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Attracting New Maine Residents: The Effects of Educational Attainment and Age on Interstate Mobility

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Attracting New Maine Residents:

The Effects of Educational Attainment and Age on Interstate Mobility

by Paul Leparulo

Abstract

Maine faces population issues that pose considerable headwinds to the state's economic growth and prosperity. Restoring a more robust growth path will require attracting new residents to the state. This article examines some of the factors that cause individuals to relocate across state lines. I quantify the relationship between educational attainment, age, and interstate mobility and find that having a bachelor's degree or higher has a large, positive, statistically significant effect on the probability of making an interstate move. The effect is strongest for people in their twenties (the youngest age in the restricted sample) and diminishes with age. The results indicate that age has a larger diminishing effect on those with higher educational attainment. I also find that homeownership substantially lowers the probability of a move. Limited data indicates similar results would hold for movers to Maine. The findings suggest that the development of a state's job market is a critical dimension in attracting and retaining residents.

emphasis, at least at this point, focuses on attracting domestic migrants, which leads to important questions regarding the determinants of interstate migration. Why do individuals relocate across state lines? More important, how can our knowledge of the causes of interstate mobility inform more-effective policy making to help Maine attract new residents and retain existing ones?

This article evaluates one aspect of the migration dynamic: the relationship between educational attainment and age and interstate mobility. I examine the effect of individuals' having at least bachelor's degrees on

the probability of them moving between states and extend the analysis to examine whether the effect differs for movers to Maine compared to movers to other states. The empirical analysis uses nine years of Current Population Survey Annual Social and Economic Supplement (CPS ASEC) data and probit regression models.

In this article, I present a synopsis of the population issues Maine is facing, then describe the data used in my analysis, and present the key findings of this study. These findings have implications for public policy in Maine, which I present in the final section of the article.

INTRODUCTION

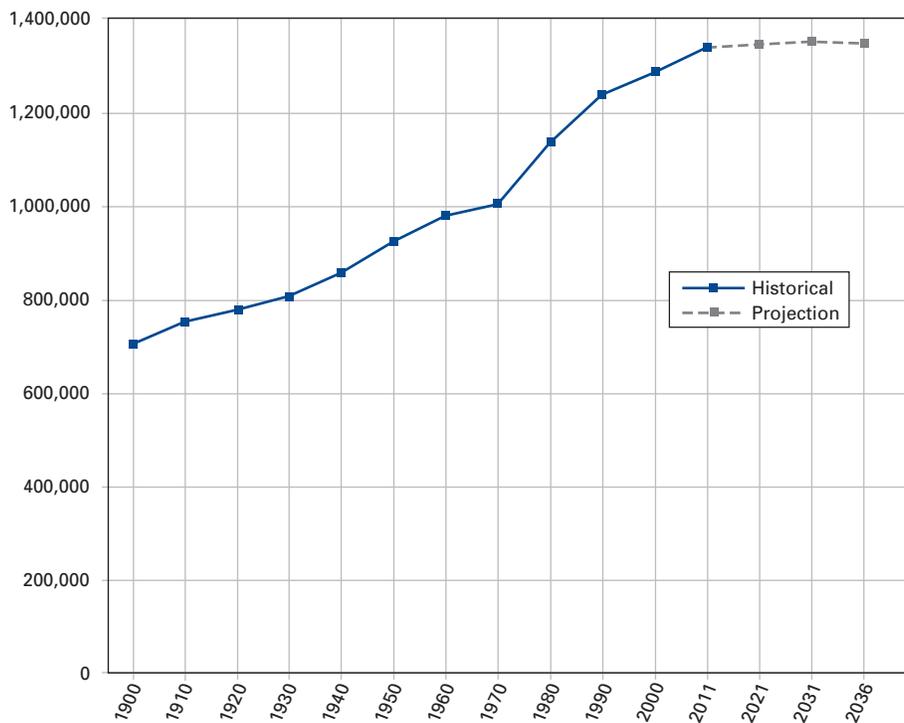
The demographic issues confronting Maine are well known and pose considerable challenges to future growth and prosperity. One of the headwinds the state is facing is somewhat rare among US states: natural decrease in the population, or more deaths than births. Between 2017 and 2018, only Maine and West Virginia had populations that did not grow naturally through reproduction (although Vermont was close to joining this group). A second headwind Maine is facing is the imbalance in the age structure of its population. Maine has more people nearing the retirement age than it has nearing the traditional working age, which is expected to result in a declining working-age population. Natural decrease constrains economic activity, and a declining working-age population makes it more difficult for employers to find skilled workers, both of which raise concerns for business attraction and retention and economic growth.

Understanding the considerable challenges these trends pose for Maine's future growth and prosperity, policymakers and administrators have begun discussing potential programs to attract new residents. The policy

MAINE'S DEMOGRAPHIC LANDSCAPE

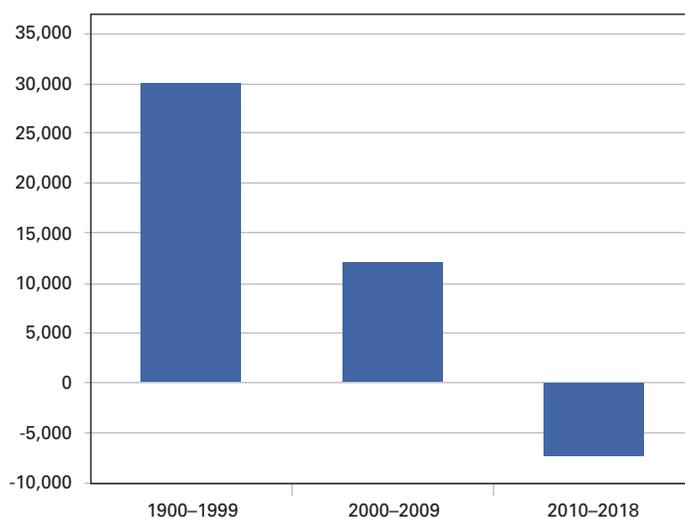
After decades of expansion, Maine's population is no longer growing, at least not in a meaningful way. In 2018, the state population grew 0.25 percent, and according to current state projections, it is expected to increase by a mere 0.6 percent from 2016 through 2036 (Figure 1), which is an average annual growth rate of 0.03 percent. These figures are in sharp contrast with Maine's historical growth patterns and are well below

FIGURE 1: Maine Historical and Projected Population Trends, 1900–2036



Source: Data from US Census Bureau (n.d., 1961, 2003, 2018a) and Maine DAFS (2018)

FIGURE 2: Maine’s Natural Increase/Decrease, 1990–2018



Source: Data from US Census Bureau (1999, 2009, 2018b)

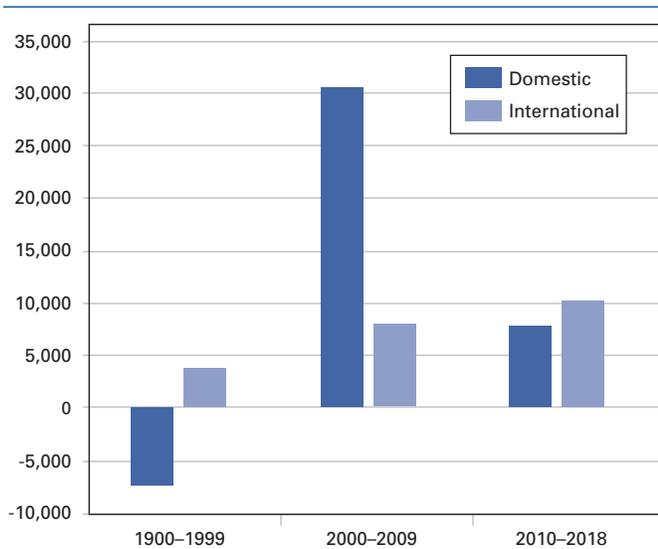
the US population growth forecast of 13 percent for the 2016 to 2036 period.¹ Even within the slow-growing New England region, Maine does not compare favorably. Massachusetts is forecasting close to 8 percent growth (2015–2035), while Connecticut is projecting 1.4 percent (2015–2035); the other New England states are somewhere in the middle of this range (Vermont creates two 2010–2030 growth scenarios, the average of which is 3.2 percent).² Population growth is a fundamental driver of economic growth, so these figures are troubling for Maine.

In 2012, Maine experienced a tectonic shift in its demographic landscape (Figure 2): the state went from having more births than deaths to having more deaths

than births (known as natural decrease). Natural decrease is rare in the United States. In fact, West Virginia and Puerto Rico were the only other US regions in a similar situation in 2018 (US Census Bureau 2018b). Natural decrease is occurring in Maine due to the state’s high median age, low fertility rates (a function of Maine’s high median age and low share of minority populations), and lack of young people moving to the state over the years to keep the growth cycle on an upward path.

The only way to grow a state’s population—if it is not increasing naturally—is through net migration. In the 1990s, Maine had a net outflow of residents, but since then more people have moved to the state than from it. The number of international migrants has grown steadily each decade, albeit off a small base. In terms of domestic migration, Maine experienced a net outflow in the 1990s, positive inflows between 2000 and 2009, and positive net inflows thus far this decade (Figure 3) (US Census Bureau 1999, 2009, 2018b).

FIGURE 3: Domestic and International Migration in Maine, 1990–2018



Source: Data from US Census Bureau (1999, 2009, 2018b)

A second demographic challenge confronting Maine is the imbalance in the age structure of its population. Generally, a growing population has a large cohort of youth ready to replace a smaller cohort of older people who are moving into retirement. Maine’s population had this form for decades. But the baby boomers, born between the mid-1940s and the mid-1960s, are an outsized portion of the population, and Maine hasn’t experienced enough in-migration over the past few decades to offset this imbalance. Now, as the baby boomers reach retirement age, there aren’t enough young people to replace them. According to current state 2016–2036 population forecasts, Maine’s population of 20- to 64-year-olds is projected to decline by 70,000 persons, a 9 percent drop over the 20-year period.³ A declining working-age population makes it more difficult for businesses to find skilled workers, which, in turn, may make it more difficult for the state to attract and retain employers and raises concerns about the state’s economic growth.

In addition to projected declines for the working-age population, the number of youths in Maine (those 19 years and younger) is forecast to decline by 16 percent through 2036. So if we categorize the state population into three groups—youth, working age, and traditional retirement age—the only segment that is projected to increase through 2036 is the traditional

TABLE 1: Projected Population Changes for Maine and United States

	Maine 2016–2036 (%)	United States 2016–2035 (%)
Youth	-15.7	4.1
Working age	-8.8	5.0
Traditional retirement age (65+)	47.3	58.4
Total population	0.6	12.9

Note: US and Maine age statistics are constructed using different age categories: Maine youth = 19 and under; US youth = under 18 years old; Maine working age = 20 to 64; US working age = 18 to 64.

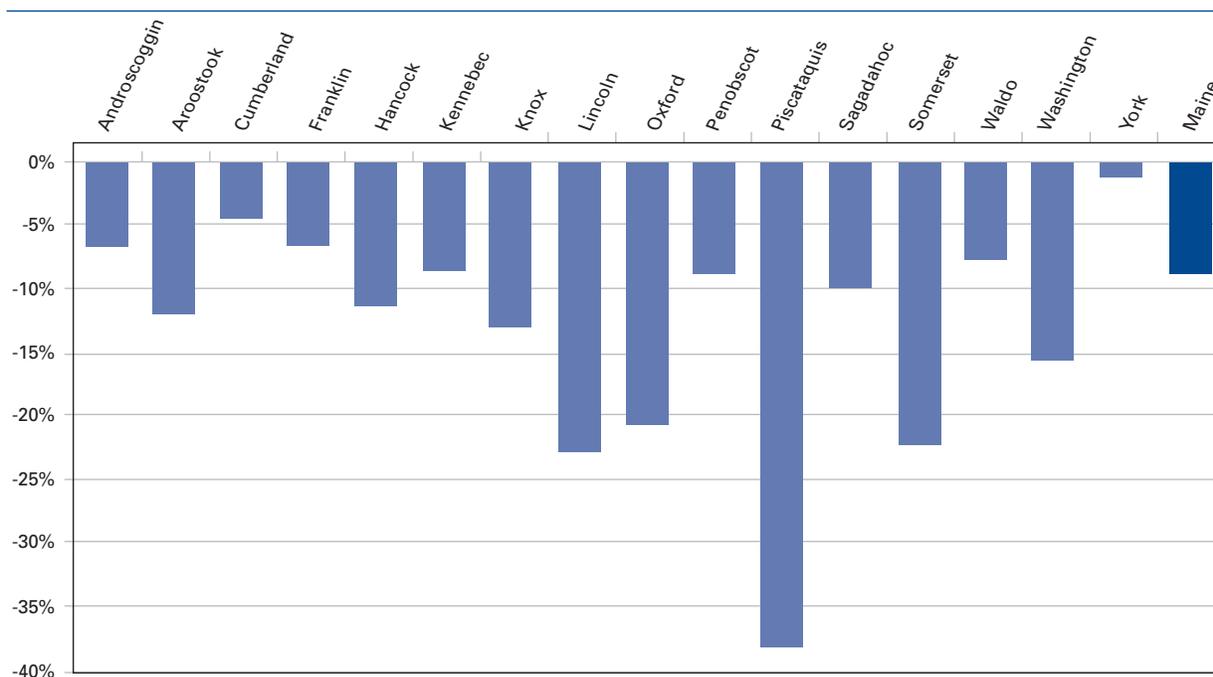
Source: Data from US Census Bureau (2018c) and Maine DAFS (2018).

retirement-age segment (Maine DAFS 2018). These trends are in contrast with forecasted national trends. Nationally, the youth and working-age populations are projected to increase in the mid-single-digit range through 2035 (US Census Bureau 2018c).

While statewide demographic trends are concerning, there are areas of growth at the county level, particularly in the southern part of the state. Indeed, from 2016 to 2036, the populations of York and Cumberland Counties are projected to grow 9.1 percent and 4.1 percent, respectively. In addition, the populations of Androscoggin, Waldo, and Penobscot Counties are expected to increase 1.3 percent, 1.2 percent, and 0.2 percent, respectively. The remaining 11 Maine counties are forecast to have declining populations.⁴ Although overall populations may grow in some regions, all counties are expected to experience a declining working-age population from 2016 to 2036. Projected declines range from -1 percent for York County to -37 percent for Piscataquis County (Figure 4).

These county-level population trends reflect Maine’s changing mix of industries and geographic-specific sector growth. Maine’s rim counties and rural areas have a higher concentration of industries that have been growing slowly or declining (paper, apparel, leather, and allied product manufacturing); whereas southern and urban regions have more service-sector industries that have been growing more rapidly (education, health care and social assistance, professional and business services,

FIGURE 4: Projected Percentage Change in Working-age Population by County, 2016–2036



Source: Data from Maine DAFS (2018)

and arts, entertainment, recreation, accommodation, and food services). Service industries are growing at an above-average rate and tend to flourish in population centers, which fosters greater economic growth in southern Maine.

Overall, Maine's population dynamics represent significant headwinds to future growth and prosperity. Stalling population growth and a declining working-age population constrain economic activity and present significant long-term concerns about the ability of businesses to satisfy their workforce needs in Maine. Moreover, these challenges introduce the prospect of structurally weaker economic growth as the group that is typically the most economically productive—working-age persons—experiences a near double-digit decline over a 20-year period. This has negative implications for tax revenues, public services, housing markets, jobs, state bond ratings, and the attraction and retention of residents.

These trends have caused policymakers and administrators to consider programs to attract new residents and retain existing ones. The initial policy emphasis appears to be focused on increasing domestic migration, which leads to important questions regarding the factors that cause individuals to relocate across state lines.

Why do individuals choose to migrate to different states? What are the characteristics of these individuals? And, what types of policies and programs would be most effective in attracting and retaining residents? To shed light on some of these issues, I investigate one aspect of the migration dynamic: the relationship between educational attainment and age and interstate mobility.

DATA

This analysis pools 2010–2018 CPS ASEC data. The CPS, also known as the household survey, is a monthly survey of approximately 60,000 households conducted by the US Census Bureau on behalf of the Bureau of Labor Statistics (BLS). It is the official source of government statistics on employment and unemployment. The ASEC is a supplemental survey that provides information on the social and economic status of the population and is one of several sources that informs the US Census Bureau on migration and geographic mobility.

There were 1,708,751 total responses in the pooled data set, which includes working-age individuals, students, as well as the retired and elderly. The focus of this study

is migration rates among the working-age population, which I define as the civilian population between 23 and 55 years old who are not enrolled in school full time. Using this definition avoids interstate moves associated with college-age students, those moves that occur near retirement, and relocations of military personnel. Restricting the data set in this manner left 728,289 observations, which I then used to evaluate the relationship between educational attainment and mobility.

Eleven percent of the people in the restricted sample changed residences either through an in-state or interstate move, and 15 percent of these people were interstate movers. Thus, 1.7 percent, or 12,623, of the 728,289 respondents relocated to a different state at some point over the eight-year period. I call these individuals “movers.” Of the 12,623 movers, 146 (1.2 percent) relocated to Maine and 69 relocated out of Maine. The sample of Maine movers is quite small, which poses some challenges for the analysis (discussed later).

I cross-tabulated the restricted sample with other microlevel data to determine demographics and other characteristics of interstate movers, movers to Maine,

and the US working-age population as a whole. Descriptive statistics follow. For context, I also provide descriptive information (created from the same data set) for people who moved out of Maine and for the Maine working-age population.

Compared with the average US working-age individual in the data set, interstate movers tended to be better educated and younger and were more likely to be single (Table 2). Forty-six percent of movers had a bachelor’s degree or higher, and 21 percent had a high school degree or equivalent, compared to 34 percent with a bachelor’s degree or higher and 28 percent with a high school degree or equivalent for the US working-age population. The median age of movers was 33, and 52 percent were single; whereas, the median age among general working-age population was 40, and 42 percent were single. The racial mix of movers was roughly comparable to that of the US population.

Movers to Maine were like other movers in terms of educational attainment, age, and marital status, but the racial mix was significantly less diverse (94 percent of Maine movers were white compared to 77 percent for all

TABLE 2: Summary Statistics on US and Maine Populations and Interstate Movers

	US population* (%)	Maine population* (%)	Interstate movers (%)	Movers to Maine (%)	Movers from Maine (%)
Median age (years)	40	42	33	34	33
Educational attainment					
Less than high school	10	6	8	4	13
High school diploma/GED	28	34	21	22	23
Some college but no degree	17	16	16	18	17
Associate’s degree	10	12	9	10	7
Bachelor’s degree or higher	34	32	46	47	40
Total	100	100	100	100	100
Other Characteristics					
Single	42	43	52	55	42
Homeownership	64	72	28	32	34
White	78	95	77	94	93
Black	13	1	12	2	7
Asian	6	1	8	1	0
Other	3	3	4	3	0

*Includes individuals aged 23 to 55 years old.

Note: Author’s calculations using the restricted sample.

interstate movers). People who moved to Maine were younger than the average Mainer of working age. They also had higher levels of educational attainment and were more likely to be single and less likely to be homeowners. The racial mix of movers to Maine was comparable to that of the Maine population.

Table 3 provides the percentages of US and Maine working-age people employed in different occupational categories, along with breakouts for interstate movers and movers to and from Maine. This table also includes the share of vacant jobs in Maine by occupational category from the 2016 Job Vacancy Survey (CWRI 2016). These additional data are useful in understanding how the occupations of movers overlap with Maine's unfilled jobs.

More interstate movers reported employment in professional and related occupations compared to the US

working-age population (24 percent vs. 19 percent). Professional and related jobs include computer and mathematical occupations; architecture and engineering occupations; life, physical, and social science occupations; community and social service occupations; legal occupations; education, training, and library occupations; arts and entertainment occupations; and healthcare practitioners. These jobs often require college or advanced degrees, pay above-average wages, and are projected to grow at a higher-than-average rate over the next decade—both nationally and in Maine (CWRI 2016; US BLS 2019). A lower share of movers reported employment in office and administrative, installation and maintenance, farming and fishing, and production occupations. These occupations typically do not require college or advanced degrees and are projected to grow at a below-average pace over the next 10 years, nationally and in Maine.

TABLE 3: Percentage of Respondents Employed in Major Occupational Categories and Corresponding Job Vacancies in Maine

Occupation	US population (%)	Maine population (%)	Interstate movers (%)	Movers to Maine (%)	Movers from Maine (%)	% of job vacancies in Maine ^a
Unemployed/not in labor force	18	17	19	13	29	
Management, business, and financial	14	13	14	13	7	3
Professional and related	19	19	24	27	23	16
Service	14	14	13	9	16	36
Sales and related	8	8	8	13	1	12
Office and administrative support	10	10	8	10	10	13
Farming, fishing, and forestry	1	1	0	0	0	0
Construction and extraction	5	5	4	4	3	4
Installation, maintenance, and repair	3	3	2	2	1	3
Production	5	5	3	5	5	5
Transportation and material moving	5	4	4	3	6	9
Total	100	100	100	100	100	100

Note: Percentages are based on the author's calculations using the restricted sample.

^a Figures calculated using data from CWRI (2016)

Compared to all interstate movers and the Maine population in general, a higher percentage of movers to Maine were employed in professional and sales occupations and a lower percentage were employed in service occupations (healthcare support, protective service, food preparation, building and grounds maintenance, and personal care). Additionally, a lower percentage of movers to Maine were unemployed, looking for work, or not in the labor force at the time of survey, possibly because movers to Maine were quicker to find employment than movers to other locations, or they may have been more likely to relocate with a job in hand. Movers to Maine also reported higher employment levels than Maine's working-age population reported.

A disproportionately high percentage (36 percent) of Maine's unfilled jobs were in service occupations. These are occupations where interstate and Maine movers reported average or below average employment. Professional and related occupations, where movers have a high share of employment, represented 16 percent of unfilled positions statewide. Maine movers reported employment in nearly all occupations with unfilled positions in Maine.

According to the household survey, job-related reasons were the most commonly cited factor (51 percent) in a respondent's decision to move to a different state, followed by family reasons (24 percent) (Table 4).

Movers with at least a bachelor's degree cited job-related reasons four times more frequently than they did the next most cited reason—family. Job-related reasons were less important for movers to Maine in general (35 percent), but still the most commonly cited reason for individuals with at least a bachelor's degree (49 percent). For people who moved from Maine, job-related reasons were again the most commonly reported reason (45 percent), particularly for those with at least a bachelor's degree (66 percent). Note for all three groups—interstate movers, movers to Maine, and movers from Maine—the higher the level of educational attainment, the higher the percentage of respondents citing job-related reasons as a factor in their decision to move.

There are some limitations in the data set used for this analysis. The CPS sample and methodology are designed to produce national estimates. Consequently, state sample data are not as reliable as the national data, particularly for small states such as Maine. The focus of my analysis is therefore on the larger and more reliable sample of all movers; I use the limited data sample only to understand if movers to Maine are like other movers in terms of the effect of educational attainment on mobility. Further analyses could pool additional years of data to create more robust sample sizes and estimates. Another limitation of the data set involves the lack of a variable that measures a person's motivation. This is

TABLE 4: **Reasons for Moving**

Reasons	Interstate Movers		Movers to Maine		Movers from Maine	
	All (%)	With at least a bachelor's degree (%)	All (%)	With at least a bachelor's degree (%)	All (%)	With at least a bachelor's degree (%)
Family ^a	24	15	22	13	26	10
Job related ^b	51	66	35	49	45	66
Housing related ^c	17	13	34	31	6	8
Other ^d	8	7	9	8	23	16
Total	100	100	100	100	100	100

Author's calculations using the restricted sample.

^a Family reasons: Change in marital status, to establish own household, other family reason

^b Job-related reasons: New job or job transfer, to look for work or lost job, to be closer to work/easier commute, other job-related reasons

^c Housing-related reasons: Wanted to own home, not rent, wanted new or better house/apt., wanted better neighborhood, cheaper housing, foreclosure/eviction, other housing reason

^d Other reasons: Attend/leave college, change of climate, health reasons, natural disaster, retired, other reason

important because highly motivated individuals tend to be highly educated and are also willing to move farther for the best jobs. As such, holding motivation fixed is important if one is to avoid bias in the estimates. Since there is no variable in the data set that measures motivation and alternative identification strategies were not fruitful, my conjecture is that the results will overestimate the impact of education on moving.

For a full description of the methodology and the models used in this study, please refer to the appendix on MPR's Digital Commons site (<https://digitalcommons.library.umaine.edu/mpr/vol28/iss2/>).

RESULTS AND DISCUSSION

The primary findings indicate that a person's educational attainment plays a significant role in migration decisions. I find that, on average, having at least a bachelor's degree increases the probability of an individual's interstate migration by 2.6 percentage points. This represents a doubling of the probability that a working-age individual relocates to a different state compared to individuals with less education. The effect is strongest for people in their twenties (the youngest age in the restricted sample) and diminishes with age. The results indicate that age has a larger diminishing effect on individuals with higher levels of education.

Consider the following—

The estimated probability of a move for an average college-educated 25-year-old who does not own a home is 8.8 percent. By age 35, the likelihood of moving has dropped by 3.4 percentage points to 5.4 percent, and by age 55, the probability of moving has dropped to 3 percent.

The predicted probability for a move by a 25-year-old without a bachelor's degree is lower, but it declines at a slower pace. The likelihood of moving at 25, 35, and 55 years old is 3.8 percent, 2.6 percent, and 2 percent, respectively.

The likelihood of an interstate move by an average 25-year-old with at least a four-year college

degree (8.8 percent) is thus 5 percentage points higher than it is for a 25-year-old with less education (3.8 percent). By age 35, the college-educated person is 2.8 percentage points more likely to move (5.4 vs. 2.6 percent, respectively), and at age 55, 1 percentage point more likely to relocate (3 vs. 2 percent) compared to individuals with less education. On average, the probability of moving to another state is 2.6 percentage points higher for individuals with at least a bachelor's degree compared to without a bachelor's degree. So, on average, a college degree doubles the probability that a working-age individual relocates to a different state.

These dynamics are illustrated in Figure 5. Complete regression results may be found in the appendix (<https://digitalcommons.library.umaine.edu/mpr/vol28/iss2/>).

Owning a home substantially lowers the likelihood that a person will make an interstate move. The effect is particularly strong for the young and highly educated. For example, for an average 25-year-old with at least a four-year college degree, homeownership lowers the probability of moving by 6.6 percentage points to 2.3 percent (see Figure 6). While the negative effect diminishes with age, homeownership represents a significant headwind to moving for individuals of all ages and education levels in my analysis. On average, the probability of moving is 2.5 percentage points lower for homeowners than for non-homeowners.

The regression produces reliable estimates on the

FIGURE 5: **The Effect of Education on the Probability of an Interstate Move**

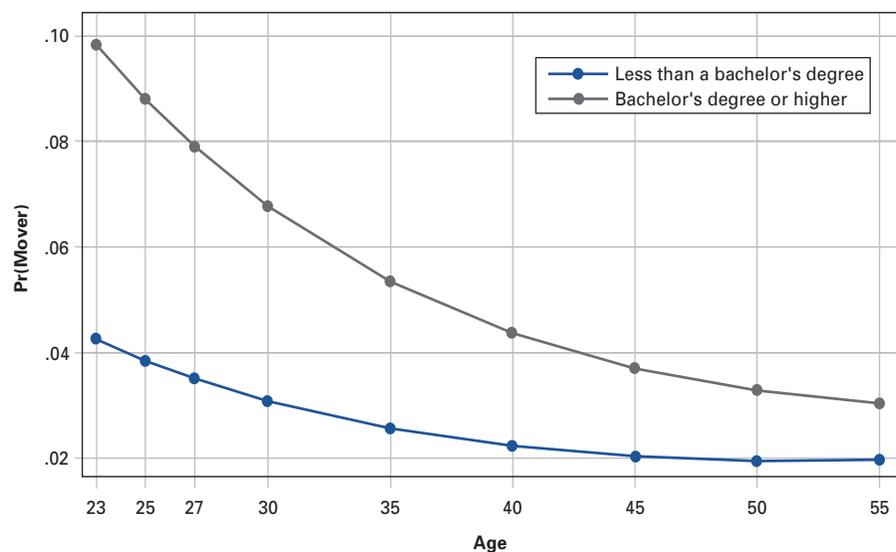
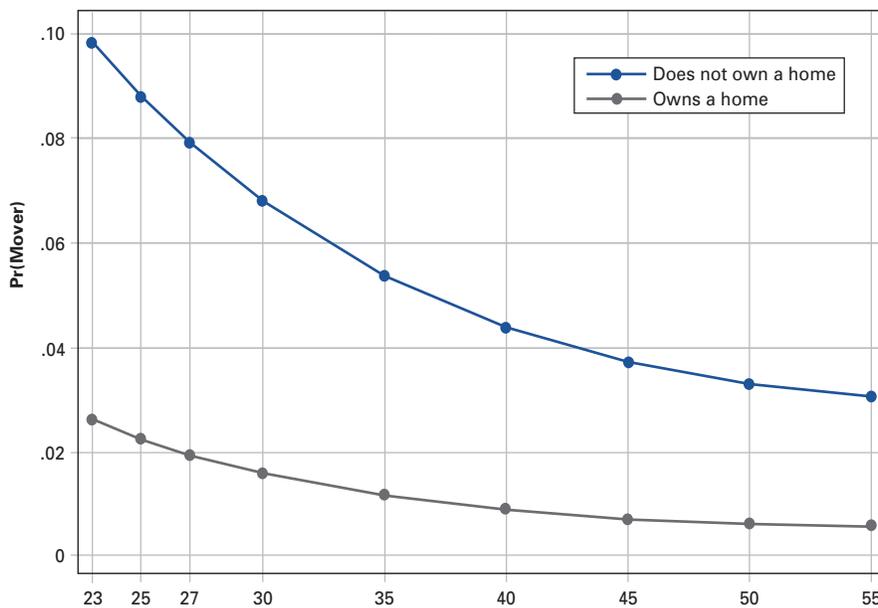


FIGURE 6: **The Effect of Homeownership on Interstate Mobility for Individuals with at Least a Bachelor's Degree**



behavior of movers, and having explored similar models using the limited data sample of Maine movers only, I find no evidence to suggest that the results for Maine would differ from the overall findings. Put differently, the effects of having at least a bachelor's degree, age, and homeownership on the likelihood of a person's moving to Maine are not statistically different than they would be on the likelihood of a person's moving to another state.

Several broad implications for public policy emerge from these results. The findings are particularly useful for states such as Maine that have the goal of attracting new residents and retaining existing ones.

The demographic profile of interstate movers can benefit a state in a variety of ways. In addition to providing an immediate increase for a state's population, movers—who tend to be young—increase the potential for future growth because they may start families and have children. Individuals who relocate across state lines also tend to be well educated, which has positive implications for workforce quality and productivity growth. For Maine in particular, interstate movers reported employment in nearly all the occupations that have unfilled positions in the state, so they could help fill these jobs. Attracting interstate movers to Maine should foster the state's productivity and economic growth, which will

help to attract and retain employers and residents alike.

The analysis shows that that young, highly educated non-homeowners are the most likely candidates for interstate moves, and they are presumably willing to travel longer distances to find the best jobs. This finding suggests that the quality of a state's job market—in terms of the quantity and variety of jobs requiring a bachelor's degree or higher, the level of wages, and the abundance of career opportunities—is a critical dimension in attracting new residents and retaining existing ones. If so, the development of a state's job market and workforce should be a high priority for policymakers concerned with spurring long-term economic growth. Policies

that encourage employment opportunities in fields that require at least a bachelor's degree (e.g., attracting and retaining employers who provide such jobs) can attract individuals from out of state and discourage people from leaving.

Maine can certainly do better on this front. Maine's average annual private sector wages are 21 percent below the national average (US BLS n.d.), and the share of jobs that require at least a bachelor's degree is also comparatively low. In addition, jobs in Maine requiring advanced degrees are expected to grow by only 3 percent over the next decade (CWRI 2018), whereas nationally these jobs are projected to grow by 8 percent (US BLS 2019).⁵ Policies and strategies that result in a richer mix of jobs will help attract new residents and retain existing ones.

The analysis also demonstrates that owning a home results in a reduced likelihood of an individual relocating to a different state. As such, policies that encourage homeownership may be able to create a more stable workforce as fewer people would be willing to leave the state. The results of this analysis can also be used to inform marketing programs that have the goal of recruiting new residents. For example, advertising campaigns that target individuals in their twenties with at least a bachelor's degree who do not own a home

should have higher returns than campaigns that target out-of-state homeowners, individuals in their forties and fifties, or those with less than a bachelor degree.

These measures will help attract new residents and retain existing ones, which will be essential in restoring Maine to a healthier growth trajectory. There are many additional areas of migration research that can inform states seeking to craft policies to attract and retain residents. Further research could improve on this study by pooling additional years of data to create a more robust sample size, and facets of the analysis could be explored in more detail. 🐼

ENDNOTES

1. Facts and figures in this section are similar to presentations I worked on as part of the Office of Policy and Management in 2016 (OPM 2016).
2. Calculations are based on my analysis of publicly available information from the US Census Bureau (2018d), Maine DAFS (2018), Renski and Strate (2015), Connecticut State Data Center (2017), Jones and Scharz (2013), Rhode Island DSP (2013), and New Hampshire OSI (2016).
3. My calculation using “Maine State and County Population Projections 2036” (Maine DAFS 2018).
4. Calculations are mine using data from “Maine State and County Population Projections 2036” (Maine DAFS 2018).
5. CWRI’s projections span the 2016 to 2026 period; BLS projections are for 2018 to 2028.

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