THE IMPACT OF CHIEF DIVERSITY OFFICERS ON DIVERSE FACULTY HIRING

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ABSTRACT

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Abstract

As the American college student population has become more diverse, the goal of hiring a more diverse faculty has received increased attention in higher education. A signal of institutional commitment to faculty diversity often includes the hiring of an executive level chief diversity officer (CDO). To examine the effects of a CDO in a broad panel data context, we combine unique data on the initial hiring of a CDO with publicly available faculty and administrator hiring data by race and ethnicity from 2001 to 2016 for four-year or higher U.S. universities categorized as Carnegie R1, R2, or M1 institutions with student populations of 4,000 or more. We are unable to find significant statistical evidence that preexisting growth in diversity for underrepresented racial/ethnic minority groups is affected by the hiring of an executive level diversity officer for new tenure and non-tenure track hires, faculty hired with tenure, or for university administrator hires. JEL Codes I23, I28, J78

1   Introduction

The issue of race and diversity on campus has been a central educational research and policy concern of universities for decades (Dee, 2005; Hurtado, Clayton-Pedersen, Allen, and Milem, 1998). Following President Lyndon Johnson's 1965 equal employment opportunity executive order (Johnson,

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1965) affecting hiring practices of federal contractors, American universities quickly and voluntarily enacted similar affirmative action policies to increase the diversity of student populations (Arcidiacono and Lovenheim, 2016). However, changes in the diversity of faculty has proceeded at a slower pace. With faculties less diverse than their student bodies, universities have sought programs and policies designed to better increase faculty diversity. Advocates for greater diversity have argued that a higher-profile executive-level Chief Diversity Officer, preferably one who reports directly to the university president, can more effectively promote and encourage diversity at the highest level of university governance compared with lower level diversity-focused offices and organizations such as multicultural and diversity centers (Wilson, 2013). The movement to hire CDOs is gaining momentum. We find that in the 2016 academic year, more than two-thirds of the major U.S. Universities we study had a CDO in place.

In a university with shared governance, it is not immediately clear how much influence an executive level CDO can exert upon faculty hiring decisions made by individual departments. Yet increasing faculty diversity appears to enjoy broad support within academe. A 2017 survey found that 64% of provosts at Doctoral granting state universities and 53% of provosts overall agree or strongly agree that "Most academic departments at my institution place a high value on diversity in the hiring process" while 8% of Doctoral state university provosts disagree (0% strongly disagree) and 15% of all provosts disagree or strongly disagree (Jaschik and Lederman, 2017). University cultures also value academic freedom and local autonomy. Yet the number of new PhDs who are members of an underrepresented minority group vary widely by academic discipline. Despite widespread desire to increase faculty diversity, it simply may not be possible to rapidly increase faculty diversity given the pool of available faculty candidates.

The purpose of this paper is to present a first look at how the hiring of a CDO has affected the diversity of faculty and administrator hiring in four-year and above degree-granting American universities with 4,000 or more students from the 2001 through 2016 academic hiring cycles. To do so, we supplement publicly available data from the U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS) with data we have gathered on the presence of an executive-level CDO. We are unable to find statistically significant evidence that diversity hiring patterns of faculty and administrators from universities with a CDO present differ from other

universities in our sample which had not hired a CDO by the conclusion of the 2016 academic hiring cycle, or differ from patterns which existed in those same universities prior to hiring a CDO.

In the following sections, we discuss the emergence of the executive level diversity officer position, common roles of the position and the theoretical connection between faculty diversity and student diversity. We then document our data collection process and public IPEDS data used, followed by our methods, results, and discussion of our findings that may offer avenues for future research.

2 Background and Literature Review

2.1 Diversity and the Role of Chief Diversity Officers

Equal Employment Opportunity (EEO) offices have been a staple of the workplace since the passage of the Civil Rights Act of 1964, Title VII in 1964, and more recently the Americans with Disabilities Act in 1990. However, EEO and other multicultural and diversity offices were typically not executive-level offices within universities, but were located at the departmental level or as a division of student services.

A more recent trend is the hiring of executive level officers to coordinate various diversity initiatives on campus. Advocates for the establishment of a Chief Diversity Officer argue that a CDO must be an executive-level position and preferably one that reports directly to the president to enhance their effectiveness (Wilson, 2013). Damon Williams, founder of the Center for Strategic Diversity Leadership and Social Innovation and Katrina Wade-Golden, Deputy CDO and Director of Implementation for the Office of Diversity, Equity, and Inclusion, both at the University of Michigan, contrast the CDO with earlier positions:

> What distinguishes the current executive diversity officer from its historical predecessors is the functional definition of diversity as a resource that can be leveraged to enhance the learning of all students and is fundamental to institutional excellence, in addition to its historic definition as the presence of individuals that differ by race, gender, or some other social identity characteristic. ... Given complexities like infusing diversity into the curriculum, enhancing the compositional diversity profile of students, faculty, and staff, and developing policies designed to improve the campus climate, the challenge of diversity is beyond the capabilities of any one individual, division, or team. Hence, chief diversity officers serve as powerful integrating forces for diversity issues, collaborating

and working through the lateral networks of the institution no matter how large or small their staffs (Williams and Wade-Golden, 2007).

Recent work notes the growth in the diversity of PhD candidates and suggests that universities may not place enough emphasis on hiring underrepresented faculty (Smith, Turner, Osei-Kofi, and Richards, 2004). Data collected from the National Science Foundation's 2016 *Survey of Earned Doctorates* report (National Science Foundation, 2018, Table 12) indicates that the growth of PhDs awarded to members of underrepresented minorities exceeds the overall growth rate of PhDs awarded to U.S. citizens and permanent residents. Four socioeconomic trends have been offered to explain this push contributing for greater diversity in higher education (Williams and Clowney, 2007): 1) legal and political dynamics, 2) changing demographics, 3) the rise of a post-industrial knowledge economy, and 4) persistent societal inequities. Within the university setting, diversity may improve the individual well-being of members by increasing the likelihood that each person finds others with a similar background and common interests. It also offers opportunities for learning from individual or group differences that improve understanding in an increasingly globalized work environment. Business team diversity fosters more innovative ideas (Van Knippenberg and Schippers, 2007; Ruef, 2002) which would also apply to university research teams and classroom groups.

2.2   Chief Diversity Officers, Faculty Hires, and Student Outcomes

The recruitment and retention of underrepresented faculty are considered a key priority facilitated by CDOs to meet changing student demographics. The logic is that positive educational outcomes will result from congruency of student and professor race/ethnicity, thereby reducing achievement gaps for minority students (Campbell and Campbell, 1997). The most frequently cited benefits of this race/ethnicity matching hypothesis include greater engagement/retention, improved classroom discussion and better preparation for the real world (Maruyama, Moreno, Gudeman, and Marin, 2000). There are several theories seeking to explain why and how educational outcomes are associated with faculty-student gender or race/ethnicity congruency. Role model theories suggest increased student motivation through (1) behavioral modeling of how to perform a skill or achieve a goal; (2) showing that the skill or goal is possible; and (3) articulating that the goal is desirable

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and worth the effort (Almquist and Angrist, 1971; Basow and Howe, 1980; Morgenroth, Ryan, and Peters, 2015). The Pygmalion or Rosenthal Effect is a phenomenon where demographic similarities can positively influence faculty and student communication leading to higher expectations for enhanced performance (Rosenthal, Jacobson, et al., 1968). Stereotype theories suggest that a faculty member of a different gender and/or race may have an effect on student outcomes through negative stereotypes (Leslie, Cimpian, Meyer, and Freeland, 2015; Steele and Aronson, 1995). Faculty diversity and student outcomes as a research topic has been studied by scholars in multiple fields with mixed findings.[1]

A weakness of many of the earlier studies is an inability to credibly control for the likelihood of self-selection. For example, if female students are able to select which section of a large introductory course to enroll in, and higher achieving/more motivated female students specifically seek out female professors whereas lower achieving/less motivated female students must enroll in sections taught by male professors, it would not be statistically possible to separate preexisting ability and/or motivation from any gender-based professor effects upon student achievement.

Several recent studies use research designs and data which overcome some of these earlier methodological weaknesses. Carrell, Page, and West (2010) use data on the random assignment of students and professors into classrooms to investigate the effects of professor gender on student achievement at the U.S. Air Force Academy finding that in mandatory introductory STEM coursework, the achievement of female students increases when they are randomly assigned to female faculty members. In a second Academy study, Kofoed and McGovney (2017) examine the effects of randomly assigned mentors on career choices at the U.S. Military Academy. Students must choose from a small number of military specialties for their careers upon graduation. All students are more likely to choose the specialty of their military commander, but the study finds underrepresented minority students are additionally likely to choose the military specialty of their commanding officer if that commander is of the same racial/ethnic group.

A third study uses data from De Anza College, a large community college in the San Francisco Bay area. Fairlie, Hoffmann, and Oreopoulos (2014) address issues of self-selection by focusing

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[1]See Bettinger and Long (2005), Buchmann, DiPrete, and McDaniel (2008), Canes and Rosen (1995), Dee (2004), Dee (2005), Ehrenberg, Goldhaber, and Brewer (1995), Hoffmann and Oreopoulos (2009), Neugebauer, Helbig, and Landmann (2010) Neumark and Gardecki (1998), and others.

analysis on lower-achieving students with lower registration priority, and consequently, a more limited selection of faculty instructors. The findings show that underrepresented minority students are 1.2-2.8 percent more likely to pass classes, 2.0-2.9 percent less likely to drop out of classes, and 2.4-3.2 percent more likely to get a grade of B or higher in classes with underrepresented minority instructors. These represent modest, but statistically significant reductions in achievement gaps relative to majority groups (20% to 50% of the total gap). Subsequent course selection, retention, and degree completion of minority students are also positively influenced when matched with a minority faculty member.

In contrast to these positive findings, other studies also addressing selection effects at the secondary level (Dee, 2007; Neugebauer, Helbig, and Landmann, 2010; Helbig, 2012) and post-secondary level (Price, 2010) find either mixed results or no significance for teacher-student gender or race/ethnicity congruity on student performance. For example, in a study by Cho (2012) of 15 OCED countries using multi-wave TIMSS data that allows for student fixed effects estimation, there was no effect of teacher gender on student math performance outcomes. Another study finds overall positive effects of mentoring regardless of race or gender (Kim and Sax, 2009).

The nascent academic literature addressing CDOs often discusses the experiences and effects of CDOs through case studies from a handful of interviews with current CDOs (Parker, 2015; Wilson, 2013). Wilson (2013) states that the effectiveness of CDOs remains unknown. Therefore, whether CDOs influence the hiring of diverse faculty premised on the association with minority student outcomes is important to investigate. To the best of our knowledge, our study is the first large-scale statistical analysis of the effects of a university CDO position on the diversity of faculty and administrator hiring.

3   Data

A critical initial decision in our analysis involves selecting which institutions to include in our sample. We prefer inclusion of the broadest sample of U.S. universities possible, but limit the dataset to institutions that are broadly comparable to one another in their selection of new faculty from the same pool of applicants. We include universities located in the United States which are

classified as Carnegie R1 doctorate-granting universities with highest research activity, Carnegie R2 doctorate-granting universities with higher research activity and Carnegie M1 with larger master's degree-granting activity. Because our interest is the CDO position and the proportion of diversity hires, we limit our sample to R1, R2, and M1 universities with an enrollment of 4,000 or more undergraduates on the assumption that they are large enough to have regular hiring of new faculty and administrators and sample from 2001 through the 2016 academic year.

A wide variety of demographic, hiring, financial, and institutional characteristics are publicly available for this set of universities in the Integrated Postsecondary Education Data System (IPEDS) at the National Center for Education Statistics. Universities, prior to 2016, were only required to complete IPEDS surveys in odd academic years regarding the race and gender of employees hired. The recent mandate by the U.S. Department of Education requires annual reporting, but a subset of institutions did choose to voluntarily report the race and gender of new employees hired in even academic years as well. Due to concerns that institutions which chose to voluntarily report may differ systematically from those which did not, we use in our regression analysis only data from the academic years in which reporting was mandatory.

IPEDS does not record whether a university has employed an executive level chief diversity officer. We were not able to locate other sources which had compiled such data and instead gathered our own. Our data on whether an executive level CDO was present is the result of a three-step process. We employed a web scraping company to initially determine the year in which an executive level CDO was first hired for the universities in our data set. Our search for the start date of an executive level diversity position included variations of the Chief Diversity Officer title at a Vice President or higher level of organizational management.[2] To assess whether a university established an executive diversity officer and the year hired, we searched university web pages, press releases, news articles, LinkedIn, university organizational charts, and other publicly available material. A coauthor of this paper and a graduate research assistant subsequently and separately repeated this same process as a way to independently verify data accuracy and reliability. The 462 universities included in our data set and the year in which the first executive-level CDO was hired are listed in

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[2]Examples include Associate Provost for Equity and Inclusion, Senior Executive Assistant to the President for Diversity, and Vice President for Inclusion, Diversity, and Equal Opportunity, etc.

Appendix A.

To correct for the possibility that increased diversity affects the decision of whether to hire a CDO, we employ the proportion of peer R1 institutions which have a CDO in place as an instrument for the presence of a CDO. We posit that institutions look to best practices and innovations of other R1 institutions. We found that decisions regarding a CDO at R1 institutions within 100 miles do not have as much explanatory power over a R1 institution as the decisions regarding a CDO of all R1 institutions (excluding self) nationwide. This is consistent with our understanding that the U.S. market for higher education is a national as opposed to a localized market (Hoxby, 2016). Likewise, we found that CDO hiring decisions of R2 and M1 institutions were more affected by the decisions of all R1 institutions than by either nearby or nationwide institutions with the same Carnegie classification, perhaps because the decisions of these institutions are affected more by aspirational behaviors than peer institutions. In light of this, we calculate our instrument, Peer R1 CDOs, measured as the proportion of other R1 institutions which have a CDO present in the current year.

For our primary measurement of diversity, we use the proportion of the total number of students, faculty, or administrators who are identified as being members of an underrepresented minority group in IPEDS as African-American, Hispanic, or Native American/Pacific Islander. To measure current institutional diversity, we report the proportion of current undergraduate students, faculty of all academic rank and tenure status, and administrators who are members of an underrepresented minority group.

IPEDS reports a vast amount of data on each university. We report only selected relevant statistics in the interest of brevity. These include the average inflation-adjusted 9-month Assistant Professor salary, in- and out-of-state tuition plus fees, the proportion of students who are in-state, and statistics on student financial aid and loans. In addition, we compute the percentage growth in applications for undergraduate admission. We believe each of these indicators may also influence the ability to attract students and faculty, particularly in institutions where budgets are primarily funded by undergraduate tuition and fees.

As a secondary specification for diversity, we use a Herfindahl-like index to measure total di-

versity, defined to be

$$\text{Diversity}_{it} = 1 - \sum_{g \in \mathbb{G}} p_{igt}^2 \tag{1}$$

where $\mathbb{G}$ is the set of all racial and ethnic groups, and p_{igt} is the proportion of persons in university i of racial/ethnic group g in time t. This index assumes a value of zero if all members are of a single racial/ethnic group and reaches its maximum when all racial/ethnic groups are evenly represented. It is equal to the probability that two randomly drawn individuals from a large population come from different races (Simpson, 1949; Hirschman, 1980).

Within our sample of academic institutions, we also account for the role played by Historically Black Colleges and Universities (HBCU). These universities, founded prior to 1964 with the intention of serving the African-American community, have very high percentages of underrepresented minorities in their student bodies, faculty, and staff by design. Until very recently, most have not employed a CDO. Although these institutions meet all of the criteria for inclusion in our sample, we analyze the sample with and without HBCU so as to better understand the influence of these institutions on our results.

Summary statistics are presented in Table 1. Means and standard deviations for the full sample are reported in column (1). Column (2) reports summary statistics gathered only in the years where reporting of the racial and ethnic composition of newly hired faculty and staff is mandatory. In columns (3), (4), and (5), the institutions reported in column (2) are separated into their respective Carnegie classifications. Finally, in column (6) we separate out HBCU. We note the much higher prevalence of CDOs among Carnegie R1 institutions than R2 and M1 institutions. The summary data indicate a much higher proportion of underrepresented minority students, faculty, and administrators and a lower proportion of CDOs present at HBCU institutions than in the sample as a whole.

3.1   Graphical Analysis

The time period 2001-2016 has been one of substantial change in U.S. universities regarding issues of diversity and inclusion. To better illustrate dynamics within our data, we illustrate changes in demographic hiring practices related to the CDO position in Figure 2, and by specific academic

position levels in Figure 1. For both figures, we omit HBCU due to the unique mission and demographics of these institutions. Figure 1a illustrates the rate at which universities in our sample have hired an executive level diversity officer over time. The proportion has steadily increased from 5.4 percent in 2001 to 67.6 percent in 2016.[3] The remaining panels of Figure 1 illustrate trends by CDO presence for underrepresented (b) students, (c) faculty and (d) administrators in years for which demographic reporting was mandatory. The proportion of underrepresented minority students, faculty, and administrators illustrated in Figure 1b to 1d increased from 2001 through 2016 for universities with and without a CDO presence.

Perhaps surprisingly, the proportions for underrepresented groups has been consistently higher in universities without a CDO than with a CDO present over this time period. This finding may be a consequence, at least in part, of the changing composition of these groups.[4] For underrepresented students (Figure 1b), the average gap by CDO position presence increased from 4.9 percent in 2001 to 8.5 percent in 2016. Figure 1c indicates the university proportion of underrepresented faculty by CDO presence, differed by only 0.4 percent in 2001, but that gap increased to 3.3 percent by 2016. Likewise, the gap in the proportion of underrepresented administrators by CDO position presence grew from 3.8 percent in 2001 to 6.3 percent in 2016. Figures 1e and 1f are analogous to 1c and 1d, but with categories which do not change through time. Figures 1e and 1f contrast faculty and administrator diversity in universities which established an initial CDO in 2005 or earlier, defined as Early CDO, with universities which had not established a CDO by 2016.

Figure 2 illustrates more specific diversity hiring trends by CDO presence for (a) non-tenure track faculty, (b) tenure-track faculty, (c) tenured faculty, and (d) administrators along with the total number of corresponding hires for each category in Figure 2 panels e to h. We note the adverse effects of the Great Recession on overall hiring in 2007-2008 along with the remarkable stability of the proportion of diversity hires by CDO presence, given the underlying volatility in the academic job market. The post-recession hiring increases again across academic categories (Figure 2e to 2h) while the trend for the proportion of diversity hires by presence of CDO position continues through

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[3]For the universities in our sample, in only one case was an existing CDO position eliminated. At the Provost's request, the CDO's duties were assumed by the Provost at this university.

[4]As an example, if universities were rank ordered from least diverse to most diverse, for a given year, hiring a CDO at the least representative institutions will increase the average of both groups over time.

2016 (Figure 2a to 2d), with the proportion of diverse hires typically lower in a given year with a CDO compared to campuses without the position

3.2 Supply of New PhDs

A comprehensive analysis of the academic job market and trends in diversity would require detailed data on both the supply and demand of academic job market candidates. IPEDS regrettably does not report data on academic job market applicants by university. However, the National Science Foundation (NSF) does collect data on the number of PhDs awarded annually by academic field and subfield by race and ethnic group. Table 2 contains a tabulation of earned PhDs awarded by U.S. universities to citizens and permanent residents in the 2016 academic year for all fields (bolded) and selected subfields within these fields (indented) by race and ethnic group. The final column of Table 2 reports PhDs awarded for members of underrepresented minority groups, which is a sum of the second, third, and fourth columns.

In 2016, 5,043 members of an underrepresented minority group earned a PhD out of a total of 35,719 PhDs earned for U.S. citizens or permanent residents, or 14.1% of the total. The NSF survey reports that in 2016, 48.5% of U.S. citizens or permanent residents earning their PhD with definite employment plans at the time of the survey had secured jobs in academia. The proportion of underrepresented minorities with academic employment plans was comparable.[5] In 2016, diverse hires were 11.6% of tenure-track faculty members in our sample (including Historically Black Colleges and Universities), and 13.7% of non-tenured faculty members. There is substantial variation in the proportion of earned PhDs by field for total underrepresented minorities, from a low of 7.9% in Physical Sciences and Earth Sciences to a high of 23.1% in Education. Variation by subfield is even more substantial with the proportion of PhDs earned by minorities as high as 40% for Latin American History and 38.2% for Area & Ethnic & Cultural & Gender Studies, to a low of 6.4% in Physics and Astronomy and 9.6% in Economics. Awarded PhDs in certain subfields of engineering not shown are even less diverse.

Unfortunately, the IPEDS data on faculty hiring by race is not disaggregated by academic

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[5]The proportion of American Indian or Alaskan Natives was unreported due to small sample size and confidentiality. 47.3% of African Americans and 48.9.8% of Hispanic and Latino employed PhDs had secured academic employment (National Science Foundation, 2018, Table 47).

discipline. However, we infer from Table 2 that a university wishing to enhance the diversity of its faculty may be limited in the extent it can do so by the limited availability of PhDs in some academic disciplines.

4   Methods and Results

Although the primary focus of our paper is an examination of a CDO position hire to changes in faculty diversity, it is possible that the establishment of a CDO is driven, instead, by a response to growing campus diversity among students. In a 2017 survey conducted by *Inside Higher Ed* (Jaschik and Lederman, 2017), 51 percent of respondent provosts from doctoral-granting public universities responded in the affirmative to the following question: "Either because of the protests, or because of prior/subsequent commitments, does your college currently have a target for increasing the number or percentage of minority faculty members you employ by a certain date? " To better understand directions of causality, we implement a Granger Causality Test between the initial establishment of CDO and changes in student, faculty, and administrator hiring diversity, and growth in student applications for undergraduate admissions.

4.1   Granger Causality

Our dataset includes the number and demographic characteristics of incoming students, and new faculty and administrator hires. We first examine our data for empirical evidence of whether the establishment of a CDO is in response to changes in diversity, and whether diversity changes in response to the establishment of a CDO. The richness of our data set allows us to decompose changes in diversity into changes in student, faculty, and administrator diversity. In addition to changes in diversity, we also include changes in annual applications for admissions.[6] Equations 2-5 implement a standard Granger Causality Test on these related variables where ΔCDO_{it} represents whether a CDO was established by university i between years $t-1$ and t. ΔU_{it}^s is the change in the proportion of underrepresented students from year $t-1$ to year t. ΔU_{it}^f is the change in

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[6]We include this variable to account for the possibility that a university may establish a CDO position in response to adverse publicity and a corresponding drop in applications, or the possibility of an increase in applications due to the establishment of a CDO.

underrepresented faculty, and Δ_{it}^a is the change in underrepresented administrators. ΔA_{it} is the change in the number of applications for admission.

$$\Delta CDO_{it} = \beta_{10,i} + \sum_{j=1}^{5} \left(\beta_{11,j}\Delta CDO_{it-j} + \beta_{12,j}\Delta U_{it-j}^s + \beta_{13,j}\Delta U_{it-j}^f + \beta_{14,j}\Delta U_{it-j}^a + \beta_{15,j}\Delta A_{it-j} \right) + \varepsilon_{1it} \tag{2}$$

$$\Delta U_{it}^s = \beta_{20,i} + \sum_{j=1}^{5} \left(\beta_{21,j}\Delta CDO_{it-j} + \beta_{22,j}\Delta U_{it-j}^s + \beta_{23,j}\Delta U_{it-j}^f + \beta_{24,j}\Delta U_{it-j}^a + \beta_{25,j}\Delta A_{it-j} \right) + \varepsilon_{2it} \tag{3}$$

$$\Delta U_{it}^f = \beta_{30,i} + \sum_{j=1}^{5} \left(\beta_{31,j}\Delta CDO_{it-j} + \beta_{32,j}\Delta U_{it-j}^s + \beta_{33,j}\Delta U_{it-j}^f + \beta_{34,j}\Delta U_{it-j}^a + \beta_{35,j}\Delta A_{it-j} \right) + \varepsilon_{3it} \tag{4}$$

$$\Delta U_{it}^a = \beta_{40,i} + \sum_{j=1}^{5} \left(\beta_{41,j}\Delta CDO_{it-j} + \beta_{42,j}\Delta U_{it-j}^s + \beta_{43,j}\Delta U_{it-j}^f + \beta_{44,j}\Delta U_{it-j}^a + \beta_{45,j}\Delta A_{it-j} \right) + \varepsilon_{4it} \tag{5}$$

$$\Delta A_{it} = \beta_{50,i} + \sum_{j=1}^{5} \left(\beta_{51,j}\Delta CDO_{it-j} + \beta_{52,j}\Delta U_{it-j}^s + \beta_{53,j}\Delta U_{it-j}^f + \beta_{54,j}\Delta U_{it-j}^a + \beta_{55,j}\Delta A_{it-j} \right) + \varepsilon_{5it} \tag{6}$$

Table 3 reports the results from a Granger causality test with specifications in columns 2 through 6 in Table 2 matching equations (2) through (6) above. In Panel A of Table 2, we present our analysis on the full sample of universities, and in Panel B we omit HBCU due to their unique nature as mentioned previously. We report the F-statistics for the joint significance of each group of explanatory variables in Table 3, with p-values in square brackets underneath. In each specification, we estimate the first through fifth lags of each variable, but do not report an F-statistic for lags of the dependent variable, since this lacks any economic meaning.[7] The proportion of underrepresented students is reported on an annual basis, but the reporting of faculty and administrator demographics as well as applications are not mandatory in even calendar years. To enable the use of all years in the estimation of Equations 2-6, we impute unreported values linearly.[8]

Comparing Table 3 Panels A and B, we note the different patterns and magnitudes of significance as evidence that HBCU are distinctly diverse regarding students, faculty, and administrators, while largely absent of a CDO presence due to the historic mandate of these institutions. This suggests Panel B is a more appropriate specification for understanding the effects of a CDO upon institutions with lower proportions of diverse faculty, students, and administrators.

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[7]Whether a university has a CDO present in years $t - 5$ through $t - 1$ has high explanatory power over whether a CDO is present in year t, but this is not of any interest in examining cross-variable correlations.

[8]Missing values are imputed by taking a time-weighted average of preceding and following observations. While not ideal, we rely upon the assumption that diversity measures do not rapidly change over time based on trends in the dataset.

We focus interest primarily on the first column of Table 3, labeled (2), which tests for the effect of changes in diversity and university applications that are correlated with the establishment of a new CDO, and the first row of parameter estimates in Panel B, which represent the effect of a new CDO on these measurements of diversity and applications. In our preferred Panel B, past changes in faculty diversity are not significantly correlated with the establishment of a new CDO. Past changes in administrator and student diversity are only marginally correlated with the establishment of a new CDO, while past changes in the growth of university applications are significantly correlated at the 5 percent level. Although F-statistics can only indicate the presence or absence of joint correlation but not the sign of the relationship, all unreported individual regression coefficients which are individually significant are negative. Negative coefficients indicate that recent admissions growth rates below the sample average are correlated with the initial establishment of an CDO. [9] In contrast, there does not appear to be a significant correlation between either more rapidly increasing or decreasing diversity and the initial establishment of a CDO. From the first row of Panel B, with the initial establishment of a CDO within the past five years, we are unable to find any significant effects of the initial establishment of a CDO on faculty or administrator diversity or on university application growth. There is a marginal effect on the percentage of underrepresented students.

4.2   Main Specifications

An executive level CDO could affect the diversity of faculty and administrators both by encouraging the hiring of greater numbers of diverse candidates, and by better retaining current diverse faculty and administrators. The measurements of diversity used in the previous section, change in the proportion of diverse current faculty, administrators, or students, represents the sum of incoming and attrition effects. Ideally, we would like to analyze the effect of a CDO on both hiring and attrition. Although IPEDS reports very detailed data on hiring, the surveys did not inquire about attrition, and limitations of the data set limit our ability to carefully calculate attrition. [10] Our data

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[9]It is beyond the scope of this paper to establish why a university should see a sudden drop in applications. We note that adverse publicity is one possibility.

[10]IPEDS requires that universities report both new hires and existing faculty and administrators on a biannual basis. Because of this, it would not be possible to reliably estimate annual attrition.

does enable us to estimate the effects of a CDO and other potential covariates on the proportion of new hires by an individual university who are members of an underrepresented minority group.

$$U_{it}^h = \beta_{0i} + CDO_{it-1} + \beta_1 \Delta U_{it-1}^s + \beta_2 \Delta U_{it-1}^f + \beta_3 \Delta U_{it-1}^a + \beta_4 \Delta A_{it-1} + \phi_t + \varepsilon_{it} \qquad (7)$$

Where U_{it}^h represents the proportion of hires who are members of an underrepresented minority in university i at year t. CDO_{it-1} is an indicator variable whether university i had a CDO in place in year $t-1$. IPEDS defines a hire by the academic year in which they are added to the university payroll. If a faculty member is added to the university payroll in August of year t, the hiring process for this faculty member took place during the previous academic year, $t-1$. A CDO presence in the time period in which hiring decisions are made should have the largest potential effect on hires that begin the following year. U^s, U^f, and U^a are the proportion of existing students, faculty, and administrators who are members of an underrepresented minority included as controls. The change in each of these variables is used as opposed to the total number out of concern that the total of each variable is growing over time as seen in Figures 1 and 2.[11] ΔA_{it-1} is the growth in student applications to university i in year $t-1$. β_{0i} and ϕ_t are university level and time fixed effects. By using a fixed effects specification, we do not attempt to explain differences in the diversity of hiring practices across universities, but examine how the diversity of hires in one particular year compares to the average of that same university over the sample period. Time fixed effects account for the changing annual diversity of job candidates. We estimate equation (7) for dependent variables of non-tenured faculty hires, tenure-track faculty hires, tenured faculty hires, administrator hires, and the change in graduate students. We include graduate students because the set of graduate students contains future faculty members and many graduate students are also classroom instructors. IPEDS does not collect data on incoming graduate students. We include the change in the proportion of underrepresented graduate students as an alternative.

We report OLS fixed effect estimates of Equation (7) in Table 4. As in Table 3, we report estimates using the full sample in Panel A and omit HBCU in Panel B. The Chief Diversity Officer (CDO) variable of interest is dummy variable coded 1 in years when a CDO is present and 0

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[11]Since we only analyze data when reporting is mandatory, the change between adjacent observations in our data set represents biannual changes.

otherwise. We interpret the coefficient as the effect of a CDO on diversity hiring relative to that same university in the absence of a CDO, controlling for the diversity of job candidates, changing diversity of existing students, faculty, and administrators, and the growth of student applications. We are unable to find any statistical effects of the presence of a CDO on the diversity of hires in the full sample. In Panel B with HBCU omitted, we find that the proportion of underrepresented tenured faculty hired in universities with a CDO present is 2.8 percentage points less diverse than in universities without a CDO at a 10 percent level of significance. We note that the largest and most significant effects are those of changes in the percent of underrepresented faculty on diverse tenure-track hires, and of changes in the percent of underrepresented administrators on diverse administrator hires. Although we believe that because of their historic mission, these correlations exist within HBCU institutions, we note that these correlations become larger when HBCU institutions are omitted in Panel B. In Column 2, Panel B, as the percentage of underrepresented faculty rose by 1 percentage point, the proportion of diverse tenure-track faculty hired increased by 1.096 percentage points. We find an equally significant but numerically smaller effect of existing administrator diversity on the proportion of diverse administrators hired. We interpret both of these coefficients as evidence of homophily – the tendency of individuals to associate, network, and bond with similar others (McPherson, Smith-Lovin, and Cook, 2001).

Table 3 presented statistical evidence that the decision to establish a Chief Diversity Officer is endogenous with respect to student and administrator diversity, and growth in applications. Other sources of unobserved endogeneity, such as a university desire to increase faculty and administrator diversity, are plausible and likely. (Jaschik and Lederman, 2017) If the decision to establish a CDO position is affected by the interaction between academics and administrators with those of peer and aspirant institutions, the proportion of peer and aspirant institutions with a CDO is a possible instrument. Although we found that the presence of a CDO at a Carnegie R1 institution is significantly affected by the proportion of peer R1 institutions with a CDO, the decision in R2 and M1 institutions were much more closely correlated with R1 universities than with peer R2 and M1 institutions. We interpret this as evidence that R2 and M1 institutions view R1 institutions as institutions that they aspire to become like, more so than institutions of the same Carnegie classification. In light of this, we use as our exogenous instrument the lagged proportion of peer

R1 institutions with a CDO present for each of the R1, R2, and M1 institutions.

We present instrumental variables fixed effects estimates of Equation (7) in Table 5. For each regression estimate, we report the first stage F statistic from excluding our exogenous instrument, Lagged Peer R1 CDOs. Our IV specifications do not suffer from weak instruments, as the smallest reported first stage F statistic of 244.3. As in Table 4, the only specifications in which we find an effect of a CDO being present is in the proportion of diverse tenured faculty hired. With IV estimates, the effect of a CDO is now significant at a 5 percent level both in the full sample and with HBCU institutions omitted. In Panel B, the proportion of diverse tenured faculty hired was 5.6 percentage points lower with a CDO present than in the same institutions without a CDO.

4.3   CDO Effect with Limited Supply of Diverse Candidates

If in the market for academic positions of all types investigated in this paper were characterized by more institutions desiring to hire diverse candidates than diverse candidates on the job market, the possibility of a university increasing its diversity would be limited (Flaherty, 2015). It is possible under this scenario that a CDO would enable the employer to better compete against other universities without a CDO in the academic job market for scarce diverse candidates, even though the reported proportion of diverse candidates may see limited changes. To measure the success of a university in recruiting diverse hires relative to other institutions, we compute the proportion of total hires within a year that are underrepresented, p_t. Let university i in year t hire N_{it} positions, n_{it} of which are diverse. If each hire were interpreted as an opportunity to hire a diverse candidate with probability p_t, the probability of the observed outcome is distributed Binomial with probability density of

$$P(n_{it}, N_{it}) = \frac{N_{it}!}{n_{it}!(N_{it} - n_{it})!} p_t^{n_{it}} (1 - p_t)^{(N_{it} - n_{it})}$$

We use for our dependent variable in Tables 5 and 6 the cumulative distribution function $CDF(n_{it}, N_{it})$, or the probability of hiring up to n_{it} diverse candidates out of N_{it} total hires. A larger value can be interpreted as a university that is more successful in hiring diverse candidates relative to peer institutions.

In Table 6, we present OLS estimates of Equation (7) using the relative success of an institution in hiring diverse candidates as the dependent variable. In both Panels A and B, we are unable to find any effect of a CDO. We continue to find strong evidence of homophily, now in non-tenured, tenure-track, and administrator hires at the 1 percent level of significance. We find the same patterns of significance when correcting for the likely endogeneity of a CDO in Table 7. We are unable to find evidence of a CDO effect relative to universities without a formal CDO position in the hiring of non-tenured, tenure-track, tenured faculty, or administrators.

To check for possible effects of a CDO on a broader measurement of diversity, we estimate Equation (7) using the diversity index defined in Equation (1). We report OLS estimates in Table 8 and IV estimates in Table 9. In Table 8, we are unable to find effects of a CDO in the overall diversity of hires within each of the four categories considered. However, we now observe homophily for the first time in tenured faculty hiring, although at a lower 5 percent level of significance in Panel B. Correcting for the likely endogeneity of a CDO in Table 9, we now find negative effects on the diversity index of tenured faculty hires at the 5 percent level.

5   Discussion

Universities are increasingly hiring executive level diversity administrators (CDOs) signaling a commitment to increased diversity. This study began with an overview of diversity trends among students and faculty in higher education and the logic of hiring a CDO. A key role of the executive level position is to promote faculty diversity hiring to increase congruity between faculty-student gender and race/ethnicity. A key motive for better matching faculty and student on these characteristics is to enhance support for underrepresented students which, in turn, may lead to improvements in student satisfaction and performance. We empirically test whether this executive level administrative position significantly alters faculty diversity hiring practices beyond normal growth patterns of faculty diversity from 2001 to 2016. Importantly, we are unable to find evidence that preexisting patterns in diversity hiring are altered by the hiring of an executive level diversity officer at the faculty or administration hiring level using a number of alternative specifications. We do find patterns of homophily for current faculty/administrator diversity and new hires.

The trend for hiring executive level diversity officers (Figure 1a) began in the early 2000s. By 2016, approximately 65 percent of higher education institutions established a form of this executive position. Higher education student gender and race/ethnicity characteristics have also changed over the 15-year sample frame with the overall proportion of underrepresented students increasing from 0.189 in 2001, to 0.255 in 2016. Figure 1b shows student diversity trends for institutions with and without a CDO in place. Diversity among faculty and administrators has also increased (Figures 1.c to 1.f), but at a slower rate than student diversity. For example, the overall proportion of underrepresented faculty was 0.089 in 2001 and 0.110 in 2016. In Figure 1, it is notable that universities without CDOs have higher proportions of minority faculty than those with a CDO. While a perceived lack of diversity relative to peer institutions could be used to justify hiring a CDO, the gap between the diversity of institutions with and without a CDO is greater in 2016 than in 2001. In Tables 6 and 7, we were unable to find evidence of a sustained advantage for diverse hiring relative to other institutions due to the presence of a CDO. It is possible this finding reflects the lack of authority the CDO has over hiring decisions. Hiring decisions are generally entrusted to departments given their expertise in the field. Cabinet-level officers might, in effect, have very little influence in decisions made at the department and college level. In the remainder of this section, we offer alternative possible explanations for our inability to find significant effects of a CDO on diversity hiring trends; and suggest potential avenues for future research.

5.1 Limited Supply of Diverse PhD Job Candidates

The dataset we analyze on the proportion of non-tenured, tenure-track, and tenured faculty and administrators who are members of an underrepresented minority group properly represents the outcome of a two-sided matching problem between universities and job market candidates. Detailed data on the preferences of institutions that are hiring, and detailed attributes and preferences of job market candidates are not available from IPEDS or other sources we can access. In our discussion of Table 2, we noted that in 2016, 14.1% of earned PhDs awarded to U.S. citizens and permanent residents were to members of underrepresented minority groups. The supply of job candidates is further limited by approximately 50 percent of minority PhD recipients accepting employment outside the academic sector according to the 2016 NSF survey. We can also examine the distribution

of PhDs earned by race in 2016 from Table 2. Evidence points toward a congregation by field and subfield for underrepresented minorities. For example, of the 2,360 degrees earned by Black candidates in 2016, 27% were in education (640/2,360) and 21% were in Psychology and Social Sciences (495/2,360). For the subfield of Physics and Astronomy, there were less than 1% (23/2,360) of total PhDs obtained for the year by Black doctoral candidates with a similar trend of limited candidates reported in Economics (Bayer and Rouse, 2016). These disparities in the presence of underrepresented minority academic job market candidates across academic fields could contribute to underrepresentation in the aggregate. Further research is needed to determine whether this is the case.

5.2   Recruitment and Retention Initiatives

In the theory of a two-sided matching problem, members of each side determine a rank ordering of available options. As applied to the academic job market, candidates rank order potential employers, and hiring departments rank order potential candidates. A university hoping to make its faculty more diverse can boost its attractiveness to underrepresented candidates by offering higher salaries or reduced teaching loads. As an example, Yale University recently announced a five-year, $50 million-dollar campaign to increase faculty diversity (Yale University, 2016). Carnegie Research Intensive (R1) universities as a group are characterized by greater financial resources devoted to research and larger endowments (Phillips, Lombardi, Abbey, and Craig, 2016), which should enable such institutions desiring to increase faculty diversity to make more attractive offers to diverse candidates. We present summary statistics in Table 1, Columns 3, 4, and 5 for Carnegie R1, R2, and M1 institutions respectively. Despite increased resources which could enable R1 institutions to make more financially attractive offers, these institutions as a group have less diverse faculty and administrators than R2 and M1 institutions. We interpret this as evidence that financial resources alone are not enough to increase faculty and administrator diversity. We were not able to find careful, scholarly analyses of diverse faculty turnover, but in online sources, advocates of diversity have suggested that reducing the turnover of diversity faculty may be a more effective path to increasing faculty diversity (Ann, 2016). Analysis of a survey of associate professors at 50 universities found non-monetary factors, such as quality relationships with colleagues, more

important to workplace commitment than formal programs including diversity hiring initiatives (Mackey, 2017). Beginning in 2016, universities must report annually both current and new faculty and administrators by gender and racial/ethnic group. This will enable future researchers to impute annual attrition by racial and ethnic group and perform a detailed analysis of faculty turnover.

5.3 Carnegie Classifications, Urbanization, and Geographic Regions

The main specifications of our analysis included university level fixed effects to restrict our analysis to variation of underrepresented hiring within individual universities. A consequence of this is the inability to include explanatory variables which are time-invariant. For the 2016 academic year hiring cycle, we consider variation in diverse hiring by Carnegie classification, the degree of urbanization as recorded by IPEDS, and the U.S. Census region. Carnegie classification is of interest to test whether research intensity and the additional financial resources that accompany it are effective in successfully attracting underrepresented candidates. IPEDS records the degree of urbanization that a university is located in from a large city to a distant rural area. Additionally, we consider the four U.S. Census regions: Northeast, Midwest, South, and West. Results appear in Table 10. For each category of academic position we consider; non-tenured, tenure-track, tenured, and administrator, we present the proportion of positions where the academic hired was black, Hispanic, a native American, or an underrepresented minority, which is a sum of the previous categories. Column 1 presents proportions, and Columns 2 through 4 present an F-statistic testing equality of means across groups.

The F-test of significance for difference of mean underrepresented group hired by Carnegie category (R1, R2, or M1) is presented in Column 2. We are unable to find any significant difference for underrepresented minority groups in aggregate. Looking at individual racial/ethnic groups within underrepresented minority groups, we find marginally significant differences in the percentage of black tenure track faculty and black administrators hired. We also find highly significant evidence of differences across Carnegie categories for the percent of native administrators hired, though we note that in 2016, only 27 native administrators were hired nationwide. Interestingly, we find highly significant differences in the proportion of universities with a CDO in place by Carnegie category. Carnegie R1 institutions are substantially more likely to have a CDO in place in 2016 than R2 or

M1 institutions.

Differences by urbanization are presented in Column 3. The percentage of black non-tenured faculty hired differs significantly by degree of urbanization. We find that the proportion of black non-tenured faculty hired is substantially greater in large cities and midsize cities than in suburban, towns, or rural areas. We find a similar concentration of Hispanic administrators in large urban areas. A sharply lower proportion of CDOs in place in Remote Towns causes the average proportions of CDOs in place by degree of urbanization to differ at a highly significant level.

We find substantial variation in diverse hiring by census region. For non-tenured faculty, the proportion of Black and Hispanic faculty hired have highly significant variation by census region. In the West, where the proportion of non-tenured faculty who are Hispanic is highest, the proportion of Black faculty is lowest. And in the South, where the proportion of Black faculty hired is dramatically higher, the proportion of Hispanic faculty hired is well below the national average. The proportion of underrepresented non-tenured faculty hired as a group is only marginally significant, due to offsetting regional variation by Black and Hispanic faculty hired. Hispanic tenure-track faculty are also heavily represented in the West, but we do not find significant regional variation by Black tenure-track faculty hired. Significant variation by census region also exists in administrator hiring. Interestingly, the proportion of universities with a CDO in place does not exhibit any significant regional variation.

IPEDS data on faculty hiring represents the dual coincidence of wants between job candidates and hiring institutions. As such, it is not possible with IPEDS data to identify whether the disparities by group in Table 10 are due to candidate preferences, institutional desires, or both. Additional work to understand the role of urbanization and geographic region on institutional diversity is needed.

5.4 Public Choice

Our discussion assumes the objective of universities in our sample is to increase the proportion of faculty and administrators who are members of an underrepresented group, subject to various constraints. Under this paradigm, senior administrators establish a CDO for the particular purpose of increasing the proportion of underrepresented members in the overall interests of the university.

However, if a university hires a CDO to appease critics or to quell negative publicity with no intention of increasing diversity, then the lack of a significant effect on faculty diversity is less surprising. Under this scenario, even negative and significant effects of a CDO on diversity may be found, as we do in Table 5, Column 4. In our data, the proportion of diverse tenured faculty hired is 5.61% lower with an active CDO in place. Unfortunately, we do not have an identification strategy to parse out university motives for CDO hiring that would distinguish universities with strong intentions to increase diversity from those with placating motives. Our results do show an important finding with policy implications regardless of the cause for lack of CDO hiring efficacy. Future research may consider in greater detail why across a population of larger U.S. universities, no significant effect of CDO establishment is found on diversity hiring.

6   Conclusion

This study examines the effect of an executive-level CDO on the diversity of faculty and administrator hires for the set of 4-year or above degree-granting U.S. universities with 4,000 or more students from 2001 to 2016. Using a wide variety of robust specifications, we are unable to find significant evidence that the presence of an executive level CDO alters preexisting trends of increasing faculty and administrator diversity in the institutions we study. Our inability to identify a significant effect should not be interpreted as an argument that an effect does not exist. Given the importance of this topic to the academic community, much additional work remains to be done. We performed our analysis using data on the race and ethnicity of faculty and administrator positions at the institutional level. Data from the National Science Foundation by academic discipline and subdiscipline reveal large differences in the proportion of underrepresented persons earning a PhD by academic field. Although important progress has been made in increasing faculty and administrator diversity from 2001 to 2016, we believe more work must be done to better understand barriers to increased diversity, and how they might be best addressed.

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Figure 1: Dynamics of Diversity in Existing Groups
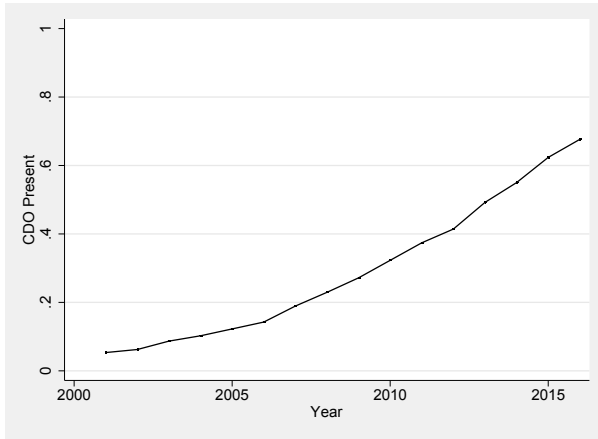
(a) Universities with a CDO Present
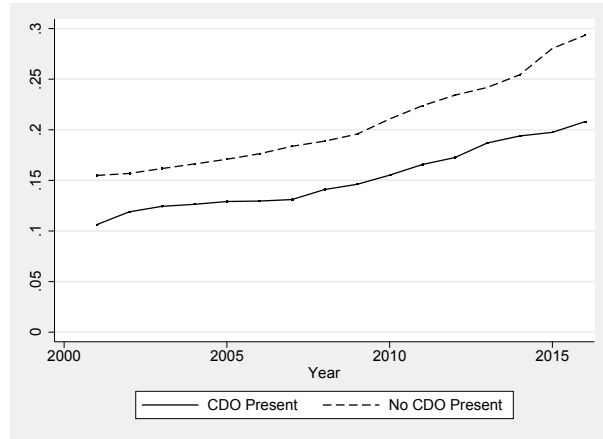
(b) Underrepresented Students
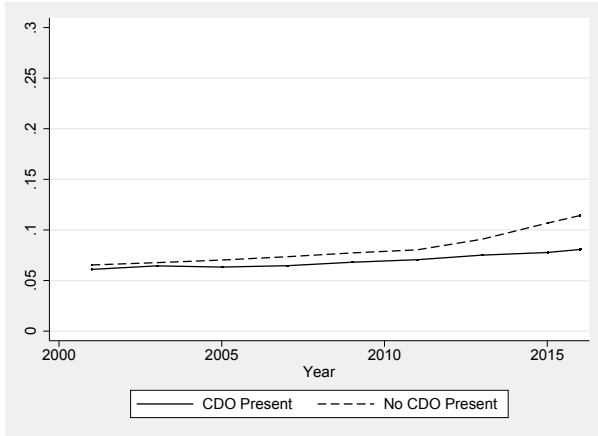
(c) Underrepresented Faculty by CDO
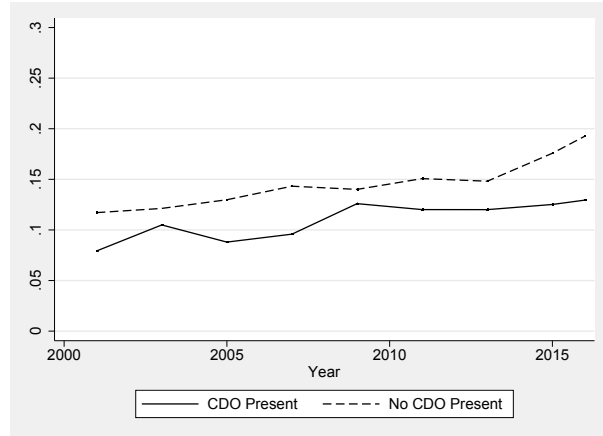
(d) Underrepresented Administrators by CDO
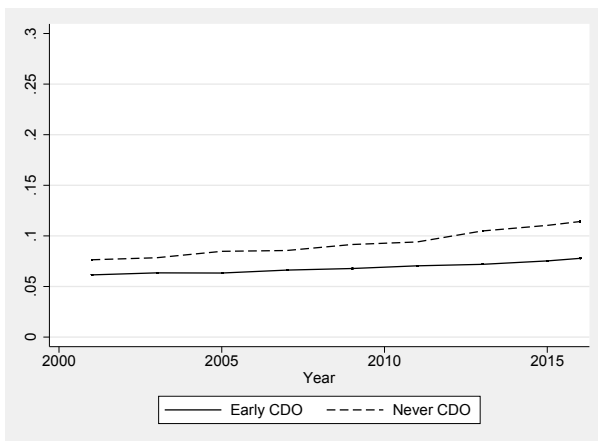
(e) Underrepresented Faculty - Early
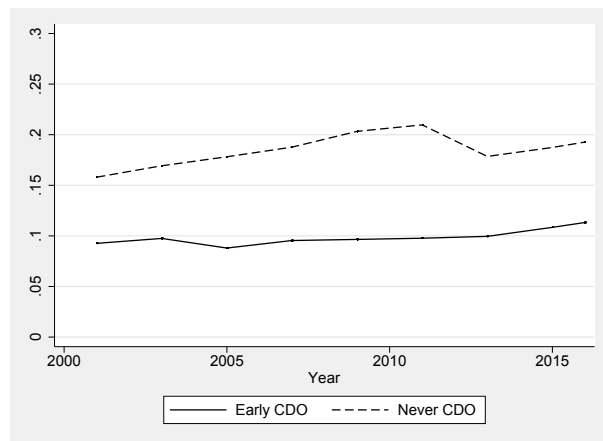
(f) Underrepresented Administrators - Early

Notes: Panels (c) through (f) omit voluntarily reported diversity data and display only academic years in which reporting is mandatory.

Figure 2: Proportion of Underrepresented Minorities and Total Hired by Year

(a) Underrepresented Non-Tenure Track Hires

(b) Underrepresented Tenure Track Hires

(c) Underrepresented Tenured Hires
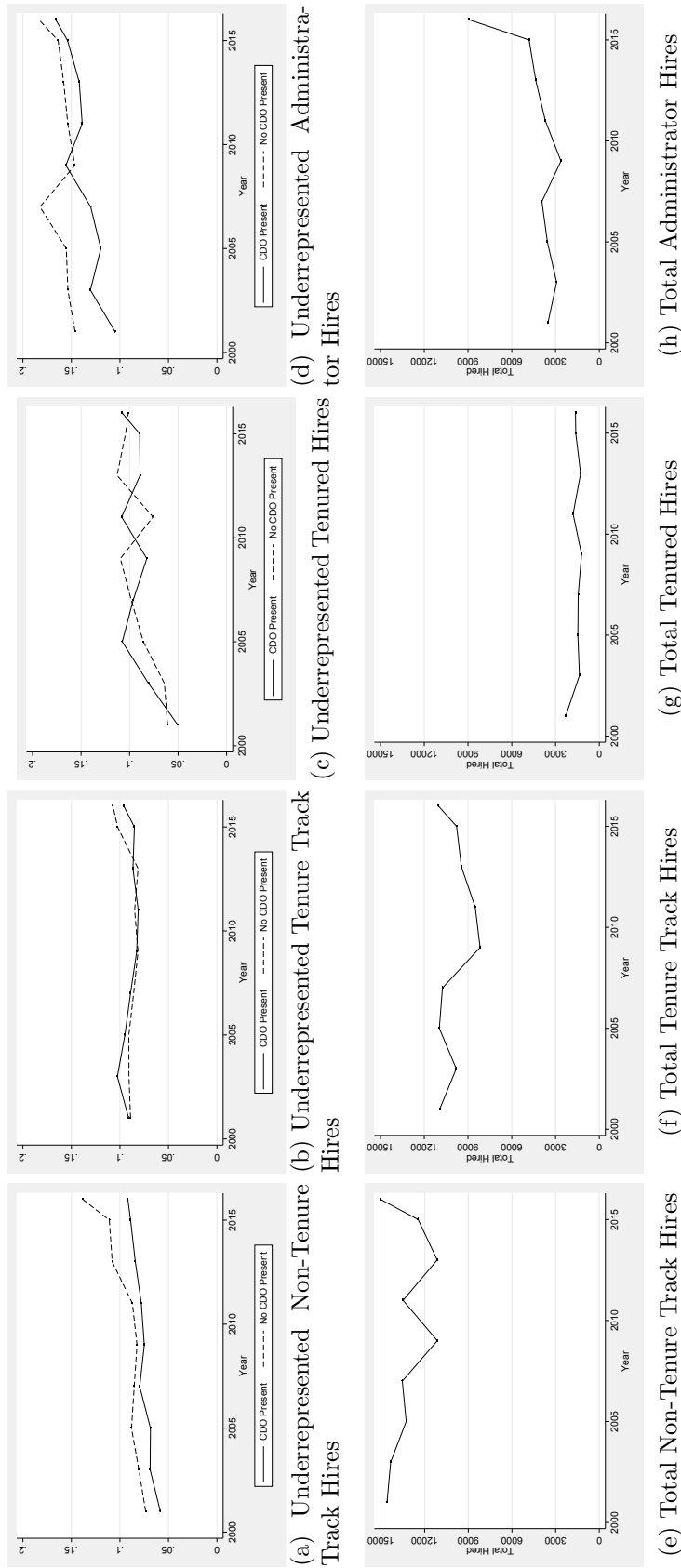
(d) Underrepresented Administrator Hires

(e) Total Non-Tenure Track Hires

(f) Total Tenure Track Hires

(g) Total Tenured Hires

(h) Total Administrator Hires

Notes: Historically Black Colleges and Universities omitted. Only years in which mandatory reporting of racial/ethnic group composition are shown.

Table 1: Summary Statistics

VARIABLES	(1) Full Sample mean (sd)	(2) Mandatory Reporting mean (sd)	(3) Carnegie R1 mean (sd)	(4) Carnegie R2 mean (sd)	(5) Carnegie M1 mean (sd)	(6) HBCU mean (sd)
Chief Diversity Officer	0.289	0.316	0.442	0.254	0.202	0.0257
	(0.453)	(0.465)	(0.497)	(0.436)	(0.402)	(0.159)
Peer R1 CDOs	0.443	0.474	0.441	0.441	0.445	0.440
	(0.250)	(0.268)	(0.250)	(0.250)	(0.250)	(0.250)
% Under-Rep Non-Tenured Hires	0.111	0.113	0.113	0.115	0.132	0.656
	(0.161)	(0.158)	(0.158)	(0.167)	(0.197)	(0.228)
% Under-Rep Tenure-Track Hires	0.107	0.107	0.107	0.101	0.124	0.572
	(0.133)	(0.131)	(0.131)	(0.131)	(0.165)	(0.247)
% Under-Rep Tenured Hires	0.107	0.106	0.0960	0.103	0.127	0.639
	(0.221)	(0.222)	(0.166)	(0.236)	(0.280)	(0.406)
% Under-Rep Administrator Hires	0.165	0.168	0.168	0.161	0.189	0.820
	(0.246)	(0.247)	(0.247)	(0.251)	(0.290)	(0.263)
% Under-Rep Faculty	0.0996	0.1000	0.1000	0.106	0.119	0.636
	(0.114)	(0.113)	(0.113)	(0.136)	(0.138)	(0.0889)
% Under-Rep Admin	0.148	0.149	0.149	0.155	0.174	0.866
	(0.165)	(0.164)	(0.164)	(0.191)	(0.197)	(0.0750)
% Under-Rep Students	0.213	0.215	0.162	0.242	0.235	0.915
	(0.195)	(0.196)	(0.114)	(0.220)	(0.220)	(0.0677)
9 Month Assistant Prof Salary	72.75	72.95	82.19	72.41	66.70	64.72
	(12.35)	(12.49)	(12.01)	(10.63)	(8.775)	(7.892)
Total In-State Price	25.38	25.85	29.97	25.66	22.28	17.41
	(14.69)	(14.84)	(16.99)	(14.64)	(12.06)	(6.709)
Total Out-of-State Price	31.75	32.41	37.66	31.60	27.93	23.75
	(10.99)	(11.10)	(11.82)	(10.38)	(8.678)	(5.130)
Percent of Students In State	81.83	81.78	81.78	81.59	87.37	68.62
	(18.48)	(18.93)	(18.93)	(18.25)	(16.37)	(19.55)
Percent Receiving Financial Aid	80.66	80.84	75.90	84.04	82.57	89.25
	(13.57)	(13.66)	(13.22)	(12.37)	(13.37)	(11.42)
Percentage Receiving Student Loan	50.86	50.86	43.31	53.51	54.86	70.97
	(17.07)	(17.01)	(14.31)	(15.71)	(17.56)	(17.73)
Avg Student Loan Received	5,416	5,505	5,548	5,703	5,227	5,683
	(2,004)	(2,024)	(1,862)	(2,152)	(2,020)	(2,375)
Growth in Applicants	0.0596	0.0560	0.0563	0.0715	0.0577	0.0750
	(0.171)	(0.172)	(0.103)	(0.217)	(0.189)	(0.307)
Observations	7,164	4,017	2,331	1,270	3,563	272
Number of Universities	462	460	147	82	233	17

Table 2: New PhDs Awarded in 2016 to U.S. Citizens and Permanent Residents

Field and Subfield of Study	U.S. Citizen and Permanent Resident Grand Total num	American Indian or Alaskan Native num (pct)	Black num (pct)	Hispanic num (pct)	Asian num (pct)	White num (pct)	Under-Represented Total num (pct)
Life Sciences	8,697	27 (0.3%)	510 (5.9%)	655 (7.5%)	915 (10.5%)	6,118 (70.3%)	1,192 (13.7%)
Biological and Biomedical Sciences	6,225	11 (0.2%)	280 (4.5%)	494 (7.9%)	708 (11.4%)	4,376 (70.3%)	785 (12.6%)
Health Sciences	1,699	11 (0.6%)	200 (11.8%)	115 (6.8%)	155 (9.1%)	1,141 (67.2%)	326 (19.2%)
Physical Sciences and Earth Sciences	3,666	8 (0.2%)	97 (2.6%)	186 (5.1%)	302 (8.2%)	2,876 (78.5%)	291 (7.9%)
Chemistry	1,579	2 (0.1%)	64 (4.1%)	87 (5.5%)	150 (9.5%)	1,190 (75.4%)	153 (9.7%)
Geosciences & Atmospheric & Ocean Sciences	802	4 (0.5%)	10 (1.2%)	42 (5.2%)	49 (6.1%)	661 (82.4%)	56 (7.0%)
Physics and Astronomy	1,285	2 (0.2%)	23 (1.8%)	57 (4.4%)	103 (8.0%)	1,025 (79.8%)	82 (6.4%)
Mathematics and Computer Sciences	1,730	3 (0.2%)	78 (4.5%)	96 (5.5%)	216 (12.5%)	1,208 (69.8%)	177 (10.2%)
Psychology and Social Sciences	6,830	30 (0.4%)	495 (7.2%)	583 (8.5%)	428 (6.3%)	4,846 (71.0%)	1,108 (16.2%)
Psychology	3,371	11 (0.3%)	232 (6.9%)	306 (9.1%)	188 (5.6%)	2,406 (71.4%)	549 (16.3%)
Social Sciences	3,459	19 (0.5%)	263 (7.6%)	277 (8.0%)	240 (6.9%)	2,440 (70.5%)	559 (16.2%)
Economics	521	1 (0.2%)	18 (3.5%)	31 (6.0%)	61 (11.7%)	378 (72.6%)	50 (9.6%)
Political Science and Government	579	3 (0.5%)	27 (4.7%)	43 (7.4%)	29 (5.0%)	441 (76.2%)	73 (12.6%)
Sociology	508	1 (0.2%)	43 (8.5%)	33 (6.5%)	32 (6.3%)	365 (71.9%)	77 (15.2%)
Other social sciences	1,491	9 (0.6%)	158 (10.6%)	132 (8.9%)	103 (6.9%)	991 (66.5%)	299 (20.1%)
Area & Ethnic & Cultural & Gender Studies	220	44 (0.9%)	38 (20.0%)	2 (17.3%)	21 (9.5%)	98 (44.5%)	84 (38.2%)
Engineering	4,181	8 (0.2%)	173 (4.1%)	271 (6.5%)	642 (15.4%)	2,810 (67.2%)	452 (10.8%)
Education	4,303	30 (0.7%)	640 (14.9%)	322 (7.5%)	210 (4.9%)	2,889 (67.1%)	992 (23.1%)
Education Administration	730	6 (0.8%)	171 (23.4%)	44 (6.0%)	17 (2.3%)	456 (62.5%)	221 (30.3%)
Teacher Education	159	2 (1.3%)	26 (16.4%)	5 (3.1%)	5 (3.1%)	111 (69.8%)	33 (20.8%)
Humanities and Arts	4,447	19 (0.4%)	170 (3.8%)	318 (7.2%)	180 (4.0%)	3,527 (79.3%)	507 (11.4%)
Foreign Languages and Literature	399	2 (0.5%)	3 (0.8%)	92 (23.1%)	13 (3.3%)	273 (68.4%)	97 (24.3%)
History	949	3 (0.3%)	51 (5.4%)	76 (8.0%)	34 (3.6%)	735 (77.4%)	130 (13.7%)
Latin American History	60	0 (0.0%)	3 (5.0%)	21 (35.0%)	0 (0.0%)	36 (60.0%)	24 (40.0%)
Non-Science and Engineering -Other Fields	1,865	3 (0.2%)	197 (10.6%)	124 (6.6%)	189 (10.1%)	1,250 (67.0%)	324 (17.4%)
Business Management and Administration	845	3 (0.4%)	81 (9.6%)	56 (6.6%)	122 (14.4%)	538 (63.7%)	140 (16.6%)
Public Administration	103	0 (0.0%)	26 (25.2%)	5 (4.9%)	5 (4.9%)	62 (60.2%)	31 (30.1%)
Grand Total - All Fields	35,719	128 (0.4%)	2,360 (6.6%)	2,555 (7.2%)	3,082 (8.6%)	25,524 (71.5%)	5,043 (14.1%)

Notes: Data tabulated from National Science Foundation (2018, Table 22).

Table 3: Granger Causality Test

VARIABLES	(2) New CDO	(3) Δ% Under-Rep Students	(4) Δ% Under-Rep Faculty	(5) Δ% Under-Rep Admin	(6) Applications Growth
Panel A: Full Sample					
New CDO	-	1.81	0.23	1.6	1.04
		[0.107]	[0.866]	[0.949]	[0.391]
Δ% Under-Rep Students	1.35	-	2.80**	1.86*	5.59***
	[0.242]		[0.016]	[0.099]	[0.000]
Δ% Under-Rep Faculty	1.34	1.86**	-	1.61	3.17***
	[0.243]	[0.098]		[0.154]	[0.007]
Δ% Under-Rep Admin	2.59**	2.64**	2.80**	-	1.77
	[0.024]	[0.022]	[0.016]		[0.115]
Applicant Growth	2.59**	0.58	6.79***	1.29	-
	[0.024]	[0.713]	[0.000]	[0.264]	
Observations	4,375	4,374	4,374	4,374	4,363
Number of Universities	455	455	455	455	455
Panel B: HBCU Omitted					
New CDO	-	1.94*	0.23	1.68	1.09
		[0.084]	[0.949]	[0.135]	[0.362]
Δ% Under-Rep Students	2.00*	-	4.16***	4.01***	6.98***
	[0.076]		[0.001]	[0.001]	[0.000]
Δ% Under-Rep Faculty	1.65	1.82	-	1.36	4.46***
	[0.144]	[0.106]		[0.237]	[0.001]
Δ% Under-Rep Admin	2.12*	3.25***	4.03***	-	0.66
	[0.060]	[0.006]	[0.001]		[0.651]
Applications Growth	2.92**	1.61	4.76***	2.00*	-
	[0.012]	[0.155]	[0.000]	[0.075]	
Observations	4,238	4,237	4,237	4,237	4,229
Number of Universities	438	438	438	438	438

Each cell is an F-statistic excluding lags 1-5 of the indicated variable. p-values are beneath each F-statistic in brackets. Underrepresented minorities defined as Black, Hispanic, and Native American/Pacific Islander. Missing explanatory variables imputed linearly. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: FE Regressions of CDO on Percentage of Diversity Hires by Hiring Category

VARIABLES	(1) Non Tenured	(2) Tenure Track	(3) Tenured	(4) Admin	(5) Δ Grad Students
Panel A: Full Sample					
Chief Diversity Officer	0.0080	-0.0058	-0.0238	0.0124	0.0010
	(0.007)	(0.006)	(0.015)	(0.013)	(0.001)
Δ% Under-Rep Students	-0.1501	0.0233	-0.3435	-0.0468	0.0400
	(0.146)	(0.185)	(0.438)	(0.178)	(0.056)
Δ% Under-Rep Faculty	0.6229*	0.9429***	-0.4393	0.0074	0.0308
	(0.329)	(0.258)	(0.640)	(0.347)	(0.100)
Δ% Under-Rep Administrators	0.0955	-0.0927	-0.0302	0.6280***	-0.0045
	(0.128)	(0.080)	(0.289)	(0.172)	(0.025)
Growth in Applicants	0.0040	-0.0195*	-0.0293	-0.0284	-0.0028
	(0.014)	(0.011)	(0.039)	(0.025)	(0.003)
Observations	3,262	3,392	2,005	3,181	6,256
Number of Universities	456	454	397	461	461
R^2	0.015	0.017	0.009	0.015	0.066
Panel B: HBCU Omitted					
Chief Diversity Officer	0.0094	-0.0083	-0.0284*	0.0106	0.0003
	(0.007)	(0.006)	(0.015)	(0.013)	(0.001)
Δ% Under-Rep Students	0.0188	-0.0044	-0.4641	-0.0651	0.0456
	(0.232)	(0.193)	(0.502)	(0.334)	(0.074)
Δ% Under-Rep Faculty	0.3532	1.0962***	0.3191	-0.1268	-0.0592
	(0.287)	(0.215)	(0.492)	(0.390)	(0.100)
Δ% Under-Rep Administrators	0.0573	-0.1168	-0.0113	0.6516***	-0.0074
	(0.123)	(0.071)	(0.242)	(0.174)	(0.025)
Growth in Applicants	0.0094	-0.0182*	-0.0187	-0.0205	-0.0015
	(0.013)	(0.010)	(0.035)	(0.025)	(0.003)
Observations	3,154	3,298	1,960	3,089	6,043
Number of Universities	439	437	381	444	444
R^2	0.011	0.021	0.009	0.016	0.091

All specifications include university and annual fixed effects. Underrepresented minorities defined as Black, Hispanic, and Native American/Pacific Islander. Columns 1 through 4 estimated in years where hiring demographic reporting is mandatory. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: IV Regressions of CDO on Percentage of Diversity Hires by Hiring Category

VARIABLES	(1) First Stage	(2) Non Tenured	(3) Tenure Track	(4) Tenured	(5) Admin	(6) Δ Grad Students
Panel A: Full Sample						
Chief Diversity Officer		0.0089	0.0026	-0.0527**	-0.0045	-0.0015
		(0.011)	(0.009)	(0.023)	(0.020)	(0.001)
Δ% Under-Rep Students	0.0853	-0.1502	0.0222	-0.3292	-0.0485	0.0403
	(0.208)	(0.146)	(0.185)	(0.435)	(0.178)	(0.056)
Δ% Under-Rep Faculty	-0.9198**	0.6237*	0.9467***	-0.4577	-0.0059	0.0289
	(0.368)	(0.330)	(0.259)	(0.641)	(0.347)	(0.100)
Δ% Under-Rep Administrators	0.2401	0.0954	-0.0942	-0.0295	0.6325***	-0.0037
	(0.164)	(0.128)	(0.080)	(0.290)	(0.172)	(0.025)
Growth in Applicants	-0.0157	0.0040	-0.0195*	-0.0290	-0.0284	-0.0028
	(0.027)	(0.014)	(0.011)	(0.039)	(0.025)	(0.003)
Lagged Peer R1 CDOs	-112.2275***					
	(4.081)					
Observations	3,262	3,262	3,392	2,005	3,181	6,256
Number of Universities	456	456	454	397	461	461
R^2	0.492					
First Stage F		756.3	290.5	244.3	282.4	4030
Panel B: HBCU Omitted						
Chief Diversity Officer		0.0070	0.0019	-0.0561**	-0.0029	-0.0012
		(0.011)	(0.009)	(0.023)	(0.020)	(0.001)
Δ% Under-Rep Students	-0.0244	0.0188	-0.0057	-0.4476	-0.0693	0.0457
	(0.374)	(0.232)	(0.194)	(0.502)	(0.333)	(0.074)
Δ% Under-Rep Faculty	-1.1064**	0.3507	1.1051***	0.2905	-0.1400	-0.0607
	(0.434)	(0.287)	(0.216)	(0.490)	(0.389)	(0.100)
Δ% Under-Rep Administrators	0.2631	0.0578	-0.1185*	-0.0077	0.6550***	-0.0069
	(0.177)	(0.123)	(0.072)	(0.243)	(0.174)	(0.025)
Growth in Applicants	-0.0179	0.0094	-0.0181*	-0.0181	-0.0206	-0.0015
	(0.028)	(0.012)	(0.010)	(0.035)	(0.025)	(0.003)
Lagged Peer R1 CDOs	-112.1544***					
	(4.073)					
Observations	3,154	3,154	3,298	1,960	3,089	6,043
Number of Universities	439	439	437	381	444	444
R^2	0.503					
First Stage F		758.3	290.9	244.3	281	4259

All specifications include university and annual fixed effects. Underrepresented minorities defined as Black, Hispanic, and Native American/Pacific Islander. Columns 2 through 5 estimated in years where hiring demographic reporting is mandatory. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: FE Regressions of CDO on Probability of Diversity Hires Relative to Peer Institutions by Hiring Category

VARIABLES	(1) Non Tenured	(2) Tenure Track	(3) Tenured	(4) Admin
Panel A: Full Sample				
Chief Diversity Officer	-0.0034	-0.0162	-0.0108	0.0143
	(0.017)	(0.017)	(0.016)	(0.017)
$\Delta\%$ Under-Rep Students	-0.1971	0.4837*	-0.8525***	0.0345
	(0.207)	(0.287)	(0.313)	(0.163)
$\Delta\%$ Under-Rep Faculty	1.1910***	1.5953***	0.1615	0.5642*
	(0.322)	(0.365)	(0.264)	(0.299)
$\Delta\%$ Under-Rep Administrators	0.3646**	-0.1794	-0.0828	0.5186***
	(0.150)	(0.159)	(0.163)	(0.178)
Growth in Applicants	-0.0211	-0.0433**	-0.0358	-0.0348
	(0.022)	(0.021)	(0.027)	(0.027)
Observations	3,262	3,392	2,005	3,181
Number of Universities	456	454	397	461
R^2	0.014	0.015	0.074	0.024
Panel B: HBCU Omitted				
hief Diversity Officer	-0.0036	-0.0159	-0.0119	0.0162
	(0.018)	(0.017)	(0.016)	(0.018)
$\Delta\%$ Under-Rep Students	-0.4110	0.5003	-1.0163***	0.0408
	(0.315)	(0.320)	(0.390)	(0.312)
$\Delta\%$ Under-Rep Faculty	1.4644***	1.9683***	0.2989	0.7210*
	(0.406)	(0.457)	(0.290)	(0.375)
$\Delta\%$ Under-Rep Administrators	0.3847**	-0.2008	-0.0981	0.5556***
	(0.165)	(0.172)	(0.170)	(0.190)
Growth in Applicants	-0.0191	-0.0444**	-0.0349	-0.0333
	(0.023)	(0.021)	(0.028)	(0.028)
Observations	3,154	3,298	1,960	3,089
Number of Universities	439	437	381	444
R^2	0.015	0.017	0.076	0.025

All specifications include university and annual fixed effects and are estimated in years where hiring demographic reporting is mandatory. Dependent variable is lagged measure of probability for underrepresented minority hires relative to peers. Underrepresented minorities defined as Black, Hispanic, and Native American/Pacific Islander. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: IV Regressions of CDO on Probability of Diversity Hires Relative to Peer Institutions by Hiring Category

VARIABLES	(1) First Stage	(2) Non Tenured	(3) Tenure Track	(4) Tenured	(5) Admin
Panel A: Full Sample					
Chief Diversity Officer		-0.0255	0.0177	-0.0200	0.0172
		(0.038)	(0.044)	(0.033)	(0.036)
Δ% Under-Rep Students	0.0853	-0.1954	0.4795*	-0.8479***	0.0348
	(0.208)	(0.207)	(0.289)	(0.315)	(0.163)
Δ% Under-Rep Faculty	-0.9198**	1.1723***	1.6107***	0.1557	0.5665*
	(0.368)	(0.323)	(0.366)	(0.264)	(0.302)
Δ% Under-Rep Administrators	0.2401	0.3683**	-0.1856	-0.0826	0.5178***
	(0.164)	(0.151)	(0.160)	(0.163)	(0.179)
Growth in Applicants	-0.0157	-0.0212	-0.0430**	-0.0357	-0.0348
	(0.027)	(0.022)	(0.021)	(0.027)	(0.027)
Lagged Peer R1 CDOs	-112.2275***				
	(4.081)				
Observations	3,262	3,262	3,392	2,005	3,181
Number of Universities	456	456	454	397	461
R^2	0.492				
First Stage F		756.3	290.5	244.3	2100
Panel B: HBCU Eliminated					
Chief Diversity Officer		-0.0266	0.0177	-0.0197	0.0179
		(0.038)	(0.044)	(0.033)	(0.037)
Δ% Under-Rep Students	-0.0244	-0.4111	0.4962	-1.0117***	0.0414
	(0.374)	(0.316)	(0.322)	(0.392)	(0.313)
Δ% Under-Rep Faculty	-1.1064**	1.4406***	1.9977***	0.2909	0.7227*
	(0.434)	(0.408)	(0.459)	(0.292)	(0.377)
Δ% Under-Rep Administrators	0.2631	0.3889**	-0.2065	-0.0971	0.5552***
	(0.177)	(0.166)	(0.173)	(0.171)	(0.191)
Growth in Applicants	-0.0179	-0.0192	-0.0440**	-0.0348	-0.0333
	(0.028)	(0.023)	(0.021)	(0.028)	(0.028)
Lagged Peer R1 CDOs	-112.1544***				
	(4.073)				
Observations	3,154	3,154	3,298	1,960	3,089
Number of Universities	439	439	437	381	444
R^2	0.503				
First Stage F		758.3	290.9	244.3	2126

All specifications include university and annual fixed effects and are estimated in years where hiring demographic reporting is mandatory. Dependent variable is lagged measure of probability for underrepresented minority hires relative to peers. minorities defined as Black, Hispanic, and Native American/Pacific Islander. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8: Fixed Effects Regression of CDO and Prior Diversity Trends on Hiring Using Diversity Index

VARIABLES	(1) Non Tenured	(2) Tenure Track	(3) Tenured	(4) Admin
Panel A: Full Sample				
Chief Diversity Officer	-0.0018	-0.0055	-0.0104	-0.0107
	(0.011)	(0.010)	(0.018)	(0.015)
ΔStudent Diversity Index	0.1281	-0.0742	-0.0823	-0.0592
	(0.143)	(0.106)	(0.200)	(0.109)
ΔFaculty Diversity Index	0.4115***	0.3656***	0.3114*	-0.0475
	(0.098)	(0.101)	(0.172)	(0.116)
ΔAdministrtor Diversity Index	-0.0320	-0.1255**	0.1952*	0.2878***
	(0.079)	(0.060)	(0.115)	(0.089)
Growth in Applicants	-0.0074	-0.0053	-0.0229	-0.0488**
	(0.017)	(0.016)	(0.044)	(0.023)
Observations	3,261	3,390	2,000	3,175
Number of Universities	456	454	397	461
R^2	0.040	0.070	0.051	0.083
Panel B: HBCU Omitted				
Chief Diversity Officer	-0.0088	-0.0077	-0.0152	-0.0118
	(0.011)	(0.010)	(0.018)	(0.015)
ΔStudent Diversity Index	0.1848	-0.0719	-0.0771	-0.0223
	(0.155)	(0.109)	(0.207)	(0.123)
ΔFaculty Diversity Index	0.4136***	0.3813***	0.3593**	-0.0542
	(0.099)	(0.102)	(0.173)	(0.119)
ΔAdministrtor Diversity Index	-0.0355	-0.1312**	0.1622	0.2869***
	(0.080)	(0.059)	(0.120)	(0.091)
Growth in Applicants	-0.0025	-0.0075	-0.0110	-0.0468*
	(0.017)	(0.016)	(0.045)	(0.025)
Observations	3,153	3,296	1,955	3,083
Number of Universities	439	437	381	444
R^2	0.047	0.074	0.055	0.082

All specifications include university and annual fixed effects, and are estimated in years where hiring demographic reporting is mandatory. Dependent variable is lagged Diversity Index for underrepresented minority hires. Underrepresented minorities defined as Black, Hispanic, and Native American/Pacific Islander. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 9: IV Regression of CDO and Prior Diversity Trends on Hiring Using Diversity Index

VARIABLES	(1) First Stage	(2) Non Tenured	(3) Tenure Track	(4) Tenured	(5) Admin
Panel A: Full Sample					
Chief Diversity Officer		0.0060	-0.0033	-0.0683**	-0.0023
		(0.019)	(0.018)	(0.032)	(0.027)
ΔStudent Diversity Index	0.2135	0.1262	-0.0747	-0.0843	-0.0621
	(0.134)	(0.143)	(0.106)	(0.207)	(0.109)
ΔFaculty Diversity Index	-0.1183	0.4125***	0.3660***	0.3004*	-0.0459
	(0.127)	(0.098)	(0.101)	(0.172)	(0.117)
ΔAdministrtor Diversity Index	0.1239	-0.0331	-0.1256**	0.2030*	0.2869***
	(0.089)	(0.079)	(0.060)	(0.116)	(0.089)
Growth in Applicants	-0.0141	-0.0073	-0.0052	-0.0227	-0.0488**
	(0.027)	(0.017)	(0.016)	(0.044)	(0.023)
Lagged Peer R1 CDOs	-112.0672***				
	(4.080)				
Observations	3,261	3,261	3,390	2,000	3,175
Number of Universities	456	456	454	397	461
R^2	0.492				
First Stage F		754.5	290.5	244.5	282.9
Panel B: HBCU Omitted					
Chief Diversity Officer		0.0036	-0.0045	-0.0674**	-0.0050
		(0.019)	(0.018)	(0.032)	(0.027)
ΔStudent Diversity Index	0.2829*	0.1811	-0.0728	-0.0783	-0.0253
	(0.151)	(0.155)	(0.109)	(0.213)	(0.122)
ΔFaculty Diversity Index	-0.1233	0.4152***	0.3819***	0.3508**	-0.0529
	(0.131)	(0.099)	(0.102)	(0.173)	(0.119)
ΔAdministrtor Diversity Index	0.1344	-0.0373	-0.1314**	0.1680	0.2860***
	(0.094)	(0.079)	(0.058)	(0.122)	(0.091)
Growth in Applicants	-0.0170	-0.0024	-0.0075	-0.0103	-0.0468*
	(0.028)	(0.017)	(0.016)	(0.045)	(0.025)
Lagged Peer R1 CDOs	-111.9941***				
	(4.070)				
Observations	3,153	3,153	3,296	1,955	3,083
Number of Universities	439	439	437	381	444
R^2	0.502				
First Stage F		757.3	290.9	244.5	281.5

All specifications include university and annual fixed effects, and are estimated in years where hiring demographic reporting is mandatory. Dependent variable is lagged Diversity Index for underrepresented minority hires. Underrepresented minorities defined as Black, Hispanic, and Native American/Pacific Islander. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 10: Diverse Hiring in 2016 by Carnegie Classification, Urbanization, and Census Region

VARIABLES	(1) Full Sample mean (sd)	(2) Carnegie F (p-value)	(3) Urbanization F (p-value)	(4) Census Region F (p-value)
Pct Black Non-Tenured Hired	0.0761	1.56	2.13**	7.67***
	(0.147)	(0.212)	(0.026)	(0.000)
Pct Hispanic Non-Tenured Hired	0.0530	0.22	1.19	4.79***
	(0.0998)	(0.805)	(0.298)	(0.003)
Pct Native Non-Tenured Hired	0.00810	0.05	1.32	1.68
	(0.0555)	(0.954)	(0.224)	(0.170)
Pct Under-Rep Non-Tenured Hires	0.137	0.40	1.70*	2.59*
	(0.185)	(0.673)	(0.087)	(0.053)
Observations	430			
Pct Black Tenure Track Hired	0.0698	2.52*	1.13	0.92
	(0.137)	(0.082)	(0.339)	(0.430)
Pct Hispanic Tenure Track Hired	0.0433	0.10	0.82	9.54***
	(0.0574)	(0.901)	(0.606)	(0.000)
Pct Native Tenure Track Hired	0.00361	0.02	0.52	0.85
	(0.0143)	(0,984)	(0.874)	(0.467)
Pct Under-Rep Tenure-Track Hires	0.117	2.18	1.31	2.26*
	(0.143)	(0.114)	(0.222)	(0.081)
Observations	443			
Pct Black Tenured Hired	0.0737	1.37	0.68	0.43
	(0.198)	(0.256)	(0.745)	(0.731)
Pct Hispanic Tenured Hired	0.0416	0.06	1.14	1.94
	(0.134)	(0.937)	(0.330)	(0.123)
Pct Native Tenured Hired	0.00237	1.38	1.36	0.68
	(0.0158)	(0.253)	(0.198)	(0.563)
Pct Under-Rep Tenured Hires	0.118	0.81	0.69	1.45
	(0.229)	(0.444)	(0.733)	(0.229)
Observations	275			
Pct Black Administrators Hired	0.138	2.98*	0.57	2.18*
	(0.202)	(0.052)	(0.836)	(0.089)
Pct Hispanic Administrators Hired	0.0547	0.40	2.16**	3.00**
	(0.0992)	(0.672)	(0.019)	(0.030)
Pct Native Administrators Hired	0.00353	6.05***	1.14	2.91**
	(0.0202)	(0.003)	(0.333)	(0.034)
Pct Under-Rep Administrator Hires	0.196	0.99	1.38	2.13*
	(0.220)	(0.373)	(0.188)	(0.096)
Observations	446			
CDO In Place	0.67634	17.85***	2.56***	1.03
	(0.468)	(0.000)	(0.005)	(0.379)
Observations	448			

Notes: Column 1 contains means and standard deviations of indicated variables for the 2016 academic hiring cycle. HBCU institutions are omitted. Carnegie categories are R1, R2, and M1. 11 Urbanization classifications range from Large City to Distant Rural area. Census Regions are Northeast, Midwest, South, and West. Each cell in columns 2 - 4 reports an F-test of difference of means by indicated category. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.