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Local Economic Conditions and SNAP Caseloads: A Spatial Analysis
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Abstract:

This study examines the influence of local economic conditions on the substantial growth in the SNAP caseloads since 2000, using county-level measures that may better reflect economic opportunities available to individuals at risk for SNAP. We employ dynamic spatial panel models to account for the fact that both observed and unobserved conditions in one county may bear upon the SNAP caseload of neighboring counties. We find a strong negative relationship between county employment and county SNAP caseloads. We also find evidence of spatial interdependence in caseloads; i.e., a county's SNAP caseload is influenced by employment in the surrounding counties.

Background and Motivation

The Supplemental Nutrition Assistance Program (SNAP) is one of the largest social safety net programs in the United States, serving an average of 46.5 million people per month in fiscal year 2014, at a total annual cost of \$73.8 billion. SNAP participation almost tripled between 2000 and 2013. Although there is widespread consensus that the SNAP caseload is countercyclical, there is considerable variation in the estimated magnitude of the caseload's response to changes in economic conditions.

While most previous studies employ state-level panel data, we use county-level data on SNAP caseloads and economic conditions to capture the wide variation across counties in a State. We also employ a variety of measures of local economic conditions, including labor market measures disaggregated by industry, with a focus on the retail and food services industries. The industry-disaggregated measures allow us to capture the opportunities available to low-income individuals in a county.

We use dynamic spatial panel models of the SNAP caseload. Very little attention has been given to the potential spatial correlation in the determinants of caseload changes, or in local-area caseloads themselves, which may bias the estimated effect of economic conditions on the SNAP caseload.

The research results can be used to inform policymakers of the role that economic conditions, particularly at the local level, plays in changes to the SNAP caseload.

County SNAP Caseloads and Economic Conditions in Three States

- The SNAP caseload has increased dramatically since 2000, and we see strong spatial correlation across counties in caseload growth. (Figure 1)
- There is important variation in the magnitude and timing of county caseload changes, which is particularly evident in the later period of our study (Figure 2)

[Insert Figures 1 and 2 here]

Data and Research Methods

We use county-level quarterly data from California, Texas, and Wisconsin. We estimate the following equation explaining the SNAP caseload, using data from the 1st quarter of 2000 to the 3rd quarter of 2013.

$$SNAP_{ct} = \alpha SNAP_{ct-1} + \rho \mathbf{W}SNAP_{ct} + Econ_{ct}\beta + \mathbf{W}Econ_{ct}\varphi + \chi Demo_c + \sigma_c + \delta_t + \mu_y + \varepsilon_{ct}$$

- where $SNAP_{ct}$ is the natural log of the SNAP caseload (either households or total benefits) per capita in county c at time t ,
- \mathbf{W} is the spatial weight matrix, described below
- $Econ_{ct}$ represents economic conditions in county c at time t , and varies by equation specification (the unemployment rate, employment, weekly wages, housing prices)
- $Demo_c$ are county demographic characteristics (racial and age groups, births and migration); σ_c are county fixed effects; δ_m ($q = 2$ to 4) are quarter -of-year indicator variables; and μ_y is a year fixed effect.

In the spatial weight matrix, the weight are based on geographic contiguity: counties $j = 1, \dots, n$ will receive an equal weight if they share a border with county i . The effect of spatially lagged variables (or the spatial error) is a weighted average of the effect of the given variable in each “neighboring” county j on the caseload of county i .

We test a number of different county-level economic conditions, and find that local employment has the strongest effect on local SNAP caseloads.

Findings

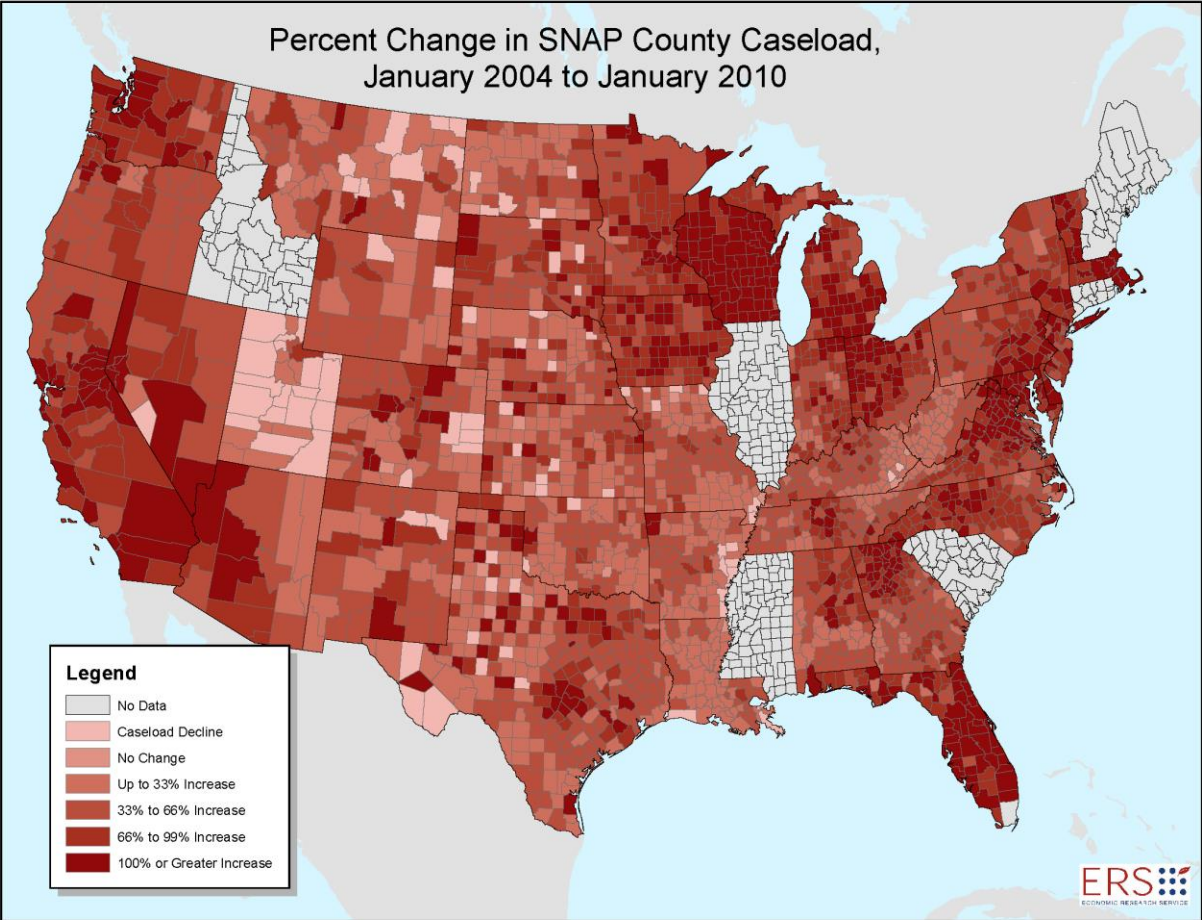
[Insert Table 1 here]

- In a standard fixed effects specification, a one percent increase in the quarterly county employment (controlling for quarterly county population and labor force), decreases the

SNAP household caseload by about .8 percent (California), 0.4 percent (Texas) and 1.15 percent (Wisconsin).

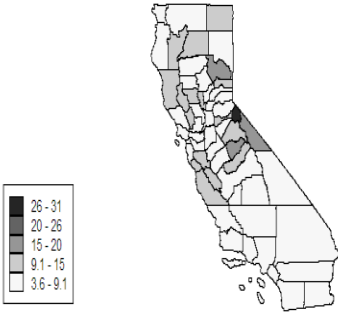
- In California and Wisconsin, the effect of employment in the spatial model was slightly attenuated, but in both states employment also had negative indirect (or “spillover”) on neighboring counties’ caseloads. In the case of Wisconsin, the indirect effect of employment was substantial.
- In Texas, which tends to have smaller counties, the indirect effect of employment was positive, perhaps reflecting greater competition for labor among counties there.
- Controlling for spatial correlation, however, produced a stronger negative direct effect for employment in Texas.
- A one percent increase in employment reduced total quarterly SNAP benefits by .34 percent in California counties, -0.08 percent in Texas and -1.7 percent in Wisconsin. In California and Texas, the spatial models produced stronger (negative) direct effects on benefits.
 - Indirect, or spillover, effects, however, are negative only in Wisconsin.

Figure 1. Percent change in SNAP county caseload, January 2004 – January 2010

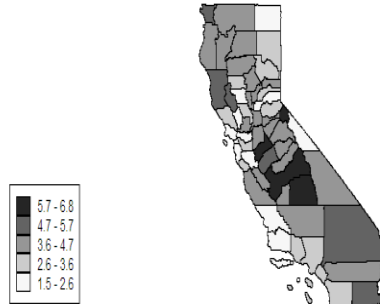


Employment and SNAP Caseload, 2001-2013

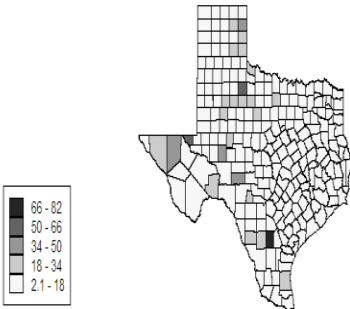
Largest % Change in County Employment to Population Ratio



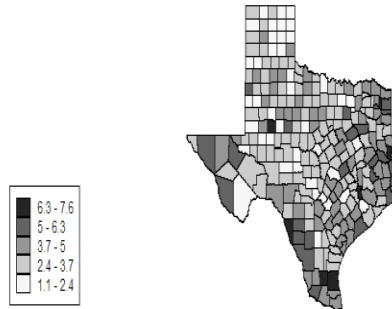
Largest % Change in County SNAP Caseload to Population Ratio (HHs)



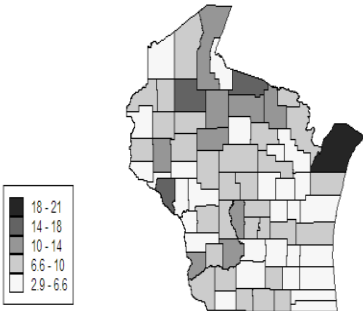
Largest % Change in County Employment to Population Ratio



Largest % Change in County SNAP Caseload to Population Ratio (HHs)



Largest % Change in County Employment to Population Ratio



Largest % Change in County SNAP Caseload to Population Ratio (HHs)

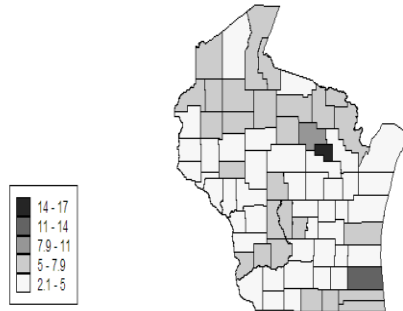


Figure 2

Table 1. Regression Results: Effect of Local Economic Conditions on the county-level SNAP caseload, 2000-2013

	Coefficient estimates					
	California		Texas		Wisconsin	
	Spatial	Non-spatial	Spatial	Non-spatial	Spatial	Non-spatial
Dependent Variable: Log(Households)						
Log(County Employment)	-0.804	-0.835	-0.514	-0.366	-1.002	-1.152
Direct Effect	-0.8	na	-0.5	na	-0.994	na
Indirect Effect	-0.094	na	0.299	na	-0.292	na
Total Effect	-0.893	na	-0.201	na	-1.286	na
Dependent Variable: Log(Total Benefits)						
Log(County Employment)	-1.09	-0.339	-0.317	-0.083	-1.693	-1.708
Direct Effect	-1.049	na	-0.29	na	-1.684	na
Indirect Effect	1.438	na	0.485	na	-0.149	na
Total Effect	0.389	na	0.194	na	-1.833	na

Notes: na = not applicable