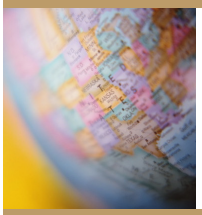


CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

State and Local Pension Plans

Number 52, October 2016

DOES PUBLIC PENSION FUNDING AFFECT WHERE PEOPLE MOVE?

*By Jean-Pierre Aubry and Caroline V. Crawford**

Introduction

In prior *briefs*, the Center has focused on the impact of pensions on state and local finances, including their influence on total budgets, borrowing costs, and the fiscal health of troubled jurisdictions. Overall, this research found that pensions play only a modest role. However, one other way that pensions may impact public finances is through where individuals choose to live.

Past research has found that individuals are more likely to move to places with the best "bundle" of amenities and opportunities.[1] Influential factors may include house prices and jobs, as well as government finances, such as taxes and debt. More recently, unfunded pension liabilities have raised concerns about jurisdictions' ability to manage their finances, as an increasing portion of today's taxes must be used to cover past shortfalls and future taxes may end up being higher as well. This *brief* explores the role that unfunded pension liabilities play in migration from state to state.

Policymakers care about migration, because it is linked to economic consequences. For example, when many people leave a state, the loss of income tax revenue and consumer spending can hurt the state's economy. Therefore, understanding the underlying forces that contribute to migration patterns is important.

The discussion proceeds as follows. The first section describes broad migration patterns. The second section summarizes the data used for the analysis. The third section explains the methodology for analyzing how state differences in unfunded pension liabilities relate to interstate migration patterns. The fourth section presents the findings. The final section concludes that while economic factors and the distance between locations are the primary drivers of migration, a state's pension funding also plays a role, albeit small.

* *Jean-Pierre Aubry is associate director of state and local research at the Center for Retirement Research at Boston College. Caroline V. Crawford is a research associate at the CRR.*

LEARN MORE →

Search for other publications on this topic at: **crr.bc.edu**

Migration Patterns

The ability to move has been a central tenet of the American dream. Important periods of U.S. history, such as the Gold Rush or the Dust Bowl, saw large groups of people moving in pursuit of greater opportunity. Historically, Americans have moved more frequently than residents of most other developed countries.[2] For that reason, U.S. migration patterns tell an important story, one that sheds light on larger economic, financial, and cultural shifts happening within the country.

People Move, But Not Many

Between 1900 and 2010, the percentage of Americans who moved to a new state at least once in their lifetime grew from 20 percent to 30 percent.[3] So although a significant number of people do move, the majority of Americans stay put. Aside from a handful of periods with large bursts of movement, U.S. migration has been relatively stable. For example, from 1980-2014, about 3 percent of the population – 9 million people – moved to a different state each year.

Zooming in on migration at the county level reveals more movement. While 3 percent of residents moved to a new state in 2010, an additional 3 percent migrated to a new county in their current state. Conversely, zooming out to a regional scope (Northeast, Midwest, South, and West) shows that only 1.5 percent of the population moves across regions in a given year, so half of the people moving to a new state stay within the same region. In short, a small proportion of the population moves each year. And, when they do, it is usually not far.

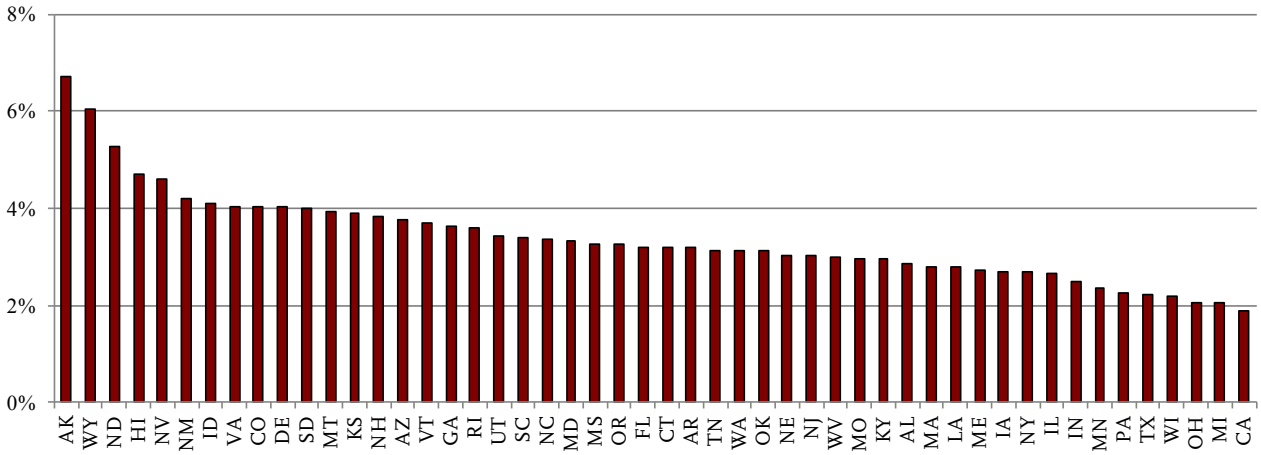
People Move, But Not Evenly

While the portion of Americans, overall, who move to a new state each year is relatively low, the percentage varies substantially by state. For example, in 2014, the out-migration rate ranged from just under 7 percent of the population in Alaska to 2 percent in California (see Figure 1).

Interestingly, the relative level of out-migration for each state has not changed dramatically over time. Figure 2 on the next page shows the annual out-migration between 1992 and 2014 for New Jersey, Illinois, and California. While rates of out-migration have fluctuated slightly, New Jersey's rate has consistently exceeded that of Illinois and California. The different out-migration levels across states point to the importance of examining what state characteristics impact decisions to move.

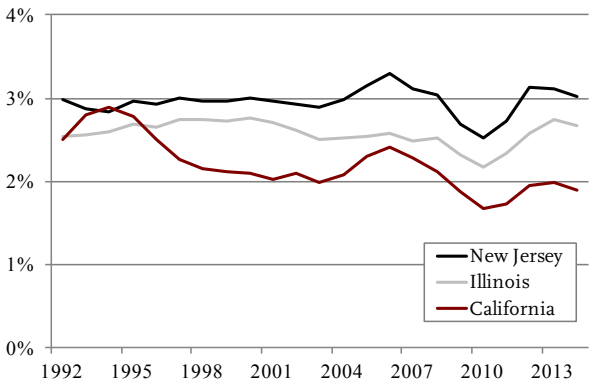
Numerous researchers over the past two decades have studied state-specific factors influencing migration decisions. These factors include employment prospects, expected costs of living, tax rates, moving costs, local amenities, and distance between locations. The findings from these studies reinforce the idea that people move to locations that offer a more competitive "bundle" of opportunities than their current

Figure 1. Percentage of State Population Moving to a New State, 2014



Source: Authors' calculations based on Internal Revenue Service (IRS) data (2014).

Figure 2. Annual Out-migration Rates for New Jersey, Illinois, and California, 1992-2014



Source: Authors' calculations based on IRS data (1992-2014).

residence. To date, however, researchers have not explored how state pension finances may contribute to this discussion.

Migration Data

In order to observe interstate migration patterns, we build upon a model developed by Cohen, Lai, and Steindel (2014) that uses Internal Revenue Service (IRS) data. The IRS publishes annual state migration estimates based on tax return data. The number of households is represented by the number of returns filed. If the state geographic code on a return changes from one year to the next, the household is assumed to have moved.

When compiled, the data show the number of households that leave each state, to every prospective destination state, for each year between 1992 and 2014. For instance, for New Jersey, the compiled data show the number of households that moved to Alabama, to Alaska, to Arizona, etc., in a given year (see Table 1). So, in total, each state has 49 observations per year – one observation for each state to which households can move.

We use these 49 origin-state-to-destination-state flows to calculate individual out-migration rates for each state pair. For example, as shown in Table 1, the IRS reports that 22,299 households moved from New Jersey to New York in 2014. We divide this number by the 3,416,983 households living in New Jersey in 2013 to generate a New Jersey to New York out-migration rate of 0.65 percent. Adding together New Jersey's 49 out-migration rates generates its total out-migration rate, equal to 3 percent (102,881/3,416,983 = 3.0%).

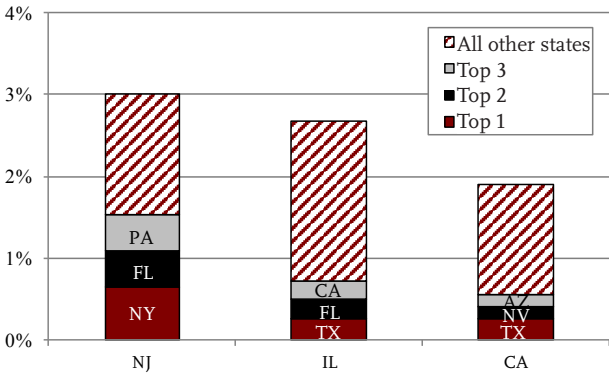
For many states, the top three destinations for those leaving the state make up a large portion of the total out-migration. For example, consider again our comparison of New Jersey, Illinois, and California

Table 1. Number of Households Leaving New Jersey to 49 Destination States, 2014

Moving to	Households	Moving to	Households
AL	328	MT	92
AK	120	NE	123
AZ	1,203	NV	705
AR	198	NH	391
CA	6,205	NM	198
CO	1,205	NY	22,299
CT	1,880	NC	4,686
DE	1,686	ND	84
FL	14,863	OH	1,189
GA	3,066	OK	258
HI	343	OR	379
ID	85	PA	14,842
IL	1,518	RI	342
IN	495	SC	2,249
IA	181	SD	47
KS	241	TN	915
KY	343	TX	5,490
LA	398	UT	231
ME	373	VT	255
MD	4,008	VA	3,554
MA	2,573	WA	897
MI	715	WV	229
MN	404	WI	359
MS	162	WY	59
MO	415	Total	102,881

Source: Authors' calculations based on IRS data (2014).

Figure 3. Out-migration Rates of New Jersey, Illinois, and California by Top Destination States, 2014



Source: Authors' calculations based on IRS data (2014).

(see Figure 3). For New Jersey, the three top destination states accounted for half of its overall out-migration in 2014 – 0.65 percent of households moved to New York, 0.43 percent to Florida, and another 0.43 percent to Pennsylvania. For Illinois, about a quarter of all migrants moved to either Texas, Florida, or California. And about a quarter of California's migrants moved to either Texas, Nevada, or Arizona.

Methodology

The question of interest is what factors affect where people move. And, do a state's pension finances have anything to do with it? To answer this question, we use a regression to test how differences between an origin and destination state relate to the proportion of households in the origin state that move to the destination state.

The dependent variable in our analysis is the rate of migration from an origin state to a destination state. The independent variables include five explanatory variables covering pension, financial, and economic factors, and a control for distance. Given the origin-to-destination structure of our dependent variable, the independent variables are generally defined as the difference between the destination and origin state characteristics.

For example, the 2013 New Jersey and California average tax rates equal 5.6 percent and 7.2 percent, respectively. Instead of these individual rates, we use the difference between them. It's helpful to think about this decision through the eyes of a migrant. A person moving from New Jersey to California experiences a 1.6-percentage-point increase in the average tax rate (see Table 2). Conversely, a person moving from New Jersey to Pennsylvania (which has a 3.0-percent average tax rate) experiences a 2.6-percentage-point decrease in the average tax rate.

Pension-related factors are represented by a single variable:

- *Unfunded Actuarial Accrued Liability (UAAL) as a percentage of revenue.* States with a greater ratio of UAAL relative to revenue could be less attractive destinations, because today's taxpayers are being asked to cover the costs of past services from which they did not directly benefit.[4] Of course, most potential migrants are unlikely to have any detailed knowledge of a government's finances. But they may get a general sense from news stories or personal acquaintances that a particular jurisdiction faces pension challenges, which may affect their view of how well the government is managed.

Financial characteristics are measured using two variables:

- *State income tax.* Previous research has shown that households are less likely to move to states with higher tax rates.
- *Debt as a percentage of revenue.* A high level of debt can reflect fiscal mismanagement.[5] Thus, households may be less likely to move to states carrying heavier debt burdens.

Table 2. New Jersey Out-migration to California and Pennsylvania, 2014

Origin state	Destination state	Out-migration rate	Destination state tax rate	Origin state tax rate	Tax rate differential
New Jersey	California	0.18%	7.2%	5.6%	1.6
New Jersey	Pennsylvania	0.43	3.0	5.6	-2.6

Source: Authors' calculations based on IRS (2014) and Feenberg (2013) data. Tax rate data are lagged one year to account for the delay in actual migration after decisions to migrate are made.

Economic factors are also covered by two variables:

- *House price*. Median house price serves as a measure of overall economic health. Although lower house prices make buying a house more affordable, they also reflect a less robust economy.
- *Job openings as a percentage of population*. Unlike the other variables, this variable does not reflect differences between the origin and destination states.[6] It is simply the number of job openings in a destination state divided by its population. Past studies have shown that people tend to move to states with better employment potential.

Distance. As discussed above, when people move, it is usually not far. Yet, at some point, an increase in distance begins to matter less. For example, a California resident may be more likely to move to Oregon than to Maryland due to Oregon's proximity. However, distance may be less important when choosing to move from California to either Pennsylvania or Maryland; an extra hundred miles is negligible if you are already flying across the country. Taking the log of distance captures the idea that distance does not have a linear relationship with migration.

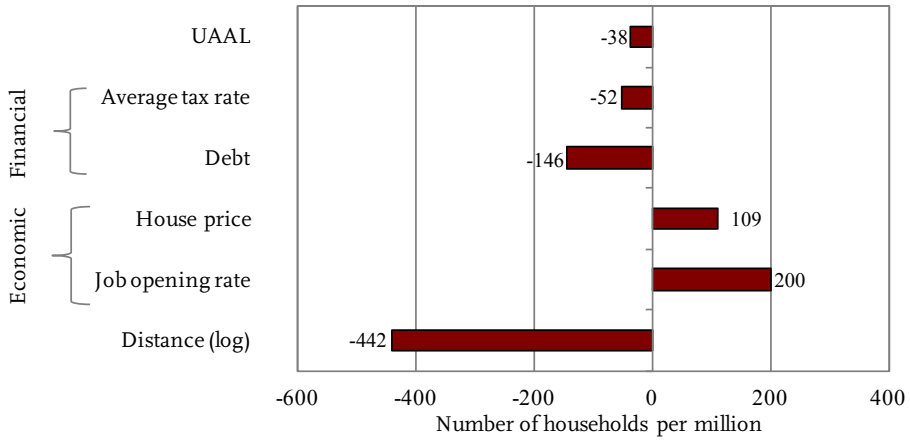
Results

The results of the regression are shown in Figure 4 (see the Appendix for complete results). For any household leaving a state, a negative coefficient means less migration to a specific destination state, while a positive coefficient signals more. The variables all work in the expected direction and are statistically significant. Unfunded liability, the financial factors (a higher average tax rate and debt), and distance tend to decrease migration to a specific state. The economic factors (higher house prices and more job openings) attract migrants to that state.

To better understand the relative importance of each variable on where people move, Figure 4 shows the impact of a one-standard-deviation change in each variable. We multiplied the dependent variable by a factor of one million, so that the coefficients represent the number of households per million that move from the origin to the destination state.

While all factors are statistically significant, their impact varies. For example, a one-standard-deviation increase in the difference in UAAL as a percentage of revenue is related to 38 fewer households per

Figure 4. Effect of Factors on the Rate of Migration From an Origin State to a Destination State, 1992-2014



Note: UAAL, average tax rate, debt, house price, job opening rate, and distance are statistically significant at the 1-percent level.[7]
Source: Authors' calculations based on data from the IRS (1992-2014), Feenberg (1991-2013), Federal Housing Finance Authority (1991-2013), U.S. Bureau of Labor Statistics (1992-2013, 1991-2014), U.S. Census Bureau (1991-2014), Zorn (1991-2000), and *Public Plans Database* (2001-2013).

million choosing the destination state, the smallest effect among the independent variables. In contrast, a one-standard deviation increase in the difference in house prices between a destination state and a origin state ($100,000) is related to 109 additional households per million choosing the destination state. And a one-percentage-point increase in the destination state's job opening rate attracts 200 more migrants per million.

Conclusion

While, on average, only 3 percent of the U.S. population moves out of their state in a given year, variation across states is substantial. For example, just over 7 percent of households in Alaska moved out in 2014, while fewer than 2 percent left California. The relative differences in out-migration between states have changed only slightly over time. And, as it turns out, the factors related to leaving one state for another are relatively straightforward. Controlling for distance between states, our regression shows that state debt, house prices, and job opening rates are the major factors related to migration. Importantly for our analysis, the state's unfunded pension liability behaves similarly to the average tax rate, with a minor, but statistically significant, impact on migration.

While our regression analysis shows that pension underfunding relates statistically to migration, it is difficult to imagine potential movers reacting directly to state pension underfunding. However, it is plausible that opinions on a state's attractiveness are influenced by negative media coverage or personal anecdotes related to state pension challenges, and that these impressions could influence decisions on where to move. Further, the regression shows that states with a one-standard-deviation higher UAAL, as a percentage of revenue, attract only 38 fewer migrants per million (annually) from the origin state – a reduction of less than 1/100th of a percent. As such, pension funding can, at most, be seen as one small factor among many that collectively inform and motivate decisions to move.

Endnotes

1 Tiebout (1956); Cohen, Lai, and Steindel (2014).

2 Statistics in this section come largely from Molloy, Smith, and Wozniak (2011).

3 While this statistic captures the percentage of the population who has ever moved, an individual who has moved more than once is indistinguishable from individuals who have moved only once.

4 Debt related to other state expenditures, such as bridges or new school buildings, provides a much more tangible stream of ongoing benefits to a taxpayer than unfunded pension costs.

5 The state debt variable uses data from the U.S. Census Bureau. The debt measure includes long-term and interest-bearing short-term credit obligations, such as mortgages, notes, and revenue and general obligation bonds, as well as pension obligation bonds (POBs), which effectively shift pension debt to bond debt. However, POB debt is miniscule, representing only 0.3 percent of total state debt in 2013.

6 The job opening rate could not be defined as the difference between the destination and origin states because both would use origin state population as a denominator. This situation was causing job openings to be negatively correlated with outmigration, clouding the true relationship between the two factors.

7 All variables are lagged one year to account for the delay in actual migration after decisions to migrate are made. The regression controls for three "single-industry" states that have very small populations: Wyoming, Alaska, and North Dakota. These states demonstrate abnormal migration patterns, largely due to the dominance of a single industry that employs a disproportionately small number of people, relative to its revenue.

References

Cohen, Roger, Andrew Lai, and Charles Steindel. 2014. "State Income Taxes and Interstate Migration." *Business Economics* 49(3): 176-190.

Federal Housing Finance Agency. *House Price Index Datasets: Master HPI Data*, 1991-2013. Washington, DC.

Feenberg, Daniel. *TAXSIM Top State Tax Rate*, 1991-2013. National Bureau of Economic Research. Available at: http://users.nber.org/~taxsim/state-rates/maxrate.html

Internal Revenue Service. *Statistics of Income Tax Stats – U.S. Population Migration Data*, 1992-2014. Available at: https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data

Molloy, Raven, Christopher L. Smith, and Abigail Wozniak. 2011. "Internal Migration in the United States." *Journal of Economic Perspectives* 25(3): 173-196.

Public Plans Database. 2001-2013. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators.

Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64(5): 416-24.

U.S. Bureau of Labor Statistics. *Business Employment Dynamics*, 1992-2013. Washington, DC.

U.S. Census Bureau. 1991-2014. "State Population Estimates." Washington, DC. Available at: https://www.census.gov/popest/data/historical/

U.S. Census Bureau. 1992-2013. *State and Local Government Finances*. Washington, DC.

Zorn, Paul. 1991-2000. *Survey of State and Local Government Retirement Systems: Survey Report for Members of the Public Pension Coordinating Council*. Chicago, IL: Government Finance Officers Association.

APPENDIX

Table A1. Effect of Factors on the Rate of Migration From an Origin State to a Destination State, 1992-2014

	Coefficients	Standard deviation	Effect of one-standard-deviation change
UAAL	-0.7 ***	52.6	-38.3
	(0.1)		
Average tax rate	-14.7 ***	3.5	-51.6
	(1.5)		
Debt	-2.2 ***	65.1	-146.2
	(0.1)		
House price	1.1 ***	99.6	109.2
	(0.1)		
Job opening rate	406.1 ***	0.5	199.5
	(14.8)		
Distance (log)	-571.5 ***	0.8	-442.2
	(6.5)		
Constant	3,898.0 ***		
	(62.5)		
Observations	51,764		
R-squared	0.16		

Notes: All results are statistically significant at the 1-percent level (***). All variables are lagged one year to account for the delay in actual migration after decisions to migrate are made. The regression controls for three single-industry states that have very low populations: Wyoming, Alaska, and North Dakota. These states demonstrate abnormal migration patterns, largely due to the dominance of a single industry that employs a disproportionately low number of people, relative to its revenues.

Source: Authors' calculations based on data from the IRS (1992-2014), Feenberg (1991-2013), Federal Housing Finance Authority (1991-2013), U.S. Bureau of Labor Statistics (1992-2013, 1991-2014), U.S. Census Bureau (1991-2014), Zorn (1991-2000), and *Public Plans Database* (2001-2013).

About the Center

The mission of the Center for Retirement Research at Boston College is to produce first-class research and educational tools and forge a strong link between the academic community and decision-makers in the public and private sectors around an issue of critical importance to the nation's future. To achieve this mission, the Center sponsors a wide variety of research projects, transmits new findings to a broad audience, trains new scholars, and broadens access to valuable data sources. Since its inception in 1998, the Center has established a reputation as an authoritative source of information on all major aspects of the retirement income debate.

Affiliated Institutions

The Brookings Institution
Syracuse University
Urban Institute

Contact Information

Center for Retirement Research
Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467-3808
Phone: (617) 552-1762
Fax: (617) 552-0191
E-mail: crr@bc.edu
Website: http://crr.bc.edu

The Center for Retirement Research thanks BlackRock, Capital Group, Citigroup, Fidelity & Guaranty Life, Goldman Sachs, MassMutual Financial Group, Prudential Financial, the James M. and Cathleen D. Stone Foundation, State Street, and TIAA Institute for support of this project.

© 2016, by Trustees of Boston College, Center for Retirement Research. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that the authors are identified and full credit, including copyright notice, is given to Trustees of Boston College, Center for Retirement Research.

The research reported herein was supported by the Center's Partnership Program. The findings and conclusions expressed are solely those of the authors and do not represent the opinions or policy of the partners or the Center for Retirement Research at Boston College.