**A Longer Look at Merit Aid, Educational Attainment and Post-Degree Migration Decisions**

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How do state merit aid grants impact postsecondary enrollment, attainment and persistence? Do these scholarships increase in-state attendance or impact post-college residential migration decisions? These are questions previously examined by Fitzpatrick and Jones (2012), but I here attempt to corroborate their findings and extend their frame of analysis into the decade which has elapsed since their study. I revisit the cohorts originally viewed between ages 24-32 in order to assess whether exposure to merit aid credibly continues to influence education and migration choices between 33-42 years of age. I also examine whether new cohorts who have since aged into their eligibility are affected by merit aid grants in similar ways to their predecessors. I find no strong evidence that these scholarships meaningfully impacted general residential migration decisions or the proportion of degree attainment. I do find that merit aid grants had a weak positive impact on the proportion of residents attending some college and the proportion of residents remaining in-state with some college education, but that this positive effect largely disappears in more recent cohorts.

# I. Introduction

Since the late 1990’s, much ink has been spilled with regards to merit scholarships for postsecondary education. State merit aid grant programs award funding to students attending in-state colleges who meet certain criteria such as maintaining a particular grade-point average (GPA) or scoring above a threshold on the SAT/ACT. The majority of these scholarships may be used at public or private 2- or 4-year institutions of higher education. These grants are distinct from institutional scholarships and tuition discounts in that they are not institutionally-specific and are apportioned by state governments with money from state general funds and lottery revenues. Prior to Georgia’s 1993 adoption of the Helping Outstanding Pupils Educationally (HOPE) scholarship program, the overwhelming majority of non-repayable aid was either entirely need-based or required some demonstration of financial need alongside a performance of academic merit. The primary goal of aid grant programs is straightforward: to decrease the cost of college, especially among those who are liquidity-constrained. Merit aid scholarships have a more loaded intended purpose. By conditioning the receipt of these grants upon a combination of high achievement and in-state enrollment, states hope to keep academically qualified students within the state’s borders for college. Subsequent goals include the incentivization of greater college-preparedness among high school students, greater persistence through degree programs, and the post-college retention of a high-skill labor force.

In this paper, I follow existing research by Fitzpatrick and Jones (2012) in order to expand our collective understanding of the impacts of merit aid grants upon young adults’ educational attainment and migration decisions. Using Decennial Census and American Community Survey data on 24 to 32 year olds in the U.S. from 1990 to 2010 and new data from 2010 to 2019, I investigate whether previously-observed effects of merit aid grant eligibility on initial cohorts carry on into middle adulthood and whether the magnitude or type of effects themselves have changed with the exposure of younger cohorts. Finally, I address the limitations of my work and discuss the implications of this longitudinal analysis for future research and postsecondary aid policy designs.

## Mechanisms

At surface level, merit aid grants lower the price of in-state college attendance which would seemingly increase enrollment among eligible students. But for whom do these non-need-based aid policies make college “cheaper”? Merit aid grants are functionally not a price-decrease for many of those who are otherwise categorically unable to access school, but rather makes it more “expensive” for otherwise-out-of-state-bound students to say no to an in-state offer. Hence, it is unclear whether enrollment and ultimate degree acquisition are increased on balance.

Merit aid scholarships also present an imperative to maintain satisfactory academic performance in college in order for recipients to renew their funding. This requirement could theoretically prompt aid recipients to “buy in” more or prioritize their education differently, functionally increasing their persistence through a degree program. Conversely, Cohodes and Goodman (2012) posit that merit aid grants may introduce a form of adverse selection or ‘mismatch’ between students and institutions wherein students who otherwise would have attended an out-of-state institution are induced to remain in-state at a lower-quality school, making them less likely to persist. Perhaps most compellingly, we can consider seats within an in-state cohort to be finite and not perfectly elastic (Bound and Turner, 2007), meaning that a capturing of ‘first-string’ students who otherwise would have emigrated may crowd out other students who would have otherwise filled those seats. If this crowding out effect is too strong (read alternately: efforts to stem “brain drain” are too effective), then overall BA attainment of a state’s students may be dampened.

Attendance at an in-state institution may make students more likely to locate within the state of their birth on the basis that acquiring location-specific human or social capital (colloquially, putting down roots) while in college provides incentive to remain. Convesely,educational attainment may directly increase mobility, irrespective of the location in which one completes their degree. Perhaps with greater ability to students are gaining skills that are highly portable or even facilitate a move, so ambiguity follows.

I continue using a difference-in-difference framework put forth by Fitzpatrick and Jones (2012) and exploiting heterogeneity in resident outcomes in states with and without merit aid grants before and after program implementations.

# II. Background on Merit Aid Grants

Since 1993, at least twenty-five states have implemented merit-based scholarships, the first being Georgia’s oft-studied HOPE scholarship. Naturally, these grant programs vary by state in funding sources, aid amount, and terms of eligibility. Many institutions – particularly those that are moderately selective – have embraced merit-based financial aid out of the belief that offering partial scholarships will help them attract paying students away from higher-profile peers. Numerous states, especially in the South, have implemented these programs based on academic merit to try to mitigate the out-migration of high-achieving students.

A particular class of merit aid grant programs was enacted in the 1990’s and into the early 2000s. Unlike previous merit aid, these scholarships were state-funded, and their eligibility thresholds for standardized test scores and GPAs were much more lenient. Previous research terms these 15 states ‘broad-based’ or “strong” merit aid These states include Alaska, Florida, Georgia, Kentucky, Louisiana, Massachusetts, Maryland, Michigan, Mississippi, Nevada, New Mexico, South Carolina, South Dakota, Tennessee, West Virginia, and Wyoming. However, from 2011-2019, some of these states have altered their eligibility requirements to require higher scores or higher GPAs, in efforts to retain solvency of the programs. As of 2013, only five broad-based merit aid programs (Alaska, New Mexico, Kentucky, Louisiana, Mississippi) retained their same initial eligibility settings and award settings. California, Louisiana, Missouri, and South Carolina are states which offer merit-aid grants financed by general state revenues. Arkansas, Florida, Georgia, Kentucky, and New Mexico fund their merit scholarships with revenue from their respective state lotteries. Michigan’s scholarship program is funded through a trust fund partly capitalized by the state's tobacco settlement funds. As many previous scholars have noted, these particular merit-based scholarships introduced throughout the 1990s were disproportionately awarded to middle- or upper-class white students. This prompts a criticism of merit aid grant policy as being regressive in nature.

A swath of previous studies (as glossed in Fitzpatrick, Jones, 2012) found a positive effect on overall college enrollment of 18 and 19 year olds (Dynarski, 2000; Henry, Rubenstein, & Bulger 2004) and a concurrent increase in in-state college attendance, particularly at four-year public postsecondary institutions (Goodman, 2008). Research addressing the question of whether these changes in college enrollment are translated into changes in college completion has yielded mixed results, most of which are difficult to generalize to other settings because they’ve primarily used a single-state scope of analysis.

 Following these two decades of rising popularity in merit-aid adoption and with enough time to make inferences about the impacts of merit aid on lifetime schooling and migration decisions, Fitzpatrick and Jones (2012) was the first study I know of to recover a slight increase in college enrollment among older students, aged 24 to 32 year olds. It’s notable that their study shifts the focus away from looking at the overall college enrollment of 18 and 19 year olds toward whether the marginal student induced to change her college-going behavior by the scholarship has the ability to complete college. Their research indicated that nearly all of the spending on merit aid represents a transfer to “inframarginal residents” whose educational and migration decisions are ultimately unchanged by merit aid eligibility.

Harrington, Muñoz, Curs, and Ehlert (2016) focused their analysis on Missouri’s Bright Flight program to observe the influence of merit aid programs on students’ post-college participation in the local labor market. Specifically, they found that participating in this program significantly increased the likelihood that graduates would remain within Missouri’s labor force after graduation. Following Fitzpatrick and Jones (2012), I expand the scope of Harrington, et al (2016) and other similar single-state analyses to assess the impacts of merit-aid policies on post-college migration, employment, and earnings patterns across state contexts (Zhang & Ness, 2010; Fitzpatrick, et al, 2012), lengthening the time period over which I observe and increasing the number of cohorts included.

By the time of Fitzpatrick and Jones’ 2012 analysis, merit-based scholarship programs had become sufficiently widespread and been in effect long enough to impact longer-term outcomes such as lifetime schooling and migration decisions. I aim to examine at the level of the individual, the implications of the adoption of state-funded merit-aid programs specifically for 1) residential migration decisions (particularly among the highly-educated) 2) education attainment levels within treated states, and 3) current college enrollment.

# III. Data

Just as Fitzpatrick and Jones (2012), I employ public-use data on respondents ages 24 to 32. I draw my samples from the 1990 and 2000 Decennial Censuses and the American Community Survey years 2001-2019(Ruggles et al., 2021). The Decennial Census data provide a 1-in-20 nationally representative random sampling of the U.S. population, while the 2001 to 2004 American Community Surveys (ACS) are nationally representative random samples of between 1-in-232 to 1-in-261 of the U.S. population. More recent ACS samples, from 2005 to 2019, are 1-in-100 nationally representative samples.

I follow my predecessors’ empirical choices, selecting a lower bound age of 24 on the grounds that a supermajority of BAs are received by this age. This is true of both Fitzpatrick and Jones (F&J)’s initial sample and my own later sample. For my “young adulthood” window of observation, I maintain F&J’s upper bound age of 32. My reasoning for this is only to ensure comparability between their original cohorts and my new cohorts. For my “middle adulthood” revisitation of the birthyear cohorts first viewed by Fitzpatrick and Jones, I select a lower bound of 33 and an upper bound of 42, reflecting the minimum and maximum respective ages that any individual aged 22-32 in 2010 (last year of F&J observation) would be in 2019 (last available year of my data).

I use information on place of birth, place of current residence, current enrollment in school, educational attainment, and income from labor to create my sets of dependent variables of interest. These sets include combinations of the above outcomes, such as living in the state of one’s birth *and* having attained a college degree (BA), etc. This allows me to ask questions like whether merit aid makes it more likely that a person obtains a postsecondary degree or has attended at least some college, regardless of their place of residence.

I follow Fitzpatrick and Jones and define college enrollment as enrollment at any level, including both undergraduate and graduate enrollment. Unfortunately, the ACS/Census data do not allow me to definitively say whether a person attending college in their state of birth is an “in-state” student in the sense that they attended and graduated from high school in that state. Endogeneity concerns about using the state in which a respondent graduated from high school prevent me from using state of residence at time of high school graduation. This is because families of college-bound students may sort residentially based on the availability of merit aid scholarships. Failures to account for this would contribute to an upward bias on the effect of merit aid on college attendance. This concern prompts me to follow the assumption that an individual’s state of birth is the same state in which they attended high school and thus the state in which they would be eligible for in-state tuition status at a postsecondary institution. Though this is not how merit aid eligibility truly works, this method allows me to avoid the bias that emigrational selection into merit aid states might cause.

However, in my later years of data, emigrational selection could still bias results if families choose where to give birth based on an expectation of their child remaining in-state through high school and being merit aid eligible. Given that there is no assurance that a merit aid scholarship program would even still be in action 18 years post-birth, I find it credible that families having children after the enactment of a merit aid program do not differ in their migration decisions from those having children prior based on the expectation of their child’s future merit aid eligibility. As Fitzpatrick and Jones remark, all estimates measure an ‘intent-to-treat’ effect, given that not all residents born in a state remain in the state until age 18 and subsequently results will understate the treatment effect of merit aid.

We also lack data to reflect whether “retained” high skill residents aged 24-32 remained in-state for college or simply relocated back to their home state at age 22 or 23 after attending college elsewhere. Fitzpatrick and Jones introduce the working assumption that because previous studies have found that merit aid availability at the time of college attendance changes students’ location of college enrollment, making them more likely to remain in their home state (Dynarski, 2000; Zhang and Ness, 2010), then any observed increased retention of state residents is driven by changing the decision about where to enroll in college.

Just as Fitzpatrick and Jones do, I follow the convention set by the empirical literature to focus only on “broad-based” merit-aid programs, which (at their time of implementation) approximated full-tuition scholarships and were lenient enough to include at least 30 percent of high school students (Dynarski, 2004; Fitzpatrick, Jones, 2012). Some reasons for this choice are as follows: We are able to minimize heterogeneity across program policies and magnitude of tuition awards when looking at only those with large tuition subsidies and a significant number of participating students. Furthermore, the impact of a merit aid program is thus contingent upon the stringency of academic requirements. Some states require one or more of the following: attainment of a minimum standardized test score (e.g. SAT/ACT), maintenance of a minimum grade point average throughout high school and college, or attainment of a certain percentile ranking among graduating class. If the standards are so high that the marginal college student in a state is unable to meet them, they are unlikely to change educational choices. Stricter requirements also narrow the scope of eligible students, meaning that a program’s impacts may be *more difficult to detect* if it only affects a small subset of the population.

 I draw gender and race information from the Decennial Census and ACS to control for demographic differences across observations. Following Fitzpatrick and Jones’s example, I add current and lagged state unemployment levels from the Bureau of Labor Statistics, because these reflect general economic conditions which in turn may inform educational investment (enrollment) and residential decisions. The unemployment rates for which I am controlling are those of an individual’s state of birth, rather than state of residence at the time of the survey. Fitzpatrick and Jones offer the following rationale for the inclusion of a lagged variable: “economic conditions at the point of high school graduation may affect the probability of going to college overall and affect families’ ability to finance different types of college attendance, we control for the unemployment rate in a cohort’s state of birth at the time of high school graduation” (p.10).

1.1 Descriptive Statistics, Census and American Community Survey, 1990 – 2010, Ages 24 to 32 Original Cohorts, Original Timeframe

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  |  |  |  |
|  | All States | Merit & Southern | Merit States |
| Female | .5113478 | .5152643 | .5146897 |
| Black | .1133482 | .1721056 | .177191 |
| Hispanic | .0733766 | .0702642 | .0408945 |
| Current Unemployment | .0587017 | .0608069 | .0640801 |
| Lagged Unemployment | .0501911 | .0511717 | .0538613 |
| Living In-State | .6634094 | .6165569 | .6102702 |
| BA Attainment | .2743391 | .2495243 | .2363879 |
| Living In-State with BA  | .1532525 | .1220968 | .1168127 |
| Currently Enrolled | .1340816 | .1306273 | .1287121 |
| Currently Enrolled In-State | .0836313 | .0752115 | .0736167 |
| *N* | 3308661 | 1381134 | 865550 |

1.2 Descriptive Statistics, Census and American Community Survey, 2010 – 2019

New Cohorts Only, Ages 24 to 32

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  |  |  |  |
|  | All States | Merit & Southern States | Merit States |
| Female | .4961191 | .5007094 | .5000144 |
| Black | .1251247 | .1833422 | .197737 |
| Hispanic | .1244388 | .1113417 | .0718256 |
| Current Unemployment | .0619244 | .0638247 | .068265 |
| Lagged Unemployment | .052035 | .0531171 | .057224 |
| Living In-State | .6816847 | .6360617 | .628738 |
| BA Attainment | .3507727 | .3190975 | .3057661 |
| Living In-State with BA  | .2086041 | .169953 | .1643025 |
| Currently Enrolled | .1455251 | .144293 | .1448831 |
| Currently Enrolled In-State | .0940491 | .0857128 |

|  |
| --- |
|  .0849584 |
|  |

 |
| *N* | 2598034 | 1094438 | 663638 |

1.3 Descriptive Statistics, Census and American Community Survey, 2011 – 2019,

Original Cohorts Only, Ages 34 to 42

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  |  |  |  |
|  | All States | Merit & Southern States | Merit States |
| Female | .5006472 | .5050921 | .504413 |
| Black | .1178691 | .1749216 | .1850331 |
| Hispanic | .0919993 | .0857563 | .0521824 |
| Current Unemployment | .0469975 | .0482851 | .0520401 |
| Lagged Unemployment | .0522653 | .053702 | .0577864 |
| Living In-State | .6428772 | .5932509 | .5863809 |
| BA Attainment | .3667514 | .3385577 | .3248895 |
| Living In-State with BA  | .2016006 | .1639711 | .1583908 |
| Currently Enrolled | .0649378 | .0676378 | .0668181 |
| Currently Enrolled In-State | .0388674 | .0370145 | .0362372 |
| *N* | 2514758 | 1072042 | 649527 |

In Tables 1.1, 1.2, and 1.3 I display descriptive statistics which elucidate the average demographic composition and economic conditions of my sample population during the time periods studied. I show that the demographic composition of Fitzpatrick and Jones’s studied population has changed slightly from 1990-2010 to 2011-2019, but not enough to render them incomparable. For instance, from 2010 to 2019, the percentage of people age 24 to with a bachelor’s degree or higher jumped from approximately 28% to 35%, while the population percentages of Black and Hispanic people both increased by at least 2 percentage points.

# IV. Empirical Methods

I adopt Fitzpatrick and Jones’ (2012) estimation of the following:

(1)

﻿in which represents the fraction of people in the cohort born in year *c* in state *s* interviewed at the time of the survey, *t*, who have attained one of these outcome characteristics: living in the state of one’s birth, BA degree attainment, current enrollment in college, and combinations of those outcomes. I later adapt this same equation where instead of a proportion of the population to attain binary outcome, I let the dependent variable be the log of labor income. All other variables retain the same meaning across both kinds of specification. denotes a set of ﻿dummy variables which equal one to indicate whether an individual born in year c in state s would have been eligible for a merit aid scholarship in the year they turned 18.

 are fixed effects for state, cohort and survey-year, respectively. denotes a vector of standard demographic characteristics (race, gender), age controls, lagged economic conditions facing a cohort (within their state of birth) at age 18, and economic conditions facing the cohort’s state of birth in a particular survey-year. Following my predecessors’ example, I also run specifications which include a linear trend in the number of years between a cohort and the first treated cohort. This is an effort to control for patterns within states that enact merit aid grant programs that may not be otherwise captured.

﻿The coefficient of interest in (1) is β, which gives the probability that a person aged 24 to 32 was induced to change their behavior because of their merit aid eligibility. this interpretation of β necessitates the underlying assumption that there were not other changes in policy or environment concurrent with the introduction of merit aid programs that affected the college attendance, college completion and residential decisions of 24 to 32 year olds. Just as Fitzpatrick and Jones remark, I too am unable to directly test this assumption, so I adapt an event study specification in order to visualize any latent pre-trends in outcomes. The equation remains exactly the same except instead of one treatment dummy variable, I make a set of dummy variables to indicate relative time-to-treatment. Those figures can be found at the end of this paper.

# IV. Results

#### **Residential Migration**

I first re-examine how merit aid eligibility impacts the likelihood that residents of all education levels remain in their states of birth and then specifically evaluate whether higher-educated individuals are more or less likely to live in their state of birth. I first restrict my analysis to an age window in which they are likely to have completed their undergraduate schooling. I provide estimates of equation (1) using various sets of comparison groups for the states that introduce merit aid programs. In the first two columns, all non-merit states are used to estimate the counterfactual residential migration patterns against which we measure the policy effects. In the other columns, the counterfactual comparison groups are non-merit-aid Southern states and those states which eventually implement merit aid policies and just merit-aid-implementing states, respectively. The reason for showing these particular comparison groups is to compensate for any inherent immeasurable differences between states which implement merit aid grant policy and those which do not. Southern states are included in the second counterfactual group because most merit-aid-implementing states are located in the U.S. South, so this allows me to simulate counterfactual residential migration patterns from states most “similar” (if we consider geographic commonalities to mean similarity) to those which experience the policy change.

In column 1, my estimate is positive, as in Fitzpatrick and Jones, suggesting that merit aid eligibility for in-state college attendance increases the probability that 24 to 32 year olds will live in their states of birth by 0.29 percentage points. This is an estimate of significantly lower magnitude than Fitzpatrick and Jones’s estimated increased probability of 0.9 percentage points. However, neither estimate is statistically significant. Estimating again equation (1) on the same sample, now with the inclusion of a linear time trend of the relative time-to-treatment, the estimate changes to 0.67 percentage points, but this is also not different in terms of sign or relative statistical power from my estimate in the first column. With the second alternate comparison group, the estimated effect on residential mobility increases to between 0.21 and 1.0 percentage points but it still lacks significance. For columns (5) and (6), my estimated coefficients are contradictory in terms of whether merit aid eligibility increases or decreases the probability of people between the ages of 24 and 32 living in the same state in which they were born. I am not returning the positive statistically significant estimates as shown in Fitzpatrick and Jones (2012). Per my treatment of the data, I am seeing little or no evidence that merit aid grant programs induce individuals (regardless of education level) to remain in their home states into early adulthood. This is also the case when I examine the same set of birthyear cohorts in their mid-adulthood; there is no evidence that having been eligible for merit aid induces adults to live in the state of their birth between 33 and 42 (a time when many are having children themselves). With regards to the new cohorts who have since aged into their eligibility, in table 2.3, we see that there is also no evidence that merit aid eligibility has come into any kind of delayed positive effect on the proportion of young adults remaining in-state.

Table 2.1: Effects of Merit Aid Eligibility on Probability of Living in One’s State of Birth,

Original Cohorts, Ages 24 to 32, Original Timespan 1990-2010

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | All States |  | Merit & Southern States |  | Merit States |  |  |
|  | (1) | (2) | (3) | (4) | (5) | (6) |  |
|  |  |  |  |  |  |  |  |
| W/ Age Fixed EffectsMerit Eligible | 0.00294(0.0255) | 0.00669(0.0133) | 0.0101(0.0219) | 0.00212(0.0135) | 0.00115(0.0133) | -0.00716(0.00565) |  |
|  | [0.12] | [0.50] | [0.46] | [0.16] | [0.09] | [-1.27] |  |
| *N* | 3308661 | 3308661 | 1381134 | 1381134 | 865550 | 865550 |  |
| Linear Time Trend | N | Y | N | Y | N | Y |  |

Standard errors in parentheses, t stats in brackets

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Note: Estimates use 1990 Decennial, 2000 Decennial and 2001-2010 ACS survey data at the individual level. The dependent variable is the share of a state’s residents ages 24 to 32 that are living in their state of birth. Each regression includes state, year and cohort fixed effects. Panel B also includes age effects. Where indicated, the regression also includes a trend in year of birth relative to the year the first treated cohort was born for states with merit aid programs (relative time-to-treatment). Standard errors are clustered at the state level.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | All States | Merit & Southern  | Merit States |
| Merit Eligible  | 0.00427 | 0.00243 | 0.0127 | 0.0122 | -0.00905 | -0.00285 |
|  | (0.0136) | (0.0124) | (0.0176) | (0.0170) | (0.0176) | (0.00965) |
|  | [0.31] | [0.20] | [0.72] | [0.72] | [-0.52] | [-0.30] |
| *N* | 2514758 | 2514758 | 1072042 | 1072042 | 649527 | 649527 |
| Linear Time Trend | N | Y | N | Y | N | Y |

Table 2.2 – Effects of Merit Aid Eligibility on Probability of Living in One’s State of Birth, Original Cohorts, Ages **33 to 42**

Standard errors in parentheses,

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Note: Estimates use 2010-2019 ACS survey data at the individual level. The dependent variable is the share of a state’s residents ages 33 to 42 that are living in their state of birth. Each regression includes state, year and cohort and age fixed effects. Where indicated, the regression also includes a trend in year of birth relative to the year the first treated cohort was born for states with merit aid programs (relative time-to-treatment). Standard errors are clustered at the state level.

Table 2.3 – Effects of Merit Aid Eligibility on Probability of Living in One’s State of Birth,

New Cohorts Only, 2010-2019, Ages 24 to 32

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | All States |  | Merit & Southern States |  | Merit States |  |
| Merit Eligible | 0.00440 | 0.00391 | 0.00602 | 0.0101 | -0.0160 | -0.0102 |
|  | (0.0179) | (0.0179) | (0.0226) | (0.0221) | (0.0280) | (0.0130) |
|  | [0.25] | [0.22] | [0.27] | [0.45] | [-0.57] | [-0.78] |
| *N* | 2598034 | 2598034 | 1094438 | 1094438 | 663638 | 663638 |
| Linear Time Trend | N | Y | N | Y | N | Y |

Standard errors in parentheses, t statistics in brackets

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Note: Estimates use 2010-2019 ACS survey data at the individual level. The dependent variable is the share of a state’s residents ages 24 to 32 that are living in their state of birth. Each regression includes state, year and cohort and age fixed effects. Where indicated, the regression also includes a trend in year of birth relative to the year the first treated cohort was born for states with merit aid programs (relative time-to-treatment). Standard errors are clustered at the state level.

### **Residential Migration of Educated/High Skill Individuals**

﻿ Given that one of the explicit goals motivating this policy was to increase the retention of high-skilled workers in the state, I examine whether any increased retention becomes evident when conditioning upon BA attainment or completion of some college. I present my results in tables of similar structure to the previous. First, replicating the time period and cohort selection of Fitzpatrick and Jones, I estimate a either no effect or a weakly negative effect of merit aid eligibility on the likelihood of BA degree-holders living in the state of their birth. However, perhaps more interestingly, merit eligibility increases the likelihood of living in-state and having attended some college by 2 percentage points and this result is significant at the 5% level. Fitzpatrick and Jones’ estimation returned estimates of different magnitudes, but the types of effect are the same. When examining the same cohorts now in middle-adulthood, estimates generally appear to be weakly positive, but lack stat significance. My interpretation of this would be that we are unable to conclude that there is any “stickiness” to the influence of merit aid eligibility on higher-educated people’s relocation decisions >10 years post-graduation. Estimates for new cohorts of 24-32 year olds suggest nearly no effect upon BA holders and now the statistical significance of any inducement upon the ‘some-college’ group have dissipated. It is worth noting that I eliminated use of the linear time trends with all future estimations. I do not know why; I think I just am not sure how to tell if they’re revealing anything valuable or not.

Table 3.1 Effects of Merit Aid Eligibility on Probability of Living in One’s State of Birth and Attending or Graduating from College, Ages 24 to 32, 1990-2010

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. BA Degree Attainment instateMerit Eligible | -0.00454 | 0.00531 | -0.00114 |
|  | (0.00601) | (0.00595) | (0.00595) |
|  | [-0.75] | [0.89] | [-0.19] |
| Panel B. Attended at Least Some College instateMerit Eligible | 0.0218\*\* | 0.0101 | 0.0124\* |
|  | (0.00870) | (0.00724) | (0.00635) |
|  | [2.50] | [1.40] | [1.95] |
| *N* | 3308661 | 1381134 | 865550 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 3.2 Old cohorts, New Timespan 2010-2019 – Ages 33-42

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. BA Degree Attainment Merit Eligible | 0.00195 | 0.00531 | -0.00210 |
|  | (0.00516) | (0.00629) | (0.00613) |
|  | [0.38] | [0.84] | [-0.34] |
| Panel B. Attended at Least Some College Merit Eligible | 0.00258 | 0.00313 | -0.00410 |
|  | (0.00391) | (0.00562) | (0.00494) |
|  | [0.66] | [0.56] | [-0.83] |
| *N* | 2514758 | 1072042 | 649527 |

Standard errors in parentheses, t stats in brackets

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 3.3 New Cohorts only, 2010-2019 – Ages 24-32

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. BA Degree Attainment Merit Eligible | 0.00755 | 0.0126 | 0.00360 |
|  | (0.00641) | (0.00861) | (0.0108) |
|  | [1.18] | [1.46] | [0.33] |
| Panel B. Attended at Least Some College Merit Eligible | 0.00526 | -0.000129 | -0.0111 |
|  | (0.00686) | (0.00879) | (0.00828) |
|  | [0.77] | [-0.01] | [-1.34] |
| *N* | 2598034 | 1094438 | 663638 |

Standard errors in parentheses, t stats in brackets

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

﻿**College Completion in Any State**

Across the columns, the estimated effects of merit aid eligibility on BA attainment are near-zero and the results are also not consistently statistically significant. This is coherent with Fitzpatrick and Jones’ analysis of this same set of cohorts and time period. Just as merit aid eligibility ﻿did very little to change the probability of both living in the state and having a BA degree, we see no evidence that merit-based scholarships induced any change in overall BA attainment for treated cohorts in- or out-of-state. As with my in-state education attainment estimates, I observe statistically significant positive effects of merit aid eligibility upon the likelihood of a person (24-32 within 1990-2010) having at least some college education. For instance, it appears that merit aid induced a 2.1 percentage point increase in the proportion of individuals who’ve completed some college, irrespective of place of residence. Examining the same cohorts now between 33 and 42 years of age, there appears to be (at best) a very weakly positive effect upon the proportion of people with BAs, but zero effect upon the proportion who by this age have attended some college. Looking now at the new cohorts, there is still no credible impact of merit aid on degree attainment, but there does remain a statistically significant increase in the proportion of young adults with some college by approximately 0.5 percentage point.

4.1 Effects of Merit Aid Eligibility on Educational Attainment, Regardless of Current Residence, Original cohorts, 24-32, 1990

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. BA Degree Attainment Merit Eligible | -0.00454 | 0.00531 | -0.00114 |
|  | (0.00601) | (0.00595) | (0.00595) |
| Panel B. Attended at Least Some College Merit Eligible | 0.0218\*\* | 0.0101 | 0.0124\* |
|  | (0.00870) | (0.00724) | (0.00635) |
| *N* | 3308661 | 1381134 | 865550 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

4.2 Effects of Merit Aid Eligibility on Educational Attainment, Regardless of Current Residence, Original cohorts, Ages 33-42

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. BA Degree Attainment Merit Eligible | 0.00548 | 0.00739 | 0.00649 |
|  | (0.00791) | (0.00569) | (0.00720) |
| Panel B. Attended at Least Some College Merit Eligible | 0.000741 | -0.00281 | -0.00250 |
|  | (0.00277) | (0.00223) | (0.00257) |
| *N* | 2514758 | 1072042 | 649527 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

4.3 Effects of Merit Aid Eligibility on Educational Attainment, Regardless of Current Residence, New cohorts, Ages 24 to 32

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. BA Degree Attainment Merit Eligible | 0.00548 | 0.00739 | 0.00649 |
|  | (0.00791) | (0.00569) | (0.00720) |
| Panel B. Attended at Least Some College Merit Eligible | 0.00499\* | -0.00180 | -0.00637 |
|  | (0.00274) | (0.00313) | (0.00369) |
| *N* | 2598034 | 1094438 | 663638 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Current Enrollment**

As Fitzpatrick and Jones astutely ask “if more students are enrolling but more are not finishing their degrees, are some still actively in-progress with their education?”. Using the same equation as previously, I estimate whether merit aid eligibility increases the proportion of individuals currently enrolled in a postsecondary program, first considering all residential status and then focusing upon in-state individuals. For the cohorts studied by Fitzpatrick and Jones, I observe a clear positive effect on current enrollment. Merit aid induces a 1 percentage point increase in the proportion of young adults enrolled in college across all states. Current in-state enrollment sees a bump of smaller magnitude at 0.3 percentage points. In columns (2) and (3) it would appear that increased in-state enrollment accounts for most of the overall increased enrollment. Looking now to these same cohorts abserved again between ages 33 and 42, these positive effects have essentially disappeared. This, when viewed with the previous data on degree attainment, would suggest that those who were induced to remain enrolled between 24 and 32 have now dropped out between 33 and 42 without obtaining any degree. This bolsters Fitzpatrick and Jones’ initial conclusion that merit aid grants fail to produce more degree-holders. It would also appear that the positive effects the scholarships had upon young adult enrollment do not hold for the newer cohorts. We see negative estimated effects with standard errors that suggest actual effects approximating zero.

Effects of Merit Aid Eligibility on Current College Attendance

5.1 Original cohorts, 24-32

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. Current Enrollment | 0.0101\*\*\* | 0.00912\*\*\* | 0.00644\*\*\* |
|  | (0.00290) | (0.00280) | (0.00185) |
| Panel B. Current In-State Enrollment | 0.00323 | 0.00764\*\* | 0.00535\*\* |
|  | (0.00378) | (0.00354) | (0.00240) |
| *N* | 3308661 | 1381134 | 865550 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

5.2 Original Cohorts, 33-42

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. Current Enrollment | -0.00231 | -0.000150 | -0.000295 |
|  | (0.00228) | (0.00156) | (0.00136) |
| Panel B. Current In-State Enrollment | -0.00293 | 0.00191 | 0.000142 |
|  | (0.00337) | (0.00320) | (0.00237) |
| *N* | 2514758 | 1072042 | 649527 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

5.3 New Cohorts 24-32

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All States | Merit & Southern | Merit States |
| ﻿Panel A. Current Enrollment | -0.00589 | -0.00250 | -0.00441 |
|  | (0.00403) | (0.00363) | (0.00495) |
| Panel B. Current In-State Enrollment | -0.00632 | -0.00173 | -0.00530 |
|  | (0.00635) | (0.00547) | (0.00758) |
| *N* | 2598034 | 1094438 | 663638 |

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

# II. Conclusion

The lack of conclusive positive impacts of merit aid upon degree completion, while coherent with the results of Fitzpatrick and Jones, are puzzling given the remainder of the literature on merit aid and educational investment. If enrollment at in-state institutions increases while BA attainment decreases or remains at the same level, this could lend credence to the idea that merit aid recipients are crowding out other students at state schools or that there do exist significant mismatch problems when out-of-state-bound students are induced to accept an in-state offer instead, ultimately resulting in diminished likelihood of finishing school.

Unfortunately, I neglected to account for changes to the stringency or award amounts of the 15 merit aid grant programs assessed in this paper. The vast majority of these changes have occurred since 2011, so while Fitzpatrick and Jones did not need to build in any mechanism to reflect the changing grant magnitude or to reflect the phase-out of some policies altogether, I ought to have done so. As such, any effects or lack-thereof observed for the newer cohorts are not credible or particularly useful. I believe that my failing to properly represent a phase-out would bias down the estimated impacts of merit aid upon those cohorts. Even so, earlier cohorts also show little-to-no evidence that merit aid grant policy is a particularly efficacious lever by which to incentivize higher levels of education acquisition or quell out-migration of high-skill workers from aid-adopting states. The positive effects upon the attainment of ‘some college’ are not worthless, but ultimately fall far short of the ambitious goals undergirding these scholarships. In short, not only is merit aid a provenly regressive policy, but also it fails to live up to any of its supposed purposes.

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# Appendix

## Showing Event Study Graphs to Demonstrate a Lack of Troubling Pre-trends

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