

Supplement to:

Kim, Kwan Woo, Alexandra Kalev, Frank Dobbin, and Gal Deutsch. 2021. "Crisis and Uncertainty: Did the Great Recession Reduce the Diversity of New Faculty?" *Sociological Science* 8: 308-324.

MAIN ANALYSES

Data

For our main analyses we use longitudinal data on tenure-track hires from 1,349 four-year public and private, non-profit U.S. colleges and universities to examine changes in the number and demographic composition of tenure-track hires between 1999 and 2015. We analyze changes across 3 periods, before (1999-2007), during (2007-2011), and after (2011-2015) the Great Recession.

Data come from the Integrated Post-Secondary Education Data System (IPEDS), which is based on a survey administered by the National Center for Education Statistics (NCES) at the Department of Education. IPEDS provides a population survey of U.S. higher education institutions. Data are available on the IPEDS website (<https://nces.ed.gov/ipeds>). The Higher Education Act of 1965, as amended (20 USC 1094(a)(17)), requires all higher education institutions that participate, or apply for participation in, federal student aid programs to complete the IPEDS survey in a timely and accurate manner. Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972, also requires institutions with 15 or more full-time employees to complete the human resources component of the IPEDS survey. The data are cross-validated through a two-step process. First, institutions report their employee demographics and compare the numbers to the expected value ranges provided by IPEDS staff. Institutions must include an explanation if the reported numbers are

outside expected value ranges. Second, IPEDS staff manually validates the numbers across multiple survey components. If the numbers are inconsistent, they ask institutions to reexamine the accuracy of the data (National Center for Education Statistics 2019).

We include in the analysis all public and private, non-profit colleges and universities that offer baccalaureate and/or higher degrees. We do not include for-profit institutions or those that offer only associate degrees. There are 1,349 institutions in the dataset, of which 472 are public and 877 are private, 160 are R1, 671 are R2 or MA (103 R2 and 568 MA), and 518 are BA institutions. The number of institutions varies by survey year. Some institutions appear first after 1999 because they were established later as new, or newly merged, institutions. Other institutions exit before 2015 because they merged, closed down, became for-profit, or were downgraded to offer only associate degrees. Institutions that result from mergers are treated in the analysis as new. We matched IPEDS data across survey years using the institutional identifier variable (*unitid*) and reference year (*year*).

The descriptive plots are calculated based on the entire dataset, which covers 1,349 institutions and 10,908 institution-year observations. The regression analysis requires at least two observations, with hires, for each school. We omit twenty-three institutions that are observed only once. Some of the omitted institutions merged after one early observation. Some were created by late mergers and observed but once. We omit 140 institutions that did not hire tenure-track faculty in any of the observed years and 16 that hired in only one year. Those are mostly very small, with few or no tenure-

track faculty. None grant Ph.D.s. In total, the year spline models include 1,170 institutions and 9,038 observations.

Methods 1. Variable Measurement

Data for constructing the variables come from three of the twelve components of the NCES survey, the Human Resources (HR), Institutional Characteristics (IC), and Finance (F) components. Table S1 provides univariate statistics for all variables used in the analysis.

Outcome variables - Data on tenure-track hires come from the Human Resources (HR) component. In every odd year since 1993, the NCES has surveyed institutions about the gender, race, and ethnicity of newly hired employees by occupational category, rank, and tenure status. In the 1993, 1995 and 1997 surveys, schools were asked about all hires between July 1 and September 30. This period was expanded until October 30 in 1999, and in 2017 it was expanded to twelve months (November 1, 2016 to October 31, 2017) (IPEDS Technical Review Panel 2014:12). We thus use data on tenure-track faculty hires for 1999 through 2015, the years with comparable data.

Two variables are used in the descriptive plots: the *total number of tenure-track hires*, which counts all tenure-track hires in a given institution and year, and the *number of tenure-track hires from each demographic group*, which includes separate counts of tenure track hires from each of eight demographic groups. Nonresidents are included in

the denominator for tenure-track hires by demographic group, but race/ethnic data are not reported for them, and so they are not included in numerators.

For the *number of tenure-track hires from each demographic group* we use IPEDS classifications. Until 2007, IPEDS employed six race-ethnic categories: “White not-Hispanic,” “Black not-Hispanic,” “Hispanics of any race,” “Asian or Pacific Islander,” “American Indian or Alaskan Native,” and “Unknown race and ethnicity.” The last two categories are not included in the analysis because there are very few hires in either category. They are included in the count of total hires. There were two changes in the race and ethnic categories during the period covered in the analysis. In 2009, IPEDS divided the “Asian and Pacific Islander” category into “Asian” and “Native Hawaiian or Other Pacific Islander” and added “two or more races” as a new category (IPEDS Technical Review Panel 2006). For consistency over time, we combine “Asian” with “Native Hawaiian or Other Pacific Islander” in 2009 through 2015. There are only 13 women and 2 men who are identified as “two or more races” in 2009. We thus do not include two-or-more as a separate racial category in the analysis, but count them in total hires.

The outcome variables in the regression analyses are the *log odds of each group among tenure-track hires*, calculated as

$$\ln\left(\frac{g_{ij}}{t_{ij} - g_{ij}}\right)$$

where g_{ij} denotes the number of tenure track hires from demographic group g in institution i and year j , and t denotes total tenure track hires. The variable is treated as missing, and not included in the analysis, if an institution does not hire any tenure-track faculty in a given year ($t_{ij} = 0$). We substitute $1 - \frac{1}{2t_{ij}}$ for $\frac{g_{ij}}{t_{ij}-g_{ij}}$ if *all* hires are from the focal demographic group ($g_{ij} = t_{ij}$), and substitute $\frac{1}{2t_{ij}}$ for $\frac{g_{ij}}{t_{ij}-g_{ij}}$ if *no* hires are from the focal demographic group ($g_{ij} = 0$) (Reskin and McBrier 2000). The results are robust to changing the outcome variable to log proportions (Table S10) or the number of hires from each demographic group (Table S11).

Period variables - We split the period of analysis into three year-count terms representing periods: pre-recession (1999-2007), recession (2007-2011) and post-recession (2011-2015). The first term, “Year pre-recession (1999-2007),” is equal to the reference year (1999) until 2007 and remains at 2007 after that. The second term, “Year count during recession (2007-2011),” remains zero until 2007 and counts the number of years since 2007 for years between 2007 and 2011. It remains at 4 thereafter. “Year count after recession (2011-2015)” remains zero until 2011 and counts the number of years since 2011 for years between 2011 and 2015. The results are robust to changing the beginning of the third period to 2009 or 2013, or splitting the period into two, 2011-2013 and 2013-2015 (see Tables S7, S8, and S9).

Institutional characteristics – variables denoting *institutional control* (private or public) and *Carnegie classification* come from the Institutional Characteristics (IC)

component of the IPEDS survey. Private institutions are marked 1 based on the indicator variable for institutional control (*control*). Based on the 2000 Carnegie classification (*carnegie2000*), we grouped institutions into research-extensive doctorate (R1), research-intensive doctorate and master's (R2/MA), and baccalaureate (BA). We created a categorical variable indicating each institution's Carnegie group. In the analyses, R2/MA and BA institutions are indicated by two separate binary terms. R1 is the omitted category.

Total revenues – Total revenues captures the institution's resources (Danziger, Barr, and Turner 2013). Data on total institutional revenues come from the Delta Cost Project Database (<https://deltacostproject.org/delta-cost-project-database>), which provides a longitudinal version of the Finance Component (F) of the IPEDS survey. We use the most comprehensive revenue variable, *tot_rev_wo_auxother_sum*, which sums “tuition; federal, state, and local appropriations, grants, and contracts; affiliated entities, private gifts, grants, and contracts; investment return; and endowment earnings,” and excludes “revenue from auxiliary, hospitals, and other independent operations.” We adjusted for inflation by dividing the original value by the 2015 multiplier of the Consumer Price Index (CPI-U). The results are robust to using logged total revenues with negative values recoded to 1 dollar.

Total hires – To control for year-to-year variation in hires made, we include the log of tenure-track hires.

Total tenure-line faculty – Data on total tenure-line faculty come from the Human Resource (HR) component of the IPEDS survey. Faculty moves and retirements may slow down during recessions, potentially shrinking the number of tenure-track jobs. To control for year-to-year variation in the number of tenure-line faculty, we include the log number of tenure-line faculty excluding those who are newly hired in the given year.

Methods 2. Bivariate trend analysis (Figures 1, 2, 3, and 5).

The descriptive figures are based on all 1,349 four-year public and private, not-for-profit institutions. Figures 1 and 2 display the number of tenure-track hires by year in all institutions and separately, in public and private institutions (Figure 1), and in R1, R2 and MA, and BA institutions (Figure 2).

Figures 3 and 5 display the number of tenure-track hires from each demographic group, broken down by public versus private (Figure 3) and by Carnegie group (Figure 5). The dotted lines extend pre-recession trends in tenure-track hires for each group. These trends are calculated with bivariate linear regression models, $\hat{y}_{gc} = b_{gc} * year + c$, where \hat{y}_{gc} is predicted tenure-track hires from demographic group g in institution type c , and b denotes predicted change in the number of tenure-track hires with one additional year. The coefficients are estimated with data from 1999 through 2007.

Methods 3. Year spline regression analysis (Figures 4 and 6)

Results from multivariate analyses reported in the main text are based on spline regression models with fixed effects for each institution and institution-clustered standard errors. Spline regressions are appropriate when a continuous function is expected between an independent variable (in our case, year) and an outcome variable (the share of group among tenure-track hires), but the slope is expected to change at certain values of the independent variable (for example, at the beginning and end of a recession) (Greene 2017:121). Fixed effects for each institution account for stable unobserved institutional characteristics that may affect the outcome variable (for example, an inclusionary culture). Institution-clustered standard errors account for correlation of the errors within each institution over time.

Building on baseline models that predict change in each group's share among hires in all institutions (Figure S1 and Table S3), the two-way interaction models presented and discussed in the main text estimate changes in each group's share among hires across public and private institutions (Figure 4 and Table S4) and by Carnegie classification (Figure 6 and Table S5). Figure S2 and Table S6 present results from three-way interaction models that allow the period coefficients to vary by both institutional control and Carnegie classification.

Results presented in Table S3 are based on the following linear spline regression model:

$$\ln(y_{gij}) = \alpha + \beta_{1g}x_{1ij} + \beta_{2g}x_{2ij} + \beta_{3g}x_{3ij} + \mathbf{Z}\boldsymbol{\gamma} + \delta_{gi} + \varepsilon_{gij} \quad (1)$$

where $\ln(y_{gij})$ denotes the log odds of tenure-track hires from demographic group g in institution i and year j , and x_{1j} , x_{2j} , and x_{3j} denote the first (1999-2007), second (2007-2011), and third (2011-2015) year spline terms, respectively. The model includes controls for *total revenues*, *total tenure track hires*, and *total tenure-line faculty*, marked by the vector $\mathbf{Z}\boldsymbol{\gamma}$, institution fixed effects (δ_{gi}), and an observation-specific error term (ε_{gij}).

The results in Table S3 and Figure S1 suggest that the effect of the Great Recession on the hiring of faculty of color was not simply a function of reduced hiring, fewer faculty moves, fewer retirements, or of reduced revenues. Net of changes in hiring, current faculty size, and revenues, the share of people of color among hires declined.

Table S4, on which Figure 4 is based, displays the predicted rate of annual change in the share of hires from each demographic group, in public and private institutions. Table S4 models build on the baseline models (Table S3) by adding a set of interaction terms between year spline terms (or the period variables) and the private-institution indicator (p_i), as follows:

$$\ln y_{gij} = \alpha + (\beta_{1g}x_{1j} + \beta_{2g}x_{2j} + \beta_{3g}x_{3j}) + (\beta_{4g}x_{1j} + \beta_{5g}x_{2j} + \beta_{6g}x_{3j})p_i \quad (2)$$

$$+ \mathbf{Z}\boldsymbol{\gamma} + \delta_{gi} + \varepsilon_{gij}$$

The non-interacted private-institution indicator is not included because institution fixed effects (δ_{gi}) account for time-invariant differences across institutions. Point estimates and standard errors in Figure 4 for public institutions are based on each of the main effect coefficients ($\beta_{1g}x_{1j}$, $\beta_{2g}x_{2j}$, $\beta_{3g}x_{3j}$). Point estimates and standard errors for private

institutions are based on the linear combination of the main effects and the interaction terms, using the *lincom* command in STATA. For example, the point estimates and confidence intervals for the first period, 1999-2007, are based on the linear combination $\beta_{1g}x_{1j} + \beta_{4g}x_{1j} * p_i$.

Similarly, the models presented in Figure 6 and Table S5 build on the baseline model by interacting period variables with the R2/MA (c_{1i}) and BA (c_{2i}) indicators (R1 is the omitted category):

$$\begin{aligned} \ln y_{gij} = & \alpha + (\beta_{1g}x_{1j} + \beta_{2g}x_{2j} + \beta_{3g}x_{3j}) + (\beta_{4g}x_{1j} + \beta_{5g}x_{2j} + \beta_{6g}x_{3j})c_{1i} \\ & + (\beta_{7g}x_{1j} + \beta_{8g}x_{2j} + \beta_{9g}x_{3j})c_{2i} + \mathbf{Z}\boldsymbol{\gamma} + \delta_{gi} + \varepsilon_{gij} \end{aligned} \quad (3)$$

Lastly, Table S6 and Figure S2 present estimation results from the three-way interaction models that allow the coefficients on period variables to vary by institutional control (public and private) and Carnegie classification (R1, R2/MA, and BA):

$$\begin{aligned} \ln y_{gij} = & \alpha + (\beta_{1g}x_{1j} + \beta_{2g}x_{2j} + \beta_{3g}x_{3j}) + (\beta_{4g}x_{1j} + \beta_{5g}x_{2j} + \beta_{6g}x_{3j})p_i \\ & + (\beta_{7g}x_{1j} + \beta_{8g}x_{2j} + \beta_{9g}x_{3j})c_{1i} + (\beta_{10g}x_{1j} + \beta_{11g}x_{2j} \\ & + \beta_{12g}x_{3j})c_{2i} + \{(\beta_{13g}x_{1j} + \beta_{14g}x_{2j} + \beta_{15g}x_{3j})c_{1i} + (\beta_{16g}x_{1j} \\ & + \beta_{17g}x_{2j} + \beta_{18g}x_{3j})c_{2i}\}p_i + \mathbf{Z}\boldsymbol{\gamma} + \delta_{gi} + \varepsilon_{gij} \end{aligned} \quad (4)$$

As in Figure 4, point estimates and standard errors presented in Figures 6 and S2 are based on the linear combination of the main effects and the interaction terms, and the errors are clustered within each institution.

ADDITIONAL ANALYSIS 1. SENSITIVITY CHECKS (TABLES S7-S11)

We conducted three sets of sensitivity checks to make sure that our main findings are robust to alternative modeling decisions. First, the effects of the recession on group shares could vary by how long we consider the recession period to have lasted. To examine this, we tried three additional combinations of recession and post-recession periods. In the main models, we set the 2007-2011 as the recession years and 2011-2015 as the post-recession years. The model in Table S7 sets years 2007-2009 as the recession period and 2009-2015 as the post-recession period; in Table S8, the recession period is set to 2007-2013 and the post-recession period to 2013-2015; and in Table S9, the recession period is set to 2007-2011, followed by two post-recession periods of 2011-2013 and 2013-2015. The results from these three specifications are consistent with the findings we report, providing evidence that the effects are robust to different period specifications.

Second, we used log proportion as an alternative measure of group share. Since the log of zero cannot be defined, we added one (1) before logging the proportion of each group. As shown in Table S10, the models consistently show declines in the growth of Blacks and Asian Americans and slowed declines in the shares of both white women and men.

Finally, we estimated Poisson regression models with institution fixed effects predicting the number of tenure-track hires from each demographic group. Poisson fixed-effects models are appropriate for testing the robustness of the findings to zero

substitution because they allow zero (no hire from a given demographic group) to be a valid value, and hence do not require zero substitution. Based on model estimates in Table S11, in Figure S3 we present the average predicted number of hires from each group over the years 1999-2015. The predicted numbers are calculated using the *margins* command in STATA, which first calculates the predicted number of hires from each group for all observations, and then averages the predicted values across all observations in each year. The results are consistent with the main finding that entering the recession, growth in new faculty of color either slowed or reversed, while the decline of white women and men slowed.

ADDITIONAL ANALYSIS 2. SUPPLY-SIDE FACTORS (FIGURES S3-S6)

For labor market analyses it is important to consider both supply- and demand-side factors (Reskin 1993). For instance, perhaps our findings, which we predict based on employer-side theories, are driven by supply-side factors, such as a disproportionate decline in scholars of color among new doctorates during the recession, or a disproportionate increase in scholars of color who choose a non-academic career. IPEDS data are less than ideal for examining supply-side factors because they lack information on job applicants. To complement this, we present annual trends in the number of new doctorates and the percentage of new doctorates hired in faculty and industry jobs.

For this additional analysis we use the Survey of Earned Doctorates (SED), an annual census of all new doctorates from U.S. institutions (National Center for Science

and Engineering Statistics 2019). New U.S.-awarded doctorates are the primary pool of applicants for tenure-track positions, allowing us to closely approximate changes in the supply of tenure-track applicants over time. Other potential applicants, such as foreign-trained doctorates, post-doctoral researchers, and non-tenure-line faculty are not included in the analysis due to data limitations (Einaudi, Heuer, and Green 2013). We use SED for financial years 2001-2015 (from October 2000 to September 2015) because the race categories were changed in 2001. We classify respondents into eight demographic groups: white men, Black men, Hispanic men, Asian American men, white women, Black women, Hispanic women, and Asian American women.

To obtain employment status, we use SED variables measuring post-graduation plan (PDOCPLAN), post-graduation status (PDOCSTAT), post-graduation employer type (PDEMPLOY), and primary work activity (PDWK1ED).

Post-graduation plan is measured in ten categories as follows:

- 1) postdoc fellowship
- 2) postdoc research associateship
- 3) traineeship
- 4) internship/clinical residency
- 5) other training (specified)
- 6) unspecified further training or study
- 7) employment (other than 1-5 above)
- 8) military service
- 9) other employment (specified)
- 10) unspecified other employment.

Post-graduation status is measured in the seven categories of:

- 1) returning to predoctoral employment
- 2) accepted or began a postdoc or other work

- 3) negotiating an offer of employment with one or more specific organizations
- 4) seeking a position but currently have no offer of employment
- 5) enrolled in a full-time degree program (added in FY 2007)
- 6) do not plan to work or study (added in FY 2004)
- 7) other.

Post-graduation employer type is measured in the fourteen types of:

- A) four-year college or university other than medical school
- B) medical school
- C) university-affiliated research institute (added in FY 2004)
- D) community or two-year college
- E) K-12 schools
- F) foreign educational institutions
- G) foreign government
- H) federal government
- I) state government
- J) local government
- K) non-profit organization
- L) industry or business (for-profit)
- M) self-employed
- N) other

Primary work activity is classified into:

- 1) research and development
- 2) teaching
- 3) management and administration
- 4) professional services to individuals (e.g., healthcare, counseling, financial, legal services, consulting)
- 5) other

Using post-graduation status (PDOCSTAT), we classify respondents as *employed* if they choose 1) returning to predoctoral employment, 2) accepted or began a postdoc or other work, or 3) negotiating an offer of employment with one or more specific organizations.

Among those who are employed, we classify respondents as *faculty* if their post-graduation employer type (PDEMPLOY) is A) four-year college or university other than medical school, B) medical school, C) university-affiliated research institute (added in FY 2004), or D) community or two-year college, and their primary activity (PDWK1ED) is 1) research and development or 2) teaching.

We classify respondents as *post-docs* if their post-graduation plan is 1) postdoc fellowship or 2) postdoc associateship, and post-graduation status is 1) returning to predoctoral employment, 2) accepted or began a postdoc or other work, or 3) negotiating an offer of employment with one or more specific organizations.

We classify respondents as hired in *industry* if their post-graduation plan is 7) employment (other than 1-5), 9) other employment (specified), or 10) unspecified other employment, their post-graduation status is 1) returning to predoctoral employment, 2) accepted or began a postdoc or other work, or 3) negotiating an offer of employment with one or more specific organizations, and their post-graduation employer is L) industry or business (for-profit).

After classifying individuals by employment status and sector, we plot annual and periodic trends in the number of new doctorates (Figures S4 and S5), the percentage of new doctorates with job offer (Figure S6), and the percentage of new doctorates who are hired as faculty or in the private sector (Figure S7).

Question 1. Did scholars of color postpone graduation at a disproportionate rate than whites during the Great Recession?

Figure S4 presents trends in the number of new doctorates for 2001-2015 by demographic group. The shaded area indicates recession years (FY 2008-2011).

Overall, there were short-term *increases* in the number of new doctorates during the recession, which suggests that students did not postpone graduation due to the recession. This pattern is prominent among underrepresented groups, such as Blacks and Hispanics. Compared to whites, Blacks and Hispanics show greater increases in new doctorates in fiscal year 2009 (October 2008-September 2009), when the demand for doctorates was at its lowest in both the academy and industry. Compared to 2008, white men saw a 2.5 percent increase in the number of new doctorates in 2009, whereas Black and Hispanic men saw 7.2 and 6.9 percent increases respectively. Compared to 2008, white and Hispanic women increased by 3.4 and 0.8 percent in 2009, whereas Black women increased by 11 percent. Asian American men and women saw 2.5 and 0.3 percent declines in the number of new doctorates during the same period.

Figure S5 presents the number of new doctorates before (2004-2007), during (2008-2011), and after (2012-2015) the Great Recession. Consistent with the annual trends, the periodic trends show that there were overall increases in new doctorates during the recession. Relative to the pre-recession period (2004-2007), Hispanic women (+25 percent), Asian American women (+23 percent), and Hispanic men (+18 percent) saw the highest increases during the recession (2008-2011), and white men (+5 percent)

saw the lowest increase. Black women (+10 percent), Asian American men (+8 percent), white women (+7 percent), and Black men (+6 percent) saw moderate increases. Both annual and periodic trends suggest that the overall supply of new doctorates did not decline during the recession.

Question 2. Were scholars of color more likely to take non-academic jobs during the Great Recession?

Although there were more Blacks and Hispanics among new doctorates during the recession, it is still possible that scholars of color who graduated during the recession were more likely to look for non-academic jobs, with the result that fewer scholars of color applied for faculty positions. Here we consider this possibility by presenting the percent of new doctorates who were employed or had received a job offer upon graduation (Figure S6), and by comparing the share of *employed* new doctorates who were in academic versus industry jobs (Figure S7).

Figure S6 presents annual trends in the percent of new doctorates who were employed or had received a job offer upon graduation. The shaded area indicates the recession period, FY 2008-2011. The patterns indicate that there was no meaningful change in employment upon graduation during the Great Recession. Whites and Asian Americans saw virtually no change in the share of new doctorates with job offers or employment. Black men and women saw a slight decline in 2009 from which they recovered by 2010. Hispanics saw a slight increase in 2009 followed by a decline in 2010.

Figure S7 shows that academic faculty jobs held up better than industry jobs during the Great Recession, especially for scholars of color. The share of new Ph.D.s going to academic jobs has declined over time. However, during the Great Recession, people of color saw slight, short-term increases in faculty jobs relative to industry jobs. White Ph.D.s saw declines in faculty jobs during the period. The share of Ph.D.s going to industry shrank during the Great Recession for all groups, suggesting that industry was not a viable alternative for those whose access to faculty jobs was limited during the Great Recession.

Together, these patterns suggest that people of color did not decline among new tenure-track faculty because they chose to stay in graduate school or to go to industry during the Great Recession. Our data suggest that they were not more likely than before, or more likely than whites, to stay in graduate school or to go to industry, and there were fewer industry jobs to go around.

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Figures

Figure S1. Predicted annual change in the odds of each demographic group among tenure-track hires before (1999-2007), during (2007-2011), and after (2011-2015) the Great Recession

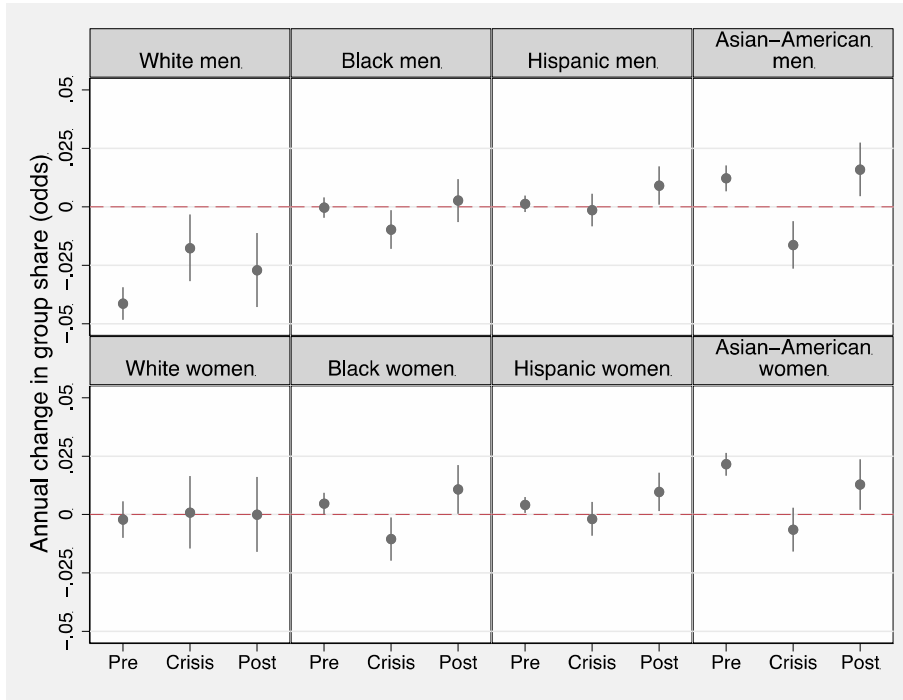


Figure S2. Predicted annual change in the share of each demographic group among tenure-track hires before (1999-2007), during (2007-2011), and after (2011-2015) the Great Recession by institutional control and Carnegie group

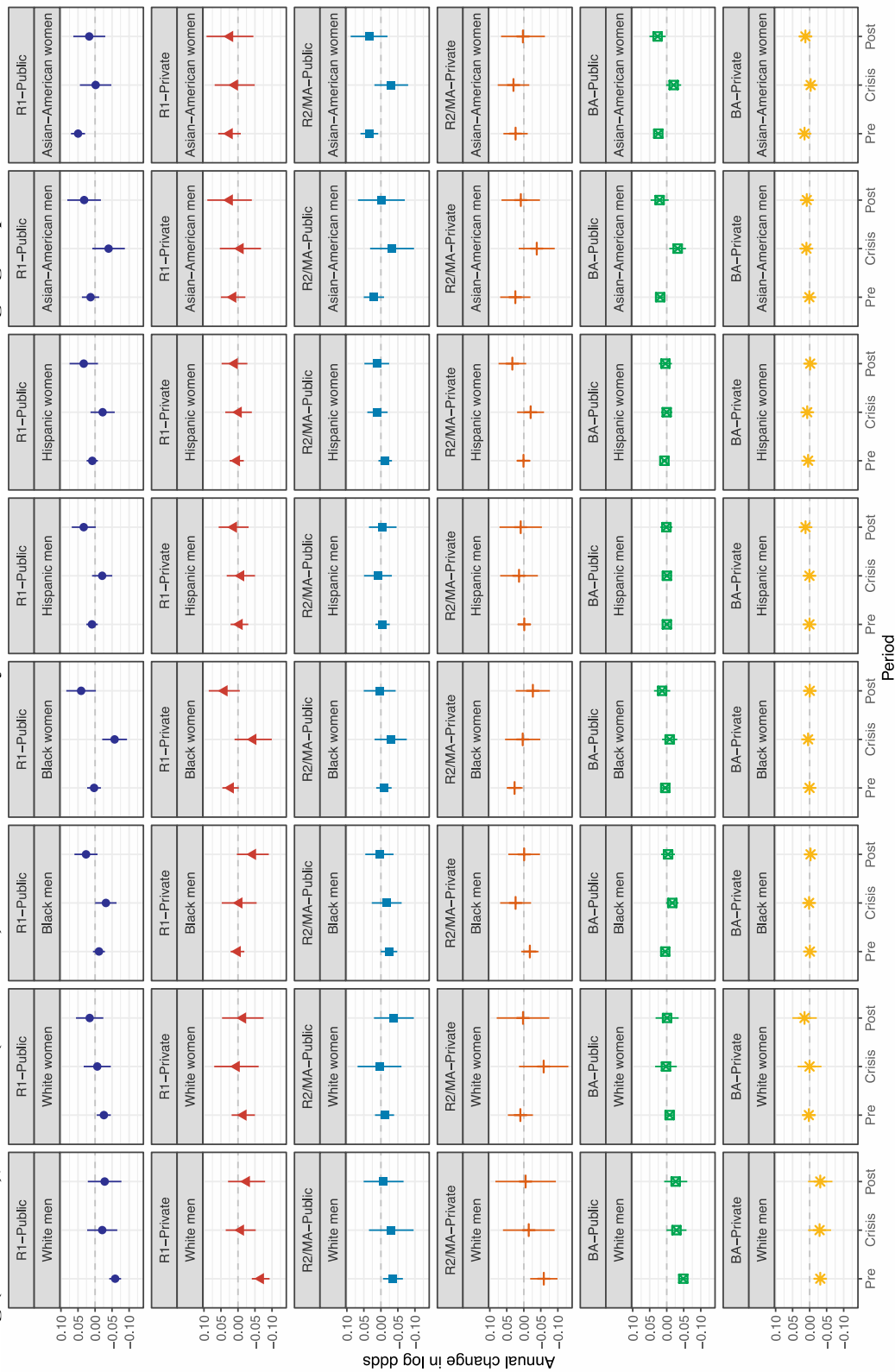


Figure S3. Average marginal number of tenure-track hires from each demographic group by year based on Poisson regression estimates

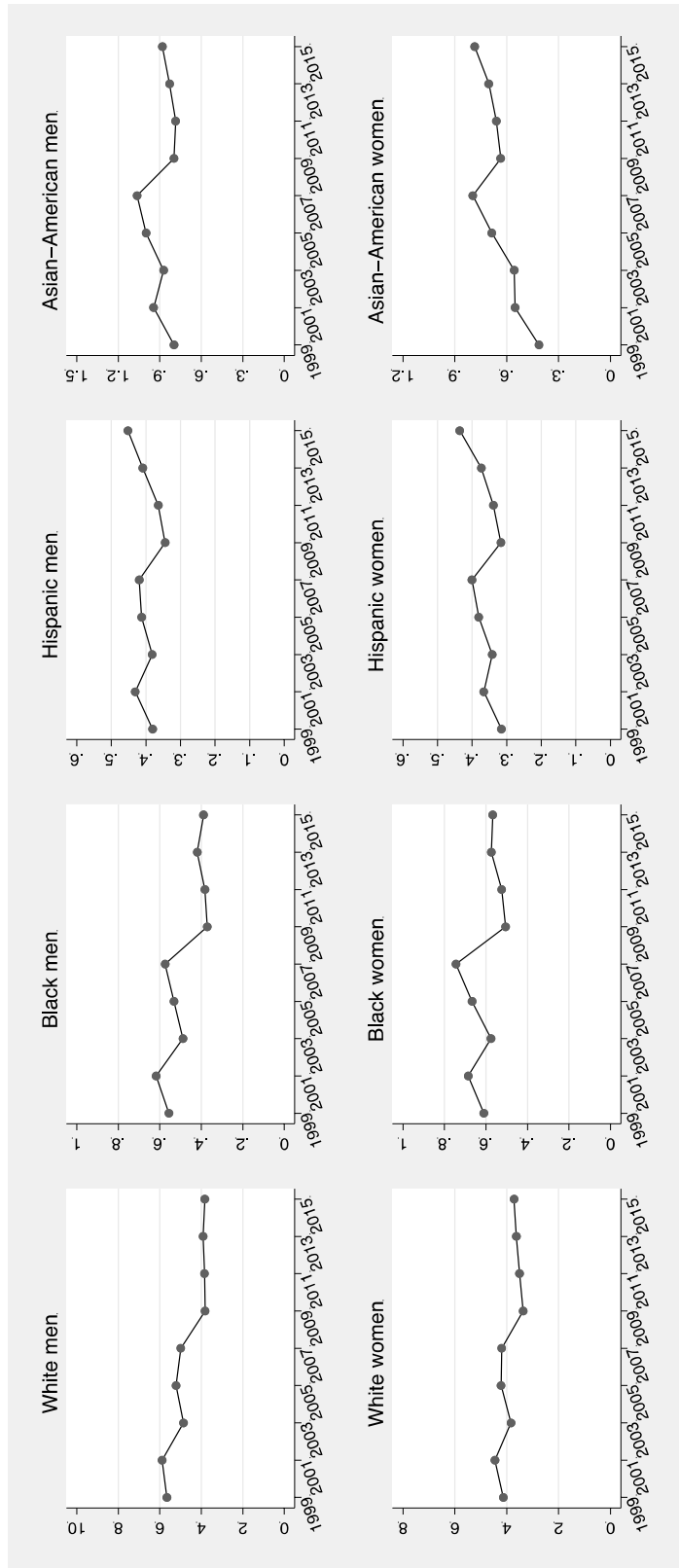


Figure S4. Number of new doctorates, FY 2001-2015

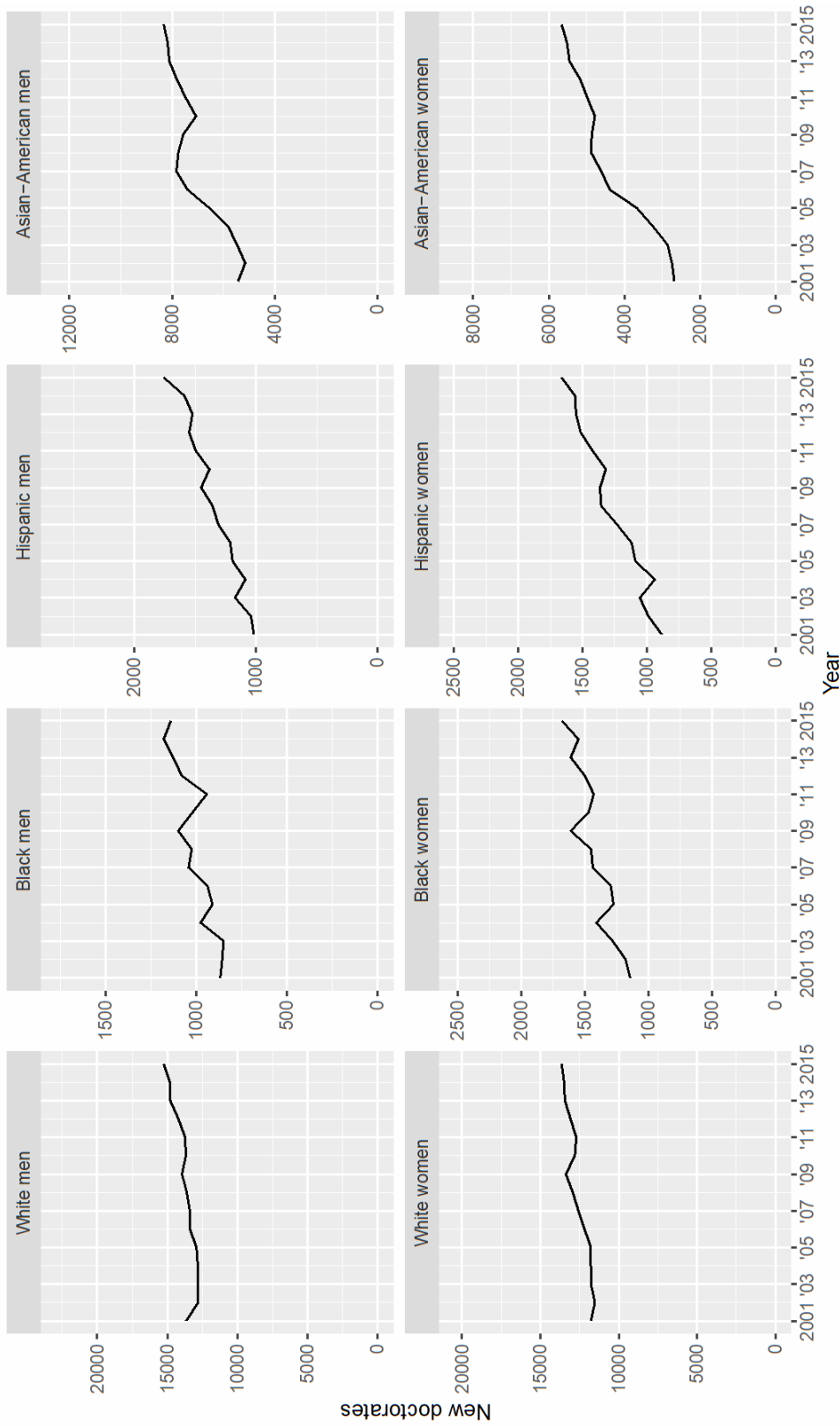


Figure S5. Number of new doctorates before (FY 2004-2007), during (FY 2008-2011), and after (FY 2012-2015) the Great Recession

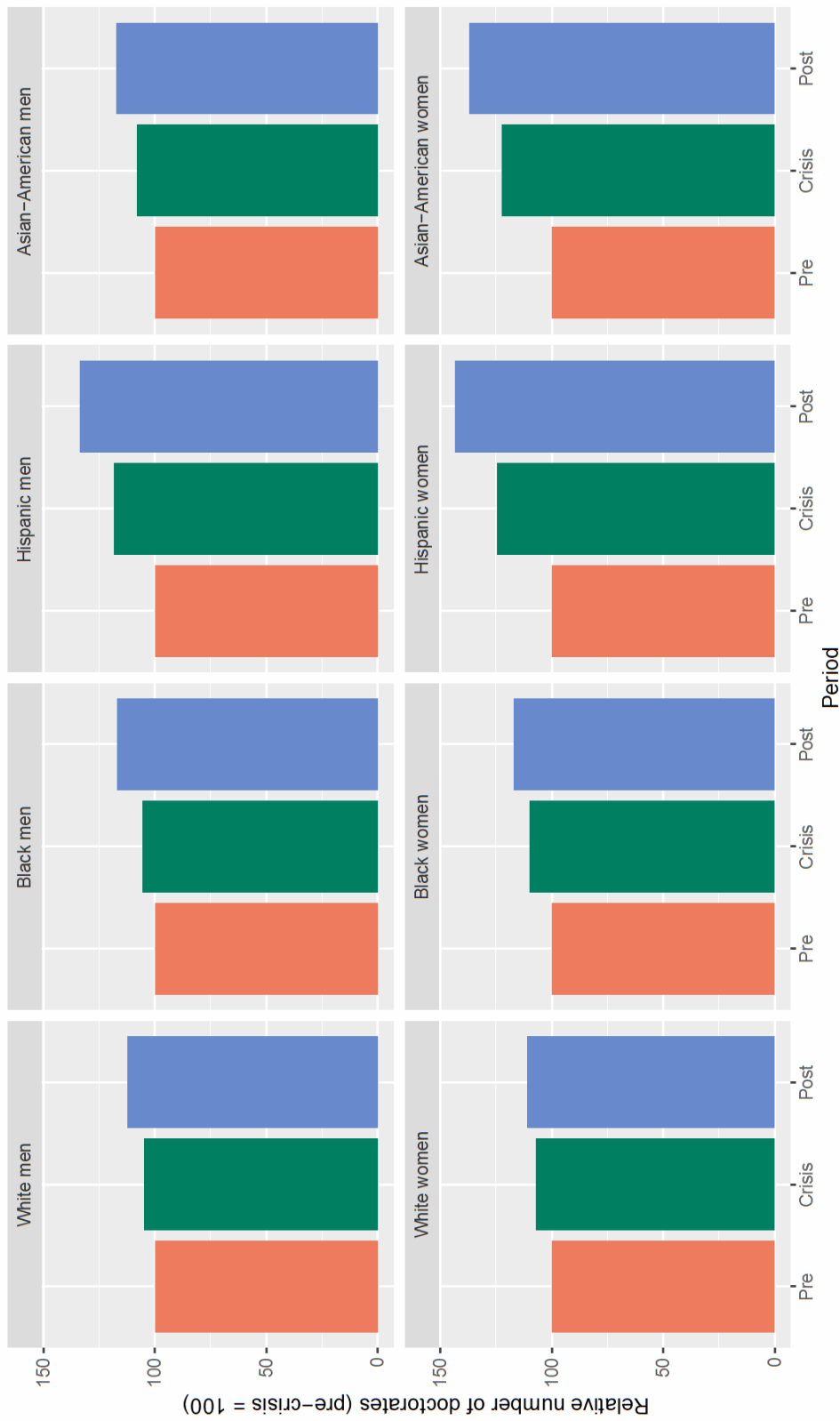


Figure S6. The share of new doctorates who are employed or have a job offer

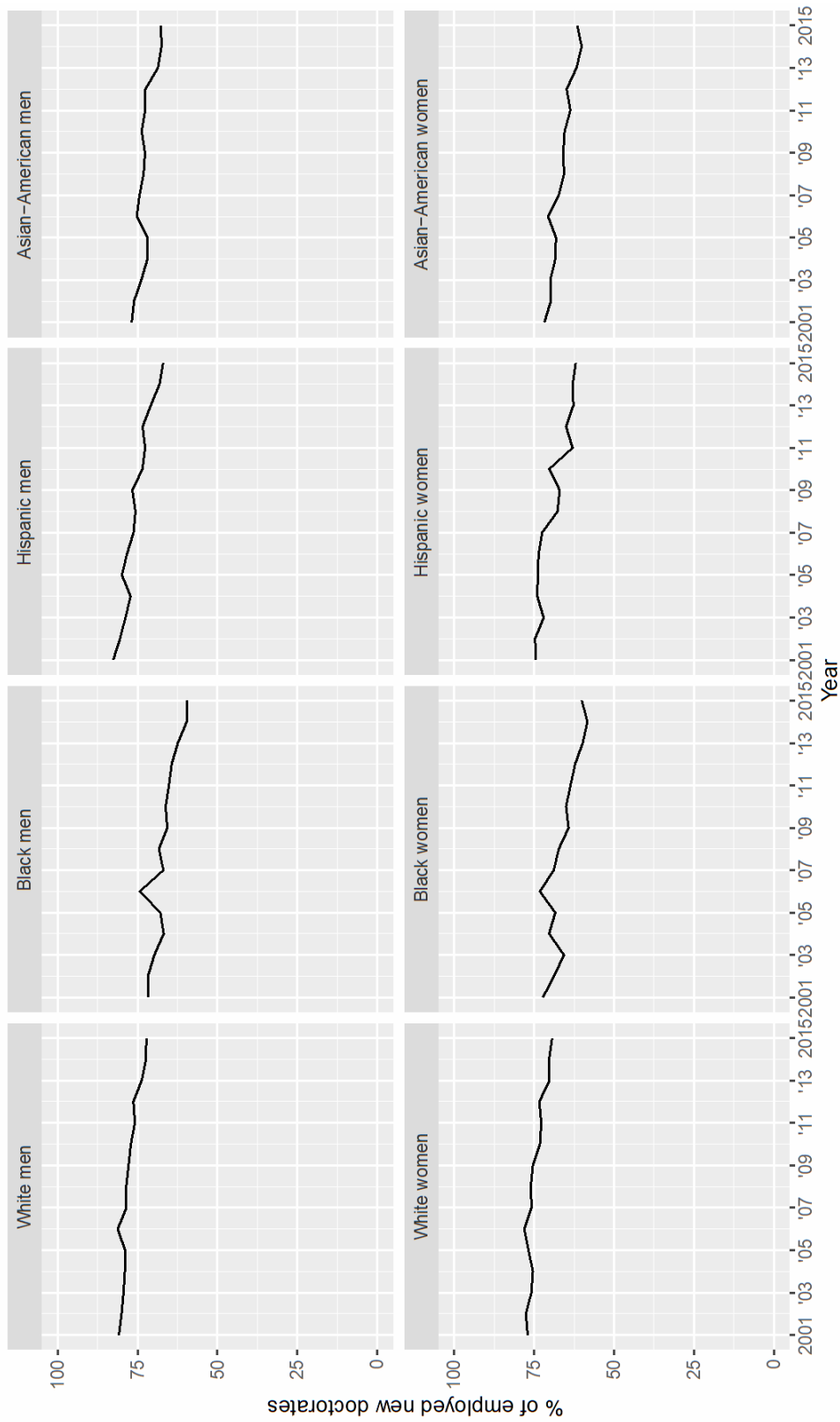
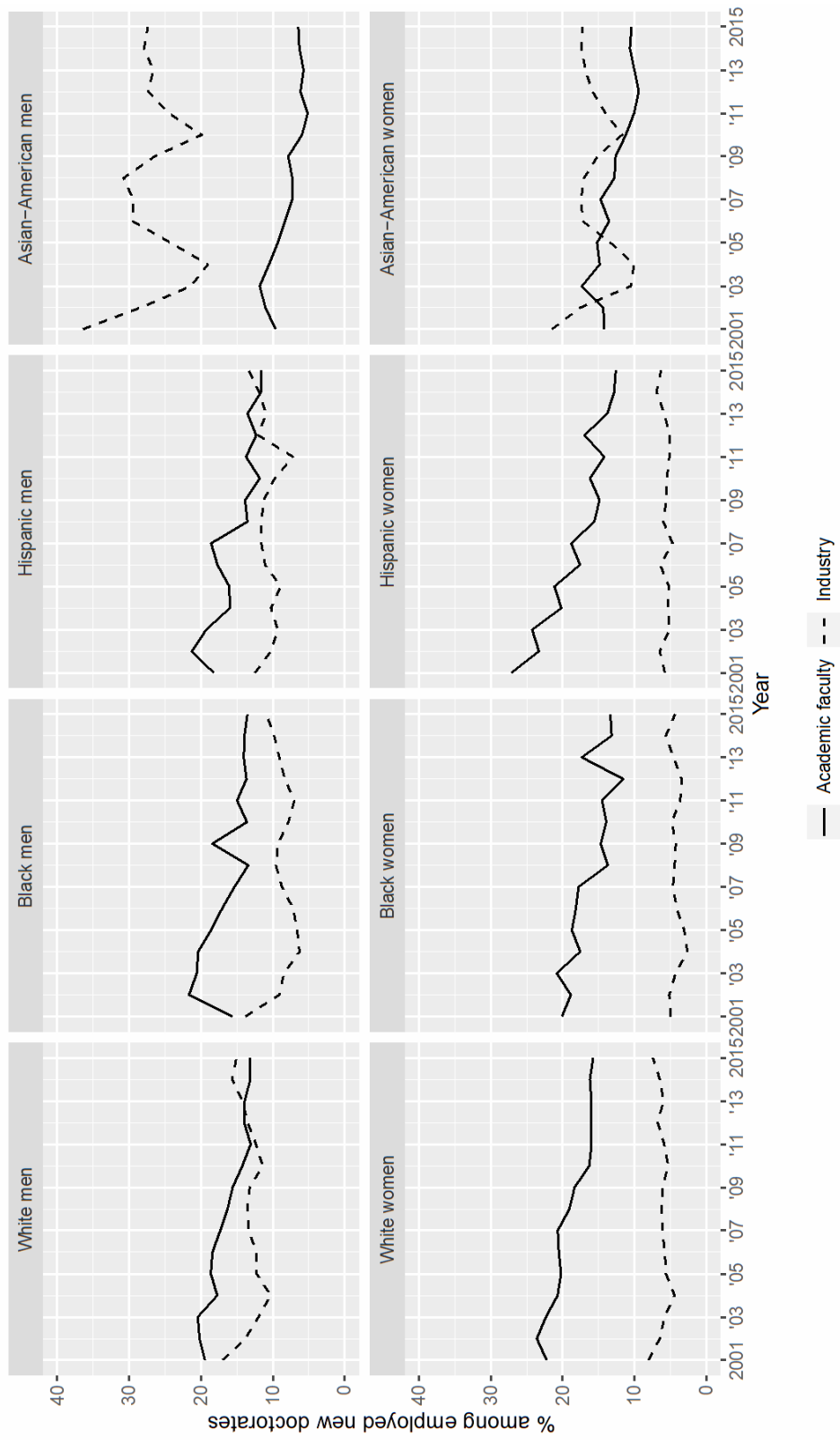


Figure S7. The sectoral composition of new doctorates (employed or with job offer)



Tables

Table S1. Descriptive statistics for variables used in the analysis of composition of tenure-track hires, 1999-2015

Variable	Mean	S.D.	Min	Max	Source
Period of Analysis					
Year pre-recession (1999-2007)	2,004	2.88	1,999	2,007	IPEDS
Year count during recession (2007-2011)	1.54	1.83	0	4	
Year count after recession (2011-2015)	0.66	1.33	0	4	
Institutional Control					
Private	0.59	0.49	0	1	IPEDS Institutional Characteristics
Public	0.41	0.49	0	1	
Carnegie Group					
Research extensive doctorate (R1)	0.14	0.35	0	1	IPEDS Institutional Characteristics
Research intensive doctorate and masters (R2/MA)	0.52	0.50	0	1	
Baccalaureate (BA)	0.34	0.47	0	1	
Total \$ revenues (billions)	0.23	0.54	-12.09 ^a	10.94	Delta Cost Project Database
Number of tenure-track hires	12.71	15.40	1	346	IPEDS HR Survey
Number of tenure-line faculty	266.30	337.46	0	2587	IPEDS HR Survey
Percent of tenure-track hires who are:					
White women	34.18	24.64	0	100	IPEDS HR Survey
White men	37.26	24.85	0	100	
Black women	3.92	11.35	0	100	
Black men	2.88	9.25	0	100	
Hispanic women	1.78	6.65	0	100	
Hispanic men	1.74	6.13	0	100	
Asian American women	3.52	9.18	0	100	
Asian American men	4.18	9.01	0	100	

N = 1,170 institutions and 9,038 institution-years.

^a Most negative revenues are due to investment losses.

Table S2. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Year pre-recession (1999-2007)	1.00													
(2) Year count during recession (2007-2011)	0.65	1.00												
(3) Year count after recession (2011-2015)	0.38	0.67	1.00											
(4) Total \$ revenues (billions)	0.06	0.05	0.04	1.00										
(5) Number of new tenure-track hires (log)	-0.04	-0.06	-0.02	0.44	1.00									
(6) Number of tenure-line faculty (log)	0.05	0.05	0.04	0.44	0.58	1.00								
(7) White men among tenure-track hires (log odds)	-0.18	-0.16	-0.12	-0.05	-0.02	-0.04	1.00							
(8) Black men among tenure-track hires (log odds)	0.02	0.03	0.00	-0.35	-0.86	-0.52	-0.10	1.00						
(9) Hispanic men among tenure-track hires (log odds)	0.05	0.06	0.03	-0.34	-0.91	-0.50	-0.02	0.80	1.00					
(10) Asian-American men among tenure-track hires (log odds)	0.06	0.06	0.03	-0.18	-0.70	-0.33	-0.06	0.65	0.69	1.00				
(11) White women among tenure-track hires (log odds)	0.00	0.00	0.00	-0.18	-0.17	-0.17	-0.20	0.04	0.11	0.01	1.00			
(12) Black women among tenure-track hires (log odds)	0.04	0.04	0.02	-0.33	-0.82	-0.49	-0.12	0.81	0.76	0.63	0.03	1.00		
(13) Hispanic women among tenure-track hires (log odds)	0.06	0.07	0.03	-0.35	-0.91	-0.51	-0.03	0.80	0.87	0.69	0.12	0.76	1.00	
(14) Asian-American women among tenure-track hires (log odds)	0.11	0.10	0.05	-0.27	-0.80	-0.41	-0.07	0.71	0.77	0.68	0.07	0.68	0.78	1.00

Table S3. Spline regression analysis of the log odds of each demographic group among tenure-track hires

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	White men	Black men	Hispanic men	Asian American men	White women	Black women	Hispanic women	Asian American women
Year pre-recession (1999-2007)	-0.042*** (0.004)	-0.000 (0.002)	0.001 (0.002)	0.012*** (0.003)	-0.002 (0.004)	0.005+ (0.002)	0.004* (0.002)	0.021*** (0.002)
Year count during recession (2007-2011)	-0.018* (0.007)	-0.010* (0.004)	-0.001 (0.004)	-0.017** (0.005)	0.001 (0.008)	-0.011* (0.005)	-0.002 (0.004)	-0.006 (0.005)
Year count after recession (2011-2015)	-0.028*** (0.008)	0.003 (0.005)	0.009* (0.004)	0.016** (0.006)	-0.000 (0.008)	0.011* (0.005)	0.010* (0.004)	0.013* (0.005)
Total \$ revenues (billions)	-0.027+ (0.015)	0.002 (0.017)	0.009 (0.014)	-0.031 (0.024)	-0.024 (0.027)	-0.004 (0.023)	0.021 (0.015)	0.047* (0.021)
Total tenure-track hires (log)	0.014 (0.018)	-0.992*** (0.016)	-1.068*** (0.011)	-0.880*** (0.017)	-0.007 (0.019)	-0.972*** (0.016)	-1.086*** (0.010)	-0.968*** (0.015)
Total number of tenure-line faculty (log)	-0.001 (0.014)	-0.018 (0.012)	-0.003 (0.006)	-0.002 (0.009)	-0.003 (0.012)	-0.025+ (0.013)	-0.008 (0.007)	0.002 (0.008)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.314	0.830	0.863	0.650	0.318	0.814	0.879	0.754

Robust standard errors in parentheses; Models include institution fixed effects.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S4. Spline regression analysis of the log odds of each demographic group among tenure-track hires in public and private institutions

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	White men	Black men	Hispanic men	Asian American men	White women	Black women	Hispanic women	Asian American women
Year pre-recession (1999-2007)	-0.049*** (0.005)	-0.000 (0.004)	0.001 (0.003)	0.018*** (0.005)	-0.010+ (0.005)	0.002 (0.004)	0.004 (0.003)	0.029*** (0.004)
Year count during recession (2007-2011)	-0.023* (0.011)	-0.026*** (0.007)	-0.010 (0.006)	-0.040*** (0.010)	-0.002 (0.011)	-0.025** (0.008)	-0.008 (0.007)	-0.019* (0.009)
Year count after recession (2011-2015)	-0.027* (0.012)	0.008 (0.008)	0.014* (0.007)	0.025* (0.011)	0.002 (0.012)	0.019* (0.009)	0.016* (0.008)	0.024* (0.010)
Private X Year pre-recession	0.012 (0.007)	-0.000 (0.005)	0.001 (0.004)	-0.009 (0.006)	0.014+ (0.008)	0.004 (0.005)	0.000 (0.004)	-0.014** (0.005)
Private X Year count during recession	0.009 (0.015)	0.028** (0.009)	0.014+ (0.007)	0.039*** (0.011)	0.005 (0.016)	0.025* (0.010)	0.010 (0.008)	0.021* (0.010)
Private X Year count after recession	-0.000 (0.017)	-0.009 (0.010)	-0.009 (0.009)	-0.015 (0.012)	-0.003 (0.016)	-0.014 (0.011)	-0.011 (0.009)	-0.020+ (0.011)
Total \$ revenues (billions)	-0.025+ (0.014)	0.005 (0.016)	0.010 (0.013)	-0.029 (0.023)	-0.021 (0.025)	-0.001 (0.022)	0.021 (0.015)	0.045* (0.021)
Total tenure-track hires (log)	0.013 (0.018)	-0.994*** (0.016)	-1.069*** (0.011)	-0.883*** (0.017)	-0.009 (0.019)	-0.974*** (0.016)	-1.087*** (0.010)	-0.970*** (0.015)
Total number of tenure-line faculty (log)	-0.003 (0.014)	-0.020+ (0.012)	-0.004 (0.006)	-0.003 (0.009)	-0.005 (0.012)	-0.027* (0.013)	-0.008 (0.007)	0.004 (0.008)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.314	0.831	0.863	0.651	0.319	0.814	0.879	0.754

Robust standard errors in parentheses; Models include institution fixed effects.
 *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S5. Spline regression analysis of the log odds of each demographic group among tenure-track hires by Carnegie group

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	White Men	Black Men	Hispanic Men	Asian American men	White Women	Black Women	Hispanic Women	Asian American women
Year pre-recession (1999-2007)	-0.046** (0.008)	-0.008 (0.007)	-0.003 (0.007)	-0.001 (0.010)	-0.022* (0.009)	0.006 (0.008)	-0.002 (0.006)	0.015+ (0.009)
Year count during recession (2007-2011)	0.005 (0.017)	-0.017 (0.013)	-0.027* (0.012)	-0.049** (0.019)	0.001 (0.018)	-0.055*** (0.015)	-0.034* (0.014)	-0.022 (0.019)
Year count after recession (2011-2015)	-0.021 (0.019)	0.005 (0.013)	0.022 (0.014)	0.029 (0.020)	0.004 (0.017)	0.044** (0.016)	0.020 (0.016)	0.021 (0.020)
R2/MA X Year pre-recession	0.017+ (0.009)	0.004 (0.007)	0.002 (0.007)	0.004 (0.011)	0.019+ (0.010)	-0.006 (0.009)	0.005 (0.007)	-0.009 (0.009)
R2/MA X Year count during recession	0.018+ (0.010)	0.015* (0.007)	0.005 (0.007)	0.008 (0.011)	0.029* (0.011)	-0.000 (0.008)	0.004 (0.007)	-0.008 (0.009)
R2/MA X Year count after recession	-0.007 (0.019)	0.010 (0.014)	0.020 (0.013)	0.026 (0.020)	-0.013 (0.020)	0.043** (0.016)	0.023 (0.014)	-0.003 (0.020)
BA X Year pre-recession	0.012 (0.021)	0.011 (0.015)	0.031* (0.013)	0.041* (0.020)	-0.007 (0.022)	0.055*** (0.016)	0.034* (0.014)	0.017 (0.020)
BA X Year count during recession	0.007 (0.021)	-0.006 (0.015)	-0.020 (0.015)	-0.019 (0.021)	-0.003 (0.020)	-0.044* (0.018)	-0.019 (0.017)	-0.009 (0.021)
BA X Year count after recession	0.008 (0.024)	0.000 (0.015)	-0.024 (0.015)	-0.028 (0.021)	-0.018 (0.022)	-0.044* (0.018)	-0.016 (0.017)	-0.029 (0.021)
Total \$ revenues (billions)	-0.013 (0.016)	0.013 (0.012)	0.002 (0.015)	-0.028 (0.019)	-0.011 (0.021)	0.002 (0.019)	0.017 (0.016)	0.029 (0.025)
Total tenure-track hires (log)	0.012 (0.018)	-0.973*** (0.015)	-1.046*** (0.011)	-0.861*** (0.017)	-0.009 (0.019)	-0.953*** (0.015)	-1.067*** (0.010)	-0.948*** (0.014)
Total number of tenure-line faculty (log)	0.003 (0.013)	-0.032 (0.034)	-0.015 (0.017)	-0.022 (0.024)	0.042* (0.017)	-0.062+ (0.033)	-0.032 (0.021)	-0.015 (0.021)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.315	0.831	0.863	0.650	0.319	0.814	0.879	0.755

Robust standard errors in parentheses; Models include institution fixed effects.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S6. Spline regression analysis of the log odds of each demographic group among tenure-track hires by institutional control and Carnegie group

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	White Men	Black Men	Hispanic Men	Asian American men	White Women	Black Women	Hispanic Women	Asian American women
Year pre-recession	-0.059*** (0.009)	-0.011 (0.009)	0.009 (0.009)	0.014 (0.013)	-0.026* (0.010)	0.003 (0.010)	0.008 (0.009)	0.050*** (0.011)
Year count during recession	-0.019 (0.023)	-0.036* (0.016)	-0.026+ (0.015)	-0.048+ (0.025)	-0.006 (0.020)	-0.062*** (0.019)	-0.027 (0.018)	-0.009 (0.024)
Year count after recession	-0.032 (0.025)	0.032+ (0.017)	0.040* (0.018)	0.044+ (0.025)	0.014 (0.020)	0.047* (0.022)	0.040+ (0.021)	0.026 (0.024)
Private R1 X Year pre-recession	-0.008 (0.016)	0.012 (0.014)	-0.014 (0.016)	0.000 (0.023)	0.010 (0.020)	0.018 (0.016)	-0.005 (0.014)	-0.026 (0.020)
Public R2/MA X Year pre-recession	0.013 (0.011)	0.011 (0.010)	-0.010 (0.009)	0.006 (0.014)	0.017 (0.012)	-0.001 (0.012)	-0.005 (0.009)	-0.023* (0.012)
Private R2/MA X Year pre-recession	0.024* (0.012)	0.008 (0.010)	-0.009 (0.009)	-0.010 (0.014)	0.029* (0.014)	0.001 (0.011)	-0.004 (0.009)	-0.034** (0.011)
Public BA X Year pre-recession	0.015 (0.019)	0.035* (0.015)	-0.014 (0.012)	-0.002 (0.019)	0.039* (0.020)	-0.003 (0.012)	-0.012 (0.010)	-0.047*** (0.013)
Private BA X Year pre-recession	0.024* (0.012)	0.013 (0.010)	-0.006 (0.009)	-0.003 (0.014)	0.033* (0.013)	0.003 (0.011)	-0.004 (0.009)	-0.037*** (0.011)
Private R1 X Year count during recession	0.011 (0.031)	0.032 (0.031)	0.016 (0.026)	0.039 (0.040)	0.010 (0.039)	0.016 (0.034)	0.024 (0.027)	0.016 (0.039)
Public R2/MA X Year count during recession	-0.008 (0.026)	0.015 (0.018)	0.022 (0.017)	0.007 (0.028)	0.009 (0.025)	0.044* (0.021)	0.024 (0.020)	-0.021 (0.026)
Private R2/MA X Year count during recession	-0.009 (0.028)	0.040* (0.017)	0.027 (0.017)	0.050+ (0.026)	-0.001 (0.026)	0.065** (0.020)	0.029 (0.020)	0.008 (0.025)
Public BA X Year count during recession	0.003 (0.041)	0.004 (0.030)	0.020 (0.020)	0.039 (0.035)	-0.026 (0.038)	0.066** (0.024)	0.030 (0.022)	0.036 (0.031)
Private BA X Year count during recession	0.015 (0.027)	0.037* (0.017)	0.036* (0.016)	0.048+ (0.026)	0.017 (0.026)	0.066** (0.020)	0.030 (0.019)	0.012 (0.025)
Private R1 X Year count after recession	0.006 (0.037)	-0.076** (0.030)	-0.028 (0.029)	-0.019 (0.042)	-0.029 (0.037)	-0.007 (0.032)	-0.030 (0.029)	-0.003 (0.043)
Public R2/MA X Year count after recession	0.007 (0.029)	-0.032 (0.019)	-0.037+ (0.020)	-0.021 (0.028)	-0.023 (0.025)	-0.033 (0.025)	-0.031 (0.025)	0.007 (0.027)
Private R2/MA X Year count after recession	0.003 (0.030)	-0.035+ (0.019)	-0.029 (0.020)	-0.035 (0.027)	-0.001 (0.026)	-0.051* (0.024)	-0.037 (0.023)	-0.015 (0.026)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	White Men	Black Men	Hispanic Men	Asian American men	White Women	Black Women	Hispanic Women	Asian American women
Public BA X Year count after recession	-0.006 (0.048)	-0.033 (0.030)	-0.013 (0.024)	-0.039 (0.036)	0.026 (0.042)	-0.061* (0.029)	-0.029 (0.025)	-0.053+ (0.032)
Private BA X Year count after recession	0.004 (0.030)	-0.024 (0.019)	-0.042* (0.019)	-0.035 (0.027)	-0.026 (0.026)	-0.039 (0.024)	-0.033 (0.022)	-0.031 (0.026)
Total \$ revenues (billions)	-0.014 (0.017)	0.014 (0.014)	0.011 (0.013)	-0.029 (0.023)	-0.009 (0.021)	0.002 (0.021)	0.022 (0.015)	0.031 (0.024)
Total tenure-track hires (log)	0.013 (0.018)	-0.995*** (0.016)	-1.070*** (0.011)	-0.884*** (0.017)	-0.009 (0.019)	-0.974*** (0.016)	-1.087*** (0.011)	-0.971*** (0.015)
Total number of tenure-line faculty (log)	-0.002 (0.014)	-0.021+ (0.012)	-0.004 (0.006)	-0.004 (0.009)	-0.006 (0.012)	-0.027* (0.013)	-0.008 (0.007)	0.004 (0.008)
Constant	84.528*** (7.363)	0.746 (4.460)	-2.663 (3.620)	-24.474*** (5.586)	3.913 (8.029)	-9.339* (4.726)	-8.196* (3.487)	-43.215*** (4.823)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.315	0.831	0.864	0.651	0.320	0.814	0.879	0.755

Robust standard errors in parentheses; Models include institution fixed effects.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table S7. Spline regression analysis of the log odds of each demographic group among tenure-track hires with alternative periods of analysis – recession period 2007-2009

Variables	(1) White men	(2) Black men	(3) Hispanic men	(4) Asian American men	(5) White women	(6) Black women	(7) Hispanic women	(8) Asian American women
Year pre-recession (1999-2007)	-0.043*** (0.004)	0.000 (0.002)	0.002 (0.002)	0.012*** (0.003)	-0.001 (0.004)	0.005* (0.002)	0.005** (0.002)	0.021*** (0.002)
Year count during recession (2007-2009)	-0.011 (0.014)	-0.016* (0.008)	-0.010 (0.007)	-0.025* (0.010)	-0.012 (0.015)	-0.023* (0.009)	-0.014* (0.007)	-0.006 (0.009)
Year count after recession (2009-2015)	-0.026*** (0.006)	-0.000 (0.003)	0.008** (0.003)	0.006 (0.004)	0.004 (0.006)	0.006+ (0.003)	0.009*** (0.003)	0.005 (0.004)
Total \$ revenues (billions)	-0.025+ (0.015)	-0.000 (0.017)	0.006 (0.014)	-0.035 (0.025)	-0.026 (0.028)	-0.009 (0.025)	0.017 (0.016)	0.045* (0.021)
Total tenure-track hires (log)	0.015 (0.018)	-0.992*** (0.016)	-1.068*** (0.011)	-0.880*** (0.017)	-0.009 (0.019)	-0.973*** (0.016)	-1.087*** (0.010)	-0.968*** (0.015)
Total number of tenure-line faculty (log)	-0.001 (0.014)	-0.018 (0.012)	-0.003 (0.006)	-0.002 (0.009)	-0.003 (0.012)	-0.025+ (0.013)	-0.008 (0.007)	0.002 (0.008)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.314	0.830	0.863	0.650	0.318	0.814	0.879	0.753

Robust standard errors in parentheses; Models include institution fixed effects.
 *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S8. Spline regression analysis of the log odds of each demographic group among tenure-track hires with alternative periods of analysis – recession period 2007-2013

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	White men	Black men	Hispanic men	Asian American men	White women	Black women	Hispanic women	Asian American women
Year pre-recession (1999-2007)	-0.043*** (0.004)	-0.000 (0.002)	0.001 (0.002)	0.011*** (0.003)	-0.003 (0.004)	0.004+ (0.002)	0.004* (0.002)	0.020*** (0.002)
Year count during recession (2007-2013)	-0.018*** (0.005)	-0.008** (0.003)	0.001 (0.002)	-0.008* (0.004)	0.002 (0.005)	-0.007* (0.003)	0.000 (0.002)	-0.001 (0.003)
Year count after recession (2013-2015)	-0.044** (0.016)	0.014 (0.009)	0.016* (0.008)	0.029** (0.011)	-0.006 (0.015)	0.026** (0.010)	0.019* (0.008)	0.017 (0.010)
Total \$ revenues (billions)	-0.028+ (0.015)	0.003 (0.016)	0.009 (0.014)	-0.030 (0.023)	-0.024 (0.027)	-0.003 (0.023)	0.021 (0.015)	0.047* (0.021)
Total tenure-track hires (log)	0.014 (0.018)	-0.991*** (0.016)	-1.067*** (0.011)	-0.878*** (0.017)	-0.007 (0.019)	-0.971*** (0.016)	-1.085*** (0.010)	-0.967*** (0.015)
Total number of tenure-line faculty (log)	-0.001 (0.014)	-0.018 (0.012)	-0.003 (0.006)	-0.002 (0.009)	-0.003 (0.012)	-0.025+ (0.013)	-0.007 (0.007)	0.002 (0.008)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.314	0.830	0.863	0.650	0.318	0.814	0.879	0.753

Robust standard errors in parentheses; Models include institution fixed effects.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S9. Spline regression analysis of the log odds of each demographic group among tenure-track hires with alternative periods of analysis – two post-recession periods

Variables	(1) White men	(2) Black men	(3) Hispanic men	(4) Asian American men	(5) White women	(6) Black women	(7) Hispanic women	(8) Asian American women
Year pre-recession (1999-2007)	-0.042*** (0.004)	-0.000 (0.002)	0.001 (0.002)	0.012*** (0.003)	-0.002 (0.004)	0.004+ (0.002)	0.004* (0.002)	0.021*** (0.002)
Year count during recession (2007-2011)	-0.021** (0.008)	-0.008+ (0.004)	-0.000 (0.004)	-0.016** (0.006)	-0.001 (0.008)	-0.008+ (0.005)	-0.001 (0.004)	-0.007 (0.005)
Year count between 2011-2013	-0.008 (0.017)	-0.008 (0.009)	0.003 (0.009)	0.012 (0.012)	0.008 (0.017)	-0.003 (0.010)	0.002 (0.008)	0.015 (0.011)
Year count between 2013-2015	-0.048** (0.017)	0.014 (0.009)	0.015+ (0.009)	0.020+ (0.012)	-0.009 (0.016)	0.025* (0.011)	0.018* (0.008)	0.010 (0.011)
Total \$ revenues (billions)	-0.028+ (0.014)	0.003 (0.016)	0.009 (0.014)	-0.031 (0.024)	-0.024 (0.027)	-0.004 (0.023)	0.021 (0.015)	0.046* (0.021)
Total tenure-track hires (log)	0.013 (0.018)	-0.991*** (0.016)	-1.067*** (0.011)	-0.880*** (0.017)	-0.008 (0.019)	-0.971*** (0.016)	-1.086*** (0.010)	-0.968*** (0.015)
Total number of tenure-line faculty (log)	-0.001 (0.014)	-0.018 (0.012)	-0.003 (0.006)	-0.002 (0.009)	-0.003 (0.012)	-0.025+ (0.013)	-0.007 (0.007)	0.002 (0.008)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.314	0.830	0.863	0.650	0.318	0.814	0.879	0.754

Robust standard errors in parentheses; Models include institution fixed effects.
 *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S10. Spline regression analysis of the log proportion of each demographic group among tenure-track hires

Variables	(1) White men	(2) Black men	(3) Hispanic men	(4) Asian American men	(5) White women	(6) Black women	(7) Hispanic women	(8) Asian American women
Year pre-recession (1999-2007)	-0.028*** (0.003)	-0.001 (0.006)	0.003 (0.005)	0.023*** (0.006)	-0.001 (0.004)	0.009+ (0.006)	0.015** (0.005)	0.048*** (0.006)
Year count during recession (2007-2011)	-0.022** (0.007)	-0.029** (0.010)	-0.011 (0.010)	-0.033** (0.011)	-0.008 (0.007)	-0.026* (0.011)	-0.008 (0.010)	-0.014 (0.011)
Year count after recession (2011-2015)	-0.015+ (0.008)	0.018 (0.012)	0.028* (0.011)	0.039** (0.012)	0.010 (0.008)	0.026* (0.012)	0.023* (0.011)	0.025* (0.012)
Total \$ revenues (billions)	-0.022+ (0.013)	-0.007 (0.062)	0.045 (0.040)	-0.072 (0.059)	-0.022 (0.029)	-0.007 (0.064)	0.057 (0.060)	0.161** (0.061)
Total tenure-track hires (log)	0.813*** (0.019)	-0.541*** (0.034)	-0.662*** (0.031)	-0.244*** (0.037)	0.810*** (0.021)	-0.475*** (0.034)	-0.710*** (0.030)	-0.414*** (0.035)
Total number of tenure-line faculty (log)	-0.004 (0.016)	-0.028 (0.022)	-0.007 (0.019)	-0.008 (0.019)	0.001 (0.012)	-0.043* (0.022)	-0.017 (0.019)	-0.010 (0.020)
Institutions	1,170	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Observations	9,038	9,038	9,038	9,038	9,038	9,038	9,038	9,038
R-squared	0.659	0.333	0.319	0.319	0.594	0.353	0.361	0.306

Robust standard errors in parentheses; Models include institution fixed effects.
 *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table S11. Poisson regression analysis of the number of tenure-track hires from each demographic group

Variables	(1) White men	(2) Black men	(3) Hispanic men	(4) Asian American men	(5) White women	(6) Black women	(7) Hispanic women	(8) Asian American women
Year pre-recession (1999-2007)	-0.026*** (0.002)	-0.015+ (0.008)	-0.004 (0.010)	0.025*** (0.007)	-0.007** (0.002)	0.012 (0.008)	0.008 (0.011)	0.071*** (0.008)
Year count during recession (2007-2011)	-0.016*** (0.004)	-0.016 (0.017)	0.024 (0.020)	-0.021+ (0.013)	-0.001 (0.005)	-0.014 (0.016)	0.014 (0.022)	0.013 (0.014)
Year count after recession (2011-2015)	-0.022*** (0.005)	0.006 (0.021)	0.023 (0.022)	0.003 (0.014)	-0.001 (0.005)	0.026 (0.019)	0.032 (0.023)	0.015 (0.015)
Total \$ revenues (billions)	-0.007 (0.011)	0.052 (0.046)	0.024 (0.048)	-0.036* (0.015)	-0.022 (0.014)	-0.001 (0.053)	0.081 (0.051)	0.006 (0.026)
Total number of tenure-line faculty (log)	-0.004 (0.005)	-0.020 (0.014)	0.051 (0.043)	0.045** (0.015)	-0.000 (0.005)	-0.007 (0.012)	0.002 (0.031)	0.075** (0.025)
Institutions	1,158	753	656	865	1,161	776	655	834
Observations	8,994	6,040	5,396	6,977	9,002	6,203	5,386	6,700
Pseudo R-Squared	0.573	0.306	0.197	0.386	0.487	0.309	0.192	0.303

Robust standard errors in parentheses; Models include total tenure-track hires as the exposure. Observations vary across models due to the inclusion of institution fixed effects.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10.