“Analyzing the relationship between SNAP Participation and Private Establishments in America’s Largest Cities During and After Recessions”

Corey Rutkin ’21

Advisor: Funda Dogruer

rutkinc@union.edu

INTRODUCTION

Every day, Americans go hungry. Even when national unemployment is low, a measurement often referenced as a sign of a strong economy, millions of Americans go hungry. This tragedy is exacerbated during recessions. The clearest proof of this comes through the rise in Supplemental Nutritional Assistance Program (SNAP) participation. SNAP, often called food stamps, is a federal program administered across the United States to help impoverished families meet their nutritional needs. Later, I’ll break down specifically how it does that.

This isn’t a surprising phenomenon. Recessions, defined as two consecutive quarters of decline in Gross Domestic Product, are filled with business closures, and thus job loss. Many Americans’ purchasing power is strained even when they are employed.

When recessions strike, households living paycheck to paycheck are put into dangerous situations.

This paper focuses on two things. The first is the rise in SNAP participation during and after recessions. Specifically, how does the rise in SNAP participation in America’s largest cities help or hurt those city’s private businesses recover. The second is how the closure of private businesses impacts SNAP participation even after recessions end. The assumptions behind this research are clear.. When people are not fed enough, they are less healthy, and less productive. This is bad for private businesses. When private businesses close, there are more Americans at risk of food insecurity.

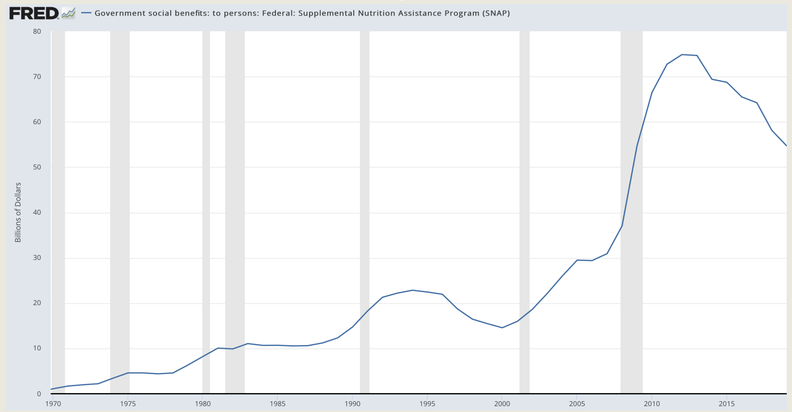

Chart 1. Spending in billions on food assistance programs in the United States since 1970. (Reference 1)

METHODS AND MATERIALS

Model 1:

$$PrivEst_{i,t} = b_o + bSNAP_{i,t} + bMedInc_{i,t} + bPOP_{i,t} + bLabForce_{i,t} + \varepsilon_{i,t}$$

Model 2:

$$LagPrivEst_{i,t+1} = b_o + bSNAP_{i,t} + bMedInc_{i,t} + bPOP_{i,t} + bLabForce_{i,t} + bPermits + \varepsilon_{i,t}$$

Model 3:

$$LagSNAP_{i,t+1} = b_o + bPrivEst_{i,t_{i,t}} + bMedInc_{i,t} + bPOP_{i,t} + bLabForce_{i,t} + bPermits + \varepsilon_{i,t}$$

Model 4:

$$Permits_{i,t+1} = b_o + bPrivEst_{i,t_{i,t}} + bMedInc_{i,t} + bPOP_{i,t} + bLabForce_{i,t} + bSNAP + \varepsilon_{i,t}$$

- PrivateEst
  - Number of Private Establishments in county.
- SNAP
  - The number of participants in the Supplemental Nutrition Assistance Program by county.
- POP
  - Resident Population of a county.
- LabForce
  - Size of the Labor Force of a county.
- MedInc
  - Median Household Income of a county.
- Permit
  - Number of new housing structure permits granted in a county.

RESULTS

Model 1:

```
. reg Private SNAP Labor MedianHH ResidentPop
```

Source	SS	df	MS		
Model	2.0664e+12	4	5.1660e+11	Number of obs	= 290
Residual	3.3452e+11	285	1.1737e+09	F(4, 285)	= 440.13
				Prob > F	= 0.0000
Total	2.4009e+12	289	8.3077e+09	R-squared	= 0.8607
				Adj R-squared	= 0.8587
				Root MSE	= 34260

Private	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
SNAP	.0012517	.0133413	0.09	0.925	-.0250082	.0275116
Labor	.1135041	.0285006	3.98	0.000	.0574058	.1696025
MedianHH	.529024	.134857	3.92	0.000	.2635818	.7944661
ResidentPop	-20.80143	14.24683	-1.46	0.145	-48.84379	7.240937
_cons	-40885.95	7195.04	-5.68	0.000	-55048.11	-26723.79

Model 2: fix image below there for formatting purposes

```
reg PElag SN MHI RPop LF NewH
```

Source	SS	df	MS		
Model	2.3026e+12	5	4.6051e+11	Number of obs	= 270
Residual	1.4293e+11	264	541392814	F(5, 264)	= 850.60
				Prob > F	= 0.0000
Total	2.4455e+12	269	9.0910e+09	R-squared	= 0.9416
				Adj R-squared	= 0.9404
				Root MSE	= 23268

PElag	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
SN	-.0144288	.0083342	-1.73	0.085	-.0308388	.0019812
MHI	.4168154	.1011398	4.12	0.000	.217672	.6159587
RPop	-.0025092	.0008252	-3.04	0.003	-.0041339	-.0008844
LF	.077721	.0020507	37.90	0.000	.0736833	.0817588
NewH	-.5118967	.1345359	-3.80	0.000	-.7767966	-.2469967
_cons	-43216.77	5549.513	-7.79	0.000	-54143.71	-32289.83

Model 3:

```
. reg SNlag PE PElag LF MHI NewH RPop
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Source	SS	df	MS		
Model	2.8481e+13	6	4.7468e+12	Number of obs	= 270
Residual	7.6953e+12	263	2.9260e+10	F(6, 263)	= 162.23
				Prob > F	= 0.0000
Total	3.6176e+13	269	1.3448e+11	R-squared	= 0.7873
				Adj R-squared	= 0.7824
				Root MSE	= 1.7e+0

```
> 5
```

SNlag	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
PE	-3.674047	1.848814	-1.99	0.048	-7.314408	-.0336846
PElag	3.031892	1.887597	1.61	0.109	-.6848328	6.748617
LF	.2424119	.0352948	6.87	0.000	.1729157	.3119082
MHI	-1.315006	.763866	-1.72	0.086	-2.819077	.1890653
NewH	-3.920237	.9730104	-4.03	0.000	-5.836119	-2.004356
RPop	.0539786	.0051798	10.42	0.000	.0437795	.0641777
_cons	118473.1	44629.76	2.65	0.008	30596.01	206350.2

Model 4:

```
. gen LagOneNH = NH[_n-1]
(19 missing values generated)

. reg LagOneNH SNAP Private LFP MHI RP
```

Source	SS	df	MS		
Model	9.5813e+09	5	1.9163e+09	Number of obs	= 280
Residual	2.3392e+10	274	85371221.9	F(5, 274)	= 22.45
				Prob > F	= 0.0000
Total	3.2973e+10	279	118182700	R-squared	= 0.2906
				Adj R-squared	= 0.2776
				Root MSE	= 9239.7

LagOneNH	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
SNAP	-.021	.0036329	-5.78	0.000	-.028152	-.013848
Private	-.0985664	.0164914	-5.98	0.000	-.1310325	-.0661004
LFP	.0331849	.0083096	3.99	0.000	.016826	.0495437
MHI	-.0191454	.0385454	-0.50	0.620	-.0950282	.0567374
RP	-9.571534	4.018066	-2.38	0.018	-17.48174	-1.66133
_cons	7965.992	2129.282	3.74	0.000	3774.16	12157.82

CONCLUSIONS

- Models 1 and 2 showed that SNAP doesn’t have a significant impact on Private Establishments, even when private establishments is lagged one year back.
- Model 3
  - We can see that changes in the number of private establishments does have a significant effect on the number of SNAP participants 1 year.
  - For every business that opens, nearly 4 less people are on SNAP.
- Model 4
  - For every 100 people on SNAP, one less structure is granted a permit.

REFERENCES

1. https://fred.stlouisfed.org/series/TRP6001A027NBEA
2. All econometric regressions were calculated using STATA