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Elderly Migration and State Fiscal Policy: Evidence from the 1990 Census Migration Flows

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Abstract

The elderly's unique economic situation makes some government expenditures more attractive and some forms of taxation less burdensome than others. This research investigates whether elderly migration is affected by state fiscal policies and discusses the possible consequences, both of which likely differ between younger and older elderly. Using state-to-state migration flows, we identify which states are gaining and losing younger versus older elderly people. We then estimate the migration flows as a function of the states' amenities, cost of living, composition of government spending and alternative specifications of the tax system. We find that elderly migration is influenced by state fiscal policy.

Introduction

The retired population is growing faster than the working population and by the year 2030 one out of every five people will be aged 65 and older (Mackey and Carter 1994). This trend combined with the current shift in fiscal responsibilities to the states makes it increasingly important to understand the response of the elderly to differences in state government policy. Like welfare recipients, the absence of a direct linkage between taxes paid and benefits received from government spending may draw the elderly to jurisdictions that provide a certain bundle of goods that are financed with specific types of taxes. The elderly's unique economic situation makes some government expenditures more attractive and some forms of taxation less burdensome than others. They also are potentially quite mobile because they are no longer attached to the labor market. Some states, such as Mississippi which repealed all income taxes on pension income, have recognized this possibility and are using their tax systems to try to become retirement havens (Mackey and Carter 1994). This raises two issues—are the elderly sensitive to state policies in making their migration decisions and what impact do the elderly have on the states to which they migrate?

The presumption by many is that the arrival of the newly retired elderly is positive for the state. Longino and Crown (1989), calling retired migrants "pure gold," note that retirement migration boosts private spending, broadens the tax base and improves the economy, particularly the service sector. They estimate that Florida is the biggest winner with a net gain of $5 billion from the elderly migrants it received between 1985 and 1990, while New York is the biggest loser with a net loss of $2.9 billion.

The elderly's impact on the public sector, however, is less straightforward, especially as they grow older. The elderly may affect state government in at least three ways—by changing the state's tax revenues, government expenditures and, through their political power, the state's priorities. As discussed in detail by Mackey and Carter (1994), the elderly enjoy a myriad of tax preferences and therefore tend to pay less in taxes. Most states exempt at least some portion of social security benefits and pension income from income taxation, as well as granting additional personal exemptions, credits or standard deductions for the elderly. These income tax preferences can come at a significant cost to the state; Mackey and Carter (1994, p. 14) report a revenue loss ranging from 2 percent to 18 percent of total personal income tax collections for the subset of states for which such information is available. Likewise, states sales taxes frequently exempt items believed to be burdensome to the elderly; of the 46 states that impose a sales tax, 43 exempt prescription drugs, 26 exempt food purchases for home consumption, and 31 exempt electric and gas utilities, and several have tax credit and rebate programs directly targeted to the elderly. Inheritance, estate and gift taxes have also been reduced in recent years in favor of the "pick-up" tax which does not increase the total tax liability of the estate.[1] Indeed, Mackey and Carter (1994, p. 38) note that the much maligned property tax may be the "..only significant tax that the growing middle class elderly population pays to support state and local services." Even so, the elderly enjoy significant property tax relief as most states grant homestead exemptions or credits and/or circuit-breakers for the elderly.

On the expenditure side, the elderly certainly cost the state less in that they typically have no children to educate. However, a growing share of spending has gone to support the elderly, due mostly to the growth in Medicaid expenditures on long term care (Mackey and Carter 1994, p. 38).[2] For instance, while the aged make up only 11.4 percent of the persons served by Medicaid in 1994, they account for 31 percent of the expenditures (*Health Care Financing Review/1996 Statistical Supplement*, p. 181). And, Medicaid for the aged is a fast growing component, the average medicaid payment per person served having grown 73.4 percent between 1975 and 1995 (*Health Care Financing Review/1996 Statistical Supplement*, Table 79). Furthermore, the non-cash-assisted elderly (and therefore typically less poor) served by Medicaid have consistently outpaced the cash-assisted, accounting for 75 percent of nursing home funds in 1992 (Coughlin, Ku and Holahan 1994).[3] This growth may be due to the increasing likelihood of "spend-down," the 1988 Medicare Catastrophic Cost Act (MCCA) which allowed people to qualify for Medicaid nursing home coverage without impoverishing their spouses, or the alleged increase of the non-poor elderly sheltering or transferring their assets. Not surprisingly, the burden the elderly place on Medicaid tends to increase with their age; for instance, in 1996 average medicaid expenditures per recipient was $3,513 compared to $5,795, $8,958 and $12,170 for those aged 65 to 74, 75 to 84 and 85 and older, respectively (*Health Care Financing Association* 1997). Thus, the costs of the elderly to the state likely increase and the benefits decrease as both their health and assets deteriorate with age.

The elderly may not only affect state budgets through their tax contributions and demands for public services, but also through the considerable political power they exert. The elderly vote in significantly higher proportions than younger people and may be less supportive of educational (and possibly other) expenditures, especially those elderly who have recently migrated and therefore may lack a strong commitment to their new communities. In his study of six Florida counties, Button (1992) finds that while only 26 percent of the residents of these counties were elderly, 49 percent of those who voted on general tax issue referenda were elderly. And, they were consistently more likely to vote against local tax proposals, especially those related to the schools. Using panel data for the 48 contiguous states, Poterba (1997) adds support to this tendency by finding that education expenditures per child significantly decreases with the proportion of the population that is elderly.[4]

Elderly migrants are therefore likely to expand the economy, yet contribute less in taxes than other taxpayers with the same income and may eventually cost the state in terms of Medicaid and other health care expenditures. They may also help change the state's spending priorities and tax policies through their political power. For the younger, wealthier elderly the benefits to the state probably outweigh the costs. These are precisely the elderly courted by many states. As they grow older and their assets and health deteriorate, however, the situation certainly changes and may even be reversed. The impact of elderly migration on the well-being of the state thus depends on the age of the migrants (as an indicator of their health and income) and may be exaggerated by the phenomena of "return migration," in which the elderly return to their home states, often after becoming ill (Serow 1992, p. 82). The scenario of the wealthy, healthy elderly moving to Florida only to return to their home state in search of familial support after their economic and physical health deteriorates further magnifies the possible impact of elderly migration and underscores the need to differentiate between younger and older elderly migrants.

Our research uses state-to-state migration flows from the 1990 U.S. Census for different age groups of the elderly to identify which states are gaining and losing different types of elderly residents and to examine what factors are important to their decisions to move. The next section provides descriptive evidence of which states the elderly are moving from and where they are moving to and how these patterns vary by age. Such an analysis reveals the possible consequences of elderly migration for the states. We then turn our attention to exploring whether states can influence younger and older elderly migration through their fiscal policies. We then review previous studies of elderly migration and notes how few of them consider the public sector at all, much less in any detail. Even fewer break the elderly into different age groups in their empirical analyses. We then model and estimate elderly migration flows between the states as a function of each state's amenities and public sector characteristics. We explore three different ways of representing the tax side of state policy, as well as different econometric and sample specifications.

Our empirical results reveal that the younger and older elderly vary substantially in their migration patterns. As people age, Florida-as-a-destination becomes less important, and "return" migration and border moves become more evident. Our econometric analysis likewise finds that our amenity migration model best fits the youngest elderly. Still, we find that all three groups are affected not only by climate and cost-of-living, but by certain aspects of state fiscal policy as well. In particular, we find that states may enjoy limited success in attracting the elderly through their death taxes, personal income taxes and exemptions for food purchases and pension income. However, future research is required in order to determine if this is a wise goal for states to pursue.

Which States are Gaining and Losing the Elderly?

There are two basic ways to describe migration—the number of individuals who move from one state to another (the *flow*) and the total number of individuals who are moving into or out of a state (*in-migration* and *out-migration*, respectively). In our analysis, the *flow* of elderly individuals (aged 65 and older) moving from one state, i, to another state, j, is extracted from the *County-to-County Migration Flow Files* of the full 1990 U.S. Census.[5] We denote the *flow* as F_{ij}. As most studies do, we limit our analysis to the 48 contiguous states, which leaves us with 48 x 47 = 2256 migration flows.[6] F_{ij} is the primary variable of interest in our econometric analysis, but in examining which states are gaining and losing the elderly, we look at *in-migration* and *out-migration*, denoted as In_j and Out_j respectively. These are calculated by summing all of the flows into (or out of) state j across all 47 possible origins (or destinations). Finally, the *net* gain or loss of elderly to state j is revealed by either net flow, ($NetF_{ij} = F_{ij} - F_{ji}$) or net in-migration ($Net_j = In_j - Out_j$). These last two measures are perhaps of the greatest interest to policy makers as they most closely reflect the net transfer of elderly people between states and the impact of elderly migration.

In order to correct for the tendency of large states to have large numbers of in- and out-migrants, the measures above are divided by the state's elderly (aged 65 and older) population. This transforms the variables to reflect the *rate*, incidence or probability of migration. Flows (F_{ij} and $NetF_{ij}$) are divided by the sum of the populations in state i and state j.

Table 1 reports the states with the ten highest and ten lowest net in-migration *rates* (Net_j divided by the elderly population of state j) and *numbers* (Net_j) for three different age groups of the elderly. The number of elderly migrants falls off dramatically with age, which is expected given that the size of the population of the older age groups is smaller. However, the oldest elderly also appear to have a lower probability of migration.[7] This trend is predicted by life-cycle models of migration whereby as people get older the time horizon over which the discounted future benefits from moving accrue decreases; in addition, the psychic cost of moving may increase.[8] Thus, although return migration may prove important, it is the younger elderly who are doing most of the moving.

Turning to individual states and how migration patterns vary with age, Nevada is the biggest "winner" and New York the biggest "loser" for all three age groups if one looks at net in-migration rates. It is perhaps surprising that Florida is not the biggest "winner." However, if the *number* of net in-migrants is considered rather than the *rate*, then Florida is indeed the biggest "winner" of the two younger groups of elderly. Given the very large elderly population in Florida, this difference between *numbers* and *rates* is expected.

Looking at Florida reveals an interesting pattern—the degree of net in-migration consistently falls off with age. If the younger elderly are the more beneficial group in terms of the state's economy and public sector, as discussed earlier, then clearly Florida benefits from this pattern. The same pattern appears to a lesser degree for other retirement havens such as Arizona and the Carolinas. However, none of these states experience such widespread return migration that they become net exporters of the older elderly.[9] In terms of maximizing the benefits of elderly migration, Arkansas may be the role model as it is the seventh (or eighth) biggest net-importer of the young elderly and the tenth biggest net-*exporter* of the oldest elderly.

On the other side, New York is consistently the biggest "loser" of the elderly, across age groups and regardless of whether rates or numbers of people is considered. New Jersey and Illinois are also consistently big "losers." Massachusetts loses relatively more elderly as they age, whereas the opposite is true for its neighbors, Connecticut and New Hampshire (who is a net-importer of the elderly).

These tables unfortunately obscure similar patterns in other states that are not consistently in the top or bottom ten. A more definitive way to explore this kind of phenomena is by calculating how net in-migration is correlated across age groups for the 48 contiguous states. If return or "counter-stream" migration is dominant, then states with high in-migration of young elderly should have a low in-migration of the older elderly and therefore a negative correlation. The reverse is true for states who are losing the young elderly—they should begin gaining the older elderly as these people return to their home states. Both the net migration *numbers* and *rates* are positively correlated across age groups; however, this correlation falls off dramatically for the oldest age group, especially for the net in-migration rate.[10] This suggests that while return migration is not the dominant factor in older elderly migration, it is likely an important one.

Also obscured is *where* these individuals are moving to or from. Table 2 reports the top ten net migration flows, both in terms of *number* of people ($NetF_{ij}$) and *rate* ($NetF_{ij}$ divided by the sum of the elderly (aged 65 and older) populations of state *i* and state *j*). Looking at both measures, Florida and New York are once again prominent as the New York to Florida move is the most frequent for all three age groups. Likewise, the New Jersey to Florida is a very common move for all three groups.

However, there are signs of substantial differences across the age groups. First, the importance of Florida as a destination falls off dramatically (for both measures) for the older elderly as more border moves and return migration appear. For instance, Florida as destination accounts for seven of the top ten net in-flow *rates* of the younger elderly, but only two of the top ten for the oldest. Looking at the *numbers*, notice also that while Ohio to Florida is the seventh most frequent move for the young elderly, Florida to Ohio is the sixth most frequent move for the oldest elderly, which is evidence of return migration. More generally, both measures reveal how the "northern state to Florida" flows consistently drop in importance for the older groups, with the exception of New York. In results not reported for the sake of brevity, if one looks at gross flows (F_{ij}), the Florida *to* New York move becomes the third most popular for the oldest elderly. In general, elderly migration out of Florida increases and tends to the North as the elderly grow older.

As the elderly grow older, not only does the importance of Florida wane but border-moves begin to dominate. In fact, of the 60 top net flows reported (the two measures for the three age groups), all but five either have Florida as a destination or are a border-move (of which one is the return migration flow for Ohio).[11] These trends are what motivate us in our econometric analysis to include a border dummy variable (which most studies omit) and to check the sensitivity of our results to omitting border and Florida-as-destination flows from the sample. Finally, we once again investigate the dominance of return migration by calculating the correlation of net flows across the three age groups and find the same result of positive but decreasing correlations between the younger and older elderly.

Taken together, our results are roughly consistent with those of Newbold (1996), who reports the top ten destinations by age for return and onward migration from his individual level data in which he defines return migration as returning to one's state of birth. For all three age groups he finds Pennsylvania and New York to be the top two destinations for return migration, followed by others such as Illinois, Ohio, Texas and Michigan. Most of these were prominent "losers" of the young elderly in our analysis and revealed some evidence of return migration. Given his measure of "return" (returning to one's state of birth), our results are reasonably similar. Likewise, he finds Florida, Arizona and California to be the top three destinations for onward movers (and therefore more likely amenity movers). Again, we found these states to be more important in the moves of the younger elderly.

In sum, our descriptive analysis suggests a number of trends. Foremost, the importance of Florida as a destination and of border-moves is strongly evident from the migration flow data. In addition, the perception of Florida and New York as the big "winner" and "loser," respectively, of the elderly (as in Longino and Crown 1989) is confirmed. However, evidence of return or "counter-stream" migration exists as the importance of Florida wanes for the older groups of elderly as reflected in the Florida-to-Ohio migration flow jumping into the top ten for the oldest elderly. This is reinforced by Table 1 which shows that there is considerable jockeying in who the biggest ten net-importers and net-exporters are, as many retirement havens fall in rank and many northern states increase as the age of the elderly increases.

Previous Research

We have so far addressed the possible impact of elderly migration on states' economies and budgets and reported which states are gaining and losing the younger versus older elderly. We next seek to identify what factors influence the elderly's decision to move. The elderly appear prime candidates for "voting with their feet" as retirement is a life-cycle event that could precipitate such a move both by changing their preferences and income and by freeing them from labor market concerns. Their preferences for certain kinds of publicly provided goods, their sources of incomes and their expenditure patterns all differ in a systematic way from the preferences of other groups of individuals, suggesting that certain spending-tax combinations are more desirable to them than others. Yet, surprisingly few studies have explored the effects of the public sector on elderly migration and fewer still have examined the difference of these effects across age groups. None to our knowledge have explored different specifications of the public sector.

Rather, most studies of elderly migration emphasize the influence of amenities and cost-of-living. For example, Fournier, Rasmussen, and Serow (1988, state-to-state migration flows) and Cebula (1993, net in-migration rates) show that the elderly are not just "amenity seekers" but are also attracted to locations with low costs of living much like the nonelderly are attracted to locations with high wages. Graves and Waldman (1991) explore a similar issue using county-level in-migration rates. Several of these studies also address the issue of "return migration," sometimes indirectly. Using individual-level data, Kallan (1993) suggests that the younger-elderly move out of areas with higher costs-of-living, while the older-elderly are not influenced by the cost of living. Newbold (1996) also uses individual-level data and a three-level nested logit model to estimate the determinants of both onward and return migration (where return migration is specified as returning to the state of birth); he includes climate and population size and composition, but neglects cost of living. He finds that return migration is more likely among the older, less educated and single/divorced elderly. Meyer (1987) explores the determinants of county net migration rates for the young and old elderly for three decades in New England and finds the two age groups becoming more similar over time. Using individual data from adult residents in Rhode Island, Meyer and Speare (1985) examine the different motives given for elderly mobility and the significant factors associated with each. They find that "amenity movers" are younger, wealthier, healthier and have moved more in the past. However, none of these studies evaluate the influence of the public sector on elderly migration.

Of the studies that do include public sector variables, few use migration flow data (most use migration rates) and of those none explore the differences across age groups. Using aggregate out-migration data, Cebula and Kohn (1975) examine the migration behavior of several age-racial groups and find that white elderly individuals migrate out of states with high state and local per-capita property taxes and welfare spending, but are not influenced by the level of state and local non-welfare spending per capita. Cebula (1990) using in-migration finds that the elderly are attracted to states without income tax systems, but he does not control for government spending or other elements of the tax system. Neither study controls for cost-of-living differentials among jurisdictions nor distinguishes between the younger and older elderly.

Clark and Hunter (1992) and Conway and Houtenville (forthcoming) significantly improve on these studies by including a much more comprehensive set of variables, especially those pertaining to the public sector and cost-of-living. Clark and Hunter (1992) integrate three different human migration models into their empirical study of county-level net in-migration rates for five-year age groups ranging from age 20 to 24 to 75 and over. They find that several fiscal variables, such as property taxes and education and welfare expenditures, appear important to the elderly and that the impact of these variables often differ between the younger and older elderly. They also show that the elderly differ from other age groups. Perhaps because it looks at many age groups and has many objectives, this ambitious study is frequently overlooked in elderly migration research.

Building on Graves and Knapp (1988), Conway and Houtenville (forthcoming) provide a simple theoretical framework for these studies by setting up a utility-maximizing model that includes the public sector. Their model suggests including per capita government expenditures on certain programs and the percentage of total spending financed with each kind of tax to represent the public sector. Their comparative statics show that individuals are more likely to move out of states with high tax shares, a high cost of living and low levels of amenities. The effect of government spending is ambiguous and depends upon how much the individual values the particular program. This emphasizes the need to decompose government spending into different types. They use state-level in-migration and out-migration 1990 census data and find that the public sector variables are statistically significant, but they affect in-migration and out-migration in the *same* direction. They explore whether estimating different equations for the younger and older elderly alters their results and finds it does not.

The most thorough study of elderly Tiebout migration and complete review of the literature is found in Dresher (1994).[12] Using individual level data from the PSID, she estimates a conditional logit model which compares the characteristics of the county in which an individual actually lives with those of ten randomly drawn counties. She includes measures of state income taxes, death taxes, sales taxes and property taxes, but she aggregates all expenditures into one variable, total state and local spending per capita. Her expenditure variable therefore does not vary across counties within a state and does not allow for some types of expenditures to be more attractive to the elderly than others. She finds the coefficients to be statistically significantly different between the younger, middle and older elderly, but discerns few distinctive patterns in them. Her results also reveal that the elderly are quite sensitive to government spending, yet are affected little by the tax instruments she includes, which underscores the need to also represent fully the expenditure side of the public sector.

Five studies explore the migration *flows* of the elderly and all explicitly investigate whether the destination and origin characteristics have coefficients of opposite sign, as suggested by simple theory. Instead, all find that the coefficients are often of the *same* sign, sometimes statistically significantly so, similar to the results of Conway and Houtenville (forthcoming) mentioned earlier. Only two include any aspect of the public sector, and none make a distinction between the younger and older elderly.[13] Voss, Gunderson and Manchin (1988) use state-to-state migration flow data from the 1980 2.5 percent Public Use Micro Data Set (PUMS) and include the state's death tax effort, a measure of cost-of-living, population, distance and amenity variables. They find that a high death tax in *either the origin or the destination* state is associated with a lower migration flow, which runs counter to the expectation of opposite effects. They discuss the problem at length, noting that it is quite common to studies of migration flows.

Conway and Houtenville (1998) are the only ones to use the full 1990 census migration data on state-to-state flows, and they include the same public sector variables as in their article using in- and out-migration rates. The focus of their study, however, is on the econometric difficulties involved in using such data. They note the possibility of random group effects, one capturing the unobserved influences for the origin state and one for the destination state, and the likelihood that these effects are correlated. They extend the two-step estimator proposed by Amemiya (1978) and Borjas and Sueyoshi (1994) to a two-way, cross-correlated random effects model of elderly migration and find that ignoring the random effects, as all other studies of elderly migration flows have done, substantially overstates the statistical significance of the individual coefficients. Nonetheless, appropriately controlling for random effects did not change the result of origin and destination coefficients having the *same* sign.

We build on these studies in a number of ways. We use the full 1990 census migration flow data and consider the impact of including random effects as in Conway and Houtenville (1998). We also include their public sector *expenditure* variables, but we experiment with three different sets of tax variables. One set is that used by Conway and Houtenville (forthcoming, 1998) amended to include death taxes. The second expands on that used by Voss, Gunderson and Manchin (1988) by including tax effort indices for other kinds of taxes as well. The third set follows Clark and Hunter (1992) who include marginal tax rates for some taxes and per capita amounts for others, but here again we expand the number of taxes included. We also consider the dominance of Florida as a destination and the very high frequency of border-state moves and investigate whether such flows have an undue impact on the results. Finally, we estimate separate migration flow equations for three age groups within the elderly, those aged 65 to 74, 75 to 84, and those aged 85 and over, as a way of exploring the phenomena of amenity versus return migration.

Description of the Data and Estimation Strategy

Our basic model specification is common to studies of migration flows and can be written as

$$\ln(F_{ij}) = \alpha + \eta d_{ij} + \delta B_{ij} + \gamma^{o} lnPop_{i} + \gamma^{d} lnPop_{j} + \beta^{o}_{A} A_{i} + \beta^{d}_{A} A_{j} + \beta^{o}_{COL} COL_{i} + \beta^{d}_{COL} COL_{j} + \beta^{o}_{G} G_{i} + \beta^{d}_{G} G_{j} + \beta^{o}_{T} T_{i} + \beta^{d}_{T} T_{j} + \varepsilon^{o}_{i} + \varepsilon^{d}_{j} + u_{ij} \quad \textbf{(1)}$$

for i=(1,..., m) origin states, and j = (1,..., i-1, i+1,...m) destination states and F_{ij} is the migration flow from state i to state j, as defined earlier. If there is no migration from state i to state j (F_{ij} = 0), then the natural log is set to zero.[14] The superscripts on the coefficients denote whether it is referring to the origin or destination.

Data Description

Table 3 provides a brief description, the source, and the mean and standard deviation of each variable included in equation (1). The first explanatory variable, d_{ij}, is the distance ("as the crow flies") between the geographic centers of states i and j, which is calculated by using the longitude and latitude of each center. Presumably, the psychic and economic costs of a move increase with the distance and so its coefficient (η) should be negative. Likewise, we include a border dummy variable, B_{ij}, to control for the possibility that information is probably better and the costs of moving lower if the states share a border.[15] In addition, our descriptive analysis clearly reveals the importance of border moves.

Obviously, states with bigger populations are likely to experience more out-migration and in-migration. We therefore need to include the population (*Pop*) of both the origin and destination state as independent variables. (Both migration flows and population are in logarithmic form, a common specification used by the five elderly migration flow studies discussed above.) As Fields (1979) notes, current population (especially current *elderly* population) is a function of past migration decisions and could therefore be endogenous. Similarly, past migration patterns are likely to be important (see for example Greenwood 1975) and yet are probably endogenous. Conway and Houtenville (1998) explore this issue by estimating two specifications, one that includes past in-migration and the elderly population (both possibly endogenous) and one that only includes total population, which is less likely to be endogenous. Because they find little difference between the two specifications, we choose the one with less potential endogeneity.

Another source of endogeneity is that public sector variables may be determined by migration patterns (Cebula 1979). Once individuals have migrated into a state, they become part of an electorate who can place political pressure on elected officials to enact favorable government policies. For this reason we use 1984 values for all of the independent variables. In addition, because our dependent variable refers to migration between 1985 and 1990 the exact timing of the variables' effect is uncertain. All migrants, even those who migrated in 1985, have access to 1984 information but cannot have directly influenced policies in place before they arrived.

The rest of the explanatory variables fall into four broad categories, amenities (*A*), cost of living (*COL*), government expenditures (*G*) and tax variables (*T*). The first three categories are exactly the same as those in Conway and Houtenville (forthcoming, 1998). The amenity variables include three measures of climate, heating and cooling degrees and percentage of possible sunshine. Personal safety is also an important amenity to the elderly, so we include the total number of criminal offenses known to police per 100,000 residents. Median household income is included as it may capture both the general standard of living in the state and the fact that a person's tax burden is likely lower the higher other people's income, all things equal.

Our cost-of-living variable is the index created by McMahon (1991) and we expect a high cost-of-living to cause more out-migration $(\beta^{o}_{COL} > 0)$ and less in-migration $(\beta^{d}_{COL} < 0)$, *ceteris paribus*. An alternative way to include *COL* in the model is to also deflate all the monetary variables by it. We investigate the effects that this variation has on the results in the next section.

Government expenditures (*G*) are decomposed into several types, all per capita—education expenditures, public welfare expenditures, expenditures on health and hospitals, a measure of Medicaid generosity, and all other expenditures. The first two are probably unattractive to the elderly and thus should increase out-migration and decrease in-migration $(\beta^{o}_{G} > 0$ and $\beta^{d}_{G} < 0)$, whereas expenditures on health and hospitals should have the opposite effect. As noted earlier, the Medicaid program is potentially important to the elderly, so a measure of Medicaid generosity is included. We use the total Medicaid dollars spent on eligible elderly recipients divided by the total number of elderly individuals. This measure encompasses both the breadth of coverage (or eligibility) and the depth of coverage (benefit levels per recipient) by reflecting the average or expected Medicaid payment per elderly individual.

One contribution of this research is to investigate three alternative measures of the tax side of the public sector (*T*). In all three cases, higher taxes should be viewed as undesirable, holding expenditures constant, and should lead to greater out-migration and lesser in-migration. However, as mentioned in the introduction, the degree to which the elderly are burdened with each tax varies across taxes. All three sets of tax variables must capture this fact by disaggregating the tax policy of the state as well. The first set is that of Conway and Houtenville (forthcoming, 1998) expanded to include death taxes. Their tax variables are tax shares or the percentage of total state and local expenditures financed with each kind of tax and they interpret these shares as the “price” of public services. The different tax shares included are state and local property taxes, sales taxes, personal income taxes, death taxes and all other taxes and sources of revenues (except federal aid and interest). As noted in Carter and Mackey (1994), many states exempt portions of pension and social security income from taxation, which suggests that its burden varies systematically across the states. Conway and Houtenville (forthcoming, 1998) correct for this by adding an interaction term that is the product of the personal income tax share and the amount of pension income that is exempt. Likewise, many state sales taxes exempt food purchased for home consumption and so we add to the Conway and Houtenville set an additional interaction term that is the product of whether food is exempt and the sales tax share.[16]

The second set expands on Voss, Gunderson and Manchin (1988) by using tax effort indices created by the Advisory Commission on Intergovernmental Relations (ACIR) in its 1986 report, *Measuring State Fiscal Capacity: Alternative Methods and Their Uses.* Tax effort for each tax is measured as the state’s tax collections divided by its tax capacity, scaled to an index where 100 is the United States average. Voss, Gunderson and Manchin (1988) only include the effort index for the death tax. We expand on that by also including tax effort indices for property taxes, sales taxes, personal income taxes, and all taxes; the latter attempts to capture all residual taxes. As in the first tax set, we again interact the amount of exempt pension income with the income tax effort index and whether the state exempts food with the sales tax effort index as a way of capturing special elements of the tax code that are beneficial to the elderly.

The third set builds on Clark and Hunter (1992) who include a combination of tax rates and levels. Their variables are per capita property taxes, the marginal income tax rate for a household given median income, marginal death tax rate for a household given median wealth, and all other taxes (excluding property and income taxes) per capita.[17] We improve on these measures by targeting them more directly at the elderly and by including sales tax rates. In particular, we use the median income for elderly households and include exemptions, standard deductions or credits that are granted to the elderly in calculating the marginal income tax rate.[18] We also add the estimated income tax bill for this household as a way of further capturing the tax burden; obviously marginal tax rate alone is an incomplete measure. Likewise, we use the median wealth for elderly households in calculating the marginal death tax rate.[19] Finally, as in the other two sets, we interact both income tax variables with the amount of exempt pension income and the sales tax variable with whether food is exempt.

While these three tax variable sets likely provide similar information, they also have important differences. The Conway and Houtenville set emphasizes the *relative* importance of each tax to others in that state's system; in other words, unlike the other two sets, the overall *size* of the public sector does not necessarily affect the tax variables.[20] Thus, the size of the public sector should be captured entirely by the government spending variables in that specification, whereas it is picked up by both the expenditure and tax variables in the other two. The effort indices (Voss, Gunderson, and Manchin or VGM) reflect the burden of each tax relative to its tax base and relative to the rest of the country. A state with a large public sector is likely to have higher collections and therefore a higher effort index, unless it also has an unusually high tax base. As such, these variables are probably best interpreted as the burden imposed by the tax in the state relative to the rest of the country. The variables used in our expanded Clark and Hunter set most closely reflects what the average elderly individual would actually see in his or her budget constraint—a combination of tax rates and estimated tax bills. These variables will also be higher in states with larger public sectors. In addition, the marginal income tax rate is capturing the progressivity of the tax system (especially since the estimated tax bill is also included), which could be viewed as either good or bad depending on the income and opinion of the individual. In our empirical analysis we hope to discern which description of the tax system is most important in determining elderly migration.

Estimation Issues

The last three terms in equation (1) are disturbance terms, which may necessitate a more sophisticated technique than simple OLS. Conway and Houtenville (1998) are the first to point out the possibility of origin and destination random effects, denoted in equation (1) as ε^o and ε^d, respectively. Although we have tried to capture all of the important characteristics of each state with our variables, there are bound to be factors we cannot measure which will manifest themselves in the error term. Conway and Houtenville (1998) also discuss how these two random effects are likely correlated for the same state—the unobserved influences that cause people to leave Alabama are likely correlated with those that draw people to Alabama. This violates the usual assumption in random effects models that the two effects are not correlated and it greatly complicates estimation. As discussed in detail in the Technical Appendix, they devise a two-step estimator, in the spirit of Amemiya (1978) and Borjas and Sueyoshi (1994), that involves first estimating equation (1) adding 47 origin and destination dummy variables.[21] Adding these variables requires that all state-specific variables (*A, COL, G, and T)* be omitted from the model. The coefficients on these variables (β) are retrieved in a second stage in which the origin and destination dummy variable coefficients estimated in the first stage are regressed on the state-specific variables. Adjustments must be made both for the omitted origin and destination and for the presence (and correlation) of the random effects. A further complication is that the dummy variable coefficients are estimated. Fortunately, all of these adjustments are relatively straightforward.

Conway and Houtenville (1998) show that failing to adjust for the random effects biases the estimated standard errors downward, thereby inflating the significance of the state-specific variables. This is the precise point made by Moulton (1986) who notes the serious bias possible if one ignores group effects. As in the case of any nonspherical error, ignoring the random effects leads to incorrect standard errors and hypothesis tests, but the estimated coefficients ($\hat{\beta}$) are unbiased and consistent. For this reason and because of the sheer number of specifications we wish to estimate, we only employ their two-step estimator in our main models. When we estimate a model with OLS, then, we only emphasize the estimated coefficients and consider their corresponding standard errors and t-statistics to be illustrative at best. More specifically, the OLS estimates will make the explanatory variables look more statistically significant.

We estimate several variations of equation (1). Foremost, we use three alternative sets of tax measures and estimate these models for three age groups of the elderly, those aged 65 to 74, 75 to 84, and those aged 85 and older. These nine models are our main focus. Our expectation is that all of our explanatory variables will be less important for the older elderly as other considerations, such as the presence of family, dominate their decisions to move. We explore the effects of eliminating observations with undue influence, such as zero flows and those flows involving Florida, and we stratify the sample into border and non-border moves which essentially lets all coefficients, not just the intercept, differ between border and non-border moves. We also see whether deflating all monetary variables by *COL* has any impact on the results.

Finally, we redefine the dependent variable to be *net* in-flow (NM_{ij} defined above). Note that this reduces our sample by half, which is accomplished by eliminating any negative net in-flows. As discussed earlier, this variable is likely of greater interest to policymakers who are more concerned with the net movement of elderly persons rather than with how many people are entering and leaving the state separately. In addition, because past research has found gross flow origin and destination coefficients to be the *same* sign, the question remains as to which effect is stronger. By estimating net in-flows we gain insight into this issue as well.

With all of these variations, the possible number of permutations and their reported results is unwieldy. We therefore report only a subset of the estimates and discuss others which are available by request. In addition, for simplicity OLS is used to discern any prominent patterns in the coefficients from these changes. Once we recover the dominant findings of these exercises, we re-estimate the main models using the two-step estimator that controls for cross-correlated random effects. In this way, we can investigate both the presence and impact of random effects and be comfortable that our hypothesis tests on the coefficients are correct.

Empirical Results

The OLS results for the nine main specifications (three age groups by three tax sets) are reported in Appendix Table A-1. Recall that due to the likely presence of random effects, the estimated coefficients are unbiased, but the reported t-statistics are incorrect and are likely inflated. Nonetheless, the OLS results provide us with a benchmark to judge our random effects results against and a simple way to explore the sensitivity of our results. We do not report the results from the sensitivity analyses as the main results are fairly robust. In particular, deflating all monetary variables by *COL* or dropping border moves had virtually no impact on the results.[22]

Likewise, dropping Florida-as-destination flows had little impact on the results, especially for the two younger groups, which is somewhat surprising.

We also experimented with two alternative treatments of the zero flow observations—eliminating all zero flows and re-estimating the model using Tobit. Both exercises lead to greater changes than our other sensitivity checks, but most were marginal and very few were systematic. When there was a hypothesis test change or, much less frequently, a sign change, it tended to be common to both specifications (Tobit and eliminating zeros altogether) and to be for the VGM tax set. In sum, none of these sample/specification choices had a substantive impact on the results, so we instead concentrate on the impact of random effects and redefining our dependent variable to be net in-flows.

Table 4 reports the results from the cross-correlated random effects estimator discussed in the Technical Appendix and developed by Conway and Houtenville (1998). Because we find statistically significant random effects and statistically significant correlation *between* the destination and origin effects for the same state, these are the results we emphasize. Likewise, we also estimate the net in-flow model with this estimator and report these results in Table 5.[23]

Looking at Tables 4 and 5, a few salient results become evident. Foremost, the widely found pattern of destination and origin coefficients having the *same* rather than opposite signs again appears, although less frequently in the net in-flow model. Also, there are significant destination and origin random effects. In the gross flow model, Lagrange multiplier tests reveal the presence of significant origin and destination random effects and find that the two are significantly positively correlated for the same state (i.e., the unobserved influences that lead someone to move out of a given state are positively correlated with those that lead them to move into the state). Conway and Houtenville (1998) report similar results. In the net in-flow model, the random effects are again found to be statistically significant, but the cross-correlation between the effects is less significant and less likely to be positive. Specifically, the two effects tend to be positively correlated for only the middle age group and are only significantly (negatively) correlated for the oldest age group.

Comparing the cross-correlated random effects results with those of the OLS estimation reveals that controlling for random effects has the expected effect of diminishing the statistical significance of the coefficients, while not changing their signs or general magnitudes.[24] Also note that the R^2's reported for the OLS models decline the older the age group. If amenity migration is more common among the young elderly and return or support migration among the older elderly, our model should better fit the younger elderly. We now discuss the results for each set of variables, comparing across age groups, tax sets and gross versus net in-flows.

Cost-of-Living, Amenities and Other Variables

In every single specification estimated, the distance, border and population variables have statistically significant coefficients of the expected sign. Specifically, the migration flow between two states is smaller the farther apart they are, if they do not share a border and the smaller their populations. The cost-of-living (COL) coefficients also tell a fairly consistent story. The COL in the origin state typically has a positive and sometimes statistically significant coefficient, especially for the older age groups, whereas the destination COL almost always has a negative coefficient. This is exactly as we would expect—the elderly move out of high COL states and into low COL ones. There is also a subtle pattern of the destination COL being more important to the younger elderly and the origin COL to the older elderly.

The amenity variables do not conform quite so nicely with our expectations, but are nonetheless fairly consistent over the different specifications. A high median household income appears to discourage out-migration ($\beta^o < 0$) for the older age groups, as expected, yet are fairly unimportant to the choice of destination ($\beta^d \approx 0$). The crime variable produces truly puzzling results. In the gross flow model, a high crime rate in either the origin or the destination encourages migration; i.e., both coefficients are positive and statistically significant. Other studies, such as Fournier, Rasmussen and Serow (1988) and Conway and Houtenville (forthcoming, 1998) have found similar results and attributed them to the noisiness of the crime measure, as the incidence of crime varies a great deal within a state. Interestingly, Clark and Hunter also arrive at the same results for their county-level data and speculate that the elderly are attracted to areas with high property value and thus high property crime. Using net in-flows adds to the puzzle as the *origin* coefficients (the ones that *should* be positive) are diminished in significance and sometimes even become negative.

The climate variables also exhibit the same problem of having the same signs for the origin and destination, but provide more plausible results as net in-flows are used or as one compares the magnitude and significance of the coefficients. For instance, while percentage sunshine leads to greater out-migration and in-migration (both β^o and $\beta^d > 0$), the destination coefficient is typically larger than the origin coefficient and using net in-flows renders most of the origin coefficients insignificant. This leaves the intuitive result that states with a high percentage of sunshine are desirable destinations, while sunshine in the origin state appears much less important. Similar results occur with the heating and cooling degree variables, as having higher heating or cooling degrees makes the state a less desirable destination ($\beta^d < 0$) and has less of an impact, if any, at the origin.

Government Spending

The pattern of origin and destination coefficients having the same sign carries over to the public sector coefficients as well. The education and health/hospital spending coefficients are almost always negative and frequently statistically significant for both the origin and destination.[25] We expect high education expenditures to discourage in-migration ($\beta^d < 0$), but not out-migration. Comparing the magnitudes of the coefficients and the impact of using net in-flows provides mixed evidence as to which effect is stronger. This suggests that states with high education expenditures lead to less migration in general; perhaps this is due to less mobile populations having stronger ties to the community and therefore being more supportive of education. For health/hospital expenditures, the origin effect appears to be somewhat stronger both in magnitude and statistical significance for the two older age groups, which is consistent with the older elderly being hesitant to leave states with good health care systems.

Public welfare expenditures and medicaid generosity appear to have much weaker effects on migration. Public welfare expenditures are rarely significant except for in the Clark and Hunter specification where both origin and destination coefficients are negative; even these are diminished by using net in-flows. Nonetheless, the destination coefficients are typically negative across tax specifications and age groups, suggesting that elderly in-migration is discouraged by high welfare spending as found by Clark and Hunter (1992). The Medicaid coefficients, while typically negative and statistically significant for both the origin and destination in the gross flow model, are rendered insignificant and sometimes become positive in the net in-flow model. High Medicaid spending is therefore associated with less mobile populations in general, but appears to have no impact on the net transfer of elderly individuals between states.

The residual category, all other expenditures, is positive for both the origin and destination, but typically only statistically significant for the origin. Also, the origin coefficients are larger in both tables and several of the destination coefficients become negative in the net in-flow model. Thus, the elderly are apparently driven out of states with high levels of other expenditures, but are not sensitive to these expenditures when choosing a destination.

The Tax System

Thus far we have seen little difference between the results for the different tax sets, which is not all that surprising. Obviously, the biggest differences are likely to appear in the tax variable coefficients and that is precisely what we see in Tables 4 and 5. Still, for most of the taxes a reasonably consistent story emerges. The most important tax instruments are what one would expect—death taxes, property taxes and, perhaps surprisingly, the sales tax exemption for food purchases. And although these coefficients are again plagued with the problem of origin and destination coefficients having the same sign, comparing magnitudes and statistical significances and the impact of using net in-flows usually results in the theoretically correct coefficient being dominant.

Death taxes in both the origin and destination states decrease gross migration flows; this is precisely the result found by Voss, Gunderson, and Manchin (1988) or VGM. Interestingly, in our analysis the VGM tax set performs the poorest with respect to both the death tax and the property tax. In the other two sets, the destination coefficient is always of the larger magnitude and more statistically significant. When net in-flows are used, the origin coefficients become zero or even positive, which is consistent with our expectations. Conversely, the VGM tax set produces origin coefficients that are frequently larger than the destination ones and all statistical significance is washed out when net in-flows are used. Two of the three tax sets, then, yield the intuitive result that high death taxes make for an undesirable destination, but have no predictable effect at the origin.[26]

Property taxes have the opposite effect of increasing gross migration flows. In the gross flow model, the origin effect is almost always the larger and more statistically significant one. This suggests that the elderly are driven out of high property tax states, as found by Cebula and Kohn (1975), but are not discouraged by high property taxes at their destination. However, using net in-flows reverses this tendency—the destination effect, which is the one that violates our expectations, becomes the more dominant one. Property taxes therefore behave in the same puzzling manner as the crime variable discussed above, perhaps for the same reason. Property taxes vary a great deal from community to community within a state, just as the crime rate does.[27]

The last tax instrument to be consistently important across tax sets and age groups is the sales tax exemption for food in the destination state. Such an exemption makes a state a more desirable place for the elderly to move, as expected, but has no significant effect on their decisions to leave a state. None of the other sales tax variables appear important; perhaps this is due to the relatively small variation in sales tax rates so that the bigger impact comes through which items are exempt.

The remaining tax instruments, income taxes and pension exemptions, sales taxes, and the residual tax category, are all statistically insignificant for the Conway and Houtenville and VGM tax sets. The Clark and Hunter tax set, which uses the actual rates and estimated tax bills for income and sales taxes, suggests that the personal income tax is also important to elderly migration decisions. Recall that the income tax system is represented with four variables, the marginal tax rate and total tax bill for the median elderly taxpayer entered separately and also interacted with the amount of pension income that is exempt from taxation. A high marginal tax rate leads to greater in- and out-migration, whereas a high tax bill leads to less in- and out-migration. The interaction coefficients behave as expected as they act to temper the effects of the primary variable—e.g., a high tax bill has a smaller effect on migration if it is combined with a high exemption for pension income.

The destination effect is the more important for all of the income tax coefficients, both in terms of magnitude and retaining statistical significance when net in-flows are used. For the tax bill coefficients, these are the theoretically-consistent ones; a high tax bill should discourage in-migration ($\beta^d < 0$) and this effect is tempered by a high exemption for pension income ($\beta^d > 0$). So the Clark and Hunter specification weakly suggests that states can use their income taxes to attract the elderly. However, such efforts will not help *retain* the elderly and the effect on *net* migration of the elderly is statistically insignificant. Furthermore, the marginal tax rate has a puzzling effect on migration, as the positive destination effect is theoretically-inconsistent. Perhaps this is because we have already controlled for the person's estimated tax burden and the size of the public sector so that it is not clear what the marginal tax rate is capturing. It reflects the progressivity of the income tax, which may be viewed as a positive attribute by some taxpayers and a negative one for others, especially depending on their income.

Conclusion

We have attempted to address two important policy questions regarding the elderly and state fiscal policy—are the elderly sensitive to state policies in making their migration decisions and what impact do the elderly have on the states to which they migrate? We suspect that the answers to both questions likely depend on the age of the elderly, as the younger elderly are more likely to be "amenity" movers and tend to contribute more taxes and require fewer expenditures than the older elderly. Our analysis therefore consider the differences across age groups within the elderly.

Using state-to-state migration flow data from the 1990 U.S. Census, we estimate elderly migration as a function of cost-of-living, amenities such as climate and safety, and elements of state fiscal policy. As expected, our model explains the migration of the younger elderly better than the older elderly, the latter of whom are more likely to be moving for other reasons such as familial support. However, the differences across age groups are not that stark. A moderate, sunny climate tends to attract the elderly and a high cost-of-living discourages them. The elderly also appear to be influenced by several aspects of state fiscal policy. The elderly, especially the older groups, appear hesitant to leave states with good health care systems (as evidenced by high spending on health and hospitals) and may avoid states with high public welfare expenditures. On the other hand, two types of expenditures that one often associates with the elderly, their opposition to education expenditures and their high cost to Medicaid, have less consistent effects on their migration. Perhaps this is due to the wide variation of education spending within each state and that “amenity-movers” are unlikely to be participating in Medicaid, at least not in the near future.

Past research on Tiebout-type elderly migration, scant as it is, tends to emphasize the tax side of the public sector. We build on this research by considering a broader set of taxes and by specifying three different tax sets, one that uses tax shares, one that uses tax effort indices, and one that uses a combination of marginal tax rates and per capita amounts. With the exception of the personal income tax, the three tax sets yield fairly consistent results. A high death tax appears to discourage in-migration; perhaps this is why such taxes have been reduced in recent years. The property tax is also important, but its effect depends upon whether gross or net migration flows are used. As a variable, it may suffer from the same problem as education expenditures—they both vary a great deal within each state. Exempting food from the sales tax appears to attract the elderly, although the size of the sales tax itself is unimportant.

The personal income tax is only important when the estimated marginal tax rate and total tax bill are included in the tax set. This makes sense as these are the tax instruments that likely appear in the elderly taxpayer's utility maximization problem. A high tax bill discourages in-migration, whereas a high marginal tax *rate* encourages it. Both effects are tempered by exempting a high amount of pension income from taxation.

Taken together, our results suggest that states may enjoy some limited success in using their policies to attract the elderly. Eliminating death taxes, exempting food purchases and pension income from taxation, and reducing welfare spending appear the most effective in making a state a desirable destination. Very few variables are important to the elderly's decision to *leave* a state, however; only increased spending on health and hospitals (and surprisingly, education) seems likely to help retain elderly residents. Finally, the much maligned property tax has a statistically significant but inconsistent effect on migration, perhaps because property taxes vary so much within the state.

The tone of the foregoing discussion presumes, as most studies do, that attracting (and retaining) the elderly is desirable. The elderly's impact on the state, however, is less straightforward and much more interesting than that. The elderly typically pay less in taxes than younger people with the same income due to a plethora of tax breaks. Depending on their health and income, the elderly may cost the state more than other taxpayers in terms of Medicaid expenditures. Finally, they may influence the state's priorities through their considerable political power. While this last effect has received some attention, a comprehensive look at the elderly's effect on state tax revenues and expenditures, both with and without holding priorities constant, has not been attempted. Without meaningful estimates of the elderly's costs and benefits to each state, it is impossible to measure precisely the impact of elderly migration and thus determine whether attracting the elderly is a wise policy objective. Such estimates would also aid in the design of federal-state programs targeted at the elderly and seem to us a fruitful avenue for future research.

In this research, we make the assumption that the younger elderly "benefit" the state more than the older elderly as they likely have higher incomes (and thus pay more in taxes) and place fewer demands on the state's health care and Medicaid systems. Our descriptive analysis reveals that migration patterns differ between these two groups, as Florida-as-a-destination falls in importance and "return-migration" and border moves increase as people get older. However, the older elderly migrate at lower rates than the younger elderly. We also find that the elderly are sensitive to state fiscal policy in making their migration decisions and in a fairly uniform way across age groups. These pieces of evidence combine to suggest a mixed scenario for states trying to court the younger elderly. Whereas the younger elderly are more likely to move and return migration is evident in the data, the older elderly are attracted by the same policies. Furthermore, young elderly migrants appear likely to remain in the state rather than migrate back home. Additional research, perhaps using individual-level data is required to disentangle these influences. Identifying the determinants and sorting out the consequences of elderly migration will only grow in importance as our population ages and fiscal responsibilities are increasingly shifted to the states.

Appendix Table A-1. Gross Flows: Ordinary Least Squares Results[a]

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Adjusted R^2		0.7448	0.7282	0.6502	0.7347	0.7176	0.6423	0.7520	0.7322	0.6506
Constant		-22.5185***	-26.0914***	-23.3900***	-20.0284***	-22.1652	-19.6930***	-20.5606***	-24.0722***	-21.4169
		(-15.63)	(-17.94)	(-15.44)	(-13.53)	(-14.83)	(-12.75)	(-13.29)	(-15.30)	(-12.98)
Distance		-0.00116***	-0.00118***	-0.00088***	-0.00110***	-0.00114***	-0.00084***	-0.00119***	-0.00123***	-0.00091***
		(-24.17)	(-24.51)	(-17.48)	(-22.87)	(-23.34)	(-16.66)	(-25.16)	(-25.44)	(-17.95)
Border		1.50889***	1.54834***	1.72536***	1.54199***	1.57159***	1.73863***	1.50194***	1.53497***	1.71862***
		(17.74)	(18.04)	(19.29)	(17.82)	(17.99)	(19.26)	(17.94)	(18.04)	(19.25)
Ln(POP)	org	1.011374***	0.841080***	0.712809***	1.020111***	0.851545***	0.740131***	1.097819***	0.958967***	0.793918***
		(21.81)	(17.97)	(14.62)	(21.03)	(17.40)	(14.63)	(22.26)	(19.13)	(15.10)
	des	0.817180***	0.735857***	0.684897***	0.859662***	0.782910***	0.740638***	0.983601***	0.909485***	0.824401***
		(17.63)	(15.72)	(14.05)	(17.72)	(15.99)	(14.64)	(19.95)	(18.14)	(15.68)
Cost of Living	org	0.000062	0.020436*	0.037577***	-0.002354	0.015164	0.038233***	-0.011741	0.004626	0.019932**
		(0.01)	(1.88)	(3.32)	(-0.23)	(1.49)	(3.62)	(-1.25)	(0.48)	(1.98)
	des	-0.042588***	0.004546	-0.004029	-0.058007***	-0.013169	-0.023401**	-0.071803***	-0.026002***	-0.035993***
		(-3.95)	(0.42)	(-0.36)	(-5.73)	(-1.29)	(-2.22)	(-7.62)	(-2.71)	(-3.58)
Household Income	org	-0.000028*	-0.000085***	-0.000099***	0.000001	-0.000039**	-0.000074***	0.000002	-0.000042***	-0.000057***
		(-1.81)	(-5.52)	(-6.17)	(0.089)	(-2.50)	(-4.60)	(0.17)	(-2.90)	(-3.72)
	des	-0.000034**	-0.000049***	-0.000025	0.000013	-0.000011	-0.000010	0.000009	-0.000007	0.000007
		(-2.21)	(-3.18)	(-1.54)	(0.85)	(-0.68)	(-0.62)	(0.59)	(-0.49)	(0.44)

Appendix Table A-1. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Crime	org	0.000170***	0.000185***	0.000083***	0.000152***	0.000155***	0.000035	0.000210***	0.000236***	0.000126***
		(5.58)	(6.00)	(2.59)	(4.71)	(4.75)	(1.04)	(5.94)	(6.57)	(3.35)
	des	0.000278***	0.000274***	0.000201***	0.000266***	0.000262***	0.000201***	0.000315***	0.000328***	0.000262***
		(9.10)	(8.90)	(6.28)	(8.23)	(8.04)	(5.96)	(8.93)	(9.13)	(6.96)
Sun	org	0.025878***	0.026242***	0.016384***	0.029628***	0.033662***	0.020074***	0.022580***	0.024117***	0.016747***
		(5.51)	(5.54)	(3.32)	(6.07)	(6.84)	(3.94)	(4.55)	(4.78)	(3.17)
	des	0.036999***	0.034754***	0.018102***	0.040744***	0.038145***	0.016942***	0.030838***	0.032626***	0.017284***
		(7.88)	(7.33)	(3.67)	(8.35)	(7.75)	(3.33)	(6.22)	(6.47)	(3.27)
Heating	org	-0.000107***	-0.000139***	-0.000081**	-0.000108***	-0.000163***	-0.000097***	-0.000046	-0.000070**	-0.000015
		(-3.48)	(-4.47)	(-2.49)	(-3.11)	(-4.66)	(-2.69)	(-1.44)	(-2.18)	(-0.44)
	des	-0.000226***	-0.000167***	-0.000161***	-0.000208***	-0.000148***	-0.000127***	-0.000208***	-0.000126***	-0.000116***
		(-7.34)	(-5.37)	(-4.96)	(-5.97)	(-4.22)	(-3.51)	(-6.58)	(-3.90)	(-3.43)
Cooling	org	-0.000245***	-0.000190***	0.000025	-0.000296***	-0.000297***	-0.000052	-0.000256***	-0.000208***	-0.000001
		(-3.59)	(-2.76)	(0.34)	(-3.96)	(-3.93)	(-0.67)	(-3.61)	(-2.90)	(-0.01)
	des	-0.000376***	-0.000311***	-0.000246***	-0.000420***	-0.000359***	-0.000264***	-0.000439***	-0.000395***	-0.000328***
		(-5.51)	(-4.50)	(-3.42)	(-5.61)	(-4.75)	(-3.38)	(-6.20)	(-5.48)	(-4.35)
Education	org	-0.001138***	-0.001195***	-0.001090***	-0.000631**	-0.000508*	-0.000705**	-0.001635***	-0.001791***	-0.001555***
		(-3.49)	(-3.63)	(-3.18)	(-2.18)	(-1.74)	(-2.34)	(-4.90)	(-5.28)	(-4.37)
	des	-0.000842***	-0.000492	-0.000305	-0.000395	0.000035	0.000091	-0.002129***	-0.001039***	-0.000457
		(-2.59)	(-1.50)	(-0.89)	(-1.37)	(0.12)	(0.30)	(-6.38)	(-3.06)	(-1.28)

Appendix Table A-1. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Hospital	org	-0.003256***	-0.003879***	-0.003359***	-0.002990***	-0.003587***	-0.003516***	-0.002981***	-0.003575***	-0.002652***
		(-6.41)	(-7.56)	(-6.28)	(-5.56)	(-6.61)	(-6.27)	(-5.23)	(-6.17)	(-4.37)
	des	-0.003542***	-0.002424***	-0.002694***	-0.002612***	-0.001640***	-0.002122***	-0.003786***	-0.001495***	-0.001256**
		(-6.97)	(-4.72)	(-5.04)	(-4.86)	(-3.02)	(-3.78)	(-6.64)	(-2.58)	(-2.07)
Public Welfare	org	-0.000260	-0.000398	0.000102	0.000393	0.000079	0.001134	-0.002629***	-0.003162***	-0.001979*
		(-0.33)	(-0.50)	(0.12)	(0.45)	(0.09)	(1.24)	(-2.62)	(-3.10)	(-1.85)
	des	-0.002933***	-0.003060***	-0.000736	-0.001451*	-0.001585*	0.001327	-0.005465***	-0.006209***	-0.003489***
		(-3.72)	(-3.85)	(-0.89)	(-1.65)	(-1.78)	(1.45)	(-5.45)	(-6.09)	(-3.26)
Medicaid Generosity	org	-0.000373**	-0.000311*	-0.000300*	-0.000533***	-0.000671***	-0.000523***	-0.001047***	-0.001212***	-0.001214***
		(-2.35)	(-1.94)	(-1.80)	(-2.99)	(-3.74)	(-2.82)	(-4.73)	(-5.38)	(-5.14)
	des	-0.000775***	-0.000666***	-0.000180	-0.000855***	-0.000755***	-0.000075	-0.001236***	-0.001093***	-0.000403*
		(-4.89)	(-4.17)	(-1.08)	(-4.81)	(-4.20)	(-0.40)	(-5.58)	(-4.86)	(-1.71)
All Other Spending	org	0.001585***	0.001525***	0.001494***	0.001007***	0.000700***	0.001056***	0.001239***	0.000956***	0.000975***
		(6.45)	(6.15)	(5.78)	(3.64)	(2.50)	(3.66)	(4.29)	(3.26)	(3.17)
	des	0.000901***	0.000509**	0.000492*	0.000322	0.000106	0.000440	0.000538*	0.000558*	0.000866***
		(3.67)	(2.05)	(1.90)	(1.16)	(0.38)	(1.52)	(1.86)	(1.90)	(2.81
Death Taxes[b]	org	-38.66849***	-54.31144***	-55.14387***	-0.000769**	-0.001300***	-0.001652***	-0.030218*	-0.032565**	-0.027984*
		(-3.72)	(-5.18)	(-5.05)	(-2.26)	(-3.78)	(-4.65)	(-1.91)	(-2.02)	(-1.66)
	des	-60.96134***	-73.77626***	-74.91109***	-0.000745**	-0.001173***	-0.001240***	-0.044365***	-0.051141***	-0.050190***
		(-5.87)	(-7.04)	(-6.86)	(-2.19)	(-3.41)	(-3.49)	(-2.80)	(-3.17)	(-2.97)

Appendix Table A-1. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Property Taxes[b]	org	5.496706***	7.105108***	6.361308***	0.004103*	0.003058	0.008562***	0.001426***	0.001709***	0.001504***
		(5.25)	(6.72)	(5.78)	(1.76)	(1.30)	(3.52)	(5.28)	(6.23)	(5.23)
	des	5.296060***	5.317264***	3.505990***	0.001672	0.002336	0.003301	0.001805***	0.001019***	0.000289
		(5.06)	(5.03)	(3.18)	(0.72)	(0.99)	(1.36)	(6.68)	(3.71)	(1.00)
Income Taxes[b]	org	1.275589	3.042791***	2.227774*	-0.002511	-0.003981**	-0.000702	0.152396***	0.185633***	0.144321***
		(1.16)	(2.74)	(1.93)	(-1.58)	(-2.48)	(-0.42)	(5.13)	(6.15)	(4.56)
	des	3.076044***	2.826708***	1.137742	-=0.000291	-0.000525	0.000423	0.221271***	0.209645***	0.161677***
		(2.80)	(2.55)	(0.98)	(-0.18)	(-0.33)	(0.26)	(7.45)	(6.95)	(5.11)
Income Taxes and Exempt[b]	org	4.04E-05	3.80E-05	3.98E-05	1.04E-07**	1.48E-07***	1.37E-07***	-2.92E-06	-2.96E-06	2.37E-06
		(1.05)	(0.98)	(0.98)	(2.20)	(3.11)	(2.78)	(-0.93)	(-0.93)	(0.71)
	des	8.18E-05**	1.84E-05	-8.35E-07	1.38E-07***	7.32E-08	3.21E-08	-1.43E-05***	-1.40E-05***	-1.25E-05***
		(2.13)	(0.47)	(-0.02)	(2.92)	(1.54)	(0.65)	(4.56)	(-4.39)	(3.72)
IncomeTax Bill[b]	org							-0.000806***	-0.000810***	-0.000655***
								(-4.51)	(-4.46)	(-3.44)
	des							-0.000674***	-0.000880***	-0.000857***
								(-3.77)	(-4.84)	(-4.49)
Income Tax Bill and Exempt[b]	org							3.07E-08	3.10E-08	-1.71E-09
								(1.55)	(1.54)	(-0.08)
	des							1.02E-07***	9.25E-08***	7.99E-08***
								(5.13)	(4.58)	(3.77)

Appendix Table A-1. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Sales Taxes[b]	org	2.331925***	3.429980***	2.906497***	-0.001273	-0.003734*	0.000779	0.025546	0.0016902	0.029647
		(2.31)	(3.37)	(2.74)	(-0.64)	(-1.86)	(0.38)	(0.89)	(0.58)	(0.97)
	des	1.413454	1.341452	0.442907	-0.003449*	-0.002929	-0.000397	-0.028323	-0.011695	0.005158
		(1.40)	(1.32)	(0.42)	(-1.73)	(-1.46)	(-0.19)	(-0.99)	(-0.40)	(0.17)
Sales Taxes	org	0.360905	1.142803***	0.690890	0.001041	0.002289***	0.001259*	0.029470	0.055739***	0.056391***
and Exempt[b]		(0.83)	(2.60)	(1.51)	(1.51)	(3.30)	(1.75)	(1.60)	(2.98)	(2.88)
	des	1.939474***	2.426707***	2.075687***	0.003461***	0.003787***	0.002635***	0.071668***	0.096998***	0.082294***
		(4.45)	(5.52)	(4.53)	(5.02)	(5.44)	(3.66)	(3.90)	(5.19)	(4.20)
All Other Taxes[b]	org	1.175986	2.106350***	1.238712	0.001141	0.010334	-0.007877	0.000455	0.000928***	0.000455
		(1.58)	(2.80)	(1.58)	(0.14)	(1.27)	(-0.94)	(1.34)	(2.69)	(1.26)
	des	0.902186	1.607165**	1.165894	0.000612	-0.002831	-0.013863*	0.001337***	0.000475	-0.000140
		(1.21)	(2.14)	(1.49)	(0.08)	(-0.35)	(-1.65)	(3.95)	(1.38)	(-0.39)

[a] t-statistics are in parentheses, and ***, **, * represented 0.01, 0.05 and 0.10 levels of significance, respectively.

[b]Conway and Houtenville columns use tax shares; Voss et al. Columns use tax effort indices; Clark and Hunter columns use per capita tax revenue, tax rates and tax bills liability.

Endnotes

• The authors are respectively, Associate Professor of Economics, University of New Hampshire, and Research Associate, Center for Policy Research, Syracuse University. This study is in part funded by the National Institute on Aging, Grant No. 1T32AG00238-01, "Economics and Demography of Aging." The authors would like to thank David Bradford, Partha Deb, Ann Holmes, Stanley Sedo, James Walker and participants in the IUPUI Economics seminar for their helpful comments, and Luke Boulanger, Valerie Boykin and P. Scott Smith for their assistance in constructing the necessary data.

1. The "pick-up" tax derives from the federal tax law that grants a credit for state death taxes paid up to a certain maximum. The states can therefore capture a portion of federal estate tax revenue, without increasing the total tax liability of the estate, by levying a death tax.

2. This burden is somewhat mitigated by federal matching funds, which vary by state but cover approximately 50 percent of the costs.

3. The non-cash-assisted elderly typically are those that qualify for Medicaid through a state's medically needy program which covers long-term care for the elderly who have depleted their assets and income to a certain level (the so-called "spend-down" population).

4. Poterba (1998) and Cutler, Elmendorf and Zeckhauser (1993) summarize findings by recent studies that examine the effects of the age distribution on public expenditures.

5. Specifically, the variable is constructed by comparing the reported residence in 1985 with the residence reported in 1990. It therefore captures migration that takes place between 1985 and 1990 and has the shortcoming that it may miss some moves (individuals who move more than once in the five year period, especially those who return to the initial state who are therefore viewed as non-movers).

6. For the three age groups (aged 65 to 74, 75 to 84 and 85 and over), the number of zero flows understandably increases with age and are 217, 386 and 825, respectively.

7. Unfortunately, we do not have the population for each age group for each state. Nationally, there were 16.7 million people aged 65 to 74 in 1984 compared to 11.2 million aged 75 and over, which reveals that the drop-off in elderly migrants due to age is not explained solely by a smaller population.

8. For more discussion, see Greenwood 1975.

9. As we do not have individual-level, panel data we cannot exactly identify return migration. Instead, we are using the migrant's age as a proxy for whether it is amenity/onward migration versus return migration, assuming that the younger elderly are more likely in the former category and the older elderly in the latter. As discussed in

below, this assumption is supported by studies that examine the different types of elderly migration (e.g., Newbold 1996; Meyer 1987; Meyer and Speare 1985).

10. Specifically, the correlations for the *number* of net in-migrants aged 65 to 74 have a correlation coefficient of 0.9174 and 0.6393 with those aged 75 to 84 and 85 and above, respectively. The corresponding numbers for the net in-migration *rate* are 0.9361 and 0.1063.

11. An interesting dynamic is the Massachusetts-New Hampshire move. As noted earlier from the net in-migration tables, NH gains relatively more elderly while MA loses relatively more elderly as they age. We can now see that there is a direct transfer occurring as the MA to NH move becomes increasingly popular with the elderly as they age.

12. We are grateful to James Walker for bringing this dissertation to our attention.

13. The other three migration flow studies include a general measure of taxes only as a proxy for or as part of a cost-of-living index (McLeod, Parker, Serow, and Rives 1984; Serow, Charity, Fournier, and Rasmussen 1986; and Fournier, Rasmussen, and Serow 1988).

14. We also explore omitting these observations from the sample or treating them as censored observation via Tobit.

15. Note that this effect is not completely captured by distance; Californians may know more about Oregon than New Hampshire residents know about New Jersey and yet the former are a greater distance apart.

16. We choose the food exemption rather than the prescription drug exemption because the latter exhibits so little variability—43 of the 46 states that impose sales taxes exempt prescription drugs.

17. They also include statewide or regionwide averages of these variables to capture regional differences.

18. Unfortunately, we were only able to locate this information for 1985. Examining the differences in the exemptions and deductions granted all taxpayers between 1984 and 1985 leads us to believe that using 1985 figures likely has little effect on the results.

19. Ideally, we could also include the death tax bill for the median wealth household. Unfortunately, due to limited information we would have to make many additional assumptions about both the household and the states' tax structures to make such a calculation. In addition, because very few states levy *any* death tax on households with the median level of wealth, the tax bill likely would not add much new information.

20. For instance, a high spending state and a low spending state could be equally reliant on income taxes in terms of the proportion of expenditures that are financed with it. Of course, the low spending state will have a lower income tax liability for the average taxpayer and likewise may have a lower effort index, *ceteris paribus*. This reveals how

the other two tax sets are affected by the size of the public sector.

21. As usual, one category, in this case one origin and one destination, must be omitted to prevent perfect multicollinearity.

22. The estimates for the border-only sample are quite different, with very few statistically significant coefficients. This is to be expected because the border-only sample is so much smaller than the total sample.

23. The Technical Appendix not only discusses the technique in Conway and Houtenville (1998), but also how these tests are performed and how their estimator must be modified for the net in-flow model.

24. The Technical Appendix not only discusses the technique in Conway and Houtenville (1998), but also how these tests are performed and how their estimator must be modified for the net in-flow model.

25. These are the same results found by Conway and Houtenville (1998), while Clark and Hunter (1992) who use net in-migration rates find that education expenditures *increase* in-migration and health expenditures have no effect.

26. Clark and Hunter (1992) also find that high death taxes discourage in-migration, but the effect is only statistically significant for those aged 50 to 70.

27. It is interesting to note that Clark and Hunter (1992), who use county-level data, finds that high property taxes decrease net in-migration. This suggests that using state-level data could be the culprit. Cebula and Kohn (1975) only looked at state-level *out*-migration rates and therefore could not have uncovered our puzzling results.

Table 1: Top and Bottom Ten Net In-Migration States

Rank	Rates[a]						Numbers					
	Aged											
	65 to 74		75 to 84		85 and Above[b]		65 to 74		75 to 84		85 and Above	
1	NV	0.1496	NV	0.0371	NV	0.0097	FL	121,33	FL	16,512	TX	1,468
2	AZ	0.0874	AZ	0.0167	DE	0.0036	AZ	32,787	AZ	6,269	WA	1,290
3	FL	0.0628	OR	0.0092	AZ	0.0033	NC	18,443	NC	4,140	AZ	1,230
4	SC	0.0283	FL	0.0085	NH	0.0029	NV	13,019	TX	3,593	VA	1,196
5	NC	0.0268	WA	0.0062	WA	0.0026	SC	9,377	NV	3,224	NC	1,169
6	OR	0.0242	NC	0.0060	CO	0.0024	OR	8,329	OR	3,157	GA	1,076
7	AR	0.0195	GA	0.0054	OR	0.0021	WA	6,617	GA	3,142	FL	900
8	NM	0.0179	NH	0.0054	VA	0.0021	AR	6,562	WA	3,051	NV	847
9	WA	0.0135	SC	0.0051	GA	0.0019	GA	6,300	VA	2,587	OR	727
10	DE	0.0114	CO	0.0047	NC	0.0017	TX	5,391	SC	1,687	MD	707
39	CA	-0.0102	CA	-0.0021	AR	-0.0010	MD	-6,357	LA	-715	AR	-326
40	OH	-0.0106	MT	-0.0022	ID	-0.0011	PA	-8,446	CT	-1,618	IA	-342
41	MD	-0.0142	ND	-0.0025	KS	-0.0011	MA	-12,000	TN	-1,968	KS	-345
42	MA	-0.0154	MI	-0.0026	IL	-0.0011	CT	-12,029	PA	-2,140	CA	-359
43	MI	-0.0173	MA	-0.0034	WV	-0.0012	OH	-13,546	MI	-2,588	TN	-418
44	WY	-0.0183	TN	-0.0035	MA	-0.0012	MI	-17,435	MA	-2,665	PA	-687
45	IL	-0.0225	CT	-0.0040	SD	-0.0013	NJ	-21,681	NJ	-4,830	MA	-960
46	NJ	-0.0230	IL	-0.0042	NJ	-0.0014	CA	-27,355	IL	-5,671	NJ	-1,284
47	CT	-0.0296	NJ	-0.0051	NE	-0.0015	IL	-30,486	CA	-5,729	IL	-1,530
48	NY	-0.0321	NY	-0.0099	NY	-0.0025	NY	-72,054	NY	-22,267	NY	-5,645

[a]Migration divided by the elderly (aged 65 and over) population in that state.

[b]Florida fell to 20th place.

Table 2: Top Ten Net In-Flows

Rank	Rates[a]						Numbers					
	Aged											
	65 to 74		75 to 84		85 and Above		65 to 74		75 to 84		85 and Above	
1	NY to FL	0.00827	NY to FL	0.00205	NY to FL	0.00036	NY to FL	34,570	NY to FL	8,547	NY to FL	1,496
2	NJ to FL	0.00502	NJ to FL	0.00103	OR to WA	0.00033	NJ to FL	14,430	NJ to FL	2,963	NY to NJ	708
3	MI to FL	0.00333	NY to NJ	0.00085	ND to MT	0.00030	MI to FL	9,787	NY to NJ	2,712	NJ to FL	618
4	CT to FL	0.00326	CA to OR	0.00081	MA to NH	0.00022	CA to AZ	8,198	CA to OR	2,473	NY to CA	565
5	MA to FL	0.00290	ID to UT	0.00081	NY to NJ	0.00022	IL to FL	8,044	CA to NV	2,005	CA to OR	522
6	CA to NV	0.00289	MA to NH	0.00074	UT to NV	0.00022	CA to NV	8,040	CA to AZ	1,605	FL to OH	458
7	CA to AZ	0.00267	CA to NV	0.00072	NJ to FL	0.00022	OH to FL	7,905	NY to CA	1,563	CA to NV	403
8	CO to AZ	0.00251	CT to FL	0.00064	AL to GA	0.00021	MA to FL	7,850	CA to WA	1,506	IL to CA	344
9	OH to FL	0.00246	VT to NH	0.00053	IL to AZ	0.00018	PA to FL	7,717	CT to FL	1,486	NY to VA	337
10	IL to FL	0.00245	CA to AZ	0.00052	CA to OR	0.00017	CT to FL	7,626	MA to FL	1,323	CT to FL	326

[a] The net in-flow divided by the sum of the elderly (65 and over) populations of the two states.

Table 3: Variable Descriptions, Means and Standard Deviations[a]

Variable	Description	Mean
Ln(Flow 65-74)	natural log of the number of individuals between aged 65 to 74 migrating from state *i* to state *j* between 1985-90.[b]	3.991 (2.06)
Ln(Flow 75-84)	natural log of the number of individuals between aged 75 to 84 migrating from state *i* to state *j* between 1985-90.[b]	3.158 (2.01)
Ln(Flow 85+)	natural log of the number of individuals age 85 and over migrating from state *i* to state *j* between 1985-90.[b]	1.987 (1.85)
Distance	the distance between the geographic center of state *i* to state *j* "as the crow flies."	1,034 (586)
Border	equals one if state *i* and state *j* border one another, zero otherwise.	0.095 (0.29)
ln(Pop)	natural log of the total state population in 1984.[c]	14.96 (0.97)
Cost of Living	cost of living index created by McMahon (1991) for 1984. The United States average is normalized to 100.	99.19 (5.62)
HH Income	median income of households for 1984.[c]	22,379 (3,383)
Crime	total offenses known to police per 100,000 resident population in 1984.[c]	4,547 (1,190)
Sun	average percentage of possible sunshine for selected cites (states with more than one city were averaged).[c]	60.20 (7.68)
Heating	average normal seasonal heating degree days, for periods through 1984 (estimates heating requirements).[c]	5,149 (2,035)
Cooling	average normal seasonal cooling degree days, for periods through 1984 (estimates cooling requirements).[c]	1,162 (823)
Education	per capita general, direct state and local spending on education in 1984.[d]	762.3 (158)
Hospital	per capita general, direct state and local spending on health and hospitals in 1984.[d]	184.6 (61.8)
Public Welfare	per capita general, direct state and local spending on public welfare, excluding Medicaid spending on elderly recipients, in 1984.[d]	109.5 (48.2)
Medicaid	total medicaid spending on elderly recipients per elderly individual in 1984.[e]	415.8 (215)
All Other	per capita general, direct state and local spending on all other items in 1984.[d]	919.0 (238)

Table 3: Continued

Variable	Description	Mean
Death Taxes	Co&Ho: proportion of total general direct state and local spending financed with state and local estate and gift taxes in 1984.[f]	0.004 (0.00)
	VGM: estate and gift tax effort index in 1984.[g]	125.0 (97.1)
	Cl&Hu: gift and estate tax rate for children over 18 assuming median wealth of elderly household ($60,000) in 1985.[h]	1.328 (1.86)
Property Taxes	Co&Ho: proportion of total general direct state and local spending financed with state and local property taxes in 1984.[f]	0.185 (0.07)
	VGM: property tax effort index in 1984.[g]	98.26 (37.3)
	Cl&Hu: state and local property taxes per capita in 1984.[f]	395.3 (185)
Income Taxes	Co&Ho: proportion of total general direct state and local spending financed with state and local personal income taxes in 1984.[f]	0.110 (0.07)
	VGM: personal income tax effort index in 1984.[g]	94.46 (57.3)
	Cl&Hu: marginal state income tax rate for median income of elderly households ($25,000 and assuming no pension exemption) in 1985.[h]	4.482 (2.96)
	Cl&Hu: state income tax bill for median income of elderly households ($25,000 and assuming no pension exemption) in 1985.[h]	653.6 (480)
Pension Exemption	amount of pension income exempt from state personal income taxation in 1984.[i]	2,615 (5,223)
Sales Taxes	Co&Ho: proportion of total general direct state and local spending financed with state and local sales taxes in 1984.[f]	0.142 (0.06)
	VGM: sales tax effort index in 1984.[g]	94.42 (42.7)
	Cl&Hu: state general sales tax rate in 1984.[c]	4.169 (1.59)
Food Exemption	equals one if the state exempts food from its general sales tax in 1984.[c]	0.667 (0.47)
All Other Taxes	Co&Ho: proportion of total general direct state and local spending financed with all other taxes and fees in 1984.[f]	0.440 (0.09)
	VGM: tax effort index for all taxes in 1984.[g]	96.65 (17.2)
	Cl&Hu: all other (excluding property and income taxes) taxes per capita in 1984.[f]	661.5 (190)

Table 3: Continued

[a] Standard deviations are in parentheses. Co&Ho, VGM and Cl&Hu stand for Conway and Houtenville (1998), Voss, Gunderson and Manchin (1988) and Clark and Hunter (1992), respectively.

[b] Source: *County-to-County Migration Flow Files* for the 1990 Census.

[c] Source: various editions of the *Statistical Abstract of the United States*.

[d] Source: *Significant Features of Fiscal Federalism* 1985-86, table 15.

[e] Since Arizona was exempt from the Medicaid program, we used figures from the Arizona Health Care Containment System. To proxy Medicaid generosity we multiply the total expenditures of Arizona's health care program (which includes recipients of all ages) by theproportion of total U.S. Medicaid spending on the elderly, then divided this by Arizona's elderly population. This proxies Arizona's Medicaid-type spending on the elderly, per elderly resident. Source: *Health Care Financing, Medicare and Medicaid Data Book*, 1988.

[f] Source: *Significant Features of Fiscal Federalism* 1985-86, table 33.

[g] Source: *Tax Capacity of the States* 1986.

[h] Based on info. from the *State Tax Handbook* 1985 and *Significant Features of Fiscal Federalism* 1985-86.

[i] Source: Zahn and Gold (1985, pp. 44-45).

Table 4. Gross Flows: Cross-Correlated Random Effects Results[a]

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
					Aged					
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
σ_o^2		0.044	0.0440	0.0490	0.0508	0.0557	0.0563	0.0341	0.0376	0.0454
LM: $\sigma_o^2 = 0$		85.72***	119.14***	152.97***	138.76***	189.19***	192.43***	59.96***	82.78***	126.58***
σ_d^2		0.0990	0.0722	0.0498	0.1146	0.0864	0.0586	0.0873	0.0684	0.0518
LM: $\sigma_d^2 = 0$		1,065.26***	453.51***	143.19***	1,277.73***	604.05***	198.94***	883.66***	444.87***	173.68***
σ_{od}		0.0491	0.0460	0.0284	0.0631	0.0605	0.0381	0.0437	0.0426	0.0299
LM: $\rho_{od} = 0$		29.20***	32.03***	15.88***	32.87***	36.48***	21.08***	30.79***	33.89***	18.21***
Constant[b]		2.51892***	1.66407***	0.47375***	2.51892***	1.66407***	0.47375**	2.51892***	1.66407***	0.47375**
		(12.53)	(7.98)	(2.13)	(12.53)	(7.98)	(2.13)	(12.53)	(7.98)	(2.13)
Distance[b]		-0.00140***	-0.00141***	-0.00106***	-0.00140***	-0.00141***	-0.00106***	-0.00140***	-0.00141***	-0.00106***
		(-31.03)	(-30.14)	(-21.15)	(-31.03)	(-30.14)	(-21.15)	(-31.03)	(-30.14)	(-21.15)
Border[b]		1.35660***	1.40597***	1.62890***	1.35660***	1.40597***	1.62890***	1.35660***	1.40597***	1.62890***
		(17.77)	(17.75)	(19.27)	(17.77)	(17.75)	(19.27)	(17.77)	(17.75)	(19.27)
Ln(POP)	org	1.002543***	0.833083***	0.706994***	1.008410***	0.840818***	0.731939***	1.097718***	0.958889***	0.793742***
		(13.70)	(10.89)	(8.73)	(12.34)	(9.84)	(8.39)	(14.66)	(12.25)	(9.32)
	des	0.808328***	0.727840***	0.679070***	0.848017***	0.772233***	0.732475***	0.983657***	0.909546***	0.824313***
		(7.79)	(7.92)	(8.34)	(7.48)	(7.62)	(8.27)	(8.27)	(9.37)	(9.25)
Cost of Living	org	-0.002809	0.017826	0.035738*	-0.006586	0.011307	0.035397*	-0.015286	0.001507	0.017631
		(-0.17)	(1.00)	(1.90)	(-0.39)	(0.64)	(1.95)	(-1.07)	(0.10)	(1.09)
	des	-0.045556*	0.001845	-0.005923	-0.062314***	-0.017091	-0.026276	-0.075379***	-0.029148	-0.038312**
		(-1.89)	(0.09)	(-0.31)	(-2.64)	(-0.81)	(-1.42)	(-3.73)	(-1.58)	(-2.26)

Table 4. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Household Income	org	-0.000027	-0.000085***	-0.000099***	0.000002	-0.000039	-0.000074***	0.000003	-0.000042*	-0.000057**
		(-1.12)	(-3.35)	(-3.40)	(0.08)	(-1.41)	(-2.65)	(0.12)	(-1.85)	(-2.29)
	des	-0.000033	-0.000049	-0.000024	0.000014	-0.000010	-0.000009	0.000009	-0.000007	0.000007
		(-0.97)	(-1.60)	(-0.91)	(0.38)	(-0.31)	(-0.34)	(0.28)	(-0.25)	(0.26)
Crime	org	0.000182***	0.000196***	0.000091*	0.000167***	0.000169***	0.000045	0.000224***	0.000248***	0.000135***
		(3.79)	(3.89)	(1.70)	(3.08)	(2.97)	(0.78)	(4.19)	(4.44)	(2.23)
	des	0.000290***	0.000285***	0.000209***	0.000281***	0.000276***	0.000211***	0.000329***	0.000340***	0.000271***
		(4.25)	(4.72)	(3.91)	(3.73)	(4.10)	(3.58)	(4.36)	(4.91)	(4.27)
Sun	org	0.026958***	0.027728***	0.017052**	0.030801***	0.034724***	0.020825**	0.023235***	0.024687***	0.017144**
		(3.64)	(3.52)	(2.08)	(3.75)	(4.04)	(2.37)	(3.09)	(3.14)	(2.00)
	des	0.038058***	0.035722***	0.018758**	0.041919***	0.039209***	0.17693**	0.031481***	0.033194***	0.017680**
		(3.62)	(3.84)	(2.28)	(3.67)	(3.85)	(1.99)	(2.95)	(3.40)	(1.97)
Heating	org	-0.000133***	-0.000163***	-0.000098*	-0.000138**	-0.000190***	-0.000117*	-0.000065	-0.000087*	-0.000027
		(-2.77)	(-3.24)	(-1.83)	(-2.37)	(-3.13)	(-1.89)	(-1.35)	(-1.74)	(-0.50)
	des	-0.000253***	-0.000191***	-0.000178***	-0.000237***	-0.000175**	-0.000147**	-0.000227***	-0.000142**	-0.000128**
		(-3.71)	(-3.17)	(-3.32)	(-2.95)	(-2.43)	(-2.33)	(-3.37)	(-2.31)	(-2.26)
Cooling	org	-0.000305***	-0.000245**	-0.000014	-0.000367***	-0.000361***	-0.000099	-0.000309***	-0.000255**	-0.000035
		(-2.86)	(-2.20)	(-0.12)	(-2.94)	(-2.77)	(-0.74)	(-2.91)	(-2.30)	(-0.29)
	des	-0.000436***	-0.000365***	-0.000284**	-0.000490***	-0.000423***	-0.000311**	-0.000493***	-0.000442***	-0.000363***
		(-2.89)	(-2.73)	(-2.39)	(-2.84)	(-2.74)	(-2.30)	(-3.28)	(-3.22)	(-2.87)

Table 4. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Education	org	-0.001163**	-0.001218**	-0.001106*	-0.000724	-0.000593	-0.000765	-0.001720***	-0.001866***	-0.001609***
		(-2.26)	(-2.26)	(-1.94)	(-1.49)	(-1.16)	(-1.47)	(-3.40)	(-3.53)	(-2.80)
	des	-0.000871	-0.000519	-0.000324	-0.000489	-0.000050	0.000030	-0.002214***	-0.001114*	-0.000512
		(-1.19)	(-0.80)	(-0.57)	(-0.72)	(-0.08)	(0.06)	(-3.08)	(-1.70)	(-0.85)
Hospital	org	-0.003483***	-0.004086***	-0.003503***	-0.003262***	-0.003834***	-0.003695***	-0.003128***	-0.003705***	-0.002748***
		(-4.35)	(-4.88)	(-3.95)	(-3.61)	(-4.06)	(-3.83)	(-3.62)	(-4.10)	(-2.79)
	des	-0.003768***	-0.002629***	-0.002838***	-0.002881**	-0.001884*	-0.002299**	-0.003931***	-0.001622	-0.001350
		(-3.32)	(-2.62)	(-3.19)	(-2.30)	(-1.68)	(-2.35)	(-3.21)	(-1.45)	(-1.31)
Public Welfare	org	-0.000150	-0.000298	0.000174	0.000550	0.000222	0.001239	-0.002754*	-0.003272**	-0.002063
		(-0.12)	(-0.23)	(0.13)	(0.37)	(0.14)	(0.78)	(-1.81)	(-2.05)	(-1.19)
	des	-0.002819	-0.002956*	-0.000661	-0.001294	-0.001442	0.001431	-0.005592***	-0.006321***	-0.003574**
		(-1.60)	(-1.89)	(-0.48)	(-0.63)	(-0.78)	(0.89)	(-2.59)	(-3.20)	(-1.97)
Medicaid Generosity	org	-0.000356	-0.000296	-0.000289	-0.000502*	-0.000643**	-0.000502	-0.001039***	-0.001205***	-0.001209***
		(-1.42)	(-1.13)	(-1.04)	(-1.67)	(-2.05)	(-1.57)	(-3.09)	(-3.43)	(-3.16)
	des	-0.000757**	-0.000650**	-0.000168	-0.000825**	-0.000727*	-0.000053	-0.001229***	-0.001087**	-0.000397
		(-2.14)	(-2.07)	(-0.60)	(-1.98)	(-1.95)	(-0.16)	(-2.58)	(-2.49)	(-0.99)
All Other Spending	org	0.001664***	0.001598***	0.001544***	0.001126**	0.000807*	0.001132**	0.001354***	0.001057**	0.001049**
		(4.30)	(3.95)	(3.60)	(2.42)	(1.66)	(2.28)	(3.10)	(2.31)	(2.11)
	des	0.000981*	0.000583	0.000542	0.000441	0.000214	0.000516	0.000654	0.000660	0.000941*
		(1.79)	(1.20)	(1.26)	(0.68)	(0.37)	(1.02)	(1.06)	(1.17)	(1.81)

Table 4. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Death Taxes[c]	org	-40.10713**	-55.61905***	-56.06810***	-0.000782	-0.001312**	-0.001661***	-0.032766	-0.034806	-0.029639
		(-2.45)	(-3.25)	(-3.09)	(-1.36)	(-2.18)	(-2.71)	(-1.36)	(-1.38)	(-1.08)
	des	-62.40656***	-75.08996***	-75.83900***	-0.000758	-0.001184*	-0.001248**	-0.046924	-0.053392*	-0.051850*
		(-2.68)	(-3.65)	(-4.16)	(-0.95)	(-1.66)	(-2.01)	(-1.37)	(-1.71)	(-1.81)
Property Taxes[c]	org	5.518157***	7.123988***	6.378071***	0.004683	0.003583	0.008925**	0.001467***	0.001746***	0.001531***
		(3.34)	(4.12)	(3.48)	(1.19)	(0.87)	(2.13)	(3.58)	(4.07)	(3.28)
	des	5.331254**	5.348873**	3.530434*	0.002234	0.002844	0.003654	0.001845***	0.001055**	0.000315
		(2.27)	(2.57)	(1.92)	(0.41)	(0.58)	(0.86)	(3.17)	(1.99)	(0.65)
IncomeTaxes[c]	org	1.047944	2.835029	2.085638	-0.002314	-0.003804	-0.000586	0.161710***	0.193816***	0.150502***
		(0.60)	(1.56)	(1.09)	(-0.86)	(-1.36)	(-0.21)	(3.60)	(4.12)	(2.94)
	des	2.866229	2.635459	1.005571	-0.000102	-0.000355	0.000535	0.230740***	0.217965***	0.167944***
		(1.16)	(1.21)	(0.52)	(-0.03)	(-0.11)	(0.18)	(3.62)	(3.74)	(3.14)
Income Taxes and Exempt[c]	org	4.28E-05	4.02E-05	4.11E-05	1.01E-07	1.46E-07*	1.35E-07	-3.73E-06	-3.67E-06	1.83E-06
		(0.71)	(0.63)	(0.61)	(1.27)	(1.75)	(1.59)	(-0.79)	(-0.74)	(0.34)
	des	8.37E-05	2.02E-05	2.73E-07	1.35E-07	7.03E-08	2.99E-08	-1.51E-05**	-1.47E-05**	-1.30E-05**
		(0.97)	(0.26)	(0.01)	(1.22)	(0.71)	(0.35)	(-2.24)	(-2.39)	(-2.30)
Income Tax Bill[c]	org							-0.000856***	-0.000853***	-0.000688**
								(-3.16)	(-3.01)	(-2.23)
	des							-0.000724*	-0.000923***	-0.000890***
								(-1.89)	(-2.63)	(-2.76)

Table 4. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Income Tax Bill and Exempt[c]	org							3.56E-08	3.53E-08	1.53E-09
								(1.18)	(1.12)	(0.05
	des							1.07E-07**	9.67E-08**	8.31E-08**
								(2.50)	(2.48)	(2.32)
Sales Taxes[c]	org	2.265035	3.368885**	2.864955	-0.000887	-0.003387	0.001014	0.031937	0.022524	0.033806
		(1.42)	(2.02)	(1.63)	(-0.26)	(-0.97)	(0.28)	(0.73)	(0.49)	(0.68)
	des	1.358049	1.290996	0.407784	-0.003074	-0.002591	-0.000167	-0.021880	-0.006027	0.009346
		(0.60)	(0.65)	(0.23)	(-0.66)	(-0.62)	(-0.046)	(-0.35)	(-0.11)	(0.18)
Sales Taxes and Exempt[c]	org	0.361866	1.143245	0.693588	0.001121	0.002363*	0.001317	0.030125	0.056310*	0.056871*
		(0.53)	(1.59)	(0.91)	(0.96)	(1.95)	(1.06)	(1.08)	(1.93)	(1.79)
	des	1.941493**	2.428129***	2.078978***	0.003539	0.003858***	0.002692**	0.072359*	0.097600**	0.082794**
		(1.99)	(2.81)	(2.72)	(2.19)	(2.68)	(2.14)	(1.83)	(2.70)	(2.49)
All Other Taxes[c]	org	1.013283	1.957536	1.138678	-0.000169	0.009155	-0.008669	0.000427	0.000903*	0.000437
		(0.86)	(1.59)	(0.87)	(-0.01)	(0.64)	(-0.60)	(0.83)	(1.68)	(0.75)
	des	0.753899	1.471703	1.073917	-0.000633	-0.003951	-0.014620	0.001310*	0.000451	-0.000158
		(0.45)	(1.00)	(0.82)	(-0.03)	(-0.23)	(-0.99)	(1.79)	(0.68)	(-0.26)

[a] t-statistics are in parentheses, and ***, **, * represented 0.01, 0.05 and 0.10 levels of significance, respectively.

[b] These estimates are from the first stage as no coefficient is estimated for this variable in the second stage.

[c] Co&Ho columns use tax shares; VGM columns use tax effort indices; Cl&H columns use per capita tax revenue, tax rates and tax bills liability.

Table 5. Net In-Flows: Cross-Correlated Random Effects Results[a]

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
σ_o^2		0.0289	0.0428	0.0413	0.0309	0.0404	0.0412	0.0261	0.0350	0.0346
LM: $\sigma_o^2 = 0$		8.52***	9.73***	7.91***	8.49***	9.78***	7.85***	8.56***	9.88***	8.09***
σ_d^2		0.1709	0.0659	0.0403	0.1900	0.0771	0.0457	0.1097	0.0558	0.0423
LM: $\sigma_d^2 = 0$		6.01***	8.84***	7.88***	5.53***	8.47***	7.70***	6.70***	9.26***	7.80***
σ_{od}		-0.0086	0.0091	-0.0122	-0.0054	0.0115	-0.0093	0.0035	0.0074	-0.0113
LM: $\rho_{od} = 0$		0.7236	1.3865	4.3205**	0.2354	1.9868	2.2137	0.2100	1.3324	4.1929**
Constant[b]		2.89929***	1.40666***	0.84591***	2.89929***	1.40666***	0.84591**	2.89929***	1.40666***	0.84591**
		(7.85)	(4.02)	(1.99)	(7.85)	(4.02)	(1.99)	(7.85)	(4.02)	(1.99)
Distance[b]		-0.00091***	-0.00076***	-0.00043***	-0.00091***	-0.00076***	-0.00043***	-0.00091***	-0.00076***	-0.00043***
		(-11.71)	(-10.17)	(-4.87)	(-11.71)	(-10.17)	(-4.87)	(-11.71)	(-10.17)	(-4.87)
Border[b]		1.04960***	0.96839***	0.83198***	1.04960***	0.96839***	0.83198***	1.04960***	0.96839***	0.83198***
		(8.38)	(8.20)	(6.72)	(8.38)	(8.20)	(6.72)	(8.38)	(8.20)	(6.72)
Ln(POP)	org	0.867217***	0.472103***	0.503337***	0.818637***	0.445375***	0.464331***	0.804829***	0.454306***	0.446571***
		(9.79)	(5.07)	(4.98)	(9.08)	(4.77)	(4.55)	(9.08)	(4.84)	(4.27)
	des	0.259670*	0.323805***	0.265530***	0.289125*	0.336278***	0.265337**	0.398751***	0.332582***	0.365402***
		(1.71)	(2.96)	(2.60)	(1.80)	(2.93)	(2.46)	(2.77)	(2.58)	(3.27)
Cost of Living	org	0.017290	0.058444***	0.024386	0.016873	0.058379***	0.029624	0.019963	0.058751	0.032345
		(0.84)	(2.67)	(1.02)	(0.88)	(2.95)	(1.33)	(1.11)	(3.11)	(1.49)
	des	-0.024950	-0.017184	-0.014012	-0.039823	-0.033042	-0.014657	-0.033744	-0.019072	-0.022490
		(-0.74)	(-0.72)	(-0.61)	(-1.22)	(-1.43)	(-0.68)	(-1.30)	(-0.88)	(-1.09)

Table 5. Continued

		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
					Aged					
Variables		**65 to 74**	**75 to 84**	**85 and Above**	**65 to 74**	**75 to 84**	**85 and Above**	**65 to 74**	**75 to 84**	**85 and Above**
Household Income	org	0.000006	-0.000115***	-0.000084**	0.000006	-0.000097***	-0.000060*	0.000010	-0.000095***	-0.000068**
		(0.20)	(-3.81)	(-2.54)	(0.20)	(-3.21)	(-1.79)	(0.39)	(-3.41)	(-2.24)
	des	-0.000055	-0.000031	0.000008	0.000019	0.000024	0.000043	-0.000043	-0.000014	0.000047
		(-1.13)	(-0.90)	(0.26)	(0.38)	(0.66)	(1.33)	(-1.11)	(-0.44)	(1.55)
Crime	org	0.000009	0.000093	-0.000015	0.000004	0.000074	-0.000045	-0.000003	0.000110	-0.000005
		(0.15)	(1.51)	(-0.22)	(0.07)	(1.17)	(-0.63)	(-0.04)	(1.57)	(-0.07)
	des	0.000206**	0.000195***	0.000183***	0.000190*	0.000186**	0.000167**	0.000336***	0.000276***	0.000200***
		(2.15)	(2.85)	(2.92)	(1.86)	(2.53)	(2.53)	(3.60)	(3.62)	(2.69)
Sun	org	0.016124*	0.010227	0.009101	0.017285*	0.011578	0.014925	0.011567	0.007146	0.012412
		(1.74)	(1.08)	(0.87)	(1.78)	(1.20)	(1.34)	(1.22)	(0.74)	(1.15)
	des	0.029664**	0.026078**	0.006894	0.036855**	0.032600***	0.013223	0.029948**	0.035571***	0.006796
		(2.04)	(2.54)	(0.75)	(2.39)	(2.92)	(1.34)	(2.24)	(3.25)	(0.66)
Heating	org	-0.000017	-0.000032	-0.000059	-0.000038	-0.000068	-0.000093	0.000020	0.000007	-0.000028
		(-0.31)	(-0.55)	(-0.94)	(-0.60)	(-1.05)	(-1.36)	(0.34)	(0.11)	(-0.45)
	des	-0.000434***	-0.000290***	-0.000182***	-0.000424***	-0.000298***	-0.000189**	-0.000439***	-0.000280***	-0.000125*
		(-4.45)	(-4.12)	(-2.70)	(-3.75)	(-3.56)	(-2.41)	(-5.04)	(-3.95)	(-1.78)
Cooling	org	-0.000231*	-0.000128	-0.000040	-0.000255*	-0.000205	-0.000094	-0.000142	-0.000072	-0.000017
		(-1.66)	(-0.95)	(-0.28)	(-1.70)	(-1.43)	(-0.60)	(-1.01)	(-0.54)	(-0.11)
	des	-0.000407*	-0.000452***	-0.000290**	-0.000496**	-0.000529***	-0.000338**	-0.000583***	-0.000628***	-0.000277*
		(-1.94)	(-3.01)	(-2.11)	(-2.10)	(-3.06)	(-2.17)	(-3.08)	(-3.96)	(-1.87)

Table 5. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Education	org	-0.000534	-0.001269*	-0.000467	-0.000492	-0.001004*	-0.000334	-0.000625	-0.001568**	-0.000115
		(-0.83)	(-1.88)	(-0.62)	(-0.85)	(-1.71)	(-0.49)	(-0.93)	(-2.32)	(-0.14)
	des	-0.001358	-0.001429**	-0.000509	-0.000136	-0.000736	0.000227	-0.002837***	-0.001083	-0.000415
		(-1.34)	(-2.03)	(-0.77)	(-0.15)	(-1.14)	(0.39)	(-3.11)	(-1.40)	(-0.60)
Hospital	org	-0.001296	-0.002505**	-0.001944*	-0.001394	-0.002841***	-0.002150*	-0.001428	-0.002980***	-0.001753
		(-1.27)	(-2.42)	(-1.73)	(-1.32)	(-2.68)	(-1.84)	(-1.27)	(-2.62)	(-1.49)
	des	-0.004246***	-0.001900*	-0.001972*	-0.002997*	-0.001297	-0.001536	-0.005234***	-0.000209	-0.001246
		(-2.66)	(-1.69)	(-1.87)	(-1.71)	(-1.03)	(-1.36)	(-3.32)	(-0.16)	(-1.02)
Public Welfare	org	0.001895	0.000296	-0.001440	0.001846	0.000374	-0.001816	0.002377	-0.000232	-0.001605
		(1.27)	(0.19)	(-0.86)	(1.12)	(0.23)	(-1.00)	(1.25)	(-0.12)	(-0.79)
	des	-0.002881	-0.001766	-0.000954	-0.000599	-0.001591	-0.000867	-0.009040***	-0.006316***	-0.002836
		(-1.13)	(-0.94)	(-0.59)	(-0.20)	(-0.70)	(-0.46)	(-3.32)	(-2.93)	(-1.37)
Medicaid Generosity	org	0.000029	-0.000130	0.000108	0.000063	-0.000320	-0.000154	-0.000256	-0.000873**	-0.000532
		(0.10)	(-0.43)	(0.33)	(0.20)	(-0.98)	(-0.43)	(-0.61)	(-2.08)	(-1.19)
	des	-0.000181	0.000216	0.000338	-0.000534	-0.000113	0.000113	-0.000867	-0.000863*	-0.000157
		(-0.30)	(0.44)	(0.87)	(-0.83)	(-0.22)	(0.27)	(-1.41)	(-1.69)	(-0.31)
All Other Spending	org	0.001282***	0.001608***	0.001007*	0.001124**	0.001091**	00.000652	0.001313**	0.001194**	0.000686
		(2.74)	(3.25)	(1.92)	(2.07)	(2.01	(1.11)	(2.41)	(2.16)	(1.16)
	des	0.001155	0.000700	0.000078	-0.000037	0.000123	-0.000503	0.000247	0.000639	-0.000047
		(1.44)	(1.22)	(0.15)	(-0.04)	(0.19)	(-0.88)	(0.31)	(1.02)	(-0.08)

Table 5. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Death Taxes[c]	org	8.14385	-9.94221	-2.76389	0.000294	-0.000838	-0.000216	0.006439	0.014367	0.020426
		(0.43)	(-0.50)	(-0.13)	(0.48)	(-1.30)	(-0.32)	(0.22)	(0.47)	(0.62)
	des	-78.22385**	-62.81347***	-38.22788*	-0.001157	-0.001191	-0.000486	-0.083621*	-0.066091*	-0.012083
		(-2.33)	(-2.68)	(-1.72)	(-1.03)	(-1.48)	(-0.64)	(-1.93)	(-1.88)	(-0.34)
Property Taxes[c]	org	0.881400	2.390142	3.790534*	0.003578	-0.001760	0.004957	0.000602	0.000869*	0.000954
		(0.44)	(1.14)	(1.65)	(0.77)	(-0.38)	(0.96)	(1.20)	(1.69)	(1.62)
	des	9.796526**	6.245050***	5.569989**	0.000755	-0.001397	0.003039	0.003324***	0.000712	0.000914
		(2.97)	(2.64)	(2.50)	(0.10)	(-0.27)	(0.63)	(4.32)	(1.13)	(1.57)
IncomeTaxes[c]	org	-2.599027	0.709584	0.590844	-0.002111	-0.004196	-0.001904	0.009617	0.058001	-0.018521
		(-1.23)	(0.32)	(0.25)	(-0.68)	(-1.34)	(-0.56)	(0.17)	(1.02)	(-0.30)
	des	5.408696	3.721909	2.876694	-0.004016	-0.003479	-0.001475	0.277045***	0.163774**	0.109237*
		(1.58)	(1.53)	(1.29)	(-0.79)	(-0.95)	(-0.45)	(3.39)	(2.54)	(1.68)
Income Taxes and Exempt[c]	org	9.78E-06	1.52E-05	1.56E-05	1.17E-03	-6.11E-04	1.75E-03	5.86E-06	8.06E-06	1.26E-05**
		(0.14)	(0.20)	(0.20)	(0.89)	(-0.46)	(1.22)	(1.05)	(1.39)	(2.03)
	des	5.08E-05	-5.90E-05	-5.87E-05	4.20E-03*	4.90E-03***	1.85E-03	-3.94E-05**	-3.96E-05**	-3.82E-06
		(0.40)	(-0.64)	(-0.74)	(1.92)	(3.13)	(1.25)	(-3.46)	(-2.29)	(-0.50)
Income Tax Bill[c]	org							-0.000437	-0.000218	-0.000052
								(-1.28)	(-0.64)	(-0.14)
	des							-0.000670	-0.000575	-0.000548
								(-1.40)	(-1.49)	(-1.42)

Table 5. Continued

Variables		Conway and Houtenville			Voss, Gunderson, and Manchin			Clark and Hunter		
		Aged								
		65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above	65 to 74	75 to 84	85 and Above
Income Tax Bill and Exempt[c]	org							-2.76E-08 (-0.79)	-4.20E-08 (-1.14)	-6.67E-08* (-1.71)
	des							2.40E-07*** (3.58)	2.11E-07** (2.29)	2.51E-08 (0.55)
Sales Taxes[c]	org	-2.273307 (-1.18)	1.004183 (0.50)	-0.261838 (-0.12)	-0.002226 (-0.56)	-0.003885 (-0.99)	-0.002782 (-0.64)	-0.037074 (-0.65)	0.039347 (0.69)	0.010226 (0.16)
	des	4.311241 (1.36)	1.379945 (0.61)	2.013664 (0.97)	-0.006409 (-1.01)	-0.006860 (-1.51)	-0.002505 (-0.59)	0.057552 (0.76)	0.050227 (0.82)	0.002445 (0.04)
Sales Taxes and Exempt[c]	org	0.395721 (0.49)	-0.575215 (-0.67)	0.847616 (0.94)	1.07E-08 (0.13)	7.37E-08 (0.72)	6.79E-08 (0.73)	0.025477 (0.74)	-0.022917 (-0.65)	0.054995 (1.49)
	des	2.506269* (1.81)	3.189552*** (3.20)	0.913673 (0.96)	1.90E-07 (1.19)	4.53E-08 (0.38)	1.14E-09 (0.01)	0.079080 (1.58)	0.144000*** (3.58)	0.036706 (0.89)
All Other Taxes[c]	org	-0.808940 (-0.57)	0.489745 (0.33)	0.429072 (0.27)	-0.000488 (-0.03)	0.017300 (1.08)	0.005512 (0.31)	-0.000521 (-0.81)	0.000508 (0.78)	-0.000610 (-0.84)
	des	3.279803 (1.41)	2.713567 (1.63)	1.940087 (1.27)	0.008802 (0.34)	0.016335 (0.87)	0.003801 (0.23)	0.002508*** (2.66)	-0.000015 (-0.02)	-0.000060 (-0.08)

[a] t-statistics are in parentheses, and ***, **, * represented 0.01, 0.05 and 0.10 levels of significance, respectively.

[b] These estimates are from the first stage as no coefficient is estimated for this variable in the second stage.

[c] Co&Ho columns use tax shares; VGM columns use tax effort indices; Cl&H columns use per capita tax revenue, tax rates and tax bills liability.

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