AJAE appendix for "How Much Does the Supplemental Nutrition Assistance Program Reduce Food Insecurity?"

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Note: The material contained herein is supplementary to the article named in the title and published in the American Journal of Agricultural Economics (AJAE).

Appendix Table A-1: Descriptive Statistics,

Households with Income below 150% of Poverty Threshold[a]

Variable	Mean	Standard Deviation
Program Participation and Food-Related Hardship		
SNAP Receipt	0.286	
Food Insecure	0.244	
Very Food Insecure	0.103	
Demographic Characteristics		
Age	47.982	18.547
Noncitizen immigrant	0.112	
White, non-Hispanic (omitted)	0.537	
Black, non-Hispanic	0.231	
Hispanic	0.189	
Other, non-Hispanic	0.043	
Education less than high school	0.271	
Education high school only	0.354	
Education more than high school (omitted)	0.375	
Number of children in household	1.010	1.385
Number of adults in household	1.544	0.747
Female-headed household	0.518	
Male-headed household	0.198	
Two adult-headed household (omitted)	0.284	
Disabled person in household	0.294	
Metropolitan area	0.747	
Economic Variables		

State monthly unemployment	5.290	1.040
State monthly employment-population ratio	0.947	0.010
State annual per capita income	29,361	4,058
Quarterly GDP (in billions)	10,275	730
Instruments		
Biometric technology	0.257	
Outreach spending per capita	0.024	0.083
All legal immigrants eligible X noncitizen immigrant	0.026	
Some legal immigrants eligible X noncitizen immig	0.078	
Number of Observations	65,269	

[a] Sample includes householdes with income below 150% of the poverty threshold who have liquid assets below $4,000, or below $5,000 if one member of the household is age 60 or older.

Appendix Table A-2: Bivariate Probit (IV) Estimates of the Effects of SNAP Participation on the Likelihood of Being Very Food Insecure, Households with Income below 150% of Poverty Threshold[a]

Explanatory Variable	SNAP Participation	Very Food Insecure
SNAP participation		-0.268***
		(0.062)
Instruments-State Food Stamp Rules[b]		
Biometric technology	-0.261**	
	(0.108)	
Outreach spending per capita	0.384*	
	(0.223)	
All legal immigrants eligible X noncitizen immigrant	0.418**	
	(0.179)	
Some legal immigrants eligible X noncitizen immigrant	0.365**	
	(0.174)	
Demographic Characteristics		
Age	-0.015***	0.031***
	(0.004)	(0.005)
Age squared	0.000**	-0.000***
	(0.000)	(0.000)
Noncitizen immigrant	-0.462***	-0.009
	(0.168)	(0.055)
Race/Ethnicity (Omitted: White, non-Hispanic)		
Black, non-Hispanic	0.380***	0.132***
	(0.028)	(0.043)
Hispanic	0.209*	0.045

	(0.121)	(0.053)
Other, non-Hispanic	0.292***	0.198*
	(0.080)	(0.118)
Educational Attainment (Omitted: More than high school)		
Less than high school	0.461***	0.109**
	(0.038)	(0.045)
High school only	0.221***	0.015
	(0.031)	(0.035)
Number of children in household	0.266***	0.038**
	(0.015)	(0.017)
Number of adults in household	-0.045***	-0.044*
	(0.015)	(0.027)
Household Structure (Omitted: Two adult-headed household)		
Female-headed household	0.665***	0.367***
	(0.030)	(0.047)
Male-headed household	0.237***	0.276***
	(0.043)	(0.051)
Disabled person in household	0.791***	0.528***
	(0.036)	(0.038)
Metropolitan area	-0.092**	0.032
	(0.037)	(0.043)
Economic Characteristics		
State monthly unemployment	-0.074	0.112
	(0.216)	(0.253)
State monthly employment-population ratio	-5.883	1.395
	(21.78)	(25.40)
State annual per capita income (in $100s)	-0.001	0.001

		(0.002)	(0.003)
Quarterly GDP (in trillions)		-0.073	-0.015
		(0.093)	(0.171)
Year			
1998		-0.470***	-0.028
		(0.178)	(0.308)
2003		-0.255***	-0.206
		(0.078)	(0.143)
Constant		6.197	-3.859
		(20.02)	(26.17)
Rho		0.284***	
		(0.035)	
Number of Observations		65,269	

[a] Sample includes householdes with income below 150% of poverty threshold who have liquid assets below $4,000, or below $5,000 if one member of the household is age 60 or older.

[b] A joint test for significance of the four instruments indicates that they are jointly statistically significant at the one percent level ($\chi^2(4)=14.9$, $p=0.005$).

Note: The unit of observation is a household-month. Robust standard errors are presented within parentheses. Standard errors are adjusted for clustering by state. *** p<0.01, ** p<0.05, * p<0.1

Appendix Table A-3: Estimates of the Effects of SNAP Participation on the Likelihood of Being Food Insecure and Very Food Insecure, Households with Income below 130% of Poverty Threshold[a]

Explanatory Variable	Food Insecure				Very Food Insecure			
	Probit (1)		Bivariate Probit (IV) (2)		Probit (3)		Bivariate Probit (IV) (4)	
	Coeff/SE	*Marginal Effect*	*Coeff/SE*	*Marginal Effect*	*Coeff/SE*	*Marginal Effect*	*Coeff/SE*	*Marginal Effect*
SNAP Receipt	0.251 ***	0.081	-0.424 ***	-0.13	0.157 ***	0.027	-0.211 ***	-0.03
	(0.026)		(0.109)		(0.033)		(0.073)	
Rho			0.403 ***				0.221 ***	
			(0.065)				(0.040)	
Number of Observations	52,029		52,029		52,029		52,029	

[a] Sample includes householdes with income below 130% of the poverty threshold who have liquid assets below $2,000, or below $3,000 if one member of the household is age 60 or older.

Note: The unit of observation is a household-month. Robust standard errors are presented within parentheses. Standard errors are adjusted for clustering by state. All models include controls for age, age squared, noncitizen immigrant, black, Hispanic, other non-white race, no high school degree, high school degree only, number of children in household, number of adults in household, female-headed household, male-headed household, disabled person in household, and metropolitan area; state unemployment rate, state employment-population ratio, state per capita income, and gross domestic product; state and year dummy variables. Instrumental variables are biometric technology, outreach spending per capita, and immigrant eligibility rules (i.e., all legal immigrants eligible interacted with noncitizen and some legal immigrants eligible interacted with noncitizen). *** $p<0.01$, ** $p<0.05$, * $p<0.1$