Analysis of Elderly In-migrants In Tennessee

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Introduction

The idea of elderly in-migrants as an important factor or stimulus to local economic development (Serow, 2001) has found support in a number of empirical studies (e.g., Bennett, 1993; Day & Barlett, 2000; Hodge, 1991). Large-scale elderly in-migration can benefit local economies in a number of ways:

- Increase property and sales tax revenues (counties' largest source of revenues) without directly increasing public education expenditure (counties' greatest expense) or competing with local residents for jobs (Day & Barlett, 2000; Glasgow, 1991; Graff & Wiseman, 1990; Rowles & Watkins, 1993; Schneider & Green, 1992);
- Increase local sales and capital pool through investments and savings (Campbell, 2005); and
- Stimulate job creation and service development (Campbell, 2005).

Thus, counties are increasing competing for elderly in-migrants as a means of local economic development.

Research Question

The increased competition for elderly in-migrants highlights the question of what factors tend to attract and/or repel elderly in-migrants. However, most previous studies analyzing those factors have been focused from macro levels such as national perspective, southern US, or state level. Little research has been conducted from a micro level of counties which are increasingly competing for elderly in-migrants with each other.

Objectives

The objective of this study is to determine the factors that attract elderly in-migrants from the perspective of counties in Tennessee. The main contribution of this study is to identify the county characteristics in Tennessee that attract elderly in-migrants to help identify which counties are likely to have an advantage in attracting elderly in-migrants.

Methods

A linear fixed-effect model is the conceptual model for this paper, instead of the random effect model, because only individuals of the sample obtained are focused on and inferences drawn are restricted to these individuals within the sample (Baltagi, 2005). In other words, the linear fixed-effect model is an appropriate specification for this paper because the sample selected in this paper includes all the counties in Tennessee so that the sample is not randomly selected. Also, only those counties in Tennessee are focused on, and inferences drawn are restricted to those counties in Tennessee. Further, Hausman tests confirm that fixed-effect models should be used instead of random effect models (Baltagi, 2005).

The Conceptual Fixed-Effect Model

$$Y_{it} = \alpha + X'_{it}\beta + u_i + v_{it} \quad (i = I,\ldots,n \;\&\; t = 1,\ldots T)$$

where i denotes counties; t denotes time periods; μ_i denotes an unobserved county effect; and v_{it} is the idiosyncratic error term.

Empirical Models

$$d\_m60u = \beta_0 + \beta_1 s\_hwy + \beta_2 s\_police + \beta_3 per65ov + \beta_4 hs + \beta_5 perwht + \beta_6 nonmet + \beta_7 peremp + \beta_8 ln\_txasses\_land + \beta_9 ln\_medfinc + \beta_{10} ln\_pop + \beta_{11} y1972 + \beta_{12} y1982 + \beta_{13} y1992 + \beta_{14} y2002 + u_i + v_{it} \quad (1.1)$$

$$d\_m60u = \beta_0 + \beta_1 s\_hwy + \beta_2 s\_police + \beta_3 per65ov + \beta_4 hs + \beta_5 perwht + \beta_6 nonmet + \beta_7 peremp + \beta_8 ln\_txasses\_land + \beta_9 ln\_medfinc + \beta_{10} ln\_popdens + \beta_{11} y1972 + \beta_{12} y1982 + \beta_{13} y1992 + \beta_{14} y2002 + u_i + v_{it} \quad (1.2)$$

$$d\_m67u = \delta_0 + \delta_1 s\_hwy + \delta_2 s\_police + \delta_3 per65ov + \delta_4 hs + \delta_5 perwht + \delta_6 nonmet + \delta_7 peremp + \delta_8 ln\_txasses\_land + \delta_9 ln\_medfinc + \delta_{10} ln\_pop + \delta_{11} y1972 + \delta_{12} y1982 + \delta_{13} y1992 + u_i + v_{it} \quad (2.1)$$

$$d\_m67u = \delta_0 + \delta_1 s\_hwy + \delta_2 s\_police + \delta_3 per65ov + \delta_4 hs + \delta_5 perwht + \delta_6 nonmet + \delta_7 peremp + \delta_8 ln\_txasses\_land + \delta_9 ln\_medfinc + \delta_{10} ln\_popdens + \delta_{11} y1972 + \delta_{12} y1982 + \delta_{13} y1992 + u_i + v_{it} \quad (2.2)$$

- *d_m60u - in migration rate (per 100 persons) of the 60-plus cohort*
- *d_m67u - in migration rate (per 100 persons) of the 67-plus cohort*
- *per65ov - % of population 65 plus over the whole population*
- *s_police - % share police expenditure of total expenditure in each country*
- *s_hwy - % share highway expenditure of total expenditure in each county*
- *Perwht - % of white people*
- *hs - % of population with high school degree*
- *nonmet - non metro county (1 if yes, 0 if no)*
- *ln_medfinc - natural log of medium family income*
- *ln_txasses_land -natural log of property tax assessment per square mile*
- *peremp - % employed*
- *ln_pop - natural log of population*
- *ln_popdens - natural log of population density*
- *y1962 – time dummy baseline*
- *y1972 – time dummy (1 if yes, 0 if no)*
- *y1982 – time dummy (1 if yes, 0 if no)*
- *y1992 – time dummy (1 if yes, 0 if no)*
- *y2002 – time dummy (1 if yes, 0 if no)*

Data

- County-level data for 95 counties in TN
- TN State Board of Equalization's series of annual Tax Aggregate Reports
- US Census of Government (COG)
- US Census decennial files

Variable	Obs	Mean	Std. Dev.	Min	Max
d_m60u	475	2.410	3.700	-7.020	27.134
s_hwy	475	11.524	6.753	0.000	42.583
s_police	475	3.111	2.331	0.000	9.558
per65ov	475	12.237	2.756	4.701	21.281
hs	475	26.562	9.325	6.300	43.200
perwht	475	91.252	11.117	31.100	100.000
nonmet	475	0.728	0.445	0.000	1.000
peremp	475	40.973	7.816	22.656	75.642
ln_txasses_land	475	13.049	1.147	10.146	17.100
ln_medfinc	475	10.205	0.350	9.003	11.268
ln_popdens	475	4.120	0.831	2.536	7.081
ln_pop	475	10.118	0.970	8.147	13.707
d_m67u	380	1.323	1.889	-3.860	13.731

Results

Dependent Var. - in migration rate	(1.1) (per 100 persons) of the 60+ cohort	(1.2) (per 100 persons) of the 60+ cohort	(2.1) (per 100 persons) of the 67+ cohort	(2.2) (per 100 persons) of the 67+ cohort
Independent variables				
% share highway expenditure of	-0.056	-0.056	-0.023	-0.023
total in each county	(0.033)	(0.033)	(0.017)	(0.017)
% share police expenditure of	-0.058	-0.058	0.011	0.011
total in each county	(0.105)	(0.105)	(0.064)	(0.064)
% of population 65 plus over	0.931*	0.931*	0.586*	0.586
the whole population	(0.113)	(0.113)	(0.080)	(0.080)
% of population with high	0.113*	0.113*	0.088*	0.088
school degree	(0.037)	(0.037)	(0.024)	(0.024)
% of white people	-0.006	-0.006	-0.037	-0.037
	(0.061)	(0.061)	(0.041)	(0.041)
non metro county (1 if yes, 0 if no)	-0.802	-0.802	-0.39	-0.390
	(0.515)	(0.515)	(0.354)	(0.354)
% employed	-0.045	-0.045	-0.016	-0.016
	(0.025)	(0.025)	(0.015)	(0.015)
natural log of property tax	0.022	0.022	0.170	0.170
assessment per sq mi	(0.434)	(0.434)	(0.225)	(0.225)
natural log of medium family	7.511*	7.511*	3.8*	3.800
income	(1.386)	(1.386)	(0.762)	(0.762)
natural log of population	9.529*		4.919*	
	(1.244)		(0.828)	
natural log of population density		9.529*		4.919
		(1.244)		(0.828)
y1972	-3.923*	-3.923*	-2.106*	-2.106
	(0.793)	(0.793)	(0.449)	(0.449)
y1982	-6.43*	-6.43*	-3.526*	-3.526
	(1.138)	(1.138)	(0.705)	(0.705)
y1992	-11.901*	-11.901*	-6.902*	-6.902
	(1.567)	(1.567)	(0.968)	(0.968)
y2002	-11.4*	-11.4*		
	(1.875)	(1.875)		
Constant	-174.794*	-117.634*	-90.175*	-60.667
	(17.010)	(13.094)	(11.124)	(7.816)

Standard errors in parentheses.
* Statistically significant at 5%.

Conclusions

This paper uses fixed-effect models to estimate the county characteristics that attract elderly in-migrants. The results indicate that the elderly in-migration rate is positively correlated to the share of the population that is elderly or has a high school degree, medium family income, and population (or population density). There is little difference in the results using either population or population density as one of the independent variables. Thus, local government officials considering expending scarce resources to attract elderly in-migrants should consider how their counties compare in terms of these key characteristics.