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More Common, Less Equal: Disparities in College Internship Participation Over Time

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Abstract: Internships play a key role in the production of inequality in the U.S. labor market, yet are often unobserved in analyses of youth employment. This study makes two empirical contributions to the study of internships. First, I use nationwide data from the 1994–2017 College Senior Survey to evaluate the association between internship participation and individual and institutional markers of privilege over time, net of grades, college major, and demographic controls. Second, I test if disparities in internship participation narrowed, persisted, or widened over three decades, independent of controls. Results indicate that internship participation has more than doubled since the mid-1990s, marking a period of rapid *internship expansion*, but these gains were not equal for all students. Those with the highest family income, with college-educated parents, from the most selective colleges, and from private colleges were consistently more likely to participate. Further, these internship participation gaps persisted or widened over time. Findings indicate that internships follow similar patterns of stratification as formal credentials, despite their more ambiguous nature. They also suggest that persistent barriers to internship participation remain for less-privileged students.

Keywords: internships; college; inequality; work; education; stratification

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INTERNSHIPS have value in the labor market. They can provide social capital, cultural capital, and pathways into full-time employment (Moss-Pech 2021; Nunley et al. 2016'; Wright and Mulvey 2021). Job applicants with internship experience are significantly more likely than those without internship experience to get called back for job interviews in audit studies (Baert et al. 2019; Nunley et al. 2016), with some studies finding that interns experience earnings advantages over non-interns (Bolli, Caves, and Oswald-Egg 2021; Margaryan et al. 2022; see also Di Meglio et al. 2022, Klein and Weiss 2011). In short, internships can produce substantial advantages for job seekers.

Yet internships are definitionally unique from degrees and other formal credentials. They have been described as a "bridge from college to career" that provides "the opportunity to gain valuable applied experience, develop social capital, explore career fields, and make connections in professional fields" (NACE 2023a, 2023b). However, they have also been called "liminal," "ambiguous," and a "world of spin" because they are often unregulated and provisional (Frenette 2013:372; Gaston and Van Noy 2022; Perlin 2012:xi). These characteristics offer a unique context to understand patterns of inequality and how these patterns change over time as increasing proportions of students participate.

This study makes two empirical contributions to the study of internships. First, I use nationwide data from the 1994–2017 College Senior Survey (CSS) to evaluate the association between internship participation and individual and institutional markers of privilege over time, net of grades, college major, and sociodemographic controls. Next, I test whether privilege gaps in internship participation narrowed, persisted, or widened over time. Results provide (to my knowledge) the first adjusted estimates of internship participation over a three-decade period in the United States.

Individual and Institutional Forms of Internship Inequality

Internships occupy an amorphous position between school and work that makes them unique relative to other curricular or employment experiences. Some of this ambiguity can be attributed to their position under U.S. labor law (Brudney 2019; Heffernan 2016). Technically, internships that are unpaid or paid less than minimum wage must meet a set of guidelines often referred to as the "internship test" to be allowable under the Fair Labor Standards Act (U.S. Department of Labor 2018). However, these guidelines have limited oversight or regulation (Brudney 2019; Martiniano 2021). The Department of Labor "does not have a strategic enforcement initiative" for internships (Brandeisky and Merrill 2014), and legal scholars have argued that "the convoluted and unclear nature of the federal law governing unpaid interns makes both regulation and reform nearly impossible" (Curiale 2009:1534; see also Brudney 2019).

This ambiguity offers a unique context to evaluate stratification patterns. On the one hand, the legal liminality of some internships might reduce barriers to entry, as interns might craft their own internships or rebrand other forms of work experience. On the other hand, the lack of regulation or transparency may complicate less privileged students' capacity to identify useful opportunities or assess the risks and rewards of interning. The first aim of this study is to evaluate how—net of grades and college major—internship participation associates with markers of individual privilege (family income and continuing-generation status) and institutional privilege (institutional control and school selectivity).

Individual Privilege

Interning can cost students thousands of dollars (Glab 2017; Hess 2017). Transportation can be expensive, and commuting may not be an option for those without access to a vehicle or public transit. Internships in certain industries may require students to relocate, with hefty moving and living expenses. Tuition costs, if the internship is performed for academic credit, can be sizeable—especially during the summer, when students often pay for additional credits beyond their academic year tuition. Further, if internships are unpaid, students must be available to work without compensation, potentially at full-time or half-time hours each week. The short-term wage loss of choosing an unpaid or low-paid internship over a paid job can be considerable.

These factors might help explain why less affluent students are less likely to intern (Shandra 2022; Wright and Mulvey 2021). One study found that students who

received support from parents or other family members to help pay for their education were more likely to intern than students who did not receive support (Frenette 2015). Another study of obstacles to internship participation among students who did not intern—but wanted to—found that needing to work at a paid job was the most common obstacle, followed by college coursework, a lack of internship opportunity, insufficient internship pay, inadequate transportation, and child care responsibilities (Hora, Wolfgram, and Chen 2019). Many of these barriers are financial.

Other forms of privilege also matter, as first-generation students are less likely to participate in internships than their continuing-generation peers (Frenette 2015; Hora et al. 2021). Many students find internships through personal networks (Frenette 2021), just as many employers find interns through employee referrals and informal networks (Society for Human Resource Management 2013). Yet first-generation college students have less access to professional career knowledge and networking opportunities than continuing-generation students (Hardie 2015; Roksa and Silver 2019). They often have limited experience interacting with professional workers or navigating professional workspaces (Hardie 2022). Thus, net of financial resources, first-generation students may have less cultural and social capital to leverage during the internship search and hiring process.[1]

Institutional Privilege

Colleges and universities are themselves sites of privilege that reproduce individual-level status disparities (Bourdieu and Passeron 1990; Mullen 2011), such that students who attend more privileged schools may have greater access to internships than students who attend less privileged schools. For example, schools with different institutional control (public or not-for-profit private) tend to have different funding and resources. On average, private schools have lower student-to-faculty and student-to-staff ratios than public schools (U.S. Department of Education 2020a, 2020b)—yet faculty and staff commonly serve as mentors to undergraduate students about professional and academic topics (Strada Education Network and Gallup 2018). Faculty and staff are also students' most commonly reported source of help for obtaining applied jobs and internships (Gallup-Purdue 2016).

Private schools, on average, also have much larger endowments than public schools. One study found that the average endowment per student at private colleges was seven times that of public colleges (Smith 2021).[2] These funds might be used to subsidize student aid, academic programs, campus operations, and infrastructure improvements (American Council on Education 2021; Baum and Lee 2019). This can include multimillion-dollar gifts earmarked for internship funding, professional developmental activities, and individualized career coaching (e.g., Denison University 2016; Frew 2021).

School selectivity might also matter, particularly because more selective schools can leverage their status to attract internship employers to campus. Rivera (2016), for example, found that firms concentrated their recruitment efforts at highly prestigious schools, using internships for students at those schools as a key recruitment strategy. Similarly, Davis and Binder (2016) found that many selective public and private schools offered "corporate partnership programs" as a type of semi-exclusive headhunting service for employers. In this arrangement, schools (for

a fee) offered access to student portfolios, interview rooms, and other "one-stop" recruiting products. Students who do not attend schools with these and other exclusive hiring arrangements may be shut out entirely from certain employers' recruitment processes (Rivera 2015).

Alumni are also an asset for internship hiring at more selective schools. Given the importance of informal ties for internship hiring (Frenette 2021) and the role of alumni in providing employer referrals (Rivera 2016), students from more selective institutions have an outsized advantage in identifying alumni who can recommend them for internships. This is especially true for students at elite institutions, who benefit from access to alumni with highly paid jobs (Machado, Reyes, and Riehl 2022; Marmaros and Sacerdote 2002). One study of students at highly selective schools in France and England even labeled internships as "insider opportunities" facilitated in large part by connections with alumni at prestigious employers (Tholen et al. 2013).

Internship Expansion and Patterns of Inequality

These studies suggest the existence of individual and institutional privilege gaps in internship participation, but there is less evidence about internship privilege gaps *over time*. The last three decades are a particularly opportune period to evaluate these trends, as they were characterized by substantial internship expansion. Table 2 presents the percentage of students participating in internships in the CSS, pooled across years as well as during 1994–1999, 2000–2004, 2005–2009, 2010–2014, and 2015–2017 to allow comparisons over time. These unadjusted results indicate that participation increased substantially from the first period (29.6 percent) to the last (69.1 percent). The second goal of this study is to evaluate whether individual and institutional privilege gaps in internship participation changed over time, as internships have become more common. Several patterns might be expected.

It may be that privilege gaps in internships are *persistent* or constant over time. This pattern would be observed if the likelihood of internship participation increased similarly over time for all students, irrespective of individual or institutional privilege. Raftery and Hout's (1993:60) study of class differentials in educational attainment in Ireland between 1908 and 1956 birth cohorts provides one example of this pattern of change. Despite educational expansion and the adoption of more egalitarian educational reforms, with one exception,[3] there was "no evidence of change in the effect of class on the successful transition through the educational system." Likewise, Shavit and Blossfeld's (1993) comparative study of educational stratification over time found persistent inequality in 11 of 13 analyzed countries. No change was observed between birth cohorts in the association between social origins and education, despite educational expansion and varying country contexts.

Alternatively, it may be that privilege gaps in internships are *widening* or being exacerbated over time. One way this pattern would be observed is if the likelihood of internship participation increased more for more, versus less, privileged students over time.[4] It may be that—as internships become more prevalent—privileged groups became more adept at "opportunity hoarding" (Tilly 1999), or controlling access to valued resources to the exclusion of those with less privilege (see Reeves 2018

for an internship-specific discussion). Evidence for the widening of privilege gaps can be observed in volunteering, a "college enhancement strategy" that has become more common among young people in the United States (Wolniak et al. 2016; see also Gaby 2017). As more students volunteered over time, those with more privilege became increasingly more likely to participate than those with less privilege.[5]

Finally, privilege gaps in internships may be *narrowing* or shrinking over time. This pattern would be observed if the likelihood of internship participation increased more for less, versus more, privileged students over time. It is not uncommon for organizations to name internship access as an equity issue, and many colleges, not-for-profit organizations, and government agencies now offer internship scholarships and stipends (INROADS 2020; Kyaw 2023; National Association of Colleges and Employers 2023a). These efforts may have helped address participation disparities between more and less privileged students in more recent years.

Analytic Strategy

After describing univariate sample statistics (Table 1), I present baseline bivariate distributions of the percentage of students participating in internships over time and by the privilege indicators of family income, continuing-generation status, institutional selectivity, and institutional control (Table 2). Next, I use logistic regression to evaluate if these privilege gaps in internship participation remain, net of year, grades, and college major (Appendix Table 1 in the online supplement). Finally, I use several approaches to test if privilege gaps in internship participation persist, widen, or narrow over time. Interaction terms between year and each privilege indicator evaluate if the association between privilege and internship participation varies by year (Appendix Table 1 in the online supplement). Then, predicted probabilities (Figure 2) and marginal effects (Table 3) identify significant differences within and between privilege categories in specific time periods.

Data, Measures, and Methods

Data

This study analyzes the 1994–2017 CSS—to my knowledge, the only available source of data on annual internship participation across majors and over time in the United States.[6] The CSS is a baccalaureate exit survey collected from graduating seniors by the Higher Education Research Institute (HERI)(2021a) and the Cooperative Institutional Research Program (CIRP) at the University of California, Los Angeles (Cooperative Institutional Research Program 2021). Participating schools vary each year, and data are not nationally representative; however, the large sample size enables yearly comparisons across student and school characteristics. To construct the dataset, I used a publicly available release of the data for years 1994–2008 (N = 527,159) from the HERI archives. Data from 2009 to 2017 (N = 226,028) were proprietary and obtained from HERI by application and purchase. Combined, these two files resulted in a sample size of 753,187.

Table 1: Distribution of variables.

	All years
Internship participation	48.1
Privilege indicators	
Income quartile	
First quartile (low; ref.)	20.2
Second quartile	22.0
Third quartile	26.3
Fourth quartile (high)	31.5
First-generation status	
First-generation (ref.)	26.9
Continuing-generation	73.2
Institutional selectivity	
Low (ref.)	25.5
Medium	24.5
High	25.3
Very high	24.7
Institutional control	
Public (ref.)	14.3
Private	85.8
Controls	
Major	
Business (ref.)	15.3
STEM	17.5
Social science	20.5
Humanities	16.1
Other	30.7
High-school GPA	
B or lower (ref.)	19.5
B+	19.2
A−	27.3
A or A+	34.0
Sex	
Male (ref.)	38.2
Female	61.8
Race/ethnicity	
White (ref.)	79.8
Black	3.9
Hispanic	4.0
Asian or Pacific Islander	5.5
Multiple or other	6.9
Institutional region	
Northeast (ref.)	35.1
South	17.7
Midwest	30.4
West	16.8
N	329,949

Source: College Senior Survey, 1994–2017. Data shown are percentages, pooled across years. "Ref." = reference category.

Table 2: Percentage of students participating in internships, by covariates and over time.

	All years	1994–1995	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	2012–2014	2015–2017
Internship participation	48.1	29.6	39.5	41.0	45.0	52.2	57.9	60.8	69.2
Privilege indicators									
Income quartile									
First quartile (low; ref.)	45.7	30.1	36.7	38.1	43.3	49.6	53.9	56.8	65.0
Second quartile	45.6	29.2	38.3*	40.1**	43.9	51.4*	55.1	58.3	65.3
Third quartile	49.4***	29.7	40.6***	42.2***	44.4	52.3***	57.5***	59.9***	69.3***
Fourth quartile (high)	50.4***	29.5	41.1***	42.7***	47.3***	54.3***	63.7***	66.0***	74.7***
First-generation status									
First-generation (ref.)	43.9	29.3	36.8	38.4	43.3	49.7	54.0	56.4	64.4
Continuing-generation	49.7***	29.7	40.7***	42.1***	45.6***	53.1***	59.1***	62.1***	70.3***
Institutional selectivity									
Low (ref.)	40.2	32.0	38.2	33.6	41.0	49.9	54.8	56.7	66.7
Medium	46.0***	34.8**	45.3***	38.7***	44.6***	51.3	51.4***	56.2	63.2**
High	50.7***	26.0***	34.1***	47.2***	46.9***	52.5**	57.8**	59.2*	64.3*
Very high	55.7***	17.8***	48.2***	41.4***	45.8***	54.6***	63.4***	66.3***	74.0***
Institutional control									
Public (ref.)	32.9	18.1	24.0	27.0	34.5	42.4	52.5	49.7	60.5
Private	50.7***	32.0***	43.5***	44.2***	46.3***	53.4***	58.8***	62.2***	69.6***
Controls									
Major									
Business (ref.)	59.8	33.7	47.6	49.4	52.3	66.7	72.3	76.8	85.2
STEM	44.6***	21.7***	35.3***	37.9***	41.4***	47.8***	51.4***	53.4***	62.2***
Social science	52.6***	36.1*	46.2	45.8***	47.5***	53.6***	58.2***	62.9***	70.2***
Humanities	48.9***	33.1	41.4***	42.2***	45.8***	52.2***	52.4***	57.0***	68.8***
Other	41.0***	25.5***	34.3***	35.6***	42.9***	44.7***	55.6***	57.6***	59.6***
High-school GPA									
B or lower (ref.)	42.8	29.8	37.4	38.0	43.1	50.1	52.4	57.4	63.6
B+	47.5***	32.1**	40.0***	41.0***	44.9*	51.6	57.7***	60.6**	68.2***
A–	49.6***	29.7	39.9***	41.9***	44.8**	52.0*	59.3***	62.2***	70.0***
A or A+	50.4***	27.1**	40.7***	42.3***	46.3***	53.6***	59.0***	61.1***	70.6***

Table 2: (*Continued*)

	All years	1994–1995	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	2012–2014	2015–2017
Sex									
Male (ref.)	46.8	24.6	38.5	40.6	42.7	51.4	56.7	60.4	69.6
Female	49.0***	33.2***	40.1***	41.1	46.4***	52.7**	58.7***	61.0	68.9
Race/ethnicity									
White (ref.)	48.1	29.4	40.0	42.0	45.2	52.1	57.9	61.0	69.7
Black	46.5***	34.3**	38.5	35.6***	49.3**	55.1*	59.0	62.7	65.3**
Hispanic	45.8***	30.3	34.7***	32.4***	39.5***	51.1	57.6	61.6	67.4
Asian or Pacific Islander	50.3***	27.6	37.3**	38.8***	45.9	53.6	60.0	60.3	69.8
Multiple or other	48.6	31.1	38.4	38.9***	43.3*	51.9	56.9	58.6*	66.8**
Institutional region									
Northeast (ref.)	52.7	30.9	44.7	45.6	49.6	55.1	61.9	64.7	72.8
South	43.5***	35.9***	33.9***	36.2***	43.1***	52.1***	57.8***	63.0	68.9***
Midwest	46.2***	24.0***	38.1***	41.4***	42.7***	50.3***	56.4***	59.4***	66.5***
West	47.1***	33.4*	40.4***	38.9***	40.2***	49.6***	52.7***	55.9***	65.9***
N	329,949	22,600	60,270	60,215	52,023	38,690	36,075	29,206	30,870

Source: College Senior Survey, 1994–2017. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests) for difference from reference group, within each time period, by internship participation status. The data shown are percentages.

Although data on student race/ethnicity, student sex, school selectivity, and school institutional control were available in the CSS, two key privilege measures—parental income quartile and first-generation status—were not. This information was only collected during CIRP's The Freshman Survey (TFS)(HERI 2021b), a survey designed to be administered to incoming first-year students before they experience college. Not all students completed TFS or attended a school that administered both surveys; however, a total of 352,532 students (47 percent) from the CSS have responses to the TFS-measured income and first-generation questions. Of the 352,532 students with income and first-generation data, 337,448 students responded to the internship question, which was asked every year except 1996. After excluding those with missing data on other covariates, 329,949 observations remain in the final analysis sample.

Measures

All measures are collected by student self-report. *Internship participation* is determined by a single question: "Since entering college, have you participated in an internship program?"

Individual privilege: *Parental income quartile* differentiates between students in the lowest (first), second, third, or highest (fourth) income quartiles of the analysis sample, based on student responses to "What is your best estimate of your parents' total income last year?" Year-specific quartiles are constructed because students are presented with different ordinal response options each year. In these analyses, the first income quartile represents students with the lowest family income, and the fourth income quartile represents students with the highest family income. *First-generation status* is coded for students who respond that the highest level of formal education obtained by their parents is junior high/middle school or less, some high school, high school graduate, postsecondary school other than college, or some college—versus continuing-generation students with parents who have a college degree, some graduate school, or a graduate degree.

Institutional privilege: *Institutional control* indicates whether the school is classified by HERI as public or private. *Selectivity* is a four-category measure that differentiates between schools with low, medium, high, or very high selectivity. These are recoded into sample-based quartiles from a continuous measure based on median SAT and/or ACT assessment examination scores of the entering class as reported to the Integrated Postsecondary Education Data System (IPEDS).

Covariates: *Major* combines HERI's 16 aggregate groups into 5 categories: STEM (biological sciences, engineering, mathematics or statistics, and physical sciences), business (business), social sciences (social sciences, history or political science), humanities (english, humanities, fine arts), and other (general studies, undecided, or missing major information), following the broad major categories used by Webber (2016). *Average high school grades* distinguish between those who reported an A/A+, A−, B+, B, or B− or below.[7] *Sex* differentiates between students who self-report as female or male.[8] *Race/ethnicity* captures student self-report as non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic Asian or Pacific Islander, or other or multiple racial/ethnic identities. *Institutional region* differentiates between students

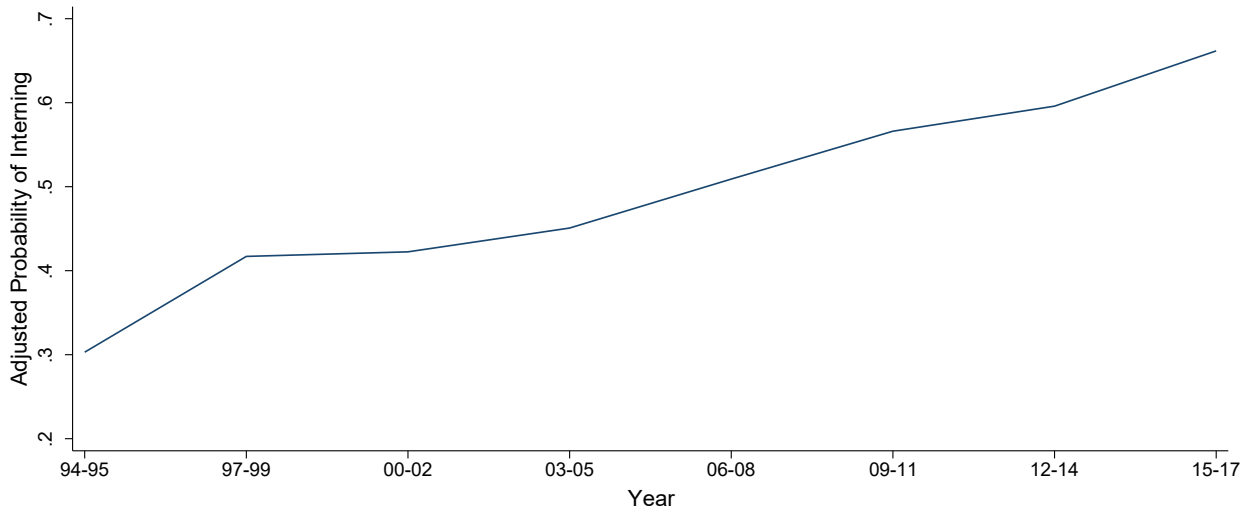

Figure 1: Average adjusted predictions of internship participation by time period, calculated from Appendix Table 1 in the online supplement (base model).

attending schools located in states in the Northeast, South, Midwest, and West (United States Census Bureau 2010). *Year* is included as a series of eight 3-year dummies, ranging from 1994–1995 through 2015–2017.[9]

Modeling Strategy

Analyses are conducted using Stata 17 (StataCorp 2021). Table 1 presents the distribution of variables used in the analyses, pooled across years. Table 2 describes the percentage of students participating in internships by each covariate—both overall and within the time periods of 1994–1995, 1997–1999, 2000–2002, 2003–2005, 2006–2008, 2009–2010, 2012–2014, and 2015–2017. Stata's *lincom* (linear combination) procedure tests for significant differences in internship participation within each time period and covariate, relative to the reference category of each covariate. Appendix Table 1 in the online supplement uses logistic regression to estimate the dichotomous outcome of internship participation, with robust standard errors clustered by school. Results are presented as odds ratios. First, a base model presents results including all covariates, without interaction terms. The subsequent four models present interaction terms between year and family income, year and continuing-generation status, year and institutional selectivity, and year and institutional control. Interaction terms are entered separately, one per model, as including them in the same model results in multicollinearity.

Predicted probabilities are calculated and graphed for all multivariate results (Long and Freese 2014; Williams 2017). Figure 1 graphs predicted probabilities of interning, by year and net of controls, using average adjusted predictions from the base model. Figure 2 graphs predicted probabilities from interaction models, using model-based adjusted predictions at representative values to demonstrate how predicted probabilities of internship participation vary by each privilege indicator and year. Finally, Table 3 presents marginal effects at representative values (MERs) of year to evaluate significant differences between predicted probabilities by

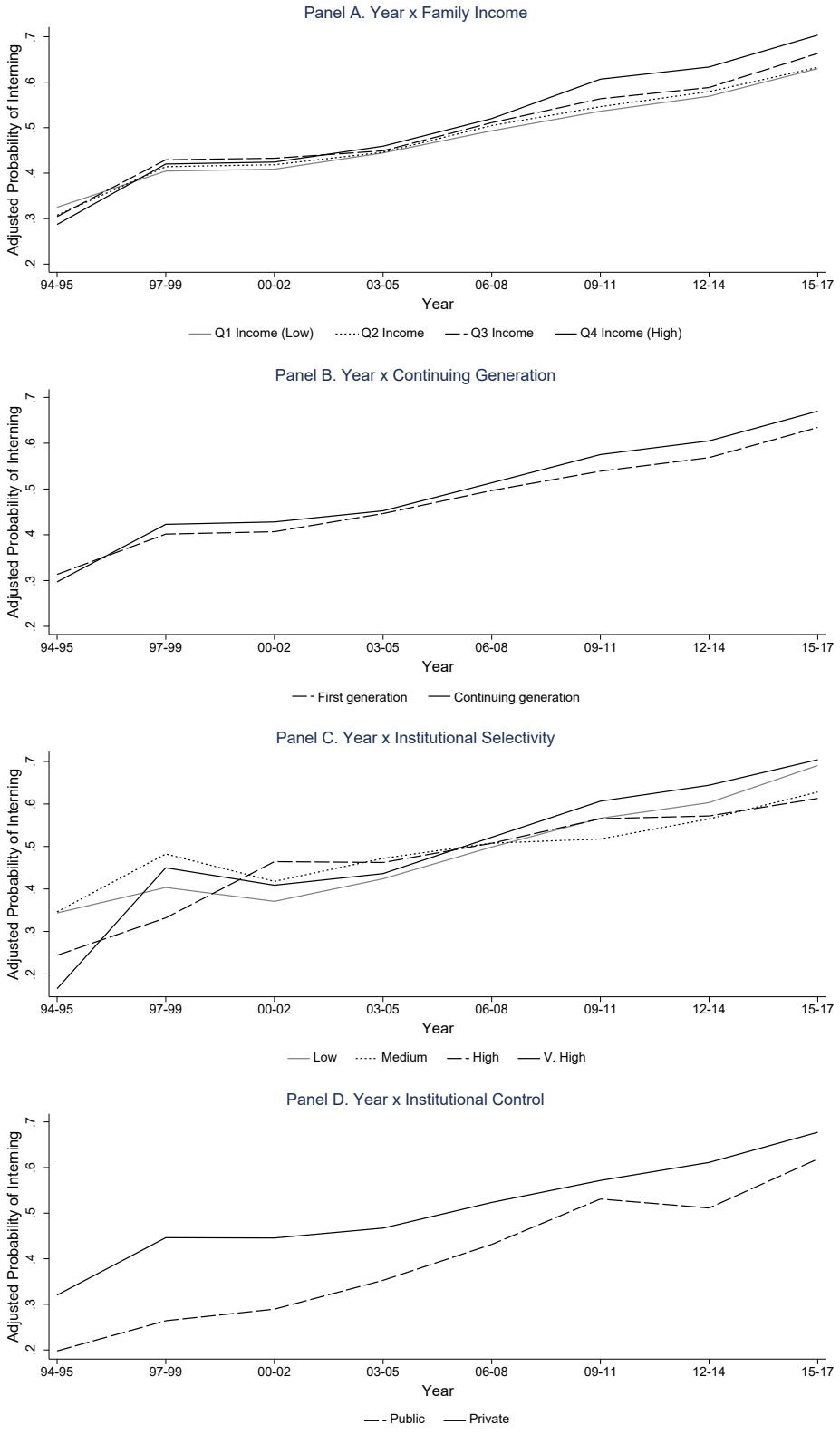

Figure 2: Average adjusted predictions of internship participation by time period, calculated from Appendix Table 1 in the online supplement (privilege × year interactions).

Table 3: Marginal effects (dy/dx), by privilege indicator and year.

	1994–1995	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	2012–2014	2015–2017
Panel A: year × income (ref. = first quartile (low))								
Second quartile	−0.018	0.010	0.010	0.001	0.012	0.010	0.010	0.003
Third quartile	−0.020	0.025**	0.024*	0.005	0.018*	0.028**	0.019	0.033**
Fourth quartile	−0.038	0.016	0.016	0.015	0.027*	0.071***	0.064***	0.073***
Panel B: year × continuing generation (ref. = first generation)								
Continuing	−0.016	0.021*	0.021**	0.006	0.017*	0.036***	0.036***	0.036**
Panel C.1: year × institutional selectivity (ref. = low)								
Medium	0.003	0.079**	0.047	0.048	0.009	−0.049	−0.038	−0.062*
High	−0.100**	−0.071	0.094**	0.038	0.009	−0.001	−0.031	−0.077**
Very high	−0.178***	0.046	0.038	0.012	0.023	0.040	0.041	0.014
Panel C.2: year × institutional selectivity (ref. = medium)								
Low	−0.003	−0.079**	−0.047	−0.048	−0.009	0.049	0.038	0.062*
High	−0.102**	−0.150*	0.046	−0.010	−0.001	0.048	0.007	−0.015
Very high	−0.181***	−0.033	−0.009	−0.036	−0.014	0.089***	0.079**	0.076**
Panel C.3: year × institutional selectivity (ref. = high)								
Low	0.100**	0.071	−0.094**	−0.038	−0.009	0.001	0.031	0.077**
Medium	0.102**	0.150*	−0.046	0.010	0.001	−0.048	−0.007	0.015
Very high	−0.079**	0.118	−0.056	−0.026	0.014	0.041	0.072**	0.091**
Panel D: year × institutional control (ref. = public)								
Private	0.122*	0.182***	0.156***	0.115***	0.092***	0.041*	0.100***	0.059*

Source: College Senior Survey, 1994–2017. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$ (two-tailed tests) for difference from reference group, within each time period, by internship participation status. The data shown are proportion point differences.

year. Confidence intervals are omitted from all figures for clarity, with hypothesis tests discussed in text to evaluate specific comparisons.

Model diagnostics indicate that mean variance inflation factors using a linear model specification fall below 2 in the base model and 7 in models with interaction terms. Influential cases are identified using Pregibon's (1981) delta beta, with less than 4.2 percent of cases in any model exhibiting values above 1. Excluding these cases from models resulted in highly comparable results; therefore, they are retained in the final analyses. All analyses are unweighted.

Results

Distributional and Bivariate Analyses

Table 1 presents the distribution of variables used in the main analyses, pooled across all years. Nearly half (48 percent) of all students in the sample participated in an internship. Among the privilege indicators, 32 percent of students were in the highest income quartile and 73 percent identified as continuing-generation. The majority of students (86 percent) graduated from a private college. Thus, students from the CSS are disproportionately privileged compared to other national samples

of students.[10] After "other" majors (31 percent), social science was the most popular major group (21 percent), followed by STEM (18 percent), humanities (16 percent), and business (15 percent). Students were most likely to report a grade of A or A+ in high school (34 percent), followed by A− (27 percent). Females (62 percent) are more prevalent than males (38 percent), and the sample is predominantly White (80 percent).

Table 2 presents the percentage of students participating in internships, by privilege indicators, controls, and time period. The overall percentage of students participating in internships increases steadily between 1994 and 2017, from 30 to 69 percent. Within the privilege indicators, students with the highest family income were significantly more likely than those with the lowest family income to intern—both pooled across years and in every time period except 1994–1995. The same pattern is observed for continuing- versus first-generation students, and those from private versus public colleges (across all years). Those from very highly selective colleges were significantly more likely to intern than those from lower selectivity colleges in pooled years; however, in some years, those from low selectivity schools were significantly more likely to intern than those from high and very high selectivity (1994–1995; high only in 1997–1999) and medium selectivity schools (2009–2011; 2015–2017).

Among other covariates, business majors were more likely to intern than all other majors across all time periods except 1994–1999 when they were less likely than social science majors and equally likely as humanities majors and 1997–1999 when they were equally likely as social science majors. Those with high school grades of B or lower were less likely to intern than students with higher high school grades, except in 1994–1995. Female students are more likely to intern than male students in all years except 2000–2002, 2012–2014, and 2015–2017, when no significant differences are observed. Pooled across years, White students were more likely to intern than Black and Hispanic students, but less likely than Asian or Pacific Islander students. These racial/ethnic differences, however, vary by year. Finally, students graduating from colleges in the Northeast were significantly more likely to intern than those in the South, Midwest, and West, across nearly all time periods.

Multivariate Analyses and Interactions

Appendix Table 1 in the online supplement begins by presenting logistic regression results from the base model of internship participation without interactions. All year dummies are positive and significant, with the magnitude of the odds ratios increasing from 1.67 in 1997–1999 to 4.71 in 2015–2017, net of covariates. Predicted probabilities from these results are graphed in Figure 1. The probability of interning increases from 0.3 in 1997–1999, 0.4 in 2000–2003, 0.5 in 2006–2008, 0.6 in 2012–2014, and nearly 0.7 in 2015–2017. These results reflect substantial internship expansion in the United States over this time period.

The base model of Appendix Table 1 in the online supplement also indicates statistically significant differences in internship participation by privilege indicator and sociodemographic characteristics. Students with higher family income are more

likely to intern than those with lower family income, with odds of participation 1.03, 1.08, and 1.13 times those in the second, third, and fourth income quartiles (respectively), versus the first quartile. Being a continuing-generation student, versus a first-generation student, increases the odds of participation by a factor of 1.09. And going to a private school, versus a public school, increases the odds of participation by a factor of 1.75. No significant differences are observed for institutional selectivity. Differences also emerge in control variables. Business majors were significantly more likely to intern than STEM, social science, humanities, and other majors. Students with higher high school grades were more likely to intern than students with lower high school grades. Female students were more likely to intern than male students. Those at schools in the Northeast were more likely to intern than those in the South, Midwest, and West. No significant differences are observed for race/ethnicity, net of covariates.

The adjacent four models of Appendix Table 1 in the online supplement present interaction terms between year and each privilege indicator. Positive and significant interactions are observed with income, continuing- generation status, and institutional selectivity; however, these are more readily interpretable through predicted probabilities and marginal effects.

Panel A of Figure 2 begins by graphing predicted probabilities of internship participation over time and by family income quartile, with marginal effects (dy/dx) presented in Panel A of Table 3. There are no significant differences in internship participation by family income quartile in 1994–1995 or in 2003–2005. Differences exist between the third and first quartiles in 1997–1999 (2.5 percentage points) and 2000–2002 (2.4 percentage points), with more consistent gaps emerging in 2006–2008. Students from the lowest family income have a 0.493 probability of completing an internship in 2006–2008, versus 0.520 for those from the highest family income. This equates to a 0.027 (0.520–0.493) probability point difference (Table 3). In other words, the average percentage point difference associated with a change from the lowest family income to the highest family income in 2006–2008 is 2.7. This privilege gap between students from the lowest and highest income quartiles grew to 7.3 percentage points in 2015–2017. Tests of significance between years (not shown) indicate that this 2015–2017 privilege gap is statistically larger than the 2006–2008 gap. This provides evidence that the income gap in internship participation has *widened* over time.

Next, Panel B of Figure 2 presents predicted probabilities by student continuing-generation status, with marginal effects presented in Panel B of Table 3. There are no significant differences in internship participation by continuing-generation status in 1994–1995. In 1997–1999, the predicted probabilities of interning for first-generation students were 0.402 and 0.423 (0.021 dy/dx) for continuing-generation students. These probabilities increase for both groups to 0.407 and 0.428 (respectively) in 2000–2002, but the size of the gap (0.021 dy/dx) remains the same. The probability of interning continues to increase for the duration of the observation period, with no significant gap by continuing-generation status in 2003–2005 but a gap of 1.7 percentage points in 2006–2008 and 3.6 percentage points for 2009–2011, 2012–2014, and 2015–2017. Although the 2009–2017 gaps are significantly larger than those from 1994 to 1995 and 2003 to 2005 (results not shown; $p < .05$), they are statistically identical to those from 1997 to 1999, 2000 to 2002, and 2006 to 2008. In other

words, with two exceptions when no gap exists, the continuing-generation gap in internship participation is *persistent* over time.

Panel C of Figure 2 graphs predicted probabilities of interning by school selectivity, with marginal effects presented in Panels C.1 (reference category of low selectivity), C.2 (reference category of medium selectivity), and C.3 of Table 3 (reference category of high selectivity). These results are more nuanced. In 1994–1995, students in high (0.244) and very high (0.165) selectivity schools are the least likely to intern, and those in low (0.344) and medium (0.346) selectivity schools are the most likely. These initial patterns converge in 2003–2005 and 2006–2008, when there are no significant differences between selectivity quartiles (Table 3, Panel C.1). From there, students who attend both very high and low selectivity schools tend to have the highest probability of participation. In 2015–2017, for example, students from very high and low selectivity schools have a 0.705 and 0.690 probability of interning (respectively), versus 0.628 and 0.613 for those from medium and high selectivity schools. Table 3 also presents marginal effects that reflect these different comparison groups, with medium selectivity as the reference in Panel C.2 and high selectivity as the reference in Panel C.3. Panel C.1 indicates no significant differences between students from very high selectivity schools, compared to those from low selectivity schools, from 1997 onward. Panel C.2 shows that, beginning in 2009, the average percentage point difference associated with a change from medium to very high selectivity is 8–9, with no statistically significant differences in the size of the selectivity gap during this time period (results not shown). Panel C.3 shows that the gap between students from very high and high selectivity schools becomes positive and significantly different beginning in 2012. In sum, there is no indication of a privilege gap between students from very high and low selectivity schools. However, the gap between students from medium and very high selectivity schools is *persistent* between 2009 and 2011 and 2015 and 2017, and the gap between students from high and very high selectivity schools *widens* between 2012 and 2014 to 2015 and 2017.

Finally, Panel D of Figure 2 presents predicted probabilities of interning by private or public school status, with marginal effects in Panel D of Table 3. Students from private schools are significantly more likely to intern than students from public schools in all years. The largest gap between the two occurs in 1997–1999, when the average percentage point change associated with a change from public to private is 18.2. The gap narrows until 2009–2011 (4.1 percentage points) and then widens in 2012–2014 before narrowing again in 2015–2017. These results indicate that the gap between students from private and public schools *narrows* over time (but see the following supplemental analyses section).

Supplemental Analyses and Robustness Checks

Only about half of the CSS respondents match with the TFS and its family income and continuing-generation variables. These variables are necessary for understanding how family background predicts internship participation, so the matched TFS–CSS data are my preferred analytic sample. However, I evaluate the robustness of the institutional control and college selectivity results to two alternative specifications. These results are available online as supplemental materials.

First, I consider results from the "unmatched" sample of CSS-only students with information on available covariates.[11] Descriptive statistics and the distribution of interns from this sample are presented in Appendix Tables 2 and 3 in the online supplement, respectively. Overall, internship participation is 3.3 percentage points lower in the unmatched sample, versus the analytic sample. Nearly 6 percentage points more students in the unmatched sample attended a low selectivity school, and 4.6 percentage points more attended a public school.

Appendix Table 4, Panel A, in the online supplement presents multivariate results predicting internship participation, replicating Appendix Table 1 in the online supplement results to the extent possible (i.e., without information on parental income and first-generation status). As in the analytic sample, results indicate that all year dummies are positive and significant in the base model, with the magnitude of the odds ratios increasing over time. Private school status is also positive and significant. Unlike in the analytic sample, all categories of institutional selectivity are positive and statistically significant.

The dy/dx results (Appendix Table 5 in the online supplement) in the unmatched sample show even more pronounced privileged gaps than in the analytic sample: whereas there was no significant difference between students from low selectivity schools and very high selectivity schools in the analytic sample, those from very high selectivity schools (Panel C.1.a) are significantly more likely to intern beginning in 2000-2002—a gap that remains but varies in magnitude over time. The gap between students from medium and very high selectivity schools was *persistent* between 2009–2011 and 2015–2017 in the analytic sample, but *widening* in the unmatched sample (Panel C.2.a). And as in the analytic sample, the gap between students from high and very high selectivity schools *widens* over time (Panel C.3.a)—but begins earlier (in 2009–2011). Finally, whereas the gap between students from private and public schools *narrows* at the end of the observation period in the analytic sample, it *widens* in the latter years of the unmatched sample (Panel D.a).

As these unmatched sample results cannot control for family income or first-generation status, I run an additional robustness check to explore if differences in results might be attributable to sample composition, versus model specification. Appendix Table 4 (Panel B) and Appendix Table 5 in the online supplement present analyses of the original analytic ("matched") sample results without controlling for family income or first-generation status, per the unmatched sample equations. These reduced covariate models yield highly comparable results to the fully specified analytic sample, suggesting that differences between the matched and unmatched sample results are attributable to sample differences. Regardless of specification, an overall pattern remains the same: the odds of internship participation significantly increased over time, net of controls, and students from highly selective colleges and from private schools are the most likely to participate.

Discussion and Conclusion

Internship experience is both common and highly unequal for contemporary baccalaureate students. This article uses nationwide data to (1) evaluate the association

between internship participation and individual and institutional markers of privilege over time, net of grades and college major and (2) test whether disparities in internship participation narrowed, persisted, or widened over three decades, independent of controls.

First, results document a marked period of college internship expansion over three decades, with participation doubling between 1994 and 2017. This time effect persisted net of controls for potential compositional changes in the student population, including grades, major, and sociodemographic characteristics. Existing research suggests that the expansion of higher education and the decline in returns to a baccalaureate degree (Araki 2020; Collins 2019) have pressured schools to promote alternative indicators of employability (Gumport 2019; Roksa and Robinson 2016) and students to accumulate job-relevant experiences (O'Connor and Bodicoat 2017; Tomlinson 2008). These changes in higher education have corresponded with a rise in internships.

Second, results demonstrate sizeable privilege gaps in internship participation. In bivariate analyses, students are more likely to intern if they have higher (versus lower) family income, continuing-generation (versus first-generation) status, attend a more (versus less) selective school, and attend a private (versus public) school. These differences persist in multivariate models, although selectivity results vary by sample specification. Results confirm the internship inequalities found in smaller, cross-sectional, or retrospective surveys and qualitative studies (Frenette 2015, 2021; Hora et al. 2020; Moss-Pech 2021; Rivera 2016), extending them with historical, nationwide data.

Third, results demonstrate that internship expansion did not uniformly equalize participation disparities over time—and that these trends are dependent on the type of privilege. Widening inequality is most evident by family income, as the size of the gap between students from the highest and lowest income quartiles more than doubles between 2006–2008 and 2015–2017. Although the same is true for continuing-generation versus first-generation students (with a gap of 0.017 in 2006–2008 and 0.036 in 2015–2017), the size of the gap was constant after 2009, despite continued increases in the overall probability of interning. Privilege gaps by institutional selectivity showed more variable patterns over time and by sample, but all specifications show that students from very high selectivity schools are more likely than those from medium and high selectivity schools to intern in later years. Private school students are more likely to intern than public school students in all years, but these patterns are less linear.

These results suggest that—at least by family socioeconomic status—more privileged groups became more adept at internship opportunity hoarding over time (e.g., Bathmaker, Ingram, and Waller 2013; Hamilton, Roksa, and Nielsen 2018; Reeves 2018). The income gap might be attributable to the material costs of interning, as well as the financial risks of accepting an opportunity with uncertain and opaque rewards (Hora, Wolfgram, and Chen 2019; Moss-Pech 2021). Likewise, the continuing-generation gap might be attributable to the social and cultural capital that comes from college-educated parents in professional jobs (Roksa and Silver 2019), as personal networks have become increasingly important in landing an internship (Frenette 2021; Stuber 2009). That these gaps in family-based forms of

privilege widen or persist over time points to the enduring individualized nature of career preparation for college students in the United States.

These socioeconomic results persist net of college major—a key predictor of internship participation, as business majors were significantly more likely to participate (85 percent at the end of the observation period) than social science majors (70 percent), humanities majors (69 percent), and STEM majors (62 percent). These results may be industry-specific and attributable to the unique recruitment procedures for finance and consulting jobs (e.g., Rivera 2016). Or, they may reflect broader differences in the career pipelines of "practical arts" majors that more closely align with specific occupations (Brint et al. 2005). Future research on college majors and internship participation over time would help identify these mechanisms.

Limitations

The CSS is widely adopted by colleges to understand student experiences and—to my knowledge—is the only nationwide survey available with repeat measures of internship participation over a three-decade period in the United States. This rich historical data, however, do not include further information about the characteristics of internships, including payment, duration, or integration with coursework. These characteristics would help distinguish between internships that do or do not meet best practices for student learning (e.g., Hora, Wolfgram and Thompson 2017). Not all internships are equally as useful for student outcomes (Moore 2013), and it would be ideal to identify how student privilege predicts participation in *quality* internships.

Likewise, the CSS only includes schools that opt to administer the survey and students who persist until their final year of college. This means that students in the CSS are disproportionately privileged and on track to receive a degree, relative to the population of baccalaureate enrollees and graduates (National Center for Education Statistics 2023, National Center for Science and Engineering Statistics 2017). It would be ideal to have historical, nationally representative data on internship participation and characteristics among all young people—including those in high school, those who are not enrolled, those who attend 2-year institutions, and those with some baccalaureate coursework but no degree.

Students also have different probabilities of entering selective colleges, choosing specific majors, and earning higher grades (Davies and Guppy 1997)—all of which correlate with internship participation. Unfortunately, the CSS does not have extensive information on longitudinal family or academic background to evaluate these selection effects.

Implications

These results demonstrate that internships, despite their definitional ambiguity and lack of regulation (Brudney 2019; Perlin 2012), are far more likely among students with privilege. Yet, researchers, practitioners, and policymakers have few tools for tracking these trends over time. This is, in part, because neither schools nor employers have national or state-level internship reporting criteria. It is also because internship participation is not observed in many publicly available survey

datasets, including those commonly used for evaluating school-to-work transitions. This study provides a benchmark for understanding internship inequality and how it has changed over a three-decade period.

Results also illustrate how internships reproduce family privilege. Internships beget internships, as employers who hire interns are more likely to callback applicants with previous internship experience (Jaeger et al. 2023). But internships also beget jobs (Baert et al. 2019; Moss-Pech 2021; Nunley et al. 2016; Rivera 2016). This means that internships are a crucial—but often unobserved—sorting mechanism for future employees. And, according to these results, less privileged students have been systematically sorted out of the pipeline for decades.

Finally, results indicate that structural inequalities continue to exist in the internship market. This raises questions about the viability of encouraging or requiring students to intern without addressing underlying barriers to participation. Internships can be beneficial for skill building and job searching, but they also vary widely in their utility for professional development (Moore 2013). These results focus on individual, student-level inequalities in participation that reflect broader labor market and policy contexts. Internship stakeholders concerned with equity—particularly those in higher education—should also ensure that internship programs are designed to support student success.

Notes

1 Racial and ethnic differences in internship participation also exist, but evidence of gender disadvantage is less clear. The 2021 National Survey of College Internships (Hora et al. 2021) found that men and women were equally likely to participate in internships, but those who reported other gender identities were less likely to participate than men and women. Students who were Black, Hispanic, or Pacific Islander were less likely to intern than White students. Another analysis of undergraduate arts alumni found that women were slightly more likely than men to intern and White alumni were slightly more likely than Black or Hispanic alumni to participate (Frenette 2015). Another study across majors found that men had similar or slightly higher rates of participation than women, and White graduates were typically more likely to participate than Black or Hispanic graduates (Shandra 2022). In addition, employers may be more likely to use race-based status beliefs when screening for internships, versus jobs, further disadvantaging non-White intern candidates (Campero 2023).

2 Average of endowment per full time equivalent at non-historically Black colleges and universities (HBCUs), excluding 2-year, tribal, and medical colleges. Endowments at private HBCUs were more than three times the size of public HBCUs, but HBCUs had lower endowments than non-HBCUs.

3 The "decrease in the effect of father's education on entry to the second level [was the] only significant decrease in the association between origin and education in our data" (Raftery and Hout 1993:56).

4 Although it's also possible to observe widening if the likelihood of participation *decreased* among less privileged groups while staying the same or increasing among more privileged groups, this pattern is less supported by the existing literature on the growing ubiquity of internships (National Association of Colleges and Employers 2017, Shandra 2022).

5 Massive Online Open Courses (MOOCs), once heralded for their potential capacity to democratize access to education, offer another example. Both Hansen and Reich (2015) and Reich and Ruipérez-Valiente (2019) find that participants from more affluent geographical areas were more likely to complete a course than those from less affluent areas. Neither analysis could attest to individual-level differences or change over time. However, the authors suggest that even open-access forms of upskilling could exacerbate—not mitigate—socioeconomic educational disparities.

6 More recent surveys offer the opportunity to study contemporary trends, including the Baccalaureate and Beyond Longitudinal Study (Cominole, Ritchie and Cooney 2021), the National Survey of College Internships (Hora et al. 2021), and (for arts alumni) the Strategic National Arts Alumni Project (Frenette 2021). Although the National Association of Colleges and Employers collects information on internships from students and employers, nationwide data are proprietary and not available to the public. The National Survey of Student Engagement asks broadly about participation in an internship, co-op, field experience, student teaching, or clinical placement. Similarly, broad questions can be found in early years of the National Longitudinal Survey of Youth (U.S. Bureau of Labor Statistics 2017).

7 High school GPA is included instead of college GPA, as the CSS does not include data on the timing of internship participation and there is evidence that college internship participation positively associates with college GPA (Binder et al. 2015).

8 Unfortunately, the CSS does not include information on gender identity until the 2018 survey.

9 Alternative coding schemes for year were also evaluated. Ultimately, a dummy-coded approach was chosen over a continuous indicator to allow time to vary non-linearly. Results from 3-year dummies were chosen over 1- or 2-year dummies due to address potential power issues due to small cell sizes in interaction models.

10 Among baccalaureate graduates age 29 or younger in the National Survey of College Graduates (National Center for Science and Engineering Statistics 2017), for example, 33% report graduating from a private school. Additionally, 67% report that either a mother or a father had at least a baccalaureate degree.

11 Of the 753,187 students in the unmatched data, 687,898 students have internship information. Of these, 669,422 have complete information on sex, race/ethnicity, and school region. Another 667,297 have info on school selectivity and institutional control. Finally, 654,480 have information on college grades, meaning that over 95% of students with internship information in the unmatched sample have information on other included covariates.

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