No Place Like Home: Place-Based Attachments and Regional Science

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Abstract

Place-based attachments are important but often overlooked. Place-based attachments can be beneficial but often harm individuals tied to struggling areas. In this address, I discuss my own education and migration experiences and then more generally discuss sense of belonging as a friction to migration. I also present descriptive statistics related to place-based attachments. Most persons born in the U.S. live in their birth state as adults. Birth-state residence has increased over time, especially among the highly educated. I also present evidence that college graduates who reside in their birth state experience a wage penalty that is increasing over time.

Keywords: location, place, regions, migration frictions, policy
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1. Introduction

Regional science is many things to many people. I consider myself a "big tent" regional scientist meaning that I welcome and appreciate rigorous, innovative, and useful contributions from many different fields and perspectives, including my home discipline of economics. I also try to have healthy levels of humility and skepticism about the state of knowledge in regional science and the social sciences more broadly. We have learned a lot, but there is still much we don't know. There are also surely some things we think we know that are wrong.

The bulk of my discussion will be on place-based attachments, a topic on which I have worked extensively (Winters, 2011a, b; Sjoquist and Winters 2014; Winters, 2017; Winters, 2018; Winters, 2020). Neo-classical economics has historically assumed that individuals are perfectly mobile across areas (Roback, 1982). Regional science has long known otherwise, and mainstream economists have more recently started to come around (Chetty et al., 2014; Austin et al., 2018; Autor et al., 2021). The evidence is now overwhelming that place-based attachments exist and create significant frictions to migration (Kennan and Walker, 2011; Bosquet and Overman, 2019; Zabek, 2019; Koşar et al., 2021; Ransom, 2021). Place-based attachments create a potential rationale for place-based policies, something that many others have written on far more than I (Partridge and Rickman, 2006; Partridge et al., 2015; Bartik, 2020). At a minimum, research and policy discussions should continually recognize that everything has a regional context. Regions shape who we are and what we do. Regions are important, and so is regional science.

This address will deviate from standard research paper templates. The next section provides narrative discussion on my own migration and education history to provide individual context about how regions have influenced me and my thinking. Section 3 more broadly

discusses sense of belonging as a migration friction. Section 4 presents some descriptive statistics related to place-based attachments. Section 5 concludes.

2. Individual Context

My formal education and training is in economics, and I have been employed in economics departments since earning my Ph.D. in 2009. However, I have broad interests spanning multiple disciplines and always have. I have been blessed to interact with many great people in regional science and the social sciences more broadly.

I am a first-generation college graduate. I was born in Memphis, Tennessee and lived there until I was 11 years old. I also spent a lot of time at my maternal grandparents' rural home just outside Memphis in Desoto County, Mississippi. Both of my parents worked, and my grandmother provided free high-quality childcare. When I was 11, my family moved to Horn Lake, Mississippi, a suburb of Memphis just over the state line and closer to my maternal grandparents. I graduated from Horn Lake High School and then went to Mississippi State University for undergraduate studies. I sometimes tell people I am from Memphis and sometimes from Mississippi. Both are true. I also grew up somewhat exposed to urban, suburban, and rural life and culture.

Before I went off to college, I did not know what economics was and I had never even heard the term regional science. I started off as a history major because I liked the social sciences, enjoyed history class in high school, and had some idea what the field was. However, as a college freshman, I quickly became interested in other fields including psychology, sociology, public policy, and eventually economics. I was attracted to the economic way of thinking, and I liked that economists could help shape public policy, but I also quickly realized

that contemporary economics did not really have all the answers. It still does not. Economics is a toolkit with some great tools, but no tool works perfectly all the time, and most tools are only as good as the persons using them.

My interest in economics took me to graduate school at Georgia State University, where I first learned about regional science and urban economics. I was also interested in labor economics and public economics, and I have always straddled these fields somewhat and strategically self-identified as the situation warranted. After earning my Ph.D., I spent two years at Auburn University at Montgomery, two years at the University of Cincinnati, five years at Oklahoma State University, and recently finished my fourth year at Iowa State University. These were all tenure-track or tenured positions, and I consider myself very fortunate to have had these great employment opportunities and work with many great people. In retrospect, I have moved around a lot for an academic economist. One thing I have learned is that moving is costly and gets more costly with age, not just for me but also for my family. I sincerely hope and expect that my family and I are done moving for a while.

So why did I make those previous moves? Expected utility maximization. Seriously. Why do I not expect to move again? For the same reason, expected utility maximization. I am trained to think like an economist, but I mostly thought like an economist long before my training. However, it is quite obvious to me that I am not normal. Most economists are not normal. In other words, economists think a certain way not only because of the treatment economics education provides but also because they often differed on various pre-college characteristics and sorted into economics based on those. This mindset can be a strength, but it can also create some blind spots.

I also recognize that I am often different from many mainstream economists. I am hesitant to paint with too broad of a brush, but there appears to be a large contingent of economists that enjoy math for the sake of math and develop overly complicated models with limited practical usefulness, and this has been true for some time (Miernyk, 1976; Partridge, 2006). I certainly agree that math and formal modeling can yield insights not otherwise evident, and I am glad there are people with different skills and preferences than me in this regard, but I believe complexity is sometimes taken too far at the expense of usefulness. I agree with many regional scientists who have come before me that economics needs more research that addresses real-world policy-relevant issues. I also especially enjoy working with data, and I believe that has been my comparative advantage as a researcher.

Like most people in regional science, I also differ from mainstream economics in the importance I give to place and space. The places I have lived clearly shaped me and those around me. In economics language, place shapes one's preferences and resources. While preferences have some innate or biological aspects, they are also very much shaped by culture and experience. I grew up enjoying fried chicken, sweet tea, and Memphis Tigers basketball and still do. Of course, preferences and beliefs are not permanent, and mine have changed some over time.

I am also very much a product of the public schools I attended in Memphis and Horn Lake. They have helped shape my worldview and my human capital. I came from a lower-middle-income household, as did many of my peers. Many people in my schools did not graduate high school and some got in trouble with law enforcement, but there were also plenty of strivers who believed in opportunity for upward mobility. I did not go to the very best schools, but my schools still gave me enough opportunity to be where I am today. There are certainly

some people who grew up with more opportunities and privileges than me, but certainly many people with far less. I am grateful for the opportunities I have had and consider myself very lucky.

3. Sense of Belonging as a Friction to Migration

The U.S. is a land of opportunity, but opportunity is unevenly dispersed across areas (Chetty et al., 2014). Once you are an adult, you can leave a low opportunity area for one with better opportunities. Many people do, but many people do not. Why do some stay in low opportunity areas? I argue that it is often because they have attachments to those places and sense of belonging there. I argue that humans have an innate desire to belong, a desire to have a home. Thus, opportunity and belonging are competing forces in migration decisions. The more that one feels they belong in a particular area, the less responsive they are to migration opportunities to other areas. Those who don't quite belong are more apt to move in part to look for a place where they do belong. Furthermore, when people do move, they are especially likely to move short distances and to places that are similar to their previous locations (Alm and Winters, 2009; Krupka, 2009; Molloy et al., 2011; Wilson, 2021; Kremer, 2022). Thus, belonging is not just to a particular place or set of people. There is a strong regional and cultural component.[1]

[1] Migration decisions are further complicated by multi-person households and differential place-based attachments within a household. How does a household make a decision when option A benefits some household members but option B benefits others? There is likely considerable heterogeneity that depends on culture and relationships within the household. For example, an older migration literature typically found that family migration decisions were largely driven by a husband's employment opportunities (Boyle et al., 2001; Cooke, 2001). However, that seems less true on average in more modern times and there is evidence that couples increasingly choose large labor markets to try to solve colocation problems (Costa and Kahn, 2000; Simon, 2019). Of course, parents also care about the well-being of their children and future descendants and likely take that into account in making migration decisions. For example, parents may be especially reluctant to move while their children are in high school, largely because of the effect on their social lives and sense of belonging.

To make things more concrete, define utility for individual i in place a as U_{ia}. This utility will depend on the employment, consumption, social, recreational, and self-improvement opportunities in the area and the individual's preferences and resources. Locations also differ in prices for housing and other goods and services. Conditional on residing in a given area, each individual maximizes their utility subject to their budget constraint. Further assume another location, place b, that would give individual i utility of U_{ib}. If we observe individual i living in place a instead of b, we may interpret this to indicate that person i has a revealed preference for a over b all things considered. Extending the logic to many possible locations, we expect that individuals will choose the location that gives them the highest possible utility. Given that individuals have different preferences and resources, they sort into different locations. Individual preferences and resources also change over one's life course and locations change over time in ways that often generate migration from one location to another. Of course, some people never move or only modestly. This may partially reflect moving costs such as the costs of moving one's possessions and the search costs associated with finding a new residence, employer, etc. Sufficiently high moving costs may prevent some individuals from locating in the location that would give them the highest utility, i.e., their choices are not unconstrained. Such moving costs are likely to be especially salient for persons with limited financial resources and inability to finance a move.

Heterogeneous preference and resources are major factors explaining why different people locate in different places. Preferences and resources are heavily shaped by where an individual previously lived, causing location decisions to be path-dependent. Many people who grow up in a particular area develop a strong preference for living in that area or another very similar area. This preference is often driven in part by social networks, including proximity to

family and friends also in the area. Proximity to family and friends can also lower the cost of living in an area and provide insurance against adverse shocks. For example, family and friends may provide free or low-cost childcare for working parents, backup transportation for those with unreliable transportation, help with things like home and automobile maintenance, and a place to stay during hard times. Location decisions can also depend on preferences for locational attributes such as favorite local restaurants, sports teams, cultural influences, and other social and recreational opportunities particular to the area. Individuals from an area often make human capital investments that further increase their preferences for the opportunities the area offers. Rocky Mountain natives can learn skiing, hiking, and climbing; Minnesotans can learn ice fishing, curling, and hockey; coastal residents can learn surfing and other water and beach activities. Individuals also often invest in job skills that are particularly valuable in their home area (Han and Winters, 2020).

Return now to the discussion of belonging. What is belonging, and how does it affect attachment to particular places? Is belonging just attachment to people? Is it attachment to local consumption and leisure activities? Is there something else? I argue that attachment to local people and activities are major sources of belonging, but not the only sources of belonging. For many people, a place can be part of their identity (Fannin 2020). Place-based identity can manifest at the global, continental, national, regional, and/or local level. People who strongly identify with a particular area are often especially attached to that area and very likely to reside there. Locating there helps fulfill and validate their self-identity. They feel more comfortable there and feel like that is where they should be. They belong there. It is their home.

Of course, preferences are heterogeneous, and not everyone is strongly attached to their place of birth or upbringing. Many people are intent on leaving and staying away. Some people

move around multiple times before eventually settling down in a place they call home. Others are constantly on the move and never settle down anywhere. Thus, place-based attachments are not absolute. The next section uses migration data to provide some insight into place-based attachments.

4. Descriptive Statistics on Place-Based Attachments

I next present some descriptive statistics and facts about migration and mobility that I argue are influenced by competing forces of place-based attachments and economic opportunities. These statistics are not fundamentally novel, but I hope some new insights can be obtained. I will measure migration based on whether an adult lives in the same state as they were born, not because it is a perfect measure but because it is a simple and convenient one.[2] I limit the analysis to persons born in the U.S. I use data from the 1980, 1990, and 2000 decennial census long-form surveys and the 2010 and 2019 American Community Survey (ACS). My analytical sample ends at 2019 and is therefore unaffected by the COVID-19 pandemic in 2020 and later years.

Fact 1: A majority of adults ages 25-59 live in their state of birth.

63.5 percent of adults ages 25-59 lived in their birth state in 2019. I limit the analysis to these ages to focus on ages with strong labor market attachment. Persons under age 25 are often still completing school, and persons age 60 and older may be in retirement. While not a major

[2] The data do not indicate the specific location within a state where an individual was born. Thus, some birth-state movers might be short distance moves that simply cross a state boundary but still live in the same local labor market, e.g. moves from Memphis, TN to Horn Lake, MS. The lack of precision in the migration measure is a limitation of the analysis, but the general implications are likely unaffected.

point of emphasis here, it is also worth noting that birth-state residence rates decline with age (Winters, 2017, 2020).

Fact 2: Birth-state residence has increased in recent years.

Figure 1 reports the percentage of persons ages 25-59 living in their state of birth by survey year. There was a slight decrease during 1980-2000, but birth-state residence increased by about two percentage points during 2000-2019 from 61.6 percent to 63.5 percent. Increased birth-state residence means that birth-state out-migration declined. A sizable literature has documented declining migration in the U.S. (Molloy et al., 2011; Partridge et al., 2012; Kaplan and Schulhofer-Wohl, 2017).

Fact 3: Birth-state residence varies across states.

Figure 2 maps the 2019 percentage of persons ages 25-59 living in their state of birth by birth state. Values are also reported in Appendix Table A1. While the birth-state residence rate exceeds 50 percent in most states, it is below half for some less populous states including Wyoming, Alaska, and both Dakotas. The percentage is highest in high-growth Southern states including Texas, North Carolina, and Georgia; it is also relatively high in Minnesota and Wisconsin. Overall, rates are generally higher in the South, Midwest, and Pacific coast than in the Northeast and Rocky Mountain regions. These patterns are likely at least partially affected by economic opportunities and migration costs. For example, Texas is large in both space and population and has several large employment centers and extensive rural areas. There are ample job opportunities in the large metropolitan areas and many native Texans can find good jobs in the metropolitan area where they were born and raised. Those who leave their home area are

often pulled to the (other) large employment centers within Texas. Thus, some Texans may leave their origin local area but still remain in Texas. In other words, Texas has so many opportunities within the state, that there is less employment rationale for leaving the state. Many people move within Texas and relatively few need to move out of Texas. This is in strong contrast to less populous states like Wyoming, Alaska, and the Dakotas, where there are fewer opportunities for many specialized workers. However, employment opportunities are likely not the only factor. Many Texans view being Texan as an especially important part of their identity. It is difficult at this point to rigorously assess whether Texans are more attached to their home state than are natives from other states, but spatial differences in birth-place attachment is likely an issue worthy of future investigation.

As noted above, Texas, North Carolina, and Georgia have also experienced considerable net migration and population growth in recent years. I also examined correlation coefficients between birth-state residence rates and population growth rates (-0.05) and net migration rates (0.04) during 2010-2019 and found that these are very weakly correlated. Thus, birth-state residence is not strongly related to growth.[3] This may be somewhat surprising, but is likely consistent with growth depending on both people and jobs (Partridge and Rickman, 2003). Some states with low employment growth may be desirable to previous residents but unattractive to potential new residents if there are few job opportunities. Similarly, increased birth-state residence may even crowd out potential in-migrants, especially in states with limited job opportunities or inelastic housing supply.

Fact 4: Birth-state residence decreases with higher education.

[3] Some high growth states like Colorado, Idaho, and North Dakota do not rank very highly for birth-state residence rates, while some low growth states like Mississippi and Arkansas have much higher birth-state residence rates.

Figure 3 reports the 2019 percentage of persons ages 25-59 living in their state of birth for six mutually exclusive categories of highest level of education completed: 1) persons with no college education, 2) persons with some college but no bachelor's degree, 3) persons with a bachelor's degree, 4) persons with a master's degree, 5) persons with a professional degree, and 6) persons with a doctoral degree. The birth-state residence share strongly declines with education, consistent with previous literature (Wozniak, 2010; Malamud and Wozniak, 2012). 71.3 percent of persons with no college live in their birth state but only 38.9 percent of persons with doctorates do. Persons with advanced education are generally more specialized and often need to leave their home area to reap the maximum return on their human capital investment. Higher education is also likely associated with personality traits such as openness to experience that increase mobility. Additionally, persons with less education may have the greatest difficulty financing a move and may be especially reliant on social networks in their current location, which makes moving impractical for them.

Fact 5: Birth-state residence has especially increased in recent years for Ph.D.s and professors.

Figure 2 indicated that birth-state residence has increased overall in recent years, but Figure 4 indicates that the increase is especially pronounced for persons with doctoral degrees. Information on doctoral degrees was first collected in 1990, so we necessarily exclude 1980 from Figure 4. Figure 4 indicates that the percentage of doctoral degree holders living in their birth state increased from 29.8 percent in 1990 to 38.9 percent in 2019, an increase much larger than for the full sample.

Figure 5 takes a similar look at time trends in birth-state residence for persons employed as college professors and other college/university instructors. The rate goes from 35.9 percent in

1980 and 35.5 percent in 1990 to 40.9 percent in 2019. Thus, the increase in birth-state residence is especially pronounced among the very highly educated and individuals employed in higher education. This may partially reflect that these groups started at especially low levels of birth-state residence and had more room to grow. It could also partially reflect rising demand for skills everywhere and growth in the higher education sector specifically that make opportunities more plentiful in an individual's home state. However, such a sharp change in a relatively short period suggests that preferences may also have changed. Specifically, highly educated persons may be increasingly attached to their birth states.

Fact 6: Controlling for education yields even larger increases in birth-state residence over time.

Table 1 uses linear regression to examine changes over time in birth-state residence controlling for individual demographic characteristics and then education level. Changes over time are measured via year dummies with 1990 as the omitted base year. The 1980 Census sample is excluded from this analysis because the education question was very different in that year and would complicate comparisons. Column (1) has no controls. Column (2) adds detailed dummy control variables for age, sex, race, and Hispanic ethnicity. Column (3) adds detailed dummy control variables for education. Panel A shows the results for the full sample of adults ages 25-59. Panel B is restricted to persons with less than a bachelor's degree, and Panel C is restricted to persons with a bachelor's degree or higher. Though not shown, it is worth noting that education levels have risen over time.

Adding demographic controls in Column (2) alters the coefficients modestly, but adding education controls in Column (3) has a more pronounced impact on the magnitude of birth-state residence increases over time. Controlling for education increases the 2019 coefficient from

0.017 to 0.044 for the full sample. The interpretation here is tricky because education is endogenously correlated with unobservable individual characteristics and the composition within education groups is likely changing over time. For example, consider two education groups and two time periods with a larger proportion of highly educated people in the second period. Those who are highly educated in the first period may be disproportionately high ability and have high intrinsic likelihood of leaving their birth state for opportunities elsewhere. Bringing more people into the high education group in the second period may bring in more people with more moderate ability and more moderate likelihood of leaving their birth state. This kind of changing composition in unobservable characteristics would mean that controlling for education would overstate the increase in home-state residence. However, if education causally increases mobility as suggested by previous literature (Malamud and Wozniak, 2012; Barone et al., 2019; Lovén et al., 2020), then not controlling for education hides some of the increase in birth-state attachment over time. We cannot be very confident on how to interpret these estimates, but we might think about Columns (2) and (3) as providing some rough bounds. Future research may wish to take up this issue more rigorously. For now, it is still notable that controlling for education increases the conditional change in birth-state residence over time.

Panels B and C of Table 1 show that splitting the sample into non-college graduates and college graduates yields larger baseline coefficients in Column (1) for both groups and less increase across specifications from adding controls. Specifically, the year 2019 coefficient goes from 0.029 to 0.041 for non-graduates in Panel B and from 0.050 to 0.048 for college graduates in Panel C. There is again some difficulty in interpretation because education may be correlated with unobservable characteristics related to migration that change over time. However, taking

the results at face value, it appears that increases in birth-state attachment over time are especially pronounced for college graduates.[4]

Fact 7: Regression analysis suggests an average "wage penalty" for college graduates residing in their birth state that has increased over time.

Table 2 reports results from linear regression of log annual wage and salary income on a dummy variable for living in one's birth state that also controls for age, sex, race, Hispanic ethnicity, and education level via detailed dummy variables. The analysis is conducted separately for years 2019, 2010, 2000, 1990, and 1980. Panel A reports results for the full sample of persons born in the U.S., ages 25-59, and with positive wage and salary income. Panel B further limits the sample to persons with less than a bachelor's degree, and Panel C limits the sample to persons with a bachelor's degree or higher.

The 2019 coefficient for college graduates is -0.052 and statistically significant at the one percent level, indicating that college graduates living in their birth state experience 5.2 percent lower wage income on average compared to observationally similar persons living outside their birth state. Thus, there appears to be a wage penalty for college graduates who reside in their birth state. This wage penalty for non-migrant college graduates has also increased over time. In contrast, non-college graduates residing in their birth state appear to experience no such wage penalty in recent years. Because education and migration decisions are not random and are likely influenced by unobservable characteristics, we cannot draw strong conclusions about these

[4] A related issue not focused on in this paper is the percentage of college students attending college in their birth state. This percentage increased over time from 67.3 percent in 1980 to 68.5 percent in 2000 and to 72.2 percent in 2019. During this time, college enrollment rates also increased and marginal enrollees pulled into college likely have fewer resources than infra-marginal enrollees and are more likely to attend in their home state. Thus, as with birth-state differences by educational attainment, it is difficult to say if increased birth-state college enrollment over time is due to changing preferences or changing composition of the college-going population. Still, the trends are potentially consistent with increased birth-state attachment for college enrollees.

results. However, one plausible explanation is that college graduates may be increasingly foregoing higher-paying employment opportunities outside their birth state in order to remain in their birth state because of increased attachments to their birth states.[5]

5. Discussion and Conclusion

Individual attachments to places are very important but often overlooked by scholars. This may partially reflect that scholars themselves are historically very mobile and belong to a hyper-mobile peer group that also includes a high proportion of foreign-born colleagues. This may bias their beliefs and cause them to overstate the mobility of others, especially their less-educated counterparts. However, not everyone is hypermobile or wants to be hypermobile, even among academics. Even those who were mobile in the past may have more recently found a place to settle down or long to find one in the future. Place-based attachments are important and appear to be increasing in importance, especially among the highly educated.

Regional science has a long history of studying place-based attachments, their causes, and consequences. For many individuals with attachments to places with good quality of life and good economic opportunities, their place-based attachments can increase their fulfillment and improve their overall well-being. However, individuals attached to less vibrant communities may suffer from their attachments via persistent joblessness, poverty, and worsened health. Regional science, and the social sciences more broadly, should continue research and scholarly debate to better document and understand place-based attachments. The regional science community would likely benefit from incorporating additional insights on place-based

[5] Bick and Flugum (2022) also find that executives in companies with headquarters located near their undergraduate institution are paid less than their peers, consistent with executives having location-specific attachments to places near where they attended college that incline them to accept lower pay.

attachments from historians, political scientists, sociologists, and other social scientists. It is also imperative to actively engage with policymakers and media to help inform policy debates related to place-based attachments (Deller, 2015). A fundamental set of normative questions concerns whether, when, and how public policy should encourage or discourage place-based attachments. The optimal response likely depends on both individual and place-specific contexts. Spillovers across people and places are also important considerations.

Place-based attachments provide a potential justification for some, though not all, place-based policies (Partridge and Rickman, 2006; Partridge et al., 2015; Austin et al., 2018; Bartik, 2020). Place-based policies are numerous and heterogeneous, and there is not always a clear demarcation between whether a policy is place-based or people-based. For example, public education in the U.S. is a massive web of place-based and people-based policies. There is certainly room for improvement in education overall and in the aspects that are especially place-based. Many remote rural areas have poor access to higher education. Place-based attachments may prevent some young people from going off to college, and those who do head off to college weaken their attachments to their home area and may become less likely to return. Online education has some potential, but many rural residents still lack high-speed internet to make online education practical. The COVID-19 pandemic has illustrated the importance of high-speed internet access and the deficiencies that still exist in many areas, especially rural ones. High-speed internet is not a panacea, but increased access in rural areas is likely a valuable place-based policy that can benefit various stakeholders (Low 2020). Arguably, there is still a need for higher quality, more engaging, and lower cost online education. Improving online education would be good for many places but would likely especially benefit rural areas.

Scholars should also recognize that the goals of local stakeholders may be at odds with broader societal goals. For example, highly productive workers leaving their origin areas may be bad for the local areas that lose them but good for the nation as a whole if they are more productive in their new locations. Mobility also exposes individuals to new people and new ideas that facilitate innovation and may improve societal well-being everywhere. Conversely, policy efforts to reduce out-migration and keep home-grown talent may be good for the local area that keeps them but bad for the broader area and possibly bad for the individuals who miss out on better opportunities elsewhere. Additionally, increased local attachments may also spur regional polarization and reduce individuals' sense of national identity. Regional scientists should avoid working as mere boosters for their specific region at the expense of others. That said, there is a clear rationale for regional scientists to create and disseminate knowledge to help make their regions better places to live for themselves, their neighbors, and anyone who may wish to join them. Regions shape who we are and what we do. If we are fortunate, we can also shape our regions for the better.

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Figure 1: Birth-State Residence by Year

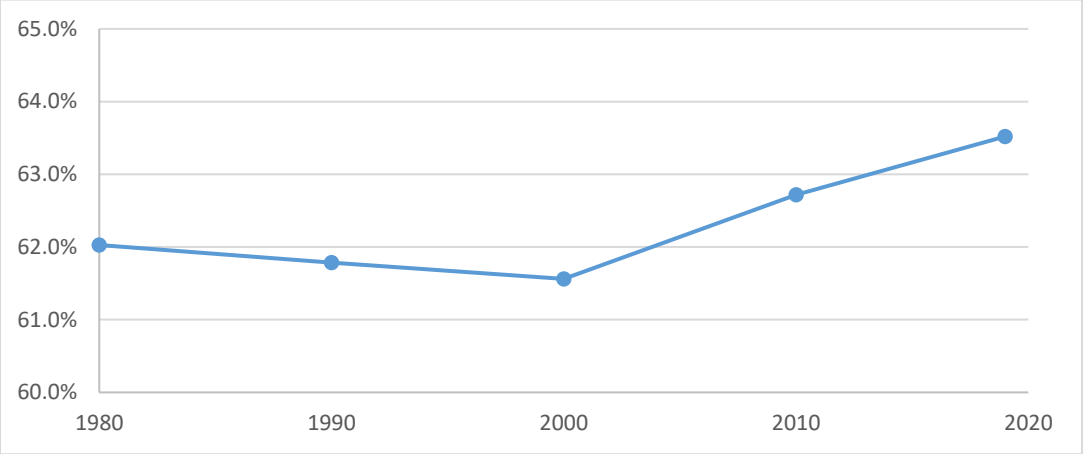

Figure 2: Birth-State Residence by State, 2019

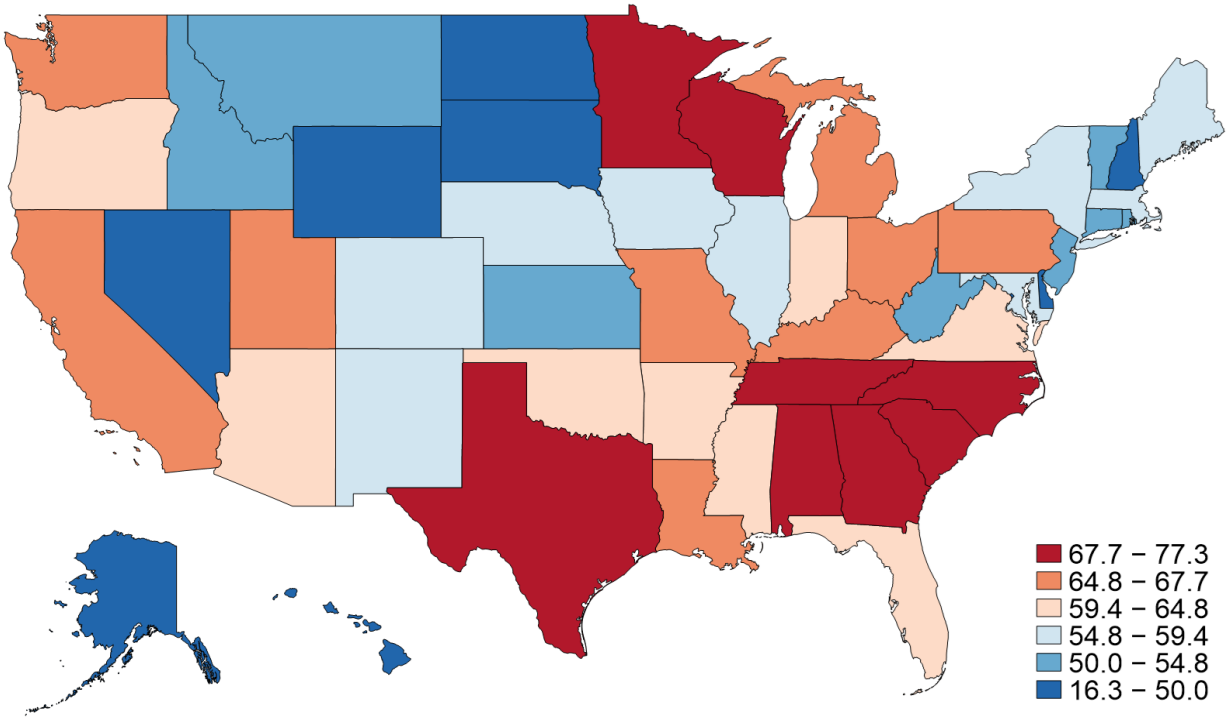

Figure 3: Birth-State Residence by Education Level, 2019

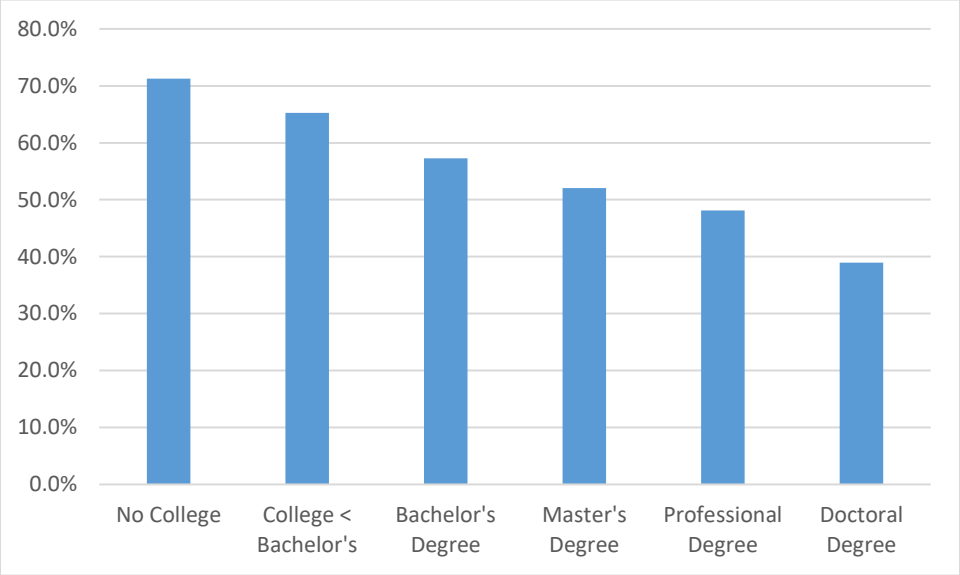

Figure 4: Birth-State Residence by Year for PhDs

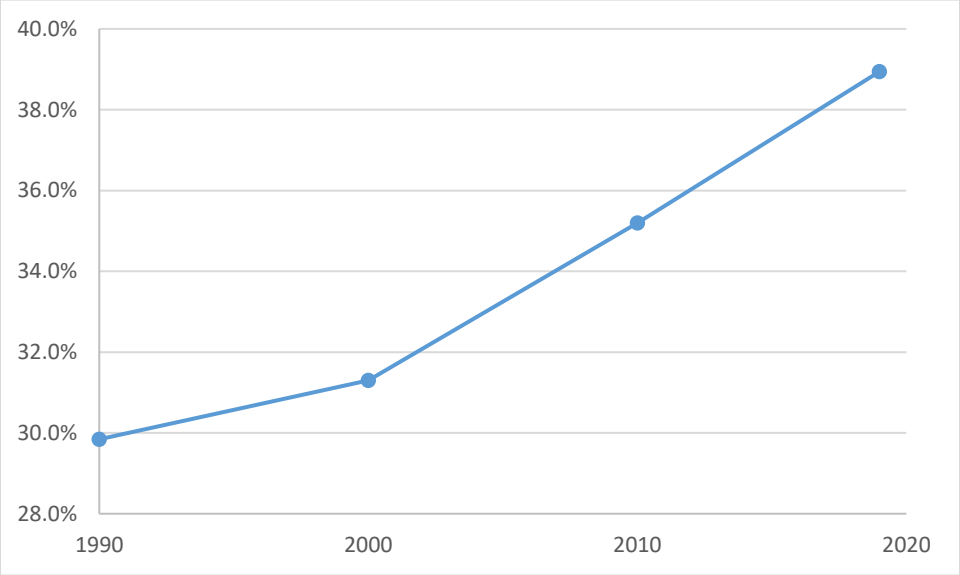

Figure 5: Birth-State Residence by Year for Professors and other College Instructors

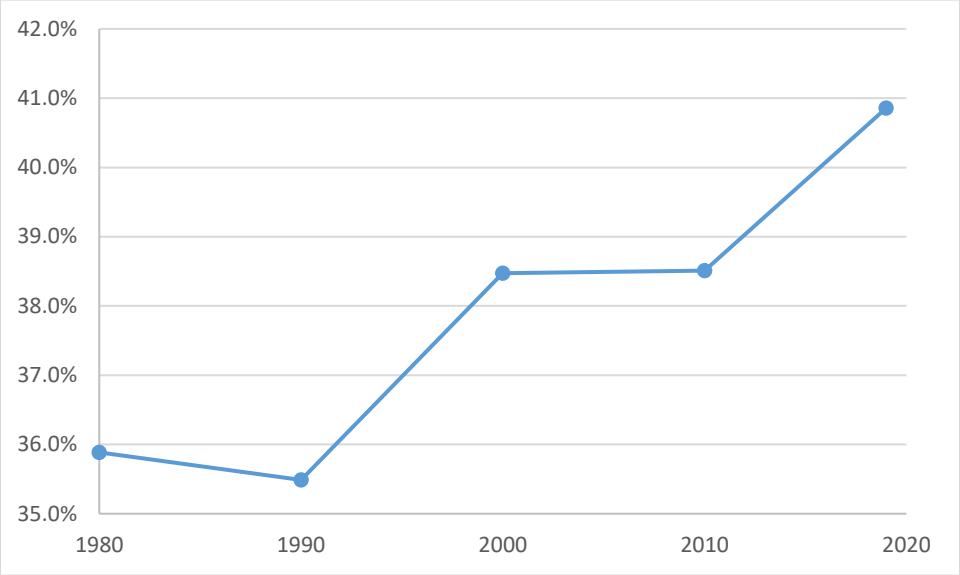

Table 1: Birth-State Residence Time Differences with Regression Controls

	(1)	(2)	(3)
A. Full Sample			
Year2000	-0.002	0.003	0.013
	(0.001)**	(0.001)**	(0.001)**
Year2010	0.009	0.014	0.032
	(0.001)**	(0.001)**	(0.001)**
Year2019	0.017	0.017	0.044
	(0.001)**	(0.001)**	(0.001)**
B. Non-College Graduates			
Year2000	0.003	0.008	0.014
	(0.001)**	(0.001)**	(0.001)**
Year2010	0.016	0.022	0.032
	(0.001)**	(0.001)**	(0.001)**
Year2019	0.029	0.030	0.041
	(0.001)**	(0.001)**	(0.001)**
C. College Graduates			
Year2000	0.005	0.011	0.010
	(0.001)**	(0.001)**	(0.001)**
Year2010	0.030	0.034	0.032
	(0.001)**	(0.001)**	(0.001)**
Year2019	0.050	0.048	0.048
	(0.001)**	(0.001)**	(0.001)**
Age, Sex, Race, and Ethnicity	No	Yes	Yes
Education Level	No	No	Yes

Notes: 1990 is the omitted reference year. Results are from linear probably models. The dependent variable is an indicator for living in one's birth state. The full sample is restricted to persons born in the U.S. and ages 25-59 during the survey. Controls listed at the bottom of the table are detailed dummy variables for individual demographics and education. Standard errors in parentheses are robust to heteroskedasticity. ** Significantly different from zero at the 1% level.

Table 2: Log Annual Wage and Salary Income Regression Results

	(1) 2019	(2) 2010	(3) 2000	(4) 1990	(5) 1980
A. Full Sample					
Birth State Resident	-0.021	-0.007	-0.008	-0.010	-0.007
	(0.003)**	(0.003)**	(0.001)**	(0.001)**	(0.001)**
B. Non-College Graduates					
Birth State Resident	0.003	0.007	0.002	-0.005	-0.010
	(0.004)	(0.003)*	(0.001)	(0.001)**	(0.001)**
C. College Graduates					
Birth State Resident	-0.052	-0.029	-0.031	-0.025	-0.005
	(0.004)**	(0.004)**	(0.002)**	(0.002)**	(0.002)*
Age, Sex, Race, and Ethnicity	Yes	Yes	Yes	Yes	Yes
Education Level	Yes	Yes	Yes	Yes	Yes

Notes: The full sample is restricted to persons born in the U.S., ages 25-59, and with positive annual wage and salary income. Controls listed at the bottom of the table are detailed dummy variables for individual demographics and education. Standard errors in parentheses are robust to heteroskedasticity. *Significantly different from zero at the 5% level; ** Significant at 1% level.

Appendix Table A1: Birth-State Residence by Birth State, 2019

State	% Birth State	State	% Birth State
Alabama	69.0%	Montana	50.3%
Alaska	40.2%	Nebraska	55.9%
Arizona	63.4%	Nevada	49.6%
Arkansas	63.6%	New Hampshire	48.9%
California	66.8%	New Jersey	52.2%
Colorado	56.5%	New Mexico	55.3%
Connecticut	52.7%	New York	55.8%
Delaware	49.6%	North Carolina	72.2%
District of Columbia	16.3%	North Dakota	46.1%
Florida	64.3%	Ohio	66.9%
Georgia	70.8%	Oklahoma	64.2%
Hawaii	49.7%	Oregon	60.3%
Idaho	53.4%	Pennsylvania	65.8%
Illinois	59.4%	Rhode Island	51.2%
Indiana	64.7%	South Carolina	69.0%
Iowa	57.6%	South Dakota	50.0%
Kansas	53.1%	Tennessee	69.3%
Kentucky	67.7%	Texas	77.3%
Louisiana	65.3%	Utah	65.5%
Maine	57.2%	Vermont	50.7%
Maryland	56.2%	Virginia	59.5%
Massachusetts	58.5%	Washington	65.0%
Michigan	67.4%	West Virginia	54.3%
Minnesota	69.4%	Wisconsin	68.8%
Mississippi	62.6%	Wyoming	38.1%
Missouri	65.0%		

Notes: Computed for persons born in the U.S. and ages 25-59 in the 2019 ACS.