



Munich Personal RePEc Archive

Geographic After-Tax Real Income Differentials and Population Growth Rates

Alexander, Gigi and Cebula, Richard and Koch, James

Jacksonville University, Jacksonville University, Old Dominion
University

1 July 1989

Online at <https://mpra.ub.uni-muenchen.de/49431/>
MPRA Paper No. 49431, posted 02 Sep 2013 07:55 UTC

Geographic After-Tax Real Income Differentials and Population Growth Rates

GIGI ALEXANDER, RICHARD J. CEBULA, AND JAMES V. KOCH
Emory University, Florida Atlantic University, and University of Montana, respectively

The purpose of this brief note is to empirically investigate the impact of geographic after-tax real income differentials on geographic population growth rate differentials. The focus is on population growth rates in Florida's 67 counties over the period 1980-88. The reason for this focus is the availability of geographically comparable living-cost indices for all of Florida's counties. These data permit one to convert after-tax income (by county) into real terms. Such living-cost data are not currently available for any other state.

The after-tax real income in county j , R_j , is defined as $R_j = (Y_j - T_j)/C_j$, where: Y_j = county j 's 1984 per capita income; T_j = per capita local taxes paid in county j in 1984; and C_j = the cost of living index for county j for 1984.

To examine the impact of R_j on geographic population growth rate differentials in Florida, estimate the following reduced-form equation:

$$P_j = a_0 + a_1 R_j + a_2 CST_j + a_3 A_j + a_4 D_j + a_5 U_j + a_6 URB_j + \mu, \quad (1)$$

where: P_j = the percent change in county j 's total population, 1980-88; a_0 = constant term; R_j = per capita after-tax real income in county j in 1984; CST_j = a binary dummy variable indicating whether county j lies on the coast (the Atlantic Ocean or the Gulf of Mexico), with $CST_j = 1$ for a coastal county and $CST_j = 0$ otherwise; A_j = size of county j in square miles; D_j = 1982 population density (people per square mile) in county j ; U_j = county j 's

1982 average unemployment rate; URB_j = the percentage of county j 's population living in urban areas in 1982; and μ = stochastic error term.

Estimating equation (1) by OLS, using the White procedure [*Econometrica*, 48, 1980] to correct t-values for heteroscedasticity, yields:

$$\begin{aligned} P_j = & -13.86 + 0.353R_j + 12.52CST_j \\ & \quad \quad \quad (+3.88) \quad \quad \quad (+2.33) \\ & + 0.0002A_j - 0.006D_j + 0.063U_j \\ & \quad \quad \quad (+1.66) \quad \quad \quad (-2.12) \quad \quad \quad (+0.07) \\ & - 0.21URB_j; \\ & \quad \quad \quad (-1.77) \\ & DF=60, R^2=0.30, \end{aligned} \quad (2)$$

where terms in parentheses are t-values.

Unlike earlier related studies which have typically examined the impact of nominal income, this study focuses upon R_j , which measures the impact of after-tax real income. As shown in equation (2), the coefficient on variable R_j is positive and statistically significant at far beyond the 1 percent level. Thus, even after allowing for a variety of other location-influencing factors, including coastal access, after-tax real income differentials exercise a positive and significant impact on population growth rate differentials among Florida's counties.