Medicaid and Migration: An Exploratory Note

Richard J. Cebula, Jacksonville University

Introduction

Patterns of migration and influences over migration patterns continue to be a topic of research interest. This fact is obvious from the continuing and varied published research on migration (Saltz, 1998; Conway & Houtenville, 2001, 2003; Rhode & Strumpf, 2003; Chi & Voss, 2005; Cebula & Alexander, 2006; Francis, 2007; Landry, et al., 2007). One of the directions of this research involves the Tiebout (1956) hypothesis.

Tiebout (1956, p. 418) hypothesized that "…the consumer-voter may be viewed as picking that community which best satisfies his preferences for public goods…the consumer-voter moves to that community whose local government best satisfies his set of preferences." Within the context of the Tiebout (1956) hypothesis, the purpose of this exploratory study is to investigate for the U.S. what is being referred to here as the "Medicaid migration magnet hypothesis." This hypothesis argues that, *ceteris paribus*, states with more generous Medicaid benefits (as measured by the maximum family-size-specific Medicaid benefit in each state) attract persons who can migrate *and* who either are already receiving Medicaid benefits or who are Medicaid-eligible or expect to become Medicaid-eligible. Thus, states offering higher Medicaid benefits (as defined here) in effect act like a magnet to such people and induce a net inflow of migrants.

This exploratory note investigates net state in-migration in the U.S. for the period 2000-2008. Adopting state-level data, as opposed to city- or county- level data or micro-data sets, to investigate the Tiebout (1956) hypothesis follows a number of previous studies (Cebula & Belton, 1994; Saltz, 1998; Conway & Houtenville, 1998, 2001; Gale &

Heath, 2000; Cebula & Alexander, 2006). This study includes not only fiscal factors and economic factors but also a number of quality-of-life factors.

Migration Decisions

The consumer-voter treats the migration decision as an investment such that the decision to migrate from area *i* to area *j* requires that the expected net discounted present value of migration from area *i* to area *j*, *DPVij*, be both positive *and* the maximum net discounted present value that can be expected from moving from area *i* to *any other* known and plausible alternative area.

Following Riew (1973), the *DPVij* consists in this study of three broad sets of considerations, namely:

1. Economic conditions in those areas;
2. Fiscal factors in those areas; and
3. Environmental/quality-of-life characteristic of the areas.

According to this framework, migration will flow from area *i* to area *j* only if:

$$DPVij > 0;\ DPVij = \text{MAX for } j, \text{ where } j = 1,2,\ldots,v \qquad (1)$$

where *v* represents all of the plausible known alternative locations to area *i*.

To measure the migration rate, *MIGj*, the *net* number of in-migrants to state *j* over the period July, 2000-July, 2008 as a *percent* of the year 2000 population in state *j* is adopted.

To measure the economic conditions in state *j*, three factors are adopted:

1. *MFINCj*, the year 2000 nominal median family income in state *j*. Following the conventional wisdom, *ceteris paribus*, net in-migration is expected to be an increasing function of *MFINCj*;

2. *COSTj*, the overall cost of living in state *j* for the average four-person family in the year 2000, expressed as an index, with *COSTj* = 100.00 being the mean value of *COSTj*. According to the conventional wisdom, net migration is expected to be a decreasing function of *COSTj*; and
3. *EMPGRj*, the percentage growth rate of employment in non-farm establishments in state *j* over the period paralleling the migration flow from 2000-2008. It should be observed the contemporaneous nature of the net migration and employment growth variables will be examined using two-stage least squares (2SLS).The inclusion of a variable such as *EMPLGRj* is based on studies by Vedder, et al. (1986) and Cebula & Alexander (2006), studies that find recent employment growth attracts migrants.

To measure fiscal factors, four variables are adopted, one of which is intended to reflect the Medicaid migration magnet hypothesis extension of Tiebout (1956):

1. *STINCTXDUMMYj*, for the year 2000, a binary (dummy) variable indicating the presence or absence of a state income tax in state *j*. *STINCTXDUMMYj* =1 if state j has a state income tax, and *STINCTXDUMMYj* = 0 otherwise. Adoption of a dummy variable to indicate the absence or presence of a state income tax in migration studies is based on the extremely diverse, complex, and difficult to compare state income tax systems in those states having such a tax (Cebula, 1990; Saltz, 1998; Conway & Houtenville, 1998, 2001; Gale & Heath, 2000). The presence of a state income tax, *ceteris paribus*, is expected to discourage net in-migration;

2. *EFFPROPTXRATEj*, 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 typically been considered in migration studies of a Tiebout-type framework, although usually in the form of per capita property taxes (Conway & Houtenville, 2001; Gale & Heath, 2000; Rhode & Strumpf, 2003). In any case, a higher property tax rate [a higher *EFFPROPTXRATEj* level] is expected to dissuade net in-migration;
3. *PPUPILj*, the nominal outlay in *state j* per pupil on primary and secondary *public* education in the year 2000, where a higher level of *PPUPILj* is expected to encourage net in-migration; and
4. *MAXMEDICAIDPFj*, the maximum nominal family-size-specific *Medicaid benefit* (to measure Medicaid generosity) in *state j* in the year 2000. In accordance with the Medicaid migration magnet hypothesis, net in-migration is expected to be an increasing function of *MAXMEDICAIDPFj*.

To measure quality of life conditions, four variables are adopted:

1. *JANTEMPj*, the mean January temperature in degrees Fahrenheit in state *j* (1971-2000), as a measure of warmer climatic conditions. As in so many migration studies (Clark & Hunter, 1992; Conway & Houtenville, 1998, 2001, 2003; Gale & Heath, 2000), this variable or a close substitute for same is adopted as a quality-of-life variable. As is typically the case in these studies, it is expected that a warmer climate increases the net inflow of migrants;
2. *COASTj*, a dummy variable to reflect whether state *j* directly borders on either the Atlantic Ocean, the Gulf of Mexico, or the Pacific Ocean. *COASTj* = 1 if

state j borders on one or more of these bodies of water and *COASTj* = 0 otherwise. The expected migration impact of this variable on net in-migration is positive, given the desirability of greater access to these bodies of water (Renas, 1983; Saltz, 1998; Cebula & Alexander, 2006); and

3. *DENSITYj* 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 population density implies greater crowding and congestion, it is expected that net in-migration is a decreasing function of *DENSITYj* (Renas, 1978, 1983; Clark & Hunter, 1992).

4. *HAZARDj* is the number of hazardous waste sites per square mile in state *j* in the year 2000. Arguably, the greater the number of hazardous waste sites per square mile in state *j*, the less appealing migration to state *j* should be (Clark & Hunter, 1992; Saltz, 1998; Cebula & Alexander, 2006).

The Model

The reduced-form equation to be estimated is:

$$MIGj = a_0 + a_1\, MFINCj + a_2\, COSTj + a_3\, EMPLGRj + a_4\, STINCTXDUMMYj$$
$$+ a_5\, EFFPROPTXRATEj + a_6\, PPUPILj + a_7\, MAXMEDICAIDPFj + a_8\, JANTEMPj$$
$$+ a_9\, COASTj + a_{10}\, DENSITYj + a_{11}\, HAZARDj + u \qquad (2)$$

where: a_0 = constant; and u = stochastic error term.

The study includes all 50 states but excludes Washington, D.C. Omission of Washington, D.C. is consistent with many previous U.S. migration studies (Saltz, 1998; Nechyba, 2000; Conway & Houtenville, 2001, 2003; Rhode & Strumpf, 2003; Chi & Voss, 2005; Francis, 2007; Landry, et al., 2007).The data sources are provided in Table 1.

Based on the arguments summarized in the previous section, the following coefficient signs are expected:

$a_1 > 0$, $a_2 < 0$, $a_3 > 0$, $a_4 < 0$, $a_5 < 0$, $a_6 > 0$, $a_7 > 0$, $a_8 > 0$, $a_9 > 0$, $a_{10} < 0$, $a_{11} < 0$ (3)

Since migration and *EMPLGR00-08j* are contemporaneous, the possibility of simultaneity bias exists. This possibility is indeed confirmed when applying the Hausman (1982) specification test. Accordingly, the model is to be estimated by 2SLS. The instrument for the new employment growth variable is the percentage growth rate of non-farm employment in state *j* over the period 1996-2000, *EMPLGR96-00j*. The choice of instrument is based on the findings that *EMPLGR96-00j* is highly correlated with the variable *EMPLGRj* while being uncorrelated with the error terms in the system.

Empirical Results

\ Estimating equation (2) by 2SLS, adopting the White (1980) correction for heteroskedasticity, yields:

$$MIGj = 190.0 + \underset{(+2.09)}{0.005}MFINCj - \underset{(-2.50)}{6.3}\ COSTj + \underset{(+2.14)}{28.3}\ EMPLGRj - \underset{(-2.40)}{92.95}\ STINCTXDUMMYj$$

$$-\underset{(-3.11)}{22.5}\ EFFPROPTXRATEj + \underset{(+1.69)}{0.014}\ PPUPILj + \underset{(+2.03)}{0.032}\ MAXMEDICAIDPFj$$

$$+\underset{(+2.85)}{4.11}\ JANTEMPj + \underset{(+2.16)}{63.32}\ COASTj - \underset{(-1.74)}{0.043}\ DENSITYj - \underset{(-0.88)}{0.324}\ HAZARDj, \quad F=2.99 \qquad (4)$$

where terms in parentheses are t-values. All 11 of the estimated coefficients exhibit the hypothesized signs, with two statistically significant at the one percent level, six significant at the five percent level, and two significant at the ten percent level.

The coefficient on the income variable (*MFINC*) is positive and statistically significant at the five percent level, and the coefficient on the cost of living variable (*COST*) is statistically significant at the two percent level. These results imply that the net state in-migration rate was, as hypothesized, an increasing function of nominal expected median family income and a decreasing function of the overall cost of living. In addition, the coefficient on the current growth rate of employment in non-farm establishments variable is positive and statistically significant at the four percent level, implying that migrants prefer to move to states with higher employment growth rates.

Next, three of the four variables reflecting the Tiebout (1956) hypothesis are considered; the new variable reflecting the Medicaid migration magnet hypothesis is considered at the end of the study. The coefficient on the binary *state* personal *income* tax variable (*STINCTXDUMMY*) is negative, as hypothesized, and statistically significant at the two percent level. Thus, consumer-voters appear to have an aversion to states that have a state personal income tax in place. The coefficient on the variable reflecting the nominal outlay *per pupil* in *states* on primary and secondary public education (*PPUPIL*) is positive and statistically significant at the ten percent level. Hence, there is modest evidence that consumer-voters prefer locating in states committing greater financial resources *per pupil* to primary and secondary *public* education. Next, the coefficient on the *effective property tax rate* variable (*EFFPROPTXRATE*) is negative and statistically significant at the one percent level, implying that consumer-voters prefer lower residence in states with lower *state* plus local property tax rates. These results are in principle consistent with most other related studies of the Tiebout (1956) hypothesis.

Regarding the quality of life variables, we begin with the variable *JANTEMP*, whose coefficient is positive and statistically significant at the one percent level, suggesting that environments having warmer climates appear to be more attractive to migrants. The coefficient on the *COAST* dummy variable is positive and significant at the four percent level, implying that migrants prefer to live in states with greater closeness/access to either the Atlantic or Pacific Oceans or the Gulf of. The coefficient on the *DENSITY* variable is negative and statistically significant at the nine percent level. Thus, there is evidence, albeit modest, that consumer-voters may have an aversion to states having a higher population density. The coefficient on the hazardous waste variable, *HAZARDj*, although negative, fails to be statistically significant at even the ten percent level, implying that this variable was not a factor in the migration decision.

Finally, there is the case of variable *MAXMEDICAIDPF*. The coefficient on this variable is positive and statistically significant at the five percent level, a result implying that some portion of consumer-voters prefers to move to states where Medicaid benefit generosity (measured here by the maximum nominal family-size-specific *Medicaid benefit* in each *state*) is higher. Thus, in this exploratory study, there appears to be empirical support for the "Medicaid migration magnet hypothesis." That said, further empirical analysis clearly is needed in order to establish the validity of this hypothesis.

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Table 1. Data Sources	
Variable	Source
MIG	U.S. Census Bureau, 2010, Table 15
MFINC	U.S. Census Bureau, 2005, Table 664
COST	ACCRA, 2001
EMPLGR	U.S. Census Bureau, 2010, Table 604
STINCTX	Binary (0, 1) dummy variable
EFFPROPTXR	U.S. Census Bureau, 2003, Tables 446, 17; and
	Federal Housing Finance Agency, 2010
PPUPIL	U.S. Census Bureau, 2001, Table 242
MAXMEDICAIDPF	U.S. Centers for Medicare and Medicaid Services, 2010
JANTEMP	U.S. Census Bureau, 2010, Table 384
COAST	Binary (0, 1) dummy variable
DENSITY	U.S. Census Bureau, 2005, Table 13
EMPLGR96-00	U.S. Census Bureau, 2002, Table 602
HAZARD	U.S. Census Bureau, 2001, Tables 365, 343