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Food Stamp Program and Consumption Choices

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8.1 Introduction

The growing prevalence of obesity among low-income families in the United States has created concerns amid health scientists and policymakers about the effect of the Food Stamp Program (FSP), the largest food and nutrition program in the country, on food consumption, obesity, and health.[1] When first designed over three decades ago, the primary objective of the FSP was to mitigate food insecurity and meet nutritional deficiencies in low-income families. Over the years, however, the nature of nutritional risk in low-income families has changed from food insufficiency to obesity, leading to a policy debate on whether the FSP has served its purpose and whether it needs to be redesigned to improve quality of food consumed in low-income families.

In a comprehensive review of literature on the effect of food and nutrition assistance programs on consumption, Fox, Hamilton, and Lin (2004, 84) conclude, "while the greater part of food stamp benefits given to households are used to free up resources to spend on things other than food, FSP benefits do cause households to spend more on food than they otherwise would." A

1. Recent research on examining the effect of the FSP on food security include: Borjas (2004) and Yen et al. (2008), and on the effect of the FSP on obesity and health include: Gibson (2003, 2004), Chen, Yen, and Eastwood (2005), Frongillo (2003), Kaushal (2007), Krueger (2004) and Ver Ploeg et al. (2007).

key challenge in many previous studies is to isolate the effect of individual circumstances, which influence food consumption, from the decision to participate in the FSP. Individuals who receive food stamps are poor, and due to their meager economic circumstances consume less expensive food (Drewnowski 2003). To isolate the effect of the FSP on food consumption, therefore, one needs a plausibly random change in FSP participation that is unrelated to individual circumstances, food prices, or societal changes in consumption patterns.

We use federal and state social policy changes in the United States since the mid-1990s that caused sharp fluctuations in food stamp participation to study the effect of food stamps on food consumption in low-income families. The 1996 federal welfare reform denied food stamps to legal immigrants, and imposed work requirements on able-bodied adults without dependents as a condition to participate in the FSP. More importantly, since state welfare agencies also administer the FSP, the decline in welfare caseload (number of participants) triggered by state and federal welfare reforms during the mid-1990s increased the transaction cost of obtaining food stamps for welfare leavers, in turn, reducing the food stamp caseload.[2]

Partly in response, several state governments took initiatives to ease access to the FSP such as the introduction of electronic benefit transfer cards (EBT) in place of paper food stamp cards and simplified certification (or recertification) procedures for food stamp eligibility. By June 2004, all states had introduced EBT and the proportion of Food Stamp participants with earnings who were required to certify eligibility every three months fell from more than 38 percent in 2000 to 10 percent in 2003 (Hanratty 2006). Between 1994 and 2001, the food stamp caseload declined by 37 percent, and has been rising since then. Researchers attribute 12 to 32 percent of the change in the food stamp caseload to state and federal policies and 20 to 35 percent to the business cycle (Currie and Grogger 2001; Danielson and Klerman 2006; Hanratty 2006; Wilde et al. 2000). We investigate whether these changes in the FSP caseload, resulting from social policy changes, had any influence on food expenditures in low-income families. We also examine how changes in policies that affected incentives for participation in the FSP—introduction of EBT cards, simplified certification, and welfare reform—affected food expenditures in low-income families. Note that measuring changes in food spending does not tell us anything directly about potential implications for obesity rates. However, any estimates about the effect of FSP on obesity prevalence should be interpreted in terms of the size of the policy's impact on food consumption. If the FSP has a modest effect on food spending, arguably its potential to influence obesity prevalence will also be modest. If, however, the FSP increases food expenditure substantially, it would be

2. Zedlewski and Brauner (1999) find that the decline in food stamps participation was higher among welfare leavers than others.

difficult to glean any insight into its impact on obesity since increased food spending could be on account of higher calorie intake or purchase of better quality food.

Our analysis suggests that changes in the food stamp caseload triggered by social policy changes during the mid-1990s (e.g., welfare reforms) did not have any statistically significant association with per capita expenditure on food in families headed by low-educated single mothers. We find that state and federal welfare reforms during the 1990s lowered the food stamp caseload by approximately 18 percent, and the introduction of the Electronic Benefit Transfer cards and simplified reporting procedures for recertification of food stamps increased participation by about 7 percent. However, we do not find any evidence that these policies had any effect on total food expenditure, nor do we find any consistent evidence that the policies affected expenditures on specific food items.

8.2   Social Policy Changes and the Food Stamp Caseload

Participation in the FSP in the United States has undergone dramatic changes since 1990. During the 1980s, the total food stamp caseload in the country hovered around 19 to 21 million recipients (figure 8.1). From 20 million in 1990, the caseload increased steadily to 27.5 million by 1994, and then fell sharply to around 17 million by 2000 to 2001, and rose again to 25.7 million by 2005. While the food stamp caseload has traditionally been countercyclical to economic trends[3]—when the economy is booming, food stamp caseload declines and vice versa—its recent trend has also been associated with dramatic changes in social welfare programs. Beginning in the early 1990s, states started moving from paper food stamps cards to electronic benefit transfer (EBT) cards, and a 1996 federal policy made it mandatory for states to move to EBT by 2002.[4] The EBT cards operate like automatic teller machine (ATM) cards and are designed to lower the stigma attached to food stamps usage, restrict misuse and illegal sale of benefits, and prevent theft or loss of benefits.

The second major change in the FSP came with the enactment of the federal welfare law in 1996 that denied food stamps to many immigrant groups and imposed work requirements on able-bodied adults without dependents. More significantly, state and federal restrictions on cash welfare implemented since the early 1990s that caused a sharp decline in welfare caseload were also instrumental in lowering the food stamp caseload. Since state welfare agencies also administer the FSP, the decline in the welfare caseload triggered by state Aid to Families with Dependent Children (AFDC) waivers

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3. The FSP participation is restricted to families with a total gross income no more than 130 percent of the federal poverty line, with a net family income less than or equal to the federal poverty line, and household assets less than $2,000.

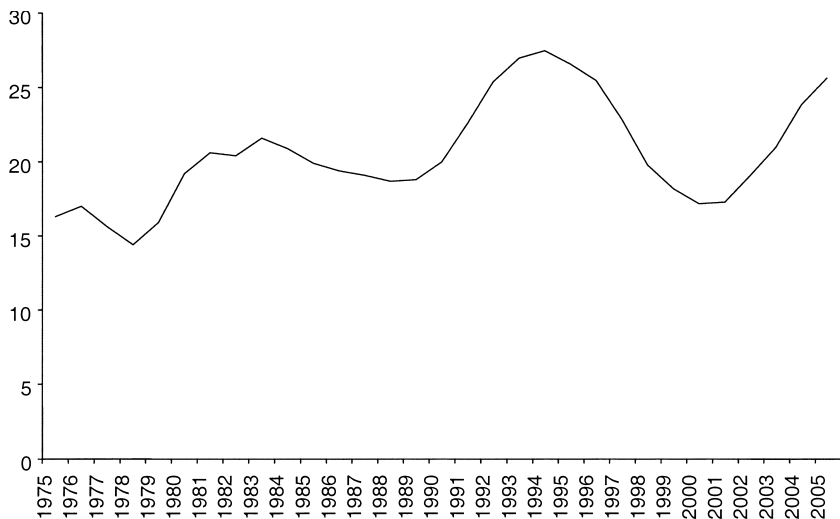4. In June 2004, California was the last state to implement the EBT card system.

Fig. 8.1   Number of food stamp participants (in millions)
Source: Data from the U.S. Department of Agriculture, Food and Nutrition Service.

and the 1996 state and federal welfare reform increased the transaction cost of obtaining food stamps, and resulted in welfare leavers not seeking food stamps even when eligible (Zedlewski and Brauner 1999).

Finally, in 2002, the Farm Security and Rural Investment Act (FSRIA) allowed states to ease the burden of certification (or recertification) for eligibility to the FSP through a simplified reporting process.[5] Since 2000, forty-one states have implemented simplified reporting and increased the recertification period to six months. The FSRIA also restored food stamp eligibility to noncitizens who have lived in the United States for at least five years.

A number of researchers have studied the association between changes in the FSP and welfare reform and fluctuations in the food stamp caseload (Currie and Grogger 2001; Danielson and Klerman 2006; Wilde et al. 2000; Kabbani and Wilde 2003; Zedlewski and Brauner 1999; Ziliak, Gundersen, and Figlio 2003). This body of literature has concluded that welfare reform contributed to the decrease in the food stamp caseload, while policies aiming at lowering the stigma and burden of benefit receipt (e.g., EBT and simplified certification or recertification) helped increase FSP participa-

5. A household is certified to receive food stamps for a certain period depending on state policy and household structure. Prior to the 2002 FSRIA, the household was expected to report any changes in income and family structure that may affect eligibility and benefits, even during the certification period. Under the new simplified reporting system the household is expected to report changes during the certification period only if their incomes rise above 130 percent of the federal poverty line (Danielson and Klerman 2006; GAO 2004).

tion. Specifically, the most recent of these studies (Danielson and Klerman 2006) used administrative data from January 1989 to July 2004 to conduct policy simulations and found that welfare reform had a large negative impact on the food stamp caseload during 1994 to 2000, and EBT and simplified certification or recertification had a large positive impact on the caseload during 2001 to 2004. Danielson and Klerman (2006) attribute 32 percent of the decline in the caseload to state and federal social policy changes (waivers under the Aid to Families with Dependent Children [AFDC] and Temporary Aid to Need Families [TANF])[6] and 31 percent of the increase since 2000 to policies aimed at simplifying the FSP reporting system. Hanratty (2006) found that changes in recertification requirements from 2001 to 2003 increased participation rates of income eligible families by 2 to 9 percent.

8.3 Food Stamps and Consumption

Current regulations define eligible foods under the FSP as any food or food product intended for human consumption, except alcoholic beverages, tobacco, and hot meals and hot food products prepared for immediate consumption (GAO 2008). Beneficiaries can use food stamps to purchase eligible food items from a wide network of retail stores ranging from large supermarkets to convenience stores and farmers' markets. At the end of fiscal year 2007, approximately 165,000 retailers were authorized to participate in the FSP (GAO 2008).

Participation in the FSP can potentially affect food consumption in a number of ways. By making it mandatory that participants buy a minimum amount of food in order to use their stamps, the FSP is likely to increase food expenditure of a participant whose food expenditure is otherwise constrained due to low-income.[7] Such distortion is an intended aspect of the policy through which the government aims to ensure that participants consume at least a minimum amount of food.[8] A rational participant not constrained in spending on food on account of low income is likely to treat FSP benefits as cash income. Thus, participation in the FSP will increase the unconstrained participant's expenditure on food depending on his or her marginal propensity to spend on food.

Previous research, however, shows that the FSP distorts the monthly nutrition cycle of participants who tend to consume higher quantities of food

6. Their estimate is similar to that obtained by Currie and Grogger (2001), but higher than the computations by Wilde et al. (2000), who attribute 12 percent of the decline in the food stamp caseload to welfare reform.

7. An individual is constrained if her food stamp benefit is greater than what she would have spent on food in the absence of food stamps.

8. Since trading food stamps is illegal, benefits are typically sold for about 61 percent of their legal value (Whitmore 2002). In recent years, state governments have taken steps to reduce resale.

immediately after receipt of food stamps (Wilde and Ranney 2000; Shapiro 2005). Evidence from most previous studies also suggests that the marginal propensity to consume food is higher out of food stamp benefit than cash income. Devaney and Moffitt (1991) used the Survey of Food Consumption in Low-Income Households for 1979 to 1980, and found that the marginal propensity to consume food out of food stamp benefit was three to seven times the marginal propensity to consume food out of cash income. Using the Panel Survey of Income Dynamics for 1978 to 1979, Senauer and Young (1986) found that food stamps had a substantially greater impact in raising at-home food expenditure than an equal amount of cash income. Fraker, Martini, and Ohls (1995) conducted four demonstration projects and found that in three demonstrations cashout resulted in reductions in food expenditures ranging from 7 to 22 percent, but there was no effect at the fourth demonstration. Using Panel Survey of Income Dynamic from 1968 to 1978, Hoynes and Schanzenbach (2009) found that introduction of the FSP was associated with a statistically significant increase in expenditure on food, but that households were inframarginal and responded similarly to one dollar in cash income and one dollar in food stamps. Moffitt (1989), who used the experience of an actual conversion from stamps to cash in Puerto Rico, found no detectable influence of cashout of the stamps on food expenditure. Finally, Fox, Hamilton, and Lin (2004, 84), who reviewed a large body of literature on the effect of food stamps on dietary intake, conclude that there is "little evidence that the FSP consistently affects the dietary intakes of individuals."[9]

Most previous research is based on food expenditures data from the late seventies or the eighties. Changes in consumption patterns and living standards, however, may have influenced the association between food stamps and food expenditures. We use more recent data from the Consumer Expenditure Survey and build on previous research by investigating whether recent changes in the FSP and welfare reform have affected total food expenditure and expenditures on specific categories of food items.

8.4   Data

We use the Consumer Expenditure Survey (CES) for 1994 to 2004 to do the analysis. The CES has two components: a weekly Diary Survey (DS) and a quarterly Interview Survey (IS). Our analysis is based on the DS, which contains information on small, frequently purchased items such as food, beverages, food consumed away from home, gasoline, and housekeeping

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9. Previous research provides weak to nil support for the hypothesis that food stamps cause obesity (Chen, Yen, and Eastwood 2005; Gibson 2003, 2004; Kaushal 2007; Krueger 2004; Frongillo 2003; Ver Ploeg et al. 2007).

supplies. About 7,500 consumer units[10] are sampled each year. Each consumer unit is asked to maintain expense records, or diaries, of all purchases made each day for two consecutive one-week periods, yielding approximately 15,000 weekly diaries a year. Relative to other surveys (e.g., the IS), DS is less susceptible to recall bias because of its diary nature (Battistin 2003).

The CES provides detailed information on each household unit including the respondent's (and spouse's) age, education (and spouse's education), marital status, race and ethnicity (and spouse's race and ethnicity), region of residence, family income and size, number of children and number of elderly persons (aged sixty-five or above) in the family. This information is used to construct demographic groups and control variables. The sample of analysis is restricted to families where the mother is aged eighteen to fifty-four years. We study only families with children since a majority (over 85 percent) of the food stamps recipients belong to such families.

We study nine main categories of food expenditures: food at home, food away from home, cereals and bakery products, meat, dairy products, fruits and vegetables, nonalcoholic beverages, alcoholic beverages, and miscellaneous expenses on food. All expenditures are expressed in per capita terms, except for expenditure on alcoholic beverages, which is expressed as per adult population in the family. Throughout the analysis, expenditures are expressed in 2004 dollars using the price index for food and beverages from the Bureau of Labor Statistics.

From 1994 onward CES has provided state identifiers for consumer units, a variable that is crucial to our analysis. For reasons relating to nondisclosure, each year codes for nine to ten states are either suppressed or recoded within CES, and in eighteen other states a tiny proportion of the consumer units are without state identifiers. Overall, consumer units without state identifiers constitute about 15 percent of the sample and are dropped from the analysis.[11] The food stamp caseload data, by state and year, are taken from various issues of the *Background Material and Data on the Programs within the Jurisdiction of the Committee on Ways and Means* of the U.S. House of Representatives (the Green book), and the Food and Nutrition Service of the U.S. Department of Agriculture.

The data on unemployment rate come from the U.S. Bureau of Labor Statistics, and real per capita income from the U.S. Bureau of Economic Analysis. The data on welfare policies are drawn from the State Documen-

10. A consumer unit is defined as: all members of a housing unit related by blood, marriage, adoption, or some other legal arrangement; or two or more persons living together who use their incomes to make joint expenditures; or a single person who is living with others but is financially independent (BLS 2005).

11. This study is based on CES data for the following thirty-five states: AL, AK, AZ, CA, CO, CT, DE, FL, HI, GA, ID, IL, IN, KS, KY, LA, MA, MI, MD, MO, NE, NJ, NY, NC, OH, OK, OR, PA, SC, TN, TX, UT, VA, WA, and WI.

tation Project of the Center on Budget and Policy Priorities (www.cbpp.
org) and merged with the CES data, by state, month, and year. We code a
state to have simplified reporting in year if it implemented simplified report-
ing with biannual certification. These data are taken from various years of
Food Stamp Program State Options Reports, and the Food and Nutrition
Service of the U.S. Department of Agriculture. Data on whether a state
implemented the Electronic Benefit Transfer (EBT) card system are taken
from Danielson and Klerman (2006). These data are merged with the CES
data, by state, month, and year.

8.5   Research Design

We start with a regression model describing the association between the
food stamp caseload and expenditure pattern:

$$Y_{ijt} = \beta_j + \beta_t + \beta_m + \lambda FS_{jt} + Z_{jt}\Phi + X_{ijt}\Gamma + u_{ijt}$$

(1) $i = 1, \ldots, N$ (persons)

$j = 1, \ldots, 35$ (states)

$t = 1994, \ldots, 2004$ (years).

In equation (1), Y_{ijt} is per capita expenditure per week on food by family i
living in state j in year t, and is defined as a function of the per capita food
stamp caseload FS_{jt}; time-varying state characteristics (Z_{jt}), namely unem-
ployment rate and log per capita income; individual characteristics (X_{ijt})
namely age (dummy variables for six age groups: eighteen to twenty-three,
twenty-four to twenty-nine, thirty to thirty-five, thirty-six to forty-one, forty-
two to forty-seven, and forty-eight to fifty-four), race and ethnicity (His-
panic, non-Hispanic white, non-Hispanic black, Asian, and others), family
income,[12] whether the family lives in an urban area, family size, number of
children under eighteen, and number of persons in the family aged sixty-five
or above, state effects (β_j), month of the year effects (β_m) and year effects
(β_t). The coefficient λ estimates the association between the food stamp case-
load and food expenditure. All estimates compute Huber/White/sandwich
standard errors. Since most consumer units appear twice in the data, the
standard errors are estimated by clustering around the consumer unit.[13]

One problem with equation (1) is that it assumes that state-specific
changes in the food stamp caseload (FS_{jt}) were entirely caused by changes
in social policy. Previous research suggests that a substantial proportion of

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12. Income is measured before taxes and transfers and does not include the value of food
stamps benefits.
13. We also estimated all models by clustering the standard errors around state-year. Cluster-
ing on state-year lowered standard errors in a few cases. Those results are available from the
authors upon request.

the change in food stamp caseload was on account of economic trends (Danielson and Klerman 2006; Ziliak, Gundersen, and Figlio 2002). Those who left the FSP during 1994 to 2001 because of government policy may have different experiences (e.g., increased food insecurity) than those who left for other reasons such as robust economic growth (e.g., decline in food insecurity). The effect of exiting the FSP on consumption of the two groups will vary depending on the cause of leaving. To some extent, inclusion of time-varying state effects (e.g., unemployment rate and state per capita income) and year effects allows us to control for state-specific business trends and national business trends.[14] In addition, we estimate equation (1) after including a state-specific cubic time trend to control for business cycle effects that may be correlated with the food stamp caseload.

Further, to control for unobserved time-varying state effects correlated with the food stamp caseload, we can employ a comparison group research design that involves selecting two groups (a target group and a comparison group), similar in all aspects, except for their dependence on the FSP. To implement this approach, an equation similar to (1) is estimated for both groups. The comparison group is assumed to be unaffected by policy and, therefore, the estimated value of (λ_c) for this group would capture the effect of factors correlated with the food stamp caseload on food consumption. To obtain the effect of changes in the food stamp caseload triggered by social policy on the target group, we can subtract the estimated value of the association between the food stamp caseload and food expenditure for the comparison group from the corresponding estimate for the target group $(\lambda_t - \lambda_c)$. The identifying assumption of this research design is that time-varying state effects correlated with the food stamp caseload affected the target and comparison groups in the same manner. We return to this issue when we describe in detail the target and comparison groups chosen for the analysis.

Changes in the FSP and welfare policies may have affected food expenditure patterns in low-income families through channels other than participation in the FSP. For example, the primary aim of the EBT cards was to restrict misuse and illegal sale of benefits. If EBT reduced the illegal sale of food stamps, it should increase spending on food even if the food stamp caseload remained constant. Similarly, TANF and the AFDC waivers may have affected family expenditures not only by changing eligibility and incentives for FSP participation, but also by changing life opportunities for single-mother families. Previous research documents that welfare reform induced low-educated single mothers to exit welfare and increase their employment (Blank 2002). To investigate how these changes in the FSP and welfare poli-

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14. Year fixed effects control for national level trends such as changes in lifestyles resulting in increased number of meals obtained away from home and increase in consumption of food from fast-food restaurants (Demory-Luce 2005; French et al. 2001; Nicklas et al. 2001).

cies affected expenditures on food items, next, we estimate equation (1) by replacing the food stamp caseload variable (FS_{jt}) with a number of policy variables denoted by vector Pol_{mjt} as specified in equation (2).

(2) $Y_{ijt} = \beta'_j + \beta'_t + \beta'_m + \lambda' \, Pol_{mjt} + Z_{jt}\Phi' + X_{ijt}\Gamma' + u'_{ijt}.$

We study the effect of four policy variables: TANF, AFDC waiver, EBT, and simplified reporting (SR). All four policies are introduced in the model as dummy variables, equal to 1 if a state had that policy in month m and year t, otherwise 0. Further, the variable on AFDC waiver is set to zero once TANF is implemented in a state.

8.5.1   Target and Comparison Groups

The target group of this analysis is families headed by single mothers with a high school or lower education. According to the March Current Population Survey, during 1979 to 1994, on an average this group had a 50 percent risk of receiving food stamps. The selection of the comparison group, although critical to the validity of our research design, is challenging. It is difficult to find a perfect comparison group because families that are similar to the target group are also likely to be affected by policies for low-income families (welfare policies and changes in the FSP). Conversely, families that are unaffected by welfare and FSP policies are also not likely to be similar to the target group in terms of their experience of the business cycle and other time-varying effects correlated with policy. We select two-parent families with children in which mothers have a high school degree or lower education as the group of comparison. This group is relatively similar to the target group in terms of the mother's economic opportunities, but during the previous period, only nine percent of its members received food stamps. While the mother's marital status is not a criterion for eligibility to the FSP, single-mother families are more likely to be dependent on the FSP due to their relatively lower incomes. Note that since only half of the treatment group (low-educated, single mother-headed families) receives food stamps, and a small proportion of the comparison group also receives food stamps, the difference-in-difference estimates would yield a downward biased estimate of the effect of policy on FSP participation.

The identifying assumption in our research design is that time-varying factors correlated with the food stamp caseload (or social policies) affected food expenditures of the target and comparison groups in the same manner. One way to test the validity of this assumption is to examine trends in food expenditures of the target and comparison groups during a period of relatively no change in social policies. For the identifying assumption to be valid, the estimated value of ($\lambda_t - \lambda_c$) during a period of no change in the FSP and welfare policies should be zero. Unfortunately, CES do not provide data on state identifiers prior to 1994; therefore, we cannot test our identifying assumption in a period of relatively stable food stamp and welfare policies.

However, we can examine trends in FSP participation of the target and comparison groups using other data sets. If the two groups experienced similar trends in FSP participation during a period of relatively no major change in the FSP, that may provide some evidence that the comparison group is an appropriate counterfactual for the target group.

We use the March Current Population Surveys and examine trends in FSP participation of the two groups during 1979 to 1990, a period when there were no major changes in policies that would have affected FSP participation. Figure 8.2 shows that during 1979 to 1990, FSP participation among the two groups fluctuated marginally without any clear long-term trend. Thus, the pre-1991 trend in FSP participation among families headed by single mothers with a high school or lower education appears to be similar to the pre-1991 trend in participation among two-parent families in which mothers have a high school or lower education providing some validity to our comparison group research design.

The FSP participation among single-mother families started rising around 1990, reaching a peak in 1993, fell sharply during 1993 to 2002, and has registered a modest rise since then. The trend in FSP participation among the comparison group (two-parent families) is somewhat similar to that of the target group, with the decline during 1993 to 2002 being relatively modest for the former. Since two-parent families were mostly unaffected by welfare reform, the decline in their dependence on food stamps during 1993 to 2001
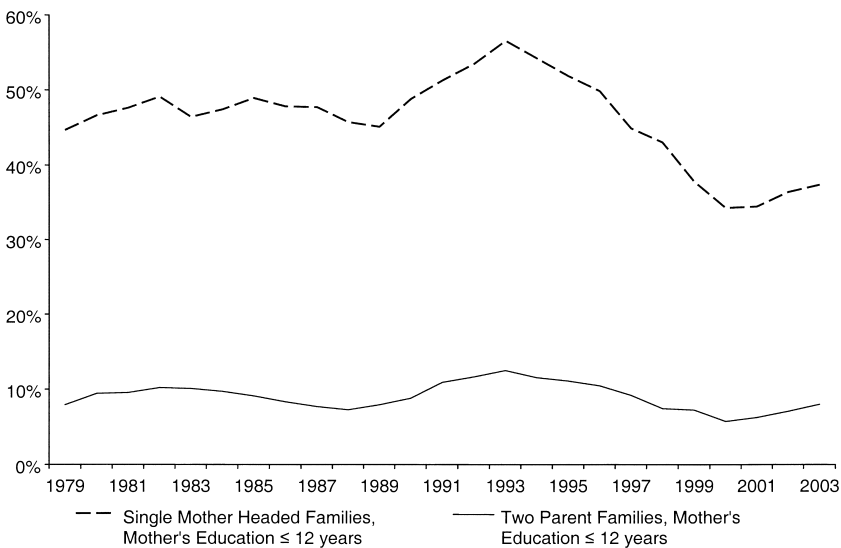

Fig. 8.2   Trends in FSP participation
Source: Authors' calculations based on the March Current Population Surveys, 1980 to 2004.

could be on account of the 1990s economic boom, while the decline experienced by single-mother families could be on account of both welfare reform as well as the 1990s economic boom. As mentioned, in the regression analysis we also include a rich set of variables to control for economic trends; for example, state unemployment rate and per capita income, year fixed effects, and a state-specific cubic trend.

The comparison group research design becomes more restrictive when we examine the effect of specific policies on expenditures. While the AFDC waivers and TANF primarily targeted low-educated, single-mother families, the other two policies relating to the FSP that we examine (EBT and Simplified Registration) targeted all low-income families, irrespective of mother's marital status. Hanratty (2006) found that Simplified Registration helped explain a much larger proportion of the increase in FSP participation since 2001 for two-parent families than it did for single-mother families. This finding questions the assumption that the experience of two-parent families is an appropriate counterfactual for testing the effect of EBT and SR on single-mother families.

We realize the limitations of the comparison group research methodology. Therefore, we believe it is most useful to simply present the estimates of the association between social policies (and food stamp caseload) on consumption patterns for the target and comparison groups, instead of explicitly estimating the difference-in-difference estimates. Doing so allows us to assess the credibility of the estimates, but also ensures that our estimates are not driven by trends in expenditures for the comparison group. It is most likely that the estimated effects based on equations (1) and (2) provide the effect of social policy changes and the food stamp caseload on the target group's food expenditure. If the estimates for the comparison group are large and statistically significant, that would suggest that there may be confounding factors affecting the target group estimates. At the very least, our approach identifies whether any observed effects of changes in the FSP and welfare reform on expenditure patterns are group-specific, and whether the effects are primarily found for the group of interest—the low-educated, single-mother target group.

8.6   Results

8.6.1   Descriptive Analysis

Table 8.1 provides average per capita weekly real (expressed in 2004 prices) expenditure on food items and patterns of expenditure among single-mother and two-parent families in which mothers have a high school or lower education. Each sample is further stratified by whether a family received food stamps in the previous year. During the period of our study, the per capita

Table 8.1   **Per capita weekly food expenditure in low-educated families (mother's education ≤ HS) (Consumer Expenditure Survey, 1994 to 2004; expressed in 2004 prices)**

	Single-mother families		Two-parent families	
	Received food stamp	Did not receive food stamp	Received food stamp	Did not receive food stamp
Total food expenditure	24.41	31.48	26.38	32.64
Food at home	19.69	21.04	19.12	21.80
Food away from home	4.72	10.44	7.26	10.85
Cereals and bakery products	3.02	3.33	2.82	3.33
Meat	5.69	5.95	5.25	5.81
Dairy products	2.37	2.42	2.25	2.66
Fruits and vegetables	2.80	3.24	2.91	3.34
Nonalcoholic beverages[a]	1.65	1.80	1.73	2.00
Alcoholic beverages	1.39	2.10	2.13	2.56
Other food at home	4.16	4.30	4.15	4.67
Food stamp amount	$12.14	—	$4.05	—
N	1,551	2,201	1,365	12,390

Note: Expenditure on cereals and bakery products, meat, dairy products, fruits and vegetables, nonalcoholic beverages, and other food at home sum to expenditure on food at home.

[a]Expenditure on alcoholic beverages is per adult population in the family, all other expenditures are expressed in per capita terms.

real weekly expenditure on food was $24 to $26 per week for families that received food stamps, and $31 to $33 for families that did not, depending on family structure. Overall, families on food stamps spent between 24 to 29 percent less on food. Finally, the average per capita weekly food stamp benefit was approximately 50 percent the expenditure on food in single-mother families who received any food stamps in a year. The corresponding number was 15 percent for two-parent families, suggesting relatively limited food stamps dependence among two-parent families.

Most of the difference in food expenditure between food stamp recipients and nonrecipients was on account of expenditure on food away from home. Among single-mother families, nonrecipients spent more than double of what recipients did on food away from home. In two-parent households the gap was relatively smaller, with food stamp recipients spending approximately 49 percent less on food away from home. This gap in expenditure on food away from home may be related to food stamps receipt as these cannot be used to buy restaurant food, or it may be due to differences in economic resources of recipients versus nonrecipients. Families on food stamps have lower incomes, and therefore, are less likely to spend on food away from home, which can be more expensive than homemade food. Expenditure on food away from home may also be related to the mother's employment status.

Mothers who work have higher earnings and are less likely to receive food stamps. They also have less time to prepare food at home, and thus spend more on food away from home.

Figures in table 8.1 also show that families receiving food stamps spent $19 to $20 per person per week on food at home, about 6 to 12 percent less than the corresponding expenditure in nonrecipient families, implying that food stamps do not entirely bridge the gap in food expenditure between the two groups. Single-mother families who received food stamps spent 16 percent less on average on fruits and vegetables as compared to those not on food stamps, 10 percent less on cereals, 5 percent less on meat, and 2 percent less on dairy products. Those on food stamps also spent a smaller proportion on beverages, alcoholic (one-third less) as well as nonalcoholic (8 percent less).[15] The story is more or less similar for two-parent families; those receiving food stamps spent less on food than those not on food stamps. These descriptive statistics on level and pattern of food expenditure suggest that food stamps do not bring complete parity in consumption levels of families receiving food stamps and those not receiving food stamps with relatively similar family structure and education levels. To investigate whether participation in the FSP affects consumption patterns in low-educated, single-mother households, we next study the association between the food stamp caseload (and social policies) and food expenditure using regression models presented in equations (1) and (2) that adjust for a rich set of control variables.

8.6.2   Multivariate Analysis

Table 8.2 presents the association between the food stamp caseload and food expenditure in families in which mothers have a high school or lower education. Columns (1) and (2) show results from a regression based on equation (1) in which the sample of analysis is restricted to families headed by single mothers and columns (3) and (4) present similar results for two-parent families. Each cell in this table is based on a separate regression. The dependent variable for each regression is listed in row headings. All models control for mother's age, race/ethnicity, family income,[16] whether she lives in an urban area, family size, number of children under eighteen, and number of persons in the family who are aged sixty-five or above, state monthly unemployment rate and per capita income, and state, year, and month fixed effects. Estimates in columns (2) and (4) also include an additional control

15. Food Stamps cannot be used to buy alcoholic beverages.
16. We used nine dummy variables as indicators for the following annual income (before tax and transfers) categories: < $5,000; $5,000 to $9,999; $10,000 to $14,999; $15,000 to $19,999; $20,000 to $29,999; $30,000 to $39,999; $40,000 to $49,999; $50,000 to $69,999 and $70,000 and over. We also repeated the analysis in table 8.2 in which we included controls for income net of transfers and taxes (continuous variable) but exclusive of food stamp benefits. The estimated effects were similar to those reported.

Table 8.2   **Estimated effects of per capita food stamp caseload on per capita weekly food expenditures in low-educated families (mother's education ≤ HS)**

| | Single-mother families | | Two-parent families | |
Controls for state-specific cubic trend	No	Yes	No	Yes
Total food expenditure	0.941	2.655	–0.413	–2.341
	(0.722)	(3.584)	(0.362)	(2.570)
Food at home	0.415	–0.062	0.165	–2.813
	(0.563)	(2.898)	(0.242)	(1.747)
Food away from home	0.526	2.716*	–0.578**	0.473
	(0.355)	(1.616)	(0.246)	(1.999)
Cereals and bakery products	0.097	–1.180	0.043	–0.136
	(0.106)	(0.778)	(0.045)	(0.336)
Meat	0.202	0.981	0.074	–0.268
	(0.228)	(0.947)	(0.098)	(0.713)
Dairy products	0.046	0.256	0.005	–0.567**
	(0.065)	(0.361)	(0.033)	(0.229)
Fruits and vegetables	–0.045	–1.216**	0.008	–0.478
	(0.098)	(0.539)	(0.051)	(0.391)
Nonalcoholic beverages	0.058	0.269	–0.059*	–0.462*
	(0.064)	(0.342)	(0.035)	(0.261)
Alcoholic beverages	0.226	1.154	–0.251**	–0.179
	(0.194)	(1.154)	(0.099)	(0.790)
Other food at home	0.057	0.828	0.094	–0.903*
	(0.144)	(0.769)	(0.069)	(0.491)
N	3,249	3,249	11,471	11,471

Notes: Figures in each cell are based on a separate regression, using the Consumer Expenditure Survey, 1994 to 2004. Each regression controls for mothers' age, race/ethnicity, whether she lives in an urban area, family size, family income, number of children under eighteen, and number of persons in the family aged sixty-five or above, state monthly unemployment rate and per capita income, state, year, and month fixed effects. Regressions in columns (2) and (4) also include additional controls for a state-specific cubic trend. Expenditures are expressed in December 2004 dollars using the Bureau of Labor Statistics Food Price Index. Expenditure on alcoholic beverages is per adult in the family, all other expenditures are expressed in per capita terms. Heteroskodasticity adjusted standard errors clustered at consumer unit are in parentheses.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

for a state-specific cubic time trend.[17] Heteroskodasticity adjusted standard errors clustered at consumer unit are in parenthesis.

Figures in column (1) suggest that the food stamp caseload does not have any statistically significant effect on total food expenditure or on expenditures on major food items in single mother-headed families. All estimates

17. We also conducted analysis with state-specific quadratic trends. The estimated coefficients on the food stamp caseload variable were similar to those from models including state-specific cubic trends. We have opted to present a less restrictive trend here. The estimated coefficients using models with quadratic trends can be obtained upon request.

are small and statistically insignificant. The statistically insignificant point estimates indicate that a one percentage point increase in the per capita food stamp caseload raised total per capita weekly food expenditures in families headed by low-educated single mothers by a little less than a dollar, of which forty-two cents was spent on food at home, and fifty-three cents on food away from home.

During 1994 to 2004, the period covered by this study, the average per capita food stamp caseload was 8 percent, or 22.1 million participants. A one percentage point increase in per capita caseload is equivalent to expanding the program by adding 2.8 million more participants or a 12.5 percent increase in the food stamp caseload. Therefore, the previous estimates suggest that a 12.5 percent increase in the FSP would raise food expenditure in low-educated, single-mother families by 3.3 percent (based on the mean per capita weekly food expenditure of $28.56 incurred by families headed by low-educated single mothers during the period of this study).

One reason for these modest and statistically insignificant estimates could be that the expansions in food stamps we estimate have a relatively modest effect on the overall income of families headed by low-educated single mothers. In 2004, the maximum per capita weekly food stamp benefit was approximately $29 per person per week ($371 per month for a family of three). A 12.5 percent increase in the size of the program would mean a maximum increase in benefit amount of $3.6 per person per week, an increase too small to have much effect on an unconstrained consumer.[18] In addition, we may not have the power to detect such small-sized effect. Our statistically insignificant estimate implies a marginal propensity to consume (MPC) of around 0.26 (= 0.94 ÷ 3.6). Although crude, this estimate is not much different from the estimates from other studies; for example, Hoynes and Schanzenbach (2009) estimate a MPC for single mothers to be 0.296.

In regressions that include a state-specific cubic time trend (column [2]), the estimate of the association between the food stamp caseload and food expenditure in single-mother families remains statistically insignificant, but point estimate is larger. A 12.5 percent increase in exposure to the FSP increases total food expenditure in single-mother families by 9 percent, but all of the increase is on account of the rise in expenditure on food away from home. A 12.5 percent increase in the food stamp caseload is found to be associated with a $2.7 increase in per capita weekly expenditure on food away from home (or a 34 percent rise based on the mean expenditure of $8.08 on food away from home in single-mother families) and the coefficient

18. According to United States Department of Agriculture (USDA) estimates, income elasticity for food, beverages, and tobacco is 0.1; for clothing and footwear 0.9; for gross rent, fuel, and power 1.2; for house operations 1.2; for education 1.1, for medical care 1.2, for transportation and communication 1.2, and for recreation 1.3. These estimates are for the entire population and income elasticity for food is likely to be higher for low-income families (see: http://www.ers.usda.gov/Data/InternationalFoodDemand/).

is weakly significant ($p \leq 0.10$). Although food stamps cannot be used to buy restaurant food, families receiving food stamps may reallocate towards eating out the money they would otherwise have spent on food at home if they did not receive food stamps. Further, the analysis in column (2) suggests that a 12.5 percent increase in food stamp caseload is associated with a $1.22 reduction in expenditure on fruits and vegetables. This is a worrisome result as it suggests that the FSP adversely affects food quality. To further examine the association between food stamp participation and quality of food consumption, we estimated the association between the caseload and expenditure on fruits and vegetables, excluding potatoes. The estimated coefficient turned positive and weakly significant (coefficient = 1.12; s.e. = 0.51). This result suggests that the food stamp caseload is not associated with a decline in food quality (i.e., decline in consumption of fruits and vegetables). Since expenditure on potatoes is a tiny proportion (about 0.6 percent) of the total expenditure on food, we consider it prudent not to read too much into the positive and statistically significant association between the caseload and expenditure on fruits and vegetables (excluding potatoes).

Next, we investigate the association between the food stamp caseload and expenditure patterns in low-educated, two-parent families, who are much less likely to be at risk of food stamp receipt as compared to the single mother group. Therefore, any association between the food stamp caseload and expenditure on food for this group may be on account of omitted factors such as unobserved economic trends. Estimates suggest that the caseload has no statistically significant association with total expenditure on food or on food at home, using either of the two models (one that includes a state-specific cubic trend and one that does not).

In models that do not include state-specific time trends (column [3]), an increase in the food stamps caseload is associated with a decline in expenditure on food away from home and a fall in expenditure on alcoholic beverages in two-parent families, but the estimated coefficients turn statistically insignificant when state-specific trends are included as control variables. In models that include state-specific trends (column [4]), an increase in the food stamp caseload is associated with a decline in expenditure on dairy products, nonalcoholic beverages (weakly significant) and other food at home (weakly significant). Since two-parent, low-educated families face low-risk of receiving food stamps, these estimates may reflect that state-specific cubic trends perhaps do not fully control for the effect on expenditures relating to these food items of factors correlated with the food stamp caseload.

To sum up, our analysis so far suggests that expansions in the food stamp program, measured by increases in the food stamp caseload, do not appear to have any statistically significant effect on total expenditure on food and expenditure on most food items in low-educated, single mother-headed families. We also find some weak evidence that the caseload increase is associated with an increase in expenditure on food away from home in low-educated,

single-mother families. It is possible that the expansions in the FSP that we measure have a rather small impact on family incomes and we don't have the power in our data to measure such small-sized effect.

Next, we investigate the association between welfare reform and changes in the FSP and the food stamp caseload. We regress the state per capita food stamp caseload on four policy variables[19] (EBT, SR, the AFDC waivers, and TANF) and state and year fixed effects. We first do the analysis on all states using the caseload data for 1994 to 2004, and then restrict the data to the thirty-five states for which we have state identifiers in the expenditure data. Estimates from this analysis are presented in table 8.3. These estimates suggest that EBT was associated with a 0.3 to 0.4 percentage points (or 4 to 5 percent, based on a per capita food stamp caseload of 8 percent) increase in the food stamp caseload; SR was associated with a statistically insignificant 0.2 percentage points (2.5 percent) increase in the food stamp caseload; the AFDC waivers were associated with a 0.3 to 0.5 percent (4 to 6 percent) decline in the caseload, and TANF was associated with a one percentage point (12.5 percent) decline in the food stamp caseload.

To evaluate these results against some of the other research in this area, we compare changes in the food stamp caseload during the period of our study. During 1994 to 2000, the per capita food stamp caseload fell from 10.5 to 6.1 percent. Our analysis suggests that 32 percent of this decline ($= 1.4 \div 4.4$) is associated with TANF and the AFDC waivers. Similarly, during 2001 to 2004, the per capita caseload increased from 6.1 to 8 percent, and our analysis suggests that 11 percent ($= 0.2 \div 1.9$) of the increase could be due to simplified reporting (although this estimate is statistically insignificant). Our analysis, although crude in comparison to the more sophisticated analysis in this field, confirms the general finding that social policy changes since the early 1990s help explain about a tenth to a third of the change in food stamp caseload.

Next, we examine how changes in the FSP and welfare policies affected expenditures on food using the model specified in equation (2). The results of this analysis are presented in tables 8.4 and 8.5. Models in table 8.4 include all the controls of the models in columns (1) and (3) in table 8.2, and models in table 8.5 also include additional controls for a state-specific cubic time trend.

In table 8.4, each row of a section is based on a single regression, and the dependent variable is listed in the row heading. Estimates of the effect of social policies on food expenditures—total as well as on various items—are small and statistically insignificant except for the effect on expenditure on meat. Our estimates suggest that the EBT cards increased weekly per capita

19. A policy variable is equal to 1 if a state had that policy throughout year *t*. In cases where a state implemented a policy during a year, the policy variable is equal to the fraction of the year that the policy was in place. If a state did not have a certain policy throughout the year the variable is equal to 0.

Table 8.3   **Effect of social policies on the per capita food stamp caseload**

	Per capita food stamp caseload			
Electronic Benefit Transfer	–0.335	0.378***	0.175	0.278*
	(0.330)	(0.144)	(0.348)	(0.159)
Simplified Reporting	1.483***	0.181	1.462***	0.165
	(0.369)	(0.170)	(0.371)	(0.189)
AFDC waiver	–0.613**	–0.487**	–0.880***	–0.316
	(0.250)	(0.193)	(0.256)	(0.204)
TANF	–2.353***	–0.972**	–2.595***	–1.050**
	(0.362)	(0.430)	(0.378)	(0.449)
State and year fixed effects	No	Yes	No	Yes
Sample restricted to 35 states in the CES sample	No	No	Yes	Yes

Note: Standard errors are in parentheses.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

expenditure on meat products by \$1.2 (a 21 percent increase over the average weekly per capita expenditure of \$5.84), and TANF increased weekly per capita expenditure on meat products by \$2.14 (37 percent). All other estimated effects were small in size and statistically insignificant.

Section "Two-parent families" of table 8.4 presents regression results for two-parent, low-educated families. The EBT card system is associated with an increase in expenditure on food at home (weakly significant), meat (weakly significant), and expenditure on other food at home. Simplified reporting appears to have had no effect on expenditures on any of the food items or total food expenditure. The AFDC waivers raised expenditures on food at home, cereals and bakery products (weakly significant), fruits and vegetables; TANF raised expenditures on nonalcoholic beverages. Since the AFDC waivers and TANF did not have much effect on two-parent families, these statistically significant results suggest that our model does not fully capture the effect of time-varying factors that may be correlated with policy.

Next, we estimate models with additional controls for state-specific cubic time trends. The results from these regressions are presented in table 8.5, which has the same layout as table 8.4. Again, there appears to be no estimated effect of social policy changes on total food expenditures, expenditures on food at home and food away from home in low-educated, single-mother families. The estimated effect of policies on expenditures on specific items are also small and insignificant except for the effect of simplified reporting on alcoholic beverages, of AFDC waivers on expenditures on dairy products, and the effect of TANF on nonalcoholic beverages. These estimates suggest that simplified reporting was associated with a \$2.32 reduction in per

Table 8.4   Estimated effects of Electronic Benefit Transfer, Simplified Reporting, TANF, and the AFDC waivers on per capita weekly food expenditures in low-educated families (mother's education ≤ HS)

Dependent variable	Single-mother families				Two-parent families			
	Electronic Benefit Transfer	Simplified reporting	AFDC waiver	TANF	Electronic Benefit Transfer	Simplified reporting	AFDC waiver	TANF
Total food expenditure	−0.060	−2.628	−0.300	5.073	1.269	−1.812	1.862	1.479
	(2.789)	(2.276)	(2.794)	(4.134)	(0.966)	(1.283)	(1.446)	(1.862)
Food at home	1.459	−1.731	−0.389	3.818	1.343*	−0.832	1.926**	1.292
	(1.619)	(1.719)	(2.345)	(3.091)	(0.691)	(0.791)	(0.978)	(1.438)
Food away from home	−1.518	−0.897	0.089	1.255	−0.074	−0.979	−0.064	0.187
	(2.034)	(1.362)	(1.100)	(2.072)	(0.557)	(0.895)	(0.982)	(1.012)
Cereals and bakery products	−0.002	−0.330	0.059	0.227	−0.046	0.046	0.335*	0.159
	(0.280)	(0.346)	(0.379)	(0.560)	(0.136)	(0.134)	(0.175)	(0.253)
Meat	1.180*	−0.839	0.268	2.143*	0.483*	−0.228	0.652	0.607
	(0.674)	(0.672)	(0.906)	(1.226)	(0.284)	(0.342)	(0.470)	(0.619)
Dairy products	0.062	−0.253	−0.312	0.355	0.109	−0.146	0.103	0.182
	(0.192)	(0.202)	(0.265)	(0.339)	(0.095)	(0.108)	(0.118)	(0.187)
Fruits and vegetables	0.224	−0.386	−0.236	0.455	0.142	−0.253	0.641***	0.416
	(0.287)	(0.337)	(0.412)	(0.581)	(0.142)	(0.162)	(0.214)	(0.267)
Nonalcoholic beverages	−0.245	0.226	−0.063	0.159	0.098	−0.105	0.099	0.396**
	(0.183)	(0.198)	(0.241)	(0.330)	(0.094)	(0.111)	(0.151)	(0.197)
Alcoholic beverages	−0.374	−0.079	−0.755	−0.231	−0.281	−0.193	0.533	0.179
	(0.564)	(0.643)	(0.587)	(1.103)	(0.319)	(0.377)	(0.478)	(0.546)
Other food at home	0.240	−0.149	−0.105	0.480	0.556***	−0.145	0.095	−0.468
	(0.410)	(0.477)	(0.572)	(0.744)	(0.192)	(0.229)	(0.274)	(0.394)

Notes: Figures in each row of a panel are based on a separate regression using the Consumer Expenditure Survey, 1994 to 2004. Panel heading describes the sample of analysis. Each regression controls for mothers' age, race/ethnicity, whether she lives in an urban area, family size, family income, number of children under eighteen, and number of persons in the family aged sixty-five or above, state monthly unemployment rate and per capita income, state, year, and month fixed effects. Expenditures are expressed in December 2004 dollars using the Bureau of Labor Statistics Food Price Index. Expenditure on alcoholic beverages is per adult in the family, all other expenditures are expressed in per capita terms. Heteroskodasticity adjusted standard errors clustered at consumer unit are in parentheses.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table 8.5 Estimated effects of Electronic Benefit Transfer, Simplified Reporting, TANF, and the AFDC waivers on per capita weekly food expenditures in low-educated families (mother's education ≤ HS) (Includes controls for a state-specific cubic trend)

	Single-mother families				Two-parent families			
Dependent variable	Electronic Benefit Transfer	Simplified reporting	AFDC waiver	TANF	Electronic Benefit Transfer	Simplified reporting	AFDC waiver	TANF
Total food expenditure	−2.880	0.651	−7.178	4.155	−0.738	−0.691	−0.089	−0.514
	(5.375)	(4.306)	(5.121)	(5.389)	(1.906)	(3.106)	(2.674)	(2.455)
Food at home	−0.006	1.850	−5.696	1.064	1.299	−0.883	0.411	−0.802
	(4.155)	(3.172)	(4.777)	(4.414)	(1.298)	(1.804)	(2.105)	(1.918)
Food away from home	−2.874	−1.199	−1.482	3.092	−2.037*	0.192	−0.500	0.288
	(2.754)	(2.628)	(2.200)	(2.514)	(1.161)	(2.316)	(1.409)	(1.319)
Cereals and bakery products	−0.698	0.255	−0.468	−0.480	−0.017	0.067	0.150	−0.212
	(0.608)	(0.622)	(0.772)	(0.927)	(0.235)	(0.306)	(0.390)	(0.355)
Meat	1.091	0.504	−1.376	1.329	0.506	−0.192	0.344	−0.438
	(1.606)	(1.188)	(1.744)	(1.588)	(0.487)	(0.736)	(0.836)	(0.762)
Dairy products	−0.082	−0.290	−1.123**	−0.149	−0.049	−0.085	0.063	0.047
	(0.439)	(0.341)	(0.551)	(0.547)	(0.186)	(0.217)	(0.265)	(0.267)
Fruits and vegetables	0.049	0.387	−0.519	0.935	0.256	−0.608*	−0.090	−0.090
	(0.817)	(0.574)	(1.031)	(1.004)	(0.287)	(0.346)	(0.448)	(0.347)
Nonalcoholic beverages	−0.092	0.058	−0.822	−0.884**	−0.091	−0.141	0.030	0.270
	(0.441)	(0.341)	(0.507)	(0.406)	(0.177)	(0.223)	(0.250)	(0.268)
Alcoholic beverages	−0.215	−2.315*	−1.239	1.612	−0.752	−0.289	−0.047	−0.598
	(1.495)	(1.181)	(1.304)	(2.180)	(0.576)	(0.602)	(0.944)	(0.668)
Other food at home	−0.275	0.935	−1.389	0.313	0.693*	0.076	−0.086	−0.378
	(0.965)	(0.860)	(1.172)	(1.168)	(0.382)	(0.488)	(0.583)	(0.520)

Notes: Figures in each row of a panel are based on a separate regression using the Consumer Expenditure Survey, 1994 to 2004. Panel heading describes the sample of analysis. Each regression controls for mothers' age, race/ethnicity, whether she lives in an urban area, family size, family income, number of children under eighteen, and number of persons in the family aged sixty-five or above, state monthly unemployment rate and per capita income, state, year, and month fixed effects and a state-specific cubic trend. Expenditures are expressed in December 2004 dollars using the Bureau of Labor Statistics Food Price Index. Expenditure on alcoholic beverages is per adult in the family, all other expenditures are expressed in per capita terms. Heteroskodasticity adjusted standard errors clustered at consumer unit are in parentheses.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

capita weekly expenditure on alcoholic beverages, the AFDC waivers were associated with a $1.12 decline in per capita weekly expenditure on dairy products, and TANF was associated with a $0.88 decline in expenditure on nonalcoholic beverages. All other estimates are small and statistically insignificant.

Estimated effects of changes in policies on food expenditures in two-parent families were also small and statistically insignificant, except for the effect of the EBT cards on expenditure on food away from home, which is negative (weakly significant), and the effect of simplified reporting on fruits and vegetables, which is also negative (weakly significant).

To sum up, our analysis confirms the findings from previous research that changes in the FSP and welfare reform help explain a tenth to a third of the change in the food stamp caseload. But we do not find any consistent association between these policies and food expenditures. Most models show that none of the four policies studied in this chapter had any statistically significant effect on total food expenditure. In some models, we found that TANF and EBT were associated with increased expenditure on meat products, but these effects disappeared when we used more rigorous models; that is, controlling for state-specific cubic trends. In some models we also found that TANF was associated with a decline in expenditure of nonalcoholic beverages, the AFDC waivers were associated with a decline in expenditures on dairy products, and simplified reporting discouraged expenditure of alcoholic beverages.

8.7   Conclusion

In this chapter, we investigate the effect of the Food Stamp Program in the United States on food expenditures in families headed by low-educated, single mothers during 1994 to 2004. We first study the association between the food stamp caseload and pattern and quantity of food expenditures. Our analysis suggests that the food stamp caseload does not have any statistically significant association with total expenditure on food. The point estimates were small and statistically insignificant. We also find some weak evidence that an increase in the caseload was associated with an increase in expenditure on food away from home, but the estimated associations between the caseload and expenditures on food items were small and statistically insignificant. It is possible that the expansions in the FSP that we measure have a rather small impact on family incomes and we do not have the power in our data to measure such small-sized effect. Our results, thus, support findings from some of the earlier analysis that the Food Stamp Program does not have any statistically significant effect on food consumption (Moffitt 1989).

We find that while the introduction of the EBT cards and simplified reporting were associated with an increase in food stamp participation (caseload),

federal and state welfare reforms caused a decline in the caseload. Our analysis suggests that 32 percent of the decline in the food stamp caseload during 1994 and 2000 was associated with the implementation of TANF and the AFDC waivers, and 11 percent of the increase in the caseload during 2001 to 2004 could be due to simplified reporting. However, we do not find any evidence that these changes in the Food Stamp Program had any effect on total food expenditure, nor do we find any evidence that TANF or the AFDC waivers caused any statistically significant changes in spending on food.

Our analysis of the effect of social policy changes on expenditures on specific food items suggests that the AFDC waivers were associated with a decline in expenditure on dairy products and TANF was associated with a decline in expenditure of nonalcoholic beverages and some weak evidence that simplified reporting discouraged expenditure of alcoholic beverages.

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