THE SOCIAL POLICY OF SNAP PARTICIPATION & EXPENDITURES:

AN EMPIRICAL ANALYSIS OF TOBACCO AND ALCOHOL

By

GRACE ELIZABETH BAGWELL

(Under the Direction of Jeffrey B. Wenger)

ABSTRACT

This dissertation examines the U.S. SNAP program, first by investigating the determinants of state level expenditure decisions on fraud and outreach and second by an empirical analysis of the impact of SNAP receipt on household tobacco and alcohol expenditures. Two theoretical frameworks are employed to motivate the legislative actor's decision-making--Schneider and Ingram's Social Construction Theory and Lerner's Belief in a Just World. Findings indicate that state legislative actors allocate increased burdens to low-income families in times of economic crisis. Other findings show a strong, positive selection effect into SNAP for smokers and drinkers, and a marginal income effect occurring from program participation.

INDEX WORDS: Policy Implementation, Food Stamps, Supplemental Nutrition Assistance Program, Social Construction, Belief in a Just World

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DEDICATION

To my parents, Steven and Gail Bagwell, for teaching me to ask meaningful questions, and for instilling the faith that answers exist.

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This dissertation is dedicated to my parents, but there are so many others who have given freely of their time and energy to make sure I have succeeded along the way. My sisters, Ashley and Anah, have been a consistent source of love and support. The birth of my nephew Brayden in the last year has forever changed us all, and has given new inspiration. My grandparents that I was blessed to know, James Clyde O'Shields and Garland and Eleanor Bagwell, raised me to be fiercely loyal to my loved ones and made sure I was stubborn enough to survive almost anything. I only wish that my grandfathers and my grandmother Grace could have seen me finish--they would have been so proud.

My education at Converse was the catalyst for this career path. My four years there taught me to think more critically about my place in the world, and the role I might play in challenging the status quos that need to be questioned. Most importantly, I learned to debate and to construct informed arguments while trying to understand others' points of view. Converse made sure that I became a "Dunn" girl, and the mentorship and friendship of Joe Dunn is the singular reason that I came to the University of Georgia in the fall of 2007, with the intent of one day completing a Ph.D.

During my time at UGA as a doctoral student, Joe Whorton was a mentor and a friend that gave me meaningful work and sparked an interest in poverty alleviation. My experience at the Fanning Institute was made possible by his belief that I could lead others when I did not think

I could. Other colleagues that inspired my work and encouraged me to succeed include Courtney Tobin, Skip Teaster, Maritza Soto Keen, David Meyers, Brendan Leahy, Carolina Darbisi, Lori Tiller, Kat Cason, Jan Coyne, and Becky Taylor.

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came to break the bad, we came to cheer the sad, we came to leave behind the world a better way." I love you.

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CHAPTER 1

INTRODUCTION: FOOD ASSISTANCE IN THE UNITED STATES

Ensuring food security for vulnerable families in the United States has been of principal concern to public administrators and policy makers for some time. Since the Great Depression of the 1930s, the federal government has attempted to increase food security for families in poverty through national policy initiatives. Though the current food stamp program has changed drastically since its original formulation, the policy goals of alleviating hunger and increasing food security and nutrition for the poor have remained the same.

There is sufficient evidence that food insecurity[1] is linked to serious negative health and social outcomes. Society as a whole suffers when a significant number of families are food insecure, as is currently the case with a national 15 percent food insecurity rate. Short and long-term health consequences of food insecurity include low birth weight; malnutrition; anemia; iodine deficiency; obesity; diabetes; depression and anxiety; and increases in the number of hospitalizations in the United States (Whitaker et. al, 2006; Rose-Jacobs et. al, 2008; Frank et. al, 2010). The absolute worst consequence of chronic, severe food insecurity is starvation and increases in morbidity and mortality (Adams et. al, 2003).

[1] Food insecurity is defined as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (Anderson, 1990). Food insecurity is a comprehensive term which envelops all manner of food-related acquisition challenges; of which hunger, malnutrition, nutrition deficiencies, and psychological and social costs of various kinds are symptoms. A review of the literature on food insecurity elicited five primary dimensions needed to identify and measure the presence of food insecurity: quantity of food; quality of food; access to food, and psychological, and social acceptability of acquisition (Sen, 1990; Dreze & Sen, 1992; Maxwell, 1992; Radimer, 1990; Gross, 2000; Radimer, 2002).

Adverse social consequences of food insecurity include poor educational performance and educational outcomes such as test performance, academic achievement, and graduation rates. Food insecurity has also been shown to have a negative impact on social and cognitive development in children (Jyoti, Frongillo, & Jones, 2005). There are clear patterns: the implications of household and individual food insecurity--especially childhood food insecurity--include serious adverse health and social outcomes, poor educational performance, increased burden on the healthcare system, and direct links to the perpetuation of poverty.

The long term cost of food insecurity is one our society can ill afford: chronic hunger is part of the cycle of poverty, preventing millions of Americans from fully participating in the economy and working toward the public good.

The U.S. Department of Agriculture is the administering agency for national food assistance programs; as of 2012, they spent over 50 percent of their total budget on food assistance (USDA, 2012). The premier food assistance program in the United States is the food stamp program, the name officially changed to the Supplemental Nutrition Assistance Program (SNAP) in 2008. SNAP is one of the largest social welfare programs in the country. In 2011 alone, SNAP expenditures totaled $78 billion and enrollment in the program increased to an unprecedented 15 percent of the American population (USDA, 2012). This growth was largely owing to the recession and expansion of program benefits under the American Reinvestment and Recovery Act (2009). The amount of money being spent on food assistance programs is evidence of its priority on the national policy agenda. However, the simultaneous increase of program expenditures and program enrollment has raised public scrutiny of the program.

Commitment of billions of dollars to food assistance programs annually has generated general and academic interest in how SNAP participation changes participants' behavior. As a

result of the interest in SNAP, there has been a significant amount of research on the program. Research includes the short and long term effects of food insecurity, and the effect of program participation on food insecurity. We know that food insecurity poses critical challenges to individual, household, and societal well-being. Subsequently, the government provides a substantial amount of food assistance annually through programs such as SNAP. The research on the determinants of state-level SNAP spending is sparse; thus far spending decisions have been modeled as independent predictors of program participation in their own right.

The mechanisms through which state spending decisions are made, however, are not altogether understood. Determinants of state-level policy implementation and expenditures are missing from the literature. I am not aware of any study looking at legislative decision making to predict selection into the program. Decision making effects participation, and we need to understand the process by which participation is being encouraged so that we can 1) see who is being served; and 2) know the programmatic effects on household behavior. It is therefore important to understand the political determinants of participation, what motivates selection, and how households respond to participating in the program.

Research has been conducted on the effect of SNAP at the household level; one area of this work concerns the relationship between food stamp receipt and household expenditures. However, almost all studies have focused on food expenditures alone, with many unsuccessful attempts at controlling for selection. There is little evidence of how food stamps alter consumption decisions. This lack of knowledge means that although the program has been extensively studied, there are still areas which are ripe for research. Using a quasi-experimental, multiple time series design and repeated cross sectional data, this dissertation models

participation in the food stamp program and the programmatic effects on tobacco and alcohol expenditures.

Legislative History

The legislative history of SNAP provides the context for this research, as the level of state autonomy has increased and has provided the opportunity to study the program. Over time, the program has expanded nationally but has devolved much of the decision making to states. Legislative history demonstrates the importance of state level autonomy in implementation of the program.

The Supplemental Nutrition Assistance Program (SNAP) is the major entitlement program for low-income households, with a long history of providing food assistance to families in need (Jensen 2002). SNAP is administered through the USDA's Food and Nutrition Services (FNS),[2] which manages SNAP at the national level and then relies on state agencies to conduct daily operation of the program.

The first Food Stamp Program (FSP) was launched in May of 1939 and lasted through the spring of 1943, as part of the social safety net implemented during the Great Depression. Twenty years later, federal policy was refocused on food assistance through President John F. Kennedy's first executive order which initiated a food stamp pilot program. The program was institutionalized and expanded by federal legislation through the Food Stamp Act (FSA) of 1964.[3] The FSP continued expanding through the 1970s; during this time, the primary food stamp policy debate was framed.

[2] SNAP Legislative History source is Food and Nutrition Services. (USDA, 2012).
[3] The FSA of 1964 included the requirement that food stamp recipients purchase the food stamps, and items eligible for purchase were limited to those intended for "human consumption except alcoholic beverages and imported foods" (USDA, 2011).

This debate centered on increasing food security while also preventing work disincentives and fraud for beneficiaries. National standards of eligibility, work requirements, and expansion were set in place and national expansion was guaranteed by July 1, 1974.[4] During this period, the Department of Agriculture began paying fifty percent of all state costs in administering the FSP. Major reform took place again in 1977, when the controversial purchase requirement was eliminated, as it was seen as a barrier to benefit access and program participation. For the first time, families eligible for the subsidy received paper food stamps without having to pay fifty percent of their value. Participation increased by 1.5 million over thirty days when the purchase requirement was eliminated.

As the program continued to expand after the termination of the purchase requirement, the FSP came under close legislative scrutiny in the 1980s-- coinciding with cuts in government spending across the board. Decreases in program spending were facilitated through additions of a gross income eligibility test, periodic reporting, retrospective budgeting, and a prohibition against using Federal funds for outreach, among others. The austerity trend continued until 1988 and 1990, when concerns about domestic hunger and malnutrition resurfaced as a prominent social and legislative issue. The Hunger Prevention Act of 1988 and the Hunger Relief Act of 1990 made federal outreach funds available for states and established the Electronic Benefit Transfer (EBT)[5] as an alternative to paper food stamps for issuing benefits to recipients.

[4] Benefits were also expanded to provide for drug addicts and alcoholics seeking treatment.

[5] Once an individual is found to be eligible for benefits and benefit amounts have been determined and authorized, an account is created in the recipient's name, food stamp benefits are deposited monthly, and a plastic card similar to a debit card is given to the benefit recipient. Several important improvements reportedly occurred as a result of the transition from paper stamps to EBT cards: reduced stigma around program participation, reduced fraud, increased documentation on food stamp transaction, and increased efficiency. All states were expected to have implemented the EBT system by 2004. Currently, EBT is utilized in all 50 states and the District of Columbia (USDA, 2012).

The next period of major reform occurred with welfare reform under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. Two major changes included new work requirements for "Able-Bodied Adults" and denying benefits to immigrants. Since that time, states have received more discretion and eligibility decisions for convicted drug felons and other areas are decided on a state-by-state basis.[6] The U.S. Farm Bills of 2002 and 2008 reauthorized the Food Stamp Program, which was renamed the Supplemental Nutrition Assistance Program (SNAP) in 2008.[7]

By August of 2008, the Department of Agriculture reported that the FSP had reached an historic high of 29 million benefit recipients per month.[8] Since that time, participation has continued to rise. The 2008 farm bill increased the Federal funding commitment by over 10 billion dollars through 2010. During and after the Great Recession participation rates have dramatically increased causing SNAP to be more salient than ever. Additional support for federal food assistance to low income families was provided through the American Recovery and Reinvestment Act of 2009, which allocated over twenty billion dollars to the SNAP program and resulted in participating SNAP households receiving an increase of approximately $80 per month. As of the end of 2011, over 46 million Americans were receiving SNAP benefits.

[6] While eligibility requirements and benefit amounts are federally mandated, states have some discretion in how the benefit amount is calculated for households through asset tests or vehicle requirements. In general, SNAP benefits are a function of a household's income, assets, and family size. A family is eligible for SNAP if their gross monthly income is less than 130 percent of the Federal poverty threshold (this figure amounts to $2,422 for a family of four in fiscal year 2012), a net monthly income of 100 percent of the Federal poverty threshold, and assets less than $2,000 in total value (USDA, 2012). In addition to income, the more family members in the household, the more SNAP dollars a family may receive. Benefits are allocated monthly. According to Food and Nutrition Services, the maximum monthly allotment for a family of four in 2012 is $668 (USDA, 2012).

[7] States have the autonomy to name the program as they choose, but are encouraged to follow the Federal example and to change the name to SNAP.

[8] Dramatic increases in SNAP enrollment in 2008 are linked to an increase in self-reported household food insecurity. During and after the Great Recession (which officially occurred from December of 2007 to May of 2009) household food insecurity rose considerably and has been sustained at record levels. In 2010, 14.5 percent of U.S. households were reported to be food insecure (Coleman-Jensen, et. al, 2011).

Two Areas of Interest: Outreach and Fraud Control

SNAP is a multi-billion dollar program which consists of several components, only one of which is benefit allocation. [9] Program expenditures are divided into three large categories: benefits, administrative costs, and program expenditures. Each state has a significant amount of discretion in how the SNAP policy is implemented, especially in the areas of administration and program expenditures.

Expenditures on SNAP benefits are fully funded by the Federal government. The responsibility for administrative and programmatic costs, however, is split between federal and state government. There are many administrative costs in allocating SNAP benefits at the state level. Some examples of administrative costs include recipient certification and monitoring, fraud control, quality control, and oversight of EBT processing systems. These administrative costs are funded at fifty percent by FNS and fifty percent by state governments. This means that for each dollar a state spends on administrative activities such as fraud and quality control, they are reimbursed 50 cents by the federal government. States are mandated to do a certain amount of quality control activities annually under the U.S. Farm Bill, but are not required to spend a specific amount on fraud. State variation in fraud expenditures provides an opportunity for research in policy implementation.

Programmatic costs are the third area of SNAP spending and are divided into three areas: education and job training; nutrition education; and outreach. Outreach activities might include advertising through television or newspapers to recruit eligible SNAP clients. Each state is reimbursed at the 50 percent rate for outreach activities to reach sub-populations in their area of service who may be eligible for but not enrolled in the SNAP program. States are encouraged

[9] The food stamp dollars allocated monthly to households enrolled in the program.

but not required to spend any funds on program expenses in outreach. For this reason, variation in outreach also provides an interesting opportunity for studying state-level policy implementation.

Thus far, I have introduced the issue of food insecurity, defined the problem, and explained the motivation for this research. The largest food assistance program in the nation, SNAP, has been presented as the central policy for study. The legislative history has been provided to explain the evolution of the program and the sources of state variation in policy implementation. Next, I give an overview of the content of the dissertation and an executive summary of my findings. I then close with a brief layout of the dissertation.

Introduction to Research Questions

My first research question is: what determines SNAP expenditure decisions for state-level legislators? In order to answer this question, the theoretical framework used to model policy makers' behavior is a combination of Schneider and Ingram's (1993) Social Constructions of Target Populations and Wenger and Wilkins' (2011) application of Belief in a Just World theory.

I focus on the recessionary period, from 2005 through 2010, which provides a particularly good testing period for the role of both Social Construction and Belief in a Just World in policy implementation. An economic crisis such as a recession is indiscriminate in who it effects-- many individuals find themselves unexpectedly unemployed. Consequently, legislators will be expected to act, responding to the crisis in an appropriate manner in order to maximize their chances of re-election and to be seen serving the public good. As need increases

during a recession, legislators will respond by increasing benefits to those in need. The allocation of benefits to the low-income target population is reserved for the "deserving" poor.

In addition, legislators will increase the allocation of burdens to the target population. At first this relationship seems counter-intuitive, yet unpacking the social construction of SNAP's target population and integrating the role of Belief in a Just World clarifies this relationship. While many people fall into poverty during a recession, and are subsequently seen as "deserving" of benefits, there is a duality in the nature of the target population. Many other people in poverty are conceptualized as "lazy," "undeserving," "dishonest," and even "criminals." In order to serve the "deserving" poor and provide accountability for the "undeserving" poor (protecting tax payer dollars), legislators will increase both benefits and burdens during times of economic recession. As time passes and the recession deepens, constituents and legislators become frustrated with the expansion of need, and respond by "blaming" the victims of the economy, justifying additional burdens for the target population.

Likewise, increased salience will effect benefit and burden allocation. News media coverage is one measure of increased awareness of the program. As mainstream media focuses on the program and the increase in participation and benefit allocation, legislative actors will increase benefits initially to meet the need. This will coincide with an increase in allocating burdens to send a signal to constituents that the program expansion is accompanied by increased accountability measures for program participants. Based on the literature and my interpretation of theory, I hypothesize four potential relationships:

H_1: As need increases, allocation of benefits (outreach dollars) to the target population will increase.

H_2: As need increases, allocation of burdens (fraud dollars) to the target population will increase.

H_3: As salience increases, allocation of benefits (outreach dollars) will increase.

H_4: As salience increases, allocation of burdens (fraud dollars) will increase.

To test these relationships, I constructed a panel data set that spans a six year period (2005-2010), and is representative of all 50 states plus the District of Columbia. The dependent variables are fraud control and outreach expenditures, respectively. Independent variables of interest are state-specific media coverage and the recession. Control variables include political and economic indicators and some demographic measures.

Findings indicate that during periods of economic hardship, such as a recession, fraud control expenditures increase significantly. As legislative actors seek to maximize reelection, they allocate increased burdens to low-income target populations in order to show they are controlling dependent groups who might "take advantage" of the system. However, legislative actors do not also increase outreach expenditures. Preliminary findings indicate that they do not use allocation of benefits as a policy tool during times of economic hardship.

Likewise, when news coverage increases policy salience, legislative actors over-subscribe burdens to SNAP's target population, allocating more fraud control expenditures for each news story published on the food stamp program the previous year. As salience increases, however, legislative actors fail to increase outreach dollars. Under-subscription of benefits to the target population was the hallmark this recession; as the news stories increased, legislative actors did not respond by increasing outreach for SNAP eligible families.

The policy implication of these findings indicate that legislators understand the social construction of the poor to be one that is negative: legislators expect the program to provide work disincentives and to encourage cheating the system, and that the program itself might lead

to additional bad behaviors in consumption. The influence of the target population's negative social construction on the policy outcome is that low-income households are punished for being constructed as lazy, undeserving, or even obese. These are the messages sent to the target population when burdens are increased during times of need.

The second central research question is: how does SNAP receipt affect household cigarette and alcohol expenditures? In order to answer this question, I first addressed the issue of selection into participation. Selection bias is a common problem in policy research because of the nature of policy programs: individuals choose, or select, to participate in programs such as SNAP based on some observable and some unobservable characteristics.

Selection bias is characterized as positive or negative, meaning that there are attributes that would make an individual more likely to participate in the program (positive bias) and there are attributes that would make an individual less likely to participate in the program (negative bias). If selection bias is positive, then the programmatic effects are overstated--the upper tail of the distribution might choose to participate because of more access or because they are better equipped to enroll in the program. Conversely, negative selection could be that people with lower performance or resources tend to select into the program, skewing the results and underestimating the effects of the program.

Using the variables of interest in the last chapter to motivate a selection equation, I construct a model that predicts program participation using state-level newspaper coverage, per capita fraud expenditures, and per capita outreach expenditures. I do this in order to correct for the threat to internal validity that selection bias poses. Three "selection" hypotheses are formulated to test the power of the instruments:

H_5: News media coverage of SNAP will positively influence program participation.

H_6: Fraud expenditures will negatively affect program participation.

H_7: Outreach expenditures will positively affect program participation.

I find support for H_5, for each additional news story published on the SNAP program in their state, households are .02% more likely to select into SNAP. However, I do not find statistical evidence that fraud control and outreach expenditures are significant determinants of program participation, once controlling for state fixed effects. Using the newspaper variable as an instrument, I construct a selection coefficient to use in the tobacco and alcohol equations.

Controlling for selection, the question then returns to how governmental food assistance affects household cigarette and alcohol expenditures? Technically, a household cannot use their SNAP subsidy to purchase non-food items (such as cigarettes or beer). The premise behind providing SNAP benefits for food items only is that recipients will purchase more of the subsidized items and will not be able to use public funds to purchase less "socially desirable goods" such as alcohol and cigarettes, for which I use the term 'sin goods' in this discussion (Hoynes & Schanzenbach, 2009). However, economic theory dictates that an in-kind transfer has a near cash effect on household consumer behavior, and any increase in income results in an increase in consumption of all normal goods.

Becker and Murphy's theory of rational addiction is the framework for my second research question. This theory assumes that individuals with addictions are rational and still operate to maximize their utility, even when an addiction is present. According to this theory, an income effect should still occur for households who receive a subsidy, as cigarettes and alcohol are considered normal goods. Using the rational addiction framework, I construct two hypotheses:

H_8: Controlling for selection, cigarette expenditures will increase for low income families receiving the SNAP subsidy.

H_9: Controlling for selection, alcohol expenditures will increase for low income families receiving the SNAP subsidy.

To model household behavior, I borrow from Gunderson and Oliveira (2001) and Wilde and Ranney (2000) to construct a model that first predicts program participation and then controls for selection using an exogenous instrument to predict household expenditures. Data are from the Bureau of Labor Statistic's Consumer Expenditure Diary Survey (2005-2010), and are pooled cross-sections. The dependent variables of interest are cigarette and alcohol expenditures. The independent variable of interest is an aggregate measure of income, which includes the SNAP transfer.

Controlling for selection, I find support for both hypotheses. Among households that spend money on cigarettes and/or alcohol, as income increases, expenditures increase. An income measure that includes the dollar value of SNAP benefits received shows that for every dollar increase in income, expenditures on tobacco and cigarettes increase by approximately 1 cent. In addition, I find evidence of a strong selection effect in both equations. Policy implications include the need for policy makers to consider incorporating smoking cessation programs into SNAP outreach and education programs. Nutrition education might also be an appropriate venue for incorporating information on alcoholism and addiction in general.

Layout of the Dissertation

Chapter 1 is an introduction to the subjects of study, background on the food stamp program and an overview of findings. Chapter 2 is a literature review of relevant work, including selection into the food stamp program and the relationship between SNAP receipt and consumer behavior. Chapter 3 presents the theoretical models employed as a framework for the empirical research and testable hypotheses. Chapter 4 introduces the data used to construct empirical models for testing and discusses the steps for data collection, cleaning, and coding. This includes a description of two different data sets: one that I constructed to test the SNAP implementation question and the other which is collected on a rolling basis by the Bureau of Labor Statistics. Chapter 5 presents empirical findings from the first research question regarding the determinants of program expenditures. Chapter 6 presents findings from the second question, an empirical investigation on the impact of SNAP receipt on household expenditures. Chapter 7 discusses policy implications and future research, and then concludes the dissertation.

CHAPTER 2

LITERATURE REVIEW

In order to answer my research questions, 1) what are the determinants of legislative actors' SNAP expenditure decisions? and 2) how does SNAP receipt effect cigarette and alcohol expenditures?, I conducted a literature review. Much attention has been given to selection into SNAP; the relationship between SNAP and food insecurity, obesity, and nutritional intake; health status of program participants; the impact of SNAP receipt on household food expenditures, shopping patterns, and geographic access to food. However, little attention has been given to determinants of policy implementation at the state level, or to the impact of SNAP receipt on household expenditures other than food.

This literature review is divided into three sections: the demographics of SNAP participation, the selection decision, and the impact of SNAP on consumer behavior. Each section covers the literature relevant to this dissertation's central research questions. While the issues of nutrition, health status, and food insecurity are important, only passing notice is given to each of these sub-fields in the SNAP literature.

The first two sections discuss the demographics of program participants and the determinants of program participation for low income households. The novelty of my contribution in this area will be in using existing evidence of state policy tools as instruments, as well as a measure of news media coverage of the food stamp program. The third area of

literature concerns SNAP's impact on consumer behavior and household expenditure patterns. Evidence has shown that SNAP induces an overall increase in food expenditures, but little is known about other areas of household expenditures such as tobacco and alcohol purchases.

SNAP Participation

A number of factors have been theoretically and empirically shown to influence food stamp participation. These include social, political, and demographic variables. What follows is a brief discussion on previous work predicting program participation and then a description of the approaches one might use to estimate the effect of participation on some outcome, y. I then move into a discussion of existing research which has used an instrumental variables approach to control for selection bias when studying the food stamp program.

There is a significant body of empirical evidence that relates food stamp take-up with shifts in the economy. For example, the increase in food stamp receipt in the early 1990s has been related to the economic downturn, while the decline in program participants in the mid-90's to 2000 coincided with a time of economic prosperity (Wilde et. al, 1999; Fox et. al, 2004). Likewise, the precipitous increase seen in the last few years is, at least in part, a function of the Great Recession and economic crises.

The relationship between SNAP participation and the economy is intuitive, but does not tell the whole story. Wilde, for example, shows that SNAP participation and unemployment rates diverge at several points in time (Wilde, 2001). One explanation is that key changes in policy and specific regulations influence program participation. The largest change in recent history occurred with the welfare reform act of 1996 (PWRORA), yet the policy has continued to evolve in small ways since then.

Research has found that participation is effected by both macroeconomic and microeconomic variables. Race, ethnicity, education, household structure, region, urban residency, and other characteristics have been found to influence food stamp take-up (Ejimakor & Achareke, 2006; Gunderson & Oliveira, 2001; McConnell & Ohis, 2001; Wilde et al, 2001; Nord, 2001). The presence of children in a household also directly impacts a household's decision to participate in the program (Wilde, 2004). Of participating households with children, more than 60 percent are estimated to be single parent households.

Almost all food stamp participants live in poverty, a 2003 study found that the monthly income of almost 90 percent of food stamp-receiving households live in poverty at 100 percent or less of the Federal Poverty threshold. In addition, research has indicated that approximately 90 percent of participating households include a vulnerable person: either a child, elderly, or disabled household member (Rosso, 2003; Tuttle, 2002). We also know from empirical research that families who use one source of support may be more likely to use multiple sources of support (Duffy, 2002; Bhattarai & Duffy, 2005).

There are also negative correlates that have been shown to deter a family from participating. Theoretical reasons include ignorance of the program, stigma, and transaction costs. The fact that a considerable percentage (between 25 and 60 percent, depending on the time of observations) of eligible households choose not to participate in the program begs the question as to why a family in need would elect not to participate. Research has shown that the inverse relationship between income and food stamp benefit amount eligibility may drive many families to elect not to participate, simply because the cost of participation in both stigma and transaction is not worth the process of application (Gunderson & Ziliak, 2003).

Income, education, marital status, and being Latino have also been shown to negatively impact a household SNAP participation decision (Fitzgerald, et. al, 2011). Another factor is the way in which benefits are issued: the switch from paper stamps to an EBT system has reduced stigma but has perhaps made it more difficult for clients unfamiliar with banking or debit cards to get benefits (Currie & Grogger, 2001; Kabbani & Wilde, 2003; Lacombe et al., 2012).

Many different factors influence the probability of whether a family will or will not participate in the food stamp program. Participation is only in part a function of the economy or a family's specific income. There are many demographic characteristics which are helpful in predicting participation, some of which have been outlined here. It is estimated that as of 2012, approximately 75 percent of eligible people were participating in SNAP (USDA, 2012). That number has fluctuated over time, moving from approximately 75 percent participation in 1994 to 58 percent in 1999 (Cunnyngham, 2002). The current participation rate is at its highest in almost twenty years, and the raw number of participants is the highest in history. This fact makes understanding the determinants of program participation more important than ever.

Researchers have taken a number of approaches modeling determinants of program participation, and the effect of food stamp receipt on a host of outcomes such as obesity, food insecurity, nutrition, and consumer behavior. Wilde (2007) outlines these approaches to estimate the effect of food stamps on food insecurity[10] and hunger. Most of these approaches are also more widely applicable to investigate the impact of food stamp receipt on any dependent variable of interest.

[10] Food insecurity is defined as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (Anderson, 1990). Food insecurity is a comprehensive term which envelops all manner of food-related acquisition challenges; of which hunger, malnutrition, nutrition deficiencies, and psychological and social costs of various kinds are symptoms.

The first approach is to regress the independent variable of interest (SNAP participation) on the dependent variable while controlling for other observables. However, the need to control for selection bias has been demonstrated by many empirical studies (Hoynes & Schanzenbach, 2009; Gunderson & Oliveira, 2001; Gibson-Davis & Foster, 2006). The second approach is an instrumental variables approach, which is used to predict program participation but not the outcome of interest. This approach requires a strong instrument that is exogenous to the dependent variable (Wilde, 2007; Yen et. al, 2008).

The third approach discussed by Wilde is to use panel data, done by Ribar & Hamrick (2003) and Wilde and Nord (2005). In the absence of a natural experiment or random assignment, panel data and accompanying estimation techniques are the best way to control for fixed effects. The fourth approach, as exhibited by Gibson-Davis and Foster (2006) is to use a propensity score matching technique. This technique allows for prediction of program participation for each person in the sample, and then compares the outcome of interest between individuals in the sample with similar propensity scores, or similar levels of probability for participation. However, one problem with this technique is the threat of unobservable match characteristics between the control and treatment groups.

The next approach is a natural experiment, where state specific program rules (or other such variation) are exploited so that a "quasi-experimental" research design is used. An example is Borjas' (2004) use of the welfare reform act of 1996 to examine the response of immigrants, who were no longer eligible for the program after the policy change. He examined their food security status before and after participation in the program by using the policy change as a way to control for selection bias. Other examples of using a natural experiment include two studies that used variation in weather patterns to predict the impact of home utility costs on food security

status (Bhattacharya et al., 2002; Nord & Kantor, 2006). However, researchers do not always have the opportunity to use such methods. A natural experiment must occur in order for this type of research design to be possible.

The last possible approach to estimating the impact of food stamps on a variable of interest is the classical random-assignment research design. A few studies of this nature have been possible because of food stamp "cash-out" demonstrations occurring in various cities or states (Fraker et al., 1992; Ohls et al., 1992). These studies estimated the effect of food stamp cash out on food spending, relative to the traditional food stamp on food spending (Fox et. al, 2004). However, creating random assignment trial with participants and non-participants is unethical and should be avoided (Wilde, 2007; Gibson-Davis & Foster, 2006).

Because this study uses the second approach, in which an exogenous instrument is identified to account for selection into SNAP, the next section focuses on previous work conducted that used the same approach. The use of instrumental variables is the standard approach in the literature, yet as Fox and coauthors argue, there have been "few valid instruments identified in the literature" (2004). This is because most studies on food stamp participation rely on national survey data which do not typically contain very many variables that could be used as an exogenous instrument. For this reason, some scholars have begun to use the method of merging state variation in policy or politics to control for selection bias.

Selection into SNAP

Research on SNAP turned toward a focus on the need to control for selection when numerous studies showed that SNAP participation was positively associated with food insecurity. The finding that food stamp participants are more likely than low-income non-

participants to experience the phenomenon of food insecurity is counter-intuitive, as the food stamp program should be linked to decreasing food insecurity. However, these studies did not control for selection. Many scholars have noted the presence of selection bias in estimates on programmatic effects, specifically citing that the bias must be corrected to glean accurate estimates (Wilde, 2005 & 2007; Hoynes & Schanzenbach, 2009). Researchers began to search for an appropriate method to control for selection bias, mostly turning to the instrumental variables method. Many different instruments have been used to predict program participation, yet scholars have yet to agree on one best way or instrument to control for the challenge of self-selection (Hamilton & Rossi, 2002).

Most of the studies cited in this section test the impact of SNAP receipt on some form of health status, including: food insecurity status, food insufficiency, obesity, overweight, and nutrient intake. Instruments used include state level political climate (Gunderson & Oliveira, 2001); predicted wage in labor force participation (Huffman & Jensen, 2003); the time it takes to travel to a grocery or food store as a measure of food access (Yen et al., 2008); SNAP eligibility changes after welfare reform (Borjas, 2004); the time period required for SNAP recertification as a measure for transaction costs and outreach expenditures (Kabbani & Wilde; 2003); outreach spending and EBT implementation (Kabbani & Yazbeck, 2004); state outreach spending and biometric technology implementation (Meyerhoefer & Pylypchuk, 2008; O'Brian et al., 2001); and state variation in the response to bans for immigrant participation after welfare reform (Kaushal, 2007). These studies cite just a few of the more widely used instruments that have been used to predict program participation before predicting the outcome of interest, so as to correct for selection into the program.

In the example of food stamp receipt and food insecurity, empirical evidence shows that once selection bias is appropriately controlled for, there is little statistical proof that higher food insecurity is experienced among SNAP participants, relative to non-participants. Two studies that control for selection to estimate the impact of SNAP participation on food insecurity were completed by Gunderson and Oliveira (2001) and Borjas (2004). Both of these found that after controlling for selection, SNAP decreased the level of food insufficiency and food insecurity experienced in a household.

While the lack of an appropriate instrumental variable has been of primary concern when using national survey data alone, using variation in state policy implementation decisions and other potential sources of state-level variation may potentially serve as robust instruments to eliminate (or at least lessen considerably) the threat of selection bias. As Gunderson and Oliveira argue, future research must focus on addressing sources of selection bias, and the increased "merging of administrative records with surveys may be especially helpful in addressing the final source of bias."

This reference to leveraging administrative records to predict selection speaks to the importance of variation in SNAP implementation. State legislative actors use discretion; there are many areas where states are able to make decisions on exactly how to implement the policy. Some of these examples include denying benefits to convicted felons, requiring shorter re-certification periods for current recipients, use of biometric technology to prove client identity, asset tests to determine eligibility for benefits such as vehicle requirements, and working requirements for "Able-Bodied Adults." Each of these are specific decisions that policy makers choose to include as program requirements. This is an example of Schneider and Ingram's benefit and burden allocation (see the Social Construction discussion below). Each of these

policy program requirements has an intended effect for the low-income target population--most of the extra requirements are "burdens" for clients, which will negatively influence selection into the program.

Allocation of benefits, however, are sometimes used as well to influence participation. Benefits might include longer periods between re-certification and online systems for application and renewal processes to make application easier. Other benefits include point of purchase incentives for healthy food purchases, investments in nutrition education, and investments in outreach to increase program enrollment for eligible non-participants. Policy makers use both of these tools to send specific messages to the target population and their constituents. The allocation of burdens and benefits is meant to have a direct impact on a household's program participation decision.

Evidence of the impact of administrative decisions on participation has been found in several empirical studies. In the first example, Yen and coauthors estimated the effect of SNAP participation on food insecurity, instrumenting program participation with whether a state implemented a short re-certification period for beneficiaries. Short re-certification periods mean that beneficiaries must go through the process of proving they are still eligible for the program more frequently. Yen found evidence of a negative selection effect associated with this increased burden: states implementing short re-certification periods saw a 7% decline in the likelihood of a family to participate in SNAP.

The second example comes from a study conducted by Kabbani and Yazbeck, in which they assess the effect of SNAP receipt on childhood hunger. Kabbani and Yazbeck used several policy variables to predict participation in a first stage equation. First, they use outreach spending and find that without state fixed effects, households in states spending money on

outreach are 1.3 times more likely to select into the program. There is no effect with state fixed effects. They also find that short re-certification periods negatively impact participation: without state fixed effects, households are 27% less likely to select into the program; with state fixed effects, households are 72% less likely to participate if a state has short re-certification periods.

Empirical evidence points to strong selection effects that are determined by allocation of benefits and burdens to policy beneficiaries. States implementing more stringent eligibility rules and regulations to remain on the rolls witness a significant decrease in the likelihood of an eligible household to participate in the program.

SNAP's Impact on Consumer Behavior

Most, if not all, research on the impact of SNAP receipt on consumer behavior has focused on the relationship between benefit receipt and food expenditures; the influence of benefit allocation timing and expenditure patterns, and the influence of SNAP receipt on adverse health outcomes such as obesity. Below is a review of the literature in these three areas.

Standard economic theory of rational behavior predicts that an increase in income (whether in the form of a food stamp card or cash) should increase the amount of food bought for household consumption. Several studies have focused on whether the subsidy in the form of a voucher for food or cash is more effective in increasing food expenditures (Southworth, 1945; Senauer & Young, 1986; Moffitt, 1989), and a significant body of evidence has mounted to show that the transfer of the benefit in the form of an EBT card is more likely to increase food expenditures than a cash transfer (Fox et al., 2004).

Literature on the economic impacts of the program has primarily centered on the income effect, which occurs as a result of food stamp receipt as a near-cash subsidy.[11] Meta-analyses of experimental and non-experimental studies found that food stamps generally have a strong positive effect on increasing food expenditures (Fraker, 1985). Moffitt's evaluation of the Puerto Rican food stamp cash out shows that food stamps have a pure income effect, because the benefits were sufficiently low enough relative to a household's total food budget such that houses would have spent more on food anyway. If the allotment of benefits falls below a household's total food budget, then the transfer will have the same "income" effect as a cash transfer, which is the case for the vast majority of food stamp recipients (Levedahl, 1995). Because of the income effect that occurs, however, food stamp receipt should in theory increase household expenditures on all normal goods—not just food alone.

Shopping Frequency

Other studies on the subject of programmatic impact on consumer behavior have looked at the timeframe in which benefits are spent. SNAP families are likely to spend their benefits quickly and at the beginning of the month (Jensen & Wilde, 2010). This phenomenon, known as the "boom and bust" cycle, is thought to be prevalent among food stamp recipients because of the level of hunger or food insecurity experienced by low-income participants (Wilde & Ranney, 2001). This line of research led directly to testing the impact of SNAP receipt on obesity.

[11] Smallwood and Blaylock, 1983; Moffitt, 1989
.

Obesity and Nutritional Intake

Some researchers have attributed the relationship between higher rates of obesity among SNAP participants to the boom and bust cycle, characterized by levels of high food security at the beginning of the month and low food security at the end of the SNAP monthly cycle. Others have argued that the issues are more complex and have called for more research to disentangle the complicated relationship between food assistance participation, obesity, and food insecurity (Rutten, et. al, 2010; Fan, 2010, Kimbro & Rigby, 2010; Leung & Villamor, 2011; Zagorsky & Smith, 2009). A recent boom in research on food insecurity and SNAP has shown that food insecurity is linked to adverse health outcomes such as obesity and malnutrition, is attenuated but not necessarily eliminated by SNAP participation, and is linked to higher SNAP participation than food secure households (Jensen & Wilde, 2010; Nord & Golla, 2009; Eisenmann, et. al, 2011; Larson & Story, 2011; Cook, Frank, & Berkowitz, 2004).

While there have been many studies over the last few years to explore the impact of benefit receipt on food expenditures, obesity, and other adverse health outcomes; little research has emerged that examines the relationship between receipt and other household expenditures. Of course, the focus has been on food because that is what the program is designed for. The premise behind providing SNAP benefits for food items only is that recipients will purchase more of the subsidized items and will not be able to use public funds to purchase less "socially desirable goods" such as alcohol and cigarettes (Hoynes & Schanzenbach, 2009).

I am interesting in exploring the relationship between SNAP receipt and a household's purchasing patterns of the "less socially desirable goods," cigarettes and alcohol, which are not covered by a family's benefits *per se*. If economic theory holds, we should see rational

consumers increasing expenditures on all normal goods.[12] Literature testing the direct relationship of SNAP receipt on alcoholic beverages and smoking products has not been developed. I could find no study that directly tested the effect of SNAP receipt on cigarette expenditures. I also could not find any existing literature that tested the effect of SNAP receipt alcohol expenditures. However, it was found that SNAP receipt and smoking are positively associated (Fitzgerald, et. al, 2011). Another study showed no significant relationship between SNAP receipt and alcohol dependency (Grant & Dawson, 1996).

Most of the work involving SNAP participation and smoking treated both as independent variables for which the impact on dependent variables such as nutritional status and food insecurity were tested. A positive association between smoking and food insecurity in a sample of women has been found, and heavy smoking has been correlated with a negative impact nutritional intake of smokers and their children (Jones & Frongillo, 2006). One study found a direct, negative relationship between low-income children of smokers and nutritional status (Johnson, 1996). Fitzgerald et al. (2011) found that SNAP participation and smoking negatively impact food security status.

SNAP participation and smoking are positively correlated (Fitzgerald et al., 2011). However, the extent to which this relationship exists independently of the relationship between smoking and poverty is unknown. The question of whether SNAP has an independent behavioral effect on smoking, independent of income, has not been answered. It is also important to note that smoking has well-known, serious adverse health consequences and is highly addictive (Newcomb & Carbone, 1992). A positive relationship between SNAP participation and smoking expenditures could indicate that low-income households with a person or persons

[12] Of course, to many individuals, cigarettes and alcohol would not be considered "normal" goods. This is further discussed in Chapter 3

who are nicotine-dependent have an extra incentive to enroll in the SNAP program in order to afford their habit. However, more research is needed to directly test this relationship.

In regards to alcohol expenditures, there is evidence that food stamp receipt has a negative impact on the amount of money households spend on alcoholic beverages (Heien & Pompelli, 1989). However, this study did not account for selection into the SNAP program. Research on alcohol and SNAP receipt has shown that food stamp recipients are not necessarily more likely to experience alcohol dependence or abuse, relative to non-SNAP recipients (Grant & Dawson, 1996). It is important to note that in this paper, I am only examining the impact of SNAP receipt on smoking and alcohol expenditures and not consumption. My data supplies information on what households spend, but not on what they actually consume. Therefore, no causal relationships between program participation and consumption or substance dependency will be discussed or established.

Literature on the effect of SNAP receipt on cigarette and alcohol expenditures was not found. However, as theory in the next chapter will illustrate, we expect households receiving the SNAP subsidy to increase their expenditures on both of these goods. This expectation holds for families who spend more than zero dollars on cigarettes and alcohol, respectively. For families or households that have no smokers or drinkers present, an independent programmatic effect on cigarettes or alcohol is expected to be zero.

In sum, existing literature on SNAP participation has only addressed the need for exogenous instruments in predicting participation. Controlling for selection is a complex task; there are several approaches but instrumenting participation has emerged in the literature as the standard way to model selection into the program. While many different instruments have been identified and used with varying success at controlling for selection, there has been no research

on why instruments work the way they do to predict participation. Understanding the causal mechanisms underlying an instrument is particularly important when the instrument is a state-level policy decision.

In addition to identify the need for motivation of the selection equation, this literature review showed the need for more research on the spillover effects of SNAP receipt on household consumption. Previous research has focused almost entirely on the relationship between SNAP receipt and food expenditures in the home, not on the overall effect the program has on household expenditures. This is a significant hole in the literature, as most of the assumptions made about the poor as a target population remain untested. Unfounded assumptions that contribute to a negative social construction of the poor lead to bad policy. The next chapter presents the theoretical frameworks used to construct models which will test the normative assumptions made by policy makers at the state level and then the programmatic effect of SNAP on consumption behavior of less socially desirable goods.

CHAPTER 3

THEORETICAL MODELS

The previous chapter reviewed relevant literature on social construction, determinants of SNAP participation, and the impact of SNAP on consumer behavior. Chapter 3 presents theoretical frameworks for the empirical analysis. The theoretical model for this dissertation is divided into two parts. I begin with application of the Social Construction of Target Populations (Schneider & Ingram, 1993) versus Belief in a Just World (Lerner, 1980; Wenger & Wilkins, 2011) frameworks to the state-level SNAP implementation research question. I then apply a utility function to predict self-selection into the program, and the rational addiction framework to my second research question on the impact of SNAP receipt on cigarette and alcohol expenditures.

This chapter uses theory to lead to testable hypotheses. My hypotheses rest on the premise that individuals, households, and political actors make decisions to maximize their utility. Of course, for legislative actors (who are the theoretical focus for the first empirical chapter), utility maximization occurs at the point of reelection. For households in the general population, the utility function is a model of the utility derived from consumption of food, housing, and other goods.

This chapter provides a detailed discussion of Social Construction Theory, drawing on three components to model legislator behavior: 1) the role of the legislative actor's motivation to be re-elected; 2) the use of benefits and burdens as a policy tool; and 3) the use of the social construction typology as an organizational tool to conceptualize target populations. In

juxtaposition to Social Construction Theory, I use the Belief in a Just world hypothesis to explain why legislators would increase both burdens and benefits to a target population in the midst of an economic crisis. As need and salience go up, legislative actors maximize their chances for re-election by allocating benefits and burdens to the target population.

This theory section also explains why SNAP participants make the decision to select into the program when the benefits outweigh the burdens of participation, and when program information is available to them. Conditional on selecting in, SNAP participants then respond to benefit receipt by increasing expenditures on all normal goods.

State-Level SNAP Implementation: Social Construction Theory

Schneider and Ingram's Social Construction of Target Populations (SCT) theory stemmed from the observation that policymakers distribute benefits and burdens to specific segments of the population who are the target of a policy, thereby shaping the boundaries of target population's social construction.[13] The following excerpt clearly illustrates the central tenet of Social Construction Theory:

> "Public policies are significant in socially constructing group identities because they often establish the boundaries within which social constructions are formulated and then institutionalized…The goals of the policy, the means available to achieve it, the interests the policy serves, and the political climate all help to determine how target groups are constructed…public policy lends authority to social constructions of group identity by officially categorizing groups as "winners" or "losers" (DiAlto, 2005).

Social constructions are defined as stereotypes about "particular groups of people that have been defined by politics, culture, socialization, history, the media, literature, religion, and the like" (Schneider & Ingram, 1993; 335). While their definition of the term 'social

[13] Target populations, as a concept, come from literature on policy design that "directs attention to the fact that policy is purposeful and attempts to achieve goals by changing people's behavior" (Schneider & Ingram, 1993).

construction' points to the fact that constructions themselves may be a product many different factors, the primary thrust of the theory argues that policy is the main tool used to create and reinforce social constructions of target groups, using allocation of benefits and burdens to do so.

The reaction of constituents and target groups to the allocation of benefits and burdens brings the issue of power[14] to bear: the level of power that a target group maintains directly impacts the degree to which an elected official is accountable to the reaction of a target population. Of equal or greater importance is the level of power held by a legislative actor's constituents, and the extent to which these constituents "approve or disapprove of the policy's being directed toward a particular target." The more powerful a group or constituency, the greater the likelihood that group will directly affect a legislative actor's chances for reelection, and for the legislator to respond in kind to the group's reaction to a specific policy.

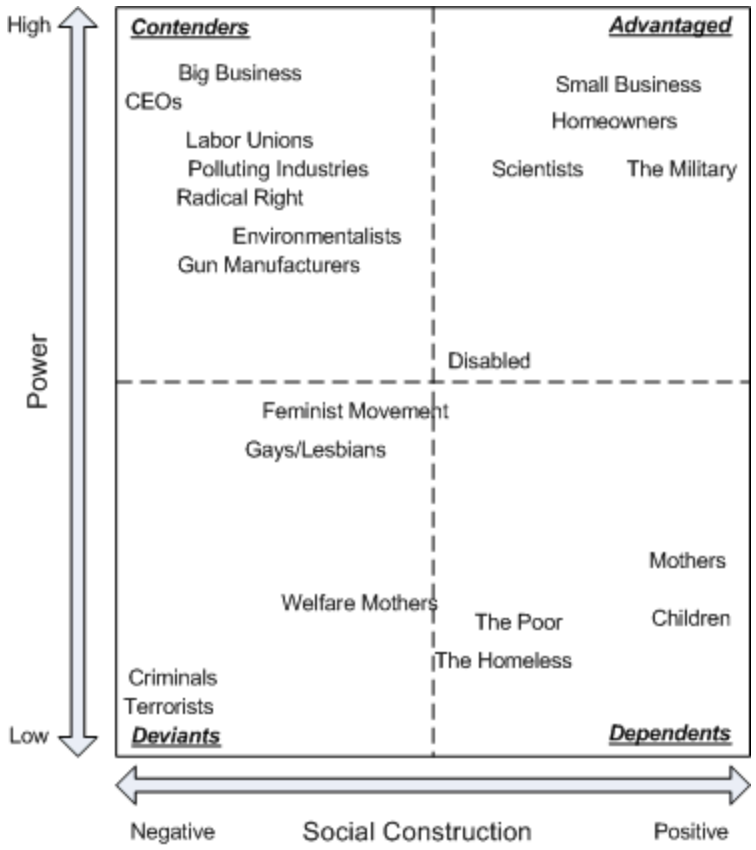
Schneider and Ingram create a typology which illustrates the convergence of power and social constructions. There are four types of target populations: advantaged, contenders, dependents, deviants. Advantaged groups are characterized by a positive social construction and high levels of power (e.g., veterans). Contenders are characterized by a negative social construction and also have high levels of power (e.g., corporations). Dependents have a positive social construction but are conversely associated with low levels of power (e.g., children). Deviants have a negative social construction and low power (e.g., convicts). Clearly, elected officials may create competing social constructions for the same target groups. For example, single moms may be construed as dependents for some politicians who see them as deserving of assistance. An elected official with a different political orientation may define single mothers as deviants, undeserving of help. The competing social construction of female headed households

[14] Power is defined in terms of wealth, voting turnout, and the ability of the target group to initiate action and mobilize popular support.

was extensively manipulated during the 1996 welfare reform debates to influence policy change leading to the welfare reform act (Schneider & Ingram, 2005). See Figure 3.1 for the original typology.

Of course, the advantaged group is the most likely to receive political support in the form of benefits. Policy makers most easily divvy resources and beneficial policy proposals to groups with positive social constructions and high power. Rewarding this group has the most direct impact the probability of reelection. Likewise, allocating policy benefits to contenders is a function of their power—if the social construction of the group is not too negative; the political cost of rewarding the group is low enough such that high levels of power will lead to allocation of benefits. Dependent groups, characterized by positive constructions and low power may be rewarded through benefits or given extra burdens. One solution often used is to simply ignore dependents, as the electoral cost of doing so is often very low. Policy makers are most likely to punish groups in the deviant category. They are very unlikely to receive backlash because of deviants' low power, and their negative construction often lends popular support to punitive policy.

Figure 3.1. Schneider and Ingram's Social Construction Typology (1993).



The role of the legislative actor

In this study, I seek to model legislative decision-making, specifically in the area of SNAP policy expenditures. Consequently, a theoretical framework outlining the determinants of policy makers' motivation for political action is necessary. Legislative actors' motivation for political action is illustrated with social construction theory's link between policy and the allocation of benefits and burdens as a tool to shape social constructions of target populations. Just as the Downsian model posits that all legislative actors are driven by maximizing their chances for re-election, Schneider and Ingram suggest that legislators' actions are motivated for a desire to be elected. However, they also add that political actors are also motivated by the need to address widely acknowledged social problems.

Elected officials spend money in ways that enhance electability. One way to do this is to use social construction as a tool to allocate public funds, rewarding the deserving and punishing the undeserving. An elected official might manipulate the social construction of a target population to oversubscribe benefits to groups that are powerful and positively constructed, or even weak and positively constructed. Conversely, legislative actors will never oversubscribe benefits to negatively constructed groups. They will instead manipulate the social construction of those powerless, negatively constructed groups by oversubscribing burdens.

In this way, elected officials reinforce and manipulate existing social constructions through the allocation of benefits and burdens. Social construction of target populations is a tool used toward accomplishing the goal of the official to be reelected. One might view this as a partial fulfillment of democratic action in that the elected official is designing and implementing public policy that serves the official's perception of constituent interest. He will behave in such a way as to please his constituents so that they continue to choose him to be their representative, independent of the legislative actor's own perception of the public good. The elected official looks at a set of options or potential policy solutions before him and chooses the one that best fits his perception of the needs of his constituency. The decision to spend or to save money in any given policy area is made to protect their legislative seat.

Benefits and Burdens

The second critical piece of Social Construction Theory to this research is the proscription of benefits and burdens by the state-level legislative actor, used as a policy tool for reelection. As Schneider and Ingram explain, the interaction between power and construction

results in a complex allocation of "benefits and burdens to different types of target groups" (Ibid; 337).

In order for public officials to be elected, remember that they must consider not only construction and power of target groups, but also the connection of policy design to policy outcomes. An attempt at bringing three factors of social construction, power, and the connection of target groups to policy goals is often made by policy makers in order to maximize the probability of reelection. Aligning these three factors is only possible when benefits are over-allocated to advantaged groups with high power who are logically connected to the public good. The only other area of perfect alignment is the over-allocation of burdens to deviant groups with negative constructions, low power, and a logical connection to the public good.

Working under the assumption that the low income target group is low power and positively constructed, I will use SNAP policy to illustrate the role of social construction in allocation of benefits and burdens and will limit discussion to dependent status.
The theory's expectations are that benefits will be oversubscribed to dependent groups, with burdens reserved for other groups with "deviant" status. Social Construction Theory dictates that dependents receive the benefits of policy but not the burdens.

Schneider and Ingram's Social Construction Theory for target populations posits that policy, by specifying eligibility criteria, sets boundaries for a target groups, each of which has a social construction. Policy making, in the world of SCT, is endogenous and *creates* the social constructions of target groups. This is the primary limitation of social construction theory, which has been criticized as being circular logic that empirical evidence will never be able to falsify. However, this limitation of the theory does not render it altogether useless. Schneider and Ingram do highlight the importance of social constructions of target groups in the policy making

process, and clearly identify the allocation of benefits and burdens as policy tools to make their point.

Theoretical Alternative: Belief in a Just World

The alternative to Schneider and Ingram's theory is that social constructions directly shape policy; further, notions of deservedness and stereotypes of target groups *precede* policy. In this framework, social constructions pre-date policy (Wenger & Wilkins, 2011), the causal relationship runs from reality to policy design and implementation. Real world events occur, and then the interpretation of these events is what leads to policy response.

This is the fundamental position of Belief in a Just World theory (BJW). Melvin Lerner's original work made the Belief in a Just World theory a central focus for a significant body of research in social psychology. Lerner originally used this theory to explain why health care providers mistreated mental health patients during Lerner's clinical training. During this experience, he observed health care practitioners blaming the victims of mental illness for their situation. Lerner observed this behavior from health professionals whom he knew to be "good" people (Lerner, 1980). To explain this phenomenon, he developed a series of experiments that would eventually develop into the BJW hypothesis.

In the BJW framework, individuals have a view of the world that the world is a just place and that justice is meted out by some invisible forces of desert, in which individuals reap the consequences of their behavior. The psychological belief that the world is a just place becomes necessary for an individuals mental well-being, yet evidence of human suffering in the world is always apparent and contradicts the psychologically necessary notion that the world is just. Thus, when suffering is observed, individuals will use specific responses to suffering to maintain

their BJW. Response strategies may be rational or non-rational. Rational responses might be acknowledging the suffering as unjust, working to prevent injustice, and providing restitution for injustice (such as compensating a victim). Conversely, non-rational responses include denial of suffering, ignoring the event or victim, or reinterpretation of the event, person,

Either rational or non-rational responses will work to reinforce and maintain a person's level of Belief in a Just World. Most often, the individual resorts to victim-blaming when an event occurs that might challenge their BJW. Wenger and Wilkins apply the Belief in a Just World theory to policy, arguing that policy is formulated consistently by policy makers who use the BJW framework to form and implement policy. An individual, in this case a policy-maker, must use these response mechanisms to preserve their BJW, no matter the cost. Policy makers might first respond to an event (such as an economic crisis) with the rational response of trying to compensate the victim, through a program such as SNAP that provides food assistance to low-income families. However, if rational responses do not work to correct the wrong, individuals might result in non-rational responses which include reinterpretation of the event that occurred, reinterpretation of the negative outcome, or reinterpretation of the victim (Wenger & Wilkins, 2011).

To illustrate the process of BJW in action, I will further discuss the sociopolitical response to the recession in the specific case of food assistance (SNAP). When the recession was in full swing and unemployment increased, many new families were in need of assistance and were newly eligible for the program. The policy response, at first, was to "compensate" the victims of the economy by passing legislation to increase the average SNAP benefit for eligible families and to increase administrative funding for the program. The American Reinvestment and Recovery Act (ARRA) of 2009 increased food assistance benefits for program participants

by 15%, on average (USDA, 2011). As SNAP enrollment continued to rise and reach record numbers, the rational response of "compensating the victim" became increasingly expensive. Constituent response to the increase in benefits waned over time, so that by the 2012 election, the term "Food Stamp President" was attached to President Obama by the Republican opposition to garner support for the opposing candidate. By this time, reinterpretation of the outcome and the victim occurred, and blaming victims of the economy became more common. Examples of victim blaming for people in poverty include attributing poverty and hardship to laziness, poor planning, or even desert.

In this case the policy response, to increase the scope of the food stamp program, became expensive. At the point where the rational response to compensate the victim was no longer feasible, the shift to a non-rational response occurred. At this point the policy response was based on a perception rather than a reality, and the policy program and participants were faced with social and political backlash. At this point, money spent on the "undeserving "poor comes with the perception that people do not deserve food assistance, and that they are likely to take advantage of the system. At this juncture, spending money on the program comes at an electoral cost.

At the point where constituents and policy makers become frustrated because economic recovery is too slow, they will choose to spend more money on enforcement mechanisms such as fraud control. An attempt to use a rational response was made, and when the economy took longer to recover than expected, a non-rational response and victim blaming occurred. To summarize, when the recession occurred and unemployment increased rapidly, millions of Americans were without income. This meant that many more households were suddenly in need, yet were not considered by and large to be responsible for their plight. Rather, they were viewed

as victims of the economy. This is why there was a groundswell of support for expansion of emergency aid programs such as Unemployment Insurance and SNAP. The support, however, did not last. Victim blaming and reinterpretation of the outcome became the hallmark of the 2012 election for many SNAP participants. This is one example of the role of BJW in shaping social construction, which then directly influenced policy outcomes.

Toward a Set of Testable Hypotheses

SNAP limits our evaluation to the powerless because of the policy-defined target population. Individuals and families who are poor have very little power, economic and otherwise, so the theoretical framework for understanding policy implementation for the poor will work on this assumption that SNAP's low-income target group is low power and positively constructed.

Schneider and Ingram provide a useful typology to organize our thoughts on the nature of the target population, their theoretical position that policy is the instrument that shapes social construction does not provide a framework for understanding the significant amount of burdens allocated to the target population over the observation period. Social Construction Theory only allows for the allocation of benefits to dependents, and argues that the causal relationship runs from policy to target groups.

Using the BJW framework, however, explains that social constructions precede and inform policy makers' decisions. These social constructions are formed in a number of ways: history, media, art, pop culture, social movements, the economy, policy, the passage of time, and other unnamed factors that serve to create and reinforce stereotypes pertaining to target groups. Underlying these factors is a belief system that is psychologically necessary known as "Belief in

a Just World." To maximize their chances for reelection, legislative actors use and manipulate social constructions of target populations, allocating benefits to the deserving and burdens to the undeserving. Target groups are seen as "deserving" of benefits or burdens on the basis of their social constructions, which are formed by BJW.

With these theoretical constructs in mind, recall the research question: what determines state-level expenditures on SNAP? More specifically, how do legislators choose how much to spend on fraud control? How do legislators choose how much to spend on outreach? To answer these questions, the SNAP target population is outlined below and followed with a set of testable hypotheses.

SNAP is characteristic of a dependent policy: it is an entitlement that requires means testing. Another characteristic that situates SNAP clients in the dependent category is the emergency nature of food stamps. SNAP benefits go to clients on a monthly basis and subsidize their meals, but often not to the extent of feeding the individual or family for a full month. The benefits are by their very nature a consistent source of *emergency* food assistance. The economic situation of the family isn't changed so drastically by food stamps that they become self-sufficient or economically independent. The program does not come with the tools for sustainable food security or skills needed for families to provide themselves with healthy, consistent food sources. While SNAP does provide emergency food assistance, the policy also keeps families in a state of constant dependence on the policy.

Outreach dollars, or money spent to recruit new SNAP beneficiaries, is an example of benefits. Receiving burdens, however, happens because of a need for elected officials to "punish" individuals in a manner that is supported by their constituency. The personal message accompanying burdens is that they must pay for their place in society by receiving a moral lesson

through public policy. Fraud control, or money spent on pursuing legal action against SNAP clients who have allegedly misused the system, is an example of burdens.

It is important for this discussion to note that outreach and fraud are a function of two different things. Outreach is designed to recruit new households into the program. Fraud happens as a result of who is currently in the program. Outreach (deemed a policy benefit) and fraud (a policy burden) have been a part of SNAP for a number of years. During periods of great need, legislative actors will initially respond by increasing benefits (outreach dollars), but will also increase burdens (fraud control dollars) when the rational response to help citizens in need becomes too expensive.

This leads me to the first two hypotheses:

H_1: As need increases, allocation of benefits (outreach dollars) to the target population will increase.

H_2: As need increases, allocation of burdens (fraud dollars) to the target population will increase.

It stands to reason that the salience of SNAP policy will increase along with poverty and unemployment rates, so that in times of economic distress, the exogenous shock to the economy will both increase the need of individuals for food assistance but will also cause states to be more protective over every dollar spent. This is because constituents will be worried that the poor are more likely to take advantage of the system. States will be more reactive toward budget crises and might respond by increasing the resources toward fraud control, making sure that policy beneficiaries truly "need" and "deserve" the benefits they receive, and that these beneficiaries are using their SNAP dollars appropriately.

In times of economic distress, such as the Great Recession, as poverty and unemployment raises salience of the poverty in the general population, more attention will be given to poverty

and the policies in place to mitigate poverty. This would lead to an increase in the dissemination of information through news media and popular culture. Increased salience will be driven through an increase in media coverage, increases in poverty and unemployment (which determine program eligibility), or other consciousness-raising in the general public on the issue of food assistance and food insecurity. One way to look at the effect of policy salience is through newspaper coverage of a particular issue. Thus, the second set of hypotheses is:

H_3: As salience increases, allocation of benefits (outreach dollars) will increase.

H_4: As salience increases, allocation of benefits (fraud dollars) will increase.

As the salience of the policy increases, legislative actors will be more likely to increase fraud expenditures. Legislative actors will respond to increased salience of a problem and the policy by choosing to spend more money on outreach. Second, legislative will increase burdens on target populations in order to protect their resources, and to prove to constituents in the advantaged group that their tax-payer resources are being protected.

Social policy for the poor has taken a turn from providing aid to low-income families in need to providing resources *and* a healthy dose of morals and other behaviors deemed socially appropriate. This movement, called *new paternalism*, is one that "promotes directive and supervisory uses of public policies to enforce civic obligations and to provide a moral teaching to the poor" (Soss, 2005). It is now less about subsidizing income for the poor and more about how to make the poor "better" citizens of our society (Mead, 1998). This notion is deeply entrenched in the pattern of victim blaming that occurs as a non-rational response in the BJW framework.

Selection into SNAP: Motivation from Social Construction Theory

As discussed in the previous section, social constructions of target populations will have a direct impact on the implementation decisions made by legislative actors. Just as social construction and salience influence policy outcomes in the form of program expenditures, I expect these factors to influence participation in the program at the individual level. I use the Gunderson and Oliveira model as a basis of understanding the program participation decision, but extend the model by adding three policy determinants of participation: salience, benefits, and burdens.

Gunderson and Oliveira's theoretical model which predicts participation in a food assistance program is motivated by a household utility framework. In their model, a household's utility function (U) is defined over two categories of goods: food (F) and other goods (OG). Income used to maximize utility will depend on a household's participation decision. The expression of participation and resulting consumption is

$$Y^{p} = \text{EINC}^{p} + \text{TINC}^{p} + \text{OINC}^{p} + \text{FSB} = p_f \text{F}^{p} + p_{og}\text{OG}^{p}.$$

However, if a household does not participate, then income and consumption are expressed as

$$Y^{np} = \text{EINC}^{np} + \text{TINC}^{np} + \text{OINC}^{np} = p_f \text{F}^{np} + p_{og}\text{OG}^{np}$$

P is defined as a participating household while *NP* is defined as a nonparticipating household. EINC is earned income, TINC is transfer income, OINC equals other income and FSB stands for food stamp benefits. In the consumption equation, p_f is the price of food while p_{og} is the price of other goods. Gunderson and Oliveira's model disaggregates income into multiple categories, but Wilde and Ranney (2001) justify collapsing income into one measure. They do this because

income is measured at the household level, and it is impossible to know what income is being used to pay for household expenditures. Many families subsidize their food stamp benefit with their own cash because they do not receive enough food stamps to pay for their food needs. Collapsing the income measure to one total, lump sum measure of earned income, transfer income, and other income simplifies the model and does not make any stringent assumptions about how a household's income is used beyond the scope of available information.

Gunderson and Oliveira identify a disutility to participation which they express as *C=C(S,T)*. *S* is defined as stigma or the social ramifications and "distastes" a person associates with program participation. This stems from the perception that others may disapprove of one's actions, resulting in a possible avoidance of benefit receipt if stigma is large enough (Moffitt, 1989). *T* stands for transaction costs, which include the time and resources needed to devote to applying for and receiving food stamps. This could include time in a food stamp office, filling out a paper or online application, transportation to and from a food stamp agency, and child care for the duration of the office visit.

Additional disutility as identified by Gunderson and Oliveira comes, not surprisingly, from being food insecure. This is expressed as *D(FI)* where FI stands for food insecurity. Obviously, there is a minimum amount of food that an individual or household needs to maintain food security. This will be expressed by F_{min} and will vary by household size and composition. Should a household's food consumption fall below the minimum amount needed to maintain food security, a household will suffer entitlement failure and will be food insecure: *(FI*=1). Conversely, if a household has at least F_{min} or more, than the household is food secure (*FI*=0). The disutility of food insecurity is greater than zero if FI=1 or equal to zero if FI=0. Examples of this disutility given include hunger and/or adverse health and social outcomes experienced by

food insecure households. Considering this, the participation decision[15] of a household is shown as

$$P=U(F^{P}, OG^{P}) + (\gamma^{NP}- \gamma^{P})D(FI)-U(F^{NP}< OG^{NP}) -C(S, T)$$

Should P=0, a household is indifferent to the participation decision. If P>0, a household will choose to participate, if P is less than or equal to zero, a household will choose not to participate. The lambda expresses a household's self-assessment of the probability that it will experience food insecurity as a non-participant and as a participant. Should $\gamma^{NP}> \gamma^{P}$ Gunderson and Oliveira argue that a household will be more likely to join the program and "vice versa," *ceteris paribus. C(S,T)* is expressed above as a "lump sum" stigma, and stands for the total disutility associated with participation.

While all of these variables are important, a household does not make participation decisions in a vacuum, independent of the outside world. The salience of a policy and the way the policy is implemented has a direct impact on the program participation decision. In order to extend the Gunderson & Oliveira model, I use the theory presented in the first section to predict program participation. Households are also affected by increased salience of a policy, specifically when more information about the policy and how to enroll is made available. As more information is disbursed about the potential benefit (modeled as utility) of participating in SNAP, a family will be more likely to enroll to receive the benefit. For example, as a family is more knowledgeable about program availability and eligibility, the family is more likely to pursue an application to participate. Salience, however, is not the only factor influencing a household's decision to enroll.

[15] Note that the participation decision will be estimated for the first paper on both SNAP participation and food pantry participation. This will be estimated jointly to test for interdependence. A family who enlists a food pantry for help might also be more likely to enroll in SNAP and vice versa. This could be because the family has a lower stigma value, more predictable access (such as their own vehicle), lower transaction costs, or more information on what their available resources. No matter the reason, it is quite possible that the participation decisions are interdependent.

A household's self-selection will also be determined by perceived benefits and burdens allocated to the target population of the policy. A low-income family who is eligible for the program will choose to opt in if the perceived benefit of program participation is greater than the perceived burden. A state with a legislative actor (or group of actors) committed to enrolling eligible households in the program will spend resources on outreach. As a state spends more money on outreach, families in the state are more likely to participate in the program. Conversely, a state with legislative actors committing resources to fraud control will be perceived by potential program participants as the source of undue burden. Policy makers decide the structure of policy. Increasing burdens becomes an important variable to determine participation. These three variables become a function to determine a household's participation decision:

$$P = U(N^p, BE^p) + U(F^P, OG^P) + (\gamma^{NP} - \gamma^P)D(FI,BU) - U(F^{NP} < OG^{NP}) - C(S, T)$$

where N is the utility derived from increased salience of the policy program, and BE is the utility derived from the perceived benefits allocated by legislative actors to potential program participants. Disutility is now extended so that a family also receives a certain amount of disutility from perceived policy burdens, expressed BU, in addition to the disutility associated with food insecurity.

As burdens increase in a state, families will be less likely to select into the program. As the perceived burdens increase and outweigh any benefits, families will not choose program participation. As the burdens and benefits reach equilibrium, families will be indifferent to the participation decision. However, when salience of the policy has increased a household's awareness of the program and perceived benefits are greater than perceived burdens, a family will choose to participate in the program and receive food stamps.

This theoretical model leads to three more hypotheses:

H_5: As the amount of information available to the general public increases (through newspaper coverage), participation in SNAP will increase.

H_6: When allocation of policy benefits (outreach dollars) increases, SNAP participation will increase.

H_7: When allocation of policy burdens (fraud control dollars) increase, SNAP participation will decrease.

SNAP Receipt & Sin Good Expenditures: The Rational Addiction Framework

Modern economic theory is founded on the idea that individuals are rational beings. However, the issue of addiction seems to clearly contradict this premise. Addiction to harmful substances has a physical, psychological, and social cost that suggests irrationality in the addicted individual. Any good (or persons, religion, or behavior patterns) can be the subject of an addiction, but some goods are more likely to be the sources of addiction than others. Harmful goods such as cigarettes and other illicit drugs are the general culprits for addictive goods. This chapter concentrates on the theory of rational addiction as it might pertain to cigarette and alcohol consumption. While the theory of rational addiction does not explain away all addictive behaviors and the implications of addiction on a person's present and future utility, it is the most widely-used framework for modeling addiction.

The basis of the theory rests on a utility function which assumes that a person's utility is maximized through a function of consumption, specifically present consumption of a good which is dependent upon past consumption. Utility of a person at any moment in time is a function of the consumption of two goods, termed *c* and *y*. To distinguish between the two goods, we assume that current utility is in part determined by past consumption of *c* but not *y*:

$$u(t) = u[y(t),c(t),S(t)].$$

Further, the theory contends that past consumption of *c* "affects current utility through a process of 'learning by doing,' as summarized by the stock of 'consumption capital'(*S*)" (Becker & Murphy, 1988).

A rational person maximizes their utility subject to budget constraint, or some sort of constraint on their expenditures. In addition, a rational person will recognize that consumption of an addictive or harmful good (such as cigarettes) is associated with a certain amount of disutility, and will adversely affect future utility and potential earnings. Conversely, a rational person will recognize that a beneficial good (such as fresh vegetables) will positively impact future utility and potential earnings.

Becker defines addiction, in the most basic sense, as when a person's present consumption of good c increases his future consumption of *c*. Closely related terms include reinforcement and tolerance. Reinforcement is defined as a greater present consumption of a good raises the good's future consumption. Tolerance is defined as the condition in which present levels of consumption are less satisfying than past levels of consumption if past consumption is greater. This definition of addiction means that a person may indeed be addicted to some goods but not others, and that a good may be addictive to some persons but not others. An underlying assumption of this model is that "present-oriented" individuals are more likely to become addicted to harmful goods than "future-oriented" individuals. That is, the present-oriented individuals would have a higher discount rate on the future; they would have a higher probability of becoming addicted to a harmful good relative to future-oriented persons.

It is important to caveat the theory and say that cigarette consumption and alcohol consumption are different: goods that are highly addictive such as cigarettes are bimodal in distribution; one mode is located at the point of zero. However, alcohol consumption tends to be

more continuous in nature. Becker contends that this is because alcoholic beverages are not addictive for many people who choose to consume them. The relation between changes in price and cigarette and alcohol consumption has been extensively studied, and findings indicate that these two goods are indeed sensitive to excise taxes imposed on the goods. Becker concludes that one study which found excise taxes on alcohol decrease death rates from cirrhosis of the liver (Cook and Tauchen, 1982) suggests that either 1) heavy drinkers dramatically decrease their consumption of alcohol when the price increases; or 2) heavy drinkers are more sensitive to the price of alcohol. One additional reason for this change that is not discussed by Becker is that individuals who are addicted to cigarettes or alcohol may actually have the desire to quit the addiction, so that a decrease in consumption following an imposed excise tax could be a function of price sensitivity and a desire to break the addiction.

The utility function of an individual with a rational addiction includes the adverse effect of an addiction on future utility and potential earnings. In other words, rational individuals understand that their addiction has some sort of future cost associated with it, to this extent the addiction has a disutility directly linked to it. The determinants of a person being present-oriented and future-oriented are not entirely understood, but there is some evidence that shows an inverse relationship between education and addiction to smoking. Becker and Murphy establish other assumptions about relationships in their model; income level, stressful events such as divorce or unemployment, and price each affect the likelihood of becoming addicted to a substance.

Other than the primary condition that utility is derived from consumption of two goods, the consumption of one which is dependent upon past consumption of that good, rational addiction theory also presupposes that an addiction necessitates an interaction between a person

and a good. In addition, rational addiction theory assumes that addicts and their consumption patterns are sensitive to price. Especially for low income individuals, whose budget constraints are tighter.

The last theoretical assumption presented in Becker and Murphy's 1988 paper suggests that "strong" addictions to substances such as cigarettes and alcohol are only broken by quitting cold turkey, because of the disutility derived from short-term abstention of consumption from the addictive good. The cold turkey assumption is verified based on the theory of rational behavior, as the only option for rational individuals with strong addictions is an abrupt end to consumption.

Becker and Murphy's rational addiction model explains how an individual with an addiction can still be considered "rational" when consuming a good that has a physical, social, or psychological cost. Under this framework, an increase in income would lead to an increase in consumption of normal goods. When a family receives an in-kind transfer such as a SNAP benefit, the additional income is treated as an increase in overall income even though the benefit may only be used to purchase groceries.

Thus, as income increases with SNAP, a household will increase the amount of money it spends on cigarette and alcohol. One additional note is that the receipt of the transfer will result in increased expenditures only if the family chose to purchase cigarettes and alcohol before the transfer was received. The implication is not that the transfer drives households to suddenly begin smoking or drinking. From this theory, the following hypotheses are developed:

H_8: Controlling for selection into SNAP, as income increases, cigarette expenditures will increase for households that smoke.

H_9: Controlling for selection into SNAP, as income increases, alcohol expenditures will increase for households that drink.

It is important to caveat Becker and Murphy's theory to discuss the policy implications of their work. The most serious policy implication is that if an individual makes a completely "rational" decision, with full information, at the time of beginning an addictive habit, then they are making a utility maximizing decision at that time. This is a stringent assumption to make, especially when one considers that many individuals begin smoking or drinking at a young age when they do not have full information about the health and social costs their addiction will have many years later. Suspending the consideration that individuals do *not* have full information at the point of origin of an addiction, the policy implication is quite serious.

The implication is policy interventions will lower utility for the rational individual who makes a decision with full information and who still makes the decision to smoke, for example. If a policy intervention lowers utility, then it will most likely be rendered useless. A policy intervention example is an excise tax on smoking, which would induce a margin of consumers who would no longer be able to afford their habit to stop smoking. Consequently, these consumers would be shut out of the market which would lead to deadweight loss. The intuition behind such an intervention is that "smoking is bad," and that raising taxes to deter smoking is a good thing. However, the Becker-Murphy model dictates that we should accept that all individuals have full information, that we should maintain consumer sovereignty, and not intervene with policy action in the form of taxation or even smoking cessation programs because of the utility loss associated with such interventions.

In reality however, the assumption of full information does not hold. Many individuals who begin an addiction want to quit when they have full understanding of the long term health costs associated with their actions. There is a present self and a future self, and the knowledge that is bestowed with time and experience on the future self cannot be experienced in the present.

This is the reality that breaks the Becker-Murphy assumption about the consumer's ability to have full information. Breaking this assumption allows for policy interventions which assist people in breaking an addiction to be useful to individuals who are addicted and to society at large.

In this dissertation, I do not apply rational addiction framework to empirical testing. Rather, I use this theoretical framework to explain why individuals might derive utility from a harmful good.[16] In this sense, we would expect a harmful or addictive good to be treated as any other normal good. When an individual's budget increases, an increase in consumption of the good occurs. This is to be expected from both cigarette and alcohol products, and is the standard expectation in economics known as an income effect. For every dollar increase in income a family receives, we expect their expenditures on all normal goods to increase. The rational addiction framework allows us to assume that rational individuals will follow this consumption pattern, even for goods that might be harmful to their health. In the specific example for this study, theory dictates that I should find an increase in cigarette and alcohol expenditures as family income increases.

Income increases might be attributed to a raise in salary or hourly earnings or receipt of a transfer such as SNAP. All else being held constant, a transfer or subsidy such as food stamps will result in the same effect as an increase in salary for household expenditures. Receiving the subsidy should have a positive effect on expenditures for normal goods. Thus, even after controlling for selection into SNAP, as income increases the expectation is that expenditures on both cigarettes and alcohol will increase.

[16] Obviously, alcohol in moderation is not necessarily harmful. Cigarettes, however consumed, are harmful. I use the rational addiction framework in extension to the classical utility function to explain why an individual might choose to consume goods that are not healthy for them.

CHAPTER 4

DATA, VARIABLES OF INTEREST, AND CODING

The purpose of this chapter is to describe the data used for empirical analysis in two subsequent chapters. First, I give a description of data sources. Then, I detail the variables of interest in my analyses and the steps I took to clean and code the dependent and independent variables. Last, I provide summary statistics to illustrate the nature of the relationship among my dependent and independent variables. For this research project, I used two separate data sets: the first is a data set I constructed from multiple sources for the chapter on selection into the SNAP program; the second is the Consumer Expenditure Diary Survey from the Bureau of Labor Statistics. Both data sets span from 2005 to 2010, a survey period which allows for analysis before, during, and after the Great Recession.[17]

Data Set 1: Description

The first data set, which I named the "SNAP Implementation" data, are panel data. This is a data set I constructed in order to explore the determinants of state-level SNAP implementation decisions. I use the SNAP implementation data to model state-level legislative actor decisions on program expenditures, which are then used to inform and motivate the discussion on selection into the food stamp program. The unit of analysis is the state, where

[17] The Great Recession officially spanned from December 2007 to May 2009, according to the Bureau of Labor Statistics.

each state is observed annually for six years. Each state plus the District of Columbia is represented, yielding a sample size of 306 for the observation timeframe (2005 through 2010). Data come from several sources including the U.S. Department of Agriculture, the National Governor's Association, the U.S. Census Bureau, the American Community Survey, the Bureau of Labor Statistics, State Politics and Policy Quarterly, and Lexis Nexis.

SNAP program data include variables on benefits, fraud control, and outreach expenditures. These variables were provided by Food and Nutrition Services (FNS), the administering agency of SNAP, an agency under the auspice of the U.S. Department of Agriculture. These data are state-level expenditures; FNS aggregates data from each annual state report which includes information on the total dollar amount of SNAP benefits allocated, fraud expenditures, and outreach expenditures. FNS supplied dollar amounts from 2005 through 2010 for each expenditure category. State level SNAP expenditures are continuous dollar amounts and are adjusted for inflation to 2012 dollars.[18] Expenditure data are collected by Food and Nutrition Services annually; each state has a legal obligation to report program and administrative expenditures to FNS.

In addition to the food stamp program data, I collected a number of political, economic, demographic, and social measures. State political descriptors are essential, as the composition of state legislatures and the ruling political party will have a direct effect on policy implementation decisions in a state. Political variables include the sitting governor's political party, the percentage of women legislators in the state house and the percentage of African American Legislators in the state house. Governor's political party through 2008 is from State Politics and Policy Quarterly, 2009 and 2010 came from the National Governor's Association. Citizen ideology will also determine policy outcomes. I use the Berry measure for citizen ideology,

[18] Dollar figures were adjusted for inflation according to the CPI-U-Research series.

which I collected from State Politics and Policy Quarterly for the years 2005 through 2008. Richard Fording, at the University of Alabama, graciously provided his updates on the citizen ideology measure for 2009 and 2010

Economic indicators are an important component of this data set. State-level unemployment rates come from the U.S. Bureau of Labor Statistics. State poverty rates over the observation time frame were collected from the U.S. Census Bureau's American Community Survey. I created one additional macroeconomic variable in this data set as a dichotomous indicator to control for the Great Recession, capturing time trends specific to the recession period from December 2007 through May 2009.

Demographic information includes the total population, percentage of whites, African Americans, Latinos, males, females, female-headed households, and adult non-citizens. Each of these variables were collected from the American Community Survey and the U.S. Census Bureau (for the year 2010).

Social variables include the Gini Coefficient and media coverage. The Gini Coefficient is a state level measure of income inequality, which was collected from the American Community Survey. One last social variable was collected from Lexis Nexis. As social constructions are often shaped and influenced by media, I include one measure of media impact—newspaper coverage. The number of newspaper articles on the food stamp program for every state in each year was collected by conducting a Lexis Nexis search, which will be described in more detail in the section below.

Dependent Variables

The first empirical chapter is a state level analysis of the determinants of two specific program areas in the Supplemental Nutrition Assistance program: fraud control and outreach expenditures. Fraud control expenditures and outreach expenditures will serve as two separate dependent variables in the first empirical analysis. These variables came from Food and Nutrition Services, as discussed above, and are the annual dollar amounts reported by each state. Fraud control and outreach expenditures are continuous. To standardize the dollar amounts, I adjusted each data point for inflation, indexing the data to 2012 dollar amounts. Fraud and outreach expenditures are subsidized at a 50 percent rate, so that if a state reports spending two million dollars on fraud control, the state paid only one million on fraud control activities and the federal government paid one million. In order to test multiple functional forms, I created a log form for each of these variables. The raw dollar amount and the logged form of the fraud and outreach variable are included in *Table 4.2., Summary Statistics*.

It is important to note that fraud control and outreach expenditures vary greatly in how much money states choose to spend. Each state spends money on fraud control, with the exception of North Dakota.[19] However, there are many states that do no choose to spend money on outreach. While there is an increase over the sample period in the number of states that engage in outreach activities, there are many zero values in the outreach variable (See Figures 4.1 & 4.2). Even when states do choose to engage in outreach activities, the average expenditures are much lower than the amount spent on fraud control.

Mean fraud expenditures total over two million dollars; mean outreach expenditures total just over two hundred thousand. It is also important to note that fraud expenditures do not vary greatly over the sample time period, especially in relation to outreach. To illustrate some of the

[19] North Dakota did not report any fraud control expenditures during the observation time frame.

time trends in fraud control, outreach expenditures, and total SNAP benefit expenditures, I have included Figures 4.1, 4.2, 4.3, and 4.4 below.

Figure 4.1. Annual State-level Depictions of Outreach Participation. Red states indicate SNAP Outreach Participation, 2005.

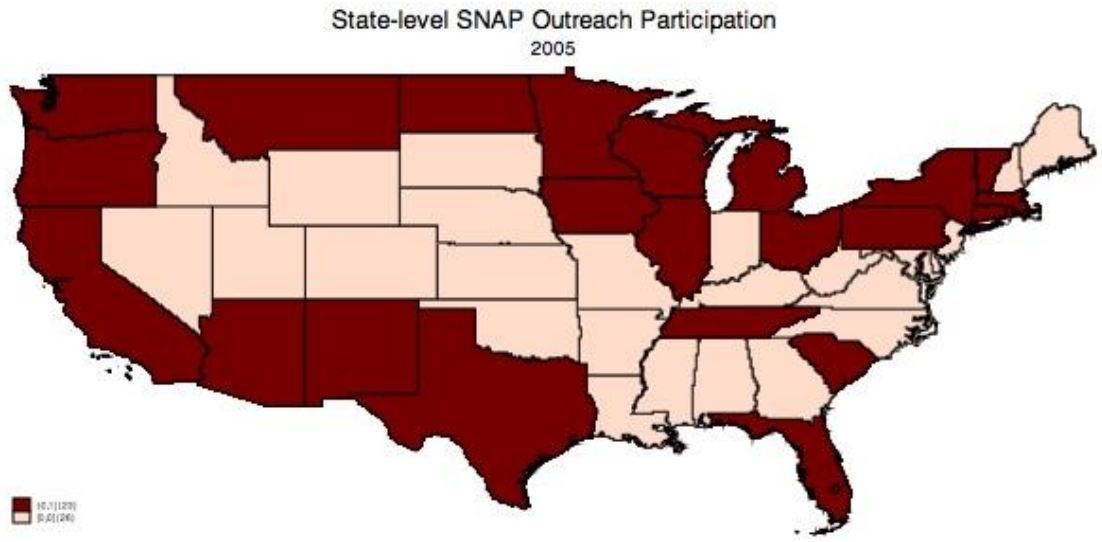


Figure 4.2. Annual State-level Depictions of Outreach Participation. Red states indicate SNAP Outreach, 2010.

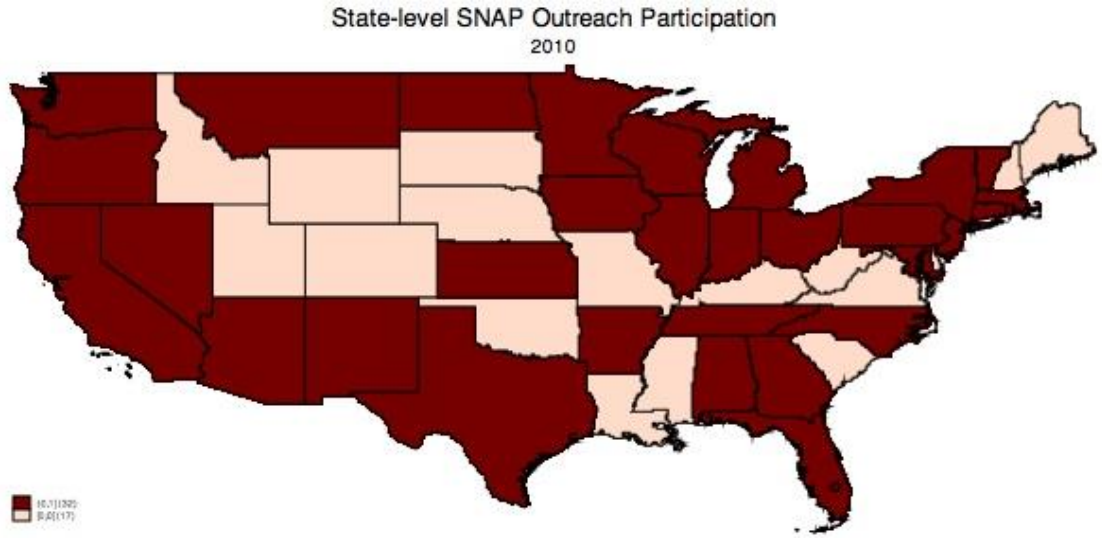


Figure 4.3. State Outreach Participation Decision, 2005-2010.

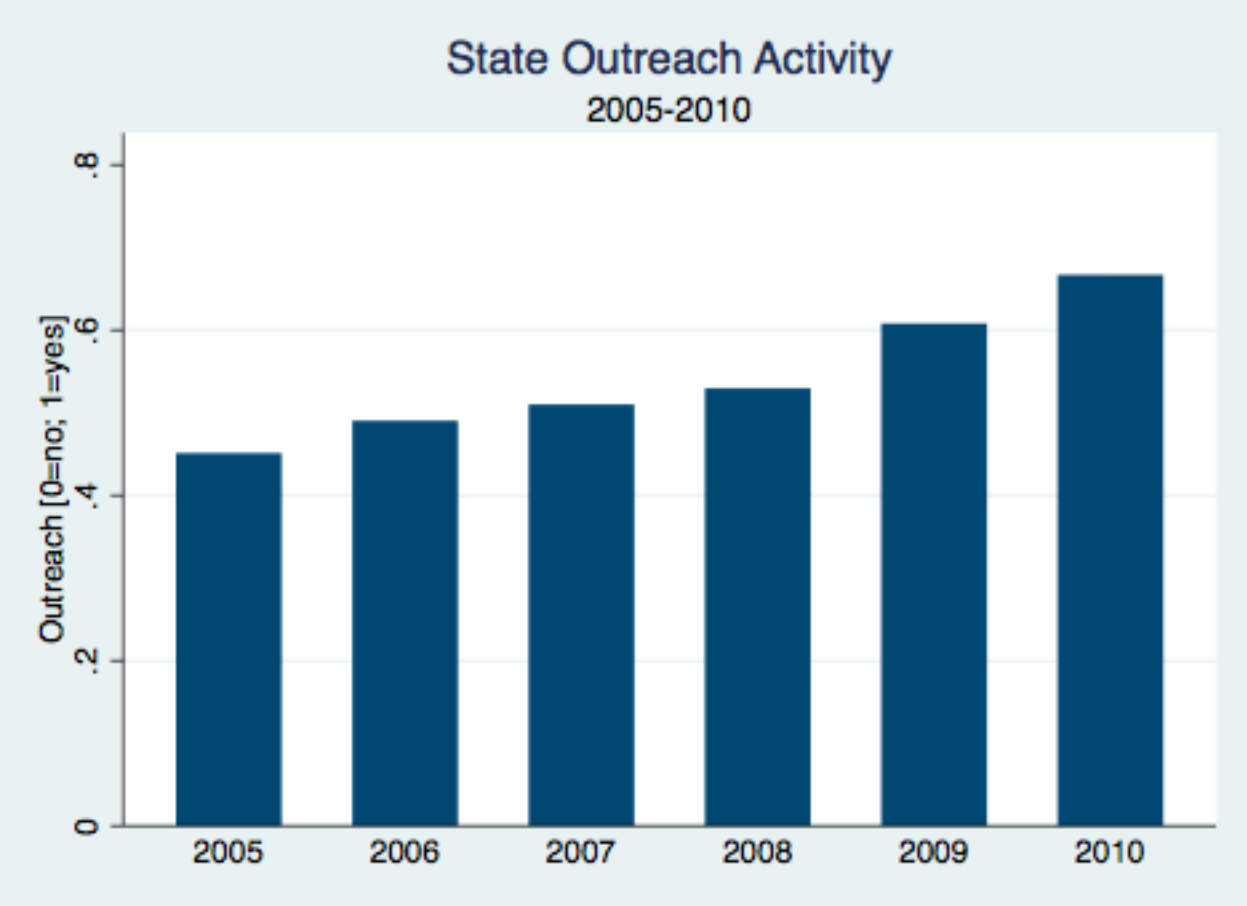
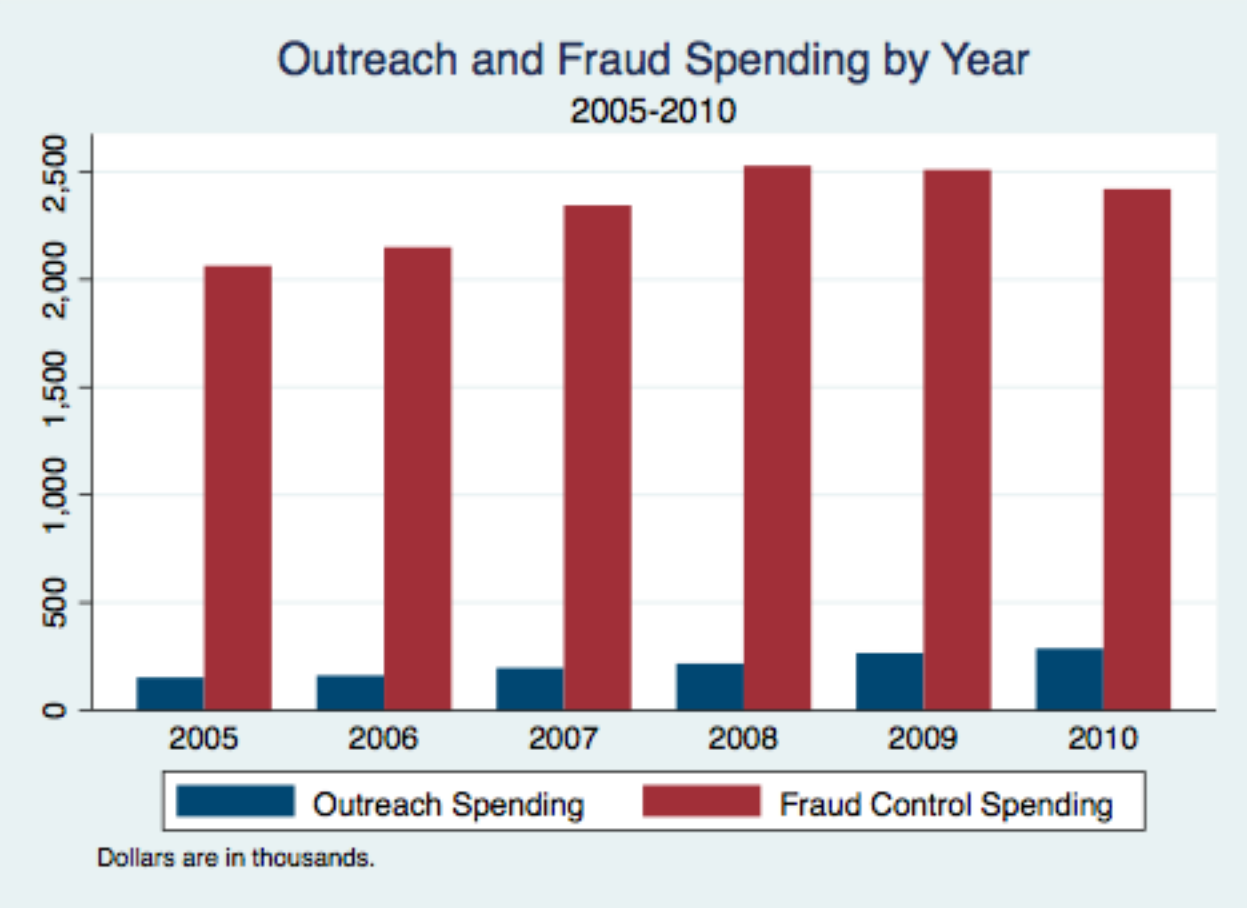


Figure 4.4. Mean Outreach and Fraud Spending by Year, 2005-2010.



Independent Variables

1. Key Variable of Interest: Newspaper Coverage

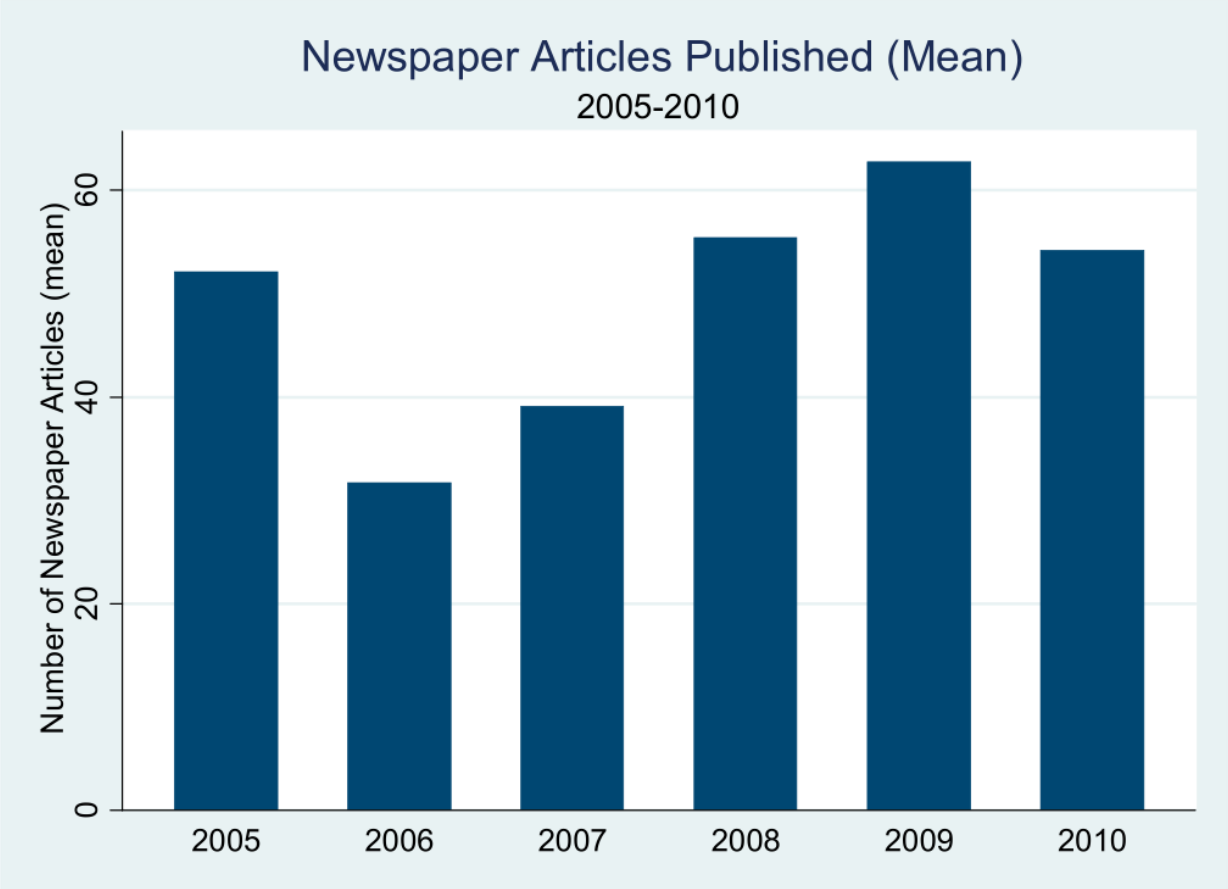
The key independent variable of interest in the first empirical chapter on selection is the amount of newspaper coverage the food stamp program (renamed SNAP in 2008) received during the sample's observation period. Based on the theory that media is one source of influence in shaping perceptions of target groups, I expect that media, will have a direct impact on policy implementation of fraud control and outreach for the program.

In order to collect and code this variable, I used the Lexis Nexis database to conduct a systematic search. Lexis Nexis is a database that includes extensive news coverage of media sources, with full text articles from over 2,500 newspapers at the local, state, national, and international levels (Lexis Nexis, 2013). The first step in data collection was to identify the time period and geographic parameters for my sample. Since I have observations for every state and the District of Columbia from 2005 through 2010, I needed state level, annualized data of media coverage. Next, I decided the type of media coverage to collect. I limited my search criteria to newspapers articles. Last, I defined the key words to define my search, choosing both "food stamps" and "Supplemental Nutrition Assistance Program." I included both search terms because of the policy's name change in the middle of the sample period.

Once I specified the search based on year, geography, media type, and key words, I conducted a search for each state in each year of my data set. I took the total number of articles published in each state for each year as one observation point that included the words "food stamps" or "Supplemental Nutrition Assistance Program." The search yielded a total of 306 observations. The mean number of newspaper articles on the food stamp program during the sample period is 49.2. The range spans from 0 to 367 newspaper articles, with a standard

deviation of 56.7. To see the change in mean newspaper articles published over the sample period, refer to Figure 4.5 below.

Figure 4.5. Average Number of State-level Newspaper Articles Published Over Time.



2. Independent Variable: Gini Coefficient

The Gini Coefficient is a measure of income inequality, measured on a scale of 0 to 1, with 0 being defined as complete income equity and 1 as perfect inequality. This variable was also collected from the U.S. Census Bureau's American Community Survey, and is included as an additional macroeconomic indicator and control variable. The mean level of income inequality is .45.

3. Independent Variable: Union Density

Union density is measured as the percentage of the state's labor force who are union members. This variable was collected from the Union Statistics database, and is another way to measure the social and political climate in a state.

4. Independent Variable: Poverty Rate

Poverty rate is defined as the percentage of the state's total population living under the federally established poverty threshold, which is a function of income and family size. As of 2013, families with four members earning less than $23, 550 are classified as living at 100% of the poverty threshold (U.S. Department of Health & Human Services). The poverty rate variable in this sample was collected from the U.S. Census Bureau's American Community Survey. Mean poverty rate among states for the sample period is 13.37%.

5. Independent Variable: Unemployment Rate

The unemployment rate data are collected by the Local Area Unemployment Statistics program, which produces monthly and annual data on states, counties, and cities. Individuals are considered unemployed if they do not currently have a job, have actively searched for a job in the previous four week periods, and are currently open and available for work (Bureau of Labor Statistics, 2013). The sample's mean unemployment rate is 7.27%.

6. Independent Variable: Per Capita SNAP Benefits

Per capita SNAP benefits were collected from Food and Nutrition Services data. These data reflect the mean amount of food stamp benefits allocated per person in each state, which is approximately $131 for the sample period. However, as a function of the Great Recession and other factors such as the 2009 American Reinvestment and Recovery Act, per capita benefits rose dramatically between 2008 and 2010. Please refer to Figure 3.3 to view the increase in state-level benefits over these years.

7. Independent Variable: Recession

To control for recession effects, I created a recession variable which I then coded [0,1], with zero values representing non-recession years and values of 1 representing recession years. According to the Bureau of Labor Statistics, the Great Recession officially spanned from December 2007 through May 2009.

7. Independent Variable: Citizen Ideology

In order to control for citizen ideology, I use the Berry measure (Berry et al., 1998). This measure is constructed around nine assumptions concerning citizens' political behavior. I chose this measure because of demonstrated construct validity and reliability, and also because of this ideology measure's ability to reflect party label variation across states (Ibid.). Instead of being static, as many previous ideology measures, the Berry measure responds to annual shifts in public opinion. Mean citizen ideology for the sample is 54.83, with the minimum score at 18.07 and the maximum 93.28. In general, the more liberal a state's ideology, the higher the citizen ideology score.

8. Independent Variable: Governor's Political Party

The sitting governor's political party variable was collected from the National Governor's Association. This variable was coded as a dichotomous indicator [0,1] of political party, where all zero values are defined as Republican governors and variables with the value of one are defined as Democrat governors. The mean is 51.67%, with just over half of the sitting governors identifying as Democrats.

9. Independent Variables: African Americans and Women in State Legislature

As an additional political variable, I collected the percentage of African Americans serving in the state legislature. This variable is a continuous measure, and was collected from the National Conference of State Legislatures. The average percentage of African Americans serving in state legislatures is 7.9%.

In addition to minority representation, it is important to have data on female representation. The percentage of women serving in state legislators was collected from the Rutgers Center for American Women and Politics. The mean percentage of women serving in state legislatures is 23.4%. There is evidence that it takes a critical mass of women representatives in the legislature before policy changes are directly related to the presence of women. Evidence has shown this critical mass is around 15% representation (Kanter, 1977; Thomas & Welch, 1991; Saint-Germain, 1989), so I created a dummy variable with the values of 0 and 1; states with higher than 15% women received a 1. States below 15% received a zero. This variable is used in estimating the models in the following chapters as an explanatory variable.

10. Demographic Characteristics

Demographic variables collected for this analysis include descriptive variables on race, ethnicity, sex, household composition, and citizenship status. The source for each of these is the American Community Survey. Each of these population descriptors was collected as a raw number, and then divided by the total state population to create a percentage of the total population to ease in interpretation. Race variables include the percentage of African Americans and white citizens at the state level. Citizens of Latino ethnicity are also included as a control. Household composition is reflected in the number of female headed households are in a state. Non-citizens are defined as adult, Latino immigrants who have not achieved citizenship status.[20] To see information on each variable category, coding, and sources, refer to Table 4.1. To view the means for each of these descriptors, please see Table 4.2 below.

[20] Adult is defined as 18 years of age and older.

Table 4.1. Variable Categories, Coding, and Sources.

Variables	Coding	Source	Link/Contact
Dependent Variables			
Fraud Expenditures	Dollars spent, Level and Log	Food and Nutrition Services	Kelly Stewart, Program Analyst with FNS
Outreach Expenditures	Dollars spent, Level and Log	Food and Nutrition Services	Kelly Stewart, Program Analyst with FNS
Social Variables			
Newspaper Coverage	Count of newspapers published in each state, each year on SNAP	LexisNexis	http://www.lexisnexis.com.proxy-remote.galib.uga.edu/hottopics/lnacademic/
Gini Coefficient	Measured from 0 to 1, with 0 being perfect income equality and 1 perfect inequality.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Union Density	The percentage of union members in the state's labor force population.	Union Statistics	www.unionstats.com
Economic Indicators			
Poverty Rate	Percentage of population in poverty for each state.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Unemployment Rate	Percentage of working age population unemployed and actively seeking employment for each state.	Bureau of Labor Statistics	http://data.bls.gov/timeseries/LNS14000000
Per Capita SNAP Benefits	Dollars spent per person on SNAP benefits per state.	Food and Nutrition Services	Kelly Stewart, Program Analyst with FNS
Recession	Dichotomous [0,1], Indicating Great Recession period.	Created by me	N/A
Political Measures			
Citizen Ideology	Berry measure, Continuous indicator that increases as the state's citizenry becomes more liberal.	Richard Fording, University of Alabama; State Politics & Policy Quarterly	http://academic.udayton.edu/sppq-TPR/data_sources.html
Governor's Party	Dichotomous [0,1], Indicating the political party (0=Republican) of the sitting governor.	National Governor's Association	http://www.nga.org/cms/governors

Variables	Coding	Source	Link/Contact
African Americans in State Legislature	Percentage of state legislators that are African American, by state and year.	National Conference of State Legislatures	http://www.ncsl.org/legislatures-elections/legisdata/african-american-legislators-1992-to-2009.aspx
Women in State Legislature	Percentage of state legislators that are women, by state and year.	Rutgers Center for American Women and Politics	http://www.cawp.rutgers.edu/fast_facts/
Demographic Characteristics			
Black	Percentage of black citizens in state population.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
White	Percentage of white citizens in state population.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Latino	Percentage of latino citizens in state population.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Female Headed Household	Number of female-headed households in state population.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Non-citizen	Number of non-citizen adults in state population.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Population	Total population by state.	U.S. Census Bureau, American Community Survey	http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

Table 4.2. Summary Statistics,
SNAP Implementation Data.

	Mean	**SD**	**Min**	**Max**
Year	2007.5	1.711	2005	2010
Recession	0.333	0.472	0.000	1.000
Total Fraud Expenditures	2335964.00	5565959.00	0	3093818.00
Fraud, Logged	13.459	1.690	6.440	17.320
Total Outreach Expenditures	212958.70	513288.00	0	33400000.00
Outreach, Logged	11.250	2.340	4.970	14.940
Poverty Rate	13.373	3.180	7.100	22.400
Unemployment Rate	7.271	2.299	3.200	15.100
Population	5934814	6625689	506242	37300000
Per Capita SNAP Benefits	131.41	60.09	38.86	325.55
Gini Coefficient	0.452	0.023	0.400	0.540
Percent Female	0.508	0.008	0.478	0.531
Percent Male	0.494	0.009	0.467	0.526
Percent White	0.779	0.138	0.247	0.969
Percent Black	0.110	0.112	0.003	0.558
Percent Latino	0.097	0.097	0.006	0.466
Percent Immigrant	0.023	0.021	0	0.098
Female Headed Households	279818	313128	15368	1688664
Governor's Party	0.517	0.501	0	1.000
Citizen Ideology	54.827	16.354	18.070	93.280
Female Legislators	23.471	7.134	8.200	38.300
African American Legislators	7.910	7.948	0	30.000
Newspapers	49.200	56.700	0	367.000
N	***306***			

Data Set 2: Description

Data for the second empirical chapter come from the Bureau of Labor Statistics, Food and Nutrition Services, Lexis Nexis, and the Census Bureau. As I will describe in more detail, some of the variables used in the first empirical chapter inform and motivate a selection equation for the second empirical chapter. The main data source is the Consumer Expenditure Diary Survey (CEX), for which the Bureau of Labor Statistics is the administering agency. This survey is administered on a rolling basis to a cross-section of the population. This means that the survey is administered throughout all 52 weeks of the calendar year, the benefit of which is the ability to observe and study consumption patterns in different months and seasons. Non-survey population data for this study come from the Census Bureau, which collects estimates annually through the American Community Survey. State-level SNAP program data on outreach and fraud are from Food and Nutrition Services, and newspaper coverage of the SNAP program (as described in the previous section) was collected from Lexis Nexis. The observation time frame for this sample is 2005 through 2010, and the unit of analysis is the household.

The Diary Survey is given to respondents for two consecutive one-week periods; during that time, respondents provide detailed expenditure information at the household level. Using the Diary Survey, respondents detail daily expenditure information on items such as food, beverages, gasoline, drugs and medical supplies, and household products and services. In addition to expenditure data, income and demographic information are collected. While the unit of analysis is the household, the survey respondent, known as the "reference person," details demographic information on themselves and other members of the household. The reference person also records aggregate expenditures for the other persons living in the same household for the survey

period. Interviewers collect data on a rolling basis (throughout the calendar year), so that observations are distributed across each of the twelve months of the year.

The Bureau of Labor statistics contracts the U.S. Census Bureau to collect the Diary Survey data. All data collected are under the guidelines of the Census Bureau's confidentiality requirements, preventing disclosure of household identity. Each household records their daily expenditures, but are not limited to the expenditure items detailed on the survey. They may record other purchases as well. In addition to the diary, a household characteristics questionnaire is completed to collect demographic information. The survey is divided into each day of the survey period and into broad categories of goods and services in order to assist respondents in organizing their diary entries. See Appendix A for a copy of the Diary Survey.

At the beginning of the two week period, the Census Bureau interviewer uses the household characteristics questionnaire to record household demographics. At the time of the questionnaire's completion, the first week's diary is left for the household to complete. At the end of the first week, the interviewer goes to the household again to pick up the first week's diary, clarify any questions after reviewing the diary entries, and leaves the second week's survey. After the second week is completed, the diary is again picked up, reviewed, and clarified by the interviewer. During this last visit, the interviewer collects more information on income and employment for the household characteristics questionnaire.

In addition to data collection, the Census Bureau edits and codes each of the diary survey, and also completes consistency checks, quality control, and transmitting of the data to the Bureau of Labor Statistics.[21] The Bureau of Labor Statistics then performs additional review of the data, preparing it for publication and release.[22]

[21] The household characteristics are sent directly to the Census Demographic Surveys Division. The Census interviewer, upon picking up the diary at the end of the second week, sends the diary portion from regional offices to

In this analysis, I consider only those households near poverty and compare specific household expenditures for those receiving food stamps to household expenditures for families not receiving food stamps. SNAP receipt is a function of both income and family size; a family is eligible for SNAP if they fall at or below 130% of the federal poverty threshold. Because I am interested in comparing families of similar income levels, the sample is restricted to families at 150% of the federal poverty level and below. All expenditures are in U.S. dollar amounts and were adjusted to 2012 dollars using the consumer price index (CPI-RS-U). Household expenditure variables in the second empirical chapter include alcohol and cigarette expenditures, as the CEX diary provides information on food and non-food items purchased over the survey period, enabling disaggregation of data to analyze very detailed expenditure categories.

Dependent Variables

The second empirical chapter examines the effect of SNAP receipt on alcohol and cigarette expenditures, controlling for selection into the SNAP program. I construct two models to predict changes in consumption patterns for alcohol and cigarettes, which are separate dependent variables. Alcohol and cigarette expenditures come from the CEX Diary, are continuous dollar amounts, and are adjusted for inflation to 2012 dollars.

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the Census National Processing Center in Jeffersonville, Indiana. At the National Processing Center, diary data are keyed and coded. Then, diary data are sent to the Census Demographic Surveys Division where they are merged with the household characteristic data. Inconsistencies and errors in the combined data set are then identified and corrected. After processing, the data are then transmitted to the Census Processing Center in Suitland, Maryland where they are passed through another round of quality control checks for missing values and other errors. The data are then sent electronically to the BLS in Washington, D.C. (BLS, 2011).

[22] Upon arriving at the BLS, the data undergo another round of quality control checks and computer edits to identify inconsistencies. In addition, imputations are inserted for demographic and work experience variables where they are missing or invalid. (BLS, 2011).

For this analysis, the sample is restricted to low income families at 150% of the federal poverty line (FPL) and below. While I have information on specific expenditures, the CEX does not contain a measure in which the reference person identifies themselves or other family members as "drinkers" or "smokers." This is a limitation of the Diary Survey which dictates that my analysis is restricted to information on expenditures only, not on actual consumption or addiction.

For the full sample at 150% FPL, 13.5% reported spending some money on alcohol over the diary period, while 18.3% of the sample reported spending some money on cigarettes. Mean weekly alcohol expenditures for drinkers were $3.04, and mean weekly cigarette expenditures were $4.68 for the full sample (refer to Table 4.3. for the full sample's summary statistics). However, there are many zero values for non-drinkers, so when the sample is restricted to drinkers,[23] mean weekly alcohol expenditures increase to $22.61. When I restrict the sample to smokers, mean weekly cigarette expenditures increase from $4.68 to $25.52.

Dividing the sample by non-SNAP recipients and SNAP recipients provides a different set of summary statistics, as seen in Table 4.4. The drinking rate for the non-SNAP sample is 14.1%, where the smoking rate is 14.6%. For the SNAP receiving families at 150% FPL and below, the drinking rate is 11.5%, and the smoking rate is twice as large as the non-SNAP sample at 30.2%.

Mean weekly alcohol expenditures for the non-SNAP sample are $3.25, but when the sample is restricted to drinkers only the mean increases to $23.40. Mean weekly cigarette

[23] I define "drinkers" and "smokers" on the expenditure variables, respectively. For example, a household with alcohol expenditures>0 received a value of 1 for "drinker." A household with cigarette expenditures>0 received a value of 1 for "smoker."

expenditures non-SNAP families are $3.64, and increase to $25.00 for the non-SNAP smoker sub-sample. Comparatively, mean weekly alcohol expenditures for the full SNAP sample are $2.23, and increase to $18.94 for SNAP "drinker" families with alcohol expenditures greater than zero. Mean weekly cigarette expenditures for the full SNAP sample are $8.04; the restricted sub-sample of smokers have mean weekly cigarette expenditures of $26.47.

Instrument

One of the primary threats to validity in this research is sample selection. This means that families in the sample who are on SNAP have selected into the program to receive the benefit and are fundamentally different in some way than families, who are eligible for, but not receiving the benefit. In order to answer my research question concerning the effect of SNAP receipt on alcohol and cigarette expenditures, I first corrected for the selection bias in my sample.

In order to do this, I identified an appropriate exogenous instrument that would predict program participation but would presumably have no effect on the amount of money households spend on alcohol and cigarette expenditures. Once this instrument was identified, I predicted whether a family would receive SNAP. Controlling for selection, I then observe if SNAP receipt has an impact on specific household expenditure patterns, relative to non-SNAP households at the same income threshold.

The instrument that used to predict program participation is the newspaper variable from the first empirical chapter. Using the number of newspaper articles on food stamp and SNAP in each state for the sample period, the newspaper data were merged with the CEX on state geographic identifiers at the household level. Thus, each family received a value in the

newspaper variable based on their state of residency and the year in which they completed the survey.

Lagged newspaper coverage of the program is used as an exogenous instrument to predict program participation, and then test for the effect of SNAP receipt on household consumer behavior. Media attention to the food stamp program should increase public awareness of the program, both in terms of program goals and in technical areas such as eligibility. The underlying assumption is that as media coverage of the program increases, families will be more likely to enroll in SNAP. However, the number of articles on the subject of food stamps should not be a predictor of how much alcohol or cigarettes a family buys in any given week.

As the recession hit and unemployment rose, many families became newly eligible for SNAP participation. For newly eligible families, information on the program made available through news media coverage would be one of the ways the household might get the information needed to consider enrolling in the program. As discussed in the introduction, SNAP is the largest social welfare program in the United States, so most people probably know that the program exists. However, specific eligibility criteria are probably not as well known among the mainstream public. As unemployment increased among more educated households, it is not unlikely that education among eligible SNAP recipients rose. Research studies by the Pew Research Center show that households with higher levels of education are more likely to read newspaper media (Pew, 2004). As unemployment and poverty increased, along with newspaper coverage of the program, families becoming eligible for SNAP were more likely to be exposed to information about the program. This could have a direct effect in food stamp take-up.

The argument that the recession saw increases in the education level of food stamp recipients because of economic hardship receives support in the means of my data. In the Diary

Survey sample, there is evidence of increasing education levels among households receiving food stamps in the last 30 days. In 2005, the first year of the survey used, the average education among food stamp households was 11.81. In 2008, education among recipients had increased to 11.94 years. By 2010, the average education among food stamp-receiving households was 12.13 years. This means that on average, households receiving food stamps had their high school diploma and some college education. The correlation between higher levels of education and higher likelihood of newspaper reading strengthens the argument for using newspaper coverage of the program as an instrument.

As stated, the test of a good instrument is that it remains exogenous to the outcome of interest. In this case, newspaper coverage must predict selection into the program but not expenditures on cigarettes or alcohol. There is some concern that selection into the program may be determined to some extent by the fact that smokers or drinkers might be more likely to read the newspaper, thus positively biasing selection into SNAP for cigarettes and smokers because of some unobservable characteristic that makes these individuals more likely to both smoke or drink and read the news. However, this concern is abated (at least in part) by a further consideration. If smokers and drinkers are more likely to read the news and be affected by coverage of the program more than non-smoking and non-drinking households, this might indicate that they are somehow more "sensitive" to news information. Should this be the case, these individuals might be just as likely to be influenced by negative coverage of smoking, for instance. News media coverage of smoking is most often related to negative information: adverse health consequences, the rising price of cigarettes, and even local non-smoking laws. Should readers who are smokers (or drinkers) be more likely to read the news and be affected by it, they would also be influenced by coverage on the consequences of their own bad habits. The

possibility that smokers or drinkers are more likely to be impacted by news coverage of the program which would bias selection is a threat to internal validity, although not a major concern. It does not seem likely that consumers of alcohol and tobacco are somehow more "sensitive" to information that others. In fact, because of the known adverse health consequences of smoking, the more plausible argument is that cigarette smokers are less likely to be influenced by information. Thus, newspaper media coverage should predict program participation but not the outcome of interest (cigarette or alcohol expenditures). These data were collected from Lexis Nexis, and the mean number of newspaper articles for the full sample was 83.9.

As secondary instruments, outreach and fraud expenditures are also used to predict participation. To do this, a variable for per capita outreach expenditures and per capita fraud expenditures were created by dividing the state-level expenditure amount by the state population. Each family then received a value for per capita outreach and per capita fraud identified by their state of residence, the year they completed the survey, and the amount of money their particular state spent in the areas of outreach and fraud.

Since the purpose of outreach activities is to increase participation, it seems that as states spend more money on outreach, the number of families enrolling in the program will increase.

Conversely, fraud control should theoretically have the opposite relationship with participation. As states are observed to be more vigilant and aggressive in pursuing cases of fraud, eligible families might be less likely to participate in the program. Outreach and fraud control should also have a direct effect on participation but no relationship with alcohol and cigarette expenditures. To recap, outreach and fraud data were collected from Food and Nutrition Services. Mean per capita outreach expenditures in the full sample were two cents per person, while mean per capita fraud expenditures averaged 35.5 cents per person.

Independent Variables

1. Key Variable of Interest: Income

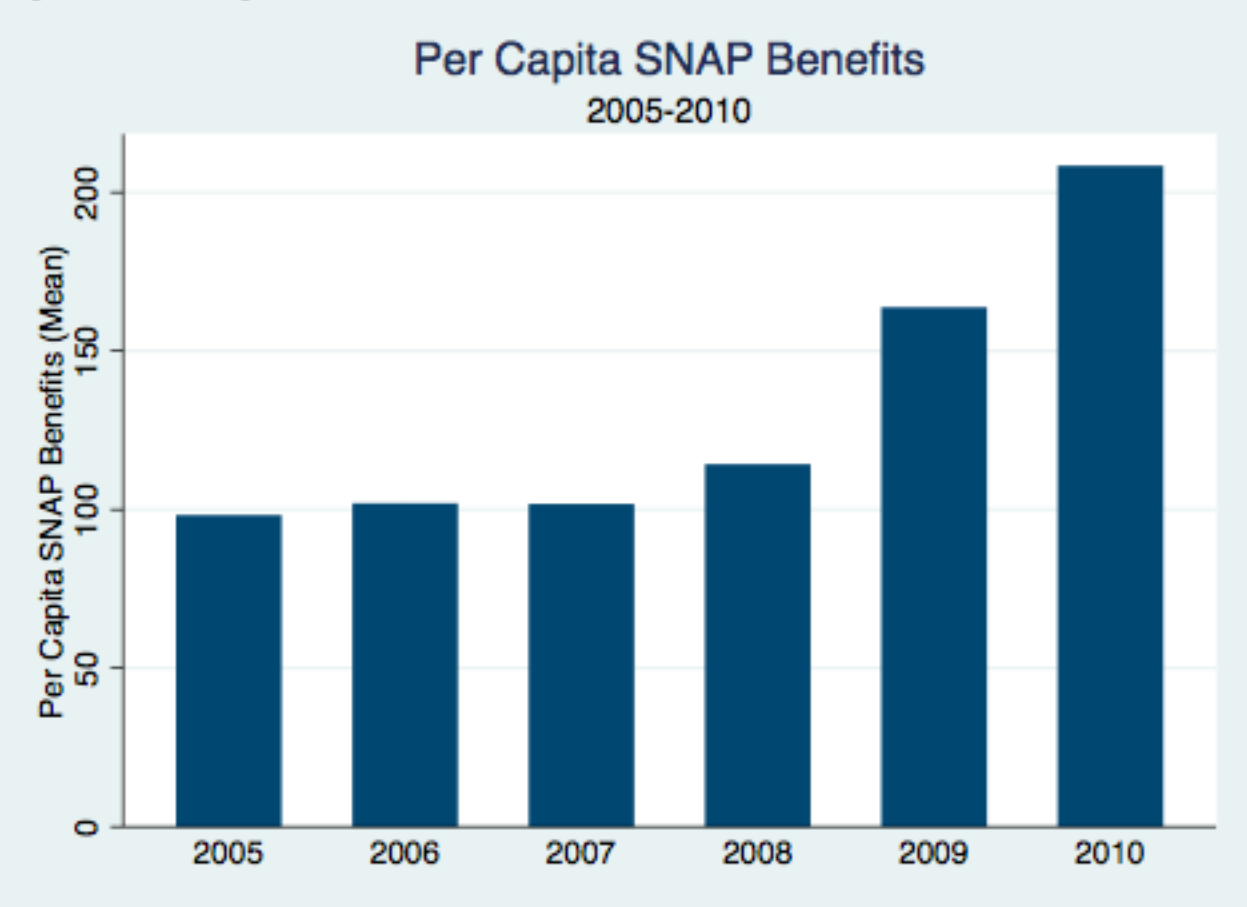
Income is the critical independent variable in predicting household consumer expenditures. The CEX Diary historically had many missing values for income, so in 2004 the Bureau of Labor Statistics implemented multiple imputations of income data. Imputing values for income allows family income to be estimated when the income values are otherwise missing. The income variable used is imputed pre-tax, post-transfer income, and includes all earned wages, pensions, unemployment benefits, interest payments, alimony, child support, farm or business income, and transfer benefits such as Social Security, Temporary Assistance for Needy Families, and SNAP. Using the aggregate measure of income, which includes cash income and transfers (including the dollar amount of monthly SNAP benefits), allows for estimation of the effect of SNAP participation on expenditures as a function of increased income. This is the same functional form of the independent variable of interest (cash income + food stamp benefits) used by Wilde and Ranney (2000).

The CEX includes five different imputation iterations of pre-tax, post-transfer income and a final imputed income variable which is the average of the first five imputation iterations. Income is reported as a continuous annual dollar amount, and was adjusted for inflation to 2012 dollars. Because income is reported annually and the Diary Survey is recorded on a weekly basis, I created a weekly measure of income by taking the annual imputed measure and dividing it by fifty-two. Even after using the imputed measure of income, 91 households have a value of "0" for annual income. I identified these as outliers and do not include them in the sample.

In the full low-income sample, 25.6% of families indicate receiving the food stamp benefit in the last month. When the sample is disaggregated, there are observations for 13,063

families who did not receive the benefit and 4,340 families who indicated that they did receive the food stamp benefit. This imputed, aggregate income measure includes SNAP dollars received and will allow for estimation of the effect of program participation on household expenditures. For an idea of how mean SNAP benefits changed over the sample period, refer to Figure 4.6 below.

Figure 4.6. Average SNAP Benefits, 2005-2010.



2. Independent Variables: Household Structure

Household structure is also an important determinant of household expenditures. Dichotomous variables for single adults with no children, single parents, two adults with no children, two adults with children, and non-traditional family structures were created to control for household expenditures. For the full sample at 150% FPL and below, single adults compose 42% of the households in the sample, single parents are 12.7%, two parent households are 18.3%, and two adult households with no children are 9%.

However, the composition of households in the SNAP-receiving subsample is much different. Only 24.5% of SNAP households are single adults, families with children are much more likely to be in the program than households without children. Single parent homes compose 27% of the SNAP recipient group, and 19.4% of two parent households receive the subsidy. Only 4% of households with two adults and no children responded to receiving SNAP in the last month. Based on the differences between the non-SNAP households and the households receiving food stamps, it is important to control for household composition.

3. Independent Variables: Year

This sample is a pooled cross section, with six years of data. Because of time trends such as the Recession and other historical events, it is critical to control for time. Dichotomous "year" variables were created to control for time, as SNAP participation and household expenditures are subject to change based on the point in time when the survey was completed. The distribution across years in the sample is fairly consistent, with the number of observations in 2005 composing 15.4% of the sample, 2006 accounting for 15.8% of the sample, 2007 and 2008 at approximately 16% of the sample, and 2009 and 2010 at 17.7% and 18.7%, respectively. The

number of observations increases annually over the sample period, yielding a sample size of 18, 161 at 150% FPL and below.

4. Independent Variables: Vector of Demographic Controls

Some additional control variables are included in order to control for variation in demographic characteristics that influence both program participation and household expenditures. All of these measures were included in the household demographic information in the CEX diary. These characteristics include race, urban residency, education, and age. Over three fourths of the sample identifies as "white," and 25% identify as African American. Mean education is slightly over 12 years; the average low-income household in the sample has someone who completed high school. The mean age is 47.7 years. Over 90% of the sample lives in an "urban" area, although a caveat to this statistic is the limited geographic information available in the Diary Survey. In this sample, "urban" residency is classified as living in an area with a population greater than 2,500 individuals. While this is a limitation of the data, the Diary Survey must ensure anonymity to respondents, which is why little detail on location is provided for survey respondents. Please see Tables 4.3 and 4.4 below for a full set of summary statistics.

Table 4.3. CEX Diary Survey Summary Statistics, 150% FPL & Below.

Full Sample

	Mean	SD	Min	Max
Alcohol	3.040568	12.68341	0	632.27
Cigarettes	4.686876	15.73996	0	600.2134
Drinker	0.1352301	0.3419786	0	1
Smoker	0.1834431	0.38704	0	1
SNAP Receipt	0.2564278	0.4366733	0	1
Weekly Income	277.6418	171.3938	0.0192308	1395.092
Urban Residency	0.9016794	0.2977558	0	1
Education	12.25941	1.74309	0	17
Age	47.70162	20.21757	15	87
White	0.7561554	0.4294119	0	1
Single Parent	0.1276493	0.3337081	0	1
Two Parents	0.1837881	0.387322	0	1
Two Adults	0.0933152	0.2908816	0	1
Single Person	0.428781	0.4949155	0	1
Newspaper Articles	82.88688	86.03741	1	367
Outreach	0.0237104	0.0512249	0	0.2326745
Fraud	0.3481393	0.3552512	0	1.416699
2005	0.1542857	0.3612324	0	1
2006	0.1581716	0.3649119	0	1
2007	0.1616817	0.3681687	0	1
2008	0.1609232	0.3674702	0	1
2009	0.1772028	0.3818507	0	1
2010	0.187735	0.3905111	0	1
N	18161			

Table 4.4. CEX Diary Survey Summary Statistics by SNAP Receipt, 150% FPL & Below.

	Non-SNAP Recipients				**SNAP Recipients**			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Alcohol	3.257	13.444	0.00	632.27	2.235	9.637	0.00	171.44
Cigarettes	3.637	13.059	0.00	267.07	8.040	21.840	0.00	600.21
Drinker	0.141	0.348	0	1	0.116	0.320	0	1
Smoker	0.146	0.353	0	1	0.303	0.459	0	1
Weekly Income	270.659	165.685	0.02	1251.69	296.756	185.531	0.32	1395.09
Urban Residency	0.909	0.287	0	1	0.878	0.327	0	1
Education	12.373	1.765	0	17	11.875	1.654	0	17
Age	49.239	21.307	15	87	43.214	16.038	16	87
White	0.791	0.407	0	1	0.654	0.476	0	1
Single Parent	0.079	0.269	0	1	0.273	0.446	0	1
Two Parents	0.181	0.385	0	1	0.194	0.395	0	1
Two Adults	0.106	0.308	0	1	0.048	0.214	0	1
Single Person	0.496	0.500	0	1	0.245	0.430	0	1
Newspaper Articles	83.944	87.325	1	367	78.827	82.123	1	367
Outreach	0.022	0.049	0.00	0.23	0.027	0.056	0.00	0.23
Fraud	0.355	0.357	0.00	1.42	0.328	0.349	0.00	1.42
2005	0.160	0.367	0	1	0.142	0.349	0	1
2006	0.163	0.370	0	1	0.152	0.359	0	1
2007	0.166	0.372	0	1	0.142	0.349	0	1
2008	0.167	0.373	0	1	0.139	0.346	0	1
2009	0.168	0.374	0	1	0.204	0.403	0	1
2010	0.174	0.380	0	1	0.222	0.415	0	1
N	**13063**				**4340**			

Concerns and Limitations

Internal validity addresses the extent to which the research study measures what it was designed to measure. To this end, internal validity is concerned only with my specific study. As this dissertation is primarily concerned with intervention in the form of the food assistance program SNAP, internal validity is critical. Internal validity ensures that outcomes on the dependent variable can be attributed to the independent variables of interest and not to other confounding factors.

Threats to the internal validity of this study include history, statistical regression to the mean, and selection bias. A historical internal threat to validity such as the Great Recession could confound results if not controlled for; I use a recession control in order to correct for this specific threat. Statistical regression to the mean concerns outliers, in this case the families worst-off in socioeconomic status, regressing toward the mean. Households in poverty are the focus of this study, selected for study on the basis of very low incomes. Controlling for income and a host of other macroeconomic factors such as income inequality, unemployment, poverty, and state generosity helps to mitigate this specific threat to internal validity.

Finally, selection bias is also a serious threat to internal validity. SNAP enrollment is voluntary. Therefore, households in the "treatment" group who receive SNAP are most likely fundamentally different from the "control" group who do not receive SNAP. Because there is some characteristic or set of characteristics which likely separate the treatment from the control group, selection bias must be corrected for estimations to be accurate. In order to correct for selection bias, I present two empirical chapters. In the first empirical chapter, I build a selection model with the newspaper instrument as the key independent variable of interest, using media coverage and other state-level characteristics to predict specific expenditures in SNAP fraud

control and outreach. The second empirical chapter builds on this model by using newspaper coverage as an instrument to predict SNAP take-up for low income households, and then estimates the impact of program participation on consumer expenditures for cigarettes and alcohol. Instrumenting program participation should help mitigate the threat of selection bias.

External validity concerns the extent to which this study's results are generalizable (Cook & Campbell, 1979). External validity concerns include representativeness of a sample, or the degree to which the sample reflects the makeup of the population as a whole. The first data set, the SNAP Implementation data, are panel data, and as such are representative of the U.S. population. In addition to having representation from all 50 states plus the District of Columbia, I observe the sample for a period of six years. Ultimately, I need to have many more years of data to observe policy change over time, capturing more variation across states and within state boundaries. For the purposes of this study, however, this is a sufficient start for a panel data set with preliminary findings.

The CEX is a national, representative cross-sectional sample which occurs every year on a rolling basis. One of the primary threats to external validity from cross-sectional samples is limited generalizability. Repeated cross-sectional data are not as valid as panel data sets because the sample changes annually. However, it is better to use a repeated cross-sectional sample than a single cross section because I can at least control for yearly time trends.

Another concern is representativeness, or the degree to which the CEX sample represents the U.S. population as a whole. Upon comparison with the Current Population Survey, a very large survey with approximately 180,000 households surveyed annually, Meyer and Sullivan find that the CEX lines up closely with the characteristics of CPS respondents. While this result does not necessarily dictate that the CEX is perfectly representative of the U.S. population, we

can conclude that it is just as representative as a much larger sample (7,000 households annually for the CEX Diary versus 100,000 for the CPS). The CPS is a very large sample of the non-institutional, civilian population in the United States, and has been shown to be representative (Meyer & Sullivan 2009) of the U.S. population as a whole. To improve the external validity of the CEX Diary Survey data, I use a general population weight included in the sample data to increase representativeness. This weight, "finlwt21," is constructed by the Bureau of Labor Statistics and is used so that the households in the Diary Survey represent the U.S. population as a whole. This weight is a complex estimate that allows for representation of the U.S. population, and has been adjusted so that the sum of all household weights is approximately one third of the U.S. population. Thus, using the weight for three months of data approximate the total population (BLS, 2011). The weights are calculated at the household level.[24]

Another obvious limitation of the data is the actual consumption of cigarettes and alcohol. We know what individuals are buying, and how much money they are spending. The data provides information on what people purchase to take home with them, but not what they actually eat or use. Waste and spoilage could mean that purchases are not a clear reflection of consumption among households. Spoilage and hoarding are potential issues that impact consumption patterns which I am not able to control for or assess using the CEX data, an obvious limitation of this research.

Respondents may also tire of reporting micro expenditures over the course of the diary survey period, suffering from "diary fatigue" and failing to report expenditures or omitting

[24] According to the BLS, the weight for the household is adjusted to national population controls for: 14 age/race categories, 4 regions, and 4 region/urban categories. The weight also adjusts for home ownership and uses an iterative process to ensure that the households in the sample meet each of the population controls. http://www.bls.gov/cex/2008/csxdiary.pdf

purchases from the record. This could result in omitted variable bias in this analysis, or in underestimation of the impact of food stamps on food expenditures (Bee, Meyer, Sullivan, 2012). The analysis of "sin" goods such as alcohol and smoking supplies (such as cigarettes) may be additionally complicated by a respondent withholding information on these types of purchases because of related stigma. This, however, would cause estimates to be lower-bound estimates of actual expenditures on goods such as cigarettes or alcohol, so this limitation would not seriously challenge the robustness of my results.

CHAPTER 5

RESULTS: FRAUD CONTROL & OUTREACH ANALYSIS

Previous chapters introduced food assistance policy in the United States and presented previous research conducted on SNAP. This was followed by presentation of a theoretical model to explain legislative actors' behavior in a policy implementation setting, using the Social Construction of Target Populations theory and Belief in a Just World. The last chapter focused on the data needed to answer my research questions and discussed the tools which will be used to estimate empirical models. The purpose of this chapter is to test the determinants of legislative actors' decision making around expenditures for the food stamp program, using state-level SNAP expenditures in the areas of fraud control and outreach.

I first present the method and estimation technique used for fraud control expenditures, an OLS regression using state fixed effects. Then, I the present methods used for outreach spending: a tobit estimator to predict how much a state spends on outreach once they opt into spending. In addition to the final models, the estimation techniques and alternative specifications used to test for robustness are discussed. The chapter closes with a discussion of the empirical findings.

This analysis models the legislative actor's behavior. Asking what determines the actor's decisions on programmatic spending, I use Schneider and Ingram's power/social construction typology to focus on the "dependent" category. The dependent variables are representative of burdens (fraud control) and benefits (outreach), which are used as policy tools by legislators to

punish or reward the target population. This first empirical chapter will test the hypotheses formulated in Chapter 2:

H_1: As need increases, allocation of benefits (outreach dollars) to the target population will increase.

H_2: As need increases, allocation of burdens (fraud dollars) to the target population will increase.

H_3: As salience increases, allocation of benefits (outreach dollars) will increase.

H_4: As salience coverage increases, allocation of burdens (fraud dollars) will increase.

Methods

The first dependent variable is fraud control, a measure of the number of dollars each state spends in a given year to prevent fraudulent activity in the food stamp program. Fraud expenditures occur in almost every state for every year in the data set.[25] Because the dependent variable is a continuous dollar amount with very few zero values, OLS is the appropriate estimation technique for the fraud expenditure model.

To estimate the effect of the explanatory variables on fraud expenditures, I first panel-set the data by state with a yearly time-series operator. In order to correct for the threat of heteroskedasticity, I estimated the model with robust standard errors. This ensures that the point estimates are more accurate. To determine if random effects or fixed effects were most appropriate, I estimated both and then performed a Hausman test to see if the difference in the coefficients was significant. I found that there was a statistical significant difference in the coefficients and chose the fixed effects model as the appropriate specification.

Because heteroskedasticity is a known problem, I used the –xtscc- specification for the OLS fraud model. It is an estimation technique that allows for fixed effects OLS with panel data,

[25] North Dakota is the exception, they had no fraud control expenditures for the observation period.

where the error structure is assumed to be heteroskedastic and autocorrelated. This estimation technique produces what is called "Driscoll-Kraay" standard errors, correcting for heteroskedasticity.

I performed a number of alternative specifications to test the model for robustness and to arrive at the preferred specification. First, I estimated the model with multiple functional forms of the dependent variable. This included level fraud expenditures, logged fraud expenditures, and per capita fraud expenditures. The per capita model is the preferred specification because it is a more flexible functional form and the goodness-of-fit measure (within-state R-squared term) was significantly higher for the per capita functional form (.121 for the per capita model versus .063 for the logged fraud model).

The models were estimated using a contemporaneous newspaper variable measure as the independent variable of interest and a lagged term for newspaper coverage. While the newspaper variable was significant in both models, dissemination of information takes time to influence the general public and policy making. For this reason, the preferred specification uses a lagged term (lagged one year), so that the previous year's newspaper coverage predicts fraud expenditures for the current year. In other words, 2004 newspaper coverage of SNAP predicts 2005 SNAP fraud control expenditures.

I began estimating the models using a basic specification, in which I tested the relationship between newspaper coverage and fraud control expenditures. I then estimated the model with a series of alternative specifications from simple to complex. Each of the independent and control variables outlined and defined in Chapter 4 were tested in the model, although to preserve as much statistical power as possible, the preferred specification is far more parsimonious and does not use each of the variables because they are not all necessary. Recall the variable table in

Chapter 4 in which I outlined various categories of variables: some cultural, economic, political, and demographic.

Governor's party and citizen ideology are both political measures which use the political party or affiliation of constituents in a state (conservative to liberal) to represent political climate in a state. I estimated the models for this chapter using both of these measures, and then independently, and found that the model does not change substantively depending on which measure of political climate I use. I chose citizen ideology because it is more of a direct test of what I am interested in measuring—determinants of the state legislative actors' decisions on funding.

Two additional political measures include the percentage of African Americans and the percentage of women in the state legislature. I estimated the models with each of these measures, and did not find the percentage of African American representation to be significant. However, using a dummy variable created on the basis of a critical mass of the percentage of women in a state legislature did prove to be a predictor of fraud expenditures, so it was included in the preferred specification.

Poverty and unemployment are also highly correlated and are both used to measure the economic climate in a state. Estimating the models with each of these measures did not substantively change the model, so I chose to use the poverty rate as an economic control. Likewise, the Gini coefficient was an insignificant predictor of fraud expenditures. As one additional measure of economic vitality, I estimated the models with the state's gross domestic product from agriculture. The agriculture GDP might be an important factor in determining legislator behavior, especially in states where farming is a very important part of the economy. In these states, support of the U.S. Farm Bill and the food stamp program is likely to be higher

than states with little agriculture. However, this variable did not prove to be a significant predictor of legislative decision making in alternative specifications.

The last category that was used to test the model for robustness is the demographic variable category. Because the panel data only span six years, there was little variation in the percentage of minorities and non-citizens. I estimated the models which each of the demographic groups in my data set (African Americans, Latinos, Non-Citizens) but did not find consistent significant relationships between any of these groups and the dependent variable of interest. This outcome could have occurred for two reasons: 1) There may be no relationship between demographic shifts in a state's population and legislative actors' decision making; 2) More likely, there is a relationship but more data is needed to test the relationship so that the change over time is captured and larger amounts of variation in the data allow for the relationship to surface. Either way, I do not include most of the demographic groups in the preferred specification for parsimony's sake and because of the null finding. I do, however, include the number of female headed households as a demographic descriptor in the models. This variable has more variation over time as it is a raw number of the number of female headed households per state.

In addition to the newspaper variable; economic, political, and demographic controls, I include a set of interaction terms that measure the interaction between the recession period and the number of newspapers, and the interaction between the number of female headed households and the number of newspapers. The preferred specification is estimated with state fixed effects. Please see Table 5.1 for the preferred OLS estimation results of fraud expenditures with state fixed effects.

Table 5.1. State Level Fraud Expenditures. OLS with State Fixed Effects.

Preferred Specification

	FE with Robust SE
Newspaper, Lagged	0.0178*
	(0.00630)
SNAP Benefits	0.0236**
	(0.00526)
Poverty Rate	-0.968
	(0.493)
Union Density	0.295
	(0.167)
Female Legislators >15%	3.897*
	(1.108)
Citizen Ideology	0.102+
	(0.0424)
Female Headed Households	-0.000117
	(0.00186)
Recession	1.105**
	(0.241)
Recession*News	0.00571
	(0.00442)
FH Households*News	3.00e-08**
	(5.07e-09)
Constant	23.72*
	(7.470)
N	300

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ Fraud expenditures are continuous and are adjusted for inflation to 2012 dollars. Beta coefficients reported with standard errors in parentheses. Models were estimated with robust standard errors. Newspaper variable lagged one year. Fraud measured in per capita expenditures for every 100 people. Female headed households measured for every 100,000 people. State fixed effects included. North Dakota not included in the analysis because of zero fraud control expenditures.

Outreach expenditures must be modeled differently that fraud expenditures, as there are many missing values in the outreach variable. Many states have zero values for outreach, and opt not to participate in any activities that are partially paid by the U.S. Department of Agriculture. The outreach equation is estimated using a tobit specification, the dependent variable being a continuous dollar amount variable indicating how much the state spent on state-level outreach activities in the food stamp program.

The tobit technique is appropriate for the continuous outreach measure, a positive value, which depends on the latent variable y^* influencing the outcome. This technique is especially useful for dependent variables that have many zero values, as is the case for outreach spending. For example, a state must choose first to spend money on outreach or not. This is the latent variable y^* which must be taken into consideration before the secondary decision on how much to spend. Should the state choose to spend money, a secondary decision on how much to spend is made. The tobit may be expressed as:

$$y^*_{outreach} = \beta_0 + x\beta + u,\ u \mid x \sim \text{Normal}(0,\sigma^2)$$

$$\text{where} \qquad y = \max(0, y^*)$$

This model contains some conventional linear model assumptions, specifically that the latent variable y* has a normal distribution that is homoscedastic and a linear, conditional mean (Woodridge, 2009). The first equation states that $y^*_{outreach}$ is a function of a constant, plus explanatory variables $x'\beta$ plus the error term. The second equation shows that the observed value for y equals y^* if y^* is greater than or equal to 0, and $y=0$ when $y^*<0$. Outreach spending, then will be greater than zero if y^* is greater than or equal to zero.

In order to test the relationship between my explanatory variables and outreach expenditures, I estimated a tobit regression with state fixed effects. Including state fixed effects

in the model allow me to control for state-specific, time invariant trends that effect state outreach expenditure decisions. I then estimated the marginal effects for the tobit equation to see the unit change in *y*, conditional on *x.*

Just as I estimated many alternative specifications for the fraud model, building it from simple to complex, I also estimated alternative specifications for the outreach model. The functional form for outreach is also measured in per capita expenditures. The high number of zero values for outreach dollars was an additional reason to choose per capita expenditures as the functional form over the logged form. Consistent with the fraud model's preferred specification, I include the citizen ideology measure of political climate and the poverty rate measure. The preferred specification also includes union density, as an additional control for the political environment within the state. Table 4.3 contains the full results of the preferred specification of the tobit model predicting state level outreach expenditures.

Table 5.2. State Level Outreach Specification. Tobit Results.

Preferred Specification	
Newspaper, Lagged	-0.0176
	(0.0147)
SNAP Benefits	0.0373**
	(0.0112)
Poverty Rate	0.299
	(0.506)
Union Density	0.108
	(0.368)
Female Legislators >15%	-0.943
	(4.067)
Citizen Ideology	-0.0114
	(0.0538)
Female Headed Households	-0.00205
	(0.00200)
Recession	0.780
	(0.845)
Recession*News	0.00379
	(0.00934)
FH Households*News	-1.25E-08
	(1.51e-08)
Constant	-7.867
	(13.44)
Sigma	3.589**
	(0.198)
N	306

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ Outreach expenditures are continuous and are adjusted for inflation to 2012 dollars. Marginal effects reported with standard errors in parentheses. Models were estimated with robust standard errors. Newspaper variable lagged one year. Outreach measured in per capita expenditures for every 100 people. Female headed households measured for every 100,000 people. State fixed effects included. North Dakota not included in the analysis because of zero outreach expenditures.

Results

The first set of results, reported in Table 5.1, shows the effect of lagged media coverage and other independent variables of interest on state-level fraud expenditures. This model was estimated with state fixed effects to control for state-specific, time invariant trends. There were 300 observations total, North Dakota was not included because it is an outlier and did not report any fraud control expenditures during the observation period.[26] Beginning with one of the independent variables of interest, the findings show a statistically significant and positive relationship between newspaper coverage of the SNAP program and fraud expenditures. For every additional newspaper article that is published on the program, there is an approximate two cent increase in fraud expenditures per 100 people. This finding is significant at the 95% level.

The next independent variable of interest, the recession dummy variable, shows a positive and statistically significant relationship with fraud control expenditures. During the recession period, states spent $1.10 more per 100 people. This finding is significant at the 99% level. Other significant relationships include SNAP benefits(per capita), a critical mass of female legislators, citizen ideology, and the interaction between female headed households and newspaper coverage.. For every dollar increase in per capita SNAP benefits, there is a two cent increase in fraud expenditures per 100 people.

When the critical mass of female legislators is above 15%, states spend approximately $3.89 more on fraud control expenditures. Citizen ideology is also found to be statistically significant, but only marginally. As the citizen ideology becomes more liberal in a state, fraud expenditures increase by approximately ten cents per 100 people. The relationship between female headed household/news interaction term and fraud control expenditures is negative. As

[26] As an additional sensitivity analysis, the model was estimated with North Dakota and there was no substantive difference in the findings.

the number of female headed households and newspaper coverage increases in a state, fraud expenditures decline significantly, by $3.00 per 100 households. This finding is significant at the 99% level. The model is statistically significant at 99.99%, meaning that I can reject the null hypothesis that all of the coefficients are equal to zero. The within-state R-squared term is .121.

Alternative specifications of the fraud control model are included in Table 5.3, and are substantively robust across specification. The alternatives include models with: a measure of the percentage of African American representation in the state legislature, the state's GDP from agriculture, the state governor's political party instead of citizen ideology, the unemployment rate instead of the poverty rate, a squared benefit term, and a squared term for female legislators. The relationships between the outcome (fraud control expenditures) and the independent variables of interest are robust; they are consistently significant and positive. The one exception is the recession variable in the squared benefit equation: when squared benefits and squared female legislators are included in the alternative specification, the recession is insignificant. However, the relationship between newspapers and fraud expenditures is robust across each specification.

The second set of results, reported in Table 5.2, is from the tobit estimation predicting state outreach expenditures. This model was also estimated with state-level fixed effects. Marginal effects are reported with standard errors in parentheses. The model is left-censored at zero, because of the many zero values that states have for lack of outreach spending. The total number of observations in the model is 306.

The findings from this model do not show a statistically significant relationship between state level outreach spending and lagged coverage. In fact, there was only one statistically significant relationship in this model: as the per capita SNAP benefits increase within a state, the

state chooses to spend more on food stamp program outreach. For every one dollar increase in SNAP benefits allocated in the state, state outreach spending increase by approximately 3.7 cents for every 100 people. This finding was significant at the 99% level.

The accuracy of the estimates are obviously effected by the small sample size (there are only 164 uncensored observations), but the relationship is interesting nonetheless. No other statistically significant results were found between outreach spending and the social, political, and demographic explanatory variables in the model. The Pseudo-R^2 is .43.[27]

Alternative specifications of this model are included in Table 5.4, and are robust across specification. The alternatives include models with: a measure of the percentage of African American representation in the state legislature, the state's GDP from agriculture, the state governor's political party instead of citizen ideology, the unemployment rate instead of the poverty rate, a squared term for benefits, and a squared term for female legislators. The only statistically significant relationship in each of the estimations is the relationship between per capita SNAP benefits, the squared benefits term, and outreach spending. These results are only preliminary; to build on this basic model, I will need more years of data in order to estimate this model more accurately.

Discussion

Recall the first hypothesis: *H_1: During the recession, allocation of benefits (outreach dollars) to the target population will increase.* I do not find support for this hypothesis. There is not a significant relationship between the recession and outreach expenditures. Further, I do not find any evidence in the interaction term measuring recession and news coverage that outreach

[27] The true R^2 is not calculable for non-linear models.

increases. While outreach spending increases over the observation period, I do not find a significant relationship that indicates the recession is a causal factor. This seems unlikely, and so I am uncertain from these preliminary findings as to whether there is no relationship between these two variables or whether the statistical power of my model is too weak to be truly predictive of outreach expenditures.

Because so many states choose not to spend any money on outreach, there are many zero values, which mean that there are only 164 observations of states that chose to spend money on this programmatic area. In order to test this hypothesis more thoroughly, I need to extend the time period in the data set and add observations to increase the variation in my dependent variable. As it stands, the analysis does not support the hypothesis that legislative actors increased the allocation of benefits for the target population due to the recession.

I do find support for the second hypothesis: *H_2: During the recession, allocation of burdens (fraud dollars) to the target population will increase.* There is a large, statistically significant relationship between both the recession and fraud control dollars spent. This lends empirical evidence to the idea that policy makers are driven to increase restraints on the program during times of economic hardship. Legislative actors do this in order to increase their chances of reelection, appealing to their constituents by reinterpreting the victims of the economy. This reinterpretation could mean that SNAP recipients are seen as dependents on a system of food assistance who are likely to try and take advantage of the system.

These "dependents" are perceived as the kinds of persons who must be controlled through systems such as finger printing technology, re-certification processes, and the threat of legal action if they are caught cheating the system. During times of high need, legislative actors perceive the electoral stakes to be much higher for every dollar they spend. A recessionary

period draws attention to large entitlement programs like SNAP, causing the public (and subsequently legislative actors) to react to increases in programmatic spending and enrollment by supporting increases in fraud control dollars. The recession leads to oversubscription of burdens on the target population.

Conversely, I found no support for the third hypothesis, *H_3: As newspaper coverage increases, allocation of benefits (outreach dollars) will increase.* Just as there was no relationship between the recession and outreach dollars, an increase in the previous year's newspaper stories on the food stamp program do not result in an increase in the subscription of benefits to SNAP's target population. The interaction terms were also not significant.

The last hypothesis, *H_4: As newspaper coverage increases, allocation of burdens (fraud dollars) will increase,* is supported by the empirical results. As media coverage increases, state level actors respond the following year by increasing burdens to SNAP clients. The explanation for this finding is complementary to the finding that fraud control spending increases during the recession. Of course, newspaper coverage also peaked during the recession. Tough economic times brought the mainstream media's attention to the food stamp program. While I did not conduct a content analysis to determine if the published articles were of a positive or negative orientation, increased coverage leads to increased awareness of the program.

The salience of the food stamp program increased as a function of increased need due to the recession, as well as an increase in coverage of the program. The public became more aware that the food stamp program was the largest social safety net in the program, with billions of dollars in funding disbursed annually. As salience of the policy program increased, need continued to increase. The end of the recession did not bring an abrupt halt to the growth period for the food stamp program; on the contrary, program enrollment continued to grow long after

the official recession was over. One explanation is that as the effects of the recession continued to be felt by millions of Americans and awareness was raised on the depth of need, people became increasingly frustrated that the problem was not solved and was only getting worse. Turning to the theory of BJW, many people would turn to a non-rational response once the rational response of increasing coverage did not seem to solve the problem. Newspaper coverage brought attention to the issue of food insecurity and food assistance, and could have led many voters to contact their Congressmen and women on the issue, leading to a backlash against low income families. Policy makers used the oversubscription of burdens to the SNAP target population to ensure that they were perceived as "protecting" the average tax payer from the possibility of misuse of public funds by low-income dependents.

Other findings of note included the positive relationship between females in the legislature and fraud control dollars, as well as the finding that as a state's citizenry becomes more liberal, fraud control dollars increase. Fraud is positively correlated with SNAP benefits per capita. Although the relationship in the model was not significant, one possible explanation is that states with more people enrolled in the program spend more on administrative areas in general. There could be a culture of programmatic support in states that have historically spent more on entitlement programs such as SNAP. In this case, fraud control dollars are associated with a large SNAP presence in the state, rather than the allocation of burdens on the target population. More research is needed to specifically test that relationship.

Likewise, states are more likely to spend less on fraud control as female headed households and newspaper articles increase. Findings show support for the social construction of female headed households in the "dependent" category as receiving fewer burdens as media coverage of the program increases in a state. It is interesting that female headed households alone are not

significantly related to fraud control, but when interacted with media coverage, there is a significant and negative relationship. Legislative actors perceive this group to be more deserving of the benefits of the policy rather than the burdens, and as newspaper coverage increases on the plight of single moms in poverty, legislative actors decrease their allocation of burdens. The low power-positive construction of female headed households in the recession leads legislative actors to perceive them as victims in need of assistance. The electoral gain is perceived to be higher for the legislative actors who allocate fewer burdens for this sub-section of the population; they are perceived as empathetic toward a vulnerable population.

These findings are informative on two different levels: first, they show some preliminary evidence about the importance of target populations in policy implementation. Regardless of the nature of the relationship or the magnitude of the coefficient, there are some statistically significant linkages between policy outcomes and population characteristics. As discussed in the literature review, social constructions of target populations are shaped and reinforced by public policy. There is a significant concern of causality here that cannot be disentangled in this analysis, but it is important to note that this empirical study has found some connections between policy outcomes and target populations.

The key finding in this analysis concerns the determinants of policy burdens allocated by legislative actors. Media coverage and the recession increased state-level SNAP expenditures on fraud control. In the model testing the impact of lagged newspaper coverage on expenditures and the model testing lagged newspaper coverage, state level actors increase the level of burdens allocated to SNAP clients. More newspaper coverage may be a signal that the program is being closely watched by the public, leading public officials to "set an example" with the program by tightening control through increased fraud control. Recessionary periods could lead to "victim

blaming," where policy makers act to allocate increased burdens, "protecting" taxpayer dollars from low income families who are looking to take advantage of the system.

Table 5.3. Alternative Specifications for Fraud Control Model.

	% AA in Legislature	Agriculture GDP	Governor's Party	Unemployment Rate	Benefit & Female Leg Squared Term
Newspaper, Lagged	0.0183*	0.0194*	0.0175+	0.0193*	0.0204*
	(0.00631)	(0.00582)	(0.00715)	(0.00558)	(0.00750)
SNAP Benefits	0.00561	0.0109	0.00953	0.0257**	0.0554+
	(0.00586)	(0.00738)	(0.00991)	(0.00636)	(0.0238)
Poverty Rate	-0.330	-0.546	-0.625		-1.161*
	(0.460)	(0.586)	(0.575)		(0.441)
% AA in State Legislature	-0.0873				
	(0.174)				
Female Legislators> 15%	4.247*	4.182*	3.978+	4.030*	
	(1.142)	(1.301)	(1.548)	(1.293)	
Citizen Ideology	0.0574	0.0375		0.0268	0.0989*
	(0.0528)	(0.0632)		(0.0537)	(0.0376)
Female Headed Households	-0.00219	-0.00378*	-0.00384**	-0.00357*	0.000342
	(0.00218)	(0.00103)	(0.000912)	(0.00112)	(0.00174)
Recession	0.592+	0.662+	0.829+	0.760**	0.742
	(0.244)	(0.287)	(0.384)	(0.118)	(0.402)
Recession*News	0.0131+	0.0130+	0.0125+	0.0136+	0.00634
	(0.00576)	(0.00604)	(0.00508)	(0.00584)	(0.00542)
FH Households* News	2.89e-08**	3.04e-08**	2.96e-08**	3.43e-08**	2.93e-08**
	(5.31e-09)	(4.53e-09)	(5.72e-09)	(4.86e-09)	(5.54e-09)
Ag GDP		-0.0000539			
		(0.000270)			
Governor's Party			0.856		
			(1.579)		
Unemployment Rate				-0.685**	
				(0.140)	
Benefits, Squared					-0.0000933
					(0.0000680)
Female Legislators					0.348
					(0.762)
Female Legislators, Squared					-0.00254
					(0.0136)
Constant	33.83*	44.75**	48.00**	40.02**	18.96
	(9.734)	(9.184)	(6.236)	(6.348)	(11.90)
N	300	300	300	300	300

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ Fraud expenditures are continuous and are adjusted for inflation to 2012 dollars. Beta coefficients reported with standard errors in parentheses. Models were estimated with robust standard errors. Newspaper variable lagged one year. Fraud measured in per capita expenditures for every 100 people. Female headed households measured for every 100,000 people. State fixed effects included. North Dakota not included in the analysis because of zero fraud control expenditures.

Table 5.4. Alternative Specifications of State Level Outreach Model, Tobit with State Fixed Effects.

	% AA in Legislature	Agriculture GDP	Governor's Party	Unemployment Rate	Benefits and Female Leg Squared Term
Newspaper, Lagged	-0.0204	-0.0158	-0.0177	-0.0164	-0.0212
	(0.0145)	(0.0143)	(0.0142)	(0.0143)	(0.0134)
SNAP Benefits	0.0317*	0.0381**	0.0372**	0.0289*	0.152**
	(0.0123)	(0.0109)	(0.0108)	(0.0132)	(0.0313)
Poverty Rate	0.607	0.262	0.340		0.187
	(0.553)	(0.506)	(0.500)		(0.502)
% AA in State Legislature	-0.260				
	(0.253)				
Female Legislators>15%	-0.746	-0.731	-0.740	-0.880	
	(4.066)	(4.070)	(4.037)	(4.057)	
Citizen Ideology	-0.0258	-0.0184		-0.00377	-0.00780
	(0.0557)	(0.0536)		(0.0537)	(0.0508)
FH Households	0.000205	-0.00169	-0.00146	-0.00173	0.000168
	(0.00268)	(0.00187)	(0.00185)	(0.00186)	(0.00238)
Recession	1.209	0.681	0.814	0.768	-0.258
	(0.850)	(0.850)	(0.764)	(0.826)	(0.831)
Recession*News	0.00260	0.00577	0.000710	0.00231	0.00380
	(0.00921)	(0.00979)	(0.00918)	(0.00915)	(0.00849)
FH Households*News	-1.04E-08	-1.50E-08	-1.01E-08	-1.14E-08	-9.52e-09
	(1.45e-08)	(1.58e-08)	(1.43e-08)	(1.45e-08)	(1.36e-08)
Ag GDP		0.000438			
		(0.000463)			
Governor's Party			2.044		
			(1.247)		
Unemployment Rate				0.425	
				(0.323)	
Benefits, Squared					-0.000366**
					(0.0000811)
Female Legislators					1.374
					(0.851)
Female Legislators, Squared					-0.0152
					(0.0154)
Constant	-12.82	-4.539	-6.921	-1.737	-34.55*
	(16.99)	(12.38)	(11.73)	(11.05)	(17.05)
Sigma	3.590**	3.586**	3.567**	3.583**	3.333**
	(0.202)	(0.198)	(0.197)	(0.197)	(0.185)
N	306	306	306	306	306

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ Beta coefficients reported with standard errors in parentheses. Models were estimated with robust standard errors. Outreach measured in per capita expenditures for every 100 people. Female headed households measured for every 100,000 people. State fixed effects included.

CHAPTER 6

RESULTS: THE IMPACT OF SNAP RECEIPT ON ALCOHOL AND TOBACCO EXPENDITURES

In the previous chapter, I analyzed SNAP Implementation data to model the legislative actor decision-making. This was done by looking at the determinants of fraud and outreach expenditures using the recession, media coverage and a host of other explanatory variables. This chapter is the second empirical portion of my dissertation. In this chapter, I use media coverage and variation in fraud and outreach to motivate a selection equation to predict SNAP participation. I use this model as a first stage equation to control for selection into the SNAP program, and then estimate the effect of SNAP receipt on two categories of household expenditures: tobacco and alcohol.

The research question is: controlling for selection, how does SNAP receipt impact tobacco and alcohol expenditures? In order to answer this question, I construct a model to predict participation as a first stage equation. This is to attempt to correct for selection bias, a threat to most policy research. The selection equation is motivated by social construction theory and the empirical analysis from the last chapter. The primary instrument is news media coverage of the program. As discussed in Chapter 5, news media coverage will increase as enrollment in the program increases, especially during time of economic distress. As the salience of the policy increases, families will have greater access to information on the specifics of the food stamp

program. Increased information on program eligibility and general areas such as average benefit allotment decreases transaction costs for eligible families, and should directly influence program participation.

Benefits and burdens should also have an impact on program participation. The household perception of the policy tools aimed at the target group will either encourage a family to join if perceived benefits outweigh the perceived cost, or discourage a family from enrolling if perceived cost of participation outweighs perceived gain. Outreach expenditures should positively influence participation, while fraud control expenditures should deter a family from participating. Both of these variables are used to predict a household's selection into the program. The hypotheses for the selection equation are as follows:

H_5: News media coverage of SNAP will positively influence program participation.

H_6: Fraud expenditures will negatively affect program participation.

H_7: Outreach expenditures will positively affect program participation.

Once the first stage equation is complete, I use the Consumer Expenditure Diary data to estimate the relationship between SNAP participation and household cigarette and alcohol expenditures. A paternalistic government might seek to limit purchases for goods such as these, often called "sin goods,"[28] through taxation (Cremer, et. al, 2012). According to economic theory, current consumption of a sin good imposes an externality on a person's "future self," normally internalized completely and called a negative internality (Hernstein, et. al, 1993). However, for a person with self-control problems (such as addiction), a portion of the externality is not internalized which could lead adverse consequences in the future (O'Donoghue & Rabin, 2006). Many different goods, if over-consumed, can lead to adverse health consequences in the

[28] "Sin" goods are goods on which sin taxes are often levied for consumers, because of the notion that they are somewhat socially undesirable.

future. However, the two goods that are most commonly referred to as "sin goods" are alcohol and cigarettes. Little is known about how SNAP affects purchases on cigarettes and alcohol.

When a SNAP subsidy is received, we should know what kinds of consumption tradeoffs are made in a low income family's buying patterns relative to low income families who do not receive a subsidy. Existing research shows evidence of an income effect when SNAP is received (Smallwood and Blaylock, 1983; Moffitt, 1987; Fox et al., 2004), but impacts on disaggregated food purchases and non-food expenditures are generally unexplored.

The premise behind providing SNAP benefits for food items only is that recipients will purchase more of the subsidized items and will not be able to use public funds to purchase less "socially desirable goods" such as alcohol and cigarettes (Hoynes & Schanzenbach, 2009). Most of the work involving SNAP participation and smoking treated both as independent variables for which the impact on dependent variables such as nutritional status and food insecurity were tested. The research shows that SNAP participation and smoking are positively correlated (Fitzgerald, et. al, 2011), and that there is a positive association between smoking and food insecurity. Heavy smoking has also been correlated with a negative impact nutritional intake of smokers and their children (Jones & Frongillo, 2006). One study found a direct, negative relationship between low income children of smokers and nutritional status (Johnson, 1996).

In regards to alcohol expenditures, there is evidence that food stamp receipt has a negative impact on the amount of money households spend on alcoholic beverages (Heien & Pompelli, 1989). The only other study found on alcohol and SNAP receipt showed that food stamp recipients are not necessarily more likely to experience alcohol dependence or abuse, relative to non-SNAP recipients (Grant & Dawson, 1996). Economic literature shows that the price elasticity of cigarettes and alcohol are lower than the elasticity of other goods. This means

that consumption is less responsive to shocks in price, and those households which regularly spend money on cigarettes or alcohol likely to continue doing so even if the price of the good increases (Serdula, 1991).

This analysis investigates the impact of SNAP receipt on cigarette and alcohol expenditures. While these goods cannot be directly purchased with SNAP dollars, a SNAP subsidy supplements a household income's food budget so that a family uses the SNAP dollars on eligible food purchases, possibly freeing other income to be used on non-food items. This paper will further explore changes induced in consumer behavior when in-kind subsidies are received, controlling for selection bias in program participation. Based on standard microeconomic theory and the Becker-Murphy rational addiction framework, I hypothesize that receiving the SNAP subsidy will increase expenditures in both categories. My hypotheses are:

H_8: Controlling for selection, cigarette expenditures will increase for low income families receiving the SNAP subsidy.

H_9: Controlling for selection, alcohol expenditures will increase for low income families receiving the SNAP subsidy.

Methods

Data come from the Bureau of Labor Statistics' CEX Diary Survey and from the SNAP Implementation data set constructed from Chapter 4. The observation period spans from 2005 through 2010. I estimate two separate sets of models. In the first set, the dependent variable is household cigarette expenditures; in the second set, the dependent variable is household alcohol expenditures. Because I am interested in the impact of SNAP receipt on household expenditures, I restrict the sample to households at 150% of the Federal poverty line and below.

The primary independent variable of interest in both the cigarette and alcohol models is post-transfer income, which includes all earnings, transfers, and other income at the household level. If a family receives SNAP, their income includes the transfer. The secondary independent variable of interest is the Inverse Mills Ratio predicting SNAP participation. In addition to income and the SNAP IMR, I control for urban residency; family structure; the age and education of the reference person; and individual year dummies to control for economy-wide effects and state dummies to control for state fixed effects.

As a preliminary test, I conducted t-tests on the dependent variables of interest for the low income sub-sample. Difference of means tests between SNAP-recipient and non-recipient households at 150 percent of the Federal poverty level show a $1.47 increase in cigarette expenditures among those who spent any money on tobacco during the survey period for SNAP households, significant at the .07 level, Difference of means tests for drinkers, divided by SNAP-recipient and non-recipient households showed a $4.46 decrease in alcohol expenditures for SNAP households that spent any money on alcohol, relative to non-SNAP households. This was significant at the .01 level. However, these means tests do not control for selection. The following section discusses the selection issue and the identification strategy for the instrument.

Identification Strategy

The difficult challenge in accurately estimating the effect of SNAP participation on household expenditures is selection bias due to each individual's participation decision. This occurs when individuals opt in to SNAP, due to characteristics that are unobservable to the researcher. In the presence of selection, estimates are biased. Because of this bias, I must use an instrument which predicts SNAP participation, yet is exogenous to household cigarette and

alcohol expenditures. Using variables from the SNAP Implementation Data analyzed in the last chapter, I identify newspaper coverage of the SNAP program as an appropriate and robust instrument to predict SNAP participation. Newspaper coverage of the program should have a significant effect on households enrolling in the program, but should not impact cigarette and alcohol expenditures.[29]

I also use per capita outreach expenditures and per capita fraud expenditures as additional instruments to predict program participation. I expect outreach to have a positive effect on participation, as the goal of this program component is to recruit new, eligible participants. Fraud control, conversely, is expected to have a negative effect on participation. As states spend more money on prosecuting families who are suspected to have taken advantage of the system, selection into the program might decrease as families perceive the cost or burden of enrolling greater than the benefit received from the SNAP subsidy.[30] I use these instruments, as well as time trends and state fixed effects to control for selection into the program.

Selection is also a problem for smokers and drinkers. There are a set of observable and unobservable characteristics that determine if someone (or multiple people) consume cigarettes or alcohol in a household. There is no self-identification variable identifying a "smoker" or "drinker" in the data set, there are only household expenditures reported on tobacco and alcohol products. Therefore, I use the expenditure data reported by the reference person and use an estimation strategy that attempts to control for selection into smoking and drinking.

[29] As a test for robustness, I regressed newspapers on both cigarettes and alcohol in an OLS regression and found no statistically significant relationship between the instrument and the dependent variables.
[30] OLS regressions testing per capita outreach and per capita fraud expenditures on household cigarette and alcohol expenditures also had no statistically significant effect on the dependent variables.

Estimation Strategy

The first stage equation is a probit to predict SNAP participation. The dependent variable is a dichotomous variable, measuring whether a family received SNAP in the last thirty days. The instruments are newspaper coverage of food stamp program, per capita outreach expenditures, and per capita fraud expenditures. In addition, the probit is identified on several other control variables that are known to affect the participation decision. These controls include weekly income, urban residency, education, age, race, family structure, the poverty rate, and state and year controls. The probit sample was limited to 150% FPL and below, and only included working age adults, aged 18 to 65.

Once the probit model was estimated, I used the estimates to predict the Inverse Mills Ratio (IMR) for each observation in the data set. The IMR is the ratio of the probability density function to the cumulative density function in the distribution of the data. Calculating the IMR for each observation yields a coefficient that is the probability of selecting into SNAP for each household. The IMR can then be used in the tobacco and alcohol equations to control for selection bias, allowing more accurate estimation of the second stage (or outcome) equation.

The second stage equation predicts the effect of SNAP receipt (in the form of an in-kind transfer) on household expenditures. The dependent variables are unique because there are many households in the sample who do not choose to spend any money on cigarettes or alcohol. Some households may spend money on these goods, but not choose to report their expenditures in the survey. This may be because these households do not have a preference for either of these goods, or because there is a certain stigma attached to them. This means that there are many zeros in the data set for the dependent variables; in this case, OLS is not an appropriate

estimation strategy. Just as outreach expenditures were modeled using a tobit in the last empirical chapter, I must use a tobit in this case to model tobacco and alcohol expenditures.

This estimation technique allows regression on a continuous dependent variable with many zero values, as is the case with tobacco and alcohol dependent variables. The tobacco and alcohol equations are substantively the same; the only difference is the dependent variable. The independent variable of interest is weekly income. The SNAP Inverse Mills Ratio from the first stage probit equation is also included to control for selection. Other controls in the models include urban residency, education, household structure, and dummy variables for state and year. All dollar values are indexed to 2012 dollars to control for inflation.

In each of the models, the sample is limited to the working-age population, aged 18 to 65 years. I limit the sample to get an idea of expenditure behavior for households who are more likely to be earning an income, and also to censor the sample on the lower end of the age distribution because of laws limiting consumption of the dependent variable. In the United States, the legal age to smoke is 18 years and the legal age to drink is 21 years. This is another reason the sample is limited to age 18 and above. While there are individuals who choose to drink and smoke at a younger age, households are probably more likely to report consumption behavior for legal adults. See Tables 6.1 through 6.3 for the full results below.

Table 6.1. Probit to Predict SNAP Receipt, 150% FPL and Below.

	SNAP Receipt
Newspaper, Lagged	0.002**
	0.000
Per Capita Outreach	-0.859
	(0.916)
Per Capita Fraud	0.080
	(0.275)
Income, Weekly	-0.002**
	0.000
Urban Resident	-0.258**
	(0.061)
Education	-0.117**
	(0.009)
Age	0.004**
	(0.001)
White	-0.262**
	(0.031)
Single Parent	0.385**
	(0.042)
Two Parents	-0.241**
	(0.042)
Two Adults	-0.704**
	(0.065)
Single Person	-0.687**
	(0.041)
Poverty Rate	0.034
	(0.031)
State Controls	YES
Year Controls	YES
Constant	0.608
	(0.622)
N	12769

Table notes: Sample limited to those living at 150% FPL and below. Sample is also restricted to labor force population, ages 18 to 65. Dollars adjusted to 2012 values. Beta coefficients with standard errors in parentheses reported. Income variable is imputed for missing values, and is an annual measure divided by 52 to reflect weekly income. The dependent variable is food stamp receipt in the last 30 days.

Table 6.2. SNAP Receipt and Tobacco Expenditures, Tobit Model.

	Cigarette Expenditures
Weekly Income	0.007*
	-0.004
SNAP IMR	24.644**
	-4.793
Urban	-17.935**
	-2.418
Education	-2.904**
	-0.499
Single Parent	-1.772
	-2.215
Two Parents	-11.381**
	-1.957
Two Adults	-19.796**
	-3.695
Single Adult	-25.169**
	-3.068
State Controls	YES
Year Controls	YES
Constant	1.39
	-6.386
Sigma	44.177**
	-0.69
N	13336

Table Notes: Models estimated at 150% FPL and below. Beta coefficients reported with standard errors in parentheses. Sample limited to working-age population, ages 18 to 65. Income measure is the BLS imputed income measure including all transfers; income was rescaled to be measured in weekly dollars. All dollar amounts adjusted to 2012 dollars for inflation. The reference group for family structure is "other, or non-traditional family." State and year dummy variables included in each model. The SNAP Inverse Mills Ratio is a function of the probit results provided in Table 6.1.

Table 6.3. SNAP Receipt and Alcohol Expenditures, Tobit.

	Alcohol Expenditures
Income, Weekly	0.010**
	-0.004
SNAP IMR	14.661**
	-5.312
Urban	5.598+
	-3.075
Education	3.059**
	-0.59
Single Parent	-9.450**
	-2.623
Two Parents	-8.344**
	-2.26
Two Adults	-6.154
	-4.119
Single Person	-6.150+
	-3.397
State Controls	YES
Year Controls	YES
Constant	-107.433**
	-7.946
Sigma	45.564**
	-0.834
N	13336

Table Notes: Models estimated at 150% FPL and below. Beta coefficients reported with standard errors in parentheses. Sample limited to working-age population, ages 18 to 65. Income measure is the BLS imputed income measure including all transfers; income was rescaled to be measured in weekly dollars. All dollar amounts adjusted to 2012 dollars for inflation. The reference group for family structure is "other, or non-traditional family." State and year dummy variables included in each model. The SNAP Inverse Mills Ratio is a function of the probit results provided in Table 6.1.

Results

The first stage equation to predict selection into SNAP showed a positive, significant relationship between newspaper coverage of the program and participation. For each newspaper article published the previous year, recipients are .02 percent more likely to opt into participation. This finding is significant at the 99% level. The relationship between per capita outreach, per capita fraud, and participation was insignificant. While this was initially confusing, I estimated the model with and without state fixed effects and found that the SNAP expenditures on outreach and fraud are a significant predictor of participation when the state fixed effects are not included in the model. However, when the state fixed effects are added, the significance of the relationship goes away. This is probably because the state fixed effects are capturing the variation.

The other controls in the model are significant at the 99% level, with the exception of the poverty rate. Income, urban residency, education, age, race (white), and household structure are all significant predictors of participation. The only positively correlated variables with participation are age and single parents. As the reference person gets older, they are more likely to select into SNAP. Single parents are approximately 40% more likely to participate in the food stamp program. Most of the single parents (98%) are female headed households.

The second stage equation predicting tobacco expenditures showed a positive and statistically significant relationship between income and tobacco expenditures. For every dollar increase in income, cigarette expenditures increase by .7 cents. This finding is significant at the 95% level. Selection into SNAP is large and positive; the coefficient is 24.64 and significant at the 99% level. Other significant relationships include urban residency, education, and household structure. Respondents in urban areas and with higher education levels spend significantly less

on tobacco. Both of these findings were significant at the 99% level. Household structure variables indicate that two parent households, two adult households, and single adults all spend significantly less on tobacco products relative to non-traditional families.

The last equation estimated the effect of SNAP receipt on alcohol expenditures. The results were very similar to the cigarette equation results. As household income increases by one dollar, alcohol expenditures increase by 1 cent, significant at the 99% level. There is also a large, positive selection effect as evidenced by the SNAP Inverse Mills Ratio coefficient. The coefficient is 14.66, and is significant at the 99% level.

Urban residency and education have the opposite effect on alcohol than on smoking: urban residents spend around $5.60 more on alcohol per week; and each year of education increases alcohol expenditures by $3.06. The urban residency finding was significant at the 90% level, the education finding significant at the 99% level. This could certainly mean an increase in quantity or an increase in quality, as the variation in the quality and cost of alcoholic beverages is quite high. Family structure is also an important determinant of alcohol expenditures. Single parents, two parent households, and single persons all spend less money than non-traditional families.

As additional tests for robustness, the models were estimated at 100%, 200%, and 250% of the Federal Poverty Line, and results were substantively the same. Alternative specifications include the basic model, which only included weekly income, the SNAP Inverse Mills Ratio, and state and year fixed effects. See Table 6.4 for the results of the basic specification, which also showed a significant, positive relationship between income and SNAP receipt. The selection effect was significant in both of the basic equations, although the sign on the coefficient changed from negative to positive and was much larger on tobacco expenditures once the other controls

were added in the model. Each of the models was estimated with many alternative specifications as the model was built from the basic equation to the models in Tables 6.2 and 6.3 with full controls. The findings were robust to specification: the income effect and selection effect were found in each alternative specification.

Discussion

The first set of hypotheses was concerned with the issue of selection, the first of which predicted a positive effect of newspaper coverage on the decision to participate in the SNAP program; *H_5: News media coverage of SNAP will positively influence program participation.* I did find support for this hypothesis—as newspaper coverage of the food stamp program increases, households are more likely to receive food stamps. This is interesting in that a direct effect of media coverage is seen on the decision to participate. As of 2011, SNAP participation rates for eligible households were at approximately 75%. This finding shows that the dissemination of information is an important variable in families' participation decisions. As information increases for the general public, households know more about eligibility how to access the program. The policy implication is that the news media could play a more important role in nutrition education and food assistance information.

I did not find support for the second two hypotheses on the selection effect, which were: 1) *H_6: Fraud expenditures will negatively affect program participation;* and 2) *H_7: Outreach expenditures will positively affect program participation.* Once the state dummy variables were added to the first stage equation, I did not find evidence that outreach and fraud control expenditures predict participation. However, the news media instrument was robust enough to calculate the IMR and control for selection in the second stage equations.

The next set of hypotheses were 1) *H_8: Controlling for selection, cigarette expenditures will increase for low income families receiving the SNAP subsidy;* and 2)*H_9: Controlling for selection, alcohol expenditures will increase for low income families receiving the SNAP subsidy.* I found support for both of these hypotheses. Tobacco and alcohol expenditures increase by approximately 1 cent for every additional dollar of income. This finding is not surprising, as an increase in income should lead to an increase in consumption of all normal goods. This finding supports the standard economic theory of an income effect.

This is where separating the discussion of tobacco and alcohol expenditures is important. Consumption of tobacco is a health hazard, regardless if the consumer has 2 cigarettes or an entire pack. Therefore, the policy implications for this finding are different for tobacco. The income effect and the positive selection effect show that smokers are more likely to select into SNAP. National statistics show that low income individuals are far more likely to smoke that individuals not living in poverty. Policy implications include the need for policy to address the higher propensity for low income families to smoke, perhaps adding educational components to traditional nutrition education in the program for participating families. Another alternative would be adding the option for smoking cessation to SNAP participants.

Consumption of alcohol is a bit different; many people argue that consumption of alcohol in moderation, such as a daily glass of wine, has health benefits rather than costs associated with consumption. Just because households spend money on alcohol and consume it does not mean they are making choices that are bad for their health. However, the limitation of this data set is the lack of information on consumption. There is too little information to conclude whether families are buying and consuming reasonable amounts of alcohol or over-consuming. Also, there is a lot of variation in the quality of alcohol that one might consume. Even with the lack of

information, it seems that families who spend money on alcohol are also more likely to choose to participate in the food stamp program, and the positive selection and income effect leaves behind the implication that food assistance programs are in the unique situation to address dependence issues as part of comprehensive nutrition education for participants.

Table 6.4. Alternative Specifications, Cigarette Expenditures. Tobit Model.

	Basic	No Selection	All Ages
Income, Weekly	0.009**	0.011**	0.010*
	(0.003)	(0.004)	(0.004)
SNAP IMR	20.907**		29.890**
	(1.779)		(5.261)
Urban		7.374*	1.077
		(3.005)	(2.860)
Education		4.249**	1.993**
		(0.407)	(0.562)
One Parent		-13.383**	-5.506*
		(2.152)	(2.549)
Two Parents		-5.053**	-10.699**
		(1.932)	(2.199)
Two Adults		2.869	-8.433*
		(2.556)	(3.733)
Single		1.824	-16.287**
		(1.837)	(3.298)
Age			-0.499**
			(0.036)
Constant	-78.888**	-106.124**	-89.764**
	(5.947)	(7.939)	(7.302)
Sigma	45.879**	45.640**	46.049**
	(0.841)	(0.834)	(0.779)
N	13336	13336	18059

Table Notes: Models estimated at 150% FPL and below. Beta coefficients reported with standard errors in parentheses. Sample limited to working-age population, ages 18 to 65. Income measure is the BLS imputed income measure including all transfers; income was rescaled to be measured in weekly dollars. All dollar amounts adjusted to 2012 dollars for inflation. The reference group for family structure is "other, or non-traditional family." State and year dummy variables included in each model. The SNAP Inverse Mills Ratio is a function of the probit results provided in Table 6.1.

Table 6.5. Alternative Specifications. Alcohol Expenditures, Tobit Model.

	Basic	No Selection	All Ages
Income, Weekly	0.016**	0.008*	0.007*
	(0.003)	(0.004)	(0.003)
SNAP IMR	-4.426**		17.892**
	(1.530)		(4.807)
Urban		-14.994**	-15.695**
		(2.338)	(2.280)
Education		-1.025**	-1.962**
		(0.341)	(0.488)
One Parent		-8.729**	-4.174+
		(1.756)	(2.189)
Two Parents		-6.081**	-9.765**
		(1.658)	(1.947)
Two Adults		-4.954*	-18.366**
		(2.295)	(3.448)
Single		-11.965**	-25.670**
		(1.634)	(3.008)
Age			-0.352**
			(0.033)
Constant	-25.330**	5.591	4.000
	(4.893)	(6.346)	(6.143)
Sigma	44.747**	44.223**	45.842**
	(0.700)	(0.689)	(0.676)
N	13336	13336	18059

Table Notes: Models estimated at 150% FPL and below. Beta coefficients reported with standard errors in parentheses. Sample limited to working-age population, ages 18 to 65. Income measure is the BLS imputed income measure including all transfers; income was rescaled to be measured in weekly dollars. All dollar amounts adjusted to 2012 dollars for inflation. The reference group for family structure is "other, or non-traditional family." State and year dummy variables included in each model. The SNAP Inverse Mills Ratio is a function of the probit results provided in Table 6.1.

CHAPTER 7

POLICY IMPLICATIONS & CONCLUSION

The last few years have seen unprecedented growth in food assistance for the poor in this country. Demand has risen as a result of the recession, increasing hunger and food insecurity, two of the hallmarks of economic crises. While growing food insecurity and the policy response has contributed to elevating the salience of hunger in America, these challenges are not new to our society. For almost a century, policy makers have been wrestling with whether or not to create a food assistance safety net and how comprehensive that safety net should be. As SNAP has expanded, so has the research conducted on the program. However, this dissertation focused on two areas in need of theoretical and empirical development: 1) the determinants of legislators' expenditure decisions; and 2) the effect of legislators' decisions on participation and household consumption of tobacco and alcohol.

The findings of this dissertation indicate that rather than over-subscribing benefits to low-income families during times of economic crisis, legislative actors punish low-income families. According to this research, legislators increase burdens as need increases. This behavior indicates that legislative actors expect people in poverty to take advantage of the food stamp program. Legislators increase fraud expenditures to prevent low-income families from misusing benefits. The policy implication is that many Americans are then saddled with extra responsibility in re-certification for eligibility, fingerprint scans for identification purposes, and even drug testing (in the state of Florida).

The underlying assumption that SNAP recipients are expected to take advantage of the system points to a larger problem that calls attention to the social construction of the poor in this country. As some scholars have warned, the social construction attached to poverty could be directly responsible for systematic discrimination against low-income groups through policy. The short and long term costs of this are far too expensive: in the short term, families who need emergency food assistance might choose not to participate because the transaction costs are far too high. Stigmatizing families with "safeguards" such as fingerprint scans and drug testing is dehumanizing and assumes that poor people are not to be trusted. Long term, this could lead to a failure of federal food assistance in truly meeting the needs of people in poverty. For many families, alternatives for emergency food are equally daunting. Informal networks of food assistance are localized and are not a consistent source of help. The point is that treating low-income clients with distrust fosters a culture of discrimination and unmet need.

While policy makers responded to the crisis with increased fraud control, there was no counter-balance in the response with increased outreach. Outreach exists to close the information gap for families eligible to receive food stamp benefits. The participation rate for the program, even at the point of highest enrollment, hovers at 75%. This leaves 25% of the program-eligible population without food assistance. Many families may choose not to participate because of personal preference or stigma. Some families, however, may be ignorant of the program or of its eligibility standards. Outreach serves to reach the individuals and families who are eligible for the program but may not know that they are. Legislative actors can make the decision to respond to this gap in service delivery by increasing funds for outreach to recruit eligible participants, or not. This research study shows some preliminary evidence that times of economic hardship do not directly lead to increases in outreach spending.

Secondary implications of the social construction study include the finding that media information *matters.* Media coverage plays a definite role in the politics of benefits for the poor. Rhetoric from the 2012 Presidential election is proof of this: the term "Food Stamp President" became inextricably linked to President Obama when the media latched on to one of the lines used by a Republican candidate. The finding that newspaper coverage predicts fraud control spending is interesting but not altogether surprising.

When newspaper coverage increases on the program and more attention is brought to the growing benefit rolls, legislative actors respond by spending more on fraud control to lessen constituent concern about misuse of the benefit system. While news media coverage serves to increase fraud control through a backlash against low-income families, it did not seem to effect outreach spending. However, I did not find that newspaper coverage of the program has a significant relationship with outreach decisions. Again, legislative actors are negatively reactive to the media coverage, subscribing burdens rather than benefits to the target population as the salience of the food assistance increases.

Newspaper coverage of the program also influences selection into the program at the household level. More information publicly available for eligible families leads to more program participants. Policy implications of both newspaper findings indicate that Food and Nutrition Services need to do a better job on public relations--a public relations campaign on the food stamp program could serve to better inform the public and legislative actors on the status and relative success of the program in providing food assistance to millions of Americans.

The next finding is that SNAP receipt has a positive relationship with tobacco and alcohol expenditures, although the effect is extremely small. For every thirty dollars a family receives in weekly SNAP benefits, cigarette expenditures increase by twenty-two cents. This

points to the implication that the social construction of the SNAP target population is incorrect. The marginal increase in cigarette expenditures among smokers does not reflect the social construction used by policy makers to punish low-income families. Likewise, as for every thirty dollars of SNAP money a family receives, alcohol expenditures increase by thirty-two cents. This empirical study does not support the notion that SNAP recipients are using their benefits to supplement their income in order to purchase large quantities of socially undesirable goods.

With the small size of the effect in mind, there is a positive selection effect for smokers and drinkers into the food stamp program. The policy implication is that SNAP provides a unique access point for people who might want to break an addiction. Contrary to the Becker-Murphy framework, the real world dictates that individuals do not have full information about the consequences of addiction when beginning a habit. Many individuals might want to stop smoking and not have the will power or the support network to do so. This is where SNAP could play a critical role. If people who smoke are indeed more likely to opt into the food stamp program, then SNAP agencies have critical access to smokers and may be the appropriate venue to offer smoking cessation programs or support for program participants wanting to break their addiction. While consumption of alcohol is different, the policy implication is the same: food assistance programs already offer nutrition education for eligible participants, additional education components related healthy habits and support systems for breaking addiction could be an effective access points for participants.

Limitations

One of the limitations of this research is the short observation period. Six years of data are insufficient to make any grand conclusions about history or time trends. It is difficult to

conclude that the findings are generalizable across time. In order to more fully investigate the effects of time, I need to expand my data across more years. This is especially true for the SNAP Implementation data set. I am not convinced that there is no relationship between recessionary periods, news, and outreach. However, because there were so many zeros in the data, the statistical predictive power is relatively weak once I control for state fixed effects. Understanding the behavior of legislative actors necessitates looking at a longer observation period.

Another obvious limitation of my research is the measure of media coverage. The newspaper measure is not a comprehensive measure of how frequent or in what light the food stamp program was covered. I did not conduct a content analysis on the thousands of articles published on the food stamp program during the observation period. Therefore, I can only indicate the direction of the relationship between media coverage and the outcomes of interest. I cannot make any assumptions about the positive or negative nature of the coverage. In order to bolster my findings, some qualitative work to investigate the nature of the content of media coverage on the program is an alternative.

Controlling for selection was one of the necessary elements of this study. While I identified a robust instrument to control for selection bias, instrumenting for participation is not ideal. This is, however, the standard approach to researching the food stamp program. Many scholars have identified 'exogenous' instruments to program participation and have not tested them appropriately, or have used them without submitting them to scrutiny. While I tested the power of this instrument for robustness and found it to be the best possible option for my data, I would like to test the instrument in other contexts to see if it is sufficiently predictive of program participation.

Selection is also an issue for smokers and drinkers. Data on household behaviors including presence, strength, and duration of addiction are not available in the Diary Survey, but this information is really important to control for selection into the food stamp program and would be useful in determining the role of selection for smokers and drinkers into food assistance.

The measure of SNAP participation is also inadequate. I only have an indicator of whether the family received the benefit in the last 30 days, and the measure of how much the family receives in benefits annually. Ideally, I would have information on how long they had been participating in the program and why they chose to participate. In addition, the CEX has detailed consumption information but no data on incidence of hunger or food insecurity. All of those variables would be a welcome addition to the data in order to have a more comprehensive understanding of the impact of SNAP receipt on consumer behavior.

Future Research

Despite the limitations of both the data and my analysis, these preliminary findings serve to motivate more important questions to provide a rich future research agenda. This study facilitated an in-depth understanding of the food stamp program and previous research. Scholars are still at a loss as to how to adequately control for selection. Further, there is so much to learn on how the impact of food assistance programs work to mitigate hunger and food insecurity.

At the macro level, I want to extend the analysis over time in order to truly see what is going on between legislative actors' decisions and social constructions of target groups. This also brings relevant management questions to the table for public managers and street level bureaucrats. I plan to do some empirical research on the determinants of street-level

bureaucratic discretion and the role of social construction of target groups. In addition, I hope to tie in the subject of desert in future research on legislative and bureaucratic action. My overarching research interests are deeply rooted in a fascination with how the United States formulates and implements policy for the poor. Additional work will include studying conceptualization and measurement of poverty, and other areas of the social safety net in place for low-income families.

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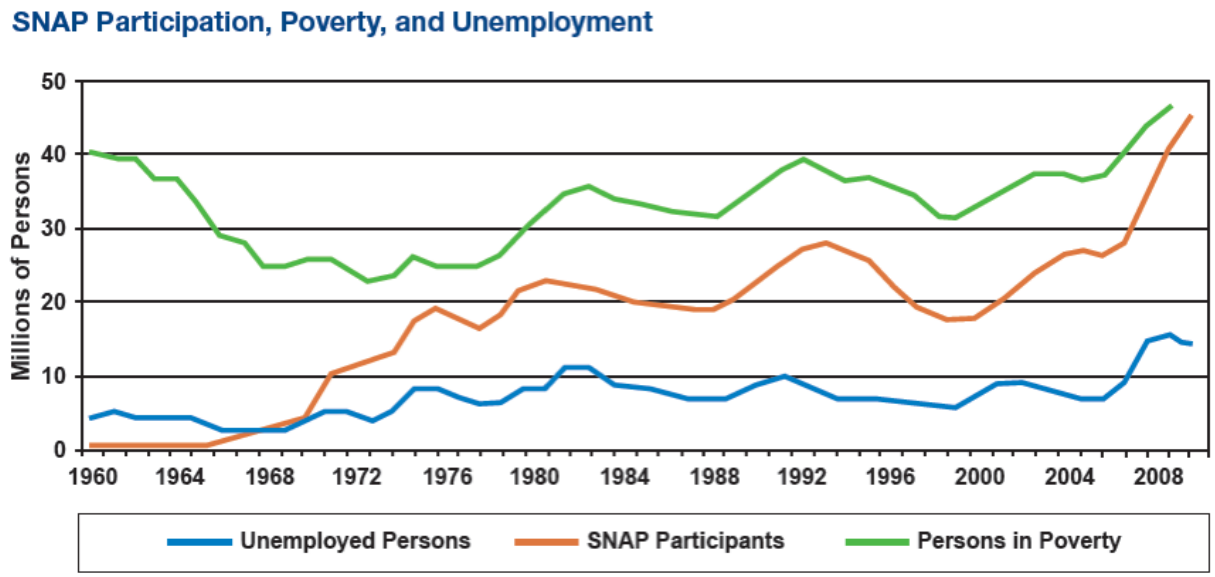
APPENDIX

Macroeconomic Trends in Poverty, Unemployment, and SNAP Participation.



Source: U.S. Department of Agriculture, 2012.