajectories of weight gain *prior* to program participation and the patterns of future program participation.
2) Analyses under exogeneity. We assess the relationships between program participation and child weight using different combinations of control variables.
3) Analyses under endogeneity. We attempt to use Instrumental Variables (IV) estimation to control for non-random selection into programs not accounted for by the control variables included in the models.
4) Sensitivity analyses. We provide separate analyses of different sub-samples of the data, defined on the basis of particular characteristics such as students with persistent participation in programs, low income students (defined here as having family income below 200% of the Federal Poverty Line), and students of certain demographic groups.

Our analyses provide four salient findings:

1) We report evidence consistent with non-random selection into both SBP and NSLP on the basis of unobserved attributes. While evidence of selection into SBP has been reported in other studies, selection into NSLP typically has not been found in the prior literature.
2) Among low income students, we fail to uncover evidence of non-random selection into program participation on the basis of unobserved attributes after conditioning on school fixed effects. Albeit not conclusive, much of our sensitivity analyses are performed on this group, a group for whom policymakers may find more relevant anyway in light of the higher obesity rates amongst the low income children.
3) In models restricted to low income students and including school fixed effects, we find a relatively consistent statistically significant association between participation in the NSLP and child weight, particularly when examining fifth grade outcomes, but not a consistent significant association for the other two programs.

4) We find no statistically significant association between child weight status and simultaneous participation in all three programs, relative to participation in none of the programs, in low income households when including school fixed effects. Thus, the deleterious association between NSLP participation and child health is offset by participation in the SBP and SNAP.

Finally, our analysis highlights a crucial methodological issue that is germane to the evaluation of multiple programs targeting the same population. Specifically, we show that identification of the causal effects of participation in different combinations of programs using non-experimental data is fraught with difficulty when each program targets a similar population (in this case, children in low income households). The intuition underlying this result is straightforward: as participation decisions related to each program are highly correlated, identification of unique, exogenous factors predicting participation in one program but not the others is virtually an impossible task. However, analyses focusing on one program in isolation may miss important spillovers due to simultaneous participation in multiple programs. To partially circumvent this problem, we estimate models by IV including only one treatment variable: a binary indicator for participation in all three programs. The results suggest that simultaneous participation in all three programs contributes to childhood obesity in the full sample. There is, however, no statistically significant causal relationship among the sub-sample of low income children, and we find a beneficial causal effect among low income Hispanic students. While this is clearly not a sufficient solution, since it couples all three programs together, policymakers concerned with identification of the causal effects of individual programs may need to resort to social experiments.

1. Introduction

The extent and consequences of childhood obesity are well documented. The prevalence of overweight children and young adolescents in the U.S. is estimated to be 20% and 17%, respectively, in 2007-2008, representing more than a threefold increase since the 1980s (Ogden et al., 2010). Obesity burdens individuals with severe physical, economic, and emotional suffering, and puts children and adolescents at risk for a number of health problems such as those affecting cardiovascular health, the endocrine system, and mental health (Krebs and Jacobson, 2003). Finkelstein and Zuckerman (2007) report that if the childhood obesity epidemic continues unabated at the current rate, as many as 30-40% of the U.S. population will develop Type 2 Diabetes during their lifetime. In the U.S., the total cost attributable to obesity was over $140 billion per year in 2008 according to Finkelstein et al. (2009).

As a result, a newfound emphasis on combating obesity has emerged, leading to numerous debates over the appropriate policy response. Among the myriad of possible actions discussed, childhood interventions are often viewed as more promising since overweight children are more likely to be obese during adulthood. For example, the probability of childhood obesity persisting into adulthood is roughly 20% for a four year-old child and 80% for an adolescent (Krebs and Jacobson, 2003).

In light of this, First Lady Michelle Obama launched the "Let's Move" campaign to combat the childhood obesity epidemic on February 9, 2010. That same day, President Obama signed a memorandum establishing a task force on childhood obesity. The Presidential Memorandum states in part:

> "Obesity has been recognized as a problem for decades, but efforts to address this crisis to date have been insufficient... [I] have set a goal to solve the problem of childhood obesity within a generation so that children born today will reach adulthood at a healthy weight."

While new interventions are perhaps a necessary component of any successful strategy to reverse the trends in childhood obesity, three longstanding federal programs directly affect the nutrition of children.

The National School Lunch Program (NSLP) began in 1946 and currently provides lunch to over 32 million children each school day, covering approximately 100,000 schools, with 21 million students receiving reduced price or free meals.[1] In the 2010 fiscal year, the NSLP cost the federal government roughly $9.8 billion. The School Breakfast Program (SBP) was created in 1966 and currently provides breakfast to roughly 11 million children in 87,000 schools, with 9.4 million children receiving reduced price or free breakfasts. Roughly 83% of schools participating in the NSLP also participated in the SBP during the 2008-2009 school year, and roughly 47.2 students participated in the SBP for every 100 students participating in the NSLP. In the 2010 fiscal year, federal expenditures on the SBP totaled $2.9 billion. The Supplemental Nutrition Assistance Program (SNAP, formerly known as the Food Stamp Program) has its origins in a 1939 depression-era program, and was made permanent in 1964. It is the largest domestic food assistance program in the U.S., serving 40 million individuals each month during the 2010 fiscal year. In the 2010 fiscal year, the SNAP cost the federal government $68 billion. While participation in SNAP is restricted to low income households, any child may participate in the NSLP and SBP (conditional on the school which he or she attends participating), but qualification for reduced price or free meals is limited to children from low income households. In addition, families participating in SNAP don't need to apply for eligibility for free and reduced-price school meals because of direct certification.[2]

Given the large participation in the programs, both the SBP and NSLP can potentially directly impact the quality, if not also the quantity, of food consumed by children, at least during the school day. However, the SNAP also can have an enormous effect on child nutrition. For example, in fiscal year 2010, 48.6% of all participants were children.[3]

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[1] The statistics on program participation and costs are available at http://www.fns.usda.gov/pd/cnpmain.htm, http://www.fns.usda.gov/pd/snapmain.htm.
[2] See http://frac.org/federal-foodnutrition-programs/school-breakfast-and-lunch/eligibility/ .
[3] See http://frac.org/pdf/snap_participation_cut.pdf.

These programs have come under much scrutiny due to the rise in adult and childhood obesity. However, given that (i) the infrastructure and funding already exist for the SNAP, NSLP, and SBP, (ii) each provides food directly to children or income transfers to their families, and (iii) all three programs are national in scope and already reach a significant number of children, these programs represent a significant opportunity to directly impact the health of children. Realization of this opportunity requires an understanding of how participation in these programs impacts child outcomes. Do each of these programs constitute a valuable component in the battle against the obesity epidemic as they are currently organized? Moreover, because many children participate in more than one of these programs, the possibility of spillovers across programs is very real. Does the effectiveness of each program vary depending on whether children participate in multiple programs? Finally, because the NSLP and SBP allow for significant flexibility by schools, and the SNAP allows households to make specific food choices, there is no reason to expect the effects of participation to be homogeneous. Do the effects of these programs, or combinations of these programs, differ by family characteristics? These are the questions we address.

Specifically, we examine the direct effect of participation in the SBP, NSLP, and SNAP on the health of children, as well as the cumulative effect of participating in combinations of these programs using panel data from the ECLS-K. Undertaking new research on the direct effect of participation in each program, as well as the cumulative effect of multiple program participation, is crucial for two reasons. First, while the direct effect of participation in each program on child health has been studied to some extent, additional study is necessary given the difficulty of dealing with non-random selection into each program, as well as recent changes in the operating structure of and participation rates in each program.

Second, almost half of all school children participating in the NSLP also participate in the SBP, and the most vulnerable and potentially most affected children also reside in households participating in the SNAP. However, despite these figures, there is a noticeable lack of research on the cumulative effect of multiple program participation. The cumulative effect may differ from the sum of the individual program

effects estimated in isolation if there are spillovers across policies. There are at least two possible explanations for why such spillovers may be present. First, the income effects from participation may be non-linear. For example, if the subsidy obtained under these programs must reach a critical threshold before inducing changes in behavior, then behavioral changes impacting child health may not occur until households participate in multiple programs. Second, participation in one program may induce behavioral changes such as learning that alter behavior under other programs. For example, if participation in SNAP alters the types of food consumed at home, this may induce similar changes in food choices made at school. On the other hand, the response may go in the opposite direction; if SNAP leads to the consumption of healthier foods at home, children may substitute toward less healthy food during school meals.

Given the size and cost of the SBP, NSLP, and SNAP, each has been studied to some extent over the decades. Devaney and Fraker (1989) use 24-hour dietary recall data from 1980-1981 to assess the impact of SBP participation. The authors find that participation is associated with higher intake of some nutrients. However, contrary to one of the goals of the program, availability of the SBP in schools did not alter the probability that students ate breakfast.

In the early 1990s, a series of studies were conducted utilizing the 1991-1992 School Nutrition Dietary Assessment (SNDA-I) study. As part of the study, a random sample of school meals was analyzed, in addition to the diets of children. Gleason (1995) confirms Devaney and Fraker's (1989) finding that SBP availability is not associated with a higher probability of eating breakfast. Moreover, the author finds that lunches provided under the NSLP derived an average of 38% of food energy from fat, exceeding dietary guidelines.

Along these same lines, Burghardt et al. (1995) report that meals provided under the NSLP exceeded guidelines for total and saturated fat and sodium, whereas meals provided under the SBP exceeded guidelines for saturated fat and cholesterol. Gordon et al. (1995) use 24-hour dietary recall data and

conclude that both SBP and NSLP participation are associated with higher intake of fat and saturated fat, but also some nutrients.

The results of the analyses using the SNDA-I led to the School Meals Initiative for Healthy Children (SMI), which represented the largest reform of the programs since their inception (Lutz et al., 1999). The SMI required schools to meet nutrition guidelines by the 1996-1997 school year, although some schools received a waiver until the 1998-1999 school year (Lutz et al., 1999). To date, available evidence suggests little effect of the SMI on the nutritional content of meals (Schanzenbach, 2009).

While studies analyzing the SNDA-I, and the follow-up SNDA-II (1998-1999) and SNDA-III (2004-2005), are vital for sound policymaking, they provide an incomplete picture for three reasons. First, the outcomes being analyzed include the quality of the school meal or the total nutritional intake of children. While this constitutes a key determinant of child health and obesity status, it is not the complete picture. We shall expand upon this point below in the section entitled Conceptual Framework. Second, these studies do not address the issue of non-random selection by students into each program. Thus, analyses are limited in their ability to draw conclusions that are causal in nature. Finally, these studies do not assess the impact of participating in multiple programs, including the SNAP.

Since the SNDA-I study, however, some analyses have focused greater attention on identifying the causal impact of SBP or NSLP participation on child health, as well as analyzing both nutrient intake and overall measures of child health. Gleason and Suitor (2003) use two nonconsecutive days of 24-hour dietary recall data from the 1994–96 Continuing Survey of Food Intakes by Individuals to obtain fixed effects estimates of NSLP participation. The authors find positive effects on nutrient intakes, but also on dietary fat. Hofferth and Curtin (2005) use data from the 1997 Child Development Supplement of the Panel Study for Income Dynamics (PSID) and find no effect of SBP participation on the probability of being overweight after controlling for NSLP participation. In addition, instrumental variables (IV) estimates – using public school attendance as the exclusion restriction – indicate no impact of NSLP participation.

Bhattacharya et al. (2006) analyze the effects of SBP availability in the school on nutritional intake using NHANES III. The authors employ a difference-in-difference strategy (comparing in-school versus out-of-school periods in schools participating and not participating in the SBP), concluding that SBP availability "has no effect on the total number of calories consumed or on the probability that a child eats breakfast, but it improves the nutritional quality of the diet substantially" (p. 447). Schanzenbach (2009) utilizes panel data methods, as well as a regression discontinuity (RD) approach that exploits the sharp income cut-off for eligibility for reduced-price meals, to assess the impact of the NSLP. She finds that NSLP participation increases the probability of being obese due to the additional calories provided by school lunches. However, she finds little substantive difference between the RD estimates and those based on a panel data approach, suggesting little selection on unobservables into the NSLP conditional on school fixed effects. Most recently, Campbell et al. (2011) investigate the effects of NSLP on dietary outcomes of children using NHANES data from 1999 until 2004. The authors find that while the quality of dietary intake of NSLP participants is not better relative to those students who chose not to participate, NSLP participants consume larger amounts of food.

Finally, a few studies offer less direct evidence of the possible effects of the SBP and NSLP. For instance, Long (1991) assesses the crowding-out impact of SBP and NSLP benefits on total household food expenditures. The author finds that one dollar of NSLP (SBP) benefits displaces only $0.60 (none) of household food expenditures. Thus, both programs increase the total value of food consumed by the household. Fertig et al. (2006) find that children's weight is inversely related to the number of meals eaten, consonant with prior research indicating that skipping breakfast is associated with higher overall caloric intake (Stauton and Keast, 1989; Morgan et al., 1986). von Hippel et al. (2007) show that children are more at-risk of gaining weight during summer vacation than during the school-year. While this is potentially attributable to children's propensity to consume more food while at home, it could also be explained by the lack of access to school meal programs during the summer for non-summer school

attendees. Consequently, the indirect evidence suggests a possible beneficial impact of school nutrition programs, which is to some extent at odds with the existing direct empirical evidence.

With respect to SNAP participation, Ver Ploeg et al. (2006) report that adult participants in SNAP were heavier than non-participating, eligible individuals during the early 1990s. The relationship between SNAP participation and child weight was not as strong (see also Gibson, 2003; Fox and Cole, 2004; Chen et al., 2005). However, Kaushal (2007) finds no effect of SNAP participation on BMI or obesity among immigrants. Similarly, in a recent working paper, Kreider et al. (2011) show that accounting for non-random selection and measurement error results in ambiguous effects of SNAP on children's health. Meyerhoefer and Pylypchuk (2008) find evidence that heavier adults (mainly women) are more likely to participate in SNAP, but the authors also find that SNAP participation increases the probability of being obese among women, but not men, even after controlling for this non-random selection. Finally, approaching the analysis from a different perspective, Guthrie et al. (2007) discuss how changes in SNAP can improve the diet of participants, particularly in terms of consumption of fresh fruits and vegetables, and whether incentives faced by program participants can affect preferences.

In our own prior research, we analyze the effects of SBP and NSLP on children's health ignoring participation in the SNAP (Millimet et al., 2010). To begin, we document positive selection into the SBP (i.e., children on a steeper weight trajectory from birth to kindergarten are more likely to participate), although the magnitude of selection varied for white and non-white students. We find no evidence of non-random selection on the basis of unobservable attributes into the NSLP. Furthermore, we find that failing to account for this non-random selection into the SBP program biases the estimated program effects of the SBP and the NSLP. Once we allow for even modest levels of selection into the SBP, the implied effects of both programs change dramatically (indicating beneficial effects of SBP participation on child weight, but adverse effects of NSLP participation). While these results are interesting, there are two shortcomings. First, we did not account for the direct effect of SNAP participation or the impact of SNAP participation on the effectiveness of the SBP and NSLP. Second, we did not control for selection

into the SBP using instrumental variables, but instead performed sensitivity analyses using different hypothetical levels of positive selection into the SBP. The analysis contained herein attempts to address these shortcomings.

In addition to the work discussed below, this cooperative agreement resulted in two other manuscripts. The first, Millimet and Tchernis (2011), addresses the problem of estimation of the causal effects of SBP participation in the presence of selection bias without relying on instrumental variables. In the paper we propose a new econometric methodology and show that while there exists a positive association between SBP participation in first grade and child weight in third grade, it cannot be given a causal interpretation. In fact, using a number of methods, both newly developed in the paper and established, we show that the causal effect of SBP on weight outcomes is either not significantly different from zero or negative, i.e. leading to lower weight. This manuscript has been conditionally accepted at the *Journal of the Applied Econometrics*.

The second manuscript, Roy, Millimet and Tchernis (2011), is forthcoming in the March 2012 issue of *Review of Economics of the Household*. This study explores one mechanism by which participation in SNAP, school meal programs, and various combinations of these programs may affect child health. Specifically, using the 2007 American Time Use Survey (ATUS) and Eating and Health Module (EH), we examine differences in time allocation across a variety of activities, as well as adolescent weight outcomes, across households with different participation status. Our results show that participating families tend to be worse off economically, be in worse health, and allocate more time to child care. We also find evidence of a negative, causal effect of simultaneous participation in all these programs on adolescent BMI, possibly due to less time devoted to watching television and movies. Moreover, we find evidence of spillovers across programs; the associations between joint participation and time allocations differ from what one would predict based on analysis of the programs in isolation.

2. Data and Methods

We use panel data from the ECLS-K to carry out our analyses. These data are unique since they provide repeated information on all three programs, as well as children's height and weight, and a rich set of family and school characteristics. Collected by the U.S. Department of Education, the ECLS-K surveys a nationally representative cohort of children throughout the U.S. during the fall and spring of kindergarten, fall and spring of first grade, spring third grade, spring fifth grade, and spring eighth grade. The initial sample size is slightly above 21,000. Throughout our analysis, all results reported use sampling weights except in Tables 1.2 and 1.3.

In our initial analysis, we measure program participation in spring first grade. We do not measure participation during kindergarten as many students attend only half-day kindergarten programs. The child health outcomes, discussed below, are measured in spring third and fifth grades. Thus, we are focusing on more of the long-run effect of program participation.

Our sample includes only those students attending public schools participating in the NSLP and SBP. Moreover, since we rely on geographic information to link students to county and zip code-level attributes for use in the IV analysis, we also exclude students with missing county identifiers in the IV estimation. Finally, we exclude all observations with zero survey weights. In the end, we are left with roughly 7,000 observations when analyzing third grade outcomes and 5,600 observations when analyzing fifth grade outcomes.[4]

Dependent Variables:

From information on the height and weight of the children, we create several measures of child weight:

[4] Due to regulations governing the use of the restricted version of the ECLS-K, all sample sizes are rounded to the nearest 50.

1) Log BMI: BMI is the conventional measure used and is defined as weight in kilograms divided by height in meters squared. We use log BMI, following much of the literature, since it is less affected by outliers in the right tail.
2) BMI percentile: We assign each observation a corresponding percentile value based on CDC 2000 growth charts. BMI percentiles are age- and gender-specific and are adjusted for normal growth. BMI percentile is a very intuitive measure as it measures the development of a child relative to other children of the same age and gender.
3) BMI growth: Measured as the difference in log BMI between either spring third or fifth grade and spring kindergarten, BMI growth adjusts for past BMI. We could alternatively use difference from spring first grade, but in that case we would not have accounted for the large part of participation in the program during the first grade.
4) Change in percentile BMI: Similar to BMI growth, change in percentile BMI is measured as the difference in BMI percentile between either spring third or fifth grade and spring kindergarten.
5) Overweight indicator: According to the CDC, a child is considered to be overweight if his or her BMI percentile is above 85. Strictly speaking this represents "overweight or obese" category but we stick to the "overweight" for brevity.
6) Obese indicator: According to the CDC, a child is considered to be obese if his or her BMI percentile is above 95.

Whereas the first four outcomes examine changes across the entire weight distribution, the final two indicators concentrate exclusively on the effects in the right tail of the distribution, the subgroup of most interest for policymakers. However, the overweight and obese measures only inform us about the effects of the covariates on the probability of crossing the threshold and not about the magnitude of the change in BMI.

Program Participation Variables:

Since we are interested in the causal effects of each of the programs under consideration, we create indicators of program participation defined as follows:

1) Participation in the NSLP (d_1);
2) Participation in the SBP (d_2);
3) Participation in the SNAP (d_3);
4) Participation in the SBP & NSLP & SNAP, denoted by ALL (d_4).

The possibility of spillovers is assessed through the inclusion of the interaction term, ALL. Other interaction terms reflecting participation in two of the programs were not included due to limited numbers of observations. For instance, as discussed below, very few students report participating in the SBP alone. Thus, an interaction term between d_1 and d_2 is nearly perfectly collinear with d_2. Similarly, the majority of students participating in the NSLP and SNAP also participate in the SBP, implying near perfect multicollinearity between this interaction term and d_4.

NSLP participation is obtained from parents via the question: "Does {Child} usually receive a complete lunch offered at school?" SBP participation is similarly defined, being obtained from the question: "Does {Child} usually receive a breakfast provided by the school?" Finally, SNAP participation is obtained from the question: "In the past 12 months, have you or anyone in your household received food stamps?"

As noted previously, program participation is measured in spring first grade in our initial analyses. However, as discussed below, we also consider participation in third and fifth grades in some models.

Control Variables:

To control for parental and environmental factors, we utilize the following covariates: gender, age, three race dummies (white, black, and Hispanic), two city-type dummies (urban and suburban), three region dummies (northeast, midwest, and south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status (SES), four dummies for mother's education,

dummy if mother's education is missing, birth weight, birth weight squared, birth weight cubed, dummy if birth weight is missing, height, height squared, and height cubed.[5]

In addition to ECLS-K, we use three additional datasets. We obtain zip-code level attributes from Census 2000: percent non-US citizens, percent of owner occupied housing, and median household income. We obtain county-level data on food stamp participation rates from the dataset provided by FANRP/ERS. Finally, we gather county-level data on the proportion of SNAP participants having to recertify within three months and whether biometric data is collected at recertification from Food and Nutrition Services, USDA.

Summary Statistics:

Summary statistics are presented in Tables 1.1 through 1.4. Between third and fifth grade the average BMI increases from 18.8 to 20.8. The BMI percentile increases from 67.4 to 69.3. In addition, the proportion of obese children grows from 20% to 23.6%. 55% of our sample is white, while black and Hispanic students comprise 20% and 18% of the sample, respectively. Of those students who are in our sample in third and fifth grade, the proportion of students participating in NSLP, SBP, and SNAP remains constant at 84%, 38%, and 18%, respectively. Almost 13% of students participate in all three programs.

Tables 1.2 through 1.4 report the counts of students enrolled in different programs during spring of first grade for the sample of students with valid weight measures in third grade. In Table 1.2 we can see that the majority of our sample, 84%, are participating in NSLP, 38% participate in SBP and 18% participate in SNAP. The corresponding figures in the low-income sample are even higher (Table 1.3). The vast majority of students, regardless of income, participating in SBP also participate in NSLP (over 97%). This relationship is also true for students residing in families participating in SNAP – 97% of SNAP participants are also participating in NSLP. However, the overlap between SNAP and SBP is lower; only

[5] SES is an average of up to five z-scores (depending on availability) defined for mother's and father's education, mother's and father's occupation prestige scores, and household income.

70% of SNAP participants are also enrolled in SBP, while only 40% of low-income SBP participants are also participating in SNAP. Finally, Table 1.4 breaks down the sample by mutually exclusive participation categories for the full sample. The most noteworthy revelation is the fact that there are almost no students participating in SBP without simultaneous participation in the NSLP.

Empirical Strategy:

Analysis Under Exogeneity. Our formal statistical analysis begins by assessing how our explanatory variables simultaneously affect child weight using multivariate regression analysis. The basic estimating equation takes the following form:

$$y_i = \beta_0 + X_i \beta_1 + \sum_{j=1}^{4} \alpha_j d_{ji} + \varepsilon_i \qquad (1)$$

where y_i represents one of the measures of child health discussed previously, the dummy variables d_{1i} – d_{4i} indicate the set of possible patterns of program participation, and X_i is a vector of control variables discussed above.

If participation in each program is exogenous (i.e., uncorrelated with the error term conditional on X_i) and the linear functional form assumption is valid, then Ordinary Least Squares (OLS) is unbiased and consistent. The parameters of interest, α_j, are interpretable as follows: α_1 represents the average treatment effect of participating in the NSLP only (relative to participation in none of the programs); α_2 represents the average treatment effect of participating in the SBP only (relative to participation in none of the programs); α_3 represents the average treatment effect of participating in the SNAP only (relative to participation in none of the programs); and, α_4 represents the difference between the average treatment effect of simultaneous participation and the sum of the average treatment effects of the individual programs thus picking up the effect of spillovers between programs. The interpretation of α_4 follows

from the fact that average treatment effect of participating in all programs simultaneously (relative to participation in none of the programs) is $\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4$.

However, the multivariate regression model specified above may yield biased and inconsistent estimates for two reasons. First, the linear functional form assumed to hold between the dependent and independent variables may be mis-specified. Second, it is unlikely that the participation decisions are all exogenous; even if only one is endogenous, estimates of $\alpha_1 - \alpha_4$ will each be biased due to the strong positive correlation in the participation indicators. On the one hand, our own prior research (Millimet et al., 2010) and that by other researchers (Schanzenbach, 2009) suggest that since eating school-provided lunches is commonplace, and school participation in the NSLP is nearly universal, participants in the NSLP may not systematically differ from non-participants conditional on observable attributes (i.e., the variables included in X_i). On the other hand, our prior research indicates that SBP participants and non-participants do differ along both observed and unobserved dimensions. Specifically, Millimet et al. (2010) find that children having steeper weight trajectories between birth and entry into kindergarten are more likely to participate in the SBP. In addition, Roy et al. (2011) find that adults residing in households with a child participating in the SBP tend to spend more time watching television and devote less time to physical activity and grocery shopping. Non-random selection into SNAP is also a concern in the prior literature (see Kreider et al. 2011).

While it is likely that such non-random selection would bias the analysis toward a finding that participation in each program contributes to childhood obesity, one should be cautious given that the bias of each program effect is a complex function of the correlations in program participation and pattern of non-random selection across the different treatment categories.

Selectivity Analysis. While this prior literature is informative, our sample and set of covariates differs from those used in these prior studies. To investigate the pattern of selection into program participation in our sample, we follow the strategy used in Millimet et al. (2010) and Schanzenbach (2009) and regress

past weight outcomes on future program participation. Specifically, we estimate regression specifications as in (1), but now y_i denotes child weight measures obtained in fall kindergarten (or changes in weight outcomes between birth and fall kindergarten) while program participation is measured in spring first grade. Thus, a positive α_j can be interpreted as children who are heavier in kindergarten, or have gained relatively more weight between birth and the start of kindergarten, are more likely to participate in a particular program in first grade. This would suggest the possibility of unobservable attributes that are correlated with program participation and child weight.

Although a positive α_j is suggestive of non-random selection conditional on *X*, this strategy is not definitive for two reasons. First, Heckman et al. (1999) offer a critique of this approach, referred to this as the alignment fallacy. The essence of the critique is that it is not possible to rule out selection into programs on the basis of unobservables even if future program participation is found to be unrelated to pre-participation outcomes conditional on *X*. For example, assume that unobserved attributes that are positively correlated with both child weight and program participation decisions do exist (say, poor genetics). Further, assume that these unobservables are positively correlated with the probability of a parent losing his or her job, the result of which is the household becoming food insecure. As a result, (future) participants may not appear different (conditional on *X*) from (future) non-participants prior to the actual participation decision if the negative effects of food insecurity and positive effects of poor genetics offset. Consequently, Heckman et al. (1999) recommend concluding that there is evidence of selection on unobservables if future participation is found to be statistically related to outcomes prior to actual participation, but urge caution if a statistically meaningful relationship is not uncovered.

The second reason this strategy of examining pre-participation outcomes may not yield an accurate assessment of the presence of non-random selection is due to the fact that, while children may not participate in school meal programs prior to attending kindergarten, there is obviously no such

requirement for SNAP. In fact, nearly 40% of our sample reported participating in SNAP during the child's life prior to kindergarten.

Analyses under Endogeneity. In light of the critique in Heckman et al. (1999), we cannot test whether program participation is exogenous using pre-program outcomes alone. Allowing for the possibility of non-random selection into one or more programs conditional on X, we turn to IV methods to produce estimates of the causal effects of single and multiple program participation.

Formally, the model is given by:

$$\begin{aligned} d_{ji} &= \delta_{j0} + X_i \delta_{j1} + Z_i \delta_{j2} + u_{ji}, \; j = 1,\ldots, 4 \\ y_i &= \beta_0 + X_i \beta_1 + \sum_{j=1}^{4} \alpha_j \hat{d}_{ji} + \varepsilon_i \end{aligned} \tag{2}$$

where Z_i is a vector of instrumental variables for $d_{1i} - d_{4i}$, and $\hat{d}_{ji}$ represent the predicted values from the first stage. The variables utilized in Z include: zip code- level measures of the percent of non-U.S. citizens, percent of owner-occupied housing, and median household income, as well as county-level measures of the proportion of population participating in SNAP, the recertification rate, and biometric data requirements. We also utilize a binary indicator if the child lives within 15 minutes of the school.

We expect these area-level demographic and policy attributes to influence program participation, but not child health, conditional on X. The demographic variables may influence school meal program participation through Provision 2 or Provision 3 (USDA, 2002). In brief, both Provision 2 and Provision 3 offer a way for schools to reduce their administrative costs of participation in the NSLP and SBP in exchange for providing meals at no charge to all students. This option is designed to increase school meal participation by students, as well as reduce costs for schools with a high fraction of free- and reduced-price eligible students. Since data on which schools utilize Provision 2 or 3 are unavailable (to our

knowledge), we utilize area-level measures of economic status to proxy for the use of the Provisions 2 or 3.[6]

In addition, area-level demographic measures, as well as county-level SNAP participation rates, may affect program participation – in all three programs – through their effect on the stigma associated with participation. The state-level policy variables concerning SNAP certification and biometric data requirements are anticipated to impact the decision to participate in SNAP through the cost of participation (see Meyerhoefer and Pylypchuk, 2008).

Finally, we expect distance to the school to impact participation in the SBP due to its effect on the convenience of getting to school in time to eat breakfast prior to classes beginning.

3. Results

Selectivity Analysis:

Prior to evaluating the relationships between child weight and program participation, we investigate the association between pre-program outcomes – child outcome measures at entry into kindergarten – and future participation – program participation during spring first grade – to provide some evidence on the likely pattern of selection into these programs. Tables 2 and 3 present these results.

Table 2 summarizes the results for the full sample, while Table 3 presents the results for children residing in low income households (defined here as having family income below 200% of federal poverty line). The two tables are organized in the same fashion. Within each table, Panels I – VI correspond to different measures of weight or weight change. The four sets of columns correspond to models estimated via OLS, state fixed effects, county fixed effects, and school fixed effects. Lastly, within each set of columns, we initially include dummy variables for participation in SBP and NSLP only (Specification 1), then add a

[6] For more information about Provision 2 and Provision 3, see http://www.fns.usda.gov/cnd/governance/prov-1-2-3/prov2guidance.pdf.

dummy variable indicating participation in SNAP (Specification 2), and finally we include an interaction term, with the dummy variable ALL indicating participation in all three programs (Specification 3).

The first panel of Table 2 presents the results for change in weight from birth to kindergarten. The sample size in this panel is slightly lower due to missing birth weight measures for 457 children. In the first set of columns we see children who gain weight faster from birth to kindergarten are more likely to participate in SBP and NSLP in first grade. The evidence in favor of non-random selection of students into both school meals programs continues even as we control for state and county fixed effects, but it disappears when allowing for school fixed effects. This suggests that the selection is mainly at the school-level, and not within schools. In addition, we find no evidence of non-random selection into SNAP or the ALL treatment.

Panel II of Table 2 presents results for weight growth from birth to kindergarten. Here, we find no evidence supporting non-random selection on unobservables into NSLP, but continue to find evidence of such selection into SBP. Once again, though, this evidence disappears once we include school fixed effects.

Using kindergarten weight measures in Panels III (log BMI) and IV (BMI percentile) yields evidence of non-random selection into both NSLP and SBP. Moreover, the positive association between fall kindergarten weight and NSLP participation in spring first grade persists even controlling for school fixed effects. Similar evidence in favor of non-random selection into NSLP even after conditioning on school fixed effects is found in Panel V; children who are overweight in fall kindergarten are more likely to participate in the NSLP in spring first grade. There is no evidence in Panel VI of a statistically meaningful association between obesity status in fall kindergarten and participation in any of the three programs in spring first grade.

Table 3 presents results of the same set of analyses but restricts the sample to low income households. While the patterns of selection are similar to those in Table 2, there is no longer any statistically

meaningful evidence of non-random selection using any of the weight measures once school fixed effects are included. This could, in part, reflect the use of a more homogeneous sample, but it may also reflect a decrease in precision due to the smaller sample sizes.

In sum, while we do find evidence suggestive of non-random selection on unobserved attributes into both the SBP and the NSLP, the evidence is much weaker once school fixed effects are included in the model and we restrict the sample to low income households. That said, it is worth pointing out that the stronger evidence of non-random selection on unobserved attributes into the NSLP documented here, relative to Millimet et al. (2010) and Schanzenbach (2009), is potentially attributable to three factors. First, unlike these prior studies, here we restrict the sample to public schools participating in both the SBP and NSLP. Moreover, Schanzenbach (2009) excludes students eligible for free lunch in her analysis. Second, the set of covariates included in the current model differs from these prior studies. Third, the analysis here utilizes sample weights.

Analysis Under Exogeneity:

Tables 4.1 – 4.4 display the results obtained from OLS estimation of equation (1) using the full sample. Table 4.1 does not include any fixed effects, whereas Table 4.2 – 4.4 include state, county, and school fixed effects, respectively. In all tables, in contrast to Tables 2 and 3, recall that program participation is measured in spring first grade and the weight outcomes are measured in either spring third or fifth grade. The columns within each table and grade represent different combinations of the treatment indicators included in the specification. Of particular interest is the comparison between columns (1) and (5), (3) and (5), and (5) and (6). Column (1) includes SNAP alone, while Column (3) includes school meal programs alone. These are the norms in the existing literatures examining these programs. However, Column (5) includes all three programs simultaneously. Finally, Column (6) also includes the interaction term, ALL, allowing for the possibility of spillovers across programs.

Examining Tables 4.1 – 4.2, several patterns emerge. First, while many of the estimates are imprecise, generally speaking SNAP participation tends to be negatively associated with weight or weight gain when other programs are excluded from the model (Column (1)). NSLP participation, and to a modestly lesser extent SBP participation, tend to be positively associated with weight or weight gain when SNAP participation is excluded from the model (Column (3)). Second, when all three programs are included simultaneously, the negative (positive) association between SNAP (NSLP and SBP) participation and child weight increases in absolute value. Thus, there is a cost to examining each program in isolation since participation is strongly correlated across programs.

Third, there is little evidence of spillovers across the programs as the coefficient on ALL is typically small albeit imprecisely estimated. Finally, the addition of county fixed effects in Table 4.3 does not qualitatively alter these patterns.

While these patterns are interesting, and do serve to highlight the importance of examining nutrition programs jointly rather than individually, they likely do not reflect causal effects of program participation given the correlation documented above between first grade program participation and weight outcomes prior to first grade. However, since much of this correlation disappears conditional on school fixed effects, the results presented in Table 4.4 are arguably more policy relevant.

Viewing Table 4.4, we see now that very few of the point estimates are statistically significant at conventional levels. In comparison to the prior tables, it is evident that this most attributable due to a fall in magnitude in the point estimates rather than an increase in the standard errors. The few estimates that are statistically significant are noteworthy. First, we find a statistically significant association between NSLP (SBP) participation and third grade log BMI in Panel I at the $p < 0.05$ ($p < 0.10$) confidence level in Column (6). Interestingly, these effects diminish and are no longer statistically significant in Columns (3) and (5), thereby highlighting the importance of including SNAP participation as well as the interaction term in the model. In general, because participation decisions in various government programs targeting

a particular population – in this case, predominantly low income households – are highly correlated, parameter estimates are extremely sensitive to the participation variables included in the model specification.

Second, we obtain a positive and statistically and economically significant association between NSLP participation and third grade obesity status. This association is relatively stable across specifications, with participation associated with a 4.6 – 4.7% increase in the probability of being obese, across the various specifications. Finally, SNAP participation is associated with a statistically and economically meaningful 3.3% (5.0%) decline in the probability of being obese (overweight) in third grade in Column (5), although the estimates become individually insignificant once the interaction term is added in Column (6).

In sum, the models assuming conditional independence between program participation and the (idiosyncratic) error term within the full sample of children point to a generally negative association between SNAP participation and child weight, a positive association between NSLP participation and child weight, and a weaker positive association between SBP participation and child weight. This pattern, in combination with the positive correlation in participation across programs implies that the associations between each program and child weight tend to be amplified when all three programs are simultaneously included in the model. Moreover, except for a few associations – mainly between NSLP and SNAP participation and third grade overweight and obesity status – very few statistically significant associations remain once school fixed effects are included.

Analysis Under Endogeneity:

Given the critique in Heckman et al. (1999) concerning the alignment fallacy, any causal interpretation of the preceding results, even those that include school fixed effects, is questionable at best. Allowing for the possibility of non-random selection into one or more programs conditional on X, we utilize IV methods in an attempt to produce estimates of the causal effects of single and multiple program participation. The instrument set always includes the seven variables discussed above (plus a quadratic

term for the county-level SNAP participation rate). Thus, all the specifications are overidentified. Table 4.5 presents the initial results. Note, the specifications here are analogous to those presented in Table 4.1. Specifically, we do not include any area-level fixed effects in the models as many of the instruments do not vary within schools or counties or even states. Furthermore, NSLP is treated as exogenous in all models except Columns (2) and (4) due to difficulties associated with identification (as we document below); other programs are always treated as endogenous.

In addition to the coefficient estimates, the tables also include a number of test statistics assessing the specification of the various models. Specifically, we report the p-values from Kleinbergen-Paap rk LM test that the model is underidentified, the Hansen J test of overidentifying restrictions, the Kleinbergen-Paap rk Wald F-statistic of the strength of the first-stage relationships (RKf), the Anderson-Rubin Wald test of joint significance of the program effects that is robust to weak identification, and a test of endogeneity of program participation. Ideally, we would like to see a high RKf statistic, reject the null of underidentification, and fail to reject the null of valid overidentifying restrictions.

In terms of the various specification tests, a few patterns emerge. First, we typically reject the null of underidentification at conventional levels except in Columns (6) and (7) for fifth grade. However, rejecting underidentification does not preclude the models from being weakly identified. Indeed, this appears to be the case – as reflected in relatively low values of the RKf statistic – particularly in Columns (6) and (7) when all three programs are examined jointly. Second, we typically fail to reject the null in the test of overidentification when examining third grade outcomes (with the exception of obesity status in third grade). This is not the case when examining fifth grade outcomes. Finally, the test of endogeneity rarely rejects the null of exogeneity (and never does so using third grade outcomes) at conventional levels of significance. However, given the apparent weak identification of the program effects, this is perhaps not surprising as the resulting IV estimates are not at all precise.

The overall performance of the IV models, along with other specifications and instrument sets experimented with, is clearly disappointing. However, the results should serve as a warning to those interested in analyzing the causal effects of participation in federal nutrition programs using non-experimental data. Because program participation decisions are highly correlated across these three programs, strong predictors of participation in one program tend to be strong predictors of participation in other programs as well. As such, isolating exogenous variation in participation in any *single* program is problematic, and leads to weak identification in the specifications treating several program variables as endogenous. Note, this occurs despite our treatment of NSLP participation as exogenous in Columns (6) and (7). The inability of IV to separately identify program effects in models with multiple programs, combined with the earlier OLS results suggesting that analyses of programs in isolation may be misleading due to the high correlation in participation across programs, should perhaps serve as a call for experimental evidence to isolate the causal effects of individual nutrition programs in a world in which individuals have a menu of programs in which to participate (and may participate in more than one program).

That said, the specification in Column (5) is interesting to focus on. Here, only a single endogenous variable, ALL, is included in the model. The model fairs well according to the specification tests when analyzing third grade outcomes. In terms of the estimates, we cannot reject the null of no causal effect of participating in all three programs in first grade (relative to not participating in all three programs) on third grade child weight in Panels I – IV. However, we do find a positive and economically and statistically meaningful effect on the probability of being overweight and obese in Panels V and VI; participation in all three programs yields roughly a 24% increase in the probability of being overweight or obese two years later.

Before moving on, we attempt to lessen the demands placed on the data by restricting the sample to children participating in the NSLP (thus permitting us to exclude the control for NSLP participation). Unfortunately, the results, reported in Table 4.6, are qualitatively similar to those presented in Table 4.5.

Sensitivity Analysis:

We extend the baseline model in three directions in order to assess the sensitivity of the prior findings, as well as perhaps strengthen our ability to identify credible estimates of the causal effects of participation in multiple programs. Our first exercise redefines the program participation variables. Instead of measuring participation in each program during spring first grade, we define what we refer to as "persistent participation" measures. Specifically, when analyzing third grade outcomes, we define participation in a program as one if the child is reported as having participated in that program in the spring of both first and third grades (or only one of the two grades if the participation variable is missing in the other grade), zero otherwise. Use of our persistent participation definition of the treatments potentially serves two purposes. First, if the covariates – including the instruments – are better predictors of persistent participation, then perhaps identification will be enhanced. Second, if persistent participation has larger effects on child weight, then perhaps it will be easier to identify these effects.

Our second exercise limits the sample to low income households, as in Table 3, and continues to use persistent participation to define the treatment variables. While we present both OLS and IV estimates, the OLS estimates obtained after including school fixed effects arguably may reflect the causal effects of program participation since first grade program participation was not significantly related to child weight prior to first grade in this sample once school fixed effects were introduced.

Our final sensitivity analysis starts with the low income sample and the persistent participation definition of the treatment variables, but then estimates the models separately for different demographic groups. Again, this serves two purposes. First, because the samples are more homogeneous, the OLS estimates obtained after including school fixed effects may be even more likely to reflect the causal effects of program participation. Second, separate analyses for different demographic groups allow us to assess the presence of heterogeneity in the association between program participation and child weight. Such heterogeneity may arise if, say, compliance with federal guidelines concerning the nutritional content of

school meals varies across the U.S., or the effects of programs differ by child gender or race or region of residence.

Persistent Participation. Tables 5.1 – 5.6 report the persistent participation results. The tables are analogous to Tables 4.1 – 4.6 except for the change in definition of the treatment variables. Thus, Table 5.1 reports the OLS estimates with no fixed effects, Tables 5.2 – 5.4 present the estimates from models including state, county, and school fixed effects, respectively, and Tables 5.5 and 5.6 report the IV results for all children and the sub-sample of NSLP participants only, respectively.

The OLS estimates in Tables 5.1 – 5.4 are qualitatively similar to the corresponding estimates in Tables 4.1 – 4.4. The primary difference is an increase in the magnitude and statistical significance of the estimates when analyzing fifth grade outcomes. However, this is hardly surprising as we are now capturing more of the short-run association between program participation and child weight, rather than focusing exclusively on the long-run association. That said, few of the coefficients are statistically significant when including school fixed effects in the fifth grade specifications.

The IV results in Tables 5.5 and 5.6 are very similar to the IV results in Tables 4.5 and 4.6. Specifically, while the instruments appear strong in the models that include at most two treatment variables, they tend to fail the overidentification test (which is not surprising given the exclusion of at least one program participation variable). However, when all three programs are included in the model, identification is very weak as indicated by the low RKf statistics. One noticeable difference from the earlier results, though, is the consistent positive and economic and statistically significant effect of persistent participation in the NSLP on child weight in fifth grade in Columns (2) and (4). Given the relatively low RKf statistic, however, this finding should be interpreted with caution.

Low Income Subsample. Tables 6.1 – 6.6 report the results utilizing only the low income sample. The tables are analogous to Tables 5.1 – 5.6 except for this additional sample restriction. As such, Table 6.1 reports the OLS estimates with no fixed effects, Tables 6.2 – 6.4 present the estimates from models

including state, county, and school fixed effects, respectively, and Tables 6.5 and 6.6 report the IV results for all children and the sub-sample of NSLP participants only, respectively.

Again, the results are qualitatively unchanged for the most part. One noteworthy difference arises, however, when examining fifth grade outcomes and including school fixed effects. Here, we find a consistently positive and statistically significant association between NSLP participation and all child weight measures except change in percentile BMI and overweight status.

The IV results for the low income subsample are presented in Tables 6.5 and 6.6. The models fare even worse than previously, as now we frequently fail to reject the null of underidentification. However, it is noteworthy that in the specifications including only a single endogenous variable, ALL, we now fail to find any statistically meaningful effect on child weight status in contrast to the full sample.

Demographic Subsamples. Tables 7.1 – 7.11 report results for subsamples of low income households with analyses performed separately for boys, girls, blacks, Hispanics, whites, residents in urban, suburban and rural areas, as well as families residing in northeast, west, and south. In each table we present OLS results from only the specifications including school fixed effects, along with the IV estimates. Furthermore, in the interest of brevity, we only show the results using BMI growth and probability of the child being overweight.[7]

While small sample sizes lead to few coefficients being individually statistically significant at conventional levels, some of the results are interesting. First, the OLS estimates indicate that participation in all three programs is associated with lower BMI growth among boys, and a lower probability of being overweight among families residing in northeast; NSLP participation is associated with higher BMI growth in rural areas. Second, the IV estimates point to a statistically significant negative effect of participation in all three programs on the probability of being overweight among Hispanics and children residing in the west when this is the only treatment variable included in the model.

[7] The full set of results is available upon request.

These results are particularly interesting since Roy et al. (2011) also found a benefit to participating in all three programs.

4. Conclusions

The relationship between federal nutrition assistance programs and childhood obesity has been examined in a number of prior studies. In this study, we build on this literature by investigating the effects of participation in each of the three programs on childhood weight, both individually as well as simultaneously. Specifically, we analyze a sample of students who attend public schools participating in school meal programs and conduct three sets of analyses. We start by investigating the patterns of selection into the programs, followed by analyzing the association between program participation and child weight assuming no participation decisions are exogenous conditional on the covariates included in the models, and finally analyzing the programs allowing for selection into the programs on the basis of unobserved attributes. In addition, we separately analyze sub-samples of more homogeneous populations based on observable demographic variables.

The results from the selection analysis reveal evidence of non-random selection into SBP as well as NSLP. In particular, we find that heavier children and children who are on a steeper weight gain trajectories are more likely to participate in school nutrition assistance programs. However, this evidence disappears once we restrict the sample to children residing in low income households and condition on school fixed effects. Unfortunately, this is not conclusive evidence of a lack of selection into federal nutrition programs on the basis of salient unobserved attributes.

In terms of our analysis of the relationships between program participation and current child health, we find relatively consistent negative (positive) associations between SNAP (NSLP and SBP) participation and child weight status. When including school fixed effects, restricting the sample to low income households, and defining the treatment variables as persistent participation, we continue to obtain a consistently positive association between NSLP participation and child weight in fifth grade.

While interesting, an ability to draw causal conclusions is necessary to derive policy implications. In an attempt to do so, by removing any remaining selection bias due to correlation between program participation decisions and unobserved attributes associated with child weight, we turn to IV estimation. Unfortunately, the results are not particularly informative, although they do suggest at worst no impact of persistent participation in all three programs on child weight in low income households, and perhaps a beneficial effect for low income Hispanic children and children in the western United States.

Finally, our attempts to address endogenous program participation through IV has brought to the forefront an inherent difficulty in assessing multiple program participation: the strong, positive correlation in participation decisions makes the identification of unique, exogenous sources of variation in participation difficult, if not impossible. As a result, models incorporating multiple program participation indicators are weakly identified. However, focusing on only one program in isolation is not a valid solution as the omitted programs become part of the error term and tends to invalidate the proposed instruments for the program being focused on. Thus, perhaps the only way to estimate the causal effects of multiple federal nutrition programs when individuals frequently participate in multiple programs is through the use of social experiments. In the absence of such an undertaking, our results here cautiously suggest a detrimental effect of NSLP participation on child weight status that is offset by participation in the SBP and SNAP.

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6. Tables:

Table 1.1 Summary Statistics.

	Third Grade Sample			Fifth Grade Sample		
Variable	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
BMI	7100	18.826	3.853	5600	20.774	4.748
Percentile BMI	7100	67.410	28.120	5600	69.312	28.741
BMI Growth Rate (Since Kindergarten)	7100	0.124	0.113	5600	0.222	0.143
Change in Percentile BMI (Since Kindergarten)	7100	4.936	19.933	5600	8.125	22.657
Overweight (1 = Yes)	7100	0.371	0.483	5600	0.433	0.496
Obese (1 = Yes)	7100	0.198	0.399	5600	0.236	0.425
SBP Participant (1 = Yes)	7100	0.387	0.487	5600	0.382	0.486
NSLP Participant (1 = Yes)	7100	0.844	0.363	5600	0.847	0.360
SNAP Participant (1 = Yes)	7100	0.182	0.386	5600	0.190	0.392
SBP/NSLP/SNAP Participant (1 = Yes)	7100	0.127	0.333	5600	0.128	0.334
Birthweight (oz.)	7100	117.789	21.368	5600	117.744	22.221
Birthweight Missing (1 = Yes)	7100	0.064	0.244	5600	0.058	0.234
Gender (1 = Male)	7100	0.520	0.500	5600	0.525	0.499
Age (mos.)	7100	109.472	4.384	5600	132.777	4.325
White (1 = Yes)	7100	0.547	0.498	5600	0.534	0.499
Black (1 = Yes)	7100	0.175	0.380	5600	0.190	0.392
Hispanic (1 = Yes)	7100	0.208	0.406	5600	0.209	0.407
Urban (1 = Yes)	7100	0.356	0.479	5600	0.343	0.475
Suburban (1 = Yes)	7100	0.358	0.479	5600	0.331	0.471
Northeast (1 = Yes)	7100	0.149	0.356	5600	0.148	0.355
Midwest (1 = Yes)	7100	0.189	0.391	5600	0.182	0.386
South (1 = Yes)	7100	0.438	0.496	5600	0.446	0.497
Mother's Age at First Birth	7100	22.667	5.054	5600	22.697	5.038
Mother's Age at First Birth Missing (1 = Yes)	7100	0.064	0.245	5600	0.076	0.265
SES Index	7100	-0.164	0.734	5600	-0.169	0.745
Mother's Education < High School (1 = Yes)	7100	0.169	0.375	5600	0.168	0.374
Mother's Education = High School/GED (1 = Yes)	7100	0.341	0.474	5600	0.338	0.473
Mother's Education = Some College (1 = Yes)	7100	0.300	0.458	5600	0.311	0.463
Mother's Education = BA/BS (1 = Yes)	7100	0.110	0.312	5600	0.103	0.303
Mother's Education > BA/BS (1 = Yes)	7100	0.050	0.218	5600	0.051	0.220
BMI, Kindergarten	7100	16.352	2.184	5600	16.328	2.187
Percentile BMI, Kindergarten	7100	62.591	28.322	5600	62.025	28.833
Overweight (1 = Yes), Kindergarten	7100	0.281	0.450	5600	0.281	0.450
Obese (1 = Yes), Kindergarten	7100	0.125	0.330	5600	0.123	0.328
Distance to School Less than 15 mins. (1 = Yes)	7100	0.623	0.485	5600	0.625	0.484
% Non-US Citizens, Zip Code	7100	0.063	0.089	5600	0.062	0.088
% Owner-Occupied Housing, Zip Code	7100	0.670	0.161	5600	0.669	0.164
Median Household Income, Zip Code	7100	40730.231	14144.403	5600	40689.850	14396.419
% SNAP Participants, County	7050	0.069	0.056	5500	0.070	0.057
SNAP Biometric Indicator, State	7100	0.269	0.443	5600	0.258	0.437
SNAP Certification Rate > 50%, State	7100	0.546	0.498	5600	0.558	0.497

Notes: Participation measured in spring first grade. Survey weights utilized. N = number of observations; SD = Standard Deviation. Sample sizes rounded to the nearest 50 given use of the ECLS-K restricted data. See text for further details.

Table 1.2 Summary Statistics: Program Participation.

Spring Third Grade Sample:	N	Prop.	Cond. Prob.
Total in None	1150	[0.141]	
Total in SBP	3100	[0.378]	
Total in SBP & NSLP	3000	[0.367]	[0.970]
Total in SBP & SNAP	1000	[0.123]	[0.326]
Total in SBP & NSLP & SNAP	1000	[0.121]	[0.321]
Total in NSLP	6900	[0.844]	
Total in SBP & NSLP	3000	[0.367]	[0.435]
Total in NSLP & SNAP	1400	[0.169]	[0.200]
Total in SBP & NSLP & SNAP	1000	[0.121]	[0.144]
Total in SNAP	1400	[0.175]	
Total in SBP & SNAP	1000	[0.123]	[0.705]
Total in NSLP & SNAP	1400	[0.169]	[0.967]
Total in SBP & NSLP & SNAP	1000	[0.121]	[0.694]

Note: Program participation measured in spring first grade. Prop. represents the proportion of the sample participating in the program. Cond. Prob. represents the conditional probability participating in combination of programs out of total number of students participating. Sample sizes rounded to the nearest 50 given use of the ECLS-K restricted data.

Table 1.3 Summary Statistics: Program Participation.

Spring Third Grade Sample:	N	Prop.	Cond. Prob.
Total in None	250	[0.056]	
Total in SBP	2500	[0.549]	
Total in SBP & NSLP	2400	[0.536]	[0.976]
Total in SBP & SNAP	1000	[0.217]	[0.395]
Total in SBP & NSLP & SNAP	950	[0.213]	[0.388]
Total in NSLP	4150	[0.924]	
Total in SBP & NSLP	2400	[0.536]	[0.580]
Total in NSLP & SNAP	1350	[0.295]	[0.319]
Total in SBP & NSLP & SNAP	950	[0.213]	[0.231]
Total in SNAP	1400	[0.305]	
Total in SBP & SNAP	1000	[0.217]	[0.711]
Total in NSLP & SNAP	1300	[0.295]	[0.967]
Total in SBP & NSLP & SNAP	950	[0.213]	[0.700]

Note: Program participation measured in spring first grade. Sample restricted to households with income less than 200% of the federal poverty line. Prop. represents the proportion of the sample participating in the program. Cond. Prob. represents the conditional probability participating in combination of programs out of total number of students participating. Sample sizes rounded to the nearest 50 given use of the ECLS-K restricted data.

Table 1.4 Summary Statistics: Program Participation.

Spring Third Grade Sample:	N	Prop.
Total in None	1150	[0.141]
Total in SBP Only	100	[0.010]
Total in NSLP Only	3500	[0.429]
Total in SNAP Only	0	[0.004]
Total in SBP & NSLP Only	2000	[0.246]
Total in SBP & SNAP Only	0	[0.002]
Total in NSLP & SNAP Only	400	[0.048]
Total in SBP & NSLP & SNAP	1000	[0.121]

Note: Program participation measured in spring first grade. Prop. represents the proportion of the sample participating in the program. Sample sizes rounded to the nearest 50 given use of the ECLS-K restricted data.

Table 2 Selection into Nutrition Assistance Programs.

	No Fixed Effects			State Fixed Effects			County Fixed Effects			School Fixed Effects		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
I. Change in Weight from Birth to Kindergarten												
SBP	0.580†	0.607*	0.684*	0.580†	0.607*	0.624†	0.488†	0.527†	0.645†	0.232	0.283	0.358
	(0.224)	(0.230)	(0.250)	(0.224)	(0.230)	(0.247)	(0.242)	(0.244)	(0.266)	(0.290)	(0.284)	(0.296)
NSLP	0.728†	0.735†	0.726†	0.728†	0.735†	0.748†	0.743†	0.755†	0.745†	0.553	0.574‡	0.565
	(0.322)	(0.321)	(0.321)	(0.322)	(0.321)	(0.324)	(0.336)	(0.336)	(0.335)	(0.344)	(0.344)	(0.342)
SNAP		-0.203	0.067		-0.203	0.067		-0.323	0.087		-0.625	-0.34
		(0.287)	(0.470)		(0.287)	(0.472)		(0.309)	(0.492)		(0.423)	(0.577)
ALL			-0.422			-0.507			-0.643			-0.44
			(0.604)			(0.606)			(0.620)			(0.655)
N	6650	6650	6650	6650	6650	6650	6650	6650	6650	6650	6650	6650
JSig	p = 0.000	p = 0.001	p = 0.002	p = 0.000	p = 0.001	p = 0.004	p = 0.003	p = 0.004	p = 0.006	p = 0.212	p = 0.103	p = 0.168
SBP + NSLP	1.308	1.342	1.411	1.308	1.342	1.371	1.231	1.282	1.39	0.785	0.857	0.923
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.001	p = 0.000	p = 0.000	p = 0.088	p = 0.058	p = 0.047
SNAP + NSLP		0.532	0.793		0.532	0.815		0.432	0.832		-0.052	0.225
		p = 0.228	p = 0.171		p = 0.228	p = 0.164		p = 0.353	p = 0.167		p = 0.925	p = 0.744
SNAP + SBP + NSLP	1.308	1.139	1.056	1.308	1.139	0.932	1.231	0.959	0.834	0.785	0.232	0.143
	p = 0.000	p = 0.007	p = 0.016	p = 0.000	p = 0.007	p = 0.039	p = 0.001	p = 0.040	p = 0.085	p = 0.088	p = 0.716	p = 0.827
II. Weight Growth from Birth to Kindergarten												
SBP	0.017†	0.017†	0.020†	0.017†	0.017†	0.017‡	0.013	0.013	0.019‡	0.009	0.011	0.014
	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.010)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)
NSLP	0.013	0.012	0.012	0.013	0.012	0.012	0.009	0.009	0.008	0.004	0.005	0.004
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)
SNAP		0.002	0.014		0.002	0.011		-0.002	0.017		-0.017	-0.003
		(0.010)	(0.015)		(0.010)	(0.015)		(0.011)	(0.016)		(0.014)	(0.019)
ALL			-0.02			-0.018			-0.03			-0.022
			(0.022)			(0.022)			(0.023)			(0.024)
N	6650	6650	6650	6650	6650	6650	6650	6650	6650	6650	6650	6650
JSig	p = 0.023	p = 0.056	p = 0.085	p = 0.023	p = 0.056	p = 0.206	p = 0.148	p = 0.258	p = 0.247	p = 0.541	p = 0.317	p = 0.377
SBP + NSLP	0.029	0.029	0.032	0.029	0.029	0.029	0.022	0.022	0.027	0.013	0.015	0.018
	p = 0.011	p = 0.012	p = 0.009	p = 0.011	p = 0.012	p = 0.020	p = 0.071	p = 0.064	p = 0.033	p = 0.359	p = 0.281	p = 0.205
SNAP + NSLP		0.014	0.026		0.014	0.023		0.007	0.026		-0.013	0.001
		p = 0.357	p = 0.152		p = 0.357	p = 0.215		p = 0.667	p = 0.186		p = 0.506	p = 0.964
SNAP + SBP + NSLP	0.029	0.031	0.027	0.029	0.031	0.022	0.022	0.020	0.015	0.013	-0.002	-0.007
	p = 0.011	p = 0.042	p = 0.100	p = 0.011	p = 0.042	p = 0.197	p = 0.071	p = 0.220	p = 0.410	p = 0.359	p = 0.917	p = 0.763

Notes: Participation measured in spring first grade. Standard errors (in parentheses) are clustered at the school-level. ALL equals one if student participates in all three programs, zero otherwise. Other regressors include: gender, age, three race dummies (white, black, Hispanic), two city type dummies (urban, suburban), three region dummies (northeast, midwest, south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status, four dummies for mother's education, dummy if mother's education is missing, birth weight, birth weight squared, birth weight cubed, dummy if birth weight is missing, height, height squared, and height cubed. All regressions utilize survey weights. N = number of observations (rounded to the nearest 50). JSig reports the p-value from the test that all program effects are jointly zero. ‡ p<0.10, † p<0.05, * p<0.01. See text for further details.

Table 2 (cont.) Selection into Nutrition Assistance Programs.

	No Fixed Effects			State Fixed Effects			County Fixed Effects			School Fixed Effects		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
III. Kindergarten ln(BMI)												
SBP	0.009†	0.009†	0.011†	0.009†	0.009†	0.010†	0.008‡	0.009‡	0.011†	0.003	0.004	0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)
NSLP	0.015†	0.015†	0.015†	0.015†	0.015†	0.016†	0.015†	0.015†	0.015†	0.012‡	0.012‡	0.012‡
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
SNAP		-0.004	0.002		-0.004	0.002		-0.007	0.001		-0.011‡	-0.005
		(0.005)	(0.009)		(0.005)	(0.009)		(0.005)	(0.009)		(0.007)	(0.011)
ALL			-0.01			-0.012			-0.013			-0.009
			(0.011)			(0.011)			(0.011)			(0.012)
N	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100
JSig	p = 0.001	p = 0.002	p = 0.003	p = 0.001	p = 0.002	p = 0.004	p = 0.004	p = 0.005	p = 0.006	p = 0.182	p = 0.107	p = 0.146
SBP + NSLP	0.024	0.025	0.026	0.024	0.025	0.026	0.023	0.024	0.026	0.015	0.016	0.018
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.001	p = 0.001	p = 0.000	p = 0.089	p = 0.065	p = 0.050
SNAP + NSLP		0.011	0.017		0.011	0.018		0.008	0.016		0.001	0.007
		p = 0.165	p = 0.108		p = 0.165	p = 0.101		p = 0.319	p = 0.142		p = 0.916	p = 0.572
SNAP + SBP + NSLP	0.024	0.021	0.019	0.024	0.021	0.016	0.023	0.017	0.015	0.015	0.005	0.003
	p = 0.000	p = 0.007	p = 0.000	p = 0.000	p = 0.007	p = 0.047	p = 0.001	p = 0.039	p = 0.085	p = 0.089	p = 0.628	p = 0.754
IV. Kindergarten Percentile BMI												
SBP	2.237†	2.300†	2.840*	2.237†	2.300†	2.457†	1.707‡	1.845‡	2.456†	1.108	1.255	1.811
	(0.994)	(1.040)	(1.065)	(0.994)	(1.040)	(1.041)	(1.021)	(1.068)	(1.123)	(1.193)	(1.228)	(1.367)
NSLP	3.365†	3.381†	3.326†	3.365†	3.381†	3.361†	3.103‡	3.143‡	3.098‡	2.780‡	2.839‡	2.777‡
	(1.523)	(1.524)	(1.520)	(1.523)	(1.524)	(1.527)	(1.604)	(1.605)	(1.601)	(1.674)	(1.682)	(1.678)
SNAP		-0.466	1.433		-0.466	1.414		-1.154	1.007		-1.854	0.262
		(1.185)	(2.127)		(1.185)	(2.106)		(1.242)	(2.159)		(1.508)	(2.415)
ALL			-2.944			-3.484			-3.356			-3.23
			(2.651)			(2.638)			(2.663)			(2.861)
N	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100
JSig	p = 0.001	p = 0.004	p = 0.004	p = 0.001	p = 0.004	p = 0.010	p = 0.013	p = 0.032	p = 0.028	p = 0.184	p = 0.254	p = 0.267
SBP + NSLP	5.602	5.681	6.165	5.602	5.681	5.818	4.810	4.989	5.554	3.888	4.094	4.588
	p = 0.000	p = 0.001	p = 0.000	p = 0.000	p = 0.001	p = 0.000	p = 0.004	p = 0.004	p = 0.002	p = 0.069	p = 0.061	p = 0.042
SNAP + NSLP		2.915	4.759		2.915	4.776		1.99	4.104		0.984	3.039
		p = 0.126	p = 0.071		p = 0.126	p = 0.067		p = 0.316	p = 0.127		p = 0.631	p = 0.275
SNAP + SBP + NSLP	5.602	5.215	4.654	5.602	5.215	3.748	4.810	3.835	3.204	3.888	2.240	1.620
	p = 0.000	p = 0.003	p = 0.000	p = 0.000	p = 0.003	p = 0.039	p = 0.004	p = 0.034	p = 0.085	p = 0.069	p = 0.311	p = 0.466

Table 2 (cont.) Selection into Nutrition Assistance Programs.

	No Fixed Effects			State Fixed Effects			County Fixed Effects			School Fixed Effects		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
V. Kindergarten Overweight												
SBP	0.004	0.002	0.007	0.004	0.002	0.001	-0.002	-0.003	0.002	-0.009	-0.008	-0.004
	(0.017)	(0.017)	(0.019)	(0.017)	(0.017)	(0.019)	(0.018)	(0.018)	(0.020)	(0.020)	(0.020)	(0.022)
NSLP	0.062*	0.062*	0.061*	0.062*	0.062*	0.062*	0.060*	0.059*	0.059*	0.052†	0.052†	0.052†
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)	(0.022)	(0.022)	(0.022)	(0.021)	(0.021)	(0.021)
SNAP		0.017	0.033		0.017	0.033		0.006	0.024		-0.004	0.013
		(0.019)	(0.030)		(0.019)	(0.030)		(0.020)	(0.031)		(0.024)	(0.035)
ALL			-0.024			-0.028			-0.027			-0.025
			(0.039)			(0.039)			(0.039)			(0.040)
N	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100
JSig	p = 0.006	p = 0.012	p = 0.020	p = 0.006	p = 0.012	p = 0.034	p = 0.021	p = 0.052	p = 0.079	p = 0.039	p = 0.089	p = 0.136
SBP + NSLP	0.067	0.064	0.068	0.067	0.064	0.063	0.057	0.056	0.061	0.043	0.044	0.048
	p = 0.004	p = 0.007	p = 0.006	p = 0.004	p = 0.007	p = 0.012	p = 0.022	p = 0.025	p = 0.021	p = 0.133	p = 0.131	p = 0.115
SNAP + NSLP		0.079	0.094		0.079	0.094		0.066	0.083		0.049	0.064
		p = 0.005	p = 0.008		p = 0.005	p = 0.008		p = 0.028	p = 0.026		p = 0.116	p = 0.106
SNAP + SBP + NSLP	0.067	0.081	0.076	0.067	0.081	0.068	0.057	0.062	0.057	0.043	0.040	0.036
	p = 0.004	p = 0.004	p = 0.006	p = 0.004	p = 0.004	p = 0.027	p = 0.022	p = 0.043	p = 0.071	p = 0.133	p = 0.262	p = 0.327
VI. Kindergarten Obese												
SBP	0.001	0.003	0.008	0.001	0.003	0.008	0.000	0.003	0.008	-0.005	-0.004	-0.002
	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.013)	(0.012)	(0.013)
NSLP	0.009	0.009	0.009	0.009	0.009	0.009	0.013	0.014	0.014	-0.001	0.000	0.000
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
SNAP		-0.017	0.001		-0.017	-0.002		-0.023	-0.005		-0.019	-0.013
		(0.014)	(0.025)		(0.014)	(0.025)		(0.015)	(0.026)		(0.017)	(0.029)
ALL			-0.028			-0.030			-0.028			-0.010
			(0.029)			(0.029)			(0.030)			(0.035)
N	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100
JSig	p = 0.839	p = 0.610	p = 0.487	p = 0.839	p = 0.610	p = 0.341	p = 0.715	p = 0.372	p = 0.276	p = 0.911	p = 0.695	p = 0.817
SBP + NSLP	0.010	0.013	0.017	0.010	0.013	0.017	0.014	0.017	0.022	-0.006	-0.004	-0.003
	p = 0.561	p = 0.454	p = 0.303	p = 0.561	p = 0.454	p = 0.325	p = 0.439	p = 0.330	p = 0.212	p = 0.764	p = 0.844	p = 0.905
SNAP + NSLP		-0.008	0.010		-0.008	0.008		-0.009	0.009		-0.020	-0.013
		p = 0.707	p = 0.723		p = 0.707	p = 0.789		p = 0.688	p = 0.773		p = 0.376	p = 0.679
SNAP + SBP + NSLP	0.010	-0.004	-0.010	0.010	-0.004	-0.015	0.014	-0.006	-0.011	-0.006	-0.024	-0.025
	p = 0.561	p = 0.837	p = 0.303	p = 0.561	p = 0.837	p = 0.494	p = 0.439	p = 0.797	p = 0.635	p = 0.764	p = 0.363	p = 0.341

Table 3 Selection into Nutrition Assistance Programs in Low Income Households.

	No Fixed Effects			State Fixed Effects			County Fixed Effects			School Fixed Effects		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
I. Change in Weight from Birth to Kindergarten												
SBP	0.598†	0.612†	0.686†	0.598†	0.612†	0.633†	0.393	0.427	0.575‡	0.255	0.286	0.249
	(0.267)	(0.270)	(0.310)	(0.267)	(0.270)	(0.301)	(0.278)	(0.281)	(0.319)	(0.350)	(0.344)	(0.407)
NSLP	0.686	0.693	0.692	0.686	0.693	0.654	0.901	0.916	0.921	0.605	0.642	0.644
	(0.545)	(0.545)	(0.545)	(0.545)	(0.545)	(0.546)	(0.593)	(0.592)	(0.590)	(0.874)	(0.865)	(0.865)
SNAP		-0.107	0.077		-0.107	0.004		-0.299	0.059		-0.442	-0.539
		(0.297)	(0.498)		(0.297)	(0.481)		(0.326)	(0.511)		(0.492)	(0.646)
ALL			-0.288			-0.330			-0.561			0.146
			(0.655)			(0.653)			(0.673)			(0.783)
N	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
JSig	p = 0.025	p = 0.056	p = 0.097	p = 0.025	p = 0.056	p = 0.137	p = 0.099	p = 0.122	p = 0.167	p = 0.626	p = 0.505	p = 0.620
SBP + NSLP	1.284	1.304	1.379	1.284	1.304	1.287	1.294	1.343	1.496	0.86	0.928	0.893
	p = 0.026	p = 0.024	p = 0.023	p = 0.026	p = 0.024	p = 0.034	p = 0.043	p = 0.034	p = 0.024	p = 0.374	p = 0.327	p = 0.365
SNAP + NSLP		0.586	0.769		0.586	0.658		0.617	0.980		0.201	0.105
		p = 0.348	p = 0.309		p = 0.348	p = 0.383		p = 0.372	p = 0.231		p = 0.848	p = 0.928
SNAP + SBP + NSLP	1.284	1.197	1.168	1.284	1.197	0.961	1.294	1.044	0.994	0.860	0.487	0.500
	p = 0.026	p = 0.058	p = 0.067	p = 0.026	p = 0.058	p = 0.134	p = 0.043	p = 0.142	p = 0.164	p = 0.374	p = 0.666	p = 0.658
II. Weight Growth from Birth to Kindergarten												
SBP	0.007	0.006	0.008	0.007	0.006	0.005	0.000	0.000	0.005	0.004	0.004	0.005
	(0.011)	(0.011)	(0.014)	(0.011)	(0.011)	(0.014)	(0.011)	(0.012)	(0.014)	(0.013)	(0.013)	(0.015)
NSLP	0.004	0.003	0.003	0.004	0.003	0.003	0.005	0.005	0.005	0.007	0.008	0.008
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.021)	(0.030)	(0.030)	(0.029)
SNAP		0.004	0.008		0.004	0.005		0.000	0.012		-0.010	-0.008
		(0.012)	(0.016)		(0.012)	(0.017)		(0.013)	(0.018)		(0.018)	(0.023)
ALL			-0.007			-0.006			-0.019			-0.004
			(0.025)			(0.026)			(0.027)			(0.029)
N	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
JSig	p = 0.796	p = 0.899	p = 0.954	p = 0.796	p = 0.899	p = 0.996	p = 0.974	p = 0.997	p = 0.963	p = 0.940	p = 0.916	p = 0.972
SBP + NSLP	0.010	0.010	0.011	0.010	0.010	0.008	0.005	0.005	0.010	0.011	0.012	0.013
	p = 0.631	p = 0.657	p = 0.629	p = 0.631	p = 0.657	p = 0.751	p = 0.839	p = 0.841	p = 0.703	p = 0.750	p = 0.713	p = 0.710
SNAP + NSLP		0.007	0.011		0.007	0.008		0.005	0.018		-0.003	0.000
		p = 0.757	p = 0.666		p = 0.757	p = 0.765		p = 0.839	p = 0.554		p = 0.939	p = 0.997
SNAP + SBP + NSLP	0.010	0.013	0.013	0.010	0.013	0.007	0.005	0.005	0.004	0.011	0.002	0.001
	p = 0.631	p = 0.573	p = 0.596	p = 0.631	p = 0.573	p = 0.783	p = 0.839	p = 0.847	p = 0.896	p = 0.750	p = 0.962	p = 0.969

Notes: Participation measured in spring first grade. Sample restricted to households with income less than 200% of the federal poverty line. Standard errors (in parentheses) are clustered at the school-level. ALL equals one if student participates in all three programs, zero otherwise. Other regressors include: gender, age, three race dummies (white, black, Hispanic), two city type dummies (urban, suburban), three region dummies (northeast, midwest, south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status, four dummies for mother's education, dummy if mother's education is missing, birth weight, birth weight squared, birth weight cubed, dummy if birth weight is missing, height, height squared, and height cubed. All regressions utilize survey weights. N = number of observations (rounded to the nearest 50). JSig reports the p-value from the test that all program effects are jointly zero. ‡ p<0.10, † p<0.05, * p<0.01. See text for further details.

Table 3 (cont.) Selection into Nutrition Assistance Programs in Low Income Households.

	No Fixed Effects			State Fixed Effects			County Fixed Effects			School Fixed Effects		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
III. Kindergarten ln(BMI)												
SBP	0.010†	0.010†	0.012†	0.010†	0.010†	0.011†	0.007	0.008	0.011‡	0.005	0.005	0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)
NSLP	0.016‡	0.016‡	0.016‡	0.016‡	0.016‡	0.015‡	0.019‡	0.019‡	0.019‡	0.013	0.014	0.014
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.014)	(0.014)	(0.014)
SNAP		-0.002	0.004		-0.002	0.002		-0.007	0.001		-0.008	-0.007
		(0.005)	(0.009)		(0.005)	(0.009)		(0.005)	(0.009)		(0.007)	(0.011)
ALL			-0.009			-0.010			-0.012			-0.002
			(0.012)			(0.012)			(0.012)			(0.013)
N	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900
JSig	p = 0.015	p = 0.037	p = 0.047	p = 0.015	p = 0.037	p = 0.058	p = 0.041	p = 0.047	p = 0.050	p = 0.510	p = 0.374	p = 0.536
SBP + NSLP	0.026	0.026	0.028	0.026	0.026	0.027	0.026	0.027	0.030	0.017	0.019	0.019
	p = 0.009	p = 0.009	p = 0.005	p = 0.009	p = 0.009	p = 0.006	p = 0.015	p = 0.011	p = 0.005	p = 0.261	p = 0.223	p = 0.220
SNAP + NSLP		0.014	0.019		0.014	0.017		0.012	0.02		0.005	0.006
		p = 0.188	p = 0.130		p = 0.188	p = 0.172		p = 0.275	p = 0.136		p = 0.738	p = 0.714
SNAP + SBP + NSLP	0.026	0.024	0.023	0.026	0.024	0.018	0.026	0.020	0.019	0.017	0.010	0.010
	p = 0.009	p = 0.023	p = 0.031	p = 0.009	p = 0.023	p = 0.078	p = 0.015	p = 0.079	p = 0.097	p = 0.261	p = 0.545	p = 0.552
IV. Kindergarten Percentile BMI												
SBP	2.213‡	2.168‡	3.080†	2.213‡	2.168‡	2.594‡	1.295	1.378	2.224	1.346	1.389	1.906
	(1.216)	(1.239)	(1.354)	(1.216)	(1.239)	(1.323)	(1.218)	(1.245)	(1.365)	(1.270)	(1.286)	(1.511)
NSLP	4.442†	4.421†	4.427†	4.442†	4.421†	4.134‡	4.775†	4.808†	4.847†	3.664	3.718	3.693
	(2.224)	(2.230)	(2.210)	(2.224)	(2.230)	(2.152)	(2.282)	(2.285)	(2.259)	(2.916)	(2.928)	(2.919)
SNAP		0.344	2.630		0.344	2.107		-0.736	1.362		-0.640	0.734
		(1.158)	(2.162)		(1.158)	(2.085)		(1.218)	(2.065)		(1.555)	(2.378)
ALL			-3.553			-3.684			-3.255			-2.045
			(2.693)			(2.652)			(2.619)			(2.980)
N	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900
JSig	p = 0.006	p = 0.014	p = 0.005	p = 0.006	p = 0.014	p = 0.016	p = 0.033	p = 0.073	p = 0.030	p = 0.226	p = 0.389	p = 0.429
SBP + NSLP	6.655	6.588	7.507	6.655	6.588	6.729	6.070	6.185	7.072	5.010	5.107	5.599
	p = 0.003	p = 0.004	p = 0.001	p = 0.003	p = 0.004	p = 0.001	p = 0.009	p = 0.009	p = 0.002	p = 0.104	p = 0.101	p = 0.069
SNAP + NSLP		4.765	7.057		4.765	6.241		4.072	6.209		3.078	4.427
		p = 0.048	p = 0.011		p = 0.048	p = 0.024		p = 0.110	p = 0.027		p = 0.328	p = 0.185
SNAP + SBP + NSLP	6.655	6.933	6.584	6.655	6.933	5.151	6.070	5.450	5.178	5.010	4.467	4.288
	p = 0.003	p = 0.003	p = 0.005	p = 0.003	p = 0.003	p = 0.026	p = 0.009	p = 0.026	p = 0.038	p = 0.104	p = 0.162	p = 0.185

Table 3 (cont.) Selection into Nutrition Assistance Programs in Low Income Households.

	No Fixed Effects			State Fixed Effects			County Fixed Effects			School Fixed Effects		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
V. Kindergarten Overweight												
SBP	0.021	0.017	0.027	0.021	0.017	0.023	0.016	0.015	0.026	0.024	0.024	0.031
	(0.018)	(0.018)	(0.022)	(0.018)	(0.018)	(0.022)	(0.019)	(0.019)	(0.022)	(0.024)	(0.024)	(0.028)
NSLP	0.081*	0.080*	0.080*	0.081*	0.080*	0.074*	0.082*	0.082*	0.083*	0.055	0.055	0.055
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.031)	(0.031)	(0.030)	(0.041)	(0.041)	(0.041)
SNAP		0.027	0.052		0.027	0.040		0.009	0.036		0.002	0.020
		(0.019)	(0.033)		(0.019)	(0.031)		(0.021)	(0.034)		(0.025)	(0.040)
ALL			-0.038			-0.037			-0.042			-0.027
			(0.043)			(0.042)			(0.043)			(0.047)
N	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900
JSig	p = 0.002	p = 0.002	p = 0.003	p = 0.002	p = 0.002	p = 0.018	p = 0.012	p = 0.028	p = 0.031	p = 0.257	p = 0.435	p = 0.554
SBP + NSLP	0.102	0.097	0.107	0.102	0.097	0.097	0.099	0.097	0.109	0.079	0.079	0.085
	p = 0.001	p = 0.001	p = 0.001	p = 0.001	p = 0.001	p = 0.002	p = 0.003	p = 0.004	p = 0.002	p = 0.102	p = 0.105	p = 0.088
SNAP + NSLP		0.107	0.132		0.107	0.114		0.091	0.118		0.057	0.075
		p = 0.001	p = 0.001		p = 0.001	p = 0.004		p = 0.013	p = 0.008		p = 0.234	p = 0.175
SNAP + SBP + NSLP	0.102	0.125	0.121	0.102	0.125	0.100	0.099	0.106	0.102	0.079	0.081	0.078
	p = 0.001	p = 0.000	p = 0.000	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.005	p = 0.007	p = 0.102	p = 0.128	p = 0.139
VI. Kindergarten Obese												
SBP	0.002	0.004	0.008	0.002	0.004	0.009	0.003	0.005	0.010	-0.004	-0.002	-0.004
	(0.012)	(0.012)	(0.013)	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)	(0.014)	(0.017)	(0.016)	(0.018)
NSLP	0.020	0.020	0.020	0.020	0.020	0.023	0.032	0.033	0.033	0.009	0.011	0.011
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.023)	(0.025)	(0.025)	(0.025)	(0.034)	(0.034)	(0.035)
SNAP		-0.014	-0.004		-0.014	-0.008		-0.023	-0.011		-0.023	-0.029
		(0.015)	(0.027)		(0.015)	(0.027)		(0.015)	(0.029)		(0.018)	(0.031)
ALL			-0.015			-0.017			-0.019			0.008
			(0.033)			(0.032)			(0.034)			(0.038)
N	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900	3900
JSig	p = 0.652	p = 0.646	p = 0.660	p = 0.652	p = 0.646	p = 0.428	p = 0.410	p = 0.277	p = 0.270	p = 0.942	p = 0.635	p = 0.781
SBP + NSLP	0.022	0.025	0.028	0.022	0.025	0.032	0.034	0.038	0.043	0.005	0.009	0.007
	p = 0.356	p = 0.307	p = 0.219	p = 0.356	p = 0.307	p = 0.170	p = 0.192	p = 0.152	p = 0.095	p = 0.891	p = 0.817	p = 0.853
SNAP + NSLP		0.007	0.016		0.007	0.015		0.010	0.022		-0.012	-0.018
		p = 0.799	p = 0.607		p = 0.799	p = 0.630		p = 0.733	p = 0.531		p = 0.750	p = 0.677
SNAP + SBP + NSLP	0.022	0.011	0.009	0.022	0.011	0.007	0.034	0.015	0.013	0.005	-0.015	-0.014
	p = 0.356	p = 0.682	p = 0.731	p = 0.356	p = 0.682	p = 0.811	p = 0.192	p = 0.612	p = 0.656	p = 0.891	p = 0.730	p = 0.747

Table 4.1 OLS Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.009				-0.011‡	-0.011	-0.003				-0.006	-0.008
	(0.006)				(0.006)	(0.009)	(0.011)				(0.011)	(0.019)
NSLP		0.009‡	0.008		0.008‡	0.008‡		0.007	0.005		0.006	0.006
		(0.005)	(0.005)		(0.005)	(0.005)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.007		0.008‡	0.008			0.011		0.012	0.011
			(0.004)		(0.004)	(0.005)			(0.008)		(0.008)	(0.009)
ALL				-0.005		-0.001				0.003		0.004
				(0.006)		(0.011)				(0.010)		(0.020)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.121	p = 0.054	p = 0.048	p = 0.427	p = 0.031	p = 0.063	p = 0.790	p = 0.421	p = 0.233	p = 0.736	p = 0.345	p = 0.502
SBP+NSLP			0.015		0.016	0.017			0.016		0.017	0.017
			p = 0.014		p = 0.007	p = 0.012			p = 0.121		p = 0.097	p = 0.117
SNAP+NSLP					-0.003	-0.002					0.000	-0.002
					p = 0.714	p = 0.823					p = 0.989	p = 0.908
SBP+SNAP+NSLP					0.006	0.005					0.012	0.012
					p = 0.444	p = 0.462					p = 0.435	p = 0.398
Panel II. Percentile BMI												
SNAP	-1.047				-1.274	-1.965	0.494				0.072	-0.852
	(0.850)				(0.857)	(1.325)	(1.792)				(1.851)	(3.299)
NSLP		0.839	0.689		0.734	0.754		1.038	0.717		0.715	0.735
		(0.963)	(0.966)		(0.971)	(0.974)		(1.460)	(1.493)		(1.477)	(1.479)
SBP			0.694		0.865	0.668			1.722		1.711	1.422
			(0.785)		(0.792)	(0.882)			(1.262)		(1.324)	(1.402)
ALL				-0.258		1.072				1.605		1.491
				(1.037)		(1.743)				(1.573)		(3.368)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.219	p = 0.384	p = 0.488	p = 0.803	p = 0.324	p = 0.378	p = 0.783	p = 0.478	p = 0.286	p = 0.309	p = 0.473	p = 0.597
SBP+NSLP			1.383		1.600	1.422			2.439		2.426	2.157
			p = 0.242		p = 0.184	p = 0.254			p = 0.158		p = 0.159	p = 0.231
SNAP+NSLP					-0.540	-1.211					0.787	-0.117
					p = 0.650	p = 0.424					p = 0.762	p = 0.975
SBP+SNAP+NSLP					0.326	0.529					2.498	2.796
					p = 0.807	p = 0.703					p = 0.304	p = 0.232

Notes: Participation measured in spring first grade. Standard errors (in parentheses) are clustered at the school-level. ALL equals one if student participates in all three programs, zero otherwise. Other regressors include: gender, age, three race dummies (white, black, Hispanic), two city type dummies (urban, suburban), three region dummies (northeast, midwest, south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status, four dummies for mother's education, dummy if mother's education is missing, birth weight, birth weight squared, dummy if birth weight is missing, and the corresponding fall kindergarten version of the dependent variable. All regressions utilize survey weights. N = number of observations (rounded to the nearest 50). JSig reports the p-value from the test that all program effects are jointly zero. ‡ p<0.10, † p<0.05, * p<0.01. See text for further details.

Table 4.1 (cont.) OLS Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel III. BMI Growth												
SNAP	-0.006				-0.008	-0.008	-0.001				-0.004	-0.006
	(0.006)				(0.006)	(0.008)	(0.011)				(0.011)	(0.019)
NSLP		0.009‡	0.008‡		0.008‡	0.008‡		0.009	0.006		0.007	0.007
		(0.004)	(0.004)		(0.005)	(0.005)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.005		0.006	0.006			0.011		0.012	0.011
			(0.004)		(0.005)	(0.005)			(0.008)		(0.008)	(0.008)
ALL				-0.004		0.000				0.004		0.003
				(0.007)		(0.011)				(0.010)		(0.020)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.271	p = 0.050	p = 0.091	p = 0.592	p = 0.112	p = 0.193	p = 0.909	p = 0.330	p = 0.175	p = 0.655	p = 0.306	p = 0.457
SBP+NSLP			0.012		0.014	0.014			0.018		0.018	0.018
			p = 0.032		p = 0.021	p = 0.031			p = 0.080		p = 0.070	p = 0.086
SNAP+NSLP					0.000	0.000					0.002	0.001
					p = 0.988	p = 0.989					p = 0.875	p = 0.972
SBP+SNAP+NSLP					0.006	0.005					0.014	0.015
					p = 0.435	p = 0.465					p = 0.310	p = 0.286
Panel IV. Change in Percentile BMI												
SNAP	-0.083				-0.211	-0.623	1.199				0.675	0.275
	(1.001)				(1.031)	(1.467)	(1.921)				(2.058)	(3.641)
NSLP		0.31	0.198		0.205	0.217		1.256	0.838		0.813	0.822
		(0.915)	(0.940)		(0.943)	(0.944)		(1.515)	(1.559)		(1.548)	(1.537)
SBP			0.518		0.547	0.429			2.243		2.147	2.021
			(0.933)		(0.953)	(1.036)			(1.385)		(1.506)	(1.492)
ALL				0.331		0.639				2.088		0.644
				(1.216)		(1.944)				(1.736)		(3.790)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.934	p = 0.735	p = 0.808	p = 0.786	p = 0.930	p = 0.964	p = 0.533	p = 0.408	p = 0.167	p = 0.230	p = 0.231	p = 0.353
SBP+NSLP			0.716		0.752	0.646			3.081		2.960	2.844
			p = 0.540		p = 0.531	p = 0.607			p = 0.088		p = 0.116	p = 0.153
SNAP+NSLP					-0.006	-0.406					1.488	1.097
					p = 0.997	p = 0.808					p = 0.583	p = 0.795
SBP+SNAP+NSLP					0.541	0.662					3.635	3.763
					p = 0.693	p = 0.650					p = 0.117	p = 0.089

Table 4.1 (cont.) OLS Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel V. Overweight												
SNAP	-0.048*				-0.060*	-0.045	-0.008				-0.02	-0.042
	(0.018)				(0.019)	(0.028)	(0.038)				(0.038)	(0.058)
NSLP		0.045*	0.038†		0.040†	0.039†		0.020	0.011		0.011	0.012
		(0.017)	(0.018)		(0.018)	(0.018)		(0.032)	(0.032)		(0.032)	(0.032)
SBP			0.035†		0.043*	0.048*			0.048‡		0.051‡	0.044
			(0.015)		(0.015)	(0.016)			(0.026)		(0.027)	(0.030)
ALL				-0.035‡		-0.023				0.024		0.035
				(0.020)		(0.033)				(0.037)		(0.061)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.009	p = 0.008	p = 0.001	p = 0.082	p = 0.000	p = 0.000	p = 0.824	p = 0.541	p = 0.161	p = 0.508	p = 0.263	p = 0.366
SBP+NSLP			0.073		0.083	0.087			0.059		0.063	0.056
			p = 0.00		p = 0.00	p = 0.00			p = 0.132		p = 0.111	p = 0.164
SNAP+NSLP					-0.020	-0.006					-0.009	-0.03
					p = 0.429	p = 0.867					p = 0.859	p = 0.642
SBP+SNAP+NSLP					0.023	0.019					0.042	0.049
					p = 0.344	p = 0.454					p = 0.420	p = 0.349
Panel VI. Obese												
SNAP	-0.011				-0.019	-0.013	0.004				-0.004	0.004
	(0.013)				(0.014)	(0.020)	(0.025)				(0.024)	(0.042)
NSLP		0.045*	0.040*		0.041*	0.041*		0.035	0.029		0.029	0.029
		(0.012)	(0.012)		(0.012)	(0.012)		(0.025)	(0.027)		(0.027)	(0.027)
SBP			0.021‡		0.024†	0.026†			0.028		0.029	0.031
			(0.011)		(0.012)	(0.013)			(0.022)		(0.022)	(0.026)
ALL				-0.004		-0.01				0.011		-0.012
				(0.018)		(0.029)				(0.028)		(0.053)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.396	p = 0.000	p = 0.000	p = 0.809	p = 0.000	p = 0.000	p = 0.859	p = 0.177	p = 0.103	p = 0.688	p = 0.206	p = 0.312
SBP+NSLP			0.062		0.065	0.067			0.058		0.058	0.06
			p = 0.00		p = 0.00	p = 0.00			p = 0.037		p = 0.038	p = 0.032
SNAP+NSLP					0.022	0.028					0.026	0.033
					p = 0.240	p = 0.232					p = 0.421	p = 0.383
SBP+SNAP+NSLP					0.046	0.044					0.055	0.052
					p = 0.011	p = 0.025					p = 0.103	p = 0.148

Table 4.2 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: State Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel I. ln(BMI)												
SNAP	-0.009				-0.011‡	-0.012	-0.003				-0.006	-0.01
	(0.006)				(0.006)	(0.009)	(0.011)				(0.011)	(0.018)
NSLP		0.009‡	0.008		0.008‡	0.009‡		0.007	0.005		0.006	0.003
		(0.005)	(0.005)		(0.005)	(0.005)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.007		0.008‡	0.009‡			0.011		0.012	0.013
			(0.004)		(0.004)	(0.005)			(0.008)		(0.008)	(0.009)
ALL				-0.005		0.001				0.003		0.007
				(0.006)		(0.011)				(0.010)		(0.019)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.121	p = 0.054	p = 0.048	p = 0.427	p = 0.031	p = 0.035	p = 0.790	p = 0.421	p = 0.233	p = 0.736	p = 0.345	p = 0.450
SBP+NSLP			0.015		0.016	0.018			0.016		0.017	0.016
			p = 0.014		p = 0.007	p = 0.007			p = 0.121		p = 0.097	p = 0.137
SNAP+NSLP					-0.003	-0.003					0	-0.007
					p = 0.714	p = 0.722					p = 0.989	p = 0.720
SBP+SNAP+NSLP					0.006	0.006					0.012	0.013
					p = 0.444	p = 0.400					p = 0.435	p = 0.377
Panel II. Percentile BMI												
SNAP	-1.047				-1.274	-2.151	0.494				0.072	-0.874
	(0.850)				(0.857)	(1.329)	(1.792)				(1.851)	(2.989)
NSLP		0.839	0.689		0.734	0.758		1.038	0.717		0.715	0.165
		(0.963)	(0.966)		(0.971)	(0.909)		(1.460)	(1.493)		(1.477)	(1.411)
SBP			0.694		0.865	0.939			1.722		1.711	1.667
			(0.785)		(0.792)	(0.899)			(1.262)		(1.324)	(1.422)
ALL				-0.258		1.330				1.605		2.050
				(1.037)		(1.718)				(1.573)		(3.217)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.219	p = 0.384	p = 0.488	p = 0.803	p = 0.324	p = 0.222	p = 0.783	p = 0.478	p = 0.286	p = 0.309	p = 0.473	p = 0.443
SBP+NSLP			1.383		1.600	1.697			2.439		2.426	1.832
			p = 0.242		p = 0.184	p = 0.155			p = 0.158		p = 0.159	p = 0.314
SNAP+NSLP					-0.540	-1.393					0.787	-0.710
					p = 0.650	p = 0.345					p = 0.762	p = 0.832
SBP+SNAP+NSLP					0.326	0.876					2.498	3.007
					p = 0.807	p = 0.514					p = 0.304	p = 0.174

Notes: See Table 4.1.

Table 4.2 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: State Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	-0.006				-0.008	-0.010	-0.001				-0.004	-0.007
	(0.006)				(0.006)	(0.008)	(0.011)				(0.011)	(0.017)
NSLP		0.009‡	0.008‡		0.008‡	0.007		0.009	0.006		0.007	0.002
		(0.004)	(0.004)		(0.005)	(0.005)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.005		0.006	0.006			0.011		0.012	0.013
			(0.004)		(0.005)	(0.005)			(0.008)		(0.008)	(0.009)
ALL				-0.004		0.001				0.004		0.003
				(0.007)		(0.010)				(0.010)		(0.019)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.271	p = 0.050	p = 0.091	p = 0.592	p = 0.112	p = 0.182	p = 0.909	p = 0.330	p = 0.175	p = 0.655	p = 0.306	p = 0.535
SBP+NSLP			0.012		0.014	0.013			0.018		0.018	0.015
			p = 0.032		p = 0.021	p = 0.038			p = 0.080		p = 0.070	p = 0.169
SNAP+NSLP					0.000	-0.002					0.002	-0.006
					p = 0.988	p = 0.770					p = 0.875	p = 0.766
SBP+SNAP+NSLP					0.006	0.004					0.014	0.01
					p = 0.435	p = 0.608					p = 0.310	p = 0.492
Panel IV. Change in Percentile BMI												
SNAP	-0.083				-0.211	-0.972	1.199				0.675	0.321
	(1.001)				(1.031)	(1.441)	(1.921)				(2.058)	(3.187)
NSLP		0.310	0.198		0.205	0.023		1.256	0.838		0.813	-0.361
		(0.915)	(0.940)		(0.943)	(0.965)		(1.515)	(1.559)		(1.548)	(1.510)
SBP			0.518		0.547	0.535			2.243		2.147	2.325
			(0.933)		(0.953)	(1.041)			(1.385)		(1.506)	(1.507)
ALL				0.331		0.92				2.088		0.384
				(1.216)		(1.929)				(1.736)		(3.387)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.934	p = 0.735	p = 0.808	p = 0.786	p = 0.930	p = 0.915	p = 0.533	p = 0.408	p = 0.167	p = 0.230	p = 0.231	p = 0.432
SBP+NSLP			0.716		0.752	0.558			3.081		2.96	1.964
			p = 0.540		p = 0.531	p = 0.655			p = 0.088		p = 0.116	p = 0.325
SNAP+NSLP					-0.006	-0.948					1.488	-0.04
					p = 0.997	p = 0.565					p = 0.583	p = 0.991
SBP+SNAP+NSLP					0.541	0.507					3.635	2.669
					p = 0.693	p = 0.727					p = 0.117	p = 0.228

Table 4.2 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: State Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.048*				-0.060*	-0.048‡	-0.008				-0.02	-0.044
	(0.018)				(0.019)	(0.028)	(0.038)				(0.038)	(0.055)
NSLP		0.045*	0.038†		0.040†	0.042†		0.020	0.011		0.011	0.004
		(0.017)	(0.018)		(0.018)	(0.017)		(0.032)	(0.032)		(0.032)	(0.032)
SBP			0.035†		0.043*	0.051*			0.048‡		0.051‡	0.047
			(0.015)		(0.015)	(0.016)			(0.026)		(0.027)	(0.030)
ALL				-0.035‡		-0.025				0.024		0.034
				(0.020)		(0.032)				(0.037)		(0.058)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.009	p = 0.008	p = 0.001	p = 0.082	p = 0.000	p = 0.000	p = 0.824	p = 0.541	p = 0.161	p = 0.508	p = 0.263	p = 0.358
SBP+NSLP			0.073		0.083	0.092			0.059		0.063	0.051
			p = 0.00		p = 0.00	p = 0.00			p = 0.132		p = 0.111	p = 0.215
SNAP+NSLP					-0.02	-0.007					-0.009	-0.039
					p = 0.429	p = 0.840					p = 0.859	p = 0.525
SBP+SNAP+NSLP					0.023	0.018					0.042	0.042
					p = 0.344	p = 0.466					p = 0.420	p = 0.407
Panel VI. Obese												
SNAP	-0.011				-0.019	-0.012	0.004				-0.004	0.009
	(0.013)				(0.014)	(0.020)	(0.025)				(0.024)	(0.043)
NSLP		0.045*	0.040*		0.041*	0.043*		0.035	0.029		0.029	0.034
		(0.012)	(0.012)		(0.012)	(0.013)		(0.025)	(0.027)		(0.027)	(0.027)
SBP			0.021‡		0.024†	0.024‡			0.028		0.029	0.038
			(0.011)		(0.012)	(0.013)			(0.022)		(0.022)	(0.028)
ALL				-0.004		-0.013				0.011		-0.021
				(0.018)		(0.029)				(0.028)		(0.052)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.396	p = 0.000	p = 0.000	p = 0.809	p = 0.000	p = 0.001	p = 0.859	p = 0.177	p = 0.103	p = 0.688	p = 0.206	p = 0.223
SBP+NSLP			0.062		0.065	0.067			0.058		0.058	0.072
			p = 0.000		p = 0.000	p = 0.000			p = 0.037		p = 0.038	p = 0.019
SNAP+NSLP					0.022	0.031					0.026	0.043
					p = 0.240	p = 0.205					p = 0.421	p = 0.294
SBP+SNAP+NSLP					0.046	0.042					0.055	0.060
					p = 0.011	p = 0.045					p = 0.103	p = 0.099

Table 4.3 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: County Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.007				-0.009	-0.006	0.003				0.000	0.000
	(0.006)				(0.006)	(0.010)	(0.011)				(0.011)	(0.018)
NSLP		0.009‡	0.007		0.008	0.020*		0.005	0.003		0.003	0.007
		(0.005)	(0.005)		(0.005)	(0.007)		(0.009)	(0.009)		(0.009)	(0.012)
SBP			0.008		0.009‡	0.018*			0.018†		0.018†	0.025†
			(0.005)		(0.005)	(0.007)			(0.009)		(0.009)	(0.011)
ALL				-0.003		-0.006				0.011		-0.005
				(0.007)		(0.013)				(0.011)		(0.020)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.230	p = 0.070	p = 0.056	p = 0.627	p = 0.067	p = 0.001	p = 0.760	p = 0.549	p = 0.085	p = 0.317	p = 0.176	p = 0.160
SBP+NSLP			0.015		0.016	0.038			0.021		0.021	0.031
			p = 0.017		p = 0.011	p = 0.00			p = 0.064		p = 0.062	p = 0.026
SNAP+NSLP					-0.001	0.014					0.003	0.007
					p = 0.850	p = 0.225					p = 0.860	p = 0.742
SBP+SNAP+NSLP					0.007	0.026					0.021	0.026
					p = 0.323	p = 0.008					p = 0.178	p = 0.145
Panel II. Percentile BMI												
SNAP	-0.506				-0.710	-1.470	1.940				1.452	0.004
	(0.879)				(0.887)	(1.363)	(1.438)				(1.479)	(2.723)
NSLP		0.572	0.395		0.420	0.436		1.115	0.720		0.678	0.691
		(0.916)	(0.919)		(0.926)	(0.930)		(1.378)	(1.394)		(1.382)	(1.386)
SBP			0.925		1.010	0.794			2.652†		2.468‡	2.039
			(0.868)		(0.875)	(0.972)			(1.292)		(1.325)	(1.387)
ALL				0.307		1.181				3.391†		2.323
				(1.058)		(1.760)				(1.390)		(2.924)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.565	p = 0.533	p = 0.486	p = 0.772	p = 0.574	p = 0.603	p = 0.179	p = 0.419	p = 0.084	p = 0.016	p = 0.097	p = 0.098
SBP+NSLP			1.319		1.43	1.23			3.372		3.146	2.730
			p = 0.267		p = 0.239	p = 0.331			p = 0.052		p = 0.070	p = 0.121
SNAP+NSLP					-0.289	-1.034					2.131	0.695
					p = 0.803	p = 0.491					p = 0.329	p = 0.824
SBP+SNAP+NSLP					0.72	0.941					4.599	5.057
					p = 0.591	p = 0.499					p = 0.035	p = 0.019

Notes: See Table 4.1.

Table 4.3 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: County Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel III. BMI Growth												
SNAP	-0.005				-0.006	-0.006	0.005				0.001	0.001
	(0.006)				(0.006)	(0.008)	(0.010)				(0.011)	(0.017)
NSLP		0.007	0.006		0.006	0.006		0.003	0.000		0.000	0.000
		(0.004)	(0.005)		(0.005)	(0.005)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.004		0.005	0.005			0.017†		0.017‡	0.017‡
			(0.005)		(0.005)	(0.006)			(0.008)		(0.009)	(0.009)
ALL				-0.003		-0.001				0.010		0.001
				(0.007)		(0.010)				(0.011)		(0.018)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.383	p = 0.124	p = 0.191	p = 0.675	p = 0.270	p = 0.410	p = 0.655	p = 0.772	p = 0.111	p = 0.347	p = 0.213	p = 0.336
SBP+NSLP			0.01		0.011	0.011			0.017		0.017	0.017
			p = 0.075		p = 0.060	p = 0.075			p = 0.109		p = 0.114	p = 0.114
SNAP+NSLP					0.000	0.000					0.001	0.001
					p = 0.983	p = 0.962					p = 0.924	p = 0.968
SBP+SNAP+NSLP					0.005	0.005					0.018	0.019
					p = 0.485	p = 0.527					p = 0.200	p = 0.207
Panel IV. Change in Percentile BMI												
SNAP	0.248				0.199	-0.239	2.456				1.972	1.718
	(0.994)				(1.026)	(1.458)	(1.617)				(1.731)	(2.989)
NSLP		-0.160	-0.232		-0.24	-0.23		0.225	-0.210		-0.265	-0.263
		(0.943)	(0.975)		(0.977)	(0.979)		(1.608)	(1.630)		(1.620)	(1.619)
SBP			0.376		0.352	0.228			2.918‡		2.667‡	2.592
			(0.999)		(1.019)	(1.122)			(1.496)		(1.569)	(1.572)
ALL				0.564		0.68				3.183†		0.407
				(1.209)		(1.963)				(1.562)		(3.162)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.803	p = 0.865	p = 0.922	p = 0.641	p = 0.975	p = 0.987	p = 0.130	p = 0.889	p = 0.147	p = 0.043	p = 0.058	p = 0.105
SBP+NSLP			0.143		0.112	-0.003			2.708		2.402	2.329
			p = 0.905		p = 0.927	p = 0.998			p = 0.175		p = 0.241	p = 0.267
SNAP+NSLP					-0.040	-0.469					1.707	1.455
					p = 0.976	p = 0.780					p = 0.491	p = 0.683
SBP+SNAP+NSLP					0.311	0.439					4.374	4.454
					p = 0.822	p = 0.764					p = 0.055	p = 0.048

Table 4.3 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: County Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel V. Overweight												
SNAP	-0.046†				-0.056*	-0.039	0.016				0.005	-0.02
	(0.018)				(0.018)	(0.029)	(0.034)				(0.034)	(0.056)
NSLP		0.048*	0.041†		0.043†	0.043†		0.000	-0.010		-0.010	-0.010
		(0.017)	(0.018)		(0.018)	(0.018)		(0.031)	(0.030)		(0.030)	(0.031)
SBP			0.036†		0.043*	0.048*			0.065†		0.064†	0.056‡
			(0.016)		(0.016)	(0.017)			(0.028)		(0.028)	(0.030)
ALL				-0.035‡		-0.028				0.051		0.041
				(0.020)		(0.034)				(0.033)		(0.058)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.011	p = 0.005	p = 0.001	p = 0.084	p = 0.000	p = 0.000	p = 0.629	p = 0.999	p = 0.073	p = 0.128	p = 0.152	p = 0.198
SBP+NSLP			0.077		0.086	0.09			0.055		0.054	0.047
			p = 0.00		p = 0.00	p = 0.00			p = 0.164		p = 0.173	p = 0.248
SNAP+NSLP					-0.013	0.004					-0.005	-0.03
					p = 0.586	p = 0.906					p = 0.917	p = 0.627
SBP+SNAP+NSLP					0.029	0.024					0.059	0.067
					p = 0.239	p = 0.343					p = 0.226	p = 0.167
Panel VI. Obese												
SNAP	-0.012				-0.02	-0.010	0.012				0.003	0.028
	(0.015)				(0.015)	(0.021)	(0.027)				(0.027)	(0.045)
NSLP		0.046*	0.041*		0.042*	0.042*		0.031	0.024		0.024	0.024
		(0.013)	(0.013)		(0.013)	(0.013)		(0.028)	(0.029)		(0.029)	(0.029)
SBP			0.024‡		0.027†	0.030†			0.042‡		0.041‡	0.049‡
			(0.013)		(0.013)	(0.014)			(0.024)		(0.024)	(0.029)
ALL				-0.006		-0.015				0.010		-0.040
				(0.019)		(0.030)				(0.028)		(0.053)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.396	p = 0.000	p = 0.000	p = 0.743	p = 0.000	p = 0.001	p = 0.655	p = 0.274	p = 0.063	p = 0.712	p = 0.132	p = 0.197
SBP+NSLP			0.066		0.069	0.071			0.066		0.066	0.073
			p = 0.000		p = 0.000	p = 0.000			p = 0.028		p = 0.034	p = 0.021
SNAP+NSLP					0.023	0.032					0.028	0.052
					p = 0.270	p = 0.212					p = 0.406	p = 0.201
SBP+SNAP+NSLP					0.049	0.047					0.069	0.061
					p = 0.014	p = 0.033					p = 0.047	p = 0.094

Table 4.4 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: School Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel I. ln(BMI)												
SNAP	-0.010				-0.011	-0.001	-0.008				-0.009	-0.003
	(0.007)				(0.007)	(0.011)	(0.010)				(0.010)	(0.020)
NSLP		0.010‡	0.009		0.009	0.022*		0.005	0.004		0.004	0.008
		(0.005)	(0.005)		(0.005)	(0.008)		(0.009)	(0.010)		(0.010)	(0.011)
SBP			0.005		0.006	0.016‡			0.008		0.009	0.016
			(0.005)		(0.005)	(0.008)			(0.009)		(0.009)	(0.011)
ALL				-0.012		-0.026				-0.001		-0.009
				(0.009)		(0.016)				(0.009)		(0.024)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.172	p = 0.074	p = 0.131	p = 0.159	p = 0.110	p = 0.003	p = 0.425	p = 0.618	p = 0.485	p = 0.890	p = 0.550	p = 0.419
SBP+NSLP			0.014		0.015	0.039			0.012		0.013	0.024
			p = 0.049		p = 0.034	p = 0.00			p = 0.261		p = 0.226	p = 0.065
SNAP+NSLP					-0.002	0.021					-0.005	0.005
					p = 0.819	p = 0.110					p = 0.697	p = 0.805
SBP+SNAP+NSLP					0.004	0.012					0.004	0.012
					p = 0.659	p = 0.337					p = 0.770	p = 0.470
Panel II. Percentile BMI												
SNAP	-1.324				-1.390	-0.149	-0.400				-0.568	-2.253
	(1.092)				(1.108)	(1.709)	(1.385)				(1.413)	(2.541)
NSLP		0.639	0.607		0.654	0.62		0.453	0.286		0.316	0.362
		(1.004)	(1.032)		(1.039)	(1.042)		(1.453)	(1.504)		(1.507)	(1.508)
SBP			0.179		0.292	0.618			1.239		1.282	0.795
			(0.940)		(0.946)	(1.041)			(1.357)		(1.376)	(1.554)
ALL				-1.729		-1.893				1.049		2.620
				(1.309)		(2.188)				(1.434)		(2.999)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.227	p = 0.525	p = 0.791	p = 0.188	p = 0.610	p = 0.645	p = 0.773	p = 0.756	p = 0.581	p = 0.465	p = 0.763	p = 0.704
SBP+NSLP			0.787		0.945	1.238			1.526		1.598	1.157
			p = 0.515		p = 0.444	p = 0.324			p = 0.364		p = 0.350	p = 0.528
SNAP+NSLP					-0.736	0.470					-0.253	-1.891
					p = 0.591	p = 0.789					p = 0.900	p = 0.509
SBP+SNAP+NSLP					-0.445	-0.804					1.030	1.524
					p = 0.760	p = 0.606					p = 0.602	p = 0.431

Notes: See Table 4.1.

Table 4.4 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: School Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel III. BMI Growth												
SNAP	-0.008				-0.009	0.000	-0.010				-0.011	-0.015
	(0.007)				(0.007)	(0.009)	(0.008)				(0.008)	(0.013)
NSLP		0.007	0.007		0.007	0.007		0.003	0.002		0.002	0.002
		(0.005)	(0.005)		(0.005)	(0.005)		(0.008)	(0.009)		(0.009)	(0.009)
SBP			0.002		0.003	0.005			0.006		0.007	0.005
			(0.005)		(0.005)	(0.005)			(0.008)		(0.008)	(0.009)
ALL				-0.011		-0.013				-0.004		0.006
				(0.009)		(0.012)				(0.009)		(0.015)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.237	p = 0.153	p = 0.294	p = 0.204	p = 0.295	p = 0.359	p = 0.214	p = 0.761	p = 0.658	p = 0.638	p = 0.492	p = 0.602
SBP+NSLP			0.009		0.01	0.012			0.008		0.009	0.008
			p = 0.138		p = 0.104	p = 0.063			p = 0.397		p = 0.324	p = 0.409
SNAP+NSLP					-0.002	0.007					-0.009	-0.013
					p = 0.828	p = 0.487					p = 0.437	p = 0.362
SBP+SNAP+NSLP					0.001	-0.002					-0.002	-0.001
					p = 0.915	p = 0.862					p = 0.841	p = 0.928
Panel IV. Change in Percentile BMI												
SNAP	-0.558				-0.540	0.534	-0.928				-1.031	-2.473
	(1.161)				(1.179)	(1.764)	(1.334)				(1.361)	(2.003)
NSLP		-0.219	-0.199		-0.181	-0.210		-0.297	-0.427		-0.374	-0.335
		(1.040)	(1.075)		(1.080)	(1.079)		(1.443)	(1.515)		(1.520)	(1.519)
SBP			-0.117		-0.074	0.210			0.973		1.052	0.634
			(0.919)		(0.929)	(1.008)			(1.430)		(1.445)	(1.556)
ALL				-1.094		-1.639				0.371		2.243
				(1.330)		(2.165)				(1.518)		(2.457)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.632	p = 0.833	p = 0.966	p = 0.411	p = 0.958	p = 0.936	p = 0.487	p = 0.837	p = 0.793	p = 0.807	p = 0.814	p = 0.737
SBP+NSLP			-0.316		-0.254	-0.001			0.546		0.677	0.300
			p = 0.793		p = 0.835	p = 1.000			p = 0.732		p = 0.676	p = 0.861
SNAP+NSLP					-0.721	0.324					-1.405	-2.808
					p = 0.632	p = 0.867					p = 0.477	p = 0.253
SBP+SNAP+NSLP					-0.794	-1.106					-0.354	0.070
					p = 0.598	p = 0.485					p = 0.851	p = 0.971

Table 4.4 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: School Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.047†				-0.050†	-0.023	-0.021				-0.024	-0.076‡
	(0.022)				(0.022)	(0.033)	(0.034)				(0.033)	(0.045)
NSLP		0.024	0.022		0.023	0.023		0.003	0.000		0.001	0.002
		(0.020)	(0.021)		(0.021)	(0.021)		(0.029)	(0.029)		(0.029)	(0.029)
SBP			0.016		0.020	0.027			0.022		0.024	0.009
			(0.019)		(0.019)	(0.020)			(0.030)		(0.030)	(0.033)
ALL				-0.049‡		-0.041				0.020		0.082
				(0.025)		(0.038)				(0.040)		(0.057)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.034	p = 0.220	p = 0.295	p = 0.055	p = 0.029	p = 0.035	p = 0.540	p = 0.926	p = 0.757	p = 0.623	p = 0.715	p = 0.343
SBP+NSLP			0.037		0.043	0.049			0.022		0.025	0.011
			p = 0.119		p = 0.070	p = 0.042			p = 0.575		p = 0.520	p = 0.781
SNAP+NSLP					-0.027	-0.001					-0.023	-0.074
					p = 0.359	p = 0.981					p = 0.594	p = 0.150
SBP+SNAP+NSLP					-0.007	-0.015					0.001	0.017
					p = 0.831	p = 0.662					p = 0.978	p = 0.754
Panel VI. Obese												
SNAP	-0.029				-0.033‡	-0.013	-0.016				-0.022	-0.022
	(0.019)				(0.020)	(0.025)	(0.027)				(0.026)	(0.047)
NSLP		0.049*	0.046*		0.047*	0.047*		0.023	0.019		0.02	0.02
		(0.017)	(0.017)		(0.017)	(0.017)		(0.028)	(0.028)		(0.029)	(0.029)
SBP			0.016		0.018	0.024			0.034		0.035	0.035
			(0.015)		(0.015)	(0.016)			(0.026)		(0.026)	(0.029)
ALL				-0.030		-0.031				-0.001		0.001
				(0.025)		(0.037)				(0.026)		(0.049)
N	7100	7100	7100	7100	7100	7100	5600	5600	5600	5600	5600	5600
JSig	p = 0.140	p = 0.004	p = 0.004	p = 0.240	p = 0.002	p = 0.004	p = 0.540	p = 0.406	p = 0.274	p = 0.965	p = 0.356	p = 0.510
SBP+NSLP			0.062		0.066	0.070			0.052		0.055	0.055
			p = 0.001		p = 0.001	p = 0.000			p = 0.126		p = 0.111	p = 0.115
SNAP+NSLP					0.014	0.034					-0.002	-0.003
					p = 0.613	p = 0.287					p = 0.957	p = 0.954
SBP+SNAP+NSLP					0.033	0.027					0.033	0.034
					p = 0.229	p = 0.367					p = 0.408	p = 0.403

Table 4.5 Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel I. ln(BMI)														
SNAP	0.023					-0.080	-0.042	0.032					-0.140	4.319
	(0.043)					(0.089)	(0.312)	(0.066)					(0.188)	(207.337)
NSLP		0.075	0.001	0.048		-0.005	-0.005		0.226*	-0.003	0.301†		-0.009	0.033
		(0.060)	(0.007)	(0.100)		(0.009)	(0.009)		(0.086)	(0.013)	(0.133)		(0.018)	(1.888)
SBP			0.037	0.020		0.088	0.092			0.054	-0.063		0.137	-0.227
			(0.031)	(0.048)		(0.066)	(0.061)			(0.052)	(0.073)		(0.140)	(16.231)
ALL					0.026		-0.045					0.020		-4.116
					(0.043)		(0.323)					(0.061)		(192.285)
N	7050	7050	7050	7050	7050	7050	7050	5500	5500	5500	5500	5500	5500	5500
Underid	p = 0.000	p = 0.001	p = 0.000	p = 0.001	p = 0.000	p = 0.007	p = 0.017	p = 0.001	p = 0.008	p = 0.000	p = 0.009	p = 0.000	p = 0.065	p = 0.467
Overid	p = 0.218	p = 0.326	p = 0.290	p = 0.232	p = 0.214	p = 0.305	p = 0.207	p = 0.147	p = 0.632	p = 0.156	p = 0.680	p = 0.144	p = 0.166	p = 1.000
Endog	p = 0.768	p = 0.362	p = 0.576	p = 0.719	p = 0.776	p = 0.732	p = 0.893	p = 0.963	p = 0.042	p = 0.889	p = 0.092	p = 0.884	p = 0.881	p = 0.941
JSig	p = 0.150	p = 0.150	p = 0.166	p = 0.150	p = 0.150	p = 0.166	p = 0.166	p = 0.025	p = 0.025	p = 0.031	p = 0.025	p = 0.025	p = 0.031	p = 0.031
RKf	7.942	5.421	14.044	4.093	9.414	3.728	2.320	5.672	3.860	9.283	2.991	9.957	1.920	0.721
SBP+NSLP			0.039	0.068		0.084	0.087			0.051	0.238		0.128	-0.194
			p = 0.139	p = 0.311		p = 0.152	p = 0.112			p = 0.239	p = 0.010		p = 0.310	p = 0.989
SNAP+NSLP						-0.084	-0.047						-0.149	4.352
						p = 0.374	p = 0.881						p = 0.456	p = 0.983
SBP+SNAP+NSLP						0.004	-0.001						-0.012	0.009
						p = 0.932	p = 0.988						p = 0.880	p = 0.992
Panel II. Percentile BMI														
SNAP	1.083					-7.324	29.906	2.928					-36.245	431.774
	(6.553)					(11.973)	(28.858)	(12.223)					(147.171)	(3071.530)
NSLP		13.627	0.289	17.599		-0.234	-0.615		39.911*	0.475	59.391*		-1.782	4.211
		(10.197)	(1.257)	(13.598)		(1.458)	(1.596)		(14.761)	(1.911)	(21.413)		(9.983)	(33.588)
SBP			2.613	-3.416		7.177	11.434			2.871	-18.718		27.15	-26.046
			(5.445)	(6.401)		(9.797)	(10.458)			(8.588)	(11.418)		(102.312)	(277.796)
ALL					-1.167		-46.249					-0.728		-409.945
					(6.559)		(32.997)					(10.852)		(2801.551)
N	7050	7050	7050	7050	7050	7050	7050	5500	5500	5500	5500	5500	5500	5500
Underid	p = 0.000	p = 0.001	p = 0.000	p = 0.001	p = 0.000	p = 0.007	p = 0.018	p = 0.001	p = 0.009	p = 0.000	p = 0.009	p = 0.000	p = 0.074	p = 0.488
Overid	p = 0.757	p = 0.870	p = 0.750	p = 0.863	p = 0.768	p = 0.652	p = 0.787	p = 0.072	p = 0.343	p = 0.075	p = 0.808	p = 0.079	p = 0.180	p = 0.997
Endog	p = 0.906	p = 0.273	p = 0.759	p = 0.415	p = 0.661	p = 0.946	p = 0.735	p = 0.729	p = 0.041	p = 0.481	p = 0.019	p = 0.430	p = 0.774	p = 0.688
JSig	p = 0.763	p = 0.763	p = 0.770	p = 0.763	p = 0.763	p = 0.770	p = 0.770	p = 0.024	p = 0.024	p = 0.027	p = 0.024	p = 0.024	p = 0.027	p = 0.027
RKf	7.892	5.432	13.988	4.145	9.307	3.738	2.302	5.618	3.843	9.275	2.966	9.856	1.867	0.700
SBP+NSLP			2.902	14.183		6.944	10.82			3.346	40.674		25.368	-21.834
			p = 0.535	p = 0.164		p = 0.427	p = 0.242			p = 0.653	p = 0.008		p = 0.784	p = 0.929
SNAP+NSLP						-7.558	29.291						-38.026	435.986
						p = 0.555	p = 0.310						p = 0.808	p = 0.888
SBP+SNAP+NSLP						-0.381	-5.524						-10.876	-0.005
						p = 0.952	p = 0.418						p = 0.845	p = 1.00

Notes: Estimation is by LIML. NSLP is treated as exogenous in all models except (2) and (4); other programs are always endogenous. Instruments include: distance to school at the student-level; percent of non US citizens, percent owner-occupied housing, and median household income at the school zip code-level; percent SNAP participants in population (linear and quadratic) at the county-level; SNAP biometric variable and a SNAP certification dummy if rate is greater than 50% at the state-level. Underid is the Kleibergen-Paap rk LM test for underidentification; Overid is the Hansen J test for overidentification; Endog is a test for endogeneity of program participation; JSig is the Anderson-Rubin (1949) Wald test of the joint significance of the endogenous regressors; RKf is the Kleibergen-Paap rk Wald F statistic. ‡ p<0.10, † p<0.05, * p<0.01. See Table 4.1 for further details.

Table 4.5 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel III. BMI Growth														
SNAP	0.022					-0.028	0.065	0.036					-0.139	1.375
	(0.036)					(0.087)	(0.284)	(0.060)					(0.216)	(4.732)
NSLP		0.057	0.004	0.046		0.002	0.001		0.227*	0.000	0.308*		-0.007	0.008
		(0.053)	(0.007)	(0.088)		(0.009)	(0.009)		(0.073)	(0.012)	(0.111)		(0.019)	(0.059)
SBP			0.024	0.009		0.042	0.050			0.049	-0.07		0.133	0.000
			(0.027)	(0.041)		(0.065)	(0.063)			(0.046)	(0.062)		(0.158)	(0.457)
ALL					0.021		-0.111					0.011		-1.386
					(0.036)		(0.290)					(0.053)		(4.305)
N	7050	7050	7050	7050	7050	7050	7050	5500	5500	5500	5500	5500	5500	5500
Underid	p = 0.000	p = 0.001	p = 0.000	p = 0.001	p = 0.000	p = 0.007	p = 0.017	p = 0.001	p = 0.008	p = 0.000	p = 0.009	p = 0.000	p = 0.065	p = 0.467
Overid	p = 0.315	p = 0.481	p = 0.382	p = 0.365	p = 0.310	p = 0.309	p = 0.228	p = 0.057	p = 0.590	p = 0.070	p = 0.676	p = 0.051	p = 0.096	p = 0.949
Endog	p = 0.506	p = 0.260	p = 0.643	p = 0.596	p = 0.613	p = 0.813	p = 0.907	p = 0.377	p = 0.009	p = 0.503	p = 0.033	p = 0.648	p = 0.772	p = 0.584
JSig	p = 0.297	p = 0.297	p = 0.331	p = 0.297	p = 0.297	p = 0.331	p = 0.331	p = 0.005	p = 0.005	p = 0.008	p = 0.005	p = 0.005	p = 0.008	p = 0.008
RKf	7.942	5.421	14.044	4.093	9.414	3.728	2.320	5.672	3.860	9.283	2.991	9.957	1.920	0.721
SBP+NSLP			0.028	0.054		0.044	0.051			0.048	0.238		0.126	0.008
			p = 0.210	p = 0.356		p = 0.447	p = 0.362			p = 0.210	p = 0.003		p = 0.379	p = 0.984
SNAP+NSLP						-0.027	0.065						-0.146	1.383
						p = 0.775	p = 0.819						p = 0.525	p = 0.772
SBP+SNAP+NSLP						0.015	0.004						-0.013	-0.003
						p = 0.701	p = 0.917						p = 0.880	p = 0.985
Panel IV. Change in Percentile BMI														
SNAP	3.543					3.41	49.455‡	2.751					-22.976	189.935
	(6.307)					(13.084)	(29.294)	(10.397)					(50.157)	(322.951)
NSLP		11.615	-0.031	16.211		0.22	-0.449		37.092*	0.535	53.920*		-0.766	1.565
		(9.067)	(1.386)	(12.642)		(1.739)	(1.950)		(13.374)	(2.082)	(18.100)		(3.783)	(5.929)
SBP			1.884	-3.85		-0.277	6.59			3.882	-15.664‡		18.575	-1.249
			(4.950)	(6.176)		(10.379)	(10.703)			(7.573)	(9.423)		(35.837)	(39.733)
ALL					-0.043		-59.556‡					-2.832		-193.276
					(6.226)		(32.308)					(8.763)		(288.929)
N	7050	7050	7050	7050	7050	7050	7050	5500	5500	5500	5500	5500	5500	5500
Underid	p = 0.000	p = 0.001	p = 0.000	p = 0.001	p = 0.000	p = 0.007	p = 0.018	p = 0.001	p = 0.009	p = 0.000	p = 0.009	p = 0.000	p = 0.074	p = 0.488
Overid	p = 0.486	p = 0.629	p = 0.468	p = 0.628	p = 0.465	p = 0.379	p = 0.840	p = 0.075	p = 0.471	p = 0.080	p = 0.888	p = 0.079	p = 0.128	p = 0.917
Endog	p = 0.882	p = 0.222	p = 0.846	p = 0.332	p = 0.494	p = 0.969	p = 0.197	p = 0.988	p = 0.020	p = 0.617	p = 0.017	p = 0.390	p = 0.886	p = 0.260
JSig	p = 0.252	p = 0.252	p = 0.265	p = 0.252	p = 0.252	p = 0.265	p = 0.265	p = 0.050	p = 0.050	p = 0.052	p = 0.050	p = 0.050	p = 0.052	p = 0.052
RKf	7.892	5.432	13.988	4.145	9.307	3.738	2.302	5.618	3.843	9.275	2.966	9.856	1.867	0.700
SBP+NSLP			1.853	12.361		-0.057	6.141			4.417	38.256		17.809	0.315
			p = 0.645	p = 0.186		p = 0.995	p = 0.501			p = 0.485	p = 0.007		p = 0.584	p = 0.993
SNAP+NSLP						3.630	49.006						-23.741	191.500
						p = 0.798	p = 0.094						p = 0.656	p = 0.557
SBP+SNAP+NSLP						3.353	-3.96						-5.166	-3.025
						p = 0.602	p = 0.548						p = 0.787	p = 0.897

Table 4.5 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel V. Overweight														
SNAP	0.202					0.053	-0.389	0.096					-0.218	-5.923
	(0.128)					(0.224)	(0.678)	(0.224)					(0.669)	(35.404)
NSLP		0.096	0.011	-0.181		0.015	0.021		0.478	0.001	0.789		-0.011	-0.055
		(0.213)	(0.025)	(0.262)		(0.031)	(0.033)		(0.308)	(0.039)	(0.558)		(0.057)	(0.414)
SBP			0.162	0.227†		0.130	0.071			0.097	-0.218		0.234	0.581
			(0.106)	(0.115)		(0.194)	(0.198)			(0.149)	(0.271)		(0.460)	(3.418)
ALL					0.246‡		0.558					0.122		5.435
					(0.126)		(0.701)					(0.196)		(31.952)
N	7050	7050	7050	7050	7050	7050	7050	5500	5500	5500	5500	5500	5500	5500
Underid	p = 0.000	p = 0.001	p = 0.000	p = 0.001	p = 0.000	p = 0.008	p = 0.018	p = 0.001	p = 0.009	p = 0.000	p = 0.009	p = 0.000	p = 0.081	p = 0.474
Overid	p = 0.609	p = 0.487	p = 0.739	p = 0.647	p = 0.674	p = 0.643	p = 0.597	p = 0.061	p = 0.207	p = 0.051	p = 0.285	p = 0.063	p = 0.028	p = 0.983
Endog	p = 0.131	p = 0.925	p = 0.203	p = 0.387	p = 0.136	p = 0.291	p = 0.436	p = 0.543	p = 0.070	p = 0.806	p = 0.224	p = 0.536	p = 0.943	p = 0.820
JSig	p = 0.036	p = 0.036	p = 0.041	p = 0.036	p = 0.036	p = 0.041	p = 0.041	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006
RKf	7.865	5.485	14.066	4.051	9.345	3.651	2.282	5.592	3.832	9.282	2.967	9.882	1.835	0.713
SBP+NSLP			0.174	0.047		0.145	0.092			0.098	0.571		0.223	0.525
			p = 0.050	p = 0.835		p = 0.391	p = 0.594			p = 0.451	p = 0.122		p = 0.590	p = 0.862
SNAP+NSLP						0.068	-0.368						-0.229	-5.978
						p = 0.781	p = 0.590						p = 0.748	p = 0.867
SBP+SNAP+NSLP						0.198	0.262						0.005	0.037
						p = 0.090	p = 0.022						p = 0.986	p = 0.967
Panel VI. Obese														
SNAP	0.193‡					0.260	-0.666	0.210					0.178	0.764
	(0.099)					(0.269)	(0.802)	(0.132)					(0.232)	(1.470)
NSLP		-0.099	0.019	-0.429†		0.040	0.044		0.237	0.012	0.141		0.020	0.022
		(0.127)	(0.019)	(0.211)		(0.031)	(0.029)		(0.163)	(0.033)	(0.271)		(0.036)	(0.042)
SBP			0.116‡	0.273†		-0.057	-0.107			0.119	0.070		0.018	0.004
			(0.070)	(0.107)		(0.199)	(0.166)			(0.098)	(0.150)		(0.182)	(0.241)
ALL					0.235†		1.065					0.191		-0.592
					(0.095)		(0.843)					(0.121)		(1.292)
N	7050	7050	7050	7050	7050	7050	7050	5500	5500	5500	5500	5500	5500	5500
Underid	p = 0.000	p = 0.001	p = 0.000	p = 0.001	p = 0.000	p = 0.008	p = 0.016	p = 0.001	p = 0.009	p = 0.000	p = 0.009	p = 0.000	p = 0.077	p = 0.465
Overid	p = 0.078	p = 0.019	p = 0.066	p = 0.215	p = 0.127	p = 0.044	p = 0.155	p = 0.607	p = 0.392	p = 0.442	p = 0.374	p = 0.535	p = 0.536	p = 0.516
Endog	p = 0.153	p = 0.735	p = 0.369	p = 0.183	p = 0.106	p = 0.449	p = 0.389	p = 0.021	p = 0.097	p = 0.116	p = 0.238	p = 0.049	p = 0.115	p = 0.196
JSig	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.050	p = 0.050	p = 0.099	p = 0.050	p = 0.050	p = 0.099	p = 0.099
RKf	7.984	5.488	14.116	3.993	9.458	3.670	2.325	5.551	3.846	9.338	2.973	9.931	1.840	0.723
SBP+NSLP			0.136	-0.156		-0.016	-0.064			0.131	0.211		0.038	0.026
			p = 0.016	p = 0.327		p = 0.925	p = 0.654			p = 0.109	p = 0.229		p = 0.811	p = 0.899
SNAP+NSLP						0.300	-0.623						0.198	0.786
						p = 0.305	p = 0.440						p = 0.429	p = 0.596
SBP+SNAP+NSLP						0.244	0.335						0.216	0.198
						p = 0.052	p = 0.010						p = 0.096	p = 0.151

Table 4.6 Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel I. ln(BMI)										
SNAP	0.004			-0.038	0.038	-0.005			-0.055	-2.199
	(0.037)			(0.060)	(0.298)	(0.054)			(0.126)	(33.846)
SBP		0.014		0.038	0.045		0.012		0.046	0.159
		(0.028)		(0.046)	(0.051)		(0.049)		(0.107)	(2.134)
ALL			0.004		-0.093			-0.003		2.216
			(0.041)		(0.351)			(0.058)		(34.465)
N	5900	5900	5900	5900	5900	4600	4600	4600	4600	4600
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.009	p = 0.036	p = 0.000	p = 0.000	p = 0.000	p = 0.053	p = 0.524
Overid	p = 0.555	p = 0.582	p = 0.554	p = 0.519	p = 0.416	p = 0.342	p = 0.342	p = 0.343	p = 0.239	p = 0.998
Endog	p = 0.843	p = 0.808	p = 0.917	p = 0.916	p = 0.974	p = 0.978	p = 0.928	p = 0.895	p = 0.966	p = 0.983
JSig	p = 0.483	p = 0.483	p = 0.483	p = 0.483	p = 0.483	p = 0.213	p = 0.213	p = 0.213	p = 0.213	p = 0.213
RKf	8.729	14.405	9.554	3.509	1.854	6.384	9.074	9.763	2.043	0.632
SBP+SNAP+NSLP				0.000	-0.009				-0.008	0.175
				p = 0.998	p = 0.858				p = 0.880	p = 0.949
Panel II. Percentile BMI										
SNAP	-2.908			-4.161	26.218	-5.362			13.322	1028.566
	(5.411)			(8.904)	(28.180)	(10.117)			(38.965)	(52611.551)
SBP		-1.36		1.171	4.908		-6.383		-15.421	-70.918
		(4.693)		(7.589)	(8.555)		(7.843)		(29.477)	(3393.578)
ALL			-4.511		-38.111			-6.452		-1046.266
			(6.101)		(35.314)			(10.758)		(53503.835)
N	5900	5900	5900	5900	5900	4600	4600	4600	4600	4600
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.008	p = 0.037	p = 0.000	p = 0.000	p = 0.000	p = 0.060	p = 0.536
Overid	p = 0.906	p = 0.912	p = 0.909	p = 0.836	p = 0.850	p = 0.190	p = 0.230	p = 0.191	p = 0.183	p = 1.000
Endog	p = 0.981	p = 0.744	p = 0.758	p = 0.975	p = 0.871	p = 0.462	p = 0.159	p = 0.276	p = 0.387	p = 0.595
JSig	p = 0.914	p = 0.914	p = 0.914	p = 0.914	p = 0.914	p = 0.078	p = 0.078	p = 0.078	p = 0.078	p = 0.078
RKf	8.699	14.36	9.436	3.514	1.838	6.355	9.093	9.662	2.007	0.622
SBP+SNAP+NSLP				-2.990	-6.985				-2.099	-88.618
				p = 0.574	p = 0.320				p = 0.878	p = 0.984

Notes: Sample restricted to students participating in NSLP. See Table 4.5 for further details.

Table 4.6 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel III. BMI Growth										
SNAP	0.007			0.013	0.187	-0.007			-0.026	1.334
	(0.032)			(0.063)	(0.286)	(0.047)			(0.127)	(5.665)
SBP		0.003		-0.005	0.013		0.000		0.017	-0.049
		(0.024)		(0.049)	(0.056)		(0.042)		(0.105)	(0.434)
ALL			0.002		-0.214			-0.021		-1.412
			(0.034)		(0.325)			(0.049)		(5.706)
N	5900	5900	5900	5900	5900	4600	4600	4600	4600	4600
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.009	p = 0.036	p = 0.000	p = 0.000	p = 0.000	p = 0.053	p = 0.524
Overid	p = 0.524	p = 0.512	p = 0.517	p = 0.412	p = 0.410	p = 0.218	p = 0.214	p = 0.219	p = 0.147	p = 0.984
Endog	p = 0.546	p = 0.926	p = 0.713	p = 0.857	p = 0.904	p = 0.557	p = 0.925	p = 0.975	p = 0.914	p = 0.750
JSig	p = 0.516	p = 0.516	p = 0.516	p = 0.516	p = 0.516	p = 0.132	p = 0.132	p = 0.132	p = 0.132	p = 0.132
RKf	8.729	14.405	9.554	3.509	1.854	6.384	9.074	9.763	2.043	0.632
SBP+SNAP+NSLP				0.008	-0.014				-0.009	-0.127
				p = 0.808	p = 0.758				p = 0.850	p = 0.785
Panel IV. Change in Percentile BMI										
SNAP	0.550			8.053	59.268‡	-5.828			8.555	181.573
	(5.860)			(10.960)	(35.238)	(8.717)			(24.926)	(304.094)
SBP		-1.836		-6.821	1.182		-6.691		-12.318	-12.396
		(4.581)		(8.934)	(9.921)		(7.240)		(19.348)	(34.354)
ALL			-2.674		-66.733‡			-10.076		-191.21
			(6.038)		(40.249)			(8.621)		(301.234)
N	5900	5900	5900	5900	5900	4600	4600	4600	4600	4600
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.008	p = 0.037	p = 0.000	p = 0.000	p = 0.000	p = 0.060	p = 0.536
Overid	p = 0.502	p = 0.526	p = 0.518	p = 0.495	p = 0.924	p = 0.163	p = 0.204	p = 0.178	p = 0.148	p = 0.970
Endog	p = 0.827	p = 0.432	p = 0.497	p = 0.662	p = 0.187	p = 0.527	p = 0.072	p = 0.144	p = 0.248	p = 0.113
JSig	p = 0.344	p = 0.344	p = 0.344	p = 0.344	p = 0.344	p = 0.087	p = 0.087	p = 0.087	p = 0.087	p = 0.087
RKf	8.699	14.360	9.436	3.514	1.838	6.355	9.093	9.662	2.007	0.622
SBP+SNAP+NSLP				1.232	-6.283				-3.763	-22.033
				p = 0.834	p = 0.376				p = 0.721	p = 0.471

Table 4.6 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel V. Overweight										
SNAP	0.144			0.076	-0.628	-0.109			0.157	-3.893
	(0.124)			(0.196)	(0.787)	(0.191)			(0.554)	(8.642)
SBP		0.109		0.062	-0.02		-0.123		-0.226	0.05
		(0.106)		(0.177)	(0.199)		(0.147)		(0.426)	(0.889)
ALL			0.189		0.875			-0.052		4.098
			(0.132)		(0.871)			(0.197)		(8.473)
N	5900	5900	5900	5900	5900	4600	4600	4600	4600	4600
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.009	p = 0.039	p = 0.000	p = 0.000	p = 0.000	p = 0.066	p = 0.521
Overid	p = 0.796	p = 0.829	p = 0.840	p = 0.737	p = 0.769	p = 0.134	p = 0.196	p = 0.142	p = 0.172	p = 0.952
Endog	p = 0.173	p = 0.491	p = 0.193	p = 0.507	p = 0.664	p = 0.972	p = 0.325	p = 0.924	p = 0.525	p = 0.423
JSig	p = 0.193	p = 0.193	p = 0.193	p = 0.193	p = 0.193	p = 0.040	p = 0.040	p = 0.040	p = 0.040	p = 0.040
RKf	8.61	14.405	9.473	3.44	1.817	6.261	9.046	9.673	1.988	0.634
SBP+SNAP+NSLP				0.138	0.227				-0.07	0.255
				p = 0.240	p = 0.103				p = 0.751	p = 0.725
Panel VI. Obese										
SNAP	0.156‡			0.217	-0.687	0.188			0.147	-0.102
	(0.093)			(0.191)	(1.192)	(0.119)			(0.205)	(1.165)
SBP		0.086		-0.053	-0.115		0.127		0.041	0.045
		(0.069)		(0.147)	(0.168)		(0.092)		(0.164)	(0.163)
ALL			0.183‡		1.063			0.208‡		0.268
			(0.099)		(1.364)			(0.115)		(1.163)
N	5900	5900	5900	5900	5900	4600	4600	4600	4600	4600
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.009	p = 0.035	p = 0.000	p = 0.000	p = 0.000	p = 0.060	p = 0.510
Overid	p = 0.225	p = 0.149	p = 0.265	p = 0.156	p = 0.279	p = 0.762	p = 0.557	p = 0.785	p = 0.668	p = 0.591
Endog	p = 0.144	p = 0.683	p = 0.143	p = 0.379	p = 0.444	p = 0.025	p = 0.099	p = 0.039	p = 0.107	p = 0.221
JSig	p = 0.018	p = 0.018	p = 0.018	p = 0.018	p = 0.018	p = 0.082	p = 0.082	p = 0.082	p = 0.082	p = 0.082
RKf	8.749	14.471	9.617	3.469	1.857	6.170	9.095	9.662	1.994	0.643
SBP+SNAP+NSLP				0.164	0.260				0.188	0.212
				p = 0.092	p = 0.116				p = 0.110	p = 0.078

Table 5.1 OLS Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.010				-0.014‡	-0.007	-0.029†				-0.030†	-0.036‡
	(0.007)				(0.008)	(0.012)	(0.014)				(0.014)	(0.020)
NSLP		0.009†	0.007		0.008‡	0.007		0.013‡	0.013		0.013	0.013
		(0.005)	(0.005)		(0.005)	(0.005)		(0.008)	(0.008)		(0.008)	(0.008)
SBP			0.011†		0.012†	0.014†			0.000		0.003	0.001
			(0.005)		(0.005)	(0.006)			(0.008)		(0.009)	(0.009)
ALL				-0.008		-0.010				-0.018		0.012
				(0.008)		(0.014)				(0.014)		(0.022)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.165	p = 0.045	p = 0.015	p = 0.310	p = 0.019	p = 0.038	p = 0.038	p = 0.099	p = 0.251	p = 0.186	p = 0.072	p = 0.134
SBP+NSLP			0.018		0.020	0.021			0.013		0.016	0.014
			p = 0.004		p = 0.002	p = 0.002			p = 0.196		p = 0.131	p = 0.196
SNAP+NSLP					-0.006	0.000					-0.017	-0.023
					p = 0.462	p = 0.992					p = 0.291	p = 0.269
SBP+SNAP+NSLP					0.006	0.004					-0.014	-0.010
					p = 0.435	p = 0.677					p = 0.372	p = 0.538
Panel II. Percentile BMI												
SNAP	-0.655				-1.096	-1.277	-3.074				-3.192	-5.330
	(1.096)				(1.106)	(1.562)	(2.208)				(2.197)	(3.372)
NSLP		0.933	0.657		0.695	0.700		-0.054	-0.119		-0.100	-0.092
		(0.868)	(0.869)		(0.876)	(0.878)		(1.226)	(1.233)		(1.228)	(1.230)
SBP			1.532‡		1.664†	1.618‡			0.476		0.738	0.150
			(0.836)		(0.839)	(0.919)			(1.264)		(1.263)	(1.328)
ALL				0.151		0.300				-0.570		4.133
				(1.390)		(2.128)				(2.144)		(3.685)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.551	p = 0.283	p = 0.120	p = 0.913	p = 0.156	p = 0.253	p = 0.165	p = 0.965	p = 0.930	p = 0.791	p = 0.501	p = 0.591
SBP+NSLP			2.189		2.359	2.318			0.357		0.638	0.058
			p = 0.055		p = 0.044	p = 0.055			p = 0.831		p = 0.702	p = 0.973
SNAP+NSLP					-0.402	-0.577					-3.292	-5.422
					p = 0.751	p = 0.724					p = 0.202	p = 0.140
SBP+SNAP+NSLP					1.263	1.341					-2.555	-1.138
					p = 0.376	p = 0.397					p = 0.354	p = 0.667

Notes: Participation measured as persistent participation from first grade through the appropriate grade. Standard errors (in parentheses) are clustered at the school-level. ALL equals one if student participates in all three programs, zero otherwise. Other regressors include: gender, age, three race dummies (white, black, Hispanic), two city type dummies (urban, suburban), three region dummies (northeast, midwest, south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status, four dummies for mother's education, dummy if mother's education is missing, birth weight, birth weight squared, dummy if birth weight is missing, and the corresponding fall kindergarten version of the dependent variable. All regressions utilize survey weights. N = number of observations (rounded to the nearest 50). JSig reports the p-value from the test that all program effects are jointly zero. ‡ p<0.10, † p<0.05, * p<0.01. See text for further details.

Table 5.1 (cont.) OLS Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel III. BMI Growth												
SNAP	-0.009				-0.012	-0.007	-0.031†				-0.033†	-0.032‡
	(0.007)				(0.008)	(0.010)	(0.012)				(0.013)	(0.019)
NSLP		0.009†	0.007‡		0.007‡	0.007‡		0.009	0.008		0.009	0.009
		(0.004)	(0.004)		(0.004)	(0.004)		(0.007)	(0.007)		(0.007)	(0.007)
SBP			0.010†		0.011†	0.013†			0.003		0.006	0.006
			(0.005)		(0.005)	(0.005)			(0.007)		(0.007)	(0.008)
ALL				-0.007		-0.009				-0.026†		-0.002
				(0.009)		(0.013)				(0.012)		(0.021)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.237	p = 0.029	p = 0.014	p = 0.450	p = 0.014	p = 0.031	p = 0.012	p = 0.219	p = 0.398	p = 0.039	p = 0.055	p = 0.087
SBP+NSLP			0.017		0.019	0.020			0.012		0.015	0.015
			p = 0.004		p = 0.002	p = 0.002			p = 0.196		p = 0.121	p = 0.135
SNAP+NSLP					-0.005	0.000					-0.024	-0.023
					p = 0.530	p = 0.980					p = 0.098	p = 0.238
SBP+SNAP+NSLP					0.007	0.004					-0.018	-0.019
					p = 0.438	p = 0.647					p = 0.185	p = 0.181
Panel IV. Change in Percentile BMI												
SNAP	-0.025				-0.482	-0.344	-3.507‡				-3.780‡	-3.028
	(1.242)				(1.233)	(1.435)	(1.973)				(1.997)	(3.300)
NSLP		0.826	0.512		0.528	0.524		-0.321	-0.516		-0.494	-0.497
		(0.811)	(0.818)		(0.822)	(0.822)		(1.295)	(1.325)		(1.325)	(1.325)
SBP			1.747‡		1.806‡	1.841‡			1.443		1.752	1.959
			(0.944)		(0.935)	(1.003)			(1.181)		(1.193)	(1.340)
ALL				0.575		-0.230				-3.015		-1.454
				(1.624)		(2.085)				(1.884)		(3.805)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.984	p = 0.309	p = 0.120	p = 0.724	p = 0.202	p = 0.326	p = 0.077	p = 0.804	p = 0.473	p = 0.111	p = 0.189	p = 0.213
SBP+NSLP			2.259		2.334	2.365			0.927		1.259	1.462
			p = 0.051		p = 0.044	p = 0.050			p = 0.551		p = 0.427	p = 0.383
SNAP+NSLP					0.046	0.181					-4.273	-3.524
					p = 0.974	p = 0.909					p = 0.065	p = 0.310
SBP+SNAP+NSLP					1.852	1.792					-2.521	-3.019
					p = 0.250	p = 0.322					p = 0.261	p = 0.164

Table 5.1 (cont.) OLS Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel V. Overweight												
SNAP	-0.049‡				-0.060†	-0.047	-0.076				-0.081	-0.101
	(0.025)				(0.026)	(0.037)	(0.049)				(0.049)	(0.062)
NSLP		0.024	0.018		0.020	0.020		0.026	0.024		0.025	0.025
		(0.015)	(0.015)		(0.015)	(0.015)		(0.027)	(0.027)		(0.027)	(0.027)
SBP			0.035†		0.042†	0.046†			0.017		0.023	0.018
			(0.016)		(0.017)	(0.018)			(0.027)		(0.028)	(0.031)
ALL				-0.036		-0.021				-0.038		0.040
				(0.029)		(0.046)				(0.052)		(0.069)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.056	p = 0.109	p = 0.030	p = 0.227	p = 0.008	p = 0.017	p = 0.120	p = 0.332	p = 0.532	p = 0.467	p = 0.199	p = 0.313
SBP+NSLP			0.053		0.062	0.065			0.041		0.048	0.042
			p = 0.010		p = 0.003	p = 0.003			p = 0.269		p = 0.195	p = 0.261
SNAP+NSLP					-0.040	-0.027					-0.056	-0.076
					p = 0.164	p = 0.472					p = 0.356	p = 0.264
SBP+SNAP+NSLP					0.002	-0.003					-0.033	-0.019
					p = 0.934	p = 0.922					p = 0.593	p = 0.771
Panel VI. Obese												
SNAP	-0.026‡				-0.036†	-0.021	-0.052				-0.059‡	-0.013
	(0.014)				(0.015)	(0.022)	(0.033)				(0.033)	(0.045)
NSLP		0.043*	0.039*		0.040*	0.040*		0.045†	0.041†		0.041†	0.041†
		(0.012)	(0.013)		(0.013)	(0.013)		(0.019)	(0.020)		(0.020)	(0.020)
SBP			0.021		0.025‡	0.029†			0.031		0.035	0.048‡
			(0.013)		(0.014)	(0.015)			(0.025)		(0.025)	(0.028)
ALL				-0.023		-0.025				-0.067‡		-0.090
				(0.019)		(0.031)				(0.039)		(0.059)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.068	p = 0.000	p = 0.000	p = 0.232	p = 0.000	p = 0.000	p = 0.118	p = 0.019	p = 0.011	p = 0.085	p = 0.004	p = 0.004
SBP+NSLP			0.060		0.065	0.069			0.072		0.077	0.089
			p = 0.00		p = 0.00	p = 0.00			p = 0.004		p = 0.002	p = 0.001
SNAP+NSLP					0.004	0.019					-0.018	0.029
					p = 0.836	p = 0.457					p = 0.673	p = 0.567
SBP+SNAP+NSLP					0.029	0.023					0.018	-0.013
					p = 0.078	p = 0.238					p = 0.661	p = 0.772

Table 5.2 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: State Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.010				-0.014‡	-0.009	-0.029†				-0.030†	-0.041†
	(0.007)				(0.008)	(0.011)	(0.014)				(0.014)	(0.019)
NSLP		0.009†	0.007		0.008‡	0.008‡		0.013‡	0.013		0.013	0.013‡
		(0.005)	(0.005)		(0.005)	(0.005)		(0.008)	(0.008)		(0.008)	(0.007)
SBP			0.011†		0.012†	0.013†			0.000		0.003	0.004
			(0.005)		(0.005)	(0.006)			(0.008)		(0.009)	(0.009)
ALL				-0.008		-0.008				-0.018		0.015
				(0.008)		(0.013)				(0.014)		(0.022)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.165	p = 0.045	p = 0.015	p = 0.310	p = 0.019	p = 0.047	p = 0.038	p = 0.099	p = 0.251	p = 0.186	p = 0.072	p = 0.071
SBP+NSLP			0.018		0.020	0.021			0.013		0.016	0.016
			p = 0.004		p = 0.002	p = 0.004			p = 0.196		p = 0.131	p = 0.127
SNAP+NSLP					-0.006	-0.001					-0.017	-0.028
					p = 0.462	p = 0.919					p = 0.291	p = 0.150
SBP+SNAP+NSLP					0.006	0.003					-0.014	-0.009
					p = 0.435	p = 0.701					p = 0.372	p = 0.558
Panel II. Percentile BMI												
SNAP	-0.655				-1.096	-1.361	-3.074				-3.192	-5.756‡
	(1.096)				(1.106)	(1.454)	(2.208)				(2.197)	(3.119)
NSLP		0.933	0.657		0.695	0.717		-0.054	-0.119		-0.100	-0.118
		(0.868)	(0.869)		(0.876)	(0.840)		(1.226)	(1.233)		(1.228)	(1.118)
SBP			1.532‡		1.664†	1.630‡			0.476		0.738	0.438
			(0.836)		(0.839)	(0.932)			(1.264)		(1.263)	(1.306)
ALL				0.151		0.609				-0.570		4.520
				(1.390)		(2.025)				(2.144)		(3.702)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.551	p = 0.283	p = 0.120	p = 0.913	p = 0.156	p = 0.228	p = 0.165	p = 0.965	p = 0.930	p = 0.791	p = 0.501	p = 0.393
SBP+NSLP			2.189		2.359	2.347			0.357		0.638	0.320
			p = 0.055		p = 0.044	p = 0.053			p = 0.831		p = 0.702	p = 0.851
SNAP+NSLP					-0.402	-0.644					-3.292	-5.874
					p = 0.751	p = 0.682					p = 0.202	p = 0.080
SBP+SNAP+NSLP					1.263	1.595					-2.555	-0.917
					p = 0.376	p = 0.336					p = 0.354	p = 0.720

Notes: See Table 5.1.

Table 5.2 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: State Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	-0.009				-0.012	-0.009	-0.031†				-0.033†	-0.037†
	(0.007)				(0.008)	(0.009)	(0.012)				(0.013)	(0.018)
NSLP		0.009†	0.007‡		0.007‡	0.007		0.009	0.008		0.009	0.006
		(0.004)	(0.004)		(0.004)	(0.004)		(0.007)	(0.007)		(0.007)	(0.007)
SBP			0.010†		0.011†	0.012†			0.003		0.006	0.008
			(0.005)		(0.005)	(0.005)			(0.007)		(0.007)	(0.008)
ALL				-0.007		-0.007				-0.026†		0.001
				(0.009)		(0.012)				(0.012)		(0.021)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.237	p = 0.029	p = 0.014	p = 0.450	p = 0.014	p = 0.048	p = 0.012	p = 0.219	p = 0.398	p = 0.039	p = 0.055	p = 0.060
SBP+NSLP			0.017		0.019	0.018			0.012		0.015	0.015
			p = 0.004		p = 0.002	p = 0.005			p = 0.196		p = 0.121	p = 0.137
SNAP+NSLP					-0.005	-0.002					-0.024	-0.030
					p = 0.530	p = 0.812					p = 0.098	p = 0.103
SBP+SNAP+NSLP					0.007	0.002					-0.018	-0.021
					p = 0.438	p = 0.804					p = 0.185	p = 0.151
Panel IV. Change in Percentile BMI												
SNAP	-0.025				-0.482	-0.573	-3.507‡				-3.780‡	-3.358
	(1.242)				(1.233)	(1.370)	(1.973)				(1.997)	(3.162)
NSLP		0.826	0.512		0.528	0.334		-0.321	-0.516		-0.494	-1.047
		(0.811)	(0.818)		(0.822)	(0.841)		(1.295)	(1.325)		(1.325)	(1.282)
SBP			1.747‡		1.806‡	1.820‡			1.443		1.752	2.287‡
			(0.944)		(0.935)	(1.005)			(1.181)		(1.193)	(1.314)
ALL				0.575		0.094				-3.015		-0.993
				(1.624)		(2.051)				(1.884)		(3.747)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.984	p = 0.309	p = 0.120	p = 0.724	p = 0.202	p = 0.357	p = 0.077	p = 0.804	p = 0.473	p = 0.111	p = 0.189	p = 0.133
SBP+NSLP			2.259		2.334	2.154			0.927		1.259	1.240
			p = 0.051		p = 0.044	p = 0.080			p = 0.551		p = 0.427	p = 0.459
SNAP+NSLP					0.046	-0.239					-4.273	-4.405
					p = 0.974	p = 0.875					p = 0.065	p = 0.187
SBP+SNAP+NSLP					1.852	1.674					-2.521	-3.111
					p = 0.250	p = 0.368					p = 0.261	p = 0.185

Table 5.2 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: State Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.049‡				-0.060†	-0.058‡	-0.076				-0.081	-0.119†
	(0.025)				(0.026)	(0.035)	(0.049)				(0.049)	(0.051)
NSLP		0.024	0.018		0.020	0.025		0.026	0.024		0.025	0.026
		(0.015)	(0.015)		(0.015)	(0.016)		(0.027)	(0.027)		(0.027)	(0.026)
SBP			0.035†		0.042†	0.043†			0.017		0.023	0.021
			(0.016)		(0.017)	(0.019)			(0.027)		(0.028)	(0.031)
ALL				-0.036		-0.016				-0.038		0.057
				(0.029)		(0.045)				(0.052)		(0.062)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.056	p = 0.109	p = 0.030	p = 0.227	p = 0.008	p = 0.007	p = 0.120	p = 0.332	p = 0.532	p = 0.467	p = 0.199	p = 0.110
SBP+NSLP			0.053		0.062	0.068			0.041		0.048	0.047
			p = 0.010		p = 0.003	p = 0.002			p = 0.269		p = 0.195	p = 0.217
SNAP+NSLP					-0.040	-0.033					-0.056	-0.093
					p = 0.164	p = 0.370					p = 0.356	p = 0.109
SBP+SNAP+NSLP					0.002	-0.006					-0.033	-0.016
					p = 0.934	p = 0.862					p = 0.593	p = 0.796
Panel VI. Obese												
SNAP	-0.026‡				-0.036†	-0.022	-0.052				-0.059‡	-0.019
	(0.014)				(0.015)	(0.022)	(0.033)				(0.033)	(0.041)
NSLP		0.043*	0.039*		0.040*	0.041*		0.045†	0.041†		0.041†	0.047†
		(0.012)	(0.013)		(0.013)	(0.013)		(0.019)	(0.020)		(0.020)	(0.020)
SBP			0.021		0.025‡	0.024‡			0.031		0.035	0.054‡
			(0.013)		(0.014)	(0.015)			(0.025)		(0.025)	(0.029)
ALL				-0.023		-0.026				-0.067‡		-0.088‡
				(0.019)		(0.032)				(0.039)		(0.053)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.068	p = 0.000	p = 0.000	p = 0.232	p = 0.000	p = 0.001	p = 0.118	p = 0.019	p = 0.011	p = 0.085	p = 0.004	p = 0.001
SBP+NSLP			0.060		0.065	0.066			0.072		0.077	0.100
			p = 0.00		p = 0.00	p = 0.00			p = 0.004		p = 0.002	p = 0.001
SNAP+NSLP					0.004	0.019					-0.018	0.028
					p = 0.836	p = 0.449					p = 0.673	p = 0.559
SBP+SNAP+NSLP					0.029	0.018					0.018	-0.007
					p = 0.078	p = 0.401					p = 0.661	p = 0.876

Table 5.3 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: County Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.007				-0.010	-0.009	-0.020				-0.022‡	-0.014
	(0.007)				(0.008)	(0.012)	(0.013)				(0.013)	(0.019)
NSLP		0.008‡	0.007		0.007	0.017*		0.014‡	0.013‡		0.013‡	0.016‡
		(0.005)	(0.005)		(0.005)	(0.006)		(0.008)	(0.008)		(0.008)	(0.009)
SBP			0.010‡		0.011‡	0.019*			0.009		0.010	0.020
			(0.006)		(0.006)	(0.006)			(0.010)		(0.010)	(0.012)
ALL				-0.007		-0.009				-0.013		-0.032
				(0.009)		(0.016)				(0.014)		(0.025)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.335	p = 0.075	p = 0.051	p = 0.396	p = 0.083	p = 0.002	p = 0.110	p = 0.061	p = 0.098	p = 0.336	p = 0.110	p = 0.031
SBP+NSLP			0.017		0.018	0.036			0.022		0.023	0.037
			p = 0.015		p = 0.011	p = 0.00			p = 0.045		p = 0.037	p = 0.008
SNAP+NSLP					-0.003	0.008					-0.009	0.002
					p = 0.698	p = 0.512					p = 0.518	p = 0.919
SBP+SNAP+NSLP					0.008	0.018					0.002	-0.010
					p = 0.340	p = 0.102					p = 0.914	p = 0.619
Panel II. Percentile BMI												
SNAP	0.178				-0.173	0.056	-0.859				-1.094	-2.094
	(1.162)				(1.161)	(1.474)	(1.648)				(1.600)	(2.759)
NSLP		0.803	0.559		0.564	0.559		0.631	0.449		0.439	0.433
		(0.868)	(0.861)		(0.868)	(0.869)		(1.028)	(1.034)		(1.031)	(1.033)
SBP			1.560		1.579	1.637			1.661		1.740	1.481
			(0.973)		(0.968)	(1.023)			(1.340)		(1.332)	(1.328)
ALL				0.580		-0.379				0.824		1.855
				(1.493)		(2.008)				(2.072)		(3.508)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.878	p = 0.356	p = 0.211	p = 0.698	p = 0.367	p = 0.524	p = 0.603	p = 0.540	p = 0.402	p = 0.691	p = 0.498	p = 0.658
SBP+NSLP			2.118		2.143	2.196			2.110		2.179	1.914
			p = 0.093		p = 0.094	p = 0.093			p = 0.194		p = 0.182	p = 0.242
SNAP+NSLP					0.391	0.615					-0.655	-1.661
					p = 0.765	p = 0.694					p = 0.703	p = 0.559
SBP+SNAP+NSLP					1.970	1.873					1.085	1.676
					p = 0.216	p = 0.285					p = 0.617	p = 0.476

Notes: See Table 5.1.

Table 5.3 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: County Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	-0.006				-0.008	-0.001	-0.022‡				-0.023‡	-0.015
	(0.007)				(0.008)	(0.009)	(0.012)				(0.012)	(0.018)
NSLP		0.006	0.005		0.005	0.005		0.006	0.005		0.005	0.005
		(0.004)	(0.004)		(0.004)	(0.004)		(0.007)	(0.007)		(0.007)	(0.007)
SBP			0.009‡		0.010‡	0.012†			0.010		0.012	0.014‡
			(0.006)		(0.006)	(0.006)			(0.008)		(0.008)	(0.008)
ALL				-0.006		-0.012				-0.021		-0.015
				(0.009)		(0.013)				(0.014)		(0.021)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.422	p = 0.106	p = 0.080	p = 0.511	p = 0.110	p = 0.173	p = 0.072	p = 0.378	p = 0.270	p = 0.130	p = 0.164	p = 0.183
SBP+NSLP			0.014		0.016	0.017			0.015		0.017	0.019
			p = 0.025		p = 0.018	p = 0.014			p = 0.112		p = 0.088	p = 0.058
SNAP+NSLP					-0.003	0.004					-0.018	-0.010
					p = 0.693	p = 0.703					p = 0.154	p = 0.577
SBP+SNAP+NSLP					0.007	0.004					-0.006	-0.011
					p = 0.420	p = 0.666					p = 0.626	p = 0.439
Panel IV. Change in Percentile BMI												
SNAP	0.689				0.386	0.807	-0.924				-1.283	0.809
	(1.271)				(1.260)	(1.397)	(1.694)				(1.696)	(2.486)
NSLP		0.397	0.153		0.140	0.130		-0.884	-1.161		-1.172	-1.159
		(0.861)	(0.863)		(0.865)	(0.865)		(1.238)	(1.258)		(1.256)	(1.251)
SBP			1.557		1.515	1.622			2.532‡		2.625†	3.165†
			(1.045)		(1.036)	(1.098)			(1.289)		(1.291)	(1.349)
ALL				0.889		-0.695				-1.514		-3.883
				(1.673)		(2.063)				(2.275)		(3.479)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.588	p = 0.645	p = 0.312	p = 0.596	p = 0.501	p = 0.636	p = 0.586	p = 0.476	p = 0.122	p = 0.506	p = 0.172	p = 0.168
SBP+NSLP			1.710		1.655	1.752			1.371		1.452	2.006
			p = 0.182		p = 0.195	p = 0.184			p = 0.408		p = 0.386	p = 0.241
SNAP+NSLP					0.527	0.937					-2.456	-0.350
					p = 0.720	p = 0.550					p = 0.200	p = 0.894
SBP+SNAP+NSLP					2.041	1.864					0.169	-1.068
					p = 0.240	p = 0.336					p = 0.936	p = 0.663

Table 5.3 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: County Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel V. Overweight												
SNAP	-0.048‡				-0.057†	-0.042	-0.053				-0.058	-0.067
	(0.026)				(0.027)	(0.037)	(0.039)				(0.039)	(0.051)
NSLP		0.033†	0.028‡		0.030‡	0.030‡		0.027	0.023		0.022	0.022
		(0.016)	(0.016)		(0.016)	(0.016)		(0.027)	(0.027)		(0.027)	(0.027)
SBP			0.031‡		0.037†	0.041†			0.034		0.038	0.036
			(0.018)		(0.018)	(0.020)			(0.028)		(0.028)	(0.030)
ALL				-0.039		-0.025				-0.022		0.017
				(0.031)		(0.046)				(0.045)		(0.061)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.069	p = 0.037	p = 0.019	p = 0.209	p = 0.008	p = 0.017	p = 0.182	p = 0.323	p = 0.297	p = 0.631	p = 0.197	p = 0.317
SBP+NSLP			0.059		0.067	0.071			0.057		0.061	0.058
			p = 0.005		p = 0.002	p = 0.002			p = 0.123		p = 0.102	p = 0.119
SNAP+NSLP					-0.027	-0.012					-0.036	-0.045
					p = 0.365	p = 0.745					p = 0.489	p = 0.441
SBP+SNAP+NSLP					0.010	0.003					0.003	0.008
					p = 0.748	p = 0.922					p = 0.956	p = 0.886
Panel VI. Obese												
SNAP	-0.028‡				-0.036†	-0.020	-0.043				-0.050	0.005
	(0.016)				(0.017)	(0.023)	(0.034)				(0.034)	(0.046)
NSLP		0.042*	0.039*		0.040*	0.040*		0.046†	0.040‡		0.040‡	0.040‡
		(0.012)	(0.013)		(0.013)	(0.013)		(0.022)	(0.022)		(0.022)	(0.022)
SBP			0.021		0.025	0.029‡			0.051‡		0.054†	0.068†
			(0.015)		(0.015)	(0.016)			(0.027)		(0.027)	(0.030)
ALL				-0.026		-0.027				-0.059		-0.103‡
				(0.021)		(0.033)				(0.040)		(0.058)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.075	p = 0.001	p = 0.001	p = 0.220	p = 0.001	p = 0.002	p = 0.211	p = 0.036	p = 0.004	p = 0.145	p = 0.003	p = 0.004
SBP+NSLP			0.060		0.065	0.069			0.091		0.094	0.108
			p = 0.00		p = 0.00	p = 0.00			p = 0.001		p = 0.001	p = 0.00
SNAP+NSLP					0.004	0.020					-0.011	0.045
					p = 0.851	p = 0.457					p = 0.802	p = 0.382
SBP+SNAP+NSLP					0.028	0.021					0.043	0.011
					p = 0.139	p = 0.327					p = 0.313	p = 0.814

Table 5.4 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: School Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.006				-0.008	0.001	-0.016				-0.017	0.013
	(0.009)				(0.009)	(0.013)	(0.012)				(0.012)	(0.020)
NSLP		0.008	0.007		0.007	0.016†		0.009	0.008		0.008	0.009
		(0.006)	(0.006)		(0.006)	(0.007)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.011‡		0.012‡	0.021†			0.006		0.007	0.017
			(0.006)		(0.006)	(0.009)			(0.010)		(0.010)	(0.013)
ALL				-0.011		-0.028				-0.012		-0.052†
				(0.010)		(0.018)				(0.014)		(0.026)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.461	p = 0.154	p = 0.071	p = 0.307	p = 0.110	p = 0.020	p = 0.175	p = 0.320	p = 0.504	p = 0.386	p = 0.364	p = 0.207
SBP+NSLP			0.017		0.018	0.036			0.014		0.015	0.026
			p = 0.023		p = 0.019	p = 0.001			p = 0.256		p = 0.226	p = 0.082
SNAP+NSLP					-0.002	0.017					-0.009	0.022
					p = 0.866	p = 0.262					p = 0.471	p = 0.306
SBP+SNAP+NSLP					0.010	0.009					-0.002	-0.013
					p = 0.350	p = 0.494					p = 0.900	p = 0.542
Panel II. Percentile BMI												
SNAP	-0.239				-0.452	2.063	-0.948				-1.018	-1.234
	(1.361)				(1.367)	(1.735)	(1.671)				(1.639)	(2.746)
NSLP		0.622	0.450		0.461	0.406		0.299	0.251		0.241	0.241
		(1.043)	(1.047)		(1.051)	(1.047)		(1.246)	(1.250)		(1.248)	(1.248)
SBP			1.259		1.296	1.866‡			0.438		0.513	0.458
			(1.028)		(1.026)	(1.086)			(1.464)		(1.452)	(1.614)
ALL				-1.300		-4.027‡				-0.437		0.383
				(1.623)		(2.155)				(1.997)		(3.510)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.860	p = 0.552	p = 0.400	p = 0.424	p = 0.577	p = 0.268	p = 0.571	p = 0.810	p = 0.932	p = 0.827	p = 0.906	p = 0.967
SBP+NSLP			1.709		1.757	2.271			0.689		0.754	0.699
			p = 0.215		p = 0.206	p = 0.109			p = 0.709		p = 0.684	p = 0.730
SNAP+NSLP					0.009	2.469					-0.777	-0.993
					p = 0.996	p = 0.194					p = 0.671	p = 0.738
SBP+SNAP+NSLP					1.305	0.308					-0.264	-0.152
					p = 0.477	p = 0.875					p = 0.911	p = 0.948

Notes: See Table 5.1.

Table 5.4 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: School Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	-0.004				-0.006	0.005	-0.019‡				-0.020‡	-0.011
	(0.008)				(0.008)	(0.010)	(0.010)				(0.010)	(0.014)
NSLP		0.006	0.005		0.005	0.005		0.003	0.002		0.002	0.002
		(0.005)	(0.005)		(0.005)	(0.005)		(0.008)	(0.008)		(0.008)	(0.008)
SBP			0.009‡		0.010‡	0.012†			0.004		0.005	0.008
			(0.005)		(0.005)	(0.006)			(0.009)		(0.009)	(0.009)
ALL				-0.007		-0.018				-0.022‡		-0.016
				(0.010)		(0.014)				(0.013)		(0.019)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.595	p = 0.253	p = 0.106	p = 0.461	p = 0.155	p = 0.139	p = 0.060	p = 0.730	p = 0.857	p = 0.098	p = 0.262	p = 0.368
SBP+NSLP			0.014		0.014	0.017			0.006		0.007	0.010
			p = 0.039		p = 0.032	p = 0.016			p = 0.582		p = 0.511	p = 0.415
SNAP+NSLP					-0.001	0.010					-0.018	-0.009
					p = 0.897	p = 0.366					p = 0.121	p = 0.557
SBP+SNAP+NSLP					0.009	0.004					-0.013	-0.017
					p = 0.390	p = 0.714					p = 0.345	p = 0.230
Panel IV. Change in Percentile BMI												
SNAP	0.854				0.684	2.819	-1.122				-1.188	1.407
	(1.381)				(1.382)	(1.751)	(1.595)				(1.598)	(2.084)
NSLP		0.155	-0.017		-0.032	-0.079		-1.327	-1.367		-1.378	-1.374
		(1.043)	(1.048)		(1.050)	(1.045)		(1.344)	(1.355)		(1.356)	(1.355)
SBP			1.263		1.206	1.689			0.360		0.447	1.111
			(0.992)		(0.986)	(1.055)			(1.378)		(1.380)	(1.444)
ALL				-0.119		-3.419				-2.873		-4.610
				(1.668)		(2.240)				(2.019)		(2.825)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.537	p = 0.882	p = 0.442	p = 0.943	p = 0.625	p = 0.379	p = 0.483	p = 0.325	p = 0.596	p = 0.156	p = 0.592	p = 0.337
SBP+NSLP			1.246		1.173	1.610			-1.007		-0.932	-0.263
			p = 0.357		p = 0.386	p = 0.251			p = 0.579		p = 0.611	p = 0.890
SNAP+NSLP					0.652	2.740					-2.567	0.033
					p = 0.694	p = 0.165					p = 0.181	p = 0.989
SBP+SNAP+NSLP					1.857	1.010					-2.120	-3.466
					p = 0.321	p = 0.612					p = 0.333	p = 0.138

Table 5.4 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight: School Fixed Effects.

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.024				-0.028	0.000	-0.043				-0.043	-0.028
	(0.028)				(0.028)	(0.042)	(0.044)				(0.044)	(0.058)
NSLP		0.020	0.017		0.018	0.017		0.005	0.005		0.004	0.004
		(0.020)	(0.020)		(0.020)	(0.020)		(0.028)	(0.028)		(0.028)	(0.028)
SBP			0.021		0.023	0.029			0.000		0.003	0.007
			(0.018)		(0.018)	(0.019)			(0.029)		(0.029)	(0.031)
ALL				-0.030		-0.044				-0.048		-0.028
				(0.032)		(0.049)				(0.055)		(0.077)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.393	p = 0.312	p = 0.271	p = 0.348	p = 0.234	p = 0.248	p = 0.327	p = 0.866	p = 0.985	p = 0.384	p = 0.791	p = 0.894
SBP+NSLP			0.038		0.041	0.047			0.005		0.007	0.012
			p = 0.112		p = 0.084	p = 0.052			p = 0.909		p = 0.855	p = 0.790
SNAP+NSLP					-0.010	0.017					-0.039	-0.023
					p = 0.755	p = 0.703					p = 0.465	p = 0.727
SBP+SNAP+NSLP			0.038		0.013	0.002			0.005		-0.036	-0.044
			p = 0.112		p = 0.722	p = 0.960			p = 0.909		p = 0.553	p = 0.499
Panel VI. Obese												
SNAP	-0.038‡				-0.043†	-0.028	-0.039				-0.047	-0.007
	(0.022)				(0.022)	(0.028)	(0.034)				(0.033)	(0.053)
NSLP		0.044*	0.042†		0.043*	0.043*		0.030	0.024		0.024	0.024
		(0.016)	(0.016)		(0.016)	(0.016)		(0.022)	(0.023)		(0.023)	(0.023)
SBP			0.018		0.021	0.025			0.057†		0.061†	0.071†
			(0.018)		(0.019)	(0.019)			(0.028)		(0.028)	(0.031)
ALL				-0.036		-0.025				-0.039		-0.072
				(0.027)		(0.037)				(0.031)		(0.055)
N	7150	7150	7150	7150	7150	7150	5600	5600	5600	5600	5600	5600
JSig	p = 0.081	p = 0.005	p = 0.007	p = 0.182	p = 0.003	p = 0.006	p = 0.255	p = 0.175	p = 0.039	p = 0.208	p = 0.034	p = 0.036
SBP+NSLP			0.060		0.064	0.067			0.081		0.084	0.095
			p = 0.004		p = 0.002	p = 0.002			p = 0.012		p = 0.009	p = 0.007
SNAP+NSLP					0.000	0.015					-0.023	0.017
					p = 0.988	p = 0.665					p = 0.551	p = 0.757
SBP+SNAP+NSLP			0.06		0.021	0.015			0.081		0.037	0.016
			p = 0.004		p = 0.449	p = 0.624			p = 0.012		p = 0.409	p = 0.696

Table 5.5 Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel I. ln(BMI)														
SNAP	-0.011					-0.121	-0.193	0.015					-0.174	-0.429
	(0.044)					(0.116)	(0.354)	(0.097)					(0.224)	(0.880)
NSLP		0.040	0.007	0.049		0.002	0.003		0.170*	0.005	0.205*		-0.003	-0.003
		(0.054)	(0.006)	(0.084)		(0.008)	(0.008)		(0.056)	(0.009)	(0.069)		(0.016)	(0.017)
SBP			0.008	-0.007		0.076	0.068			0.046	-0.050		0.130	0.095
			(0.027)	(0.041)		(0.073)	(0.067)			(0.055)	(0.065)		(0.142)	(0.145)
ALL					-0.005		0.093					0.043		0.328
					(0.047)		(0.371)					(0.093)		(0.961)
N	7050	7050	7050	7050	7050	7050	7050	5550	5550	5550	5550	5550	5550	5550
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.001	p = 0.015	p = 0.005	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.010	p = 0.014
Overid	p = 0.237	p = 0.212	p = 0.216	p = 0.142	p = 0.226	p = 0.267	p = 0.203	p = 0.148	p = 0.596	p = 0.156	p = 0.575	p = 0.153	p = 0.140	p = 0.164
Endog	p = 0.799	p = 0.643	p = 0.811	p = 0.866	p = 0.883	p = 0.807	p = 0.862	p = 0.806	p = 0.044	p = 0.750	p = 0.107	p = 0.671	p = 0.874	p = 0.890
JSig	p = 0.139	p = 0.139	p = 0.149	p = 0.139	p = 0.139	p = 0.149	p = 0.149	p = 0.025	p = 0.025	p = 0.031	p = 0.025	p = 0.025	p = 0.031	p = 0.031
RKf	9.798	6.047	22.447	4.535	11.342	4.877	2.597	5.045	6.683	9.569	4.167	8.203	3.066	2.331
SBP+NSLP			0.016	0.042		0.078	0.071			0.051	0.155		0.126	0.092
			p = 0.509	p = 0.466		p = 0.247	p = 0.250			p = 0.315	p = 0.009		p = 0.323	p = 0.494
SNAP+NSLP						-0.12	-0.19						-0.177	-0.432
						p = 0.324	p = 0.591						p = 0.454	p = 0.626
SBP+SNAP+NSLP						-0.044	-0.028						-0.047	-0.009
						p = 0.448	p = 0.649						p = 0.676	p = 0.945
Panel II. Percentile BMI														
SNAP	-2.840					-11.145	15.238	13.657					46.774	-1473.838
	(6.408)					(15.682)	(33.296)	(19.120)					(176.097)	(195505)
NSLP		9.654	0.988	16.093		0.507	0.018		28.998*	-0.844	38.291*		1.896	-10.347
		(8.673)	(1.034)	(11.306)		(1.269)	(1.370)		(10.476)	(1.546)	(13.420)		(10.348)	(1380.514)
SBP			-0.440	-5.826		5.659	8.905			5.364	-13.772		-20.502	-62.804
			(4.496)	(5.660)		(10.552)	(10.928)			(9.622)	(11.564)		(98.414)	(7614.413)
ALL					-4.543		-35.226					14.420		1641.748
					(6.610)		(37.220)					(16.599)		(215014)
N	7050	7050	7050	7050	7050	7050	7050	5550	5550	5550	5550	5550	5550	5550
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.001	p = 0.015	p = 0.005	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.011	p = 0.014
Overid	p = 0.754	p = 0.769	p = 0.756	p = 0.787	p = 0.764	p = 0.662	p = 0.595	p = 0.081	p = 0.406	p = 0.070	p = 0.534	p = 0.067	p = 0.148	p = 1.000
Endog	p = 0.705	p = 0.506	p = 0.390	p = 0.388	p = 0.552	p = 0.749	p = 0.856	p = 0.685	p = 0.084	p = 0.695	p = 0.123	p = 0.745	p = 0.738	p = 0.817
JSig	p = 0.744	p = 0.744	p = 0.762	p = 0.744	p = 0.744	p = 0.762	p = 0.762	p = 0.023	p = 0.023	p = 0.023	p = 0.023	p = 0.023	p = 0.023	p = 0.023
RKf	9.824	6.061	22.324	4.604	11.341	4.913	2.585	5.049	6.666	9.515	4.179	8.199	2.990	2.335
SBP+NSLP			0.548	10.267		6.166	8.923			4.519	24.519		-18.605	-73.150
			p = 0.891	p = 0.229		p = 0.524	p = 0.368			p = 0.605	p = 0.020		p = 0.833	p = 0.994
SNAP+NSLP						-10.637	15.257						48.671	-1484.185
						p = 0.518	p = 0.646						p = 0.794	p = 0.994
SBP+SNAP+NSLP						-4.978	-11.065						28.169	94.760
						p = 0.520	p = 0.203						p = 0.753	p = 0.993

Notes: Estimation is by LIML. NSLP is treated as exogenous in all models except (2) and (4); other programs are always endogenous. Instruments include: distance to school at the student-level; percent of non US citizens, percent owner-occupied housing, and median household income at the school zip code-level; percent SNAP participants in population (linear and quadratic) at the county-level; SNAP biometric variable and a SNAP certification dummy if rate is greater than 50% at the state-level. Underid is the Kleibergen-Paap rk LM test for underidentification; Overid is the Hansen J test for overidentification; Endog is a test for endogeneity of program participation; JSig is the Anderson-Rubin (1949) Wald test of the joint significance of the endogenous regressors; RKf is the Kleibergen-Paap rk Wald F statistic. ‡ p<0.10, † p<0.05, * p<0.01. See Table 5.1 for further details.

Table 5.5 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel III. BMI Growth														
SNAP	-0.010					-0.056	-0.096	0.012					-0.178	-0.005
	(0.037)					(0.107)	(0.292)	(0.090)					(0.271)	(5.406)
NSLP		0.013	0.008	0.018		0.006	0.007		0.151*	0.003	0.194*		-0.006	-0.005
		(0.050)	(0.005)	(0.077)		(0.007)	(0.007)		(0.053)	(0.009)	(0.073)		(0.018)	(0.041)
SBP			-0.001	-0.004		0.030	0.026			0.036	-0.058		0.125	0.135
			(0.023)	(0.035)		(0.067)	(0.063)			(0.050)	(0.063)		(0.164)	(0.257)
ALL					-0.008		0.052					0.019		-0.195
					(0.038)		(0.301)					(0.081)		(5.950)
N	7050	7050	7050	7050	7050	7050	7050	5550	5550	5550	5550	5550	5550	5550
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.001	p = 0.015	p = 0.005	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.010	p = 0.014
Overid	p = 0.293	p = 0.307	p = 0.295	p = 0.218	p = 0.291	p = 0.242	p = 0.169	p = 0.051	p = 0.204	p = 0.052	p = 0.218	p = 0.052	p = 0.050	p = 0.023
Endog	p = 0.943	p = 0.676	p = 0.701	p = 0.830	p = 0.912	p = 0.944	p = 0.950	p = 0.376	p = 0.077	p = 0.509	p = 0.228	p = 0.424	p = 0.652	p = 0.842
JSig	p = 0.285	p = 0.285	p = 0.299	p = 0.285	p = 0.285	p = 0.299	p = 0.299	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006
RKf	9.798	6.047	22.447	4.535	11.342	4.877	2.597	5.045	6.683	9.569	4.167	8.203	3.066	2.331
SBP+NSLP			0.008	0.014		0.036	0.033			0.039	0.136		0.119	0.129
			p = 0.691	p = 0.795		p = 0.552	p = 0.565			p = 0.393	p = 0.012		p = 0.419	p = 0.647
SNAP+NSLP						-0.05	-0.089						-0.185	-0.011
						p = 0.658	p = 0.759						p = 0.520	p = 0.998
SBP+SNAP+NSLP						-0.019	-0.011						-0.059	-0.071
						p = 0.717	p = 0.845						p = 0.662	p = 0.823
Panel IV. Change in Percentile BMI														
SNAP	0.262					1.581	43.307	6.780					6.483	206.863
	(6.214)					(15.431)	(32.189)	(16.225)					(69.831)	(897)
NSLP		7.049	0.898	12.473		0.967	0.085		22.664†	-0.889	31.777†		-0.525	0.207
		(8.096)	(1.111)	(11.250)		(1.349)	(1.471)		(10.746)	(1.601)	(15.455)		(4.284)	(7.715)
SBP			-0.506	-4.694		-1.378	4.839			3.593	-12.354		0.123	15.965
			(4.157)	(5.327)		(10.179)	(10.198)			(8.865)	(11.405)		(40.178)	(65.674)
ALL					-3.040		-57.652					4.435		-235.915
					(6.245)		(36.331)					(14.622)		(988)
N	7050	7050	7050	7050	7050	7050	7050	5550	5550	5550	5550	5550	5550	5550
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.001	p = 0.015	p = 0.005	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.011	p = 0.014
Overid	p = 0.461	p = 0.509	p = 0.483	p = 0.527	p = 0.510	p = 0.380	p = 0.665	p = 0.088	p = 0.244	p = 0.074	p = 0.329	p = 0.084	p = 0.050	p = 0.634
Endog	p = 0.572	p = 0.546	p = 0.373	p = 0.389	p = 0.308	p = 0.684	p = 0.326	p = 0.903	p = 0.200	p = 0.558	p = 0.291	p = 0.977	p = 0.956	p = 0.979
JSig	p = 0.269	p = 0.269	p = 0.274	p = 0.269	p = 0.269	p = 0.274	p = 0.274	p = 0.054	p = 0.054	p = 0.046	p = 0.054	p = 0.054	p = 0.046	p = 0.046
RKf	9.824	6.061	22.324	4.604	11.341	4.913	2.585	5.049	6.666	9.515	4.179	8.199	2.990	2.335
SBP+NSLP			0.392	7.779		-0.410	4.924			2.703	19.423		-0.402	16.173
			p = 0.911	p = 0.350		p = 0.965	p = 0.588			p = 0.736	p = 0.072		p = 0.991	p = 0.804
SNAP+NSLP						2.548	43.392						5.958	207.070
						p = 0.875	p = 0.175						p = 0.936	p = 0.818
SBP+SNAP+NSLP						1.171	-9.421						6.081	-12.880
						p = 0.879	p = 0.272						p = 0.864	p = 0.848

Table 5.5 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel V. Overweight														
SNAP	0.196					-0.021	-0.244	0.014					-0.575	-2.042
	(0.127)					(0.288)	(0.674)	(0.334)					(0.610)	(2.055)
NSLP		0.141	-0.001	-0.054		-0.002	0.002		0.434†	0.008	0.532†		-0.020	-0.010
		(0.181)	(0.021)	(0.209)		(0.027)	(0.027)		(0.188)	(0.032)	(0.236)		(0.048)	(0.051)
SBP			0.144	0.163‡		0.155	0.124			0.129	-0.128		0.408	0.101
			(0.091)	(0.098)		(0.207)	(0.204)			(0.168)	(0.210)		(0.345)	(0.407)
ALL					0.239‡		0.305					0.177		2.082
					(0.135)		(0.707)					(0.303)		(2.342)
N	7050	7050	7050	7050	7050	7050	7050	5550	5550	5550	5550	5550	5550	5550
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.001	p = 0.016	p = 0.004	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.011	p = 0.014
Overid	p = 0.564	p = 0.525	p = 0.703	p = 0.580	p = 0.574	p = 0.595	p = 0.486	p = 0.059	p = 0.316	p = 0.068	p = 0.306	p = 0.071	p = 0.058	p = 0.416
Endog	p = 0.182	p = 0.548	p = 0.223	p = 0.473	p = 0.226	p = 0.347	p = 0.543	p = 0.794	p = 0.033	p = 0.399	p = 0.115	p = 0.410	p = 0.610	p = 0.361
JSig	p = 0.033	p = 0.033	p = 0.041	p = 0.033	p = 0.033	p = 0.041	p = 0.041	p = 0.007	p = 0.007	p = 0.008	p = 0.007	p = 0.007	p = 0.008	p = 0.008
RKf	9.724	6.096	22.363	4.538	11.297	4.857	2.566	5.038	6.626	9.555	4.141	8.169	3.030	2.290
SBP+NSLP			0.143	0.109		0.153	0.126			0.137	0.404		0.388	0.091
			p = 0.067	p = 0.535		p = 0.412	p = 0.491			p = 0.370	p = 0.042		p = 0.210	p = 0.809
SNAP+NSLP						-0.023	-0.242						-0.595	-2.051
						p = 0.940	p = 0.720						p = 0.354	p = 0.320
SBP+SNAP+NSLP						0.132	0.187						-0.187	0.131
						p = 0.336	p = 0.207						p = 0.611	p = 0.748
Panel VI. Obese														
SNAP	0.142					0.334	-0.705	0.105					-0.024	0.511
	(0.107)					(0.366)	(1.302)	(0.204)					(0.337)	(1)
NSLP		-0.143	0.032‡	-0.395†		0.048‡	0.059†		0.232†	0.034	0.257‡		0.033	0.031
		(0.117)	(0.017)	(0.183)		(0.025)	(0.027)		(0.101)	(0.024)	(0.141)		(0.030)	(0.032)
SBP			0.058	0.217†		-0.132	-0.176			0.071	-0.033		0.082	0.176
			(0.064)	(0.093)		(0.223)	(0.180)			(0.110)	(0.142)		(0.194)	(0.220)
ALL					0.185		1.232					0.067		-0.739
					(0.113)		(1.462)					(0.193)		(1)
N	7050	7050	7050	7050	7050	7050	7050	5550	5550	5550	5550	5550	5550	5550
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.001	p = 0.016	p = 0.005	p = 0.001	p = 0.000	p = 0.003	p = 0.003	p = 0.011	p = 0.015
Overid	p = 0.030	p = 0.041	p = 0.020	p = 0.137	p = 0.026	p = 0.025	p = 0.011	p = 0.181	p = 0.568	p = 0.321	p = 0.534	p = 0.144	p = 0.231	p = 0.332
Endog	p = 0.484	p = 0.303	p = 0.756	p = 0.214	p = 0.478	p = 0.845	p = 0.783	p = 0.158	p = 0.053	p = 0.224	p = 0.176	p = 0.249	p = 0.370	p = 0.362
JSig	p = 0.006	p = 0.006	p = 0.005	p = 0.006	p = 0.006	p = 0.005	p = 0.005	p = 0.047	p = 0.047	p = 0.145	p = 0.047	p = 0.047	p = 0.145	p = 0.145
RKf	9.747	6.148	22.563	4.453	11.355	4.863	2.566	4.952	6.680	9.548	4.103	8.106	2.993	2.314
SBP+NSLP			0.090	-0.178		-0.084	-0.118			0.105	0.224		0.115	0.206
			p = 0.093	p = 0.187		p = 0.677	p = 0.465			p = 0.281	p = 0.042		p = 0.502	p = 0.297
SNAP+NSLP						0.381	-0.647						0.009	0.542
						p = 0.321	p = 0.617						p = 0.980	p = 0.477
SBP+SNAP+NSLP						0.249	0.409						0.091	-0.022
						p = 0.178	p = 0.083						p = 0.677	p = 0.924

Table 5.6 Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel I. ln(BMI)										
SNAP	-0.034			-0.046	-0.077	0.010			0.068	-0.332
	(0.039)			(0.082)	(0.567)	(0.083)			(0.129)	(0.305)
SBP		-0.016		0.009	0.009		-0.019		-0.052	-0.087
		(0.027)		(0.054)	(0.050)		(0.055)		(0.082)	(0.070)
ALL			-0.037		0.037			0.044		0.507
			(0.046)		(0.633)			(0.093)		(0.361)
N	5350	5350	5350	5350	5350	3850	3850	3850	3850	3850
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.006	p = 0.021	p = 0.005	p = 0.000	p = 0.003	p = 0.030	p = 0.044
Overid	p = 0.290	p = 0.264	p = 0.293	p = 0.208	p = 0.134	p = 0.567	p = 0.554	p = 0.608	p = 0.576	p = 0.658
Endog	p = 0.783	p = 0.357	p = 0.707	p = 0.785	p = 0.898	p = 0.389	p = 0.911	p = 0.331	p = 0.636	p = 0.499
JSig	p = 0.143	p = 0.143	p = 0.143	p = 0.143	p = 0.143	p = 0.476	p = 0.476	p = 0.476	p = 0.476	p = 0.476
RKf	10.144	19.103	11.395	4.017	2.197	5.284	8.370	7.458	2.509	1.993
SBP+SNAP+NSLP				-0.037	-0.031				0.016	0.088
				p = 0.394	p = 0.735				p = 0.854	p = 0.373
Panel II. Percentile BMI										
SNAP	-6.037			-4.893	23.205	8.617			39.955	-76.492
	(5.654)			(11.334)	(32.938)	(17.443)			(38.146)	(71.491)
SBP		-3.532		-0.903	1.074		-5.384		-25.732	-25.965‡
		(4.290)		(8.178)	(7.747)		(9.909)		(21.074)	(13.831)
ALL			-8.404		-36.010			15.779		129.799
			(6.392)		(36.105)			(18.048)		(82.551)
N	5350	5350	5350	5350	5350	3850	3850	3850	3850	3850
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.005	p = 0.022	p = 0.005	p = 0.000	p = 0.003	p = 0.032	p = 0.044
Overid	p = 0.783	p = 0.780	p = 0.807	p = 0.682	p = 0.666	p = 0.086	p = 0.115	p = 0.062	p = 0.537	p = 0.451
Endog	p = 0.587	p = 0.240	p = 0.398	p = 0.599	p = 0.661	p = 0.523	p = 0.226	p = 0.483	p = 0.136	p = 0.111
JSig	p = 0.763	p = 0.763	p = 0.763	p = 0.763	p = 0.763	p = 0.020	p = 0.020	p = 0.020	p = 0.020	p = 0.020
RKf	10.211	19.029	11.409	4.056	2.177	5.353	8.380	7.428	2.479	2.005
SBP+SNAP+NSLP				-5.796	-11.731				14.223	27.342
				p = 0.324	p = 0.124				p = 0.536	p = 0.176

Notes: Sample restricted to students participating in NSLP. See Table 5.5 for further details.

Table 5.6 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel III. BMI Growth										
SNAP	-0.029			0.02	0.035	-0.003			0.102	-0.18
	(0.035)			(0.082)	(0.575)	(0.075)			(0.128)	(0.382)
SBP		-0.025		-0.036	-0.036		-0.044		-0.093	-0.113‡
		(0.023)		(0.053)	(0.051)		(0.047)		(0.077)	(0.068)
ALL			-0.034		-0.018			0.009		0.348
			(0.039)		(0.642)			(0.082)		(0.444)
N	5350	5350	5350	5350	5350	3850	3850	3850	3850	3850
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.006	p = 0.021	p = 0.005	p = 0.000	p = 0.003	p = 0.030	p = 0.044
Overid	p = 0.175	p = 0.226	p = 0.175	p = 0.167	p = 0.114	p = 0.387	p = 0.381	p = 0.379	p = 0.570	p = 0.359
Endog	p = 0.962	p = 0.230	p = 0.992	p = 0.496	p = 0.568	p = 0.125	p = 0.978	p = 0.227	p = 0.220	p = 0.404
JSig	p = 0.095	p = 0.095	p = 0.095	p = 0.095	p = 0.095	p = 0.189	p = 0.189	p = 0.189	p = 0.189	p = 0.189
RKf	10.144	19.103	11.395	4.017	2.197	5.284	8.370	7.458	2.509	1.993
SBP+SNAP+NSLP				-0.016	-0.019				0.009	0.055
				p = 0.693	p = 0.833				p = 0.914	p = 0.552
Panel IV. Change in Percentile BMI										
SNAP	-3.040			9.407	60.589	0.487			32.227	-30.946
	(6.368)			(13.265)	(46.298)	(15.061)			(29.293)	(99.718)
SBP		-4.366		-9.481	-4.875		-11.671		-26.984	-29.339‡
		(4.236)		(9.201)	(9.379)		(8.893)		(17.557)	(15.574)
ALL			-6.599		-67.392			1.909		74.375
			(6.775)		(53.188)			(15.576)		(113.872)
N	5350	5350	5350	5350	5350	3850	3850	3850	3850	3850
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.005	p = 0.022	p = 0.005	p = 0.000	p = 0.003	p = 0.032	p = 0.044
Overid	p = 0.328	p = 0.477	p = 0.380	p = 0.458	p = 0.626	p = 0.084	p = 0.179	p = 0.082	p = 0.489	p = 0.298
Endog	p = 0.490	p = 0.076	p = 0.285	p = 0.193	p = 0.165	p = 0.632	p = 0.073	p = 0.936	p = 0.070	p = 0.151
JSig	p = 0.103	p = 0.103	p = 0.103	p = 0.103	p = 0.103	p = 0.036	p = 0.036	p = 0.036	p = 0.036	p = 0.036
RKf	10.211	19.029	11.409	4.056	2.177	5.353	8.380	7.428	2.479	2.005
SBP+SNAP+NSLP				-0.073	-11.677				5.242	14.090
				p = 0.991	p = 0.237				p = 0.778	p = 0.466

Table 5.6 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel V. Overweight										
SNAP	0.117			0.039	-0.404	0.034			0.534	-1.943†
	(0.127)			(0.250)	(0.894)	(0.323)			(0.848)	(0.967)
SBP		0.081		0.060	0.034		-0.106		-0.388	-0.428
		(0.093)		(0.183)	(0.179)		(0.200)		(0.512)	(0.263)
ALL			0.155		0.558			0.255		2.822†
			(0.145)		(0.976)			(0.335)		(1.148)
N	5350	5350	5350	5350	5350	3850	3850	3850	3850	3850
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.006	p = 0.023	p = 0.005	p = 0.000	p = 0.003	p = 0.031	p = 0.045
Overid	p = 0.775	p = 0.782	p = 0.796	p = 0.685	p = 0.624	p = 0.205	p = 0.201	p = 0.286	p = 0.379	p = 0.898
Endog	p = 0.283	p = 0.667	p = 0.342	p = 0.701	p = 0.820	p = 0.294	p = 0.949	p = 0.167	p = 0.420	p = 0.070
JSig	p = 0.245	p = 0.245	p = 0.245	p = 0.245	p = 0.245	p = 0.039	p = 0.039	p = 0.039	p = 0.039	p = 0.039
RKf	10.034	19.033	11.340	3.982	2.160	5.242	8.361	7.410	2.492	1.947
SBP+SNAP+NSLP				0.099	0.188				0.146	0.451
				p = 0.438	p = 0.294				p = 0.743	p = 0.192
Panel VI. Obese										
SNAP	0.086			0.213	-0.904	0.158			0.213	0.172
	(0.102)			(0.242)	(1.537)	(0.208)			(0.352)	(1.130)
SBP		0.025		-0.094	-0.106		0.054		-0.048	-0.052
		(0.066)		(0.162)	(0.165)		(0.112)		(0.198)	(0.184)
ALL			0.124		1.309			0.169		0.052
			(0.118)		(1.778)			(0.199)		(1.178)
N	5350	5350	5350	5350	5350	3850	3850	3850	3850	3850
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.006	p = 0.022	p = 0.006	p = 0.000	p = 0.003	p = 0.031	p = 0.047
Overid	p = 0.122	p = 0.083	p = 0.124	p = 0.111	p = 0.175	p = 0.491	p = 0.376	p = 0.454	p = 0.408	p = 0.285
Endog	p = 0.186	p = 0.964	p = 0.237	p = 0.316	p = 0.459	p = 0.082	p = 0.307	p = 0.087	p = 0.259	p = 0.403
JSig	p = 0.014	p = 0.014	p = 0.014	p = 0.014	p = 0.014	p = 0.161	p = 0.161	p = 0.161	p = 0.161	p = 0.161
RKf	10.063	19.227	11.440	3.995	2.168	5.116	8.313	7.311	2.466	1.967
SBP+SNAP+NSLP				0.120	0.299				0.164	0.172
				p = 0.328	p = 0.305				p = 0.454	p = 0.422

Table 6.1 OLS Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.009				-0.012	-0.007	-0.027‡				-0.027‡	-0.037‡
	(0.007)				(0.008)	(0.012)	(0.014)				(0.014)	(0.020)
NSLP		0.018†	0.014		0.015‡	0.015‡		0.012	0.013		0.013	0.013
		(0.009)	(0.009)		(0.009)	(0.009)		(0.011)	(0.011)		(0.011)	(0.011)
SBP			0.011‡		0.013†	0.015†			-0.007		-0.005	-0.008
			(0.006)		(0.006)	(0.007)			(0.010)		(0.010)	(0.010)
ALL				-0.006		-0.009				-0.017		0.019
				(0.008)		(0.015)				(0.014)		(0.022)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.241	p = 0.046	p = 0.031	p = 0.488	p = 0.052	p = 0.099	p = 0.059	p = 0.284	p = 0.473	p = 0.248	p = 0.144	p = 0.241
SBP+NSLP			0.026		0.028	0.030			0.006		0.008	0.005
			p = 0.011		p = 0.008	p = 0.009			p = 0.623		p = 0.507	p = 0.711
SNAP+NSLP					0.003	0.009					-0.014	-0.024
					p = 0.762	p = 0.524					p = 0.469	p = 0.302
SBP+SNAP+NSLP			0.026		0.016	0.014			0.006		-0.019	-0.013
			p = 0.011		p = 0.129	p = 0.196			p = 0.623		p = 0.311	p = 0.494
Panel II. Percentile BMI												
SNAP	-0.464				-1.003	-1.248	-3.258				-3.192	-5.947‡
	(1.134)				(1.135)	(1.603)	(2.252)				(2.260)	(3.541)
NSLP		2.578‡	2.010		2.089	2.097		0.287	0.474		0.539	0.473
		(1.449)	(1.487)		(1.506)	(1.510)		(1.756)	(1.789)		(1.775)	(1.776)
SBP			1.966‡		2.082‡	2.001			-0.967		-0.760	-1.690
			(1.084)		(1.077)	(1.221)			(1.483)		(1.476)	(1.568)
ALL				0.601		0.410				-0.801		5.345
				(1.433)		(2.213)				(2.146)		(3.851)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.683	p = 0.077	p = 0.042	p = 0.675	p = 0.070	p = 0.119	p = 0.150	p = 0.870	p = 0.801	p = 0.709	p = 0.487	p = 0.515
SBP+NSLP			3.977		4.172	4.098			-0.493		-0.222	-1.217
			p = 0.016		p = 0.014	p = 0.020			p = 0.814		p = 0.915	p = 0.577
SNAP+NSLP					1.086	0.849					-2.653	-5.474
					p = 0.512	p = 0.660					p = 0.377	p = 0.183
SBP+SNAP+NSLP			3.977		3.168	3.260			-0.493		-3.414	-1.819
			p = 0.016		p = 0.083	p = 0.090			p = 0.814		p = 0.277	p = 0.543

Notes: Participation measured as persistent participation from first grade through the appropriate grade. Sample restricted to households with income less than 200% of the federal poverty line. Standard errors (in parentheses) are clustered at the school-level. ALL equals one if student participates in all three programs, zero otherwise. Other regressors include: gender, age, three race dummies (white, black, Hispanic), two city type dummies (urban, suburban), three region dummies (northeast, midwest, south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status, four dummies for mother's education, dummy if mother's education is missing, birth weight, birth weight squared, dummy if birth weight is missing, and the corresponding fall kindergarten version of the dependent variable. All regressions utilize survey weights. N = number of observations (rounded to the nearest 50). JSig reports the p-value from the test that all program effects are jointly zero. ‡ p<0.10, † p<0.05, * p<0.01. See text for further details.

Table 6.1 (cont.) OLS Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel III. BMI Growth												
SNAP	-0.009				-0.011	-0.007	-0.029†				-0.029†	-0.033‡
	(0.007)				(0.008)	(0.010)	(0.013)				(0.013)	(0.019)
NSLP		0.008	0.005		0.006	0.006		0.002	0.003		0.003	0.003
		(0.008)	(0.008)		(0.009)	(0.009)		(0.010)	(0.010)		(0.010)	(0.010)
SBP			0.010‡		0.012†	0.013†			-0.005		-0.003	-0.004
			(0.006)		(0.006)	(0.007)			(0.009)		(0.009)	(0.010)
ALL				-0.006		-0.007				-0.024‡		0.007
				(0.009)		(0.014)				(0.013)		(0.022)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.233	p = 0.312	p = 0.133	p = 0.516	p = 0.101	p = 0.182	p = 0.024	p = 0.865	p = 0.868	p = 0.064	p = 0.131	p = 0.217
SBP+NSLP			0.016		0.018	0.019			-0.002		0.000	-0.001
			p = 0.097		p = 0.065	p = 0.063			p = 0.858		p = 0.966	p = 0.947
SNAP+NSLP					-0.005	-0.001					-0.026	-0.030
					p = 0.617	p = 0.939					p = 0.130	p = 0.171
SBP+SNAP+NSLP			0.016		0.007	0.005			-0.002		-0.029	-0.027
			p = 0.097		p = 0.552	p = 0.667			p = 0.858		p = 0.076	p = 0.107
Panel IV. Change in Percentile BMI												
SNAP	-0.186				-0.527	-0.715	-3.425‡				-3.379‡	-3.452
	(1.257)				(1.237)	(1.466)	(2.013)				(2.037)	(3.382)
NSLP		0.472	-0.063		-0.021	-0.015		-1.463	-1.423		-1.355	-1.356
		(1.582)	(1.613)		(1.628)	(1.630)		(1.919)	(1.980)		(1.989)	(1.987)
SBP			1.853‡		1.914‡	1.851			-0.206		0.012	-0.012
			(1.085)		(1.059)	(1.186)			(1.449)		(1.452)	(1.659)
ALL				0.677		0.315				-3.052		0.140
				(1.653)		(2.174)				(1.903)		(3.937)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.882	p = 0.766	p = 0.227	p = 0.683	p = 0.296	p = 0.401	p = 0.090	p = 0.447	p = 0.723	p = 0.110	p = 0.304	p = 0.383
SBP+NSLP			1.790		1.893	1.836			-1.629		-1.342	-1.368
			p = 0.315		p = 0.289	p = 0.319			p = 0.436		p = 0.527	p = 0.543
SNAP+NSLP					-0.548	-0.730					-4.734	-4.808
					p = 0.770	p = 0.713					p = 0.092	p = 0.215
SBP+SNAP+NSLP			1.79		1.366	1.436			-1.629		-4.721	-4.680
			p = 0.315		p = 0.513	p = 0.518			p = 0.436		p = 0.077	p = 0.070

Table 6.1 (cont.) OLS Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel V. Overweight												
SNAP	-0.047‡				-0.056†	-0.044	-0.078				-0.078	-0.111‡
	(0.026)				(0.027)	(0.038)	(0.049)				(0.049)	(0.062)
NSLP		0.021	0.011		0.015	0.015		0.000	0.000		0.002	0.001
		(0.026)	(0.025)		(0.026)	(0.026)		(0.039)	(0.041)		(0.041)	(0.041)
SBP			0.035‡		0.041†	0.045†			-0.002		0.003	-0.007
			(0.018)		(0.019)	(0.021)			(0.032)		(0.032)	(0.036)
ALL				-0.033		-0.019				-0.039		0.062
				(0.030)		(0.048)				(0.050)		(0.068)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.067	p = 0.420	p = 0.150	p = 0.268	p = 0.068	p = 0.125	p = 0.112	p = 0.999	p = 0.999	p = 0.431	p = 0.445	p = 0.518
SBP+NSLP			0.046		0.056	0.060			-0.001		0.005	-0.006
			p = 0.147		p = 0.084	p = 0.077			p = 0.976		p = 0.903	p = 0.888
SNAP+NSLP					-0.041	-0.030					-0.077	-0.109
					p = 0.233	p = 0.491					p = 0.270	p = 0.148
SBP+SNAP+NSLP			0.046		0.000	-0.004			-0.001		-0.073	-0.055
			p = 0.147		p = 0.990	p = 0.919			p = 0.976		p = 0.265	p = 0.426
Panel VI. Obese												
SNAP	-0.026‡				-0.033†	-0.019	-0.034				-0.037	-0.006
	(0.015)				(0.016)	(0.022)	(0.033)				(0.033)	(0.044)
NSLP		0.047†	0.041‡		0.043‡	0.043‡		0.030	0.027		0.027	0.028
		(0.021)	(0.022)		(0.022)	(0.022)		(0.031)	(0.033)		(0.032)	(0.032)
SBP			0.021		0.024	0.029‡			0.020		0.022	0.033
			(0.016)		(0.017)	(0.017)			(0.027)		(0.027)	(0.030)
ALL				-0.021		-0.025				-0.045		-0.061
				(0.019)		(0.030)				(0.040)		(0.058)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.080	p = 0.027	p = 0.024	p = 0.272	p = 0.019	p = 0.036	p = 0.305	p = 0.327	p = 0.352	p = 0.261	p = 0.312	p = 0.340
SBP+NSLP			0.061		0.068	0.072			0.046		0.049	0.061
			p = 0.007		p = 0.004	p = 0.003			p = 0.151		p = 0.126	p = 0.078
SNAP+NSLP					0.010	0.024					-0.010	0.022
					p = 0.707	p = 0.425					p = 0.838	p = 0.695
SBP+SNAP+NSLP			0.061		0.034	0.029			0.046		0.012	-0.006
			p = 0.007		p = 0.144	p = 0.251			p = 0.151		p = 0.793	p = 0.899

Table 6.2 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: State Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.009				-0.012	-0.007	-0.027‡				-0.027‡	-0.036‡
	(0.007)				(0.008)	(0.010)	(0.014)				(0.014)	(0.019)
NSLP		0.018†	0.014		0.015‡	0.017‡		0.012	0.013		0.013	0.014
		(0.009)	(0.009)		(0.009)	(0.009)		(0.011)	(0.011)		(0.011)	(0.010)
SBP			0.011‡		0.013†	0.014‡			-0.007		-0.005	-0.002
			(0.006)		(0.006)	(0.007)			(0.010)		(0.010)	(0.010)
ALL				-0.006		-0.008				-0.017		0.019
				(0.008)		(0.013)				(0.014)		(0.023)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.241	p = 0.046	p = 0.031	p = 0.488	p = 0.052	p = 0.094	p = 0.059	p = 0.284	p = 0.473	p = 0.248	p = 0.144	p = 0.203
SBP+NSLP			0.026		0.028	0.031			0.006		0.008	0.012
			p = 0.011		p = 0.008	p = 0.008			p = 0.623		p = 0.507	p = 0.351
SNAP+NSLP					0.003	0.010					-0.014	-0.022
					p = 0.762	p = 0.447					p = 0.469	p = 0.301
SBP+SNAP+NSLP			0.026		0.016	0.016			0.006		-0.019	-0.004
			p = 0.011		p = 0.129	p = 0.149			p = 0.623		p = 0.311	p = 0.808
Panel II. Percentile BMI												
SNAP	-0.464				-1.003	-1.232	-3.258				-3.192	-5.515‡
	(1.134)				(1.135)	(1.524)	(2.252)				(2.260)	(3.237)
NSLP		2.578‡	2.010		2.089	2.387		0.287	0.474		0.539	1.414
		(1.449)	(1.487)		(1.506)	(1.484)		(1.756)	(1.789)		(1.775)	(1.697)
SBP			1.966‡		2.082‡	2.162‡			-0.967		-0.760	-0.705
			(1.084)		(1.077)	(1.227)			(1.483)		(1.476)	(1.531)
ALL				0.601		0.662				-0.801		5.260
				(1.433)		(2.090)				(2.146)		(3.984)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.683	p = 0.077	p = 0.042	p = 0.675	p = 0.070	p = 0.069	p = 0.150	p = 0.870	p = 0.801	p = 0.709	p = 0.487	p = 0.443
SBP+NSLP			3.977		4.172	4.549			-0.493		-0.222	0.708
			p = 0.016		p = 0.014	p = 0.012			p = 0.814		p = 0.915	p = 0.737
SNAP+NSLP					1.086	1.155					-2.653	-4.101
					p = 0.512	p = 0.563					p = 0.377	p = 0.269
SBP+SNAP+NSLP			3.977		3.168	3.979			-0.493		-3.414	0.454
			p = 0.016		p = 0.083	p = 0.053			p = 0.814		p = 0.277	p = 0.877

Notes: See Table 6.1.

Table 6.2 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: State Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	-0.009				-0.011	-0.008	-0.029†				-0.029†	-0.032‡
	(0.007)				(0.008)	(0.009)	(0.013)				(0.013)	(0.019)
NSLP		0.008	0.005		0.006	0.008		0.002	0.003		0.003	0.002
		(0.008)	(0.008)		(0.009)	(0.009)		(0.010)	(0.010)		(0.010)	(0.010)
SBP			0.010‡		0.012†	0.013‡			-0.005		-0.003	0.004
			(0.006)		(0.006)	(0.007)			(0.009)		(0.009)	(0.009)
ALL				-0.006		-0.005				-0.024‡		0.007
				(0.009)		(0.013)				(0.013)		(0.022)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.233	p = 0.312	p = 0.133	p = 0.516	p = 0.101	p = 0.167	p = 0.024	p = 0.865	p = 0.868	p = 0.064	p = 0.131	p = 0.218
SBP+NSLP			0.016		0.018	0.020			-0.002		0.000	0.006
			p = 0.097		p = 0.065	p = 0.056			p = 0.858		p = 0.966	p = 0.624
SNAP+NSLP					-0.005	-0.001					-0.026	-0.030
					p = 0.617	p = 0.960					p = 0.130	p = 0.150
SBP+SNAP+NSLP			0.016		0.007	0.007			-0.002		-0.029	-0.019
			p = 0.097		p = 0.552	p = 0.573			p = 0.858		p = 0.076	p = 0.259
Panel IV. Change in Percentile BMI												
SNAP	-0.186				-0.527	-1.043	-3.425‡				-3.379‡	-2.845
	(1.257)				(1.237)	(1.441)	(2.013)				(2.037)	(3.078)
NSLP		0.472	-0.063		-0.021	0.269		-1.463	-1.423		-1.355	-1.033
		(1.582)	(1.613)		(1.628)	(1.650)		(1.919)	(1.980)		(1.989)	(1.875)
SBP			1.853‡		1.914‡	1.955			-0.206		0.012	1.138
			(1.085)		(1.059)	(1.253)			(1.449)		(1.452)	(1.591)
ALL				0.677		0.832				-3.052		0.266
				(1.653)		(2.194)				(1.903)		(3.971)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.882	p = 0.766	p = 0.227	p = 0.683	p = 0.296	p = 0.276	p = 0.090	p = 0.447	p = 0.723	p = 0.110	p = 0.304	p = 0.632
SBP+NSLP			1.790		1.893	2.225			-1.629		-1.342	0.105
			p = 0.315		p = 0.289	p = 0.244			p = 0.436		p = 0.527	p = 0.962
SNAP+NSLP					-0.548	-0.773					-4.734	-3.878
					p = 0.770	p = 0.699					p = 0.092	p = 0.283
SBP+SNAP+NSLP			1.79		1.366	2.014			-1.629		-4.721	-2.474
			p = 0.315		p = 0.513	p = 0.393			p = 0.436		p = 0.077	p = 0.384

Table 6.2 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: State Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.047‡				-0.056†	-0.046	-0.078				-0.078	-0.106†
	(0.026)				(0.027)	(0.036)	(0.049)				(0.049)	(0.051)
NSLP		0.021	0.011		0.015	0.017		0.000	0.000		0.002	0.007
		(0.026)	(0.025)		(0.026)	(0.026)		(0.039)	(0.041)		(0.041)	(0.036)
SBP			0.035‡		0.041†	0.045†			-0.002		0.003	0.007
			(0.018)		(0.019)	(0.022)			(0.032)		(0.032)	(0.035)
ALL				-0.033		-0.017				-0.039		0.060
				(0.030)		(0.046)				(0.050)		(0.062)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.067	p = 0.420	p = 0.150	p = 0.268	p = 0.068	p = 0.117	p = 0.112	p = 0.999	p = 0.999	p = 0.431	p = 0.445	p = 0.327
SBP+NSLP			0.046		0.056	0.062			-0.001		0.005	0.014
			p = 0.147		p = 0.084	p = 0.057			p = 0.976		p = 0.903	p = 0.760
SNAP+NSLP					-0.041	-0.029					-0.077	-0.099
					p = 0.233	p = 0.488					p = 0.270	p = 0.132
SBP+SNAP+NSLP			0.046		0.000	-0.001			-0.001		-0.073	-0.032
			p = 0.147		p = 0.990	p = 0.975			p = 0.976		p = 0.265	p = 0.618
Panel VI. Obese												
SNAP	-0.026‡				-0.033†	-0.016	-0.034				-0.037	-0.006
	(0.015)				(0.016)	(0.022)	(0.033)				(0.033)	(0.042)
NSLP		0.047†	0.041‡		0.043‡	0.045†		0.030	0.027		0.027	0.026
		(0.021)	(0.022)		(0.022)	(0.022)		(0.031)	(0.033)		(0.032)	(0.030)
SBP			0.021		0.024	0.024			0.020		0.022	0.038
			(0.016)		(0.017)	(0.018)			(0.027)		(0.027)	(0.030)
ALL				-0.021		-0.026				-0.045		-0.069
				(0.019)		(0.030)				(0.040)		(0.052)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.080	p = 0.027	p = 0.024	p = 0.272	p = 0.019	p = 0.046	p = 0.305	p = 0.327	p = 0.352	p = 0.261	p = 0.312	p = 0.279
SBP+NSLP			0.061		0.068	0.069			0.046		0.049	0.065
			p = 0.007		p = 0.004	p = 0.005			p = 0.151		p = 0.126	p = 0.086
SNAP+NSLP					0.010	0.029					-0.010	0.020
					p = 0.707	p = 0.360					p = 0.838	p = 0.713
SBP+SNAP+NSLP			0.061		0.034	0.027			0.046		0.012	-0.010
			p = 0.007		p = 0.144	p = 0.308			p = 0.151		p = 0.793	p = 0.838

Table 6.3 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: County Fixed Effects

	Third Grade						Fifth Grade					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Panel I. ln(BMI)												
SNAP	-0.005				-0.007	-0.004	-0.009				-0.010	0.002
	(0.008)				(0.008)	(0.011)	(0.013)				(0.013)	(0.019)
NSLP		0.017‡	0.015		0.015	0.018		0.020†	0.019‡		0.019‡	0.019
		(0.010)	(0.010)		(0.010)	(0.012)		(0.010)	(0.010)		(0.010)	(0.013)
SBP			0.010		0.011	0.020†			0.005		0.006	0.015
			(0.007)		(0.007)	(0.008)			(0.011)		(0.011)	(0.014)
ALL				-0.005		-0.013				-0.007		-0.046‡
				(0.009)		(0.016)				(0.014)		(0.025)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.544	p = 0.078	p = 0.101	p = 0.613	p = 0.192	p = 0.083	p = 0.464	p = 0.043	p = 0.111	p = 0.637	p = 0.206	p = 0.096
SBP+NSLP			0.025		0.026	0.038			0.025		0.025	0.034
			p = 0.034		p = 0.032	p = 0.009			p = 0.065		p = 0.063	p = 0.053
SNAP+NSLP					0.008	0.014					0.009	0.021
					p = 0.481	p = 0.367					p = 0.548	p = 0.372
SBP+SNAP+NSLP			0.025		0.019	0.020			0.025		0.015	-0.010
			p = 0.034		p = 0.117	p = 0.177			p = 0.065		p = 0.357	p = 0.650
Panel II. Percentile BMI												
SNAP	0.343				-0.056	0.087	0.399				0.339	-0.548
	(1.255)				(1.251)	(1.514)	(1.650)				(1.595)	(2.642)
NSLP		2.413	1.987		1.991	1.986		2.430‡	2.342		2.343	2.313
		(1.630)	(1.627)		(1.642)	(1.642)		(1.447)	(1.466)		(1.465)	(1.459)
SBP			1.738		1.743	1.791			0.542		0.523	0.243
			(1.212)		(1.203)	(1.329)			(1.616)		(1.603)	(1.587)
ALL				0.891		-0.237				1.436		1.611
				(1.576)		(2.086)				(2.316)		(3.612)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.785	p = 0.140	p = 0.150	p = 0.572	p = 0.282	p = 0.430	p = 0.809	p = 0.095	p = 0.238	p = 0.536	p = 0.394	p = 0.555
SBP+NSLP			3.725		3.735	3.778			2.884		2.866	2.556
			p = 0.058		p = 0.060	p = 0.065			p = 0.153		p = 0.155	p = 0.191
SNAP+NSLP					1.935	2.073					2.682	1.766
					p = 0.303	p = 0.311					p = 0.188	p = 0.537
SBP+SNAP+NSLP			3.725		3.678	3.628			2.884		3.205	3.619
			p = 0.058		p = 0.094	p = 0.111			p = 0.153		p = 0.214	p = 0.205

Notes: See Table 6.1.

Table 6.3 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: County Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	-0.004				-0.006	0.000	-0.011				-0.011	-0.003
	(0.008)				(0.008)	(0.009)	(0.012)				(0.012)	(0.018)
NSLP		0.008	0.006		0.006	0.006		0.006	0.005		0.005	0.005
		(0.009)	(0.009)		(0.009)	(0.009)		(0.009)	(0.009)		(0.009)	(0.009)
SBP			0.009		0.010	0.012			0.006		0.007	0.009
			(0.006)		(0.007)	(0.007)			(0.010)		(0.010)	(0.010)
ALL				-0.004		-0.010				-0.012		-0.014
				(0.009)		(0.013)				(0.013)		(0.021)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.561	p = 0.386	p = 0.290	p = 0.686	p = 0.388	p = 0.521	p = 0.371	p = 0.510	p = 0.647	p = 0.367	p = 0.685	p = 0.649
SBP+NSLP			0.015		0.016	0.018			0.011		0.012	0.014
			p = 0.174		p = 0.153	p = 0.129			p = 0.352		p = 0.333	p = 0.222
SNAP+NSLP					0.000	0.006					-0.006	0.002
					p = 0.991	p = 0.655					p = 0.658	p = 0.934
SBP+SNAP+NSLP			0.015		0.010	0.008			0.011		0.000	-0.003
			p = 0.174		p = 0.425	p = 0.548			p = 0.352		p = 0.978	p = 0.843
Panel IV. Change in Percentile BMI												
SNAP	0.637				0.438	0.339	0.484				0.402	1.856
	(1.354)				(1.339)	(1.464)	(1.609)				(1.620)	(2.294)
NSLP		0.057	-0.325		-0.358	-0.355		-1.230	-1.398		-1.396	-1.348
		(1.712)	(1.716)		(1.725)	(1.729)		(1.584)	(1.614)		(1.611)	(1.598)
SBP			1.560		1.515	1.482			1.026		1.003	1.461
			(1.218)		(1.200)	(1.352)			(1.603)		(1.617)	(1.733)
ALL				1.156		0.163				-0.387		-2.640
				(1.776)		(2.242)				(2.373)		(3.593)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.638	p = 0.973	p = 0.441	p = 0.516	p = 0.648	p = 0.790	p = 0.764	p = 0.438	p = 0.607	p = 0.871	p = 0.785	p = 0.812
SBP+NSLP			1.235		1.157	1.127			-0.372		-0.393	0.114
			p = 0.541		p = 0.566	p = 0.586			p = 0.858		p = 0.851	p = 0.957
SNAP+NSLP					0.079	-0.016					-0.994	0.509
					p = 0.969	p = 0.994					p = 0.656	p = 0.846
SBP+SNAP+NSLP			1.235		1.595	1.630			-0.372		0.009	-0.670
			p = 0.541		p = 0.498	p = 0.514			p = 0.858		p = 0.997	p = 0.812

Table 6.3 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: County Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.042				-0.048‡	-0.033	-0.037				-0.038	-0.048
	(0.028)				(0.029)	(0.038)	(0.041)				(0.042)	(0.053)
NSLP		0.022	0.016		0.019	0.019		0.018	0.015		0.015	0.015
		(0.027)	(0.027)		(0.028)	(0.028)		(0.033)	(0.034)		(0.034)	(0.033)
SBP			0.026		0.031	0.036			0.015		0.017	0.014
			(0.021)		(0.021)	(0.024)			(0.032)		(0.033)	(0.035)
ALL				-0.034		-0.023				-0.016		0.017
				(0.032)		(0.049)				(0.045)		(0.062)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.136	p = 0.424	p = 0.358	p = 0.297	p = 0.250	p = 0.382	p = 0.377	p = 0.596	p = 0.781	p = 0.724	p = 0.707	p = 0.839
SBP+NSLP			0.042		0.050	0.054			0.030		0.032	0.029
			p = 0.208		p = 0.143	p = 0.125			p = 0.483		p = 0.455	p = 0.504
SNAP+NSLP					-0.028	-0.015					-0.023	-0.033
					p = 0.449	p = 0.740					p = 0.697	p = 0.607
SBP+SNAP+NSLP			0.042		0.002	-0.003			0.030		-0.006	-0.001
			p = 0.208		p = 0.949	p = 0.949			p = 0.483		p = 0.920	p = 0.982
Panel VI. Obese												
SNAP	-0.020				-0.027	-0.010	-0.026				-0.030	0.027
	(0.017)				(0.017)	(0.024)	(0.036)				(0.035)	(0.046)
NSLP		0.053†	0.048†		0.050†	0.050†		0.051	0.044		0.044	0.046
		(0.022)	(0.022)		(0.022)	(0.022)		(0.033)	(0.035)		(0.034)	(0.035)
SBP			0.020		0.023	0.029			0.043		0.044	0.062‡
			(0.017)		(0.018)	(0.018)			(0.030)		(0.030)	(0.033)
ALL				-0.019		-0.029				-0.044		-0.102‡
				(0.021)		(0.033)				(0.042)		(0.060)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.221	p = 0.015	p = 0.025	p = 0.362	p = 0.030	p = 0.051	p = 0.474	p = 0.124	p = 0.050	p = 0.298	p = 0.080	p = 0.067
SBP+NSLP			0.068		0.073	0.078			0.087		0.089	0.108
			p = 0.007		p = 0.005	p = 0.003			p = 0.016		p = 0.014	p = 0.005
SNAP+NSLP					0.023	0.040					0.015	0.073
					p = 0.419	p = 0.232					p = 0.776	p = 0.218
SBP+SNAP+NSLP			0.068		0.046	0.039			0.087		0.059	0.033
			p = 0.007		p = 0.092	p = 0.169			p = 0.016		p = 0.233	p = 0.528

Table 6.4 Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: School Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel I. ln(BMI)												
SNAP	-0.004				-0.006	0.004	-0.016				-0.015	0.006
	(0.009)				(0.010)	(0.012)	(0.014)				(0.013)	(0.019)
NSLP		0.018	0.017		0.017	0.020		0.035†	0.037†		0.037*	0.030‡
		(0.011)	(0.011)		(0.011)	(0.014)		(0.014)	(0.014)		(0.014)	(0.017)
SBP			0.007		0.008	0.016			-0.008		-0.007	0.003
			(0.008)		(0.008)	(0.010)			(0.010)		(0.010)	(0.015)
ALL				-0.005		-0.019				-0.015		-0.043‡
				(0.012)		(0.018)				(0.015)		(0.026)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.692	p = 0.110	p = 0.235	p = 0.673	p = 0.391	p = 0.327	p = 0.248	p = 0.012	p = 0.034	p = 0.341	p = 0.070	p = 0.149
SBP+NSLP			0.024		0.025	0.037			0.028		0.029	0.033
			p = 0.092		p = 0.087	p = 0.042			p = 0.075		p = 0.068	p = 0.133
SNAP+NSLP					0.012	0.025					0.021	0.036
					p = 0.370	p = 0.189					p = 0.200	p = 0.149
SBP+SNAP+NSLP			0.024		0.019	0.022			0.028		0.014	-0.004
			p = 0.092		p = 0.214	p = 0.280			p = 0.075		p = 0.456	p = 0.882
Panel II. Percentile BMI												
SNAP	0.153				-0.066	1.302	-0.949				-0.840	-1.586
	(1.489)				(1.487)	(1.864)	(1.859)				(1.787)	(2.899)
NSLP		2.320	2.145		2.150	2.108		4.485†	4.787†		4.787†	4.772†
		(1.949)	(1.935)		(1.944)	(1.938)		(2.094)	(2.116)		(2.115)	(2.106)
SBP			0.896		0.901	1.311			-1.752		-1.701	-1.947
			(1.349)		(1.341)	(1.470)			(1.428)		(1.404)	(1.572)
ALL				-0.324		-2.167				-0.679		1.310
				(1.837)		(2.465)				(2.235)		(3.707)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.919	p = 0.235	p = 0.433	p = 0.860	p = 0.641	p = 0.663	p = 0.610	p = 0.033	p = 0.058	p = 0.762	p = 0.124	p = 0.214
SBP+NSLP			3.041		3.050	3.419			3.035		3.086	2.825
			p = 0.197		p = 0.197	p = 0.159			p = 0.191		p = 0.186	p = 0.231
SNAP+NSLP					2.084	3.410					3.947	3.186
					p = 0.370	p = 0.183					p = 0.107	p = 0.317
SBP+SNAP+NSLP			3.041		2.985	2.554			3.035		2.246	2.548
			p = 0.197		p = 0.271	p = 0.359			p = 0.191		p = 0.421	p = 0.387

Notes: See Table 6.1.

Table 6.4 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: School Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel III. BMI Growth												
SNAP	0.000				-0.001	0.004	-0.017				-0.017	-0.011
	(0.009)				(0.009)	(0.010)	(0.012)				(0.011)	(0.015)
NSLP		0.010	0.009		0.009	0.009		0.020‡	0.022†		0.022†	0.022†
		(0.011)	(0.011)		(0.011)	(0.011)		(0.011)	(0.011)		(0.011)	(0.011)
SBP			0.004		0.004	0.006			-0.009		-0.008	-0.006
			(0.007)		(0.007)	(0.008)			(0.009)		(0.009)	(0.010)
ALL				-0.001		-0.008				-0.021		-0.011
				(0.011)		(0.015)				(0.014)		(0.020)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.987	p = 0.383	p = 0.616	p = 0.913	p = 0.807	p = 0.864	p = 0.140	p = 0.066	p = 0.104	p = 0.138	p = 0.147	p = 0.205
SBP+NSLP			0.013		0.013	0.015			0.012		0.013	0.016
			p = 0.326		p = 0.325	p = 0.290			p = 0.353		p = 0.316	p = 0.256
SNAP+NSLP					0.008	0.013					0.005	0.011
					p = 0.517	p = 0.372					p = 0.713	p = 0.464
SBP+SNAP+NSLP			0.013		0.013	0.011			0.012		-0.003	-0.006
			p = 0.326		p = 0.408	p = 0.490			p = 0.353		p = 0.835	p = 0.738
Panel IV. Change in Percentile BMI												
SNAP	1.671				1.580	2.461	-0.774				-0.645	1.310
	(1.507)				(1.510)	(1.907)	(1.770)				(1.769)	(2.185)
NSLP		0.712	0.565		0.453	0.426		0.983	1.251		1.252	1.291
		(2.084)	(2.093)		(2.098)	(2.096)		(1.622)	(1.644)		(1.651)	(1.648)
SBP			0.757		0.644	0.909			-1.557		-1.517	-0.872
			(1.317)		(1.312)	(1.470)			(1.444)		(1.438)	(1.568)
ALL				1.195		-1.396				-2.657		-3.431
				(1.886)		(2.608)				(2.430)		(3.360)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.269	p = 0.733	p = 0.804	p = 0.527	p = 0.695	p = 0.713	p = 0.662	p = 0.545	p = 0.483	p = 0.276	p = 0.679	p = 0.618
SBP+NSLP			1.322		1.098	1.335			-0.305		-0.266	0.419
			p = 0.577		p = 0.644	p = 0.584			p = 0.876		p = 0.893	p = 0.836
SNAP+NSLP					2.033	2.887					0.607	2.601
					p = 0.394	p = 0.266					p = 0.783	p = 0.288
SBP+SNAP+NSLP			1.322		2.677	2.400			-0.305		-0.911	-1.702
			p = 0.577		p = 0.318	p = 0.387			p = 0.876		p = 0.707	p = 0.531

Table 6.4 (cont.) Fixed Effect Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: School Fixed Effects

	Third Grade						Fifth Grade					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Panel V. Overweight												
SNAP	-0.013				-0.015	0.007	-0.035				-0.034	-0.030
	(0.031)				(0.031)	(0.047)	(0.048)				(0.048)	(0.061)
NSLP		0.022	0.021		0.022	0.021		0.049	0.053		0.053	0.053
		(0.035)	(0.035)		(0.035)	(0.035)		(0.044)	(0.044)		(0.044)	(0.044)
SBP			0.004		0.005	0.012			-0.023		-0.021	-0.020
			(0.023)		(0.023)	(0.024)			(0.030)		(0.030)	(0.033)
ALL				-0.023		-0.035				-0.038		-0.006
				(0.037)		(0.056)				(0.060)		(0.083)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.673	p = 0.537	p = 0.822	p = 0.539	p = 0.894	p = 0.904	p = 0.464	p = 0.268	p = 0.382	p = 0.523	p = 0.478	p = 0.643
SBP+NSLP			0.025		0.027	0.033			0.030		0.032	0.034
			p = 0.549		p = 0.518	p = 0.433			p = 0.559		p = 0.531	p = 0.537
SNAP+NSLP					0.007	0.029					0.019	0.023
					p = 0.873	p = 0.602					p = 0.775	p = 0.772
SBP+SNAP+NSLP			0.025		0.012	0.005			0.030		-0.002	-0.003
			p = 0.549		p = 0.809	p = 0.924			p = 0.559		p = 0.983	p = 0.968
Panel VI. Obese												
SNAP	-0.018				-0.022	-0.010	-0.049				-0.053	-0.017
	(0.024)				(0.025)	(0.029)	(0.036)				(0.036)	(0.051)
NSLP		0.043	0.040		0.041	0.041		0.075†	0.068‡		0.068‡	0.069‡
		(0.028)	(0.028)		(0.029)	(0.028)		(0.037)	(0.038)		(0.038)	(0.038)
SBP			0.016		0.017	0.021			0.040		0.043	0.055‡
			(0.021)		(0.022)	(0.022)			(0.028)		(0.028)	(0.031)
ALL				-0.016		-0.018				-0.046		-0.064
				(0.030)		(0.039)				(0.036)		(0.056)
N	3900	3900	3900	3900	3900	3900	3050	3050	3050	3050	3050	3050
JSig	p = 0.474	p = 0.123	p = 0.216	p = 0.598	p = 0.290	p = 0.435	p = 0.178	p = 0.043	p = 0.032	p = 0.195	p = 0.045	p = 0.035
SBP+NSLP			0.056		0.059	0.062			0.108		0.111	0.124
			p = 0.081		p = 0.068	p = 0.062			p = 0.009		p = 0.007	p = 0.003
SNAP+NSLP					0.020	0.031					0.015	0.052
					p = 0.601	p = 0.469					p = 0.752	p = 0.349
SBP+SNAP+NSLP			0.056		0.037	0.033			0.108		0.058	0.043
			p = 0.081		p = 0.326	p = 0.400			p = 0.009		p = 0.224	p = 0.381

Table 6.5 Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel I. ln(BMI)														
SNAP	-0.042					-0.033	0.098	-0.040					0.038	-0.219
	(0.036)					(0.071)	(0.358)	(0.078)					(0.130)	(0.298)
NSLP		-0.076	0.028†	0.099		0.026‡	0.023		-0.103	0.025	0.893		0.028	0.023
		(0.101)	(0.013)	(0.915)		(0.014)	(0.015)		(0.206)	(0.016)	(2.279)		(0.020)	(0.020)
SBP			-0.039	-0.062		-0.017	0.015			-0.081	-0.468		-0.101	-0.151
			(0.033)	(0.305)		(0.060)	(0.086)			(0.075)	(1.049)		(0.111)	(0.112)
ALL					-0.056		-0.198					-0.029		0.361
					(0.045)		(0.505)					(0.092)		(0.384)
N	3850	3850	3850	3850	3850	3850	3850	3000	3000	3000	3000	3000	3000	3000
Underid	p = 0.000	p = 0.002	p = 0.000	p = 0.314	p = 0.000	p = 0.006	p = 0.008	p = 0.007	p = 0.111	p = 0.005	p = 0.830	p = 0.003	p = 0.010	p = 0.013
Overid	p = 0.151	p = 0.122	p = 0.144	p = 0.116	p = 0.174	p = 0.096	p = 0.136	p = 0.370	p = 0.435	p = 0.573	p = 0.991	p = 0.400	p = 0.524	p = 0.503
Endog	p = 0.689	p = 0.666	p = 0.438	p = 0.740	p = 0.651	p = 0.817	p = 0.920	p = 0.818	p = 0.911	p = 0.612	p = 0.645	p = 0.764	p = 0.815	p = 0.805
JSig	p = 0.066	p = 0.066	p = 0.061	p = 0.066	p = 0.066	p = 0.061	p = 0.061	p = 0.307	p = 0.307	p = 0.314	p = 0.307	p = 0.307	p = 0.314	p = 0.314
RKf	11.529	3.980	10.168	1.196	13.268	5.181	2.676	4.009	1.988	4.119	0.452	6.948	3.169	2.174
SBP+NSLP			-0.010	0.037		0.009	0.038			-0.056	0.425		-0.074	-0.129
			p = 0.693	p = 0.952		p = 0.861	p = 0.615			p = 0.380	p = 0.735		p = 0.438	p = 0.211
SNAP+NSLP						-0.007	0.121						0.066	-0.197
						p = 0.930	p = 0.733						p = 0.644	p = 0.525
SBP+SNAP+NSLP			-0.01	0.037		-0.024	-0.062			-0.056	0.425		-0.036	0.012
			p = 0.693	p = 0.952		p = 0.513	p = 0.548			p = 0.380	p = 0.735		p = 0.684	p = 0.898
Panel II. Percentile BMI														
SNAP	-7.707					-0.859	21.555	-2.265					23.728	-49.317
	(5.791)					(9.023)	(27.967)	(17.066)					(35.124)	(91)
NSLP		-3.131	5.243†	38.675		5.181†	4.600‡		-18.061	3.045	169.751		5.036	3.084
		(15.886)	(2.147)	(30.028)		(2.278)	(2.436)		(117.660)	(3.065)	(305.217)		(4.923)	(4.705)
SBP			-9.302	-19.066‡		-8.761	-2.662			-14.875	-86.550		-28.927	-37.672
			(5.927)	(11.296)		(8.651)	(10.388)			(14.507)	(141.014)		(27.821)	(27.545)
ALL					-11.670		-34.820					-1.152		94.018
					(7.162)		(39.322)					(17.922)		(118)
N	3850	3850	3850	3850	3850	3850	3850	3000	3000	3000	3000	3000	3000	3000
Underid	p = 0.000	p = 0.002	p = 0.000	p = 0.310	p = 0.000	p = 0.006	p = 0.008	p = 0.007	p = 0.112	p = 0.005	p = 0.827	p = 0.003	p = 0.011	p = 0.012
Overid	p = 0.479	p = 0.441	p = 0.654	p = 0.844	p = 0.525	p = 0.534	p = 0.524	p = 0.106	p = 0.104	p = 0.297	p = 0.995	p = 0.113	p = 0.531	p = 0.471
Endog	p = 0.543	p = 0.788	p = 0.135	p = 0.200	p = 0.331	p = 0.394	p = 0.580	p = 0.826	p = 0.917	p = 0.296	p = 0.215	p = 0.884	p = 0.396	p = 0.526
JSig	p = 0.398	p = 0.398	p = 0.403	p = 0.398	p = 0.398	p = 0.403	p = 0.403	p = 0.048	p = 0.048	p = 0.048	p = 0.048	p = 0.048	p = 0.048	p = 0.048
RKf	11.575	3.982	10.255	1.204	13.257	5.223	2.685	4.049	1.980	4.112	0.457	6.862	3.139	2.185
SBP+NSLP			-4.059	19.609		-3.580	1.938			-11.830	83.201		-23.891	-34.588
			p = 0.376	p = 0.361		p = 0.618	p = 0.822			p = 0.331	p = 0.624		p = 0.310	p = 0.186
SNAP+NSLP						4.322	26.155						28.764	-46.233
						p = 0.667	p = 0.341						p = 0.456	p = 0.621
SBP+SNAP+NSLP			-4.059	19.609		-4.439	-11.326			-11.830	83.201		-0.163	10.113
			p = 0.376	p = 0.361		p = 0.436	p = 0.231			p = 0.331	p = 0.624		p = 0.994	p = 0.652

Notes: Estimation is by LIML. NSLP is treated as exogenous in all models except (2) and (4); other programs are always endogenous. Instruments include: distance to school at the student-level; percent of non US citizens, percent owner-occupied housing, and median household income at the school zip code-level; percent SNAP participants in population (linear and quadratic) at the county-level; SNAP biometric variable and a SNAP certification dummy if rate is greater than 50% at the state-level. Underid is the Kleibergen-Paap rk LM test for underidentification; Overid is the Hansen J test for overidentification; Endog is a test for endogeneity of program participation; JSig is the Anderson-Rubin (1949) Wald test of the joint significance of the endogenous regressors; RKf is the Kleibergen-Paap rk Wald F statistic. ‡ p<0.10, † p<0.05, * p<0.01. See Table 6.1 for further details.

Table 6.5 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel III. BMI Growth														
SNAP	-0.045					-0.008	0.125	-0.056					0.068	-0.239
	(0.035)					(0.075)	(0.378)	(0.078)					(0.141)	(0.347)
NSLP		-0.106	0.022‡	0.179		0.021	0.018		-0.231	0.020	1.551		0.025	0.018
		(0.101)	(0.013)	(1.158)		(0.015)	(0.017)		(0.259)	(0.016)	(9.865)		(0.022)	(0.021)
SBP			-0.047	-0.099		-0.042	-0.009			-0.106	-0.798		-0.144	-0.192
			(0.030)	(0.382)		(0.062)	(0.100)			(0.076)	(4.554)		(0.120)	(0.128)
ALL					-0.062		-0.203					-0.053		0.413
					(0.039)		(0.540)					(0.092)		(0.456)
N	3850	3850	3850	3850	3850	3850	3850	3000	3000	3000	3000	3000	3000	3000
Underid	p = 0.000	p = 0.002	p = 0.000	p = 0.314	p = 0.000	p = 0.006	p = 0.008	p = 0.007	p = 0.111	p = 0.005	p = 0.830	p = 0.003	p = 0.010	p = 0.013
Overid	p = 0.260	p = 0.210	p = 0.269	p = 0.361	p = 0.305	p = 0.185	p = 0.259	p = 0.140	p = 0.430	p = 0.372	p = 0.999	p = 0.153	p = 0.386	p = 0.421
Endog	p = 0.757	p = 0.576	p = 0.306	p = 0.592	p = 0.716	p = 0.749	p = 0.879	p = 0.670	p = 0.452	p = 0.419	p = 0.719	p = 0.694	p = 0.497	p = 0.531
JSig	p = 0.094	p = 0.094	p = 0.087	p = 0.094	p = 0.094	p = 0.087	p = 0.087	p = 0.084	p = 0.084	p = 0.081	p = 0.084	p = 0.084	p = 0.081	p = 0.081
RKf	11.529	3.980	10.168	1.196	13.268	5.181	2.676	4.009	1.988	4.119	0.452	6.948	3.169	2.174
SBP+NSLP			-0.025	0.081		-0.021	0.009			-0.086	0.753		-0.119	-0.174
			p = 0.257	p = 0.918		p = 0.684	p = 0.917			p = 0.177	p = 0.888		p = 0.242	p = 0.143
SNAP+NSLP						0.013	0.144						0.093	-0.221
						p = 0.875	p = 0.699						p = 0.550	p = 0.537
SBP+SNAP+NSLP			-0.025	0.081		-0.029	-0.068			-0.086	0.753		-0.051	0
			p = 0.257	p = 0.918		p = 0.431	p = 0.520			p = 0.177	p = 0.888		p = 0.590	p = 0.999
Panel IV. Change in Percentile BMI														
SNAP	-4.376					4.874	30.918	-6.433					19.958	-50.524
	(6.177)					(10.366)	(30.077)	(15.882)					(31.230)	(73)
NSLP		0.952	2.681	40.186		3.022	2.301		-35.698	1.593	182.832		3.216	1.317
		(16.401)	(2.305)	(29.277)		(2.547)	(2.728)		(89.014)	(3.249)	(429.024)		(4.902)	(4.359)
SBP			-7.664	-18.597‡		-10.700	-3.275			-16.772	-95.508		-28.320	-37.019
			(5.580)	(10.387)		(9.285)	(11.592)			(14.779)	(197.294)		(27.050)	(29.928)
ALL					-8.564		-40.952					-4.558		91.786
					(7.002)		(41.900)					(17.344)		(101)
N	3850	3850	3850	3850	3850	3850	3850	3000	3000	3000	3000	3000	3000	3000
Underid	p = 0.000	p = 0.002	p = 0.000	p = 0.310	p = 0.000	p = 0.006	p = 0.008	p = 0.007	p = 0.112	p = 0.005	p = 0.827	p = 0.003	p = 0.011	p = 0.012
Overid	p = 0.326	p = 0.331	p = 0.688	p = 0.920	p = 0.463	p = 0.639	p = 0.780	p = 0.087	p = 0.177	p = 0.284	p = 0.995	p = 0.097	p = 0.385	p = 0.434
Endog	p = 0.449	p = 0.832	p = 0.071	p = 0.066	p = 0.177	p = 0.193	p = 0.155	p = 0.721	p = 0.350	p = 0.069	p = 0.132	p = 0.637	p = 0.182	p = 0.219
JSig	p = 0.108	p = 0.108	p = 0.105	p = 0.108	p = 0.108	p = 0.105	p = 0.105	p = 0.062	p = 0.062	p = 0.059	p = 0.062	p = 0.062	p = 0.059	p = 0.059
RKf	11.575	3.982	10.255	1.204	13.257	5.223	2.685	4.049	1.980	4.112	0.457	6.862	3.139	2.185
SBP+NSLP			-4.983	21.589		-7.678	-0.974			-15.179	87.323		-25.104	-35.702
			p = 0.238	p = 0.317		p = 0.315	p = 0.919			p = 0.219	p = 0.712		p = 0.270	p = 0.197
SNAP+NSLP						7.896	33.219						23.174	-49.208
						p = 0.496	p = 0.259						p = 0.503	p = 0.507
SBP+SNAP+NSLP			-4.983	21.589		-2.804	-11.009			-15.179	87.323		-5.146	5.560
			p = 0.238	p = 0.317		p = 0.632	p = 0.225			p = 0.219	p = 0.712		p = 0.788	p = 0.783

Table 6.5 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade							Fifth Grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel V. Overweight														
SNAP	-0.037					0.076	-0.210	-0.220					0.160	-1.541
	(0.126)					(0.232)	(0.904)	(0.323)					(0.642)	(1.090)
NSLP		-0.138	0.046	0.184		0.052	0.057		-0.050	0.057	2.942		0.071	0.023
		(0.355)	(0.044)	(1.227)		(0.050)	(0.050)		(1.770)	(0.065)	(3.726)		(0.099)	(0.088)
SBP			-0.078	-0.123		-0.127	-0.194			-0.306	-1.518		-0.406	-0.615
			(0.139)	(0.437)		(0.237)	(0.276)			(0.295)	(1.740)		(0.548)	(0.431)
ALL					-0.045		0.431					-0.073		2.230
					(0.168)		(1.263)					(0.357)		(1.388)
N	3850	3850	3850	3850	3850	3850	3850	3000	3000	3000	3000	3000	3000	3000
Underid	p = 0.000	p = 0.002	p = 0.000	p = 0.321	p = 0.000	p = 0.006	p = 0.008	p = 0.007	p = 0.115	p = 0.005	p = 0.834	p = 0.003	p = 0.011	p = 0.015
Overid	p = 0.307	p = 0.333	p = 0.412	p = 0.334	p = 0.319	p = 0.352	p = 0.221	p = 0.167	p = 0.216	p = 0.400	p = 0.982	p = 0.231	p = 0.384	p = 0.673
Endog	p = 0.836	p = 0.522	p = 0.309	p = 0.589	p = 0.962	p = 0.491	p = 0.686	p = 0.650	p = 0.667	p = 0.485	p = 0.185	p = 0.422	p = 0.534	p = 0.200
JSig	p = 0.020	p = 0.020	p = 0.023	p = 0.020	p = 0.020	p = 0.023	p = 0.023	p = 0.089	p = 0.089	p = 0.089	p = 0.089	p = 0.089	p = 0.089	p = 0.089
RKf	11.457	3.950	10.211	1.188	13.195	5.147	2.679	3.974	1.982	4.114	0.450	7.017	3.106	2.101
SBP+NSLP			-0.033	0.061		-0.076	-0.137			-0.249	1.424		-0.335	-0.592
			p = 0.758	p = 0.940		p = 0.704	p = 0.571			p = 0.313	p = 0.506		p = 0.465	p = 0.133
SNAP+NSLP						0.128	-0.153						0.231	-1.518
						p = 0.621	p = 0.866						p = 0.748	p = 0.175
SBP+SNAP+NSLP			-0.033	0.061		0	0.084			-0.249	1.424		-0.175	0.097
			p = 0.758	p = 0.940		p = 0.997	p = 0.764			p = 0.313	p = 0.506		p = 0.633	p = 0.794
Panel VI. Obese														
SNAP	0.015					0.131	-0.604	-0.052					0.174	0.561
	(0.087)					(0.223)	(3.157)	(0.202)					(0.320)	(1)
NSLP		-0.350	0.056‡	-1.145		0.068	0.080		-0.443	0.066	-3.585		0.078	0.081
		(0.265)	(0.032)	(1.024)		(0.043)	(0.070)		(0.323)	(0.047)	(47.481)		(0.060)	(0.062)
SBP			-0.034	0.353		-0.123	-0.277			-0.208	1.512		-0.297	-0.185
			(0.083)	(0.352)		(0.192)	(0.682)			(0.166)	(22.235)		(0.251)	(0.277)
ALL					0.015		1.083					-0.164		-0.591
					(0.104)		(4.619)					(0.201)		(1)
N	3850	3850	3850	3850	3850	3850	3850	3000	3000	3000	3000	3000	3000	3000
Underid	p = 0.000	p = 0.002	p = 0.000	p = 0.319	p = 0.000	p = 0.006	p = 0.008	p = 0.008	p = 0.101	p = 0.005	p = 0.824	p = 0.003	p = 0.011	p = 0.011
Overid	p = 0.040	p = 0.107	p = 0.024	p = 0.363	p = 0.037	p = 0.042	p = 0.070	p = 0.397	p = 0.661	p = 0.532	p = 0.999	p = 0.475	p = 0.489	p = 0.440
Endog	p = 0.205	p = 0.160	p = 0.911	p = 0.169	p = 0.349	p = 0.427	p = 0.639	p = 0.886	p = 0.274	p = 0.262	p = 0.487	p = 0.611	p = 0.537	p = 0.639
JSig	p = 0.008	p = 0.008	p = 0.007	p = 0.008	p = 0.008	p = 0.007	p = 0.007	p = 0.371	p = 0.371	p = 0.347	p = 0.371	p = 0.371	p = 0.347	p = 0.347
RKf	11.501	3.999	10.189	1.190	13.362	5.148	2.690	3.860	2.033	4.077	0.461	6.961	3.052	2.224
SBP+NSLP			0.022	-0.792		-0.055	-0.197			-0.142	-2.073		-0.219	-0.104
			p = 0.720	p = 0.256		p = 0.725	p = 0.751			p = 0.296	p = 0.935		p = 0.286	p = 0.659
SNAP+NSLP						0.199	-0.524						0.252	0.642
						p = 0.432	p = 0.866						p = 0.480	p = 0.335
SBP+SNAP+NSLP			0.022	-0.792		0.076	0.282			-0.142	-2.073		-0.046	-0.134
			p = 0.720	p = 0.256		p = 0.470	p = 0.749			p = 0.296	p = 0.935		p = 0.837	p = 0.599

Table 6.6 Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade					Fifth Grade				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Panel I. ln(BMI)										
SNAP	-0.049			0.01	0.351	-0.011			0.088	-0.313
	(0.038)			(0.078)	(0.466)	(0.085)			(0.149)	(0.404)
SBP		-0.051		-0.057	0.005		-0.070		-0.122	-0.158
		(0.033)		(0.063)	(0.080)		(0.075)		(0.123)	(0.102)
ALL			-0.073		-0.484			0.006		0.504
			(0.045)		(0.600)			(0.098)		(0.494)
N	3350	3350	3350	3350	3350	2500	2500	2500	2500	2500
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.016	p = 0.027	p = 0.008	p = 0.009	p = 0.003	p = 0.041	p = 0.034
Overid	p = 0.175	p = 0.219	p = 0.222	p = 0.154	p = 0.434	p = 0.343	p = 0.444	p = 0.374	p = 0.556	p = 0.516
Endog	p = 0.736	p = 0.271	p = 0.590	p = 0.655	p = 0.821	p = 0.340	p = 0.980	p = 0.337	p = 0.506	p = 0.453
JSig	p = 0.064	p = 0.064	p = 0.064	p = 0.064	p = 0.064	p = 0.169	p = 0.169	p = 0.169	p = 0.169	p = 0.169
RKf	11.089	10.653	13.316	4.361	2.064	4.215	4.039	6.490	2.362	2.002
SBP+SNAP+NSLP				-0.048	-0.127				-0.034	0.032
				p = 0.244	p = 0.231				p = 0.727	p = 0.771
Panel II. Percentile BMI										
SNAP	-8.878			3.741	49.379	-1.641			31.051	-85.441
	(6.464)			(10.579)	(38.991)	(17.980)			(42.925)	(84.491)
SBP		-10.379‡		-12.745	-2.512		-16.196		-36.075	-35.484‡
		(6.065)		(9.469)	(10.103)		(15.339)		(35.545)	(20.931)
ALL			-14.261‡		-66.978			3.786		133.005
			(7.655)		(49.947)			(20.052)		(103.025)
N	3350	3350	3350	3350	3350	2500	2500	2500	2500	2500
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.016	p = 0.027	p = 0.008	p = 0.009	p = 0.003	p = 0.045	p = 0.035
Overid	p = 0.448	p = 0.659	p = 0.531	p = 0.576	p = 0.685	p = 0.040	p = 0.186	p = 0.046	p = 0.619	p = 0.635
Endog	p = 0.314	p = 0.060	p = 0.145	p = 0.212	p = 0.250	p = 0.566	p = 0.287	p = 0.511	p = 0.211	p = 0.143
JSig	p = 0.244	p = 0.244	p = 0.244	p = 0.244	p = 0.244	p = 0.006	p = 0.006	p = 0.006	p = 0.006	p = 0.006
RKf	11.182	10.711	13.298	4.375	2.058	4.302	4.030	6.311	2.329	2.001
SBP+SNAP+NSLP				-9.004	-20.111				-5.024	12.080
				p = 0.206	p = 0.054				p = 0.816	p = 0.585

Notes: Sample restricted to students participating in NSLP. See Table 6.5 for further details.

Table 6.6 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel III. BMI Growth										
SNAP	-0.047			0.035	0.387	-0.026			0.117	-0.276
	(0.037)			(0.084)	(0.632)	(0.082)			(0.151)	(0.427)
SBP		-0.056‡		-0.079	-0.015		-0.107		-0.173	-0.201‡
		(0.030)		(0.067)	(0.106)		(0.075)		(0.130)	(0.112)
ALL			-0.070‡		-0.498			-0.020		0.483
			(0.042)		(0.827)			(0.097)		(0.530)
N	3350	3350	3350	3350	3350	2500	2500	2500	2500	2500
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.016	p = 0.027	p = 0.008	p = 0.009	p = 0.003	p = 0.041	p = 0.034
Overid	p = 0.230	p = 0.297	p = 0.302	p = 0.247	p = 0.577	p = 0.106	p = 0.264	p = 0.118	p = 0.427	p = 0.393
Endog	p = 0.834	p = 0.169	p = 0.724	p = 0.485	p = 0.672	p = 0.275	p = 0.509	p = 0.328	p = 0.205	p = 0.206
JSig	p = 0.044	p = 0.044	p = 0.044	p = 0.044	p = 0.044	p = 0.030	p = 0.030	p = 0.030	p = 0.030	p = 0.030
RKf	11.089	10.653	13.316	4.361	2.064	4.215	4.039	6.490	2.362	2.002
SBP+SNAP+NSLP				-0.044	-0.126				-0.057	0.006
				p = 0.267	p = 0.355				p = 0.577	p = 0.957
Panel IV. Change in Percentile BMI										
SNAP	-4.189			10.330	48.401	-5.661			26.979	-66.362
	(6.540)			(11.025)	(40.638)	(16.425)			(32.445)	(63.116)
SBP		-8.628		-14.990	-6.383		-22.498		-37.700	-40.170‡
		(5.522)		(9.779)	(11.384)		(16.245)		(30.478)	(23.952)
ALL			-8.894		-56.142			-1.402		111.076
			(7.451)		(52.736)			(19.288)		(79.916)
N	3350	3350	3350	3350	3350	2500	2500	2500	2500	2500
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.016	p = 0.027	p = 0.008	p = 0.009	p = 0.003	p = 0.045	p = 0.035
Overid	p = 0.335	p = 0.708	p = 0.424	p = 0.727	p = 0.863	p = 0.016	p = 0.184	p = 0.018	p = 0.385	p = 0.584
Endog	p = 0.533	p = 0.037	p = 0.249	p = 0.096	p = 0.092	p = 0.964	p = 0.016	p = 0.904	p = 0.029	p = 0.014
JSig	p = 0.049	p = 0.049	p = 0.049	p = 0.049	p = 0.049	p = 0.013	p = 0.013	p = 0.013	p = 0.013	p = 0.013
RKf	11.182	10.711	13.298	4.375	2.058	4.302	4.030	6.311	2.329	2.001
SBP+SNAP+NSLP				-4.660	-14.123				-10.721	4.544
				p = 0.486	p = 0.147				p = 0.599	p = 0.812

Table 6.6 (cont.) Instrumental Variable Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households

	Third Grade					Fifth Grade				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Panel V. Overweight										
SNAP	-0.066			0.007	0.095	-0.129			0.585	-2.131‡
	(0.137)			(0.241)	(1.791)	(0.377)			(1.235)	(1.267)
SBP		-0.068		-0.073	-0.060		-0.326		-0.735	-0.638
		(0.135)		(0.231)	(0.284)		(0.349)		(1.096)	(0.411)
ALL			-0.084		-0.120			0.070		2.992‡
			(0.176)		(2.349)			(0.425)		(1.553)
N	3350	3350	3350	3350	3350	2500	2500	2500	2500	2500
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.016	p = 0.027	p = 0.008	p = 0.009	p = 0.003	p = 0.043	p = 0.038
Overid	p = 0.386	p = 0.491	p = 0.416	p = 0.384	p = 0.293	p = 0.107	p = 0.304	p = 0.151	p = 0.487	p = 0.745
Endog	p = 0.975	p = 0.229	p = 0.700	p = 0.490	p = 0.683	p = 0.439	p = 0.488	p = 0.308	p = 0.354	p = 0.077
JSig	p = 0.037	p = 0.037	p = 0.037	p = 0.037	p = 0.037	p = 0.012	p = 0.012	p = 0.012	p = 0.012	p = 0.012
RKf	11.012	10.698	13.244	4.333	2.071	4.106	4.034	6.495	2.337	1.924
SBP+SNAP+NSLP				-0.066	-0.085				-0.150	0.222
				p = 0.638	p = 0.838				p = 0.750	p = 0.601
Panel VI. Obese										
SNAP	-0.017			0.137	-0.456	0.075			0.316	1.053
	(0.091)			(0.210)	(6.393)	(0.216)			(0.399)	(1.272)
SBP		-0.060		-0.150	-0.222		-0.114		-0.297	-0.151
		(0.081)		(0.179)	(0.753)		(0.165)		(0.315)	(0.345)
ALL			-0.026		0.790			-0.010		-1.026
			(0.109)		(8.461)			(0.208)		(1.461)
N	3350	3350	3350	3350	3350	2500	2500	2500	2500	2500
Underid	p = 0.000	p = 0.000	p = 0.000	p = 0.016	p = 0.027	p = 0.010	p = 0.010	p = 0.003	p = 0.043	p = 0.032
Overid	p = 0.059	p = 0.046	p = 0.059	p = 0.113	p = 0.085	p = 0.234	p = 0.243	p = 0.233	p = 0.329	p = 0.297
Endog	p = 0.171	p = 0.679	p = 0.251	p = 0.216	p = 0.363	p = 0.346	p = 0.917	p = 0.428	p = 0.493	p = 0.651
JSig	p = 0.009	p = 0.009	p = 0.009	p = 0.009	p = 0.009	p = 0.189	p = 0.189	p = 0.189	p = 0.189	p = 0.189
RKf	11.041	10.686	13.432	4.349	2.066	4.007	4.034	6.482	2.312	2.032
SBP+SNAP+NSLP				-0.013	0.112				0.018	-0.125
				p = 0.899	p = 0.933				p = 0.937	p = 0.702

Table 7.1 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Boys.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		-0.015	0.017		0.113	0.013		0.122	0.101		-0.030	-0.012		0.080	-0.885		0.047	-1.048
		(0.013)	(0.015)		(0.312)	(0.374)		(0.208)	(0.348)		(0.019)	(0.034)		(0.747)	(0.970)		(0.283)	(0.999)
NSLP		0.012	0.011		0.044	0.05					0.025	0.026		0.043	-0.034			
		(0.016)	(0.016)		(0.052)	(0.083)					(0.018)	(0.018)		(0.105)	(0.065)			
SBP		0.001	0.011		-0.191	-0.277		-0.192	-0.202		-0.019	-0.015		-0.262	-0.225		-0.298	-0.093
		(0.011)	(0.011)		(0.289)	(0.664)		(0.190)	(0.227)		(0.016)	(0.017)		(0.630)	(0.239)		(0.300)	(0.212)
ALL	-0.031‡		-0.051†	-0.110		0.262	-0.100		0.040	-0.046†		-0.030	-0.298		1.355	-0.373		1.450
	(0.017)		(0.021)	(0.073)		(1.165)	(0.072)		(0.504)	(0.018)		(0.037)	(0.354)		(1.546)	(0.403)		(1.342)
N	1950	1950	1950	1950	1950	1950	1650	1650	1650	1500	1500	1500	1450	1450	1450	1200	1200	1200
JSig	p = 0.065	p = 0.622	p = 0.166	p = 0.201	p = 0.197	p = 0.197	p = 0.427	p = 0.427	p = 0.427	p = 0.013	p = 0.229	p = 0.119	p = 0.015	p = 0.015	p = 0.015	p = 0.043	p = 0.043	p = 0.043
SBP+NSLP		0.013	0.021		-0.147	-0.227					0.006	0.011		-0.219	-0.259			
		p = 0.468	p = 0.249		p = 0.539	p = 0.698					p = 0.784	p = 0.639		p = 0.677	p = 0.312			
SNAP+NSLP		-0.002	0.028		0.158	0.063					-0.005	0.013		0.124	-0.92			
		p = 0.906	p = 0.206		p = 0.661	p = 0.869					p = 0.844	p = 0.721		p = 0.884	p = 0.371			
SBP+SNAP+NSLP		-0.001	-0.013		-0.033	0.048		-0.070	-0.061		-0.024	-0.031		-0.139	0.211		-0.251	0.308
		p = 0.955	p = 0.589		p = 0.721	p = 0.910		p = 0.340	p = 0.643		p = 0.390	p = 0.221		p = 0.604	p = 0.650		p = 0.104	p = 0.512
Underid				p = 0.000	p = 0.288	p = 0.272	p = 0.000	p = 0.387	p = 0.354				p = 0.059	p = 0.013	p = 0.204	p = 0.049	p = 0.046	p = 0.530
Overid				p = 0.450	p = 0.747	p = 0.796	p = 0.732	p = 0.936	p = 0.885				p = 0.190	p = 0.435	p = 0.831	p = 0.355	p = 0.608	p = 0.970
Endog				p = 0.554	p = 0.545	p = 0.731	p = 0.446	p = 0.336	p = 0.519				p = 0.544	p = 0.663	p = 0.548	p = 0.911	p = 0.614	p = 0.188
RKf				6.174	1.425	1.153	6.488	1.223	1.162				2.773	2.436	1.234	2.712	1.930	0.795
Panel II. Overweight																		
SNAP		-0.065	0.045		0.027	-0.085		0.073	-0.078		-0.031	0.017		0.380	-2.432		0.853	-4.155
		(0.069)	(0.083)		(0.476)	(0.579)		(0.465)	(0.763)		(0.069)	(0.129)		(1.358)	(1.750)		(2.040)	(2.993)
NSLP		0.062	0.056		0.089	0.092					0.107	0.109		0.216	-0.016			
		(0.065)	(0.065)		(0.091)	(0.097)					(0.088)	(0.088)		(0.222)	(0.140)			
SBP		-0.002	0.030		-0.314	-0.380		-0.435	-0.498		-0.064	-0.053		-1.045	-0.879		-1.925	-0.545
		(0.044)	(0.048)		(0.451)	(0.577)		(0.439)	(0.490)		(0.060)	(0.064)		(1.245)	(0.549)		(2.340)	(0.742)
ALL	-0.121		-0.176	-0.356		0.248	-0.453‡		0.282	-0.083		-0.082	-1.087		3.884	-2.787		5.991
	(0.081)		(0.110)	(0.218)		(0.918)	(0.241)		(1.002)	(0.064)		(0.139)	(1.789)		(2.713)	(5.500)		(3.848)
N	1950	1950	1950	1950	1950	1950	1650	1650	1650	1500	1500	1500	1450	1450	1450	1200	1200	1200
JSig	p = 0.135	p = 0.622	p = 0.456	p = 0.489	p = 0.470	p = 0.470	p = 0.244	p = 0.244	p = 0.244	p = 0.200	p = 0.463	p = 0.493	p = 0.100	p = 0.100	p = 0.100	p = 0.007	p = 0.007	p = 0.007
SBP+NSLP		0.06	0.086		-0.225	-0.289					0.042	0.055		-0.830	-0.895			
		p = 0.451	p = 0.287		p = 0.545	p = 0.560					p = 0.679	p = 0.597		p = 0.423	p = 0.108			
SNAP+NSLP		-0.003	0.101		0.116	0.007					0.076	0.126		0.596	-2.447			
		p = 0.970	p = 0.336		p = 0.832	p = 0.991					p = 0.486	p = 0.414		p = 0.701	p = 0.186			
SBP+SNAP+NSLP		-0.006	-0.045		-0.198	-0.126		-0.362	-0.294		0.012	-0.009		-0.450	0.557		-1.072	1.291
		p = 0.954	p = 0.665		p = 0.282	p = 0.716		p = 0.083	p = 0.325		p = 0.922	p = 0.936		p = 0.491	p = 0.534		p = 0.243	p = 0.344
Underid				p = 0.000	p = 0.287	p = 0.276	p = 0.000	p = 0.385	p = 0.358				p = 0.051	p = 0.015	p = 0.198	p = 0.041	p = 0.043	p = 0.523
Overid				p = 0.623	p = 0.823	p = 0.766	p = 0.677	p = 0.856	p = 0.748				p = 0.342	p = 0.623	p = 0.914	p = 0.486	p = 0.823	p = 0.979
Endog				p = 0.615	p = 0.411	p = 0.463	p = 0.220	p = 0.109	p = 0.179				p = 0.978	p = 0.566	p = 0.311	p = 0.665	p = 0.187	p = 0.035
RKf				6.154	1.423	1.151	6.484	1.223	1.159				2.869	2.407	1.253	2.853	1.982	0.805

Notes: Participation measured as persistent participation from first grade through the appropriate grade. Sample restricted to households with income less than 200% of the federal poverty line. Standard errors (in parentheses) are clustered at the school-level. ALL equals one if student participates in all three programs, zero otherwise. Other regressors include: gender, age, three race dummies (white, black, Hispanic), two city type dummies (urban, suburban), three region dummies (northeast, midwest, south), mother's age at first birth (AFB), dummy if mother's AFB is missing, continuous measure of socioeconomic status, four dummies for mother's education, dummy if mother's education is missing, birth weight, birth weight squared, dummy if birth weight is missing, and the corresponding fall kindergarten version of the dependent variable. All regressions utilize survey weights. IV estimation is by LIML. NSLP is treated as exogenous in all models; other programs are always endogenous in models (4) - (9). Instruments include: distance to school at the student-level; percent of non US citizens, percent owner-occupied housing, and median household income at the school zip code-level; percent SNAP participants in population (linear and quadratic) at the county-level; SNAP biometric variable and a SNAP certification dummy if rate is greater than 50% at the state-level. Underid is the Kleibergen-Paap rk LM test for underidentification; Overid is the Hansen J test for overidentification; Endog is a test for endogeneity of program participation; JSig is the Anderson-Rubin (1949) Wald test of the joint significance of the endogenous regressors; RKf is the Kleibergen-Paap rk Wald F statistic. N = number of observations (rounded to the nearest 50). JSig reports the p-value from the test that all program effects are jointly zero. ‡ p<0.10, † p<0.05, * p<0.01. See text for further details.

Table 7.2 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Girls.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		0.012	0.003		-0.020	-2.075		0.016	7.470		0.003	0.003		0.083	0.229		0.164	0.196
		(0.015)	(0.015)		(0.055)	(61.139)		(0.064)	(1081.467)		(0.025)	(0.036)		(0.119)	(0.601)		(0.149)	(0.571)
NSLP		-0.002	-0.002		0.024	0.104					0.032	0.032		0.002	-0.002			
		(0.017)	(0.017)		(0.016)	(2.394)					(0.020)	(0.020)		(0.024)	(0.034)			
SBP		0.000	-0.002		-0.014	-0.310		-0.052	0.965		-0.006	-0.006		-0.022	0.020		-0.039	-0.028
		(0.011)	(0.013)		(0.043)	(8.782)		(0.045)	(145.893)		(0.017)	(0.016)		(0.099)	(0.164)		(0.106)	(0.190)
ALL	0.016		0.015	-0.029		2.578	-0.043		-9.426	0.001		-0.001	0.045		-0.189	0.095		-0.040
	(0.019)		(0.024)	(0.046)		(76.561)	(0.051)		(1365.622)	(0.037)		(0.053)	(0.113)		(0.736)	(0.128)		(0.683)
N	1950	1950	1950	1950	1950	1950	1700	1700	1700	1550	1550	1550	1500	1500	1500	1300	1300	1300
JSig	p = 0.392	p = 0.874	p = 0.945	p = 0.121	p = 0.116	p = 0.116	p = 0.036	p = 0.036	p = 0.036	p = 0.977	p = 0.424	p = 0.572	p = 0.254	p = 0.257	p = 0.257	p = 0.210	p = 0.210	p = 0.210
SBP+NSLP		-0.002	-0.004		0.010	-0.206					0.025	0.026		-0.020	0.017			
		p = 0.938	p = 0.852		p = 0.793	p = 0.974					p = 0.286	p = 0.236		p = 0.818	p = 0.899			
SNAP+NSLP		0.01	0.001		0.003	-1.971					0.034	0.035		0.085	0.227			
		p = 0.611	p = 0.950		p = 0.951	p = 0.973					p = 0.221	p = 0.328		p = 0.486	p = 0.698			
SBP+SNAP+NSLP		0.011	0.014		-0.010	0.297		-0.036	-0.991		0.028	0.028		0.063	0.057		0.124	0.128
		p = 0.624	p = 0.552		p = 0.787	p = 0.974		p = 0.439	p = 0.994		p = 0.400	p = 0.499		p = 0.561	p = 0.653		p = 0.427	p = 0.417
Underid				p = 0.000	p = 0.004	p = 0.400	p = 0.000	p = 0.002	p = 0.551				p = 0.041	p = 0.010	p = 0.148	p = 0.049	p = 0.015	p = 0.156
Overid				p = 0.346	p = 0.227	p = 0.999	p = 0.188	p = 0.180	p = 1.000				p = 0.186	p = 0.263	p = 0.439	p = 0.303	p = 0.548	p = 0.567
Endog				p = 0.792	p = 0.934	p = 0.842	p = 0.840	p = 0.458	p = 0.572				p = 0.299	p = 0.292	p = 0.263	p = 0.116	p = 0.148	p = 0.196
RKf				9.013	4.266	0.789	8.202	4.276	0.606				3.846	3.05	1.239	3.778	2.765	1.273
Panel II. Overweight																		
SNAP		0.023	0.020		-0.198	-12.169		-0.239	-17.958		-0.016	0.010		0.101	0.022		0.325	-0.392
		(0.047)	(0.063)		(0.416)	(150.555)		(0.352)	(471.989)		(0.088)	(0.142)		(0.347)	(1.045)		(0.428)	(0.892)
NSLP		0.007	0.008		0.018	0.494					0.025	0.026		-0.059	-0.057			
		(0.048)	(0.048)		(0.071)	(5.776)					(0.075)	(0.075)		(0.069)	(0.081)			
SBP		-0.041	-0.042		0.209	-1.65		0.252	-2.268		-0.039	-0.03		0.023	-0.001		-0.026	-0.272
		(0.038)	(0.039)		(0.345)	(21.657)		(0.279)	(63.818)		(0.050)	(0.052)		(0.230)	(0.365)		(0.243)	(0.382)
ALL	0.005		0.004	0.073		15.167	0.055		22.556	-0.052		-0.048	0.092		0.105	0.331		0.904
	(0.056)		(0.083)	(0.268)		(188.127)	(0.256)		(595.731)	(0.086)		(0.150)	(0.340)		(1.323)	(0.368)		(1.115)
N	1950	1950	1950	1950	1950	1950	1700	1700	1700	1550	1550	1550	1500	1500	1500	1300	1300	1300
JSig	p = 0.930	p = 0.753	p = 0.874	p = 0.011	p = 0.012	p = 0.012	p = 0.028	p = 0.028	p = 0.028	p = 0.547	p = 0.864	p = 0.934	p = 0.830	p = 0.828	p = 0.828	p = 0.558	p = 0.558	p = 0.558
SBP+NSLP		-0.034	-0.034		0.227	-1.150					-0.014	-0.005		-0.037	-0.058			
		p = 0.539	p = 0.536		p = 0.440	p = 0.942					p = 0.859	p = 0.958		p = 0.851	p = 0.851			
SNAP+NSLP		0.03	0.028		-0.180	-11.675					0.01	0.036		0.041	-0.036			
		p = 0.631	p = 0.712		p = 0.687	p = 0.936					p = 0.940	p = 0.839		p = 0.909	p = 0.972			
SBP+SNAP+NSLP		-0.011	-0.010		0.029	1.848		0.013	2.330		-0.03	-0.043		0.064	0.069		0.300	0.240
		p = 0.854	p = 0.876		p = 0.893	p = 0.932		p = 0.954	p = 0.969		p = 0.814	p = 0.726		p = 0.846	p = 0.840		p = 0.488	p = 0.551
Underid				p = 0.000	p = 0.004	p = 0.403	p = 0.000	p = 0.002	p = 0.550				p = 0.035	p = 0.012	p = 0.175	p = 0.044	p = 0.018	p = 0.221
Overid				p = 0.330	p = 0.245	p = 0.998	p = 0.296	p = 0.297	p = 1.000				p = 0.828	p = 0.790	p = 0.680	p = 0.809	p = 0.821	p = 0.865
Endog				p = 0.814	p = 0.991	p = 0.999	p = 0.910	p = 0.964	p = 0.960				p = 0.370	p = 0.521	p = 0.622	p = 0.049	p = 0.099	p = 0.105
RKf				9.03	4.28	0.787	8.269	4.323	0.608				3.997	3.006	1.177	3.775	2.704	1.133

Notes: See Table 7.1.

Table 7.3 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Blacks.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		-0.008	-0.012		-0.566	-0.030		-1.499	0.049		-0.027	0.007		0.251	0.666		0.093	0.334
		(0.016)	(0.020)		(1.440)	(0.333)		(74.880)	(0.350)		(0.022)	(0.026)		(0.725)	(1.526)		(0.570)	(1.387)
NSLP		-0.027	-0.027		-0.179	-0.111					0.015	0.019		0.064	0.063			
		(0.035)	(0.035)		(0.475)	(0.134)					(0.021)	(0.022)		(0.138)	(0.140)			
SBP		0.007	0.006		0.65	0.466		1.883	0.460		-0.022	-0.007		-0.75	-0.71		-0.985	-0.916
		(0.016)	(0.018)		(1.863)	(0.567)		(98.200)	(1.068)		(0.017)	(0.017)		(1.221)	(1.231)		(2.325)	(2.238)
ALL	-0.005		0.004	-0.111		-0.477	-0.105‡		-0.531	-0.045		-0.049	-0.254		-0.6	-0.267		-0.36
	(0.018)		(0.026)	(0.075)		(0.439)	(0.062)		(0.768)	(0.029)		(0.037)	(0.348)		(1.231)	(0.507)		(1.447)
N	900	900	900	900	900	900	850	850	850	650	650	650	650	650	650	600	600	600
JSig	p = 0.763	p = 0.788	p = 0.899	p = 0.062	p = 0.054	p = 0.054	p = 0.069	p = 0.069	p = 0.069	p = 0.117	p = 0.221	p = 0.404	p = 0.322	p = 0.308	p = 0.308	p = 0.333	p = 0.333	p = 0.333
SBP+NSLP		-0.02	-0.021		0.467	0.355					-0.008	0.012		-0.686	-0.647			
		p = 0.601	p = 0.605		p = 0.737	p = 0.422					p = 0.783	p = 0.666		p = 0.535	p = 0.564			
SNAP+NSLP		-0.036	-0.039		-0.745	-0.142					-0.012	0.026		0.315	0.728			
		p = 0.356	p = 0.394		p = 0.696	p = 0.734					p = 0.706	p = 0.466		p = 0.699	p = 0.653			
SBP+SNAP+NSLP		-0.029	-0.029		-0.098	-0.152		0.384	-0.021		-0.034	-0.031		-0.435	-0.563		-0.891	-0.943
		p = 0.490	p = 0.490		p = 0.606	p = 0.169		p = 0.987	p = 0.926		p = 0.328	p = 0.382		p = 0.463	p = 0.483		p = 0.657	p = 0.669
Underid				p = 0.032	p = 0.909	p = 0.888	p = 0.017	p = 0.908	p = 0.902				p = 0.050	p = 0.920	p = 0.969	p = 0.036	p = 0.926	p = 0.894
Overid				p = 0.446	p = 0.998	p = 0.994	p = 0.313	p = 1.000	p = 0.985				p = 0.333	p = 0.997	p = 0.996	p = 0.362	p = 0.999	p = 0.996
Endog				p = 0.088	p = 0.696	p = 0.042	p = 0.172	p = 0.544	p = 0.152				p = 0.235	p = 0.109	p = 0.146	p = 0.170	p = 0.162	p = 0.288
RKf				3.887	0.323	0.258	4.519	0.349	0.252				4.675	0.309	0.165	4.308	0.333	0.298
Panel II. Overweight																		
SNAP		0.041	-0.051		1.312	1.395		0.972	0.914		0.004	-0.068		1.056	2.494		0.382	-0.106
		(0.054)	(0.109)		(6.016)	(12.720)		(2.948)	(5.423)		(0.083)	(0.104)		(2.164)	(11.671)		(1.725)	(3.826)
NSLP		-0.066	-0.065		0.345	0.45					0.129	0.12		0.202	0.256			
		(0.103)	(0.102)		(1.964)	(7.906)					(0.099)	(0.103)		(0.479)	(0.939)			
SBP		-0.001	-0.036		-1.551	-2.035		-1.277	-2.350		-0.090	-0.122†		-2.830	-3.408		-3.447	-3.128
		(0.066)	(0.065)		(7.667)	(34.617)		(3.947)	(30.393)		(0.060)	(0.061)		(3.858)	(9.170)		(6.636)	(6.233)
ALL	0.067		0.126	0.030		0.371	-0.052		1.011	0.008		0.105	-0.450		-1.462	4.642		0.591
	(0.056)		(0.123)	(0.239)		(18.353)	(0.241)		(20.881)	(0.088)		(0.112)	(12.204)		(9.112)	(137.134)		(4.036)
N	900	900	900	900	900	900	850	850	850	650	650	650	650	650	650	600	600	600
JSig	p = 0.236	p = 0.825	p = 0.705	p = 0.335	p = 0.318	p = 0.318	p = 0.221	p = 0.221	p = 0.221	p = 0.930	p = 0.380	p = 0.325	p = 0.004	p = 0.003	p = 0.003	p = 0.008	p = 0.008	p = 0.008
SBP+NSLP		-0.067	-0.101		-1.206	-1.585					0.039	-0.002		-2.628	-3.152			
		p = 0.564	p = 0.397		p = 0.833	p = 0.953					p = 0.695	p = 0.985		p = 0.449	p = 0.704			
SNAP+NSLP		-0.025	-0.117		1.657	1.845					0.133	0.052		1.258	2.75			
		p = 0.824	p = 0.446		p = 0.835	p = 0.929					p = 0.327	p = 0.738		p = 0.606	p = 0.826			
SBP+SNAP+NSLP		-0.026	-0.027		0.106	0.181		-0.305	-0.425		0.043	0.035		-1.571	-2.120		-3.065	-2.642
		p = 0.824	p = 0.821		p = 0.841	p = 0.965		p = 0.785	p = 0.927		p = 0.756	p = 0.799		p = 0.459	p = 0.710		p = 0.599	p = 0.671
Underid				p = 0.030	p = 0.914	p = 0.893	p = 0.017	p = 0.915	p = 0.907				p = 0.061	p = 0.928	p = 0.972	p = 0.046	p = 0.924	p = 0.885
Overid				p = 0.694	p = 0.994	p = 0.995	p = 0.654	p = 0.979	p = 0.993				p = 0.066	p = 0.997	p = 0.997	p = 0.948	p = 0.998	p = 0.993
Endog				p = 0.401	p = 0.532	p = 0.650	p = 0.638	p = 0.738	p = 0.863				p = 0.746	p = 0.146	p = 0.214	p = 0.733	p = 0.778	p = 0.440
RKf				3.908	0.316	0.254	4.521	0.342	0.248				5.055	0.299	0.157	4.794	0.334	0.306

Notes: See Table 7.1.

Table 7.4 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Hispanic.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		0.002	0.019		0.003	-0.112		0.027	0.490		0.003	-0.003		0.026	-0.501		0.012	-0.428
		(0.021)	(0.012)		(0.072)	(2.359)		(0.082)	(1.627)		(0.017)	(0.025)		(0.093)	(1.083)		(0.128)	(0.721)
NSLP		-0.002	-0.002		0.047	0.037					0.025	0.025		0.031	0.063			
		(0.020)	(0.019)		(0.039)	(0.227)					(0.018)	(0.019)		(0.058)	(0.136)			
SBP		0.018	0.023‡		-0.146	-0.158		-0.188	-0.188		0.013	0.011		-0.145	-0.534		-0.172	-0.343
		(0.012)	(0.013)		(0.117)	(0.229)		(0.115)	(0.183)		(0.016)	(0.017)		(0.242)	(1.116)		(0.257)	(0.521)
ALL	-0.002		-0.031	-0.110		0.252	-0.128		-0.884	0.021		0.014	-0.003		1.179	-0.05		0.782
	(0.030)		(0.031)	(0.133)		(5.137)	(0.178)		(3.005)	(0.032)		(0.044)	(0.133)		(2.614)	(0.131)		(1.399)
N	1100	1100	1100	1050	1050	1050	950	950	950	900	900	900	850	850	850	750	750	750
JSig	p = 0.948	p = 0.480	p = 0.210	p = 0.153	p = 0.151	p = 0.151	p = 0.091	p = 0.091	p = 0.091	p = 0.514	p = 0.315	p = 0.462	p = 0.009	p = 0.008	p = 0.008	p = 0.011	p = 0.011	p = 0.011
SBP+NSLP		0.016	0.021		-0.099	-0.121					0.038	0.036		-0.114	-0.471			
		p = 0.452	p = 0.375		p = 0.240	p = 0.777					p = 0.066	p = 0.077		p = 0.541	p = 0.633			
SNAP+NSLP		0	0.016		0.05	-0.075					0.029	0.022		0.057	-0.438			
		p = 0.995	p = 0.523		p = 0.598	p = 0.977					p = 0.200	p = 0.379		p = 0.664	p = 0.651			
SBP+SNAP+NSLP		0.018	0.009		-0.096	0.019		-0.161	-0.582		0.042	0.047		-0.088	0.208		-0.160	0.011
		p = 0.495	p = 0.753		p = 0.151	p = 0.994		p = 0.083	p = 0.695		p = 0.115	p = 0.176		p = 0.569	p = 0.730		p = 0.423	p = 0.968
Underid				p = 0.035	p = 0.087	p = 0.794	p = 0.040	p = 0.073	p = 0.865				p = 0.031	p = 0.183	p = 0.727	p = 0.033	p = 0.227	p = 0.404
Overid				p = 0.246	p = 0.611	p = 0.681	p = 0.252	p = 0.751	p = 0.964				p = 0.479	p = 0.562	p = 0.834	p = 0.527	p = 0.626	p = 0.758
Endog				p = 0.577	p = 0.233	p = 0.423	p = 0.702	p = 0.058	p = 0.127				p = 0.478	p = 0.357	p = 0.387	p = 0.325	p = 0.377	p = 0.517
RKf				4.011	1.376	0.402	3.877	1.306	0.304				8.224	1.775	0.49	6.289	1.593	0.953
Panel II. Overweight																		
SNAP		-0.079	0.017		-0.215	0.383		-0.331	0.938		-0.105	-0.082		-0.07	-0.776		-0.089	-0.342
		(0.077)	(0.077)		(0.234)	(1.340)		(0.235)	(3.388)		(0.103)	(0.107)		(0.245)	(1.006)		(0.261)	(0.887)
NSLP		-0.031	-0.034		0.214†	0.248‡					-0.069	-0.07		0.092	0.13			
		(0.072)	(0.073)		(0.108)	(0.140)					(0.073)	(0.073)		(0.091)	(0.137)			
SBP		0.028	0.059		-0.598‡	-0.472		-0.462	-0.456		0.042	0.05		-0.525	-1.022		-0.332	-0.452
		(0.049)	(0.052)		(0.333)	(0.368)		(0.367)	(0.478)		(0.052)	(0.061)		(0.361)	(0.924)		(0.414)	(0.649)
ALL	-0.132		-0.176	-0.976†		-1.336	-1.081†		-2.437	-0.099		-0.05	-0.373		1.57	-0.298		0.463
	(0.117)		(0.143)	(0.435)		(2.823)	(0.436)		(6.373)	(0.154)		(0.174)	(0.355)		(2.350)	(0.328)		(1.638)
N	1100	1100	1100	1050	1050	1050	950	950	950	900	900	900	850	850	850	750	750	750
JSig	p = 0.259	p = 0.609	p = 0.636	p = 0.039	p = 0.039	p = 0.039	p = 0.015	p = 0.015	p = 0.015	p = 0.523	p = 0.534	p = 0.692	p = 0.505	p = 0.520	p = 0.520	p = 0.896	p = 0.896	p = 0.896
SBP+NSLP		-0.003	0.025		-0.384	-0.224					-0.027	-0.02		-0.433	-0.892			
		p = 0.967	p = 0.738		p = 0.122	p = 0.519					p = 0.742	p = 0.812		p = 0.139	p = 0.274			
SNAP+NSLP		-0.11	-0.016		-0.001	0.631					-0.175	-0.152		0.022	-0.65			
		p = 0.272	p = 0.842		p = 0.998	p = 0.660					p = 0.220	p = 0.284		p = 0.939	p = 0.492			
SBP+SNAP+NSLP		-0.082	-0.133		-0.599	-1.177		-0.792	-1.955		-0.132	-0.152		-0.503	-0.099		-0.421	-0.331
		p = 0.466	p = 0.340		p = 0.007	p = 0.363		p = 0.009	p = 0.536		p = 0.383	p = 0.402		p = 0.067	p = 0.893		p = 0.237	p = 0.484
Underid				p = 0.035	p = 0.080	p = 0.798	p = 0.040	p = 0.066	p = 0.858				p = 0.023	p = 0.156	p = 0.714	p = 0.020	p = 0.206	p = 0.388
Overid				p = 0.859	p = 0.906	p = 0.979	p = 0.888	p = 0.909	p = 0.989				p = 0.695	p = 0.936	p = 0.977	p = 0.933	p = 0.923	p = 0.857
Endog				p = 0.072	p = 0.045	p = 0.064	p = 0.046	p = 0.023	p = 0.042				p = 0.452	p = 0.237	p = 0.225	p = 0.719	p = 0.656	p = 0.833
RKf				4.002	1.392	0.404	3.866	1.319	0.314				8.691	1.857	0.507	7.084	1.633	0.968

Notes: See Table 7.1.

Table 7.5 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Whites.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		-0.004	-0.01		0.032	-0.126		-0.005	-0.178		-0.011	-0.02		0.132	-0.163		0.101	-0.088
		(0.019)	(0.024)		(0.200)	(0.353)		(0.178)	(0.282)		(0.029)	(0.037)		(0.186)	(0.269)		(0.118)	(0.170)
NSLP		0.019	0.019		0.033‡	0.036‡					0.030	0.030		0.053†	0.050†			
		(0.017)	(0.017)		(0.020)	(0.021)					(0.020)	(0.020)		(0.023)	(0.024)			
SBP		-0.007	-0.009		-0.058	-0.078		-0.032	-0.045		-0.027	-0.029		-0.214†	-0.306†		-0.187*	-0.246†
		(0.014)	(0.015)		(0.055)	(0.067)		(0.053)	(0.051)		(0.017)	(0.018)		(0.087)	(0.142)		(0.070)	(0.107)
ALL	0.000		0.011	-0.040		0.217	-0.028		0.223	-0.015		0.017	-0.421		0.599	-0.218		0.368
	(0.029)		(0.040)	(0.146)		(0.414)	(0.134)		(0.314)	(0.032)		(0.040)	(1.149)		(0.625)	(0.311)		(0.385)
N	1400	1400	1400	1400	1400	1400	1150	1150	1150	1100	1100	1100	1100	1100	1100	800	800	800
JSig	p = 0.990	p = 0.723	p = 0.838	p = 0.515	p = 0.355	p = 0.355	p = 0.598	p = 0.598	p = 0.598	p = 0.633	p = 0.200	p = 0.317	p = 0.012	p = 0.009	p = 0.009	p = 0.044	p = 0.044	p = 0.044
SBP+NSLP		0.012	0.01		-0.025	-0.041					0.003	0.001		-0.161	-0.256			
		p = 0.546	p = 0.601		p = 0.675	p = 0.526					p = 0.900	p = 0.967		p = 0.028	p = 0.061			
SNAP+NSLP		0.015	0.01		0.065	-0.09					0.019	0.01		0.184	-0.113			
		p = 0.469	p = 0.704		p = 0.727	p = 0.792					p = 0.542	p = 0.787		p = 0.336	p = 0.675			
SBP+SNAP+NSLP		0.008	0.012		0.007	0.05		-0.038	-0.001		-0.007	-0.002		-0.03	0.18		-0.087	0.034
		p = 0.692	p = 0.675		p = 0.964	p = 0.762		p = 0.798	p = 0.995		p = 0.801	p = 0.948		p = 0.851	p = 0.549		p = 0.358	p = 0.836
Underid				p = 0.036	p = 0.069	p = 0.083	p = 0.017	p = 0.127	p = 0.192				p = 0.365	p = 0.020	p = 0.325	p = 0.267	p = 0.018	p = 0.200
Overid				p = 0.490	p = 0.422	p = 0.387	p = 0.585	p = 0.558	p = 0.557				p = 0.169	p = 0.494	p = 0.559	p = 0.290	p = 0.760	p = 0.721
Endog				p = 0.839	p = 0.400	p = 0.465	p = 0.917	p = 0.591	p = 0.648				p = 0.660	p = 0.249	p = 0.187	p = 0.373	p = 0.215	p = 0.200
RKf				2.658	2.323	1.578	3.009	1.963	1.205				1.957	3.114	1.829	2.587	3.967	1.968
Panel II. Overweight																		
SNAP		-0.022	0.008		0.320	-0.141		0.076	-0.266		0.064	0.019		-0.133	-0.631		0.054	-0.577
		(0.068)	(0.094)		(0.591)	(1.162)		(0.673)	(1.759)		(0.086)	(0.107)		(0.434)	(0.579)		(0.440)	(0.590)
NSLP		0.055	0.054		0.038	0.047					0.077	0.078		0.169†	0.163†			
		(0.058)	(0.058)		(0.061)	(0.066)					(0.063)	(0.063)		(0.068)	(0.073)			
SBP		-0.022	-0.014		-0.108	-0.167		0.042	0.024		-0.069	-0.080		-0.535†	-0.705†		-0.620†	-0.816†
		(0.043)	(0.049)		(0.234)	(0.309)		(0.251)	(0.261)		(0.049)	(0.053)		(0.233)	(0.318)		(0.242)	(0.338)
ALL	-0.050		-0.055	0.205		0.633	0.202		0.405	0.060		0.080	-1.044		1.085	-1.193		1.270
	(0.097)		(0.142)	(0.401)		(1.496)	(0.412)		(1.856)	(0.094)		(0.118)	(0.991)		(1.141)	(1.250)		(1.239)
N	1400	1400	1400	1400	1400	1400	1150	1150	1150	1100	1100	1100	1100	1100	1100	800	800	800
JSig	p = 0.609	p = 0.801	p = 0.872	p = 0.600	p = 0.539	p = 0.539	p = 0.504	p = 0.504	p = 0.504	p = 0.527	p = 0.340	p = 0.465	p = 0.086	p = 0.069	p = 0.069	p = 0.037	p = 0.037	p = 0.037
SBP+NSLP		0.033	0.040		-0.069	-0.119					0.008	-0.002		-0.366	-0.541			
		p = 0.589	p = 0.526		p = 0.764	p = 0.678					p = 0.907	p = 0.981		p = 0.062	p = 0.068			
SNAP+NSLP		0.033	0.061		0.358	-0.093					0.141	0.097		0.036	-0.468			
		p = 0.687	p = 0.528		p = 0.525	p = 0.934					p = 0.193	p = 0.429		p = 0.936	p = 0.420			
SBP+SNAP+NSLP		0.010	-0.008		0.251	0.373		0.117	0.163		0.072	0.098		-0.499	-0.088		-0.567	-0.123
		p = 0.902	p = 0.943		p = 0.565	p = 0.465		p = 0.816	p = 0.748		p = 0.517	p = 0.400		p = 0.203	p = 0.875		p = 0.131	p = 0.824
Underid				p = 0.040	p = 0.068	p = 0.084	p = 0.018	p = 0.126	p = 0.192				p = 0.357	p = 0.019	p = 0.329	p = 0.275	p = 0.015	p = 0.201
Overid				p = 0.584	p = 0.550	p = 0.436	p = 0.522	p = 0.416	p = 0.320				p = 0.332	p = 0.630	p = 0.654	p = 0.248	p = 0.702	p = 0.694
Endog				p = 0.345	p = 0.417	p = 0.506	p = 0.466	p = 0.699	p = 0.846				p = 0.258	p = 0.026	p = 0.046	p = 0.351	p = 0.027	p = 0.045
RKf				2.6	2.312	1.575	2.952	1.965	1.219				1.954	3.129	1.855	2.561	4.048	2.034

Notes: See Table 7.1.

Table 7.6 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Urban.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		0.007	0.012		-0.033	-0.090		0.004	-0.027		-0.030‡	-0.021		0.055	0.468		0.087	2.124
		(0.011)	(0.010)		(0.068)	(0.164)		(0.060)	(0.149)		(0.017)	(0.022)		(0.112)	(1.242)		(0.111)	(103.167)
NSLP		-0.001	-0.001		0.005	0.006					0.013	0.014		-0.009	0.034			
		(0.017)	(0.017)		(0.025)	(0.027)					(0.014)	(0.013)		(0.028)	(0.138)			
SBP		0.000	0.003		-0.007	-0.038		-0.046	-0.060		-0.015	-0.011		-0.028	0.104		0.016	0.425
		(0.010)	(0.009)		(0.077)	(0.082)		(0.053)	(0.059)		(0.014)	(0.015)		(0.151)	(0.380)		(0.107)	(20.587)
ALL	0.001		-0.01	-0.037		0.132	-0.031		0.059	-0.042		-0.019	-0.142		-1.300	0.201		-4.366
	(0.018)		(0.019)	(0.104)		(0.301)	(0.081)		(0.231)	(0.031)		(0.042)	(1.042)		(3.944)	(0.365)		(220.214)
N	1700	1700	1700	1650	1650	1650	1450	1450	1450	1200	1200	1200	1200	1200	1200	950	950	950
JSig	p = 0.949	p = 0.943	p = 0.836	p = 0.129	p = 0.129	p = 0.129	p = 0.277	p = 0.277	p = 0.277	p = 0.174	p = 0.258	p = 0.393	p = 0.048	p = 0.052	p = 0.052	p = 0.004	p = 0.004	p = 0.004
SBP+NSLP		-0.001	0.002		-0.002	-0.032					-0.002	0.002		-0.037	0.138			
		p = 0.978	p = 0.924		p = 0.979	p = 0.643					p = 0.911	p = 0.895		p = 0.774	p = 0.782			
SNAP+NSLP		0.006	0.011		-0.027	-0.084					-0.016	-0.007		0.046	0.502			
		p = 0.779	p = 0.562		p = 0.721	p = 0.624					p = 0.388	p = 0.732		p = 0.655	p = 0.715			
SBP+SNAP+NSLP		0.006	0.004		-0.034	0.010		-0.043	-0.028		-0.032	-0.037		0.019	-0.694		0.103	-1.816
		p = 0.816	p = 0.896		p = 0.573	p = 0.936		p = 0.505	p = 0.760		p = 0.188	p = 0.245		p = 0.928	p = 0.757		p = 0.530	p = 0.985
Underid				p = 0.016	p = 0.056	p = 0.105	p = 0.007	p = 0.073	p = 0.046				p = 0.069	p = 0.056	p = 0.277	p = 0.063	p = 0.206	p = 0.130
Overid				p = 0.293	p = 0.219	p = 0.118	p = 0.428	p = 0.262	p = 0.153				p = 0.441	p = 0.382	p = 0.842	p = 0.513	p = 0.425	p = 0.999
Endog				p = 0.419	p = 0.696	p = 0.862	p = 0.757	p = 0.868	p = 0.923				p = 0.893	p = 0.811	p = 0.782	p = 0.532	p = 0.553	p = 0.743
RKf				3.998	2.604	1.999	4.783	2.997	2.168				2.385	2.594	1.199	2.466	2.311	1.907
Panel II. Overweight																		
SNAP		-0.003	0.023		-0.002	0.409		-0.082	0.218		0.023	-0.010		0.101	1.013		0.110	32.791
		(0.035)	(0.053)		(0.174)	(0.486)		(0.180)	(0.653)		(0.058)	(0.080)		(0.316)	(1.545)		(0.319)	(41715.044)
NSLP		-0.026	-0.026		0.005	0.003					0.095	0.094		0.032	0.125			
		(0.049)	(0.049)		(0.072)	(0.064)					(0.069)	(0.068)		(0.084)	(0.194)			
SBP		0.002	0.015		-0.071	0.155		-0.094	0.037		-0.06	-0.076		0.04	0.335		-0.112	7.473
		(0.032)	(0.033)		(0.244)	(0.294)		(0.237)	(0.296)		(0.040)	(0.048)		(0.361)	(0.559)		(0.360)	(9648.652)
ALL	-0.025		-0.050	-0.268		-0.945	-0.256		-0.576	0.025		0.073	-0.65		-2.805	0.157		-71.611
	(0.047)		(0.066)	(0.296)		(1.027)	(0.253)		(1.160)	(0.078)		(0.118)	(1.619)		(4.850)	(1.160)		(91392.064)
N	1700	1700	1700	1650	1650	1650	1450	1450	1450	1200	1200	1200	1200	1200	1200	950	950	950
JSig	p = 0.594	p = 0.957	p = 0.933	p = 0.002	p = 0.002	p = 0.002	p = 0.006	p = 0.006	p = 0.006	p = 0.753	p = 0.377	p = 0.502	p = 0.297	p = 0.292	p = 0.292	p = 0.047	p = 0.047	p = 0.047
SBP+NSLP		-0.024	-0.011		-0.066	0.157					0.036	0.018		0.072	0.461			
		p = 0.707	p = 0.854		p = 0.726	p = 0.556					p = 0.585	p = 0.781		p = 0.814	p = 0.504			
SNAP+NSLP		-0.029	-0.003		0.003	0.412					0.118	0.084		0.132	1.139			
		p = 0.647	p = 0.969		p = 0.987	p = 0.411					p = 0.183	p = 0.395		p = 0.653	p = 0.507			
SBP+SNAP+NSLP		-0.027	-0.038		-0.068	-0.378		-0.176	-0.322		0.059	0.081		0.172	-1.331		-0.002	-31.346
		p = 0.727	p = 0.632		p = 0.677	p = 0.331		p = 0.398	p = 0.399		p = 0.488	p = 0.399		p = 0.745	p = 0.629		p = 0.996	p = 0.999
Underid				p = 0.017	p = 0.056	p = 0.100	p = 0.009	p = 0.071	p = 0.044				p = 0.065	p = 0.055	p = 0.210	p = 0.061	p = 0.212	p = 0.116
Overid				p = 0.057	p = 0.038	p = 0.049	p = 0.081	p = 0.052	p = 0.045				p = 0.480	p = 0.410	p = 0.592	p = 0.189	p = 0.186	p = 1.000
Endog				p = 0.333	p = 0.757	p = 0.605	p = 0.321	p = 0.554	p = 0.687				p = 0.705	p = 0.974	p = 0.962	p = 0.606	p = 0.866	p = 0.793
RKf				3.964	2.586	2.004	4.712	2.997	2.183				2.524	2.604	1.342	2.512	2.344	1.866

Notes: See Table 7.1.

Table 7.7 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Suburban.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		0.015	0.016		-0.122	1.375		-0.210	0.555		0.005	0.023		3.686	-0.701		-1.777	-0.81
		(0.012)	(0.020)		(0.169)	(11.047)		(0.172)	(1.853)		(0.024)	(0.027)		(635.335)	(1.369)		(20.120)	(0.923)
NSLP		0.001	0.001		0.036	0.081					-0.003	-0.004		0.187	0.035			
		(0.022)	(0.022)		(0.023)	(0.389)					(0.024)	(0.024)		(29.002)	(0.051)			
SBP		0.017	0.017		-0.062	-0.044		-0.019	-0.002		0.005	0.010		-2.516	-0.055		1.030	-0.096
		(0.015)	(0.016)		(0.093)	(0.301)		(0.090)	(0.164)		(0.018)	(0.021)		(407.322)	(0.418)		(14.853)	(0.338)
ALL	0.021		-0.001	-0.312		-2.484	-0.417		-1.291	-0.004		-0.029	-0.135		0.624	-0.400		0.701
	(0.018)		(0.031)	(0.226)		(18.446)	(0.271)		(3.346)	(0.024)		(0.032)	(0.279)		(1.105)	(0.582)		(0.802)
N	1100	1100	1100	1100	1100	1100	900	900	900	800	800	800	800	800	800	650	650	650
JSig	p = 0.243	p = 0.372	p = 0.514	p = 0.129	p = 0.112	p = 0.112	p = 0.025	p = 0.025	p = 0.025	p = 0.853	p = 0.987	p = 0.907	p = 0.725	p = 0.746	p = 0.746	p = 0.186	p = 0.186	p = 0.186
SBP+NSLP		0.018	0.018		-0.026	0.036					0.002	0.007		-2.329	-0.019			
		p = 0.484	p = 0.506		p = 0.748	p = 0.940					p = 0.938	p = 0.807		p = 0.995	p = 0.961			
SNAP+NSLP		0.017	0.017		-0.086	1.456					0.002	0.019		3.873	-0.666			
		p = 0.486	p = 0.599		p = 0.618	p = 0.899					p = 0.934	p = 0.535		p = 0.995	p = 0.626			
SBP+SNAP+NSLP		0.034	0.033		-0.148	-1.073		-0.228	-0.738		0.007	0.001		1.357	-0.097		-0.748	-0.205
		p = 0.219	p = 0.219		p = 0.170	p = 0.878		p = 0.062	p = 0.617		p = 0.813	p = 0.974		p = 0.996	p = 0.715		p = 0.889	p = 0.461
Underid				p = 0.245	p = 0.524	p = 0.738	p = 0.416	p = 0.596	p = 0.631				p = 0.650	p = 0.506	p = 0.574	p = 0.707	p = 0.527	p = 0.513
Overid				p = 0.740	p = 0.629	p = 0.998	p = 0.908	p = 0.789	p = 0.978				p = 0.728	p = 1.000	p = 0.858	p = 0.473	p = 0.998	p = 0.915
Endog				p = 0.037	p = 0.042	p = 0.100	p = 0.009	p = 0.015	p = 0.042				p = 0.686	p = 0.679	p = 0.835	p = 0.509	p = 0.289	p = 0.220
RKf				1.564	0.84	0.474	1.218	0.785	0.553				0.839	0.727	0.565	0.783	0.788	0.654
Panel II. Overweight																		
SNAP		0.037	-0.007		-1.846	20.828		-1.627	26.396		-0.086	-0.071		-0.287	-1.617		-7.510	-2.150
		(0.062)	(0.102)		(2.641)	(729.338)		(1.248)	(3744.959)		(0.095)	(0.142)		(2.735)	(1.218)		(246.134)	(2.244)
NSLP		0.016	0.018		0.009	0.757					0.013	0.012		0.099	0.159			
		(0.074)	(0.075)		(0.217)	(23.530)					(0.085)	(0.084)		(0.184)	(0.123)			
SBP		0.024	0.014		0.916	0.416		0.746	1.421		0.030	0.035		-0.508	-0.574		4.312	-0.572
		(0.057)	(0.062)		(1.661)	(5.248)		(0.736)	(125.418)		(0.075)	(0.073)		(1.879)	(0.507)		(171.036)	(0.899)
ALL	0.07		0.068	-1.576		-36.077	-2.188		-49.263	-0.054		-0.025	-0.592		1.714	-1.320		2.035
	(0.076)		(0.134)	(1.773)		(1216.867)	(2.360)		(6697.00)	(0.152)		(0.219)	(0.866)		(1.461)	(1.791)		(2.049)
N	1100	1100	1100	1100	1100	1100	900	900	900	800	800	800	800	800	800	650	650	650
JSig	p = 0.360	p = 0.858	p = 0.905	p = 0.050	p = 0.042	p = 0.042	p = 0.056	p = 0.056	p = 0.056	p = 0.725	p = 0.825	p = 0.923	p = 0.722	p = 0.747	p = 0.747	p = 0.158	p = 0.158	p = 0.158
SBP+NSLP		0.041	0.032		0.925	1.172					0.043	0.047		-0.409	-0.415			
		p = 0.649	p = 0.728		p = 0.529	p = 0.965					p = 0.692	p = 0.671		p = 0.812	p = 0.338			
SNAP+NSLP		0.053	0.011		-1.837	21.584					-0.073	-0.059		-0.188	-1.458			
		p = 0.528	p = 0.921		p = 0.513	p = 0.977					p = 0.519	p = 0.715		p = 0.948	p = 0.227			
SBP+SNAP+NSLP		0.077	0.093		-0.921	-14.077		-0.880	-21.445		-0.043	-0.049		-0.696	-0.318		-3.198	-0.687
		p = 0.415	p = 0.351		p = 0.466	p = 0.976		p = 0.213	p = 0.994		p = 0.725	p = 0.736		p = 0.538	p = 0.610		p = 0.966	p = 0.374
Underid				p = 0.244	p = 0.525	p = 0.741	p = 0.414	p = 0.601	p = 0.632				p = 0.651	p = 0.534	p = 0.603	p = 0.702	p = 0.560	p = 0.498
Overid				p = 0.747	p = 0.863	p = 1.000	p = 0.865	p = 0.876	p = 1.000				p = 0.727	p = 0.876	p = 0.997	p = 0.327	p = 1.000	p = 0.789
Endog				p = 0.129	p = 0.352	p = 0.462	p = 0.172	p = 0.368	p = 0.538				p = 0.908	p = 0.713	p = 0.290	p = 0.703	p = 0.796	p = 0.216
RKf				1.575	0.845	0.473	1.225	0.785	0.554				0.837	0.711	0.525	0.775	0.752	0.661

Notes: See Table 7.1.

Table 7.8 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Rural.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		-0.015	0.007		-0.146	0.097		-0.124	0.140		-0.031	-0.043		-0.192	-1.393		-0.017	-0.355
		(0.016)	(0.020)		(0.118)	(0.479)		(0.091)	(0.554)		(0.021)	(0.032)		(0.372)	(4.670)		(0.096)	(0.496)
NSLP		0.049†	0.048†		0.019	0.022					0.052†	0.051†		0.000	-0.145			
		(0.020)	(0.020)		(0.022)	(0.021)					(0.023)	(0.022)		(0.051)	(0.575)			
SBP		-0.007	-0.002		0.073	0.072		0.081	0.081		-0.016	-0.018		0.063	0.061		-0.004	-0.006
		(0.013)	(0.013)		(0.073)	(0.069)		(0.061)	(0.058)		(0.016)	(0.018)		(0.163)	(0.249)		(0.061)	(0.060)
ALL	-0.020		-0.028	-0.028		-0.224	-0.026		-0.252	-0.023		0.017	-0.036		1.180	-0.006		0.357
	(0.019)		(0.028)	(0.042)		(0.410)	(0.045)		(0.506)	(0.021)		(0.031)	(0.074)		(4.067)	(0.065)		(0.495)
N	1100	1100	1100	1100	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000	900	900	900
JSig	p = 0.282	p = 0.126	p = 0.202	p = 0.672	p = 0.621	p = 0.621	p = 0.608	p = 0.608	p = 0.608	p = 0.269	p = 0.132	p = 0.195	p = 0.294	p = 0.271	p = 0.271	p = 0.684	p = 0.684	p = 0.684
SBP+NSLP		0.042	0.046		0.093	0.093					0.036	0.033		0.063	-0.084			
		p = 0.066	p = 0.055		p = 0.161	p = 0.118					p = 0.178	p = 0.193		p = 0.602	p = 0.821			
SNAP+NSLP		0.034	0.056		-0.126	0.118					0.021	0.009		-0.192	-1.538			
		p = 0.088	p = 0.051		p = 0.312	p = 0.807					p = 0.311	p = 0.725		p = 0.645	p = 0.769			
SBP+SNAP+NSLP		0.027	0.025		-0.053	-0.034		-0.043	-0.031		0.005	0.007		-0.129	-0.297		-0.021	-0.004
		p = 0.234	p = 0.274		p = 0.364	p = 0.612		p = 0.333	p = 0.519		p = 0.845	p = 0.791		p = 0.621	p = 0.761		p = 0.727	p = 0.946
Underid				p = 0.000	p = 0.050	p = 0.254	p = 0.000	p = 0.033	p = 0.251				p = 0.005	p = 0.053	p = 0.671	p = 0.006	p = 0.019	p = 0.409
Overid				p = 0.751	p = 0.877	p = 0.832	p = 0.775	p = 0.874	p = 0.841				p = 0.423	p = 0.363	p = 0.638	p = 0.717	p = 0.656	p = 0.698
Endog				p = 0.981	p = 0.598	p = 0.645	p = 0.978	p = 0.542	p = 0.688				p = 0.757	p = 0.905	p = 0.937	p = 0.706	p = 0.851	p = 0.710
RKf				10.54	2.128	1.127	9.396	2.41	1.14				10.497	2.591	0.517	10.53	3.57	0.78
Panel II. Overweight																		
SNAP		-0.056	0.054		-0.754	0.632		-0.553	0.256		-0.153‡	-0.192		3.617	-30.651		-0.012	-3.120
		(0.060)	(0.080)		(0.558)	(2.880)		(0.349)	(1.639)		(0.084)	(0.116)		(118.035)	(2380.504)		(0.702)	(10.851)
NSLP		0.194*	0.190*		-0.056	-0.039					0.074	0.072		0.424	-3.787			
		(0.067)	(0.067)		(0.099)	(0.103)					(0.078)	(0.079)		(15.422)	(290.607)			
SBP		-0.020	0.003		0.517	0.468		0.430‡	0.428†		0.012	0.004		-1.477	1.548		0.038	0.175
		(0.040)	(0.044)		(0.323)	(0.304)		(0.222)	(0.203)		(0.050)	(0.053)		(48.765)	(122.001)		(0.349)	(0.724)
ALL	-0.080		-0.139	0.041		-1.200	-0.010		-0.767	-0.117		0.053	0.076		26.431	0.094		2.970
	(0.068)		(0.097)	(0.179)		(2.432)	(0.179)		(1.514)	(0.095)		(0.128)	(0.337)		(2045.357)	(0.324)		(9.996)
N	1100	1100	1100	1100	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000	900	900	900
JSig	p = 0.239	p = 0.023	p = 0.028	p = 0.039	p = 0.032	p = 0.032	p = 0.010	p = 0.010	p = 0.010	p = 0.218	p = 0.117	p = 0.120	p = 0.023	p = 0.021	p = 0.021	p = 0.036	p = 0.036	p = 0.036
SBP+NSLP		0.174	0.193		0.461	0.429					0.085	0.077		-1.053	-2.239			
		p = 0.028	p = 0.019		p = 0.097	p = 0.082					p = 0.341	p = 0.430		p = 0.975	p = 0.989			
SNAP+NSLP		0.138	0.244		-0.810	0.593					-0.08	-0.119		4.041	-34.438			
		p = 0.143	p = 0.026		p = 0.181	p = 0.841					p = 0.525	p = 0.470		p = 0.976	p = 0.990			
SBP+SNAP+NSLP		0.118	0.108		-0.293	-0.139		-0.123	-0.082		-0.068	-0.062		2.564	-6.459		0.026	0.025
		p = 0.229	p = 0.286		p = 0.351	p = 0.750		p = 0.509	p = 0.657		p = 0.628	p = 0.660		p = 0.976	p = 0.990		p = 0.950	p = 0.956
Underid				p = 0.000	p = 0.053	p = 0.260	p = 0.001	p = 0.042	p = 0.259				p = 0.007	p = 0.054	p = 0.670	p = 0.007	p = 0.022	p = 0.378
Overid				p = 0.276	p = 0.433	p = 0.341	p = 0.398	p = 0.732	p = 0.563				p = 0.021	p = 0.874	p = 0.996	p = 0.112	p = 0.053	p = 0.145
Endog				p = 0.155	p = 0.249	p = 0.259	p = 0.191	p = 0.210	p = 0.294				p = 0.359	p = 0.656	p = 0.450	p = 0.202	p = 0.512	p = 0.302
RKf				10.287	2.117	1.109	9.158	2.307	1.115				11.110	2.535	0.526	11.203	3.442	0.803

Notes: See Table 7.1.

Table 7.9 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: Northeast.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		-0.012	0.016		-0.15	-0.043		-0.112	-0.195		0.018	0.037		-0.046	-0.570		-0.155	-0.614
		(0.020)	(0.027)		(0.186)	(0.310)		(0.273)	(0.360)		(0.020)	(0.027)		(0.232)	(0.822)		(0.204)	(2.719)
NSLP		0.029	0.029		0.001	0.012					0.005	0.005		0.079	0.036			
		(0.024)	(0.023)		(0.062)	(0.054)					(0.026)	(0.025)		(0.114)	(0.076)			
SBP		0.019	0.038		0.181	0.2		0.106	0.027		-0.023	-0.010		-0.349	-0.372		-0.180	-0.296
		(0.024)	(0.025)		(0.305)	(0.238)		(0.292)	(0.246)		(0.020)	(0.024)		(0.532)	(0.418)		(0.312)	(0.933)
ALL	-0.020		-0.066†	-0.392		-0.343	0.051		0.280	-0.029		-0.049	-0.440		1.293	-0.471		1.017
	(0.024)		(0.030)	(0.796)		(0.809)	(0.238)		(0.680)	(0.017)		(0.032)	(0.521)		(2.078)	(0.332)		(6.084)
N	600	600	600	600	600	600	500	500	500	450	450	450	450	450	450	350	350	350
JSig	p = 0.405	p = 0.579	p = 0.107	p = 0.001	p = 0.001	p = 0.001	p = 0.035	p = 0.035	p = 0.035	p = 0.102	p = 0.576	p = 0.194	p = 0.008	p = 0.013	p = 0.013	p = 0.003	p = 0.003	p = 0.003
SBP+NSLP		0.048	0.066		0.181	0.213					-0.017	-0.005		-0.269	-0.336			
		p = 0.198	p = 0.072		p = 0.467	p = 0.305					p = 0.613	p = 0.896		p = 0.523	p = 0.380			
SNAP+NSLP		0.017	0.045		-0.149	-0.03					0.023	0.042		0.033	-0.534			
		p = 0.576	p = 0.186		p = 0.510	p = 0.928					p = 0.455	p = 0.317		p = 0.920	p = 0.527			
SBP+SNAP+NSLP		0.036	0.017		0.032	-0.173		-0.006	0.112		0.001	-0.017		-0.316	0.388		-0.335	0.108
		p = 0.357	p = 0.661		p = 0.842	p = 0.711		p = 0.956	p = 0.744		p = 0.987	p = 0.552		p = 0.238	p = 0.707		p = 0.093	p = 0.967
Underid				p = 0.144	p = 0.118	p = 0.181	p = 0.061	p = 0.163	p = 0.083				p = 0.381	p = 0.196	p = 0.056	p = 0.133	p = 0.197	p = 0.067
Overid				p = 0.349	p = 0.130	p = 0.121	p = 0.272	p = 0.146	p = 0.294				p = 0.156	p = 0.456	p = 0.870	p = 0.444	p = 0.599	p = 0.889
Endog				p = 0.915	p = 0.780	p = 0.902	p = 0.183	p = 0.481	p = 0.735				p = 0.659	p = 0.385	p = 0.594	p = 0.190	p = 0.125	p = 0.282
RKf				2.374	2.503	1.356	3.098	2.025	2.144				1.97	2.263	1.511	3.023	2.6	1.336
Panel II. Overweight																		
SNAP		-0.091	-0.02		-0.634	-0.81		-0.769	-1.111		0.095	0.231‡		-0.079	-1.262		-0.271	-1.345
		(0.080)	(0.108)		(0.620)	(1.143)		(1.111)	(1.109)		(0.104)	(0.125)		(0.430)	(1.725)		(0.516)	(2.956)
NSLP		0.008	0.007		0.196	0.18					-0.014	-0.014		0.057	-0.009			
		(0.097)	(0.095)		(0.220)	(0.238)					(0.073)	(0.073)		(0.203)	(0.188)			
SBP		0.027	0.074		-0.179	-0.261		0.499	-0.026		-0.140†	-0.049		-0.79	-1.031		-0.277	-0.636
		(0.085)	(0.109)		(1.142)	(1.101)		(1.104)	(0.717)		(0.063)	(0.090)		(0.899)	(1.056)		(0.769)	(1.496)
ALL	-0.127‡		-0.167	-1.964		0.674	0.202		1.469	-0.228*		-0.357†	-0.544		3.021	-0.595		2.501
	(0.063)		(0.137)	(2.361)		(3.524)	(1.186)		(2.209)	(0.067)		(0.140)	(0.940)		(4.498)	(0.931)		(6.932)
N	600	600	600	600	600	600	500	500	500	450	450	450	450	450	450	350	350	350
JSig	p = 0.051	p = 0.700	p = 0.340	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.002	p = 0.187	p = 0.00	p = 0.006	p = 0.005	p = 0.005	p = 0.138	p = 0.138	p = 0.138
SBP+NSLP		0.034	0.081		0.017	-0.081					-0.154	-0.062		-0.733	-1.040			
		p = 0.814	p = 0.608		p = 0.985	p = 0.931					p = 0.108	p = 0.564		p = 0.303	p = 0.287			
SNAP+NSLP		-0.084	-0.013		-0.437	-0.63					0.081	0.217		-0.023	-1.27			
		p = 0.415	p = 0.918		p = 0.574	p = 0.632					p = 0.512	p = 0.145		p = 0.967	p = 0.473			
SBP+SNAP+NSLP		-0.057	-0.106		-0.616	-0.217		-0.271	0.332		-0.059	-0.189		-0.813	0.720		-0.548	0.520
		p = 0.678	p = 0.387		p = 0.283	p = 0.925		p = 0.535	p = 0.768		p = 0.612	p = 0.044		p = 0.165	p = 0.738		p = 0.345	p = 0.860
Underid				p = 0.145	p = 0.120	p = 0.179	p = 0.060	p = 0.168	p = 0.073				p = 0.217	p = 0.183	p = 0.076	p = 0.132	p = 0.195	p = 0.063
Overid				p = 0.353	p = 0.257	p = 0.204	p = 0.281	p = 0.704	p = 0.377				p = 0.239	p = 0.402	p = 0.850	p = 0.542	p = 0.351	p = 0.478
Endog				p = 0.072	p = 0.099	p = 0.181	p = 0.423	p = 0.528	p = 0.769				p = 0.843	p = 0.429	p = 0.189	p = 0.940	p = 0.579	p = 0.401
RKf				2.228	2.484	1.351	2.971	2.034	2.413				2.221	2.385	1.436	2.885	2.651	1.429

Notes: See Table 7.1.

Table 7.10 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: West.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		0.006	0.021‡		-0.154	-0.398		-0.225	-1.769		0.003	-0.018		-0.402	-0.572		0.048	-0.355
		(0.017)	(0.012)		(0.163)	(1.574)		(0.225)	(6.559)		(0.023)	(0.031)		(0.661)	(0.496)		(0.223)	(0.420)
NSLP		-0.002	-0.001		0.022	-0.007					0.031	0.03		-0.031	-0.004			
		(0.018)	(0.019)		(0.028)	(0.180)					(0.020)	(0.019)		(0.142)	(0.042)			
SBP		0.013	0.017		-0.035	0.015		0.028	0.305		-0.007	-0.011		0.195	-0.159		-0.120	-0.210
		(0.012)	(0.011)		(0.111)	(0.378)		(0.162)	(1.343)		(0.018)	(0.023)		(0.790)	(0.191)		(0.265)	(0.193)
ALL	-0.001		-0.028	-0.239‡		0.285	-0.240‡		1.726	0.021		0.042	-0.052		0.615	0.004		0.516
	(0.029)		(0.036)	(0.139)		(1.735)	(0.141)		(7.010)	(0.039)		(0.060)	(0.173)		(0.536)	(0.125)		(0.481)
N	950	950	950	950	950	950	850	850	850	750	750	750	750	750	750	600	600	600
JSig	p = 0.966	p = 0.674	p = 0.075	p = 0.016	p = 0.014	p = 0.014	p = 0.010	p = 0.010	p = 0.010	p = 0.593	p = 0.444	p = 0.459	p = 0.041	p = 0.036	p = 0.036	p = 0.069	p = 0.069	p = 0.069
SBP+NSLP		0.011	0.016		-0.013	0.008					0.024	0.019		0.164	-0.162			
		p = 0.586	p = 0.487		p = 0.889	p = 0.969					p = 0.322	p = 0.510		p = 0.800	p = 0.320			
SNAP+NSLP		0.004	0.02		-0.132	-0.405					0.034	0.012		-0.432	-0.576			
		p = 0.839	p = 0.441		p = 0.469	p = 0.817					p = 0.212	p = 0.738		p = 0.586	p = 0.264			
SBP+SNAP+NSLP		0.017	0.009		-0.167	-0.105		-0.197	0.262		0.027	0.043		-0.237	-0.12		-0.072	-0.048
		p = 0.437	p = 0.753		p = 0.061	p = 0.773		p = 0.030	p = 0.884		p = 0.389	p = 0.237		p = 0.268	p = 0.306		p = 0.582	p = 0.678
Underid				p = 0.047	p = 0.230	p = 0.490	p = 0.021	p = 0.251	p = 0.795				p = 0.141	p = 0.319	p = 0.277	p = 0.151	p = 0.440	p = 0.304
Overid				p = 0.503	p = 0.450	p = 0.510	p = 0.499	p = 0.395	p = 0.959				p = 0.266	p = 0.630	p = 0.651	p = 0.257	p = 0.358	p = 0.471
Endog				p = 0.655	p = 0.213	p = 0.284	p = 0.817	p = 0.506	p = 0.387				p = 0.968	p = 0.625	p = 0.133	p = 0.528	p = 0.374	p = 0.305
RKf				4.606	2.902	1.34	4.298	2.544	0.551				4.198	1.315	1.243	5.438	1.273	1.731
Panel II. Overweight																		
SNAP		-0.095	-0.101		-1.529	1.524		-1.449	3.541		-0.138	-0.197‡		-1.394	-1.600		1.374	-2.132
		(0.077)	(0.071)		(2.849)	(1.926)		(1.316)	(5.363)		(0.120)	(0.107)		(2.942)	(2.328)		(11.223)	(7.720)
NSLP		0.032	0.032		-0.105	0.259					-0.004	-0.007		-0.217	-0.13			
		(0.055)	(0.055)		(0.426)	(0.210)					(0.077)	(0.075)		(0.645)	(0.515)			
SBP		0.011	0.009		0.806	-0.109		0.714	-0.503		-0.064	-0.077		1.216	0.39		-1.865	-1.996
		(0.042)	(0.045)		(2.323)	(0.551)		(1.016)	(1.167)		(0.060)	(0.069)		(3.483)	(3.680)		(14.863)	(7.430)
ALL	-0.07		0.011	-1.030†		-2.830	-1.041†		-4.759	-0.102		0.121	-0.042		1.036	0.093		3.803
	(0.124)		(0.143)	(0.450)		(2.108)	(0.505)		(5.721)	(0.204)		(0.230)	(0.707)		(3.876)	(0.631)		(13.174)
N	950	950	950	950	950	950	850	850	850	750	750	750	750	750	750	600	600	600
JSig	p = 0.576	p = 0.546	p = 0.587	p = 0.001	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.619	p = 0.566	p = 0.489	p = 0.00	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
SBP+NSLP		0.043	0.041		0.701	0.150					-0.068	-0.084		0.998	0.260			
		p = 0.465	p = 0.487		p = 0.713	p = 0.705					p = 0.441	p = 0.373		p = 0.726	p = 0.935			
SNAP+NSLP		-0.063	-0.07		-1.634	1.783					-0.142	-0.204		-1.611	-1.73			
		p = 0.465	p = 0.373		p = 0.616	p = 0.399					p = 0.346	p = 0.142		p = 0.650	p = 0.502			
SBP+SNAP+NSLP		-0.053	-0.049		-0.828	-1.156		-0.735	-1.721		-0.206	-0.16		-0.396	-0.304		-0.491	-0.325
		p = 0.587	p = 0.700		p = 0.402	p = 0.047		p = 0.117	p = 0.272		p = 0.216	p = 0.471		p = 0.636	p = 0.662		p = 0.896	p = 0.828
Underid				p = 0.044	p = 0.227	p = 0.489	p = 0.019	p = 0.249	p = 0.794				p = 0.111	p = 0.305	p = 0.277	p = 0.156	p = 0.439	p = 0.314
Overid				p = 0.384	p = 0.672	p = 0.506	p = 0.488	p = 0.666	p = 0.976				p = 0.455	p = 0.772	p = 0.459	p = 0.244	p = 0.771	p = 0.731
Endog				p = 0.112	p = 0.434	p = 0.374	p = 0.190	p = 0.511	p = 0.373				p = 0.238	p = 0.334	p = 0.483	p = 0.489	p = 0.295	p = 0.412
RKf				4.641	2.914	1.337	4.338	2.559	0.56				4.465	1.312	1.24	5.707	1.277	1.697

Notes: See Table 7.1.

Table 7.11 Subpopulation Estimates of Nutrition Assistance Program Effects on Child Weight in Low Income Households: South.

	Third Grade									Fifth Grade								
	School Fixed Effects			Instrumental Variables						School Fixed Effects			Instrumental Variables					
				All Students			NSLP Participants Only						All Students			NSLP Participants Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel I. BMI Growth																		
SNAP		-0.004	-0.007		0.025	0.391‡		0.075	0.352		-0.030‡	-0.015		0.094	0.243		0.093	0.135
		(0.013)	(0.015)		(0.111)	(0.221)		(0.109)	(0.273)		(0.017)	(0.021)		(0.158)	(0.364)		(0.147)	(0.425)
NSLP		0.003	0.003		0.004	-0.011					0.030	0.03		0.041	0.048			
		(0.018)	(0.018)		(0.022)	(0.025)					(0.020)	(0.021)		(0.032)	(0.044)			
SBP		-0.002	-0.003		-0.039	0.027		-0.079	-0.027		-0.016	-0.01		-0.218	-0.202		-0.227‡	-0.227‡
		(0.011)	(0.011)		(0.068)	(0.063)		(0.069)	(0.066)		(0.011)	(0.012)		(0.147)	(0.140)		(0.131)	(0.133)
ALL	-0.003		0.005	-0.058		-0.489†	-0.053		-0.369	-0.040‡		-0.024	-0.136		-0.237	-0.126		-0.06
	(0.016)		(0.020)	(0.056)		(0.245)	(0.058)		(0.299)	(0.021)		(0.027)	(0.143)		(0.489)	(0.186)		(0.559)
N	1600	1600	1600	1550	1550	1550	1400	1400	1400	1250	1250	1250	1200	1200	1200	1000	1000	1000
JSig	p = 0.872	p = 0.987	p = 0.986	p = 0.079	p = 0.078	p = 0.078	p = 0.111	p = 0.111	p = 0.111	p = 0.060	p = 0.147	p = 0.186	p = 0.055	p = 0.058	p = 0.058	p = 0.003	p = 0.003	p = 0.003
SBP+NSLP		0.001	0		-0.035	0.016					0.014	0.019		-0.177	-0.154			
		p = 0.980	p = 0.995		p = 0.540	p = 0.738					p = 0.529	p = 0.364		p = 0.146	p = 0.173			
SNAP+NSLP		-0.001	-0.004		0.029	0.38					0	0.014		0.135	0.291			
		p = 0.963	p = 0.855		p = 0.811	p = 0.080					p = 0.995	p = 0.428		p = 0.429	p = 0.458			
SBP+SNAP+NSLP		-0.003	-0.003		-0.01	-0.081		-0.004	-0.044		-0.016	-0.02		-0.083	-0.148		-0.134	-0.152
		p = 0.891	p = 0.918		p = 0.880	p = 0.234		p = 0.948	p = 0.510		p = 0.508	p = 0.459		p = 0.493	p = 0.485		p = 0.316	p = 0.538
Underid				p = 0.003	p = 0.278	p = 0.011	p = 0.002	p = 0.365	p = 0.023				p = 0.160	p = 0.175	p = 0.255	p = 0.177	p = 0.106	p = 0.372
Overid				p = 0.502	p = 0.485	p = 0.909	p = 0.445	p = 0.674	p = 0.746				p = 0.263	p = 0.886	p = 0.897	p = 0.155	p = 0.896	p = 0.840
Endog				p = 0.725	p = 0.977	p = 0.326	p = 0.789	p = 0.675	p = 0.438				p = 0.796	p = 0.107	p = 0.171	p = 0.612	p = 0.048	p = 0.114
RKf				8.454	1.908	2.363	9.388	1.521	2.134				3.374	2.023	1.17	3.114	2.791	0.89
Panel II. Overweight																		
SNAP		0.002	0.029		0.017	2.275		0.303	3.175		-0.071	-0.102		-0.128	-1.093		-0.108	-1.633
		(0.041)	(0.070)		(0.443)	(3.741)		(1.019)	(6.655)		(0.057)	(0.082)		(0.623)	(0.983)		(0.845)	(1.643)
NSLP		-0.005	-0.007		0.017	-0.057					0.059	0.06		0.135	0.062			
		(0.053)	(0.053)		(0.068)	(0.131)					(0.063)	(0.062)		(0.129)	(0.136)			
SBP		0.005	0.012		-0.07	0.235		-0.301	0.149		-0.019	-0.031		-0.579	-0.497		-0.684	-0.470
		(0.034)	(0.034)		(0.258)	(0.475)		(0.554)	(0.631)		(0.035)	(0.036)		(0.637)	(0.440)		(0.827)	(0.471)
ALL	-0.008		-0.037	-0.125		-2.829	-0.242		-3.681	-0.045		0.050	-0.634		1.349	-0.990		1.941
	(0.051)		(0.085)	(0.227)		(4.502)	(0.233)		(7.601)	(0.061)		(0.088)	(0.670)		(1.165)	(1.168)		(2.048)
N	1600	1600	1600	1550	1550	1550	1400	1400	1400	1250	1250	1250	1200	1200	1200	1000	1000	1000
JSig	p = 0.873	p = 0.998	p = 0.991	p = 0.014	p = 0.013	p = 0.013	p = 0.001	p = 0.001	p = 0.001	p = 0.462	p = 0.355	p = 0.343	p = 0.070	p = 0.070	p = 0.070	p = 0.008	p = 0.008	p = 0.008
SBP+NSLP		0.000	0.005		-0.052	0.177					0.040	0.030		-0.444	-0.434			
		p = 0.996	p = 0.941		p = 0.812	p = 0.634					p = 0.598	p = 0.721		p = 0.407	p = 0.233			
SNAP+NSLP		-0.003	0.021		0.034	2.218					-0.012	-0.041		0.007	-1.031			
		p = 0.961	p = 0.812		p = 0.942	p = 0.544					p = 0.898	p = 0.730		p = 0.993	p = 0.334			
SBP+SNAP+NSLP		0.002	-0.004		-0.035	-0.377		0.002	-0.357		-0.031	-0.022		-0.572	-0.179		-0.792	-0.162
		p = 0.982	p = 0.962		p = 0.893	p = 0.580		p = 0.996	p = 0.666		p = 0.768	p = 0.826		p = 0.145	p = 0.701		p = 0.104	p = 0.830
Underid				p = 0.003	p = 0.274	p = 0.011	p = 0.003	p = 0.369	p = 0.022				p = 0.169	p = 0.191	p = 0.249	p = 0.185	p = 0.115	p = 0.374
Overid				p = 0.311	p = 0.275	p = 0.464	p = 0.236	p = 0.318	p = 0.440				p = 0.405	p = 0.752	p = 0.666	p = 0.415	p = 0.679	p = 0.408
Endog				p = 0.458	p = 0.457	p = 0.394	p = 0.278	p = 0.255	p = 0.293				p = 0.543	p = 0.241	p = 0.184	p = 0.466	p = 0.286	p = 0.328
RKf				8.251	1.877	2.358	9.172	1.473	2.131				3.364	1.961	1.183	3.095	2.749	0.887

Notes: See Table 7.1.