An Extension of the Tiebout Hypothesis of Voting with One’s Feet: The Medicaid Magnet Hypothesis

Cebula, Richard and Clark, Jeff

Jacksonville University, University of tennessee-Chattanooga

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This study empirically extends the Tiebout hypothesis of ‘voting with one's feet’ in two ways. First, it provides updated estimates using net migration data for the period 2000-2008. Second, in addition to investigating variables reflecting per pupil public education outlays, property taxation and income taxation, it investigates whether migrants are attracted to states with higher Medicaid benefits per recipient. The latter hypothesis is referred to as the ‘Medicaid magnet hypothesis’. The analysis includes three economic variables, three quality of life variables and three Tiebout-type factors in addition to Medicaid benefits. Empirical results indicate that consumer voters were attracted to states with higher per pupil public school spending, lower property and income tax rates, and that certain consumer-voters may be attracted to states that offer higher levels of Medicaid benefits.

Keywords: migration; Tiebout hypothesis; Medicaid magnet hypothesis

JEL Classification: D72; D79; H71; H72; R23

I. Introduction

Determinants of U.S. internal migration are a topic of significant research interest as evidenced by Percy et al. (1995); Saltz (1998); Milligan (2000); Conway and Houtenville (2001, 2003); Knapp et al. (2001); Rhode and Strumpf (2003); Chi and Voss (2005); Cebula and Alexander (2006); Francis (2007); Landry et al. (2007), and Kennan and Walker (2010).

One of the migration issues receiving the greatest attention involves the Tiebout (1956) hypothesis, sometimes referred to as either the Tiebout-Tullock hypothesis, or simply ‘voting with one's feet’. It was hypothesized by Tiebout (1956, p. 418) that ‘the consumer-voter may be viewed as picking that community which best satisfies his preferences for public goods ... the consumer-voter inoves to that community whose local government best satisfies his set of preferences’. Tullock (1971, p. 917) observes that this hypothesis can be extended such that the 'individual deciding where to live will take into account the private effects upon himself of the bundle of government services and taxes'. Thus, Tullock (1971), perhaps more expressly than Tiebout (1956), emphasizes that the consumer-voter evaluates both the government goods and services and the tax burden at potential end locations of choice.

This study extends the Tiebout hypothesis in two ways. It provides updated estimates using net migration data for the period 2000-2008 and in addition to investigating variables reflecting per pupil public education outlays, effective property tax rates and effective income tax rates, it investigates whether migrants are
attracted to states with higher Medicaid benefits per recipient. We refer to this behaviour as the 'Medicaid magnet hypothesis'. States with higher Medicaid benefits per recipient attract persons who—either are already receiving Medicaid, who are Medicaid-eligible or expect to become Medicaid-eligible in the foreseeable future. These states act like magnets to the Medicaid magnet hypothesis. States with higher Medicaid benefits per recipient may also be preventing out-migration from their own state of residents who are either already receiving Medicaid benefits, are Medicaid-eligible or expect to become Medicaid-eligible.

The Medicaid magnet hypothesis and the empirical investigation thereof are motivated in part by the observation noted by Holahan (2007, p. 667) that 'There is great variation among states in Medicaid spending per low-income person', a fact documented some time ago by Holahan and Liska (1997). Moreover, this extension of the Tiebout (1956) hypothesis can be regarded as something of a derivative of the debate regarding welfare migration in Sommers and Suits (1973); Paek (1973); Glantz (1974); Southwick (1981); Cebula and Belton (1994); Levine and Zimmerman (1999), and Kennan and Walker (2010).

This contemporary study of the Medicaid magnet hypothesis extension adopts state-level data for the United States and deals with net state in-migration rate determinants for the period 2000–2008. The adoption of state-level data, as opposed to city- or county-level data, to investigate the Tiebout hypothesis follows previous studies (Cebula and Belton, 1994; Saltz, 1998; Gale and Heath, 2000; Conway and Houtenville, 2001; Cebula and Alexander, 2006; Kennan and Walker, 2010).

Numerous studies have empirically addressed determinants of U.S. internal migration. A number of these studies emphasize the migration impact not only of economic and fiscal factors but also ‘quality of life’ factors, as in Saltz (1998); Conway and Houtenville (1998, 2001, 2003), Gale and Heath (2000); Milligan (2000); Knapp et al. (2001), and Cebula and Alexander (2006). As demonstrated in these studies, the omission of noneconomic factors from an empirical migration analysis constitutes an omitted-variable problem that generally compromises the integrity of that analysis. As a consequence, our current article includes not only fiscal factors and purely economic factors but also a number of quality of life/amenity factors.

II. Framework

The consumer-voter is treated as viewing the migration decision as an investment decision such that the decision to migrate from area $i$ to area $j$ requires that his/her expected net discounted present value of migration from area $i$ to area $j$, $DPV_{ij}$, be both (a) positive and (b) the maximum net discounted present value that can be expected from moving from area $i$ to any other known and plausible alternative area $U$. Because of the fact that this study uses net state in-migration, issues such as distance and moving costs are obviously omitted from the computation of the $DPV_{ij}$.

Accordingly, following the models in Tiebout (1956); Tullock (1971); Riew (1973); Renas (1983); Vedder et al. (1986), and Cebula and Alexander (2006), among others, $DPV_{ij}$ consists in this study of three broad sets of considerations, namely

(1) Economic conditions in those areas
(2) Fiscal factors in those areas
(3) Quality of life factors in those areas

Logically, migration will flow from area $i$ to area $j$ only if

$$DPV_{ij} > 0; \text{ and } DPV_{ij} = \text{MAX for } j, \text{ where }$$

$$j = 1,2, ..., z$$

where $z$ represents all of the plausible known alternative locations to area $i$. Given the focus in this study on state migration, areas $i$ and $j$ are states $i$ and $j$.

This study empirically investigates not only the standard Tiebout (1956) hypothesis of voting with one's feet but also an extension of that hypothesis, namely, what is herein referred to as the 'Medicaid magnet hypothesis'. We argue that states providing higher levels of Medicaid benefits per recipient potentially attract migrants from other states, whereas lower levels of Medicaid benefits per recipient are being provided. These migrants consist of those who either are already receiving Medicaid benefits, who are Medicaid-eligible or expect to become Medicaid-eligible in the foreseeable future. Thus, states offering higher levels of Medicaid benefits per recipient can induce a positive flow of in-migration. Furthermore, those states offering the higher/highest Medicaid benefit levels per recipient may also be preventing out-migration of residents of the attracted cohort. Thus, net state in-migration is an increasing function of the level of Medicaid benefits per recipient.

To measure the migration rate, $M/I_{G_j}$, the net number of in-migrants to state $j$ over the period July 2000–July 2008 expressed as a percent of the year 2000 population in state $j$, is adopted. A positive (negative) net in-migration indicates that more (fewer) migrants entered the state than left the state during the time frame studied. Since this study provides an estimate in semi-log form as well as estimates in linear form, the dependent variable (net in-migration) is, in the semi-log estimate, expressed as follows: first, the net
number of in-migrants to each state over the period July 2000-July 2008 is divided by the population in each state for the year 2000; second, that figure, which is a decimal with a value between -1.0 and +1.0, depending upon the state, is added to +1.0 in order to guarantee a positive value for the net in-migration rate for each of the states; finally, the resulting figure is converted to a percent and then into natural log form.

To measure economic conditions in state $j$, three variables are adopted, although, technically, the first variable listed below integrates two typically separated economic variables;

1. $EMFINCj$ is the year 2000 nominal median family income in state $j$, $MFINCj$, multiplied by $(1-\text{UN}j)$, where $\text{UN}j$ is the unemployment rate of the civilian labour force in the year 2000 in state $j$, expressed as a decimal; thus, $(1-\text{UN}j)$ is the employment rate of the civilian labour force in state $j$ (expressed as a decimal) and the product of $MFINCj$ and $(1-\text{UN}j)$, $EMFINCj$, is treated as a measure of expected family income/wage prospects in state $j$ insofar as it includes not only a measure of income in each state but also the probability of obtaining a job in each state (Saltz, 1998); in any case, net in-migration is expected to be an increasing function of $EMFINCj$.

2. $COSIj$ measures the overall cost of living in state $j$ for the average four-person family in the year 2000; $COSIj$ is expressed as an index, with $COSIj = 1$ if $0.00$ being the mean value of $COSIj$. Net in-migration is expected to be a decreasing function of $COSIj$.

3. $EMPGRj$ is the percentage growth rate of employment in nonfarm establishments in state $j$ over the period paralleling the migration flow from 2000 to 2008. Given the contemporaneous nature of the net migration and employment growth variables, two-stage least squares (2SLS) is the estimation technique adopted in this study. The inclusion of a variable such as $EMPLGRj$ is based on Vedder et al. (1986) and Cebula and Alexander (2006), where net in-migration is found to be an increasing function of $EMPGRj$.

To measure fiscal factors, four variables are adopted, one of which reflects the Medicaid magnet extension to the Tiebout hypothesis:

1. $EF\text{SINCUXRATE}j$ is the year 2000 average effective percentage state income tax rate in state $j$, which over the years has often been overlooked, although it has been taken into consideration more recently by Cebula (1990); Gale and Heath (2000), and Conway and Houtenville (1998, 2001, 2003). Conventional wisdom (Riew, 1973) would argue that a higher level of $EF\text{SINCUXRATE}j$ would be expected to discourage net in-migration.

2. $EF\text{PROTXRATE}j$, the average effective property tax rate in state $j$, i.e., the average effective city plus county property tax rate in state $j$ in the year 2000. Some measure of property taxes has previously been considered by Liu (1977); Gale and Heath (2000); Conway and Houtenville (2001); Rhode and Strumf (2003), and Cebula and Alexander (2006) in the migration studies of a Tiebout-type framework, although usually in the form of per capita property taxes. Based on the conventional wisdom (Riew, 1973), a higher property tax rate ($EF\text{PROTXRATE}j$) is expected to dissuade net in-migration.

3. The variable $PPUP!Lj$ is the nominal outlay in state $j$ per pupil on primary and secondary public education in the year 2000. $PPUP!Lj$ replaces the more commonly adopted variable $per\ capita\ public\ education\ outlays$ examined by Pack (1973); Cebula (1979); Renas (1980); Conway and Houtenville (1998, 2001), Gale and Heath (2000), and Rhode and Stmann (2003); a higher level of $PPUP!Lj$ is expected to encourage net in-migration.

4. $MEDICAIDPRj$ is the nominal average Medicaid outlay per Medicaid recipient in state $j$ in the year 2000. In accordance with the Medicaid magnet hypothesis, net in-migration is expected to be an increasing function of $MEDICAIDPRj$.

Finally, to measure quality of life conditions, the focus is on the following three variables:

1. $\text{JANTEMP}j$ is the mean January temperature in state $j$ (1971-2000), as a measure of warmer climatic conditions in state $j$. As in so many migration studies, including Clark and Hunter (1992); Conway and Houtenville (1998, 2001); Gale and Heath (2000), and Cebula and Alexander (2006), this variable or a close substitute for the same, such as heating degree days, is adopted as a quality of life control variable for climate. It is expected that a warmer climate is likely to increase the net inflow of migrants.

2. $\text{COASI}j$ is a dummy variable to reflect whether state $j$ directly borders on either the Atlantic Ocean, the Gulf of Mexico or the Pacific Ocean. $\text{COASI}j = 1$ if state $j$ borders on one or more of these bodies of water and $\text{COASI}j = 0$ otherwise. The expected impact of this variable on net in-migration is positive (Cebula and Alexander, 2006).

3. $\text{DENSITY}j$ is the population density in state $j$, measured as the number of persons per square mile in state $j$ in the year 2000. To the extent that greater
Based upon the eclectic model developed in the preceding section, the reduced-form equations to be estimated initially are given by Equations 2 and 3:

\[
MIG_j = a_0 + a_1 EMFINC_j + a_2 COST_j + a_3 EMPLGR_j + a_4 EFPROPTXRATE_j + a_5 EFPRINCTXRATE_j + a_6 PPUPIL_j + a_7 MEDICAIDPR_j + a_8 HDD_j + a_9 COAST_j + a_{10} DENSITY_j + u
\]

\[
\ln(MIG_j) = b_0 + b_1 EMFINC_j + b_2 COST_j + b_3 EMPLGR_j + b_4 EFPROPTXRATE_j + b_5 EFPRINCTXRATE_j + b_6 PPUPIL_j + b_7 MEDICAIDPR_j + b_8 HDD_j + b_9 COAST_j + b_{10} DENSITY_j + u' \tag{3}
\]

where \( \ln(MIG_j) \) the natural log of \( MIG_j \); \( a_0, b_0 \) constant terms; \( u, u' \) stochastic error terms.

The study includes all 50 states. The expression of the explanatory variables (other than \( EMPLGR_j \)) in year 2000 levels is based on Greenwood (1978), who argues that use of beginning-of-period values for right-hand-side variables helps to avoid simultaneity bias. The data sources for all of the variables in the analysis are provided in Table 1. Table 2 provides descriptive statistics. Table 3 provides a correlation matrix for the explanatory variables, where serious multicollinearity problems are not evident.

**IV. Initial Estimations**

The 2SLS estimations of Equations 2 and 3 are provided in columns (a) and (b), respectively, of Table 4. In column (a), all ten of the estimated coefficients exhibit the expected signs, with five statistically significant at the 1% level, two statistically significant at the 2.5% level, and three statistically significant at the 5% level. In

Based on the arguments in the previous section, the following coefficient signs (ceteris paribus) are hypothesized:

\[
a_1 > 0, \ a_2 < 0, \ a_3 > 0, \ a_4 < 0, \ a_5 < 0, \ a_6 > 0, \ a_7 > 0, \ a_8 < 0, \ a_9 > 0, \ a_{10} < 0 \tag{4A}
\]

\[
b_i > 0, b_2 < 0, b_3 > 0, b_4 < 0, b_5 < 0, b_6 > 0, b_7 > 0, b_8 < 0, b_9 > 0, b_{10} < 0 \tag{4B}
\]
addition, the F-statistic is significant at the 2.5% level, an indication of the overall strength of the model.

In estimate (b), all ten of the estimated coefficients once again exhibit the hypothesized signs, with four statistically significant at the 1% level, two statistically significant at the 2.5% level, three statistically significant at the 5% level and one statistically significant at beyond the 10% level. The F-statistic is significant at the 2.5% level in this estimate, once again reflecting the strength of the model.

The estimated coefficient on the income variable \( (EAFIVC) \) is positive and statistically significant at beyond the 2.5% level in both estimates (a) and (b). In addition, the estimated coefficient on the cost of living variable \( (COSI) \) is negative and statistically significant at the 1% level in both estimates (a) and (b). Combined, these results imply that the net state in-migration rate was an increasing function of nonincome expected median family income and a decreasing function of the overall cost of living. These results conform to the 'conventional wisdom' that migrants (consumer-voters) prefer higher income locations and manifest an aversion to states having higher living-cost levels. In addition, the estimated coefficient on the \( EMPLGR \) variable is positive and statistically significant at the 1% level in both estimates (a) and (b), leading to the inference that migrants prefer to move to states with higher employment growth rates.

In the quality of life variables, the coefficient on \( JANTEMP \) is positive and statistically significant at the 1% level in both estimate (a) and estimate (b). Thus consumer-voters appear to prefer living in states with greater closeness/access to either the Atlantic or Pacific Oceans or the Gulf of Mexico. The estimated coefficients on the \( DENSITY \) variable in estimates (a) and (b) are both negative and statistically significant at the 5% level. These results imply that consumer-voters may have an aversion to states having a higher population density.

Lastly, we consider the results for the variables reflecting our expanded interpretation of the Tiebout (1956) hypothesis. The coefficient on the variable \( EFPROPTXRATE \) is negative in both estimates and statistically significant at the 1% level in estimate (a) and at the 2.5% level in estimate (b). Thus consumer-voters appear to have an aversion to higher state personal income tax rate levels. In addition, the estimated coefficient on the variable \( PPUPIL \) is positive and statistically significant at the 5% level in both estimates. Hence consumer-voters appear to prefer locating in states committing greater financial resources per pupil to primary and secondary public education. This 'appreciation' for public education prioritization could reflect expected direct benefits (for parents with school-age children) and/or an awareness of the positive externalities of education. Next, the coefficient on the property tax variable, \( EFPROPTXRATE \), is negative and statistically significant at the 1% level in both estimates, implying that consumer-voters prefer residence in states with lower

Table 2. Descriptive statistics

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<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td>MIG</td>
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<td>EMFINC</td>
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<td>COST</td>
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<td>EFPROPTXRATE</td>
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<td>2.9421</td>
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<td>PPUPIL</td>
<td>7111</td>
<td>1591</td>
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<tr>
<td>MEDICAJDPR</td>
<td>4292</td>
<td>1233</td>
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<td>JANTEMP</td>
<td>32.71</td>
<td>12.65</td>
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<td>COAST</td>
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<td>DENSITY</td>
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<td>ECONFREEOM</td>
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<td>POLLUT</td>
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<td>PCSINCTX</td>
<td>623.92</td>
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<td>PCPROPTX</td>
<td>458.91</td>
<td>570.66</td>
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Table 3. Correlation matrix

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<th>COS</th>
<th>EMPGR</th>
<th>EFSINCTX</th>
<th>EFPROPTX</th>
<th>PPUPIL</th>
<th>MEDICAJDPR</th>
<th>JANTEMP</th>
<th>COAST</th>
<th>DENSITY</th>
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<tr>
<td>T</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
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<td>1.0</td>
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<td>D-PR</td>
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<td>TY</td>
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<td>0.283</td>
<td>-0.104</td>
<td>0.241</td>
<td>-0.268</td>
<td>0.284</td>
<td>-0.422</td>
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effective property tax rates. All of these 'updated' results are generally consistent with most of the other prior/earlier related studies of the Tiebout (1956) framework. Finally, there is the case of the variable MEDICAIDPR. In estimation (a), the coefficient on this variable is positive and statistically significant at the 2.5% level, whereas it is positive and statistically significant at just beyond the 5170 level in estimation (b). These results imply that some portion of consumer-voters, presumably higher 'at-risk' persons (health-wise), prefer to move to states where Medicaid benefits per recipient are higher. Thus, there appears to be strong support for the Medicaid magnet extension of the Tiebout (1956) hypothesis.

V. Robustness Tests

To test the robustness of the basic model in Table 4, two additional variables are included in the model in two new estimates. The first is an index of 'economic freedom', ECONFREE, as developed by Ruger and Sorens (2009); Ruger and Sorens (2009, p. 1) predicate their study ultimately on the definition of individual freedom as the ability to dispose of one's own life, liberty, and justly acquired property however one sees fit, so long as one does not coercively infringe on another's ability to do the same'. They then proceed to develop a number of freedom indices, including an elaborate index of overall economic freedom, ECONFREE. They also contend that the role of ECONFREE per se in an empirical migration analysis appears to be largely understudied and argue that domestic in-migration should be an increasing function of economic freedom.

The second new variable is a measure of the amount of airborne toxic particulate matter in state $j$. The index runs from 1.00 to 100.00. Presumably, the greater the level of airborne toxic releases in state $j$, the less appealing movement to state $j$ becomes.

Given these new variables, the following equations, each of which constitutes an extension/re-specification of Equation 2, is to be estimated by 2SLS:

$$MIG_j = \alpha_0 + \alpha_1 EMFINC_j + \alpha_2 COST_j + \alpha_3 EMPLOYR + \alpha_4 EFSINCTRACTRATE_j + \alpha_5 EFPROPTXRATE_j + \alpha_6 PPUPIL_j + \alpha_7 MEDICAIDPR_j + \alpha_8 JANTEMP_j + \alpha_9 COAST_j + \alpha_{10} DENSITY_j + \alpha_{11} ECONFREE_j + \alpha_{12} POLLUT_j + \epsilon $$

The 2SLS estimates of Equations 5 and 6 are provided in columns (a) and (b), respectively, of Table 5. Overall, these two 2SLS estimates yield 23 coefficients. All of the estimated coefficients exhibit the expected signs, with 15 statistically significant at the 1% level, two at the 2.5% level and five at the 5% level. Only one of the estimated coefficients (POLLUT) fails to be statistically significant at the 10% level.

### Table 5. 2SLS estimates, Equations 5 and 6

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>(a)</th>
<th>(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-47.59</td>
<td>-41.09</td>
</tr>
<tr>
<td>EMFINC</td>
<td>0.000039* (2.01)</td>
<td>0.000004* (2.03)</td>
</tr>
<tr>
<td>COST</td>
<td>-5.0*** (-3.00)</td>
<td>-5.08*** (-3.03)</td>
</tr>
<tr>
<td>EMPLOYR</td>
<td>30.05*** (2.97)</td>
<td>30.07*** (2.94)</td>
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<tr>
<td>EFSINCTRACTRATE</td>
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<td>-22.25*** (-3.30)</td>
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<td>EFPROPTXRATE</td>
<td>-20.44*** (-3.45)</td>
<td>-20.63*** (-3.47)</td>
</tr>
<tr>
<td>PPUPIL</td>
<td>0.035*** (2.86)</td>
<td>0.035*** (2.87)</td>
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<tr>
<td>MEDICAIDPR</td>
<td>0.032* (2.26)</td>
<td>0.032* (2.42)</td>
</tr>
<tr>
<td>JANTEMP</td>
<td>3.94* (3.07)</td>
<td>3.94*** (3.07)</td>
</tr>
<tr>
<td>COAST</td>
<td>61.77* (2.30)</td>
<td>62.32* (2.31)</td>
</tr>
<tr>
<td>DENSITY</td>
<td>-0.092*** (-2.76)</td>
<td>-0.093*** (-2.77)</td>
</tr>
<tr>
<td>ECONFREE</td>
<td>1.57** (2.59)</td>
<td>1.6*** (2.63)</td>
</tr>
<tr>
<td>POLLUT</td>
<td>3.43**</td>
<td>3.37**</td>
</tr>
</tbody>
</table>

Notes: Terms in parentheses are t-values. ***, ** and * statistically significant at the 1%, 2.5% and 5% levels, respectively; #statistically significant at the 10% level.
Aside from the two new variables introduced into the basic model \((\text{POLLUTi} \text{ and } \text{ECONFREEi})\), the results in columns (a) and (b) of Table 5 are comparable to those in column (a) of Table 4. The coefficient on the variable \(\text{POLLUTi}\) fails to be statistically significant at even the 10% level. However, the coefficients on the \(\text{ECONFREEi}\) variable are positive and statistically significant at the 2.5% level in one case [column (a)] and at the 1% level in the other case [column (b)]. Thus, there is evidence that higher levels of economic freedom do induce higher net in-migration.

As for the remaining variables in Table 5, they are extremely close in both magnitude and statistical significance to their counterparts in Table 4. Thus, the results from the estimation of Equation 2 in column (a) appear to be robust. In particular, based on the findings in Tables 4 and 5, there is compelling evidence that the net state in-migration rate over the study period is an increasing function of the variables \(\text{EMPLGR, } \text{?PUPIL, COAST, JANTEMP, EMFINC and MEDICAIDPR, while being a decreasing function of the variables COST, EFSINCTXRATE, EFPROPTXRATE and DENSITY.}\)

Of greatest relevance to this study, the findings in Table 5 imply that the Tiebout (1956) hypothesis of voting with one's feet and the Medicaid magnet extension thereof is strongly supported, with consumer-voters expressing their preferences for higher levels of outlays per pupil in public primary and secondary education, lower state income tax rates, lower property taxation and, finally, higher levels of Medicaid outlays. The results shown in Tables 4 and 5 provide a consistent pattern of support for the Medicaid magnet hypothesis.

VI. Conclusions

This study has investigated determinants of net in-migration rates in the United States over the period 2000-2008, with the intentions of using contemporay migration data to investigate the Tiebout (1956) hypothesis of voting with one's feet and the Medicaid magnet hypothesis extension of that hypothesis. The extension argues that states with higher Medicaid benefits per recipient attract migrants who are either actually receiving Medicaid benefits, or are already Medicaid-eligible or who expect to become Medicaid-eligible. Thus, states that offer higher per recipient Medicaid benefits can in effect act like a magnet to such people. Futhermore, those states with the highest Medicaid benefits would logically tend to retain their current residents who are already Medicaid recipients, or who are soon-to-be eligible Medicaid recipients, with the end result being that net state in-migration is an increasing function of Medicaid benefits per recipient. If this hypothesis is valid, the potential policy implications may be considerable, e.g., in the year 2000, there were some 42 887 000 Medicaid recipients (57 757 000 by 2006) and an approximate aggregate Medicaid outlay in the year 2000 of $168.443 billion ($269.868 billion by 2006) across the United States as a whole (U. S. Census Bureau, 2010, Tables 144, 145).

Using 2SLS estimation, initially a linear model is estimated and then a corresponding semi-log model is estimated (see Table 4). Both the linear and semi-log specifications allow for purely economic factors (includ­ing an index of the average overall cost of living in each state), quality of life variables and Tiebout (1956)-type fiscal factors, one of which expressly reflects average Medicaid benefits per recipient. Subsequently, as robustness tests, additional estimates are provided.

Finally, this analysis provides a re-estimation of the basic model in Equation 2, in which the variable \(\text{MEDICAIDPR}\) is replaced by the maximum Medicaid benefit per recipient in state \(j, \text{MAXMEDICAIDPRj}\). As illustrated by the results shown in Table 6, the overall findings are essentially identical to those in column (a) of Table 4, with the estimated coefficient on this new maximum Medicaid benefit variable being both positive and statistically significant at beyond the 5% level. This re-specification of the \(\text{Medicaid}\) variable yields further results supportive of the Medicaid magnet hypothesis.

The results demonstrate that as consumer-voters make migration decisions, they tend to move to states with higher per pupil outlays on public primary and secondary education, with lower effective income tax rates and lower effective property tax rates. In addition, some portion of consumer-voters apparently is attracted to states with higher Medicaid benefits. Regarding the latter empirical findings involving the Medicaid magnet hypothesis and the case of the variables \(\text{MEDICAIDPR} \text{ and } \text{MAXMEDICAIDPRj}\), in all of the 2SLS estimates, the estimated coefficient on this variable is positive and statistically significant. Thus, there

### Table 6. 2SLS estimate, revised Equation 2

<table>
<thead>
<tr>
<th>Term</th>
<th>Coefficient</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>44.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMFINC</td>
<td>0.00006***</td>
<td>(2.35)</td>
<td></td>
</tr>
<tr>
<td>COST</td>
<td>-0.38**</td>
<td>(-3.25)</td>
<td></td>
</tr>
<tr>
<td>EMPLGR</td>
<td>3.04***</td>
<td>(2.69)</td>
<td></td>
</tr>
<tr>
<td>EFSINCTXRATE</td>
<td>-20.16**</td>
<td>(-3.07)</td>
<td></td>
</tr>
<tr>
<td>EFPROPTXRATE</td>
<td>-0.23*</td>
<td>(-2.09)</td>
<td></td>
</tr>
<tr>
<td>?PUPIL</td>
<td>0.03*</td>
<td>(2.34)</td>
<td></td>
</tr>
<tr>
<td>MAXMEDICAIDPR</td>
<td>3.74***</td>
<td>(2.68)</td>
<td></td>
</tr>
<tr>
<td>JANTEMP</td>
<td>66.72**</td>
<td>(2.18)</td>
<td></td>
</tr>
<tr>
<td>DENSITY</td>
<td>-0.081*</td>
<td>(-2.28)</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>3.35*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Terms in parentheses are t-values. ***, ** and * statistically significant at the 1%, 2.5% and 5% levels, respectively.
appears to be strong empirical support for the Medicaid magnet hypothesis.

Holahan (2007, p. 667) contends that the interstate variation in Medicaid spending per low-income person 'has many determinants, including state discretion and differences in prices and amounts of services used'. He further observes that various 'Incentives in Medicaid to have low-income states spend more have generally not worked', yielding 'outcomes that belie a presumed national interest in equity'. Thus, a 'federal solution... would be necessary to eliminate state variations' in Medicaid spending per recipient. The authors of the present study of the Medicaid magnet hypothesis concede potential benefits to a 'federal solution', presumably in the form of uniform Medicaid benefits per low-income person nationally. However, it would be argued here that such a 'uniform' system might very well require interstate Medicaid benefits to be adjusted to reflect either interstate cost-of-living differentials or interstate medical care price differentials in order to establish the equity in which Holahan (2007) is interested and in the elimination of the Medicaid magnet phenomenon with which the present study is concerned. Another words, real Medicaid benefits potentially may have to be made approximately equal across the states in order to successfully address these concerns.

References


