

APPENDIX C:

EVIDENCE OF FOOD STAMP PARTICIPATION CHANGES IN 1992-1999 DATA FROM THE SIPP

In this appendix, we use 1992-1999 data from the Survey of Income and Program Participation (SIPP) to estimate how much declines in food stamp participation during the 1990s were caused by welfare reform, as opposed to changes in the economy or other factors. These analyses supplement the simulations performed for this report using the MATH STEWARD model, which did not use post-PRWORA data from the SIPP but relied primarily on the 1992 SIPP panel, covering the years 1992 through 1994.

Using data on all households in the month before the survey month for the 1992, 1993, and 1996 SIPP panels, we estimated the proportion of households that reported receiving food stamp benefits.¹ Because food stamp participation is likely to differ according to a household's demographic structure, we estimated participation rates separately for the following groups:

1. Households with a single male reference person and no children under the age of 18
2. Households with a single male reference person and children under the age of 18
3. Households with a single female reference person and no children under the age of 18
4. Households with a single female reference person and children under the age of 18
5. Households with a married reference person and no children under the age of 18
6. Households with a married reference person and children under the age of 18

¹ Because the 1992 and 1993 panels overlap in the years 1993 and 1994, we divided the reference person's sample weight by 2 for each of these panels, thereby giving greater weight to observations from the 1996 panel.

Table C.1 indicates, by calendar year from 1992 through 1998, the reported participation rates for all households plus the six types of households described above, as well as the unweighted and weighted sample sizes for each group of households.² Note that the sample is larger in 1993 and 1994 than in 1992 and 1995 because of the two-year overlap of the 1992 and 1993 SIPP panels, and larger in 1996 than in 1992 because of the expanded size of the 1996 SIPP panel. The overall FSP participation rate in the SIPP rose from 8.2 percent in 1992 to 8.7 percent in 1993, and then fell to 6.2 percent in 1998. The 24 percent decline in the overall FSP participation rate between 1992 and 1998 is quite similar to the 26 percent decline between December 1992 and December 1998 in the number of food stamp units reported in the FSP QC database (see Appendix A).³

The decline in FSP participation rates in the SIPP from 1992 through 1998 was substantially greater for households with children than for households without children. Over this period, for households with single male reference persons, food stamp participation rates declined by 43 percent when children were present in the household, versus only 9 percent when children were absent. For households with single female reference persons, the corresponding decline was 29 percent when children were present, versus only 9 percent when children were absent. For households with married reference persons, the corresponding decline was 39 percent when children were present, versus only 4 percent when children were absent.

² Food stamp participation rates for 1999 are not indicated in the table because households were not observed throughout the entire calendar year.

³ We chose these two years because they correspond with the years simulated for this study using the MATH STEWARD microsimulation model.

TABLE C.1
Reported Rates of Food Stamp Participation, 1992 through 1998

	Total Population	Single Males		Single Females		Married Couples	
		w/o kids	w. kids	w/o kids	w. kids	w/o kids	w. kids
Reported Food Stamp Participation Rates							
During calendar year 1992	0.0819	0.0469	0.1854	0.0760	0.4003	0.0142	0.0643
During calendar year 1993	0.0874	0.0472	0.1794	0.0756	0.4292	0.0156	0.0734
During calendar year 1994	0.0846	0.0474	0.1661	0.0781	0.4272	0.0144	0.0677
During calendar year 1995	0.0839	0.0464	0.1646	0.0825	0.3914	0.0159	0.0691
During calendar year 1996	0.0778	0.0505	0.1476	0.0781	0.3553	0.0157	0.0579
During calendar year 1997	0.0701	0.0470	0.1294	0.0746	0.3124	0.0147	0.0487
During calendar year 1998	0.0620	0.0429	0.1054	0.0690	0.2834	0.0137	0.0395
Percentage Change in Participation Rate							
Between 1992 and 1993	6.7	0.6	-3.2	-0.5	7.2	9.9	14.2
Between 1992 and 1994	3.2	1.0	-10.4	2.8	6.7	1.2	5.3
Between 1992 and 1995	2.4	-1.0	-11.2	8.6	-2.2	11.4	7.5
Between 1992 and 1996	-5.0	7.7	-20.4	2.9	-11.3	10.2	-9.9
Between 1992 and 1997	-14.4	0.1	-30.2	-1.8	-22.0	3.2	-24.3
Between 1992 and 1998	-24.3	-8.5	-43.2	-9.2	-29.2	-3.6	-38.5
Sample sizes (household-months)							
1992 unweighted	50,757	6,415	890	10,337	4,296	14,596	14,223
1993 unweighted	97,748	12,260	1,738	19,756	8,139	28,238	27,617
1994 unweighted	90,146	10,738	1,467	18,578	7,188	26,125	26,050
1995 unweighted	51,720	6,438	795	10,923	4,168	14,778	14,618
1996 unweighted	102,334	14,633	2,305	21,629	10,274	26,709	26,784
1997 unweighted	92,844	13,196	2,111	19,874	9,081	24,248	24,334
1998 unweighted	86,601	12,298	1,922	18,864	8,176	22,883	22,458
1992 weighted (thousands)	137,393	17,888	2,505	28,118	12,021	38,667	38,194
1993 weighted (thousands)	270,655	34,506	5,047	55,057	23,756	76,358	75,930
1994 weighted (thousands)	262,977	32,019	4,439	53,776	22,387	74,188	76,167
1995 weighted (thousands)	157,859	19,856	2,629	31,555	13,891	44,338	45,590
1996 weighted (thousands)	296,934	43,587	6,661	60,257	26,424	81,501	78,504
1997 weighted (thousands)	300,537	44,804	7,021	61,645	26,900	80,579	79,588
1998 weighted (thousands)	304,135	46,577	7,046	62,931	26,444	80,800	80,337

DATA SOURCES: 1992, 1993, and 1996 panels of the Survey of Income and Program Participation

Our goal in this analysis was to examine the extent to which FSP/welfare policy changes and changes in economic conditions were responsible for changes in food stamp participation rates during the 1990s. To obtain this estimate, we needed to predict the probability of food stamp participation under counterfactual conditions, that is, assuming welfare reform had not been implemented or assuming that unemployment rates had not fallen during the 1990s. To predict these probabilities, we estimated probit models of food stamp participation for each of the six household types listed above. To include observations from the entire period from 1992 to 1999, we pooled data from the three SIPP panels when estimating each model. To avoid recall bias, we only used data from months before the month in which a household was surveyed during each wave. We calculated robust standard errors to account for the clustering of observations by household within each panel (that is, for the fact that the same household sampling unit may appear up to three times per year in each panel).

Table C.2 lists the explanatory variables included in models of food stamp participation. Broadly speaking, these included household demographic characteristics, state unemployment rates, measures of the characteristics of FSP units in the state, indicators for the sort of welfare reform implemented in the state, and fixed effects for state and for calendar year.

To predict the probability of food stamp participation under various economic and policy scenarios, we calculated separate probabilities for households observed during calendar year 1992, and households observed during 1998. (We selected these years because they correspond to the years simulated by the MATH STEWARD model, as described in the body of this report.) To calculate participation probabilities under counterfactual economic conditions, we calculated FSP participation probabilities for the 1992 sample using the corresponding 1998 state unemployment rates, and for the 1998 sample using the corresponding 1992 state unemployment

TABLE C.2
Variables Included in Models to Predict Probabilities of Food Stamp Participation

<i>Category</i>	<i>Variables</i>
Demographic characteristics	Age of reference person (and spouse, if present) - <25, 25-39, 40-54, 65+ Race of reference person (white, black, or other) Hispanic status of reference person High school completion of reference person (and spouse, if present) College completion of reference person (and spouse, if present) Household size # of children of reference person in the household and under age 18 # of children of reference person in the household and under age 5 # of other children in the household and under age 18
Economic conditions	State unemployment rate in prior month State unemployment rate squared State unemployment rate cubed
State FSP characteristics	Percentage of FSP units with AFDC/TANF income in the prior month Average AFDC/TANF + FSP benefit for units with both in prior month Average FSP benefits for non-AFDC/TANF units in the prior month Percentage of (AFDC/TANF, non-AFDC/TANF) FSP units with earnings Percentage of (AFDC/TANF, non-AFDC/TANF) FSP units with training participants Percentage of (AFDC/TANF, non-AFDC/TANF) FSP units with persons who fail to comply with work requirements and are not exempt Percentage of (AFDC/TANF, non-AFDC/TANF) FSP units on food stamps continuously for over 2 years
Welfare reform variables	Indicator for states with a pre-PRWORA welfare reform waiver affecting work requirements, earned income disregards, or time limits Indicator for states that have implemented a TANF program Indicator for different combinations of aggressive work requirements, generous earned income disregards, and short time limits
Other indicators	State fixed effects Calendar year fixed effects

rates. To calculate participation probabilities under counterfactual policy conditions, we used the FSP/welfare characteristics of each state as of 1992 to predict FSP participation for the 1998 sample, and the FSP/welfare characteristics of each state as of 1998 to predict FSP participation for the 1992 sample. Holding constant economic conditions and FSP/welfare characteristics, we interpreted changes between the predicted probabilities for the two samples as reflecting changes both in population characteristics and in residual factors captured by the calendar year indicators.

Table C.3 presents predicted probabilities of FSP participation for the 1992 and 1998 samples under various economic and policy scenarios. There are different ways to attribute the change in FSP participation to welfare reform, economic conditions, and other factors, as is indicated in footnote 1 at the bottom of Table C.3. Regardless of which way the contribution of welfare reform or the economy was measured, the proportion of the total change attributable to each factor was similar for the same group of households.

The predicted contribution of welfare reform to the decline in food stamp participation rates was about one-fifth (21 percent) overall, and was largest for households with single female reference persons and no children (54 percent). For households with single male reference persons and no children, the predicted contribution of welfare reform to the decline in food stamp participation was actually *negative*.⁴ The contribution of the economy (as measured by state unemployment rates) to the decline in FSP participation rates was somewhat larger: equal to about one-fifth (21 percent) of the overall decline, and a larger fraction of the decline for households without children than for households with children. About three-fifths (58 percent)

⁴A negative contribution indicates that the changes in food stamp/welfare characteristics over the period were actually predicted to *increase* food stamp participation rates. Such an increase could arise because the expansion of food stamp employment/training programs makes food stamp participation more attractive to some households.

TABLE C.3
Estimated Probabilities of Food Stamp Participation, 1992 and 1998

	Total Population	Single Males w/o kids	w. kids	Single Females w/o kids	w. kids	Married Couples w/o kids	w. kids	
Probabilities for 1992 population								
1	1992 economy, 1992 program characteristics	0.0819	0.0469	0.1854	0.0763	0.3985	0.0148	0.0637
2	1998 economy, 1992 program characteristics	0.0773	0.0422	0.1601	0.0747	0.3830	0.0139	0.0582
3	1992 economy, 1998 program characteristics	0.0774	0.0536	0.1816	0.0726	0.3745	0.0146	0.0555
4	1998 economy, 1998 program characteristics	0.0730	0.0483	0.1567	0.0711	0.3594	0.0137	0.0504
Probabilities for 1998 population								
5	1992 economy, 1992 program characteristics	0.0704	0.0413	0.1296	0.0747	0.3242	0.0150	0.0509
6	1998 economy, 1992 program characteristics	0.0662	0.0370	0.1108	0.0730	0.3093	0.0140	0.0463
7	1992 economy, 1998 program characteristics	0.0662	0.0473	0.1249	0.0708	0.2981	0.0148	0.0436
8	1998 economy, 1998 program characteristics	0.0620	0.0425	0.1067	0.0691	0.2838	0.0137	0.0395
Changes from welfare reform, economy, and other factors¹								
9	combined: % change between (1) and (8)	-24.2	-9.3	-42.5	-9.4	-28.8	-7.3	-38.0
10	reform: % change between (6) and (8)	-6.2	14.7	-3.7	-5.3	-8.2	-1.7	-14.7
11	economy: % change between (5) and (6)	-6.0	-10.4	-14.5	-2.3	-4.6	-7.0	-9.0
12	other factors: % change between (1) and (5)	-14.0	-11.8	-30.1	-2.1	-18.6	1.5	-20.2
Estimated contribution of welfare reform to total change								
13	(8) - (6) relative to (8) - (1), in %	20.9	-124.7	5.2	53.7	22.2	21.8	28.1
14	(7) - (5) relative to (8) - (1), in %	21.5	-136.9	5.9	54.5	22.8	19.8	30.1
15	(4) - (2) relative to (8) - (1), in %	21.7	-139.3	4.4	50.2	20.6	22.6	31.9
16	(3) - (1) relative to (8) - (1), in %	22.2	-153.4	4.9	50.8	21.0	20.3	34.0
Estimated contribution of economy to total change								
17	(6) - (5) relative to (8) - (1), in %	21.4	97.9	23.8	23.8	13.0	98.2	18.9
18	(8) - (7) relative to (8) - (1), in %	20.8	110.0	23.2	23.0	12.4	100.2	16.9
19	(2) - (1) relative to (8) - (1), in %	23.0	106.8	32.1	22.6	13.6	82.9	23.0
20	(4) - (3) relative to (8) - (1), in %	22.5	120.9	31.6	22.1	13.2	85.1	20.9
Estimated contribution of other factors to total change								
21	(5) - (1) relative to (8) - (1), in %	57.8	126.8	70.9	22.4	64.8	-20.1	53.0
22	(6) - (2) relative to (8) - (1), in %	56.1	118.0	62.7	23.6	64.2	-4.8	48.9
23	(7) - (3) relative to (8) - (1), in %	57.0	143.4	71.9	26.2	66.6	-20.6	49.0
24	(8) - (4) relative to (8) - (1), in %	55.3	132.5	63.5	27.1	65.9	-5.5	45.0

DATA SOURCES: 1992, 1993, and 1996 panels of the Survey of Income and Program Participation, supplemented by Bureau of Labor Statistics data on state unemployment rates between 1991 and 1999, and FSP QC data on state food stamp caseload characteristics between FY 1992 and FY 1999

¹The difference (8) - (1) may be apportioned in different ways: as [(8)-(6)] + [(6)-(5)] + [(5)-(1)]; or [(8)-(6)] + [(2)-(1)] + [(6)-(2)]; or [(7)-(5)] + [(8)-(7)] + [(5)-(1)]; or [(4)-(2)] + [(2)-(1)] + [(8)-(4)]; or [(3)-(1)] + [(4)-(3)] + [(8)-(4)]. The first option is preferred here, although the estimated contribution using the other apportionments is also displayed in italics.

of the decline in food stamp participation was associated, not with changes in welfare/food stamp characteristics or the economy, but with changes in population characteristics and residual time trends.

These analyses of SIPP data from the 1990s suggest that policy changes, as measured by changes in FSP characteristics and welfare reform indicators, are responsible for about one-fifth of the decline in FSP participation rates between 1992 and 1998. Changes in state unemployment rates are responsible for another one-fifth of the overall decline. About three-fifths of the overall decline in food stamp participation rates between 1992 and 1998 can be described neither by changes in food stamp characteristics, nor by the implementation of welfare reform policies, nor by changes in state unemployment rates. It is likely that the residual time trends are capturing some unmeasured aspects of local economic conditions, as well as effects from the implementation of additional public policies (such as Medicaid changes) in different parts of the country. Future research will need not only to make use of post-PRWORA data to analyze the effects of welfare reform; it will also need to develop richer measures of the economic and policy environments in which program participation decisions occur. Such research has the potential to help policymakers anticipate how future program participation levels will be influenced by changes in policy and in the economy.