State income tax policy and geographic labour force mobility in the United States

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This study empirically investigates the impact of state income tax policy on US interstate migration for the period 1985–89. It finds that people vote with their feet and prefer to move so as to minimize their state income tax liabilities.

I. INTRODUCTION

Some years ago, Tiebout (1956, p. 418) hypothesized that '... the consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods ... the consumer-voter moves to that community whose local government best satisfies his set of preferences ...' Tiebout was essentially arguing that differences among local governments in the mix and amount of public goods provided would, *ceteris paribus*, influence geographic mobility decisions. More recently, Tullock (1971, p. 917) has argued that 'The individual deciding where to live will take into account the private effects upon him of the bundle of government services and taxes ...' Tullock's statement differs from Tiebout's inasmuch as it explicitly introduces the idea that differential local taxes may also affect geographic mobility choices.

The objective of this note is to investigate empirically whether differential state income tax policies influence the geographic mobility of the labour force in the United States; we focus upon migration of the population between the ages of 20 and 40. The model is provided in Section II, whereas the empirical results are provided in Section III.

II. THE MIGRATION MODEL

To investigate the impact of differential state income-tax policies on geographic mobility, we estimate the following reduced-form equation:

$$M_j = a + bEXPRI_j + cTAX_j + dWEST_j + eAGE_j + u \quad (1)$$

where: a is constant; M_j is the net in-migration rate to state j between 1985 and 1989 of persons between the ages of 20 and 40, expressed as a percentage of state j's 1985 population;

$EXPRI_j$ is the expected real median family income in state j, 1985; TAX_j is a dummy variable to indicate whether state j has a state income tax system in place; TAX_j is 1 if state j does have a state income tax and TAX_j is 0 otherwise; $WEST_j$ is a dummy variable to indicate whether state j is a western state; $WEST_j$ is 1 if state j is a western state and $WEST_j$ is 0 otherwise; AGE_j is the proportion of state j's 1985 population that was under the age of 55; and u is stochastic error term.

The variables M_j and AGE_j were obtained from the 1990 Census of the Population. The data for the nominal median family income and unemployment rate were obtained from the *Statistical Abstract of the United States*. The state cost of living data were obtained from McMahon (1992). The data for TAX_j were obtained from the *Statistical Abstract of the United States*. The data for $WEST_j$ were obtained from Gallaway and Cebula (1973).

Expected real income variable is defined as follows:

$$EXPRI_j(1 - U_j) \cdot MFI_j/COL_j$$

where U_j is state j's 1985 average unemployment rate; MFI_j is state j's 1985 nominal median family incomes; and COL_j is state j's 1985 cost of living, expressed as an index (100.00 = average). Assuming that U_j is a proxy for the expected probability of unemployment in state j, the magnitude $(1 - U_j)$ represents the expected probability of employment in state j. The ratio MFI_j/COL_j is taken to be state j's real median family income. The product of $(1 - U_j)$ times MFI_j/COL_j is then taken to represent the expected real median family income in state j. The use of real rather than nominal income is suggested in the studies by Cebula (1979), Renas and Kumar (1978, 1983), Renas (1980) and Ostrosky (1983, 1986). It might be noted that results somewhat similar to those shown in Section III below are obtained if we simply use U_j, MFI_j, or COL_j as separate individual variables. In any event, in accord with standard migration theory, it is expected that $b > 0$.

Direct measurement of differences among the states in their income tax policies is extremely challenging and not technically even possible. This observation is based upon the extraordinary diversity of income tax systems found in the states. For example, the states having income taxation tend to have more than one marginal tax rate, although a few have a single flat rate, on taxable income. In addition, the levels of taxable income at which the various higher marginal tax rates take effect vary from one state to the next. There are also enormous interstate variations in the size of personal exemptions and standard deductions. Some states permit the same levels of itemized deductions as found on the federal income tax return, whereas others deviate from the federal format. Still other states simply impose a state income tax rate which is a percentage of the federal income tax liability. Accordingly, to simplify matters, we use a dummy variable to measure state income tax policy. Clearly, *ceteris paribus*, consumer-voters prefer areas without state income taxes over those with state income taxes; thus, it is expected that $c < 0$.

As in Gallaway and Cebula (1973), a western-state dummy variable is used to reflect the general attractiveness of western locations to migrants within the United States. Based on the Gallaway and Cebula findings, we would expect that $d > 0$. The so-called western states are Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Arizona, Colorado and California. Finally, to reflect the so-called 'friends and neighbours' phenomenon in which migrants tend to prefer areas with people who are similar to themselves, we include the variable AGE_j. In this case, it is argued that younger migrants prefer, *ceteris paribus*, to locate in areas where other younger people are concentrated; related to this friends and neighbours phenomenon, see Cebula and Vedder (1973) or Vedder (1976). Clearly, we expect that $e > 0$.

III. EMPIRICAL RESULTS

Estimating Equation 1 by OLS, using the White procedure to correct for heteroscedasticity, yields:

$$M_j = 14.21 + 24.99EXPRI_j - 26.8TAX_j + 39.12WEST_j$$
$$(+2.99) \quad (-2.85) \quad (+3.08)$$
$$+ 3.10AGE_j \quad (2)$$
$$(+2.24)$$
$$df = 43, r^2 = 0.75, \text{adj.} \, r^2 = 0.71$$

where terms in parentheses are *t*-values.

In Equation 2, all four of the estimated coefficients exhibit the expected signs and are statistically significant at beyond the 5% level. Thus, labour force migration is apparently an increasing function of expected real median family income, western location, and the proportion of the population that is under the age of 55. Of course, the focus in this note is on state income tax policy. As shown in Equation 2, the coefficient on

TAX_j is negative and significant at the 1% level, implying that the existence of a state income tax acts as a significant deterrent to labour force in-migration. This finding is consistent with the argument by Tullock (1971).

This conclusion as to the impact of state policies regarding income taxation on labor force mobility is obtained for other model specifications. For example, consider the following reduced-form equation:

$$M_j = f + gEXPI_j + hTAX_j + iWEST_j + jAGE_j + kDD_j + u^* \quad (3)$$

where f is a constant; DD_j is the normal number of annual heating degree days in state j; and u^* is stochastic error term. Based on Renas and Kumar (1980) and Renas, (1978, 1983), it is expected that $k < 0$.

Estimating Equation 3 by OLS, once again using the White procedure to correct for heteroscedasticity, yields:

$$M_j = 142.77 + 28.33EXPRI_j - 22.56TAX_j$$
$$(+2.74) \quad (-2.72)$$
$$+ 32.19WEST_j + 2.82AGE_j - 0.0009DD_j \quad (4)$$
$$(+3.01) \quad (+2.21) \quad (-0.47)$$
$$df = 42, r^2 = 0.76, r^2 = 0.71$$

Once again, the variable TAX_j is negative and statistically significant. Thus, it appears that, as noted above, state income taxation acts as a deterrent to labour force in-migration. Clearly, this finding has important policy implications for those states hunting for revenues and considering the income tax as a potential new revenue source. The introduction of such a tax is likely to reduce the long term influx of population into the state and hence to reduce the long term economic growth and development of the state. On the other hand, if a slowdown in the pace of growth and development is deemed desirable, the introduction of such a tax may yield both additional tax revenues and the desired slowdown in development!

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