Veteran Migration Responses to Tax Incentives

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Motivation

Military retirees often receive pensions, which are taxed as income in some states. Iowa's recent adoption of a pension tax exemption (ostensibly to attract veterans) motivated my investigation into the nationwide effects of these policies where they are implemented.

Tax Climate in 2011

Exemption:
- Full
- Partial
- None

Objective

To determine whether a presence/lack of a tax exemption in a given state affects the migration patterns of military retirees.

i.e., <u>To what extent do veterans value tax climate as a migration incentive?</u>

Methodology

A panel linear model combines elements of **cross-sectional data** with **time-series analysis**. Data at the ZIP3/state level constitute cross-sectional data, while the various years constitute a time element.

- Use R package "plm" to create a **panel linear model** with regressors including tax code, number of existing veterans in each community, climate, tax environment of neighboring states, economic conditions, and presence of military bases.

- **Assess** R^2 and **significance** of variables to use the PLM to tell a story.

It is important to recognize that R^2 in a cross-sectional analysis is typically lower than R^2 in a standard linear model due to heterogeneity across different panel members. Hence the significance of the predictors is highly important, as R^2 is less informative the more panel members there are.

Data

Panel data for 7-year period at a 3-digit ZIP code geography, rolled up to the state level.

- Population characteristics (2011-2017 ACS)
- Economic characteristics (BLS)
- Climate (CDC)
- Veteran populations (DoD)
- State-level Ideology Measures (R.C. Fording)

Summary of Results

	Dependent variable:	
	Veteran (Percent) Change	
	State Level	ZIP3 Level
Partial Pension Tax Exemption	0.261** (0.119)	0.399*** (0.138)
Full Pension Tax Exemption	0.260** (0.111)	0.427*** (0.120)
Number of Veterans	0.000*** (0.000)	0.0001*** (0.00001)
Winter Temp	−0.017*** (0.006)	−0.038*** (0.006)
% of Neighbors with Exemption	−0.332 (0.238)	−0.090 (0.278)
State-Level Ideology Measure	−0.021*** (0.002)	−0.026*** (0.003)
Weighted Avg. Unemp.	−0.086*** (0.023)	−0.009 (0.027)
Weighted Avg. Med. HH Inc.	−0.000 (0.000)	−0.000 (0.000)
Count of Military Bases	−0.014 (0.024)	0.063** (0.027)
Observations	288	6,139
R^2	0.442	0.054
Adjusted R^2	0.413	0.051

Note: *$p<0.1$; **$p<0.05$; ***$p<0.01$

Conclusions

Most importantly, the regressions indicate a positive association between a state having a military-pension tax break and experiencing veteran inflow.

The model suggests a negative relationship between ideology measure (where higher is more liberal) and veteran movements, suggesting a preference for conservative political climates. The regression also indicates an inverse association between unemployment rates and veteran inflows.

The R^2 of the state-level regression is high, especially for a panel linear model. This does not warrant causal conclusions, only correlational.

Limitations

This approach does not attempt to capture the before-after *effect* of adopting a policy. To do this, a better approach might be to use Differences-in-Differences Method or Synthetic Control Modeling. However, both options present difficulties in implementation due to the small size of the control and treatment groups.

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