

SNAP and Obesity

Craig Gundersen

Department of Agricultural and Consumer Economics
University of Illinois

Preferred citation

Gundersen, Craig. SNAP and Obesity. *University of Kentucky Center for Poverty Research Discussion Paper Series, DP2013-02*.

Author correspondence

Craig Gundersen, Department of Agricultural and Consumer Economics, 324 Mumford Hall, 1301 West Gregory Drive, University of Illinois, Urbana, IL 61801-3605; Email: cggunder@illinois.edu; Phone: 217-333-2857.

SNAP and Obesity

Craig Gundersen

Soybean Industry Endowed Professor of Agricultural Strategy, Department of Agricultural and
Consumer Economics
Executive Director, National Soybean Research Laboratory

University of Illinois

Introduction

Hunger and its accordant consequences were serious problems in the United States 50 years ago. In response, the U.S. government established the Supplemental Nutrition Assistance Program (SNAP, then known as the Food Stamp Program). Over time, the program expanded extensively such that today it serves approximately 47 million people in 2012, with total benefits of almost \$74 billion. In the aggregate the program is large; in addition, the benefits received by individuals can be quite large. For example, the maximum benefit level was \$668 for a family of four in 2012. Due to its total size and the importance to individual households, SNAP has become a central component of the social safety net and ensuing discussion in the United States.

The central goal of SNAP is to alleviate hunger and, as part of this, SNAP is designed to increase the food expenditures of low-income Americans. A body of research has examined whether or not SNAP has achieved these goals. Early work demonstrated that the receipt of SNAP in the U.S. leads to increases in food consumption (in comparison to equivalent amounts of cash) and nutrient intakes of SNAP recipients were higher than eligible non-recipients.¹ After the advent of various measures of food insecurity, research further demonstrated that SNAP recipients are less likely to be food insecure than eligible non-recipients and, as found in some studies, substantially less likely to be food insecure.² Along with these direct impacts on food intakes, SNAP has also been found to improve well-being over other dimensions including reductions in poverty (e.g., Bishop et al., 1996; Tiehen et al., 2012), improvements in birth outcomes (Almond et al., 2011), lower mortality (Krueger et al., 2004), and better general health

¹ Examples of this work includes Basiotis et al. (1983), Basiotis et al. (1987), Chavas and Yeung (1982), Devaney and Fraker (1989), Devaney and Moffitt (1991), Hama and Chern (1988), Johnson et al. (1981), Levedahl (1995), Salathe (1980), Senauer and Young (1986), and Smallwood and Blaylock (1985). More recent work on this topic includes Hoynes and Schanzenbach (2009).

² Recent work includes DePolt et al., 2009; Kreider et al., 2013 Mykerezi and Mills, 2010; Nord and Golla, 2009; and Ratcliffe et al., 2011.

(Kreider et al., 2012). Moreover, by reducing food insecurity, the negative impacts of food insecurity on various health outcomes are diminished.³

It is perhaps relatively non-controversial to state that SNAP has been successful at improving the well-being of low-income Americans. In recent years, though, there have been some proposals that have sought to change the structure of SNAP such that it becomes, at least in part, an “anti-obesity” program. These proposals have emerged due to a perception that SNAP leads recipients to have higher weights than non-recipients.

In this chapter, I begin with a theoretical consideration of whether SNAP benefits lead to increases in food consumption that could lead to increases in weight status. Theoretically, the effect of SNAP is ambiguous. Insofar as SNAP is a near-cash program, I next consider whether, empirically, higher incomes are associated with higher rates of obesity. This is done for both children and for adults. I show, consistent with previous work, that income is, in general, inversely related to rates of obesity.

Given the inverse relationship between income and obesity, one would anticipate that SNAP receipt would lead to reductions in obesity. A series of recent papers has considered whether, in fact, SNAP does lead to reductions in obesity. I next review the results of these papers. The evidence there is mixed – two have shown slightly elevated probabilities of obesity

³ Among children, the effects of food insecurity includes higher risks of some birth defects (Carmichael et al., 2007, anemia (Eicher-Miller et al., 2009, Skalicky et al., 2006), lower nutrient intakes (Cook et al., 2004), greater cognitive problems (Howard, 2011), higher levels of aggression and anxiety (Whitaker et al., 2006), higher probabilities of being hospitalized (Cook et al., 2006), poorer general health (Cook et al., 2006; Gundersen and Kreider, 2009), higher probabilities of asthma (Kirkpatrick et al., 2010), higher probabilities of behavioral problems (Huang et al., 2010), and more instances of oral health problems (Muirhead et al., 2009). Among adults, consequences include lower nutrient intakes (Kirkpatrick and Tarasuk, 2007; McIntyre et al., 2003), mental health problems (Heflin et al., 2005), physical health problems (Tarasuk, 2001), depression (Whitaker et al., 2006), diabetes (Seligman et al., 2007), higher levels of chronic disease (Seligman et al., 2009), and worse outcomes on health exams (Stuff et al., 2004). Food insecure seniors have lower nutrient intakes (Lee and Fronollo, 2001; Ziliak et al., 2008), are more likely to be in poor or fair health (Lee and Fronollo, 2001; Ziliak et al., 2008), and are more likely to have limitations in activities of daily living (ADL) (Ziliak et al., 2008).

for at least a subset of recipients, while most have shown no impact or reductions in the probability of obesity.

Despite the lack of convincing evidence that SNAP leads to increases in obesity, several proposals have emerged to restrict what SNAP participants can purchase with their benefits. I review these proposals. I then conclude with a discussion of some of the potential consequences for the well-being of low-income households due to these restrictions.

Theoretical Consideration of the Impact of SNAP Benefits on Obesity

A household eligible for SNAP must make a decision about whether or not to receive benefits. The two primary costs associated with participating in SNAP are stigma and transactions costs. The stigma associated with receiving SNAP can arise due to a person's own distaste for receiving SNAP, the fear of disapproval from others when redeeming SNAP, and/or the possible negative reaction of caseworkers.⁴ Second, transaction costs can diminish the attractiveness of participation, including travel time to, and time spent in, a SNAP office; the burden of transporting children to the office or paying for child-care services; and the direct costs of paying for transportation. A household faces these costs on a repeated basis because it must recertify its eligibility.⁵ ⁶ The amount of SNAP benefits a household receives is decreasing in income and increasing in family size. If the benefits exceed the costs, a household will decide to enter the program.

⁴ For a discussion of stigma associated with participation in assistance programs see, e.g., Moffitt (1983), Rainwater (1982), Ranney and Kushman (1987), Stuber and Kronebusch (2004), Stuber and Schlesinger (2006), and Wu and Eamon (2010).

⁵ See, e.g., Ponza et al. (1999) for evidence of the impact of transactions costs from household surveys and, e.g., Ziliak et al. (2003) for evidence of the impact of transactions costs from data on state caseloads.

⁶ While transactions costs can play an effective targeting role by discouraging those in less need from applying for a program, in the United States it often appears that transactions costs are often actually discouraging those most in need. In SNAP, this can occur when the application process is too difficult for those with limited education levels and those with limited education levels also have lower incomes. For more on this see Currie and Gahvari, 2008.

The solid line in Figure 1 displays the budget constraint for a household prior to receiving SNAP.⁷ This is expressed in terms of the choices available to a household between food and other goods. The asterisk on the line represents the choice made by a household. The dashed line represents the choices available to a household due to the receipt of SNAP (denoted as S in the figure).⁸ While, technically, a household could reduce its expenditures on food, there is no empirical evidence of a negative marginal propensity to consume food out of SNAP benefits. So, we would anticipate that due to receiving SNAP, households would increase their food expenditures (i.e., move in a northeastern direction). One should note that this is akin to a similar increase in income – if a household saw an increase in income due to, say, an increase in wages for a household member, one would see an increase in food expenditures.

This shift out in the budget constraint could lead to an increase in calories which could lead to an increase in weight for individuals in the household. In addition, a household could purchase goods which would lead to an increase in sedentary activities which, again, could lead to an increase in weight. So, in theory, receiving SNAP, just like any increase in income, could lead to an increase in weight. The converse could also hold. Considering other goods in isolation, an increase in income could enable a household to engage in activities that would lead to less sedentary activities (e.g., the purchase of a membership at a YMCA).

At least implicitly, the central argument used by those who believe SNAP leads to increases in obesity is that recipients will choose to purchase more products that lead to weight gain. Suppose households allocate consumption to a combination of at-home purchases of

⁷ In this figure, p_f denotes the price of food, p_{og} denotes the price of other goods, Y denotes income, and S denotes SNAP benefits.

⁸ Because SNAP can only be spent on food purchased from approved retail food outlets, it differs from the shift out that would occur if a household received the same amount in income.

“healthy food” and “unhealthy food”.⁹ ¹⁰ Like in Figure 1, the household’s pre-SNAP choices are represented by a solid line (and the choice of food types by the asterisk) in Figure 2 and the post-SNAP choices are represented by a dashed line. Without more information about the preferences of the household, it is not clear what will happen to the consumption of “healthy” and “unhealthy” foods. If “unhealthy foods” (“healthy foods”) are an inferior good, then the total consumption of “unhealthy foods” (“healthy foods”) would fall resulting in a proportional increase in “healthy foods” (“unhealthy foods”). If both “unhealthy foods” and “healthy foods” are normal goods than consumption of both would increase. In any case, the combined influence of increased income due to SNAP receipt is theoretically ambiguous.¹¹

Empirical Consideration of the Impact of Income on Obesity

I now consider some empirical evidence regarding rates of obesity at various income levels.¹² If there are differences in obesity rates at different levels of income, it provides some empirical evidence regarding the theoretically ambiguous effect of SNAP discussed above.

To examine the relationship between income and obesity, I use data from the 2001-2010 waves of the National Health and Nutrition Examination Survey (NHANES). The NHANES, conducted by the National Center for Health Statistics, Centers for Disease Control

⁹ These terms are in quotes because virtually no food is completely healthy and no food is completely unhealthy. In terms of the connection to obesity, the consumption of more “unhealthy foods” is generally seen as associated with increases in the probability of obesity but there are obviously many other factors that influence a person’s weight status.

¹⁰ Of course, due to the receipt of SNAP (or any other increase in income) households will do other things in terms of food consumption including, for example, purchasing food that has been prepared by others. I concentrate on the “healthy” and “unhealthy” foods since this seems like the main potential consequence for those who believe SNAP participation leads to increases in obesity.

¹¹ Along with influencing food choices, SNAP can have other effects on obesity. One key area is with respect to stress. The stress experienced by households has been associated with higher probabilities of obesity, especially among children. (See Gundersen et al. (2011) for a review.) If receiving SNAP reduces stress this could be an indirect avenue through which SNAP participation can lead to reductions in obesity.

¹² This is intended as purely a descriptive exercise. As such, I’m overlooking numerous issues including, e.g., the potential effect of weight status on wages (see Brendan and Kline (2008) for more on this issue).

(NCHS/CDC), is a program of surveys designed to collect information about the health and nutritional status of adults and children in the United States through interviews and direct physical examinations. The survey currently includes a national sample of about 5,000 persons each year, about half of whom are children. Vulnerable groups, including Hispanics and African-Americans, are oversampled.

Given the problems associated with self-reports of heights and weights in surveys (see Connor Gorber (2007) for a review), a key advantage of the NHANES is that heights and weights were measured with an automated data-collection system by a trained technician in the NHANES mobile examination center. With these heights and weights, one can calculate the BMI (kg/m^2). For adults I consider two categories - obese (BMI above 30) and, as a subset of obese, those who are severely or very severely obese (BMI above 35).¹³ For children, these heights and weights are mapped into a percentile by using age- and gender-specific reference values of the CDC growth charts for the United States (Ogden et al., 2002). To somewhat mimic the categories for adults, I consider two BMI percentile cutoffs – at or above the 95th percentile and at or above the 99th percentile.

In each of the following figures we show the proportion of persons who are obese, broken down by income categories defined with respect to the poverty line (less than the poverty line, between 100 and 200% of the poverty line, between 200 and 300% of the poverty line, between 300 and 400% of the poverty line, above 400% of the poverty line). In Figure 3 I begin with a comparison for all adults (i.e., those 18 and over) in the sample.¹⁴ As seen there, obesity rates

¹³ Recent studies have demonstrated that while those with BMIs above 35 have higher mortality risks than those who are “normal weight” (BMIs between 20 and 25) but there is less evidence that those who have BMIs above 30 (but below 35) have higher mortality risks (Flegal et al., 2013; Gronninger, 2006; Mehta and Chang, 2009). Nevertheless, because the obesity category is often invoked in research on weight status, and, in particular, on studies examining the impact of SNAP, it is included here.

¹⁴ Those who are pregnant are not included in the adult or child analyses.

fall from the lowest income category to the highest income category – from 36.3% for the highest income category to 31.3% for the lowest. For the above 35 BMI category, there is a secular decline with respect to income with a similar absolute decline from the highest to the lowest income categories (19.1% to 13.0%).

In Figure 4, the relationship between income and obesity is broken down by gender. For males, the proportion of those in the obese category is actually higher for those with incomes above 400% of the poverty line in comparison to those with incomes below the poverty line. When the breakdown is for over 35 BMI, the two lowest levels are in the ends of the income distribution. For females, the story is markedly different. There is a steady decline in the proportion of those who are obese and severely or very severely obese as income increases. A comparison between the highest and lowest income categories for both obesity categories demonstrates a very large decline - 42.3% to 30.4% and 24.4% to 15.5%. Based on these gender comparisons, one can state that the inverse relationship between income and the probability of obesity is primarily due to the relationship for women.

Figure 5 is for all children between the ages of 3 and 17.¹⁵ There is a steady decline in probabilities of obesity as income increases when all children are included. For example, from the lowest to the highest income spectrum there is a decline in the probability of being in the 95th percentile of higher from 20.4% to 13.2% and for being in the 99th percentile or higher from 6.1% to 2.6%. Unlike for adults, the results are similar in terms of increasing income being associated with lower probabilities of obesity for both boys and girls (see Figure 6).

¹⁵ Children under the age of three are not included in the sample because there is no commonly accepted way to establish body mass index (BMI) percentiles for children this young.

Along with BMI, there are other measures of obesity that can be examined when considering the relationship between income and obesity.¹⁶ For adults I consider waist circumference combined with BMI as a measure of obesity. Based on the criterion from http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/bmi_dis.htm, persons with BMIs above 25 and waist circumferences above 102 cm (men) or 88 cm (women) are considered at a similar level of risk for negative health outcomes as those with BMIs above 30 but without waist circumferences above those critical values. A similar story holds for persons with BMIs above 30 and waist circumferences above the critical values listed above – they are considered at a similar level of risk as those with BMIs above 30 but without a waist circumference above those critical values. As seen in Figure 7, there is not the decline in obesity as incomes increase one sees when just BMI is used. While those with incomes above 400% of the poverty line have lower rates of obesity under either measure than those with incomes below the poverty line, the intermediate income categories, in the main, have higher rates of obesity than those found among the poor. In Figure 8, breakdowns by gender over these measures are displayed. Two things are worth emphasizing. First, for men, the extent of obesity is actually higher for those with incomes over 400% of the poverty line in comparison to those with incomes under the poverty line. This is similar to the result found for the over 30 BMI measure found in Figure 4. In contrast, for women, there is a secular decline as income increases, similar to Figure 4. Second, while the proportions of men found to be obese in Figure 8 are slightly higher than in Figure 4, the proportions of women found to be obese in Figure 8 are substantially higher than in Figure 4.

¹⁶ There have been several other studies that have examined the relationship between obesity and income including, for adults, e.g., Chang and Lauderdale, 2005; Garcia Vilar and Quintana-Domeque, 2009; Jolliffe, 2011; McLaren, 2007; Reynolds and Himes, 2007; Wardle et al., 2002; and Zhang and Wang, 2004 and, for children, e.g., Margerison-Zilko and Cubbin, 2013; Phipps et al., 2006; Shrewsbury and Wardle, 2008; To the best of my knowledge, this is the first time the relationship between income and non-BMI measures of obesity has been examined.

Turning to children, tricep skinfold and subscapular skinfold are two ways of measuring obesity in children. Here we use the 95 percentile thresholds established in Addo and Himes (2010). In Figure 9 the results are displayed in a manner akin to Figure 5. The patterns are similar in the two figures insofar as increased incomes are associated with lower levels of obesity whether measured by BMI, tricep skinfold, or subscapular skinfold. In Figure 10 the results are broken down by gender. For girls, the patterns with both skinfold measures are similar to those with BMI – a steady decline in obesity as income increases. For boys, the pattern is slightly different between Figures 6 and 10 – there is a slight increase in obesity rates for skinfold measures as income increases (in contrast to BMI) and the drop is especially marked in Figure 10 for children in households with incomes between 3 and 4 times the poverty line to those with incomes above 4 times the poverty.

In general, empirical evidence points to higher incomes being associated with lower probabilities of obesity and severe obesity. And, this, in general, holds with alternative measures of obesity. As a consequence, one's prior, with the exception of adult men, is that mechanisms like SNAP that would increase the ability to purchase food would lead to declines in the probability of being obese.

Findings Regarding the Effect of SNAP on Obesity

Given the empirical evidence presented above, it may be unlikely that receiving more money to purchase food will lead to increased probabilities of obesity. As such, we would anticipate that SNAP recipients are less likely to be obese than eligible non-recipients. It may be the case, though, that SNAP recipients are more likely to be obese than non-recipients. This could occur if, for example, households that choose to enter the program are those that are more

prone towards higher weights. A third possibility is that SNAP has no impact on the probability of obesity of SNAP participants. This could occur if, for example, the extra money received by participating in SNAP is not enough to change outcomes.

The literature looking at SNAP and obesity has found evidence of each of these three possibilities. I now turn to a selection of these studies. Insofar as SNAP participants are unlikely to be similar to eligible SNAP non-participants over unobserved characteristics, I limit myself to studies which address this selection issue. In discussing each of these, I concentrate on what the authors perceive to be the central findings from their work.

Two studies have found positive effects of SNAP on obesity for at least a subset of the population. *Meyerhoefer and Pylypczuk (2008)* used data from the combined cross-sections of the 2000-2003 Medical Expenditure Survey (MEPS). They find that female SNAP participants are 5.9% more likely to be overweight or obese than eligible female non-participants. For men, however, there is no statistically significant impact of SNAP participation on weight status. The second study to find a positive impact of SNAP on obesity is *Baum (2011)*. Like Meyerhoefer and Pylypczuk, he finds a positive impact for women but not for men. While the result is statistically significant, Baum notes that the “...effects are relatively small...”

The majority of studies have found that SNAP has no effect on obesity for any subset of the population. Using longitudinal data from the National Longitudinal Study of Youth (NSLY) 1979 restricted to adult women, *Fan (2010)* finds no evidence of a relationship between SNAP participation and obesity. This result is for both short-term and long-term participation and after performing several robustness checks. *Baum (2012)* considers whether or not SNAP promotes excessive weight gain during pregnancy with data from the NSLY 1979. He finds that while SNAP does decrease the probability of gaining too little weight during pregnancy, SNAP

participation does not lead to increases in the probability of gaining too much weight. Some have argued that the pattern of higher rates of obesity among low-income households is due to SNAP participation. If this were the case then the gap between low-income Americans and non-low-income Americans would persist over time. *Ver Ploeg et al. (2007)* find, using a series of cross-sections from the National Health and Nutrition Examination Survey (NHANES) find that this gap has not persisted and, in fact, has narrowed over time. Also using the NHANES, *Kreider et al. (2012)* find that SNAP participants are between 3.3 percentage points and 47.4 percentage points less likely to be food insecure than SNAP non-participants but the result is not statistically significantly different from zero.

A third set of studies find that SNAP participation leads to reductions in the probability of obesity. In a sample of boys and girls between the ages of 5 and 18 from the NSLY 1979, *Schmeiser (2011)* finds that boys and girls between the ages of 5 and 11 and boys between the ages of 12 and 18 who participate in SNAP have lower probabilities of overweight and obesity than eligible non-participants. Among girls between the ages of 12 and 18, SNAP participation has no statistically significant effect on the obesity or overweight. Other studies have examined the contemporaneous impact of SNAP participation but *Hoynes et al. (2012)* use data from the Panel Study of Income Dynamics and information on the roll-out of food stamps from 1961 to 1975 to consider the effect of participation in SNAP in childhood on adult obesity. They find that participation in SNAP in childhood leads to reductions in the probability of obesity in adulthood. *Burgstahler et al. (2012)* used a data set composed of households with children in counties with poverty rates over 20% from three states –Illinois, Iowa, and Michigan. They find, that children in SNAP participating households are less likely to be overweight than children in non-participating eligible households. This effect is strong – for each 10% increase in SNAP

participation rates, there would be a 5.7% decrease in rates. These three studies demonstrate that, even though SNAP is not designed to reduce someone's probability of obesity, there is evidence that this is occurring as one of the indirect effects of SNAP.

Potential Consequences of Proposals to Limit Purchases with SNAP

The above discussion provides some context about the role SNAP may play, in its current configuration, in addressing the issue of obesity in the United States. There have been several recent proposals that have sought to fundamentally change the structure of SNAP with the stated goal of reducing obesity among low-income Americans. I now cover these proposals. Following that, I consider the potential consequences of these proposals.

Proposals to limit SNAP purchases

Over the past 50 years, there have been multiple attempts to restrict purchases of certain food items. These attempts arise from desires to "improve the nutrient intake of recipients," prohibit recipients from purchasing "luxury items", or stigmatize certain food products.¹⁷ The most recent proposals have generally concentrated on restricting specific categories of foods deemed as "unhealthy foods" or "junk foods".

The most highly publicized and discussed effort to restrict SNAP purchases was contained in a waiver request to USDA by the New York Department of Health and Mental Hygiene and Human Resources Administration (2010). This waiver request, which was turned down by USDA, would have banned SNAP recipients from using SNAP benefits to purchase most any beverage with more than 10 calories per 8-ounce servings. This ban would have

¹⁷ Some have also argued that, irrespective of the impact purchases of certain products may have on recipients, the government should not be involved in promoting certain food items.

included things such as sports drinks (e.g., Gatorade, Powerade), soda (e.g., Coca-Cola, Mountain Dew), vegetable drinks (e.g., V8), and iced tea drinks. Other products with more than 10 calories per 8-ounce serving would still have been allowed, though, including milk, milk substitutes, and 100% fruit juices.

There have been other state-level efforts. In Maine, a proposal by Governor LePage (LD 1411) would not allow SNAP benefits to be used to purchase any product that is subject to the state sales tax (Stone, 2013).¹⁸ This would primarily rule out the purchase of certain beverages and snack items with SNAP benefits. In Wisconsin, a proposal by Representative Dean Kaufert would not restrict the purchase of any individual items but would instead impose limits on the proportion of SNAP purchases that could be made (Clark, 2013). A SNAP recipient would have to use two-thirds of their SNAP benefits to purchase “healthy foods” where this list is taken from a list of foods approved for purchases with WIC benefits and then some other foods are added.¹⁹ The other one-third of SNAP benefits could then be used to purchase whatever foods a recipient chooses. This proposal differs from the other proposals covered above as eligible purchases would be defined by (a) a list of approved items (rather than restricted items) and (b) what has already been purchased by a recipient. How exactly this would be implemented was never articulated in the proposal but it was approved by the Wisconsin State Assembly (Marley and Stein, 2013). Governor Haley in South Carolina has also proposed making restrictions on what can be purchased (Holleman, 2013).

These proposals for restrictions mirror previous state proposals. For example, in 2004, Minnesota requested a waiver from the USDA to prevent SNAP recipients from using SNAP benefits to purchase certain food items. These items generally fell under the category of “candy”

¹⁸ In Maine, unless otherwise taxed, there is no sales tax for food items.

¹⁹ Some foods that are often considered healthy – for example, organic foods – would generally be banned for purchase under the “2/3 of healthy foods rule” because most organic foods cannot be purchased with WIC benefits.

but some items commonly thought of as “candy” were exempted from this restriction if they contained flour. For example, Kit Kat bars were exempt from this restriction but Hershey bars were not. Like other waiver requests, this was not approved by the USDA (Holden, 2004).

National-level proposals have surfaced as well. One from Senator Coburn (OK), in “Coburn Amendment number 421”²⁰ to the Senate Budget, proposed that no junk foods be allowed for purchase with SNAP benefits. A later proposal by Senator Coburn (OK), “Coburn Amendment number 1000”²¹ was added to the Farm Bill.

Potential consequences of imposing restrictions

The stated goal underlying each of the proposals to restrict SNAP purchases is that these restrictions will lead to reductions in obesity among low-income Americans. As with many new policies, it is unclear whether or not this goal will be achieved.²² The goal may be achieved if households do decide to substitute consumption of “unhealthy foods” for “healthy foods” and, as a further step, this substitution leads to reductions in weight. In theory, there is no guarantee this will hold insofar as virtually all SNAP recipients are inframarginal (see, e.g., Breunig and Dasgupta, 2005) and, therefore, recipients may just reallocate the distribution of food purchases out of SNAP and out of cash. Even if there was a total reallocation of purchases of “healthy foods”, for reasons discussed below, it is not clear whether or not this policy would lead to reductions in obesity. An indirect way that these restrictions may lead to reductions in obesity is

²⁰ http://www.coburn.senate.gov/public//index.cfm?a=Files.Serve&File_id=b542226b-c7d9-4206-9f05-25b647742ca6

²¹ http://www.coburn.senate.gov/public//index.cfm?a=Files.Serve&File_id=ef26c43b-db74-4a86-8d44-4a545a731673

²² Even if persons believe that SNAP leads to increases in the probability of obesity, the reasons for why government policy should be directed towards changing people’s weight status are not altogether clear. One reason that is sometimes given is that there are negative externalities associated with obesity. However, there is no clear evidence of these negative externalities. For more discussion about why government should or should not be involved in this realm see Bhattacharya and Sood (2011) and Lusk (2013).

via the decline in the number of SNAP recipients. While, as covered above, there is no clear evidence that SNAP leads to increases in obesity, some in favor of restrictions on purchases implicitly believe that there is evidence of this.²³ For reasons discussed in what follows, the imposition of SNAP restrictions will lead to a decline in the number of participants – according to those who believe that SNAP is associated with increases in obesity, even if there is no net change in “healthy” and “unhealthy” foods, the decline in SNAP participation will lead to reductions in obesity.

The restrictions on SNAP purchases may also lead to an increase in obesity in the United States. Most of the evidence shows that SNAP (as currently constructed) leads to reductions in obesity or, at the very least, no change in obesity. As a consequence, making changes to SNAP which lead to declines in participation (see below) could lead to increases in obesity. Or, to put this a different way, this will lead to reductions in income which, as seen in Figures 3 through 6, generally leads to increases in obesity.

While the potential effect of restrictions on SNAP purchases on obesity in the United States is ambiguous, the effect of these restrictions on the overall well-being of low-income Americans is relatively clear. I now turn to the negative impact these restrictions would have on low-income Americans.

As covered above, SNAP participants have been shown, among other things, to have lower probabilities of food insecurity, poverty, and low birth weights and higher levels of food expenditures and nutrient intakes. If the participation rate among SNAP eligible households was to decline, in the aggregate, the well-being of low-income Americans would decline. These

²³ Other proponents of imposing restrictions may acknowledge that research demonstrates SNAP does not lead to increases in obesity but, nevertheless, think that SNAP can do more in efforts to reduce obesity in the United States. Irrespective of the reasons for wanting to change the structure of SNAP, the consequences due to restrictions discussed in this section remain the same.

restrictions would lead to declines in participation insofar as they would lead to increases in stigma and transactions costs. I now turn to each.

Increases in stigma Restrictions on SNAP benefits would increase the stigma associated with SNAP, as participants would feel singled out as being irresponsible and incapable of making well-informed food purchases. Participants also would be worried when making purchases that some of what they have purchased is not eligible for SNAP. This information, which can be stigmatizing, would then be revealed to others in the check-out line either through a request by the cashier to provide cash or other funds to make the purchase of those items or by having to make a request of the cashier to remove the items from the purchase. SNAP restrictions also send a negative message about the program in general, by implicitly assuming that SNAP recipients have worse diets and are more likely to be obese.

That restrictions would lead to increases in stigma has also been recognized by the USDA. To use their words, in response to a request for restrictions by Minnesota, "...such a program change could add confusion and embarrassment at the point of sale when program recipients attempt to purchase food items once allowable but now deemed ineligible. Moreover, implementation of this waiver would perpetuate the myth that FSP participants do not make wise food purchasing decisions. (Holden, 2004)"

Increases in transaction costs In deciding whether or not to receive SNAP, there are several costs that recipients need to incur. Restrictions on SNAP purchases would further increase these transaction costs over two main dimensions.

First, SNAP recipients will need to spend more time figuring out which food items are eligible for purchase with SNAP benefits and which are not. In stores where "SNAP eligible" or "SNAP ineligible" is clearly and correctly displayed, ascertaining which are eligible would be

straightforward upon arriving at the food retailer. But in stores without such displays, SNAP recipients would need to ascertain this information on their own (i.e., the opportunity cost of shopping with SNAP is higher).

Second, the number of stores accepting SNAP benefits would be likely to decline if restrictions were put into place. This is due to the higher costs to stores associated with implementing these restrictions and, in response, many stores will simply choose not to accept SNAP benefits rather than incur those higher costs. This would raise the transaction costs to SNAP recipients because they would have to go further to use their SNAP benefits.

Conclusion

SNAP has proven to be one of the most successful safety net programs since its implementation 50 years ago. This program has often come under attack throughout its history for many perceived problems (e.g., that it discourages labor force participation). Most recently, SNAP has come under attack for being perceived as one of the causes of the current rates of obesity found in the U.S. One response that has gained some traction is to restrict what can and cannot be purchased with SNAP.

As covered here, there is very little evidence that SNAP is associated with higher probabilities of obesity among participants in comparison to eligible non-participants. In contrast, there is clear evidence that (a) SNAP improves the well-being of recipients over numerous dimensions and (b) imposing restrictions will lead to declines in participation. In light of this evidence, policymakers and program administrators should be reluctant to make fundamental changes to a program as successful as SNAP.

Figure 1

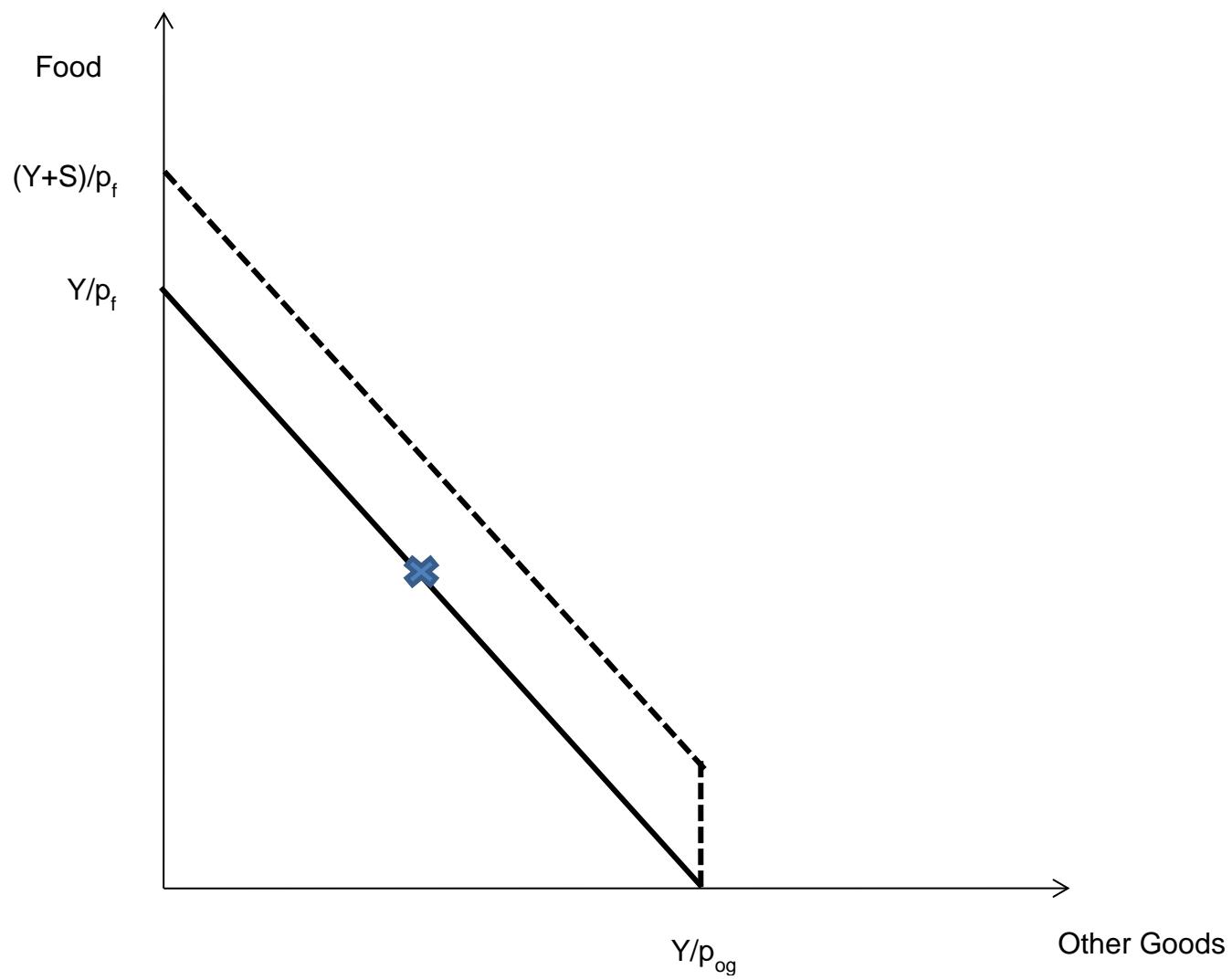


Figure 2

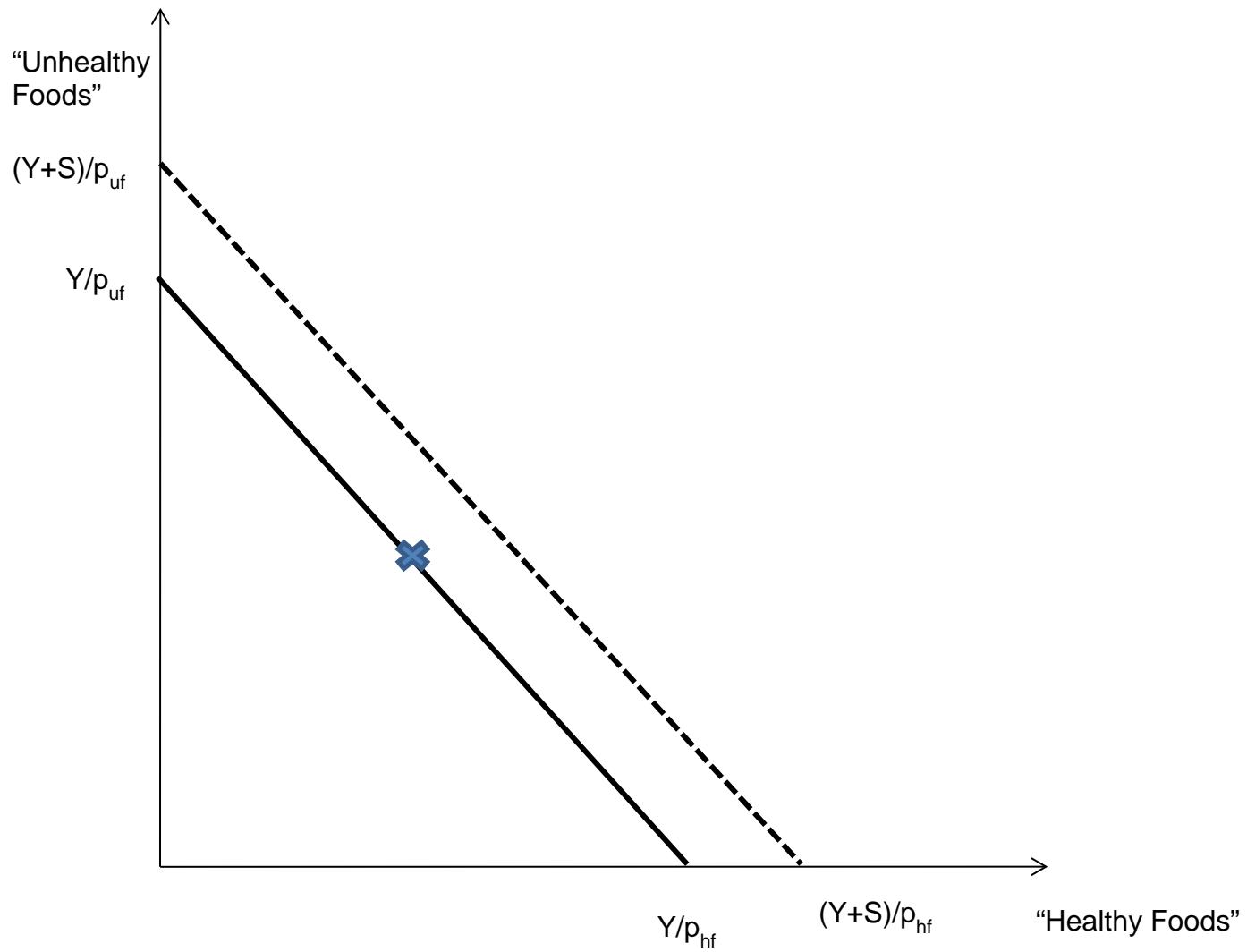


Figure 3: Obesity Status of Adults by Income to Poverty Line Ratio, 2001-2010

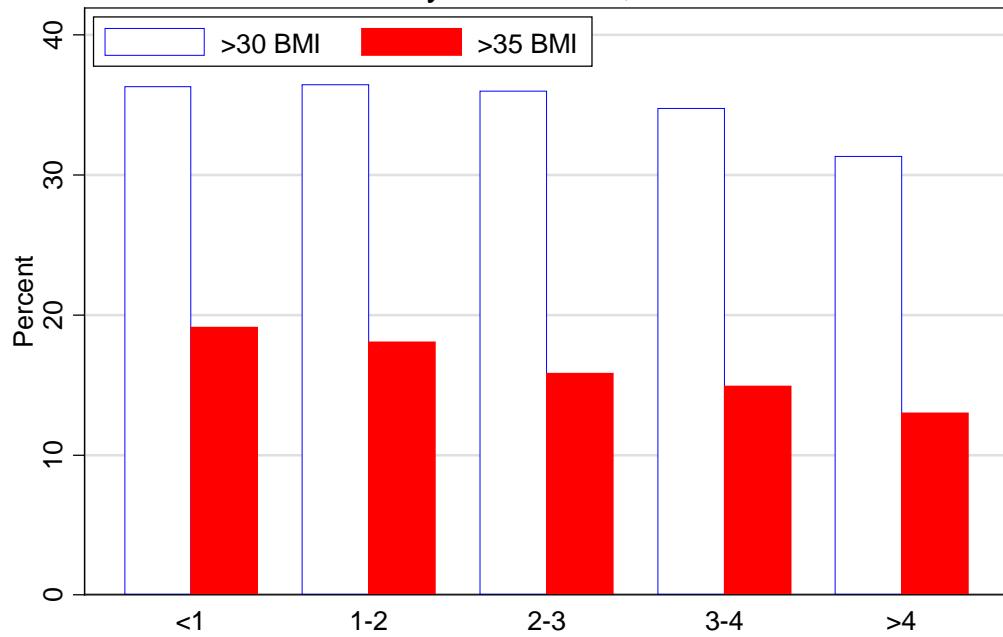


Figure 4: Obesity Status of Adults by Income to Poverty Line Ratio, 2001-2010: By Gender

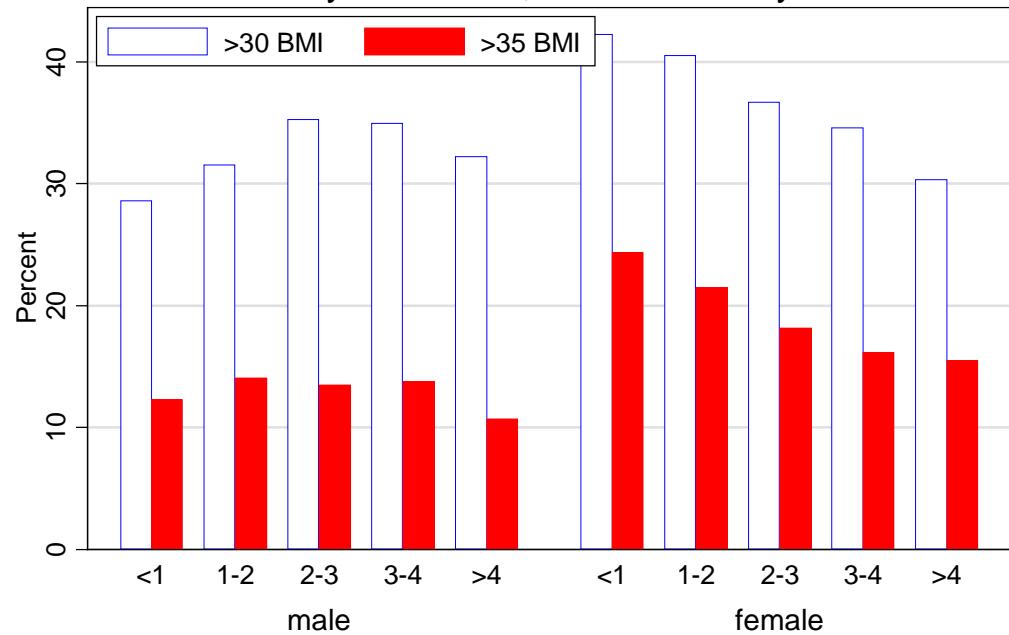


Figure 5: Obesity Status of Children by Income to Poverty Line Ratio 2001-2010

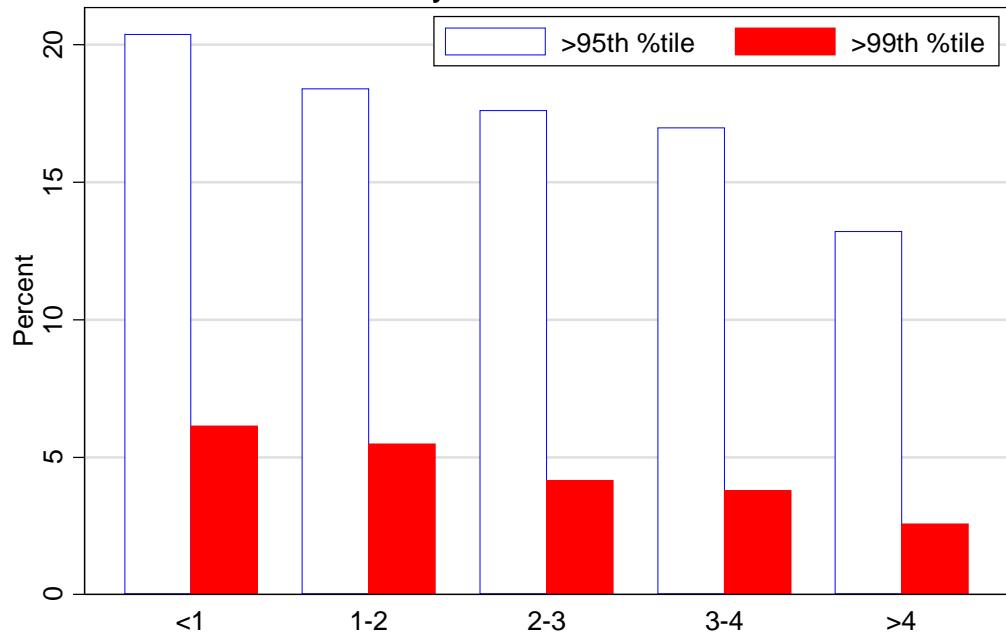


Figure 6: Obesity Status of Children by Income to Poverty Line Ratio 2001-2010: By Gender

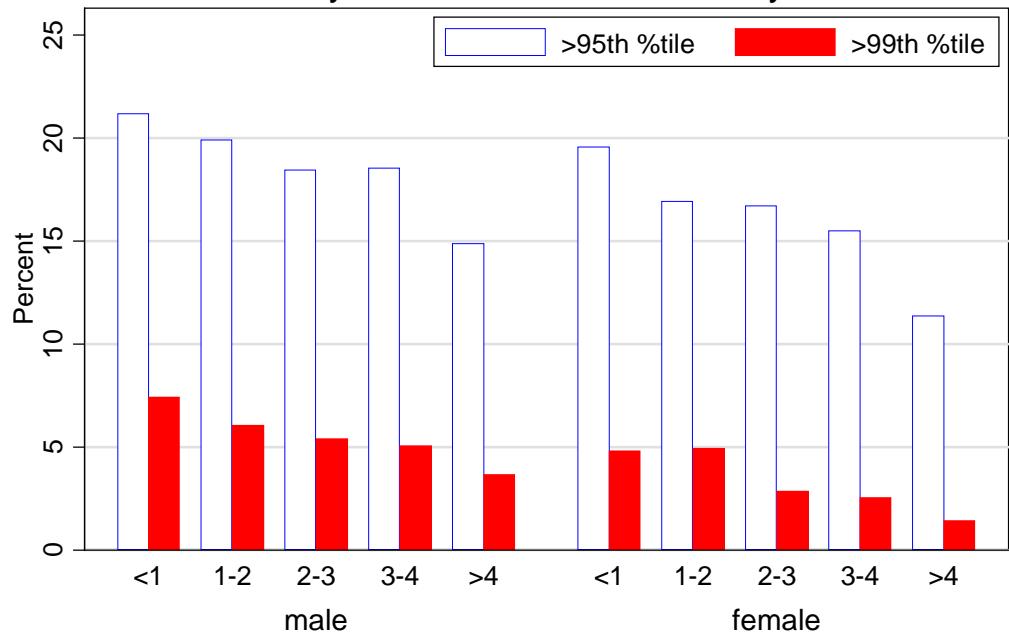


Figure 7: BMI and Waist Circ. Status of Adults by Income to Poverty Line Ratio, 2001-2010

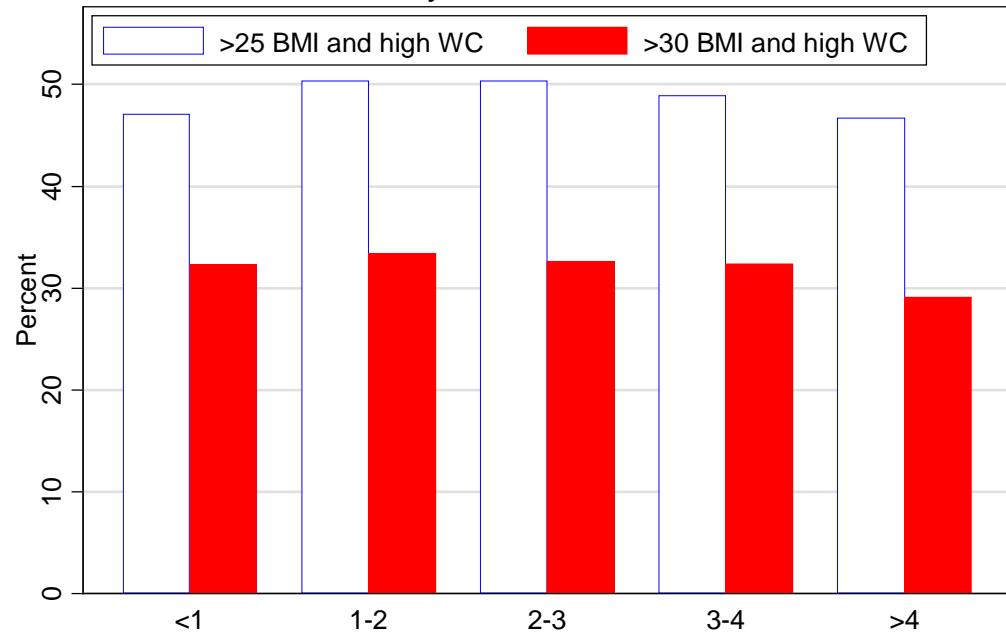


Figure 8: BMI and Waist Circ. Status of Adults by Income to Poverty Line Ratio, 2001-2010: By Gender

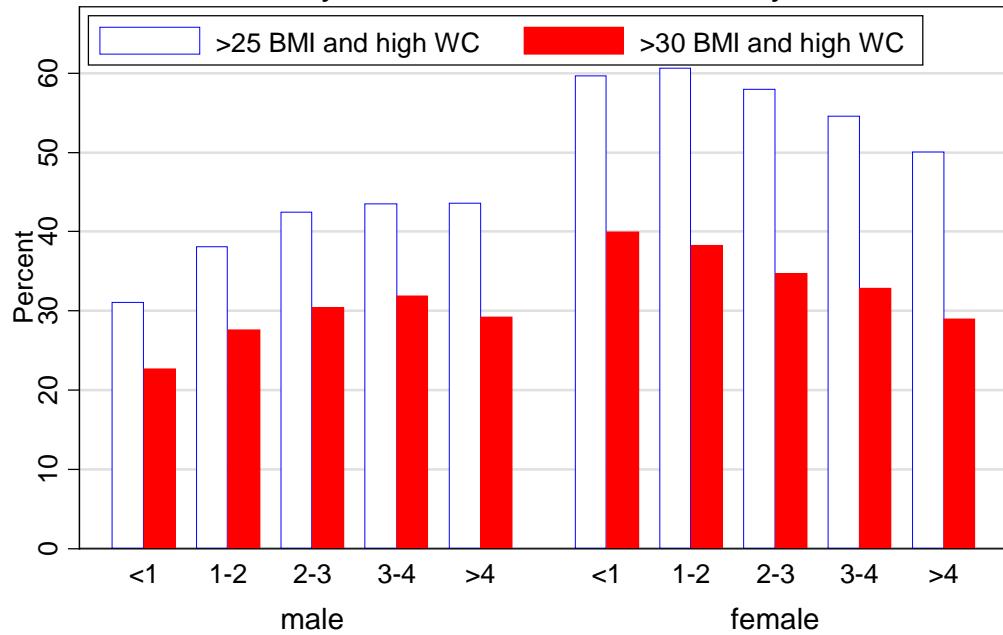


Figure 9: Direct Indicators of Obesity for Children by Income to Poverty Line Ratio 2001-2010

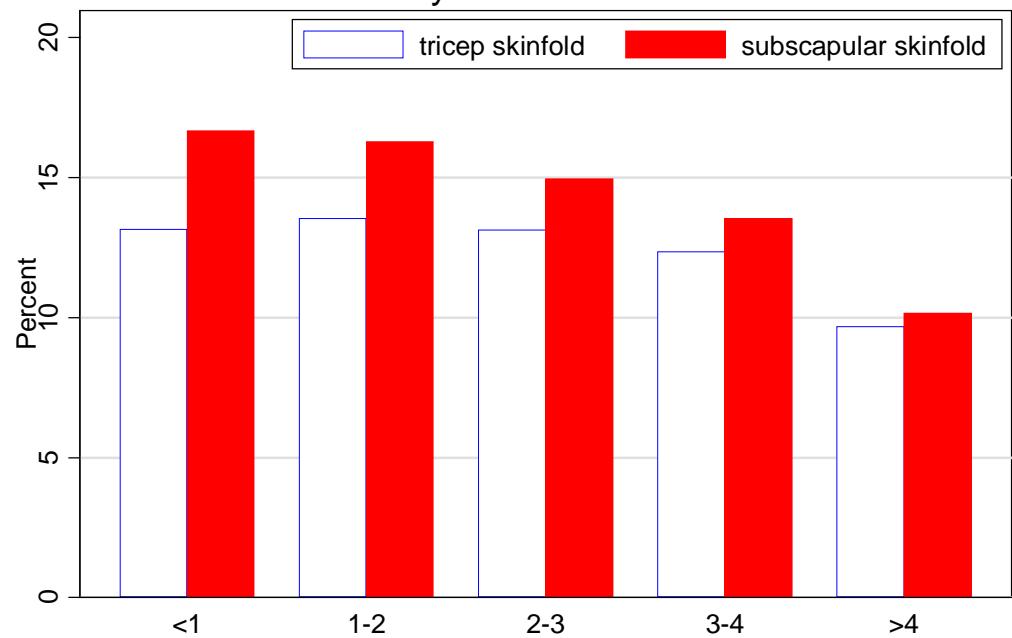
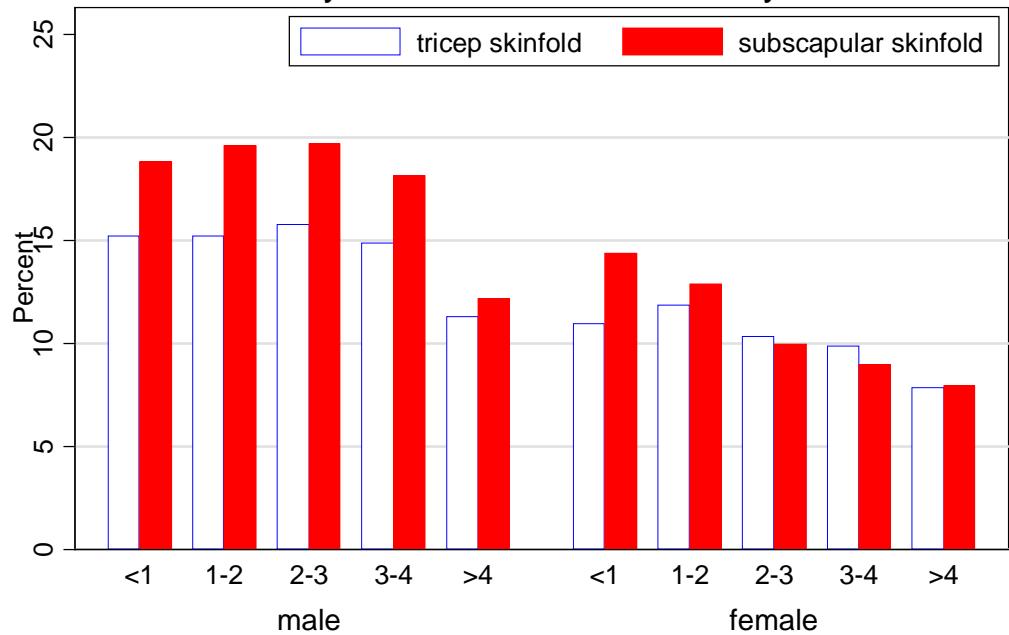


Figure 10: Direct Indicators of Obesity for Children by Income to Poverty Line Ratio 2001-2010: By Gender



References

Addo O, Himes J. Reference curves for triceps and subscapular skinfold thicknesses in US children and adolescents. *Am J Clin Nutr* 2010;91:635-42

Almond D, Hoynes H, Schanzenbach D. Inside the war on poverty: The impact of food stamps on birth outcomes. *The Review of Economics and Statistics* 2011;93(2):387-403.

Basiotis P, Brown M, Johnson S. Nutrient availability, food costs, and food stamps. *American Journal of Agricultural Economics* 1983;65:685-93.

Basiotis P, Johnson S, Morgan K. Food stamps, food costs, nutrient availability and nutrient intake. *Journal of Policy Modeling* 1987;9:383-404

Baum C. The effects of food stamp receipt on weight gained by expectant mothers. *Journal of Population Economics* 2012;25(4):1307-1340.

Baum C. The effects of food stamps on obesity. *Southern Economic Journal* 2011;77(3):623-651.

Bhattacharya J, Sood N. Who pays for obesity? *Journal of Economic Perspectives* 2011;25(1):139-158.

Bishop J, Formby J, Zeager L. The impact of food stamps on U.S. poverty in the 1980s: A marginal dominance analysis. *Economica*, 1996;63:S141-S162.

Breunig R, Dasgupta I. Food stamp cash-out puzzle. *American Journal of Agricultural Economics* 2005;87(3):552-568.

Burgstahler R, Gundersen C, Garasky S. The Supplemental Nutrition Assistance Program, financial stress, and childhood obesity. *Agricultural and Resource Economics Review* 2012;41(1):29-42 .

Carmichael S, Yang W, Herring A, Abrams B, Shaw G. Maternal food insecurity is associated with increased risk of certain birth defects. *Journal of Nutrition* 2007;137:2087-2092.

Chang V, Lauderdale D. Income disparities in body mass index and obesity in the United States, 1971-2002. *Archives of Internal Medicine* 2005;165:2122-2128.

Chavas J, Yeung M. Effects of the Food Stamp Program on food consumption in the Southern United States. *Southern Journal of Agricultural Economics* 1982;14(1):131-39.

Clark, F. Wisconsin bill to limit use of food stamps for junk food would restrict organic foods, Democratic lawmaker says. *Milwaukee Journal Sentinel*, May 7. 2013.

Connor Gorber S, Tremblay M, Moher D, Gorber B. A comparison of direct vs. self-report measures for assessing height, weight and body mass index: A systematic review. *Obesity Reviews* 2007;8(4):307-26.

Cook J, Frank D, Berkowitz C, Black M, Casey P, Cutts D, et al. Food insecurity is associated with adverse health outcomes among human infants and toddlers. *Journal of Nutrition* 2004;134:1348-1432.

Cook J, Frank D, Levenson S, Neault N, Heeren T, Black M, et al. Child food insecurity increases risks posed by household food insecurity to young children's health. *Journal of Nutrition* 2006;136:1073-1076.

Currie J, Gahvari F. Transfers in cash and in-kind: Theory meets the data. *Journal of Economic Literature* 2008;46(2):333-83.

DePolt R, Moffitt R, Ribar D. Food stamps, temporary assistance for needy families and food hardships in three American cities. *Pacific Economic Review* 2009;14:445-473.

Devaney B, Fraker T. The effect of food stamps on food expenditures: An assessment of findings from the Nationwide Food Consumption Survey. *American Journal of Agricultural Economics* 1989;71(1):99-104.

Devaney B, Moffitt R. Dietary effects of the Food Stamp Program. *American Journal of Agricultural Economics* 1991;73(1):202-11

Eicher-Miller H, Mason A, Weaver C, McCabe G, Boushey C. Food insecurity is associated with iron deficiency anemia in U.S. adolescents. *American Journal of Clinical Nutrition* 2009;90:1358-1371.

Fan M. Do food stamp contribute to obesity in low-income women? Evidence from the National Longitudinal Survey of Youth 1979. *American Journal of Agricultural Economics* 2010;92(4):1165-1180.

Flegal K, Kit B, Orpana H, Graubard B. Association of all-cause Mortality with overweight and obesity using standard body mass index categories: A systematic review and meta-analysis. *Journal of the American Medical Association* 2013;309(1):71-82.

Garcia Vilar J, Quintana-Domeque C. Income and body mass index in Europe. *Economics and Human Biology* 2009;7:73-83.

Gronninger J. A semiparametric analysis of the relationship of body mass index to mortality. *American Journal of Public Health* 2006;96:173-178.

Gundersen C, Kreider B. Bounding the effects of food insecurity on children's health outcomes. *Journal of Health Economics* 2009;28:971-983.

Gundersen C, Mahatamaya D, Garasky S, Lohman B. Linking environmental and psychosocial stressors and childhood obesity. *Obesity Reviews* 2011;12(501):e54-e63.

Hama M, Chern W. Food expenditure and nutrient availability in elderly households. *Journal of Consumer Affairs* 1988;22(1):3-19.

Heflin C, Corcoran M, Siefert K. Work trajectories, income changes, and food insufficiency in a Michigan welfare population. *Social Service Review* 2007;81(1):3-25.

Holden O. Letter to M. Gomez in response to request for waiver from State of Minnesota, May 4. 2004.

Holleman, J. SC food stamp restrictions face tall hurdles. *The State*, March 2. 2013.

Howard L. Does food insecurity at home affect non-cognitive performance at school? A longitudinal analysis of elementary student classroom behavior. *Economics of Education Review* 2011;30:157-176.

Hoynes H, Schanzenbach D. Consumption responses to in-kind transfers: Evidence from the introduction of the Food Stamp Program. *American Economic Journal: Applied Economics* 2009;1(4):109-139.

Hoynes H, Schanzenbach D, Almond D. *Long Run Impacts of Childhood Access to the Safety Net*. NBER Working Paper Series 18535. 2012.

Huang J, Matta Oshima K, Kim Y. Does food insecurity affect parental characteristics and child behavior? Testing mediation effects. *Social Service Review* 2010;84:381-401.

Johnson S, Burt J, Morgan K. The Food Stamp Program: Participation, food cost, and diet quality of low-income households. *Food Technology* 1981;35(10):58-70

Jolliffe D. Overweight and poor? On the relationship between income and the body mass index. *Economics and Human Biology* 2011;9:342-355.

Kirkpatrick S, Tarasuk V. Food insecurity is associated with nutrient intakes among Canadian adults and adolescents. *Journal of Nutrition* 2007;138:604-612.

Kirkpatrick S, McIntyre L, Potestio M. Child hunger and long-term adverse consequences for health. *Archives of Pediatric and Adolescent Medicine* 2010;164 (8):754-762.

Kline B, Tobias J. The wages of BMI: Bayesian analysis of a skewed treatment-response model with nonparametric endogeneity. *Journal of Applied Econometrics* 2008;23(6):767-793

Kreider, B, Pepper J, Gundersen C, Jolliffe D. Identifying the effects of SNAP (Food Stamps) on child health outcomes when participation is endogenous and misreported. *Journal of the American Statistical Association* 2012a;107(499):958-975.

Krueger P, Rogers R, Ridao-Cano C, Hummer R. To help or to harm? Food stamp receipt and mortality risk prior to the 1996 Welfare Reform Act. *Social Forces*, 2004;82(4):1573-1599.

Lee J, Frongillo E. Nutritional and health consequences are associated with food insecurity among elderly persons. *Journal of Nutrition* 2001;131:1503-1509.

Levedahl J. A theoretical and empirical evaluation of the functional forms used to estimate the food expenditure equation of food stamp recipients. *American Journal of Agricultural Economics* 1995;77:960-68.

Lusk J. "The Thin Logic of Fat Taxes." Chapter 8 in *The Food Police: A Well-Fed Manifesto about the Politics of Your Plate*. Random House: New York, NY. 2013.

Marley P, Stein J. Assembly passes bill requiring that most food stamp benefits go to purchasing healthy foods. *Milwaukee Journal Sentinel* May 7. 2013.

McIntyre L, Glanville T, Raine K, Dayle J, Anderson B, Battaglia N. Do low-income lone mothers compromise their nutrition to feed their children? *Canadian Medical Association Journal* 2003;198:686-691.

McLaren L. Socioeconomic status and obesity. *Epidemiologic Reviews* 2007;29:29-48.

Mehta N, Chang V. Mortality attributable to obesity among middle-aged adults in the United States. *Demography* 2009;46(4):851-872.

Meyerhoefer C, Pylypczuk Y. Does participation in the Food Stamp Program increase the prevalence of obesity and health care spending? *American Journal of Agricultural Economics*, 2008;90(2):287-305.

Moffitt R. An economic model of welfare stigma. *American Economic Review* 1983;73:1023-1035.

Muirhead V, Quiñonez C, Figueiredo R, Locker D. Oral health disparities and food insecurity in working poor Canadians. *Community Dentistry and Oral Epidemiology* 2009;37:294-304.

Mykerezi E, Mills B. The impact of Food Stamp Program participations on household food insecurity. *American Journal of Agricultural Economics* 2010;92(5):1376-1391.

New York Department of Health and Human Hygiene. *Removing SNAP Subsidy for Sugar-Sweetened Beverages: How New York City's Proposed Demonstration Project Would Work, and Why the City is Proposing It*. 2010.

Nord M, Golla A. *Does SNAP decrease food insecurity? Untangling the self-selection effect*. USDA, Economic Research Service. 2009;Economic Research Report No. 85.

Ogden C, Kuczmarski R, Flegal K, et al. Centers for Disease Control and Prevention 2000 growth charts for the United States: Improvements to the 1977 National Center for Health Statistics version. *Pediatrics*. 2002;109(1):45–60.

Phipps S, Burton P, Osberg L, Lethbridge L. Poverty and the extent of child obesity in Canada, Norway, and the United States. *Obesity Reviews* 2006;7:5-12.

Rainwater L. Stigma in income-tested programs. In: I. Garfinkel, editor. *Income Tested Programs: For and Against*. New York: Academic Press: 1982. 19-46.

Ranney C, Kushman J. Cash equivalence, welfare stigma, and food stamps. *Southern Economic Journal* 1987;53:1011–1027.

Ratcliffe C, McKernan S, Zhang S. How much does the Supplemental Nutrition Assistance Program reduce food insecurity? *American Journal of Agricultural Economics* 2011;93(4):1082-1098.

Reynolds S, Himes C. Cohort differences in adult obesity in the U.S.: 1982-1996. *Journal of Aging and Health* 2007;19:831-850.

Salathe L. The Food Stamp Program and low-income households' food purchases. *Agricultural Economic Research* 1980;32(4):33-41.

Schmeiser M. The Impact of long-term participation in the Supplemental Nutrition Assistance Program of child obesity. *Health Economics* 2012;21:386-404.

Seligman H, Laraia B, Kushel M. Food insecurity is associated with chronic disease among low-income NHANES participants. *Journal of Nutrition* 2009;140:304-310.

Seligman H, Bindman A, Vittinghoff E, Kanaya A, Kushel M. Food insecurity is associated with diabetes mellitus: results from the National Health Examination and Nutritional Examination Survey 1999-2002. *Journal of General Internal Medicine* 2007;22:1018-1023.

Senauer B, Young N. The impact of food stamps on food expenditures: Rejection of the traditional model. *American Journal of Agricultural Economics* 1986;68(1):37-43.

Shrewsbury V, Wardle J. Socioeconomic status and adiposity in childhood: A systematic review of cross-sectional studies 1990-2005. *Obesity* 2008;16:275-284.

Skalicky A, Meyers A, Adams W, Yang Z, Cook J, Frank D. Child food insecurity and iron deficiency anemia in low-income infants and toddlers in the United States. *Maternal and Child Health Journal* 2006;10(2):177–185.

Smallwood D, Blaylock J. Analysis of Food Stamp Program participation and food expenditures. *Western Journal of Agricultural Economics* 1985;10(1):41-54.

Stone, M. LePage proposal would bar food stamp use on junk food. *Bangor Daily News*, July 7. 2013.

Stuber J, Kronebusch K. Stigma and other determinants in TANF and Medicaid. *Journal of Policy Analysis and Management* 2004;23(3):509-530.

Stuber J, Schlesinger M. Sources of stigma for means-tested government programs. *Social Science and Medicine*, 2006;63(4), 933-945.

Stuff J, Casey P, Szeto K, Gossett J, Robbins J, Simpson P, et al. Household food insecurity is associated with adult health status. *Journal of Nutrition* 2004;134:2330-2335.

Tarasuk V. Household food insecurity with hunger is associated with woman's food intakes, health and household circumstances. *Journal of Nutrition* 2001;131:2670-2676.

Tiehen L, Jolliffe D, Gundersen C. *Alleviating Poverty in the United States: The Critical Role of SNAP Benefits*. USDA, Economic Research Service. 2012;ERR 132.

Ver Ploeg M, Mancino L, Lin B, Wang C. The vanishing weight gap: Trends in obesity among adult food stamp participants (US) (1976-2002). *Economics and Human Biology* 2007;5:20-36.

Wardle J, Waller J, Jarvis M. Sex differences in the association of socioeconomic status with obesity. *American Journal of Public Health* 2002;92:1299-1304.

Whitaker R, Phillips S, Orzol S. Food insecurity and the risks of depression and anxiety in mothers and behavior problems in their preschool-aged children. *Pediatrics* 2006;118:e859-e868.

Wu C, Eamon M. Need for and barriers to accessing public benefits among low-income families with children. *Children and Youth Services Review* 2010;32(1), 58-66.

Zhang Q, Wang Y. Socioeconomic inequality of obesity in the United States: Do gender, age and ethnicity matter? *Social Science and Medicine* 2014;58:1171-1180.

Ziliak J, Gundersen C, Figlio D. Food stamp caseloads over the business cycle. *Southern Economic Journal* 2003;69(4):903-919.

Ziliak J, Gundersen C, Haist M. *The causes, consequences, and future of senior hunger in America*. Special Report by the University of Kentucky Center for Poverty Research for the Meals on Wheels Association of America Foundation. 2008.