

A Appendix For Online Publication Only

Data Appendix

A.1 Area-Level Data on Unemployment and SNAP

We link data from the Local Area Unemployment Statistics (LAUS) series published by the Bureau of Labor Statistics to administrative data on SNAP enrollment from the Food and Nutrition Service (FNS) at USDA.

SNAP Enrollment State SNAP offices report monthly enrollment to FNS at the project level each January and July. We use the July data from the fifty states plus DC. States have discretion over the geographic definition of “project.” Many states report enrollment at each SNAP office with a 7-digit id of which the first 5 digits are a county FIPS code. We collapse the data to the county level using 5-digit FIPS codes. AK, CT, ME, MA, NH, OR, RI, UT, VT, WV, and WY never report county-level enrollment. NY and ID stop reporting county-level enrollment in January 1992. We drop all these states from the sample. Missouri stops county-level reporting in 2007, Nebraska stops in 1994, Montana stops in 2002, and Washington stops in 2003; for these states, we use county data in the years it is available.

We drop tribal geographies in Minnesota and Arizona. We drop 12 county-year pairs where enrollment exceeds county population, and another 16 county-year pairs where enrollment jumps to at least 40 percent of the population for one year and then immediately falls again.

In 1990, we have county-level data for 85 percent of SNAP enrollment in our cleaned sample, and by 2007, after some states have stopped reporting, we have county-level data for 80 percent of SNAP enrollment.

Unemployment LAUS estimates monthly state-level and county-level unemployment rates. The state-level estimates are controlled to match results from the Current Population Survey (CPS). Because the CPS samples relatively few households per state (from about 800 per month in Mississippi to about 4,300 per month in California), and the unemployment rate typically varies from around 5 percent to 10 percent, it is quite difficult to precisely estimate state unemployment rates, especially in small states. LAUS then uses administrative data on the place of residence of unemployment insurance recipients to allocate the CPS-based state unemployment estimates county-by-county. See <http://www.bls.gov/lau/laumthd.htm> for details on estimation methodology. We use flat files from 1990-2012 posted at <ftp://ftp.bls.gov/pub/time.series/la/>. For about 500 county geographies labeled with `series_id` “PA” or “PS”, LAUS reports a geographic identifier which is not a valid 5-digit county FIPS code. We use data from <http://www.bls.gov/lau/laucnty12.xls> to crosswalk these LAUS geographies to county FIPS codes. We observe July SNAP enrollment in year t , and we construct annual unemployment in year t using data from the preceding 12 months (the average unemployment rate from July in year

$t - 1$ to June in year t).

Population We use annual population estimates from the Census Bureau posted at <http://www.census.gov/support/USACdataDownloads.html>

Merged County Data We merge the county-level datasets using year and 5-digit FIPS codes. Every observation in the unemployment dataset also appears in the population dataset. There are 7 fips codes from FNS that do not match the county unemployment file; they account for 0.01 percent of enrollment. We have 47,940 observations between 1990 and 2007 with nonmissing, positive SNAP enrollment and a county-level estimate of the unemployment rate. Our analysis sample has 42,169 observations, because we require two lags of the local unemployment rate.

A.2 SNAP Quality Control Files

These data can be downloaded from <http://hostm142.mathematica-mpr.com/fns/>. Below, we detail how we measure specific eligibility categories.

BBCE Income We classify a household as exceeding standard income limits due to BBCE if (1) they are not receiving pure cash assistance (because in that case they are already categorically eligible) and (2) they have net income > 100 percent of poverty. We also flag households with gross income > 130 percent of poverty if they do not have a senior or a disabled person. Our estimates are very similar to those reported by Government Accountability Office (2012) (Table 2) and Trippe and Gillooly (2010) (Table C4.2).

BBCE Assets Idaho and Michigan re-introduced asset limits of \$5,000 in 2011, and about 1 percent of cases were closed due to excess assets (GAO 2012). Absent BBCE, the default rule is that people with liquid assets of \$2,000 or more are ineligible for SNAP. Using the Survey of Consumer Finances, we estimate that asset limits of \$2,000 would have caused caseloads to fall twice as much as a \$5,000 limit. Based on this fact, we assume that people with excess assets account for 2 percent of the total caseload in BBCE states. In 2007, the 11 states without asset tests accounted for 18 percent of SNAP enrollment and in 2011, the 39 states without asset tests in 2011 accounted for 79 percent of total SNAP enrollment. (Although 13 states had instituted some form of BBCE in 2007 and 41 states in 2011, these counts include two states which relaxed income limits but not asset limits.) We calculate the total number of individuals affected as $.02 \times (.79 - .18) \times 45$ million. This could be an overestimate if the true impact of the Idaho and Michigan policy changes analyzed by the GAO was less than 1 percent rather than equal to 1 percent. Because we lack micro data on these asset limit changes, in constructing an annual pattern of the impact of these changes for Figure 6 we assume that enrollment for cases with excess assets grew linearly from 2007 to 2011.

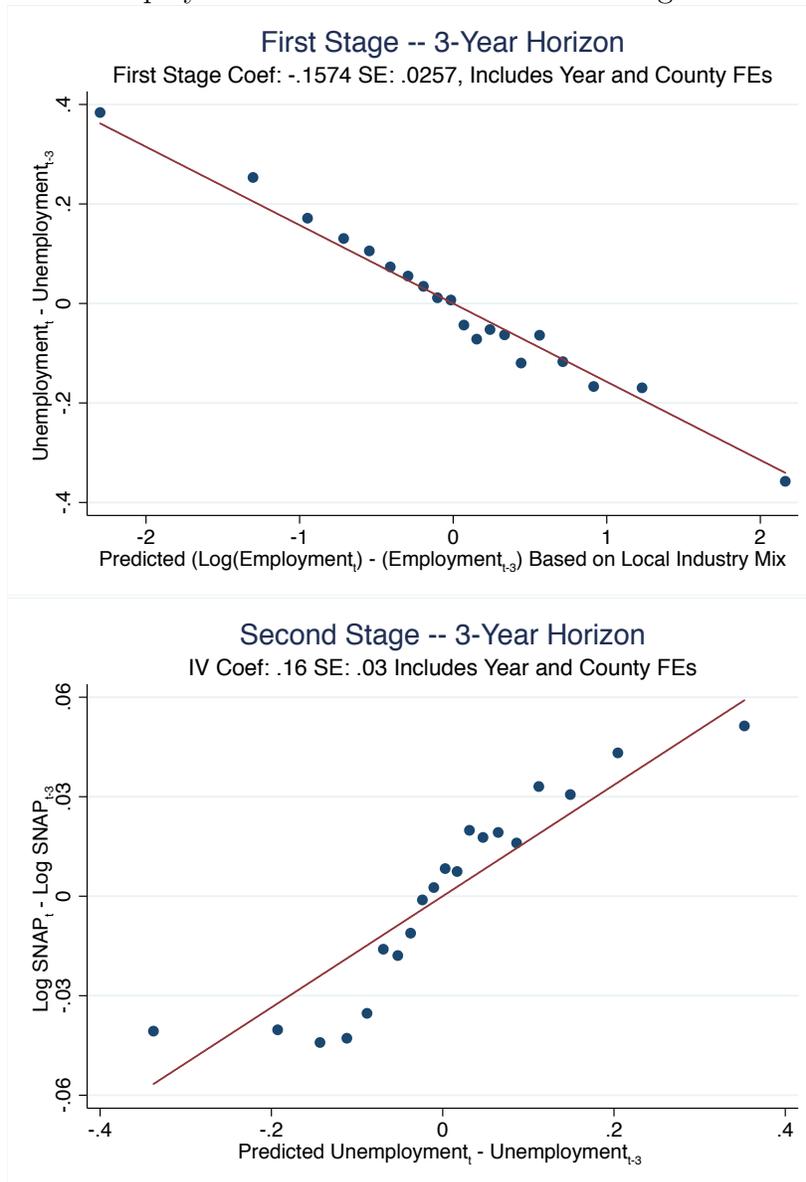
ABAWDs We classify a person as a likely ABAWD if they are: ages 18-49, have no children in the household, are working less than 30 hours a week, and are

not disabled. Following Leftin et al. (2012), we define a person as disabled if (1) they have SSI income, (2) the household has no elderly members and a medical deduction, or (3) the person is exempt from work registration due to disability, and has income from Social Security, veterans’ benefits, or workers’ comp. We classify these people as “potential” ABAWDs because many had enrolled within the previous three months, and likely had not exhausted their time limits. For example, 29 percent of potential ABAWDs in FY2011 had enrolled within the last three months.

A.3 Current Population Survey

Among income eligible families (families with income less than 130 percent of the poverty line), we estimate the number receiving cash assistance and the number who are working. We then sub-divide the likely-eligible sample into four groups: “Receives Cash Assistance”, “No Cash Assistance and Working”, or “No Cash Assistance and Not Working”. We define a family as “working” if they have annual earnings equal to at least 25 percent of the annual poverty line and as “receiving cash assistance” if they report assistance equal to at least 10 percent of the annual poverty line. Cash assistance receipt is underreported in the CPS. Meyer et al. (2009) calculate dollar reporting rates of AFDC/TANF in the CPS and report the results in Table 2. As a rule of thumb, about half of underreporting comes from households who do not report receipt and half of underreporting comes from households who report receipt but underreport the dollar amount of the transfer. With r_{jt} as the dollar reporting rate estimated in Meyer et al. (2009), we adjust upward the number of people receiving cash as $N_{cash,t}^{adjusted} = N_{cash,t}^{raw} / (1 - \frac{1}{2}(1 - r_{jt}))$. We adjust the number of people not receiving cash downward by the same amount in order to preserve a constant number of eligible families. Effectively, this assumes that there is no differential reporting of earnings in the CPS among cash assistance recipients as compared to non-recipients.

Figure A.1: Unemployment and SNAP Enrollment Using Bartik Instrument



Notes: We estimate the impact of unemployment on SNAP enrollment using a Bartik industry share instrument. We compute each county's predicted 3-year employment change based on national employment trends across three-digit industries and the distribution of industry employment in each county. We winsorize these predicted changes at the 5th and 95th percentile and then stratify them into twenty equally-sized bins, conditional on year and county fixed effects. In the top panel, we plot conditional means for the change in the unemployment rate for each of these twenty bins. In the bottom panel, we plot conditional means for the change in SNAP enrollment in twenty bins. A one percentage point increase in unemployment due to national industrial trends causes an 16% increase in SNAP enrollment.

Table A.1: Summary Statistics

	Mean	Standard Deviation
Unemployment Rate	6.386	2.868
3-Year Δ Log Employment (Actual)	0.026	0.093
SNAP Enrollment	10,939.408	57,747.801
Share of Population Receiving SNAP	0.114	0.075
3-Year Δ Log Employment (Predicted)	0.028	0.045

Notes: N=58,879. Sample is selected counties from 1990-2015.

Table A.2: Policies to Increase SNAP Accessibility

	2001	2007	2011
Broad-Based Categorical Eligibility	7	13	41
Exclude At Least One Vehicle From Asset Test	9	46	49
SSI Combined Application Project	1	12	15
Face-to-Face Recertification Interview Waiver	0	22	47
Online Application	0	14	30
Simplified Reporting	4	47	49
Call Center	7	21	32
Do Not Certify Earners Every 3 Months	26	50	50
Summary Index Mean	.13	.55	.77

Source: SNAP Policy Database in July of each year for 50 states plus DC. Vehicle exemptions, simplified reporting, and call centers are missing in 2011, and we use the 2010 values. The summary index is the sum of all the policy indicators, divided by 8.

Table A.3: SNAP Enrollment and Unemployment – Robustness Checks

	(1)	(2)	(3)	(4)	(5)
	$\Delta\text{Log(Enroll)}$	$\Delta\text{Log(Enroll)}$	$\Delta\text{Log(Enroll)}$	$\Delta\text{Log(Enroll)}$	Log(Enroll)
$\Delta\text{County Unemp}_{t-3,t}$	0.024*** (0.005)	0.163*** (0.035)			
$\Delta\text{County Unemp}_{t-1,t}$			0.021*** (0.007)	0.275*** (0.081)	
$\Delta\text{County Unemp}_{t-2,t-1}$			0.034*** (0.006)	0.081 (0.134)	
$\Delta\text{County Unemp}_{t-3,t-2}$			0.018*** (0.006)	0.208* (0.107)	
County Unemp _t					0.016*** (0.004)
County Unemp _{t-1}					0.006** (0.003)
County Unemp _{t-2}					0.010*** (0.003)
State Unemp _t					0.055*** (0.017)
State Unemp _{t-1}					-0.009 (0.011)
State Unemp _{t-2}					0.031* (0.016)
Identification	OLS	IV	OLS	IV	OLS
Effect of 1 p.p. U \uparrow	.02	.16	.02	.19	.11
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Stage F-stat		128		92	
Observations	58879	58855	58879	58855	61868

Notes: Standard errors clustered by state. * p<0.1, ** p<0.05, *** p<0.01

Table A.4: Policy Changes, Take-up and Enrollment

Dependent Variable	Log(SNAP) (1)	Log(SNAP) (2)
(1) Broad-Based Categorical Eligibility	0.06* (0.03)	0.05 (0.03)
(2) Exclude ≥ 1 Vehicle From Asset Test	0.02 (0.03)	-0.01 (0.03)
(3) SSI Combined Application Project	0.02 (0.04)	-0.01 (0.04)
(4) Face-to-Face Recert Interview Waiver	0.09*** (0.02)	0.07*** (0.02)
(5) Online Application	0.02 (0.03)	0.01 (0.03)
(6) Simplified Reporting	0.08** (0.03)	0.06* (0.04)
(7) Call Center	0.07*** (0.02)	0.05** (0.02)
(8) No 3-Month Earner Recerts	0.12*** (0.03)	0.11*** (0.03)
State Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Sample	1996-2015	1996-2015
n	1,018	1,018

Note: In column 1, each cell is a separate regression with a single policy variable. In column 2, each cell is a coefficient from a regression that includes all eight policy indicators. Results in both columns include state and year fixed effects as well as a control for the contemporaneous unemployment rate. Policy data comes from each year's July record in SNAP Policy Database. SNAP enrollment is for July. States are weighted equally. Standard errors are clustered by state. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.5: SNAP Expenditures and Great Recession Eligibility Changes

	Spending (Billions of 2011 \$)		
	Actual		Counterfactual
	2007	2011	2011
Total Spending	31.94	71.94	
(1) Eligible under Standard Rules	28.91	60.90	
(2) Relaxed Income and Asset Limits (BBCE)			
Income > Standard Threshold	0.22	0.65	0.46
Assets > Standard Threshold	0.11	1.14	0.24
Policy-induced Spending (Actual - Counter)			1.08
(3) Waiver of Time Limits in High Unemp Areas			
Able-Bodied Adults Without Dependents	2.70	9.25	5.68
Policy-induced Spending (Actual - Counter)			3.57
Total Spending Change, 2007-2011			40.01
Policy-induced Spending			4.66
Share Attributed to Eligibility Changes			0.12

Notes: Projected annual spending based on Q3 data. See notes to Table 2 for explanation of categories. We assume that recipients with excess assets receive on average the same benefits as other households. This likely overstates the amount of benefits paid to these households.

Table A.6: Comparison with Mulligan (2012), by Policy

	% of Enrollment due to Policy Changes	
	This Paper for 2011	Mulligan for 2010
Relaxed Vehicle Policies	0.0%	12.0%
State BBCE Adoption	3.4%	5.7%
ABAWD Waivers	4.1%	2.3%
Total	7.5%	20.0%

Note: This table provides estimates for percent of SNAP enrollment attributable to eligibility changes and provides comparable estimates from Mulligan (2012). Mulligan reports estimates for 2010, while we report estimates for 2011 in Table 2. We estimate no impact from relaxed vehicle rules during the Great Recession because, as shown in Appendix Table A.2, most states had modified their rules by 2007. See Section 5.2 for details.

Table A.7: Single Moms – QC & CPS

Sample: Families with Single Mothers		
Eligibility Data Source	Enrollment (Millions)	
	CPS	CPS
SNAP Enrollment Data Source	QC	CPS
Base enrollment of people in single-mother families, 1993	13.14	9.33
(1) Decreased eligibility (inc > 130% pov) w/take-up fixed	-2.84	-2.02
(2) Decreased take-up by eligibles (inc <= 130% pov)	-2.05	-2.03
(2a) Changing work and cash assistance patterns	-2.74	-1.48
(2b) Changing take-up within cell	0.69	-0.30
(1)+(2) Total change in SNAP enrollment	-4.90	-4.05

Note: We use the March Current Population Survey (CPS) together with the SNAP Quality Control (QC) files to study SNAP enrollment by single mothers with children from 1993 through 2000. We develop a unique decomposition of enrollment changes by income eligibility, and among eligibles, by take-up rates separately for families working and families receiving cash assistance.

Eligibility Data We estimate the number of eligible people as those in families with income less than 130% of poverty in the CPS. We define a family as working if it has earned income of at least 25% of the poverty line and as receiving cash assistance if it reports payments of at least 10% of the poverty line. We then sub-divide the likely-eligible sample into three groups: “Cash Assistance”, “No Cash, Working”, or “No Cash, Not Working”.

SNAP Enrollment Data We estimate the number of people enrolled in each of these four groups using QC data, and separately using CPS data. The QC data come from administrative sources, but use a monthly accounting concept. The CPS data on SNAP receipt cover the prior year, but suffer from underreporting.