Age Differences and Macroeconomic Effects On Food Stamp Program Participation

So Yeong Lim
Ph.D. Candidate
Department of Agricultural Economics
Purdue University
lim47@purdue.edu

Susan E. Chen
Assistant Professor
Department of Economics, Finance and Legal Studies
University of Alabama
sechen@cba.ua.edu

Brigitte S. Waldorf
Professor
Department of Agricultural Economics
Purdue University
bwaldorf@purdue.edu

Poster prepared for presentation at the Agricultural & Applied Economics Association's 2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011

Age Differences and Macroeconomic Effects On Food Stamp Program Participation

So Yeong Lim*, Susan E. Chen**, and Brigitte S. Waldorf*

* Purdue University, **University of Alabama

Introduction

Motivation

Well-known: persistent macro-economic effects on the duration of welfare participation (Fitzgerald, 1995; Hoynes, 2000; Ribar, 2005)

Little understood: age-specific effects of macroeconomic conditions on welfare participation propensities.

Significance : essential to predict future demand for food stamp benefits in view of the aging US population.

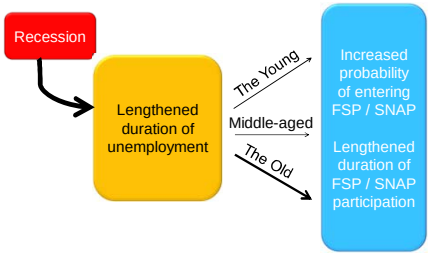
Goals of Study

Investigation of:

- age differences in transitions into and out of the Food Stamp Program (FSP);
- macroeconomic impacts on FSP transitions;
- age differences in macroeconomic effect sizes.

Note: The FSP is currently called Supplemental Nutrition Assistance Program (SNAP).

Conceptual Framework



- Age differences in unemployment duration: older people experience longer unemployment spells (Chan and Stevens, 2001)

Data

Data Source

Survey of Income and Program participation (SIPP) 2004 panel: monthly surveys during October 2003 to December 2007.

Samples

Potentially FSP/SNAP-eligible persons:

- income < 200% of poverty threshold
  or
- authorized to receive FSP/SNAP benefits
  or
- actually participated in the FSP/SNAP

1. **Entry sample** (N=297,810)
   Household-month observations without participation in previous month
2. **Continuation sample** (N=100,170)
   Household-month observation with participation in previous month

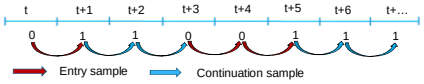
Table. FSP Participation Spells by Age

Age	< 20	20-29	30-39	40-49	50-59	60+	Total
Number of spells	217	2,167	2,052	1,886	1,398	1,386	9,106
Mean spell length [months]	8.0	10.0	11.2	11.3	12.9	17.0	12.0

Source: Author's own calculation using SIPP 2004 panel

Method

Transitions into and out of the FSP/SNAP



Random Effects Probit

$$y_{it} = \begin{cases} 1 & if\ a\ household\ i\ participated\ in\ period\ t \\ 0 & Otherwise \end{cases}$$

Entry: $P(y_{it}=1|y_{i,t-1}=0) = X_{it}\beta + u_{it}$

Continuation: $P(y_{it}=1|y_{i,t-1}=1) = X_{it}\beta + e_{it}$

$$u_{it} = \mu_i + \varepsilon_{it}, \quad \mu_i \sim N(0,\sigma_\mu^2) \ \ and \ \ \varepsilon_{it} \sim N(0,\sigma_\varepsilon^2)$$
$$e_{it} = \nu_i + \eta_{it}, \quad \nu_i \sim N(0,\sigma_\nu^2) \ \ and \ \ \eta_{it} \sim N(0,\sigma_\eta^2)$$

Results and Discussion

Table. Parameter Estimates – Entry and Continuation Models

Variable	Entry		Continuation	
	Model 1	Model 2	Model 1	Model 2
Monthly household income	4.0E-04***	4.0E-04***	3.9E-05**	3.9E-05**
	(2.1E-05)	(2.1E-05)	(1.7E-05)	(1.7E-05)
Monthly household income squared	-6.5E-09***	-6.6E-09***	-9.7E-10	-9.8E-10
	(1.9E-09)	(1.9E-09)	(9.0E-10)	(9.0E-10)
White	-0.388***	-0.387***	-0.065**	-0.066**
	(0.028)	(0.028)	(0.027)	(0.027)
Male	-0.294***	-0.293***	-0.224***	-0.224***
	(0.026)	(0.026)	(0.029)	(0.029)
Age under 20	1.307***	3.174***	-0.846***	-2.473***
	(0.074)	(0.620)	(0.088)	(0.729)
Age 20-29	1.151***	1.400***	-0.429***	-0.858***
	(0.041)	(0.285)	(0.045)	(0.325)
Age 30-39	0.919***	1.122***	-0.364***	-1.010***
	(0.042)	(0.284)	(0.046)	(0.329)
Age 40-49	0.882***	1.318***	-0.222***	-0.727**
	(0.040)	(0.283)	(0.043)	(0.328)
Age 50-59	0.814***	0.913***	-0.189***	-0.650*
	(0.040)	(0.298)	(0.044)	(0.347)
College education	-0.257***	-0.257***	-0.094***	-0.095***
	(0.024)	(0.024)	(0.026)	(0.026)
Working status	-0.547***	-0.548***	-0.531***	-0.531***
	(0.023)	(0.023)	(0.026)	(0.026)
Marital status	-0.542***	-0.543***	-0.130***	-0.131***
	(0.028)	(0.028)	(0.031)	(0.031)
Number of kids within family	0.141***	0.141***	0.165***	0.166***
	(0.011)	(0.011)	(0.011)	(0.011)
Living in Metropolitan area	-0.112***	-0.112***	0.013	0.009
	(0.027)	(0.027)	(0.029)	(0.029)
Monthly state unemployment rate	0.065***	0.102***	0.065***	-0.034
	(0.010)	(0.020)	(0.012)	(0.026)
Quarterly average weekly wages	-2.5E-04***	-2.1E-04	2.3E-04**	3.2E-04
	(9.5E-05)	(2.0E-04)	(1.0E-04)	(2.4E-04)
Age under 20 * Unemployment rate		-0.056		0.279***
		(0.067)		(0.084)
Age 20-29 * Unemployment rate		-0.036		0.117***
		(0.030)		(0.036)
Age 30-39 * Unemployment rate		-0.032		0.107***
		(0.030)		(0.037)
Age 40-49 * Unemployment rate		-0.054*		0.128***
		(0.030)		(0.037)
Age 50-59 * Unemployment rate		-0.074**		0.121***
		(0.032)		(0.039)
Age under 20 * Wage		-0.002***		2.4E-04
		(0.001)		(0.001)
Age 20-29 * Wage		-8.1E-05		-2.3E-04
		(2.9E-04)		(3.2E-04)
Age 30-39 * Wage		-4.2E-05		1.2E-04
		(2.8E-04)		(3.1E-04)
Age 40-49 * Wage		-2.0E-04		-2.1E-04
		(2.8E-04)		(3.1E-04)
Age 50-59 * Wage		3.7E-04		-2.1E-04
		(2.9E-04)		(3.3E-04)
Constant	-3.075***	-3.295***	1.933***	2.369***
	(0.104)	(0.204)	(0.113)	(0.245)
Log likelihood	-20559.1	-20547.8	-12841.8	-12829.5
Number of observation	297,810	297,810	100,170	100,170

Notes: *** p<0.01, ** p<0.05, * p<0.1. Numbers in parentheses are standard errors.
Household income was deflated by Consumer Price Index (Base 1982-84=100).
The omitted age category is 60+.

Acknowledgement

The research was partly supported by a grant from the Clifford B. Kinley Trust. We thank the participants of the SHaPE seminar at Purdue University for their helpful comments on an earlier version of the paper.

Key Findings

	Entry Probability	Continuation Probability
Age differences	*Decreases* as people get older	*Increases* as people get older
Macro-economy	Increase during recessions	
Age differences in macroeconomic impact	Younger people (age 20-29 and 30-39) enters the FSP at higher rate than older people in response to increasing unemployment rate.	Macro-economic impacts for the elderly (60+) is significantly smaller than for other age groups. Increases in the unemployment rate most strongly affects the continuation probabilities of the very young.

Other Findings:

- Extremely poor households do not enter the FSP/SNAP.
- Being white, male, college educated, working, or married lowers the chances of entering and of staying in the FSP/SNAP.
- Having children increases the chances of entering and staying in the FSP/SNAP.
- Living in metropolitan areas decreases the probability of entry in the FSP.

References

Chan, S. and A. Stevens (2001). Job loss and employment patterns of older workers. *Journal of Labor Economics 19* (2), 484-521.

Fitzgerald, J. (1995). Local labor markets and local area effects on welfare duration. *Journal of Policy Analysis and Management 14* (1), 43-67.

Hoynes, H. (2000). Local labor markets and welfare spells: do demand conditions matter? *Review of Economics and Statistics 82* (3), 351-368.

Ribar, D. (2005). Transitions from Welfare and the Employment Prospects of Low-Skill Workers. *Southern Economic Journal 71* (3), 514-534.

Contact Information

Please contact lim47@purdue.edu for more information.