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Learning about inequality in unequal America: How heterogeneity in college shapes students' beliefs about meritocracy and racial discrimination

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ABSTRACT

As Western nations are increasingly divided by socioeconomic fault lines, how do we learn about the lives of others? Scholarship documents correlates of inequality beliefs but lacks a theoretical framework for studying belief formation. This paper develops an “institutional inference” model describing how adolescents learn about inequality in racially and socioeconomically homogeneous or heterogeneous institutional contexts. The latter expose them to structural sources of inequality that they cannot see in the former. Testing theoretical expectations on ten panels of US college students ($n = 141,597$), I find that: (1) beliefs about meritocracy and racial inequality change substantially in college, (2) the direction of change is shaped by experiences with same-race or different-race roommates, (3) the impact of which is strongest on campuses that otherwise provide limited exposure to heterogeneity. The inferential process that links institutions to beliefs may help explain why Americans have not rallied against inequality: when growing inequality produces socioeconomically homogeneous settings, people cannot experience its full extent.

1. Introduction

The joint growth of income segregation and inequality across Western nations calls attention to the changing conditions of life on each end of the growing divide (Reardon & Bischoff, 2011; Massey & Tannen, 2016; Mijs & Roe, 2021). Alongside the material consequences of this process, there is an important cognitive aspect: as social worlds become both more unequal and more segregated by socioeconomic and racial fault lines, how do people learn about the lives of others? Scholarship is beginning to address this question by describing how individuals make sense of inequality (Engelhardt & Wagener, 2018; Koos & Sachweh, 2019; Mijs, 2021; Mijs & Hoy, 2022; Sachweh, 2012; Bottero, 2019). Understanding how people perceive and explain inequality is important because their beliefs, in turn, are predictive of a host of political attitudes on topics such as healthcare and income redistribution (Kenworthy and McCall, 2008; Lepianka et al., 2010; McCall et al., 2017; Ahrens, 2020).

We have learned a great deal about what people believe and how those beliefs inform their politics, but we lack a framework for understanding how people come to hold different inequality beliefs in the first place. Beliefs range from a meritocratic view of inequalities as the result

of a fair race that was decided by individual hard work alone, to understanding the race as fixed: some people have a much better shot at ‘winning’ than others, because of their skin tone and parents’ resources, among other conditions beyond their control. The former belief is referred to as an individualist or *meritocratic* explanation of inequality, whereas the latter reflects a *structuralist* perspective (Kluegel and Smith, 1986). Scholarship has produced a long list of correlates of inequality beliefs, among which are a person’s social class, nationality, gender, and religion (Hunt, 2007; Croll, 2013; McCall, 2013; Reynolds and Xian, 2014). Scholars have been less successful, however, in explaining these patterns. Moreover, most studies describe inequality beliefs and their correlates without considering the role of institutional context, despite longstanding sociological interest (Blau, 1977; Turner, 1960) and recent calls for research (Hunt, 2016; McVeigh et al., 2014). These lacunae complicate accounting for these studies’ sometimes contradictory conclusions, such as the fact that variables like education and gender are, in some studies, associated with meritocratic beliefs and with structuralist beliefs about inequality in others (for a review of the literature, see Janmaat, 2013; Mijs, 2018).

In contrast to previous studies based on a cross-sectional design or online survey-experiment, I draw on longitudinal data from the United

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States to describe the meso-level foundations of inequality belief formation in an important American institution—college. I suggest that socializing institutions like college shape how adolescents develop an understanding of the society they live in through a process of *institutional inference* (developed in more detail in Mijls, 2018). I study belief formation in college because young adults in this developmental stage are especially open to learning about their society, and beliefs formed at this stage are relatively stable over a person's life span (Alwin & Krosnick, 1991; Stoker & Jennings, 2008). I argue that students explain inequality based on inference from experience and information available in their institutional context. The range and type of available information is limited by recruitment and admission practices which determine a college's exclusivity and heterogeneity (Shanahan, 2000). Specifically, I ask how students develop an understanding of inequality in institutional contexts that vary in the extent to which students have direct experiences with or are exposed to peers from different ethnic, racial, and socioeconomic backgrounds.

My institutional inference framework is informed by the contact hypothesis (Allport, 1954), which posits that exposure to heterogeneity will, given the right conditions, improve people's affective orientation toward out-group members. I deviate from social psychological research on the contact hypothesis in two ways. First, rather than studying exposure to heterogeneity in lab settings or in public places, I investigate belief formation as a process that is situated in the meso-level institutional context that durably conditions people's experiences with and exposure to heterogeneity. My perspective is informed by scholars of the welfare state who have long argued that (national-level) institutions shape how people think and feel about inequality (e.g., Arts and Gelissen, 2001; Larsen, 2008; Rothstein, 1998) and, in particular, by research documenting the institutional correlates of inequality beliefs in schools and neighborhoods, as reviewed in the next section.

In a second point of departure from the contact hypothesis, I theorize that experiences with heterogeneity also matter because they provide people with *information* about the structural processes shaping the society we live in—regardless of whether such experiences make a person more empathetic to the plight of others. Whereas I acknowledge the strong empirical links between cognitive beliefs and inferences about the extent and nature of inequality, on the one side, and intergroup antipathy, prejudice and conflict, on the other (cf. Bobo et al., 1997; Forman & Lewis, 2006; Gilens, 2009; Kinder & Sears, 1981), my focus is squarely on the former. Studying belief formation in college, I believe, is a first step toward evaluating the inferential impact of other institutions and organizations.

To disentangle the mechanisms through which the socioeconomic, ethnic, and racial heterogeneity of college settings may shape young adults' inequality beliefs, I leverage unique longitudinal data from the College Freshman Survey and College Senior Survey to construct ten national panels of students graduating between 1998 and 2010, totaling 141,597 students at 436 colleges across the US. I draw on student fixed-effects regression to analyze how having a same-race or different-race roommate affects change in students' inequality beliefs between freshman and senior year. I then estimate cross-level interaction terms to describe variation in belief change by the racial and socioeconomic composition of the student body. Combining the two analyses provides the empirical grounds for discussing how college gives an institutional context to the development of inequality beliefs, and how this inferential process, in turn, may shape students' civic orientation and political beliefs. I discuss the ramification for the civic role and equalizing promise of college in the conclusion.

2. Meso-institutional foundations of inequality beliefs

Despite the paucity of theorizing about the role of meso-level institutional context in shaping inequality beliefs (but see Bottero, 2019), several findings suggest a close relationship. Minkoff and Lyon's (2018) geocoded survey in New York City finds that residents of economically

heterogeneous neighborhoods perceive higher income inequality than those living in homogeneously poor or rich contexts. Solt et al. (2016), based on nationally representative data, find a similar link between neighborhood composition and beliefs about the causes of inequality in the US: people living in economically homogeneous areas held more meritocratic beliefs than those living in heterogeneous areas. Others report a similar relationship between ethnic homogeneity and individualist beliefs about the causes of ethnic inequality (Croll, 2013) and poverty: residents of homogeneous communities are more likely to think minorities and poor people are themselves to blame for their troubles (Alesina et al., 2001).

These findings suggest that neighborhoods, as institutional contexts, shape inequality beliefs through exposure and experiences across social divides. Lee, Farrell, and Link's (2004) findings indicate that exposure to homeless populations shapes inequality beliefs regarding the causes of homelessness, and Wilson (1996, p. 417) concludes that "personal contacts with the poor constitute another manner in which beliefs that are contrary to the dominant ideological explanation of poverty causation can be constructed." Likewise, Edmiston (2018, p.11) finds that in the absence of interactions, his affluent interviewees displayed a "poor sociological imagination," whereas "[those] who had sustained interaction with, or experience of, structural constraints were much more likely to recognize the factors that might mitigate an individual's responsibility for their situation or actions." These findings may extend to people living in poverty, many of whom, research suggests, underestimate the extent of their deprivation and blame themselves for their circumstances (Cruces et al., 2013).

When taken together, these studies indeed offer a compelling account of the institutional foundations of inequality beliefs. Their cross-sectional design, however, means we cannot establish the direction of causality or identify the mechanism through which exposure to heterogeneity shapes belief formation, nor can we rule out composition and selection effects (Boisjoly et al., 2006:p.1902; Laar et al., 2005:p.329).

Shifting focus to the realm of education may proffer better tools for overcoming these obstacles. The role of institutional context in belief formation is a longstanding concern in the sociology of education. Schools, more than any other institution today, provide the context for children's cognitive, social and moral development, for its presence in children's lives across the Western world is sustained, durable, and compulsory. In other words, schools are sites of socialization that shape collective knowledge and perceptions of legitimacy (Brint et al., 2001; Guhin et al., 2021). These characteristics make schools a fitting starting point for evaluating the role of meso-level institutional spaces in the development of inequality beliefs. I concur with Stevens, Armstrong and Arum (2008, p.132) that "colleges and universities are quintessentially social places, shaping the number, quality, and type of social ties that particular individuals and groups enjoy." This view of college as an 'incubator' for young adults has been powerfully illustrated by recent studies describing how the university setting shapes students' networks as well as the development of their political beliefs, civic attitudes, and racial views (Warikoo & Deckman, 2014; Campbell & Horowitz, 2016; Mendelberg et al., 2017).

More to the point of inequality beliefs, Khan (2010) describes how elite boarding schools and universities instill in students the belief that they (and they alone) merit their academic success. Khan (2010) states: "These privileged students are made into elites by the interactions that consecrate them, by the consistent, generous feedings they receive of their own capacity and promise." If this characterization correctly describes belief formation at some (elite) institutions, we still lack a framework to evaluate how different kinds of colleges induce different kinds of inequality beliefs in their students.

3. How heterogeneity in college shapes inequality beliefs

This paper's focus is on the meso-level institutional context of belief formation, specifically US colleges. The studies reviewed thus far

suggest that a comparative account of the characteristics of colleges associated with belief formation must describe how they enable interactions among students in contexts that can be more or less racially and socioeconomically heterogeneous. A useful distinction of the ways that college introduces students to heterogeneity is between the student body's heterogeneity, constituting *exposure* to heterogeneity, and the frequency and quality of interactions between students in different socioeconomic and racial and ethnic groups, *experienced* heterogeneity (Gurin et al., 2002).

Most of what we know about the impact of heterogeneity relates to direct experiences, since research tends to be situated in a single institution. A methodological starting point for investigating the role of experienced heterogeneity is Boisjoly et al. (2006) study of 1278 white college students in the US who were randomly assigned a roommate. The researchers find that students who were assigned an African American roommate express more positive attitudes toward affirmative action years after college entry, suggesting that close personal experiences with students of a different racial background increases empathy and understanding. Larger panel studies of UCLA students find that the roommate effect holds for all major racial groups (Laar et al., 2005) and that, net of roommate effects, casual, romantic or study-related out-group interactions reduce prejudice and increase egalitarian attitudes (Sidanius et al., 2010). Gurin and colleagues, based on longitudinal data from the University of Michigan, describe how classroom heterogeneity also contributes to the development of students' cognitive and democracy outcomes, defined as "perspective-taking, citizenship engagement, [and] racial and cultural understanding," which are in close proximity to inequality beliefs (Gurin et al., 2002).

4. Exposure, experience and institutional inference

While the findings discussed so far are frequently framed in terms of the contact hypothesis, the mechanism linking heterogeneity experiences to belief change is far from clear (Boisjoly et al., 2006, p. 1902): "Alternatively, one could tell a purely informational story in which whites who believe discrimination is a thing of the past learn otherwise if they are assigned an African American roommate." In line with this perspective, I focus on how inequality beliefs are affected by the intensity and heterogeneity of information a person is exposed to (cf. Mijls, 2018).

I conceive of a process of institutional inference whereby individuals draw from experience and available information to develop an understanding of inequality (Fig. 1). Socializing institutions like college shape this inferential process by providing a durable social context to young adults' interactions with others in this crucial developmental stage. Specifically, through their recruitment and admission practices, colleges determine the exclusivity and heterogeneity of the context in which students learn important lessons about social and racial inequality in the US. Institutional context shapes the development of inequality beliefs by exposing a person to a certain type and range of information, but not to their counterfactuals. Through institutions, a person may gain access to experiential evidence and particular narratives about the meritocratic and structural causes of inequality that lie outside their own biography.

This conceptualization of meso-level institutions' role in belief formation is consistent with Bayesian belief updating through social sampling (Dawtry et al., 2015) and akin to what psychologists refer to as situated cognition: "cognition is situated—not isolated in inner representations and processes but causally interdependent with the current physical and social environment" (Smith & Semin, 2007:p.132). Institutional heterogeneity is a proxy for the type and range of information that students are exposed to either in their school setting (exposure to heterogeneity) or through direct interactions with students different from themselves (experienced heterogeneity). Encounters across racial or socioeconomic lines introduce new information, which may lead emerging adults to re-evaluate their worldview (Laar et al., 2005). This is particularly true in the US where school segregation means that young

adults have limited experiences with heterogeneity before entering college (Clotfelter, 2011).

Racial and socioeconomic heterogeneity provides students with information indicative of the structural sources of inequality in their society, i.e., how race and family background may help or hinder social mobility. An environment with minimal heterogeneity keeps this kind of information from students and does not provide counterevidence to the dominant meritocratic view of society. I thus expect students who are durably exposed to racial and socioeconomic heterogeneity and those who experience it first-hand to develop a more structuralist perspective on inequality over time, whereas I expect students without such experiences to develop a more individualist understanding of inequality.

5. Data and methods

5.1. Data

I analyze data from the Cooperative Institutional Research Program (CIRP) which partners with colleges to survey students about their attitudes and experiences in college. The response rate is very high compared to other surveys, typically above 75%, reflective of colleges' efforts to monitor their students (Eagan et al., 2014). To describe changes in students' beliefs, I combine The College Freshman Survey (TFS), a survey taken before students start college, typically at freshman orientation, and the College Senior Survey (CSS), which is an exit survey taken by those same students in the spring semester of senior year, four years later. The combined panel counts ten cohorts: the class of 1998 through 2006 and the class of 2010, totaling 141,597 students across 436 universities. The analysis of belief in meritocracy is based on the class of 2010, constituting 13,753 students in 99 universities, which is the only cohort of students to whom this question was posed in freshman and senior year.¹

CIRP surveys are taken by a national sample of students across residential four-year colleges in the US, which include elite research universities (e.g., Dartmouth College), highly selective public schools (e.g., University of Michigan—Ann Arbor), and non-selective private and public institutions. Almost 98% of students in the empirical sample are 18 (69%) or 19 (29%) years old in freshman year; a little over 1% is younger than 18, and 1% is 20 years or older. CIRP uses two-stage stratified sampling to select, first, a wide range of universities, and second, to randomly sample students within those institutions. While CIRP brings together a national sample of public, private, selective and non-selective universities, it is not a random sample as the decision to participate in CIRP is made on an institutional level. While this weakens the generalizability of findings, the sample of colleges is both large and diverse, comparing favorably to data used in past research (e.g., Laar et al., 2005; Boisjoly et al., 2006; Sidanius et al., 2010; Mendelberg et al., 2017). Online Appendix A provides a detailed overview of the number, type and typical institutions included in the sample.

5.2. Analytical strategy

I investigate change in students' beliefs about inequality using two-stage panel data, comparing individuals' beliefs at enrolment to those at the time of graduation, four years later. To identify how experiences with heterogeneity may affect belief change over time, I analyze the association between roommate pairing and the over-time change in beliefs, holding constant all time-invariant factors. To this end, I estimate two-way student fixed effects regression models to eliminate the influence of time-invariant factors and to isolate the effect of roommate pairing on over-time (within-student) change in inequality beliefs (see

¹ I use listwise deletion to remove 20,333 cases (12.6 percent) with missing values on one or more of the variables of interest in this study (cf. Mendelberg et al., 2017; Pepinsky, 2018).

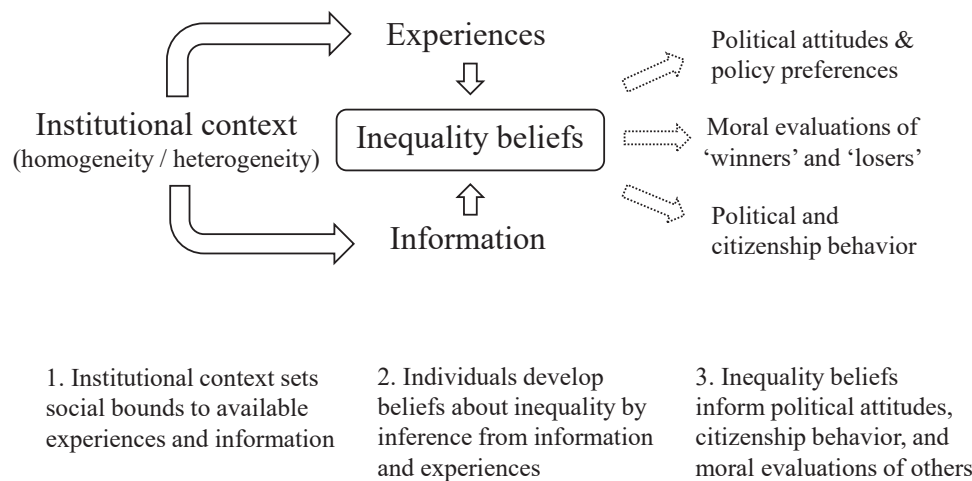


Fig. 1. Institutional inference model of belief formation. *Note.* Arrows with solid lines present theoretical predictions studied in this paper. Arrows with dashed lines present implications discussed in more detail in the conclusion.

Models).

My main focus in this paper is on students' shared living arrangements with a roommate which provide a unique lens into the social and material conditions of another person's life (Laar et al., 2005; Boisjoly et al., 2006). However, I acknowledge that college campuses offer a range of other opportunities for meaningful interactions, including classes, clubs, and sports. To describe the impact of direct experiences with heterogeneity in different institutional settings, I estimate a set of cross-level interaction terms to evaluate how students' beliefs are shaped by their roommate pairing in the context of variable socioeconomic and racial heterogeneity on campus (see *Explanatory variables*).

5.3. Operationalizing inequality beliefs

Given the nature of the data, which were not collected for the sole purpose of studying students' beliefs about inequality, I am limited to two questionnaire items posed to students at freshman orientation (year one) and again in the spring of senior year, thus making possible an investigation of belief change. The statements assess students' understanding of meritocracy and racial equality of opportunity, respectively: "Through hard work, everybody can succeed in American society," and "Racial discrimination is no longer a major problem in America." Responses to these questions on a four-point agree/disagree scale constitute a measure of students' inequality beliefs, where higher scores (agreement) are indicative of an individualist understanding of inequality, and lower scores (disagreement) indicate a structuralist perspective. Despite their limitations, the two responses together help capture the multifaceted nature of inequality in the US: a person could believe that their society is organized in a meritocratic way such that through hard work and effort, anyone can succeed; however, that person could simultaneously believe that there is a racial dimension to the US opportunity structure (cf. Hunt, 2016; Bobo et al., 2012; Mijls, 2018).

To get a first sense of belief change during the college years, we can compare students' beliefs in freshman year to their beliefs in senior (Table 1). Doing so reveals that about half of all students hold on to their beliefs (i.e., the sum of diagonal cells), whereas the other half develops a different understanding of inequality (i.e., the sum of off-diagonal cells). Looking at beliefs about racial inequality, 28% of students has a more structuralist understanding in senior year (i.e., the sum of below-diagonal cells), whereas 21% of students hold a more individualist belief about the causes of racial inequality by graduation (i.e., the sum of above-diagonal cells in grey). Twenty two percent of students grow more convinced that theirs is a meritocratic society, whereas 30% of students develop a more structuralist understanding of inequality.

We can further examine the trend in students' typical beliefs about

Table 1

Stability and change in inequality beliefs over the college years.

"Through hard work, anyone can make it in America"				
Senior year				
Freshman year		Disagree strongly	Disagree	Agree
	Disagree strongly	151 (1%)	295 (2%)	198 (1%)
	Disagree	235 (2%)	1254 (9%)	1047 (8%)
	Agree	57 (<1%)	1409 (10%)	2977 (22%)
	Agree strongly	39 (<1%)	778 (6%)	1691 (12%)
				2180 (16%)
"Racial discrimination is no longer a major problem in America"				
Senior year				
Freshman year		Disagree strongly	Disagree	Agree
	Disagree strongly	31,715 (22%)	16,424 (12%)	3085 (2%)
	Disagree	22,459 (16%)	34,643 (24%)	8071 (6%)
	Agree	4312 (3%)	10,219 (7%)	5487 (4%)
	Agree strongly	803 (<1%)	948 (<1%)	794 (<1%)
				334 (<1%)

Note. Percentages in parentheses. Source: Author's sample of The College Freshman Survey and College Senior Survey 1998–2010. Top: N = 13,753. Bottom: N = 141,597.

racial inequality over the years, 1994–2010. To visualize this trend as well as the belief change happening in college, Fig. 2 plots the average share of students who (strongly) agree that discrimination is no longer a major problem in America and breaks down students' beliefs by their freshman and senior year responses. (Unfortunately, my data for students' belief in meritocracy is limited to one cohort, the class of 2010, hence no trend can be discerned.)

Overall, between 10% and 15% of incoming students in the early nineties think discrimination is a thing of the past, as compared to more than 15% of freshmen in the late 1990s, and almost 20% in the mid to late 2000s. The decrease in structuralist views of racial inequality over time is in line with the trend in beliefs about racial inequality in the broader U.S. population (Bobo et al., 2012), as well as Americans' stable belief in meritocracy (Reynolds and Xian, 2014; Mijls, 2018).

Comparing the beliefs of incoming freshmen and graduating seniors

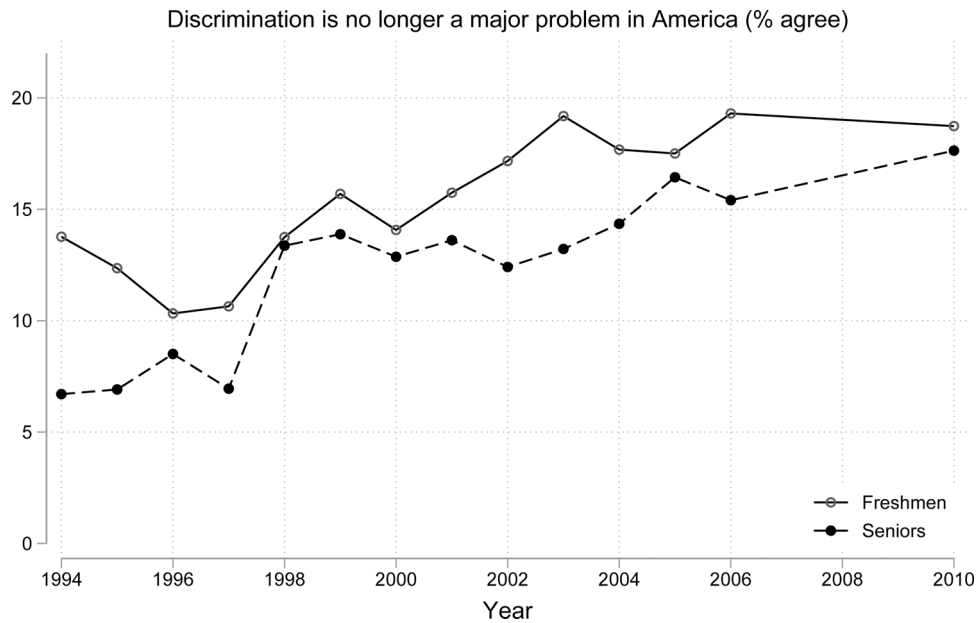


Fig. 2. Trend in beliefs about post-racial America. *Note.* Each point gives the percentage of students in that cohort, by their freshman and senior-year responses, who (strongly) agree that “discrimination is no longer a major problem in America.”.

shows that students typically leave college having developed a more structural understanding of racial inequality. The difference between typical beliefs held in freshman and senior year varies over the years, ranging from over five percentage points in 1994 and the early 2000s, to less than a point in the late 1990s. Among the class of 2010, approximately 77% of students believe in meritocracy in freshman-year, which falls to 67% by senior year.

5.4. Explanatory variables

To investigate how heterogeneity may impact students' beliefs, I measure *heterogeneity experiences* in college by the roommate a student is paired with; comparing students paired with a roommate from a different ethnic or racial background to those who roomed with someone from their own racial or ethnic group. The measure derives from a question posed to students in senior year and distinguishes between those who report having, in one or multiple years, roomed with a different-race student and those who have never. The former constitute 16% of students; the latter describes the other 84%.

With few exceptions, freshman roommate assignment is an exogenous process beyond students' control (Laar et al., 2005; Sidanius et al., 2010). In subsequent years, students typically have the choice to stay or change into a different roommate arrangement. In contrast to studies that draw on detailed information on roommate pairing (Boisjoly et al., 2006), I must rely on students' self-reported roommate situation. While this form of measurement is less ideal than detailed administrative data, it puts my study in a similar position to other studies of roommate effects, with the important difference that my national sample of colleges allow me to draw qualified conclusions about roommate effects for a wide range of schools.

Measures of students' *exposure to heterogeneity* are based on two indicators of the college setting, namely the racial and socioeconomic composition of the student body. Racial composition is based on the number of white and non-white students as a proportion of total enrolment, which I obtain from the U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS). Socioeconomic composition relies on aggregating students' own report of their parents' education. Table 2 gives an overview of all variables.

5.5. Models

I first estimate the over-time change in students' inequality beliefs associated with the roommate pairing by fitting a two-way fixed effects regression of the form

$$Y_{it}^* = \text{race}_i + \beta_1 \text{experience}_{it} + \beta_2 \text{race}_i \times \text{experience}_{it} + \alpha_i + \mu_t + \varepsilon_{it},$$

where Y_{it}^* is the latent dependent variable (inequality belief) for student i at time t , race_i is a time-invariant term indicating the race or ethnicity of student i , β_1 is a coefficient for the time-varying independent variable experience_{it} indicating whether or not a student experienced heterogeneity through a different-race roommate, β_2 is a coefficient for the two-way interaction between a student's race and their experience of heterogeneity; α_i is the student-specific intercept, μ_t is a cohort-specific intercept indicating the college-year, and ε_{it} is the error term. By including a term that is constant over time for each student (α_i), while varying between students, I effectively hold constant all time-invariant factors. This means I condition on freshman-year beliefs about inequality which may vary between those who end up rooming with a different-race roommate and those who do not. The cohort-specific term (μ_t) means I control also for time-varying factors that affect all students within a given college year. This specification allows me to identify the within-student change in inequality beliefs over the college years and estimate its association with experienced heterogeneity. Including an interaction term (race_i) means I estimate how the association between experienced heterogeneity and inequality beliefs varies by students' race or ethnicity.

In the final step of the analysis, I add an additional term for exposure to heterogeneity and an interaction-term to the specification described above to obtain the following equation

$$Y_{it}^* = \text{race}_i + \beta_1 \text{experience}_{it} + \beta_2 \text{race}_i \times \text{experience}_{it} + \text{exposure}_i + \beta_3 \text{race}_i \times \text{experience}_{it} \times \text{exposure}_i + \alpha_i + \mu_t + \varepsilon_{it},$$

where exposure_i is a time-invariant term which indicates the extent to which student i is exposed to heterogeneity through the socioeconomic and racial composition of the student body at their college, and β_3 is a coefficient for the three-way interaction between a student's race, his or her experience with heterogeneity, and their exposure to heterogeneity;

Table 2
Descriptive statistics.

Variables	Mean	Standard Deviation			Years	Source
		Overall	Between	Within		
Inequality belief						
Belief in meritocracy	2.95	0.866	0.726	0.488	2006–2010	TFS & CSS
Freshmen, same-race roommate	3.13					
Freshmen, diff.-race roommate	3.05					
Seniors, same-race roommate	2.86					
Seniors, diff.-race roommate	2.78					
Belief in racial discrimination	1.78	0.762	0.691	0.376	1998–2010	TFS & CSS
Freshmen, same-race roommate	1.84					
Freshmen, diff.-race roommate	1.78					
Seniors, same-race roommate	1.77					
Seniors, diff.-race roommate	1.69					
Experienced heterogeneity						
Different-race roommate	0.36	0.42	0.25	0.34	1998–2010	CSS
Among white students	0.27					
Among Black students	0.36					
Among Asian students	0.63					
Among Hispanic students	0.47					
Exposure to heterogeneity						
Socioeconomic heterogeneity					1998–2010	CSS & CIRP
First-generation institution	0.29					
Heterogeneous institution	0.45					
Multigeneration institution	0.26					
Racial heterogeneity					1998–2010	CSS & CIRP
Majority-minority institution	0.07					
Heterogeneous institution	0.32					
Majority white institution	0.61					
Demographics						
Gender (female)	0.63				1998–2010	CSS & CIRP
Race					1998–2010	CSS & CIRP
White	0.78					
Black	0.06					
Hispanic	0.06					
Asian	0.05					
Other	0.03					
More than one race	0.03					
Mother's education					1998–2010	CSS & CIRP
Less than high school degree	0.04					
High school degree	0.19					
Some postsecondary	0.05					
Some college	0.17					
College degree	0.32					
Some graduate school	0.04					
Advanced degree	0.19					
Private high school	0.20				1998–2010	CSS & CIRP
Family income (in 2010 dollars)					1998–2010	CSS & CIRP
< \$25,000	0.11					
\$25,000 – \$50,000	0.25					
\$50,000 – \$75,000	0.24					
\$75,000 – \$100,000	0.13					
\$100,000 – \$150,000	0.13					
> \$150,000	0.13					
College major					1998–2010	CSS & CIRP
Humanities	0.19					
Life sciences	0.14					
Business	0.21					
Education	0.09					
Engineering	0.09					
Science	0.04					
Social Science	0.21					
Other	0.04					

Note. Demographic variables listed in this table provide sample descriptives but are not included in the fixed effects models. TFS = The College Freshman Survey; CSS = College Senior Survey; CIRP = Cooperative Institutional Research Program.

all other terms are specified exactly as in equation 1. All models are estimated in Stata 17 using the “xtreg, fe” command and include cluster-robust standard errors.

6. The roommate effect on inequality beliefs

As described in [Section 5.3](#), about half of all entering students change their beliefs about inequality over the college years. Thirty percent of

students graduate believing that inequalities in American society are more structural in nature than they thought in freshman year, and twenty percent of students come to believe that there are little to no barriers standing in the way of a person's success.

To study the direction and nature of belief change, this section presents results from student fixed effects regressions to estimate the experienced heterogeneity effect on students' inequality beliefs. The coefficients reported in [Table 3](#), columns 1 and 3, indicate the over-time

Table 3

Within-student change in inequality beliefs by roommate-pairing.

Variable	Meritocracy		Racial discrimination	
	Coefficient (SE) (1)	Coefficient (SE) (2)	Coefficient (SE) (3)	Coefficient (SE) (4)
Different-race roommate	-0.05 ** (.015)	-0.04 * (.017)	-0.08 *** (.004)	-0.04 *** (.004)
Black X Roommate		-0.18 * (.075)		-0.01 (.012)
Asian X Roommate		0.05 (.042)		-0.07 *** (.011)
Hispanic X Roommate		-0.12 * (.053)		-0.07 *** (.011)
Other X Roommate		0.07 (.079)		-0.08 *** (.019)
Mixed X Roommate		0.03 (.044)		-0.05 ** (.014)
College-year (senior) X 1998 cohort			0.01 (.001)	0.01 (.001)
College-year (senior) X 1999 cohort			-0.04 *** (.001)	-0.04 *** (.001)
College-year (senior) X 2000 cohort			-0.02 * (.001)	-0.02 * (.001)
College-year (senior) X 2001 cohort			-0.06 *** (.001)	-0.06 *** (.001)
College-year (senior) X 2002 cohort			-0.14 *** (.001)	-0.14 *** (.001)
College-year (senior) X 2003 cohort			-0.15 *** (.001)	-0.15 *** (.001)
College-year (senior) X 2004 cohort			-0.11 *** (.001)	-0.11 *** (.001)
College-year (senior) X 2005 cohort			-0.05 *** (.001)	-0.05 *** (.001)
College-year (senior) X 2006 cohort			-0.13 *** (.001)	-0.12 *** (.001)
College-year (senior) X 2010 cohort	-0.26 *** (.015)	-0.26 *** (.011)	-0.03 *** (.001)	-0.03 *** (.001)
Constant	3.35 *** (.016)	3.36 *** (.016)	1.82 *** (.002)	1.82 *** (.002)
Rho	0.52	0.53	0.55	0.55
N	13,753	13,753	141,597	141,597

Note. Negative value indicates change toward structuralist inequality beliefs, a positive value indicates change toward an individualist understanding of inequality. Observations are clustered within individuals, the number of whom is given by the N reported at the bottom of the table. Standard-errors in parentheses. *** $p < .001$; ** $p < .01$; * $p < .05$ (two-tailed tests). Source: Author's sample of The College Freshman Survey and College Senior Survey 1998–2010.

(within-student) change in beliefs associated with a different-race roommate pairing, holding constant all time-invariant factors to answer the question, what part of change in students' inequality beliefs can be attributed to their roommate experience? The estimated effect size is about -0.05 points for belief in meritocracy ($p < .01$) and -0.08 points for belief in a post-racial America ($p < .001$), supporting the conclusion that a student with a different-race roommate comes to hold a less individualist, meritocratic, understanding of inequality.

There are two ways to put these findings in perspective. The effects of roommate pairing on inequality beliefs that I report are about an eighth of a standard-deviation of the within-student variation in beliefs; similar in magnitude to the effects of college completion on a person's support for civil liberties and gender equality, as estimated with sibling fixed effects

(Campbell & Horowitz, 2016) or age-period-cohort models (Horowitz, 2015). This suggests that rooming with a person of a different race may have as much impact on a person's beliefs about inequality in America as the (liberalizing) effect of going to college as such.

Alternatively, we could ask what it would mean for public opinion if every college graduate were to have roomed with someone from a different racial background. McCall (2013) calculates that about 53% of Americans report to be satisfied with "the opportunity for a person in this nation to get ahead by working hard." If public opinion would shift by an eighth of a standard-deviation for all 124 million Americans who attended college, satisfaction would drop by 4% and the new consensus (49% agrees, 51% disagrees) would be dissatisfaction. In other words, belief change of this magnitude may prove a political tipping point.

In a second set of analyses, I interact roommate pairing by students' race and ethnicity, to investigate different effects by race and ethnicity (cf. Sidanius et al., 2010). Looking at students' beliefs about meritocracy (Table 3, column 2), I find no evidence to suggest a difference in the roommate effect between white and Asian American students. For the other groups of students, there is a significant interaction effect ($p < .05$) indicating that for Black and Hispanic students, the impact of having a different-race roommate is stronger by an estimated 0.18 and 0.12 points, respectively. Fig. 3 graphically illustrates these variable roommate effects by plotting the predicted values based on the fixed effects regression results, ranging from 1 (strongly disagree) to 4 (strongly agree). By the time they are in senior year, a Black student with a different-race roommate believes less in meritocracy by about 0.22 points, compared to a Black student with a same-race roommate (holding all else constant). The corresponding number is an estimated 0.16 points for Hispanic students.

To put these in context, Fig. 3 reveals that Hispanic students who had a same-race roommate are more believing in meritocracy than white, Asian or Black students. The especially large roommate effect for this group, however, means that Hispanic students with a different-race roommate are not any more believing in meritocracy than white or Asian students. Among Black students the large roommate effect means that those who roomed with someone from a different-race stand out as especially unlikely to believe in American meritocracy, while students who had a same-race roommate hold comparable beliefs to all other groups.

Fig. 4 visualizes cross-group patterns of predicted values for beliefs about racial inequality. White students are relatively most convinced that discrimination is a thing of the past, as compared to Asian, Hispanic, and, especially, Black students. I find no differences in the roommate effect between Black and white students: in both groups, those who had a different-race roommate in college are less convinced that discrimination is a thing of the past than students who roomed with a same-race student, by 0.04 and 0.05 points, respectively (Table 3, column 4). The roommate effect is significantly larger ($p < .001$) among both Asian and Hispanic students, for whom I find a roommate effect of about 0.11 points.

Taken together, the fixed effects models presented in this section describe a roommate effect for most racial and ethnic groups. Notwithstanding baseline differences in beliefs, the effect of having a different-race roommate is the same in sign for majority and minority-group students. These results suggest that durable direct experiences with a person from a different background leads students to hold a less meritocratic understanding of inequality in America, regardless of whether those interactions imply getting to know a person from a majority or minority group.

Beyond this overall pattern, my results point to important between-group differences in the effect size associated with having a different-race roommate. Black and Hispanic students' belief in meritocracy is particularly depressed by experienced heterogeneity as compared to white students as well as Asian students, among whom I do not find a significant roommate effect. Whereas having a different-race roommate leads all groups of students to become less convinced that discrimination

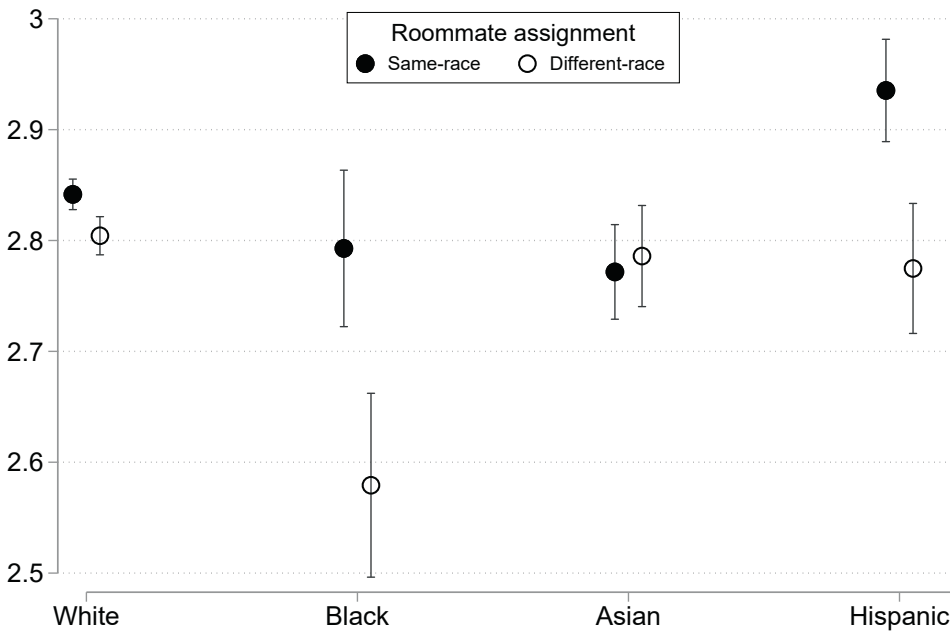


Fig. 3. Predicted belief in meritocracy, by roommate pairing. *Note.* Plotted are predicted values of senior-year students' belief that "through hard work, everybody can succeed in American society" on a four-point scale from 1 (strongly disagree) to 4 (strongly agree), based on fixed-effects regression results presented in Table 3, Model 2. Black circles indicate the predicted belief in meritocracy for students who were assigned a same-race roommate; open circles indicate the corresponding value for students assigned to a different-race roommate. Higher values indicate individualist beliefs; lower values represent a structuralist understanding of inequality. Whiskers give the 95% confidence interval.

Source: Author's sample of The College Freshman Survey and College Senior Survey 2006–2010. N = 13,753.

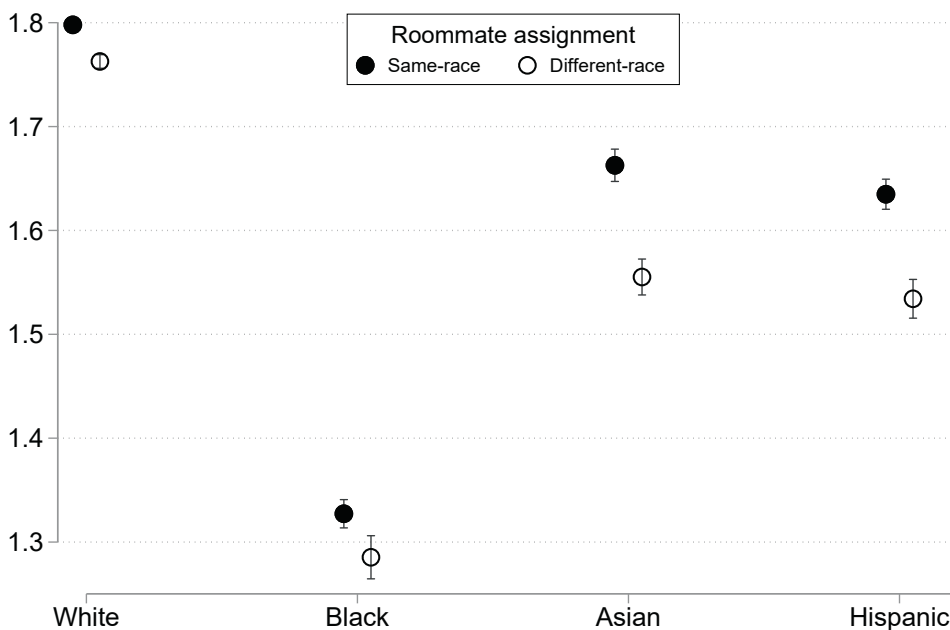


Fig. 4. Predicted beliefs about racial discrimination, by roommate pairing. *Note.* Plotted are predicted values of senior-year students' belief that "racial discrimination is no longer a major problem in America," on a four-point scale from 1 (strongly disagree) to 4 (strongly agree), based on fixed-effects regression results presented in Table 3, Model 4. A black circle indicates predicted beliefs about racial discrimination for students who were assigned a same-race roommate; open circles indicate the corresponding value for students assigned to a different-race roommate. Higher values indicate individualist beliefs; lower values represent a structuralist understanding of inequality. Whiskers give the 95% confidence interval.

Source: Author's sample of The College Freshman Survey and College Senior Survey 1998–2010. N = 141,597.

is a thing of the past, the impact of roommate pairing is felt doubly as strong by Asian American and Hispanic students. I return to this finding in the conclusion.

7. Heterogeneity in experience and exposure

In this section, I ask, how does the impact of experienced heterogeneity differ between institutions that expose students to varying degrees of heterogeneity? Informed by the results presented in the previous section, I include an interaction term to see whether the pattern of

association is different for Black and Hispanic students, as compared to white students.²

Since the vast majority of institutions over the time-period covered by this study have a majority white student body (National Center for Education Statistics, 2018), I used a more restrictive supermajority definition of 'majority white' institutions as those where at least 80% of students is white. I compare these schools to 'heterogeneous' institutions where the proportion of non-white students ranges from 20% to 50% and 'majority-minority' schools where a majority of the student body is non-white. (Findings are robust to alternative specifications.).

² The limited number of Asian students means I do not have the statistical power to separately analyze this group, hence Asian students are omitted from the analyses presented in this section.

Table 4 presents regression results. To visualize key findings, Fig. 5 plots the roommate effect on senior-year students' belief in meritocracy by race, ethnicity and institution attended. Among white students, I find a significant roommate effect (0.06 points; $p < .05$), at majority white institution—the lion's share of schools—but not at other schools (Table 4, model 1). The impact of experienced heterogeneity on Black and Hispanic seniors is similarly moderated by their exposure to heterogeneity: the effect is largest in heterogeneous institutions (0.21 points; $p < .01$) and majority white colleges (0.17 points; $p = .10$), and not significantly different from zero at majority-minority institutions ($p < .05$). Substantively, these findings suggest that the impact of having a different-race roommate is most pronounced in institutions where exposure to heterogeneity is otherwise limited.

Turning to students' belief that racial discrimination is no longer a major problem in America, I find the same pattern among Black and Hispanic students. Among these groups of students, the roommate effect is highest at majority white colleges (0.10 points; $p < .01$) and heterogeneous institutions (0.07 points; $p < .01$) and not statistically significant at majority-minority schools ($p < .05$). Among white students, the roommate effect does not significantly vary across institutions (Table 4, model 2; and see Online Appendix B, Figure B1).

Next, I describe the different impact of experienced heterogeneity across schools varying in socioeconomic heterogeneity. I compare 'first-generation' schools where a majority of students has one or two parents without a college degree, 'multigeneration' institutions where a majority of students has two parents with a degree, and socioeconomically heterogeneous colleges where neither group is in the majority (Table 5).

The results are similar to those reported above, albeit less pronounced. As regards Black and Hispanic students' belief in meritocracy, the roommate effect is moderated by the socioeconomic heterogeneity of their college, ranging from 0.22 points ($p < .01$) at multigeneration

institutions, 0.18 points ($p < .01$) at heterogeneous institutions and no statistically significant effect at first-generation colleges ($p < .05$). For white students, however, I do not find a statistically significant experienced heterogeneity effect on belief in meritocracy at any category of school (Table 5, model 1; and see Online Appendix B, Figure B2).

As visualized in Fig. 6, the effect of experienced heterogeneity on white students' beliefs about racial inequality is monotonously moderated by exposure to heterogeneity: 0.01 points and not significant ($p < .05$) at first-generation schools, 0.04 points ($p < .01$) at heterogeneous institutions and 0.07 points ($p < .01$) at multigeneration colleges (Table 4, model 2). The institutional differences in roommate effects are notably smaller when looking at the roommate effect on Black and Hispanic students' beliefs about racial inequality, which range from 0.05 points ($p < .01$) at heterogeneous institutions to 0.06 at first-generation schools ($p < .01$) and 0.08 at multigeneration colleges ($p < .01$) (Table 5, model 2).

By studying experienced heterogeneity and exposure heterogeneity in conjunction, the results presented in this section document how the effect of the former is moderated by the latter. Substantively, roommate effects are generally largest in majority white institutions and multigeneration schools: direct experiences with heterogeneity most strongly shape beliefs about inequality in colleges where students' exposure to heterogeneity is otherwise limited, such as majority white institutions and schools where most students have college-educated parents. Conversely, such experiences make little or no impact in schools where a majority of peers are non-white and/or first-generation college students.

This pattern is most pronounced for Black and Hispanic students, for whom I find non-significant roommate effects at majority-minority schools. Plausibly, Black and Hispanic students are not impacted much by experienced heterogeneity in settings where exposure to racial heterogeneity is already high. Alternatively, this finding may reflect a heightened awareness of racial discrimination that is cultivated by historically Black institutions and other schools founded with the express purpose of combating racial inequality. I consider the implications of these findings in the concluding section of this paper.

8. Conclusion

This paper has sought to accomplish two objectives: (1) to develop a theoretical framework for describing the meso-level institutional foundations of inequality beliefs, and (2) empirically test expectations derived from this institutional inference framework using US data measuring the development of young adults' inequality beliefs during their college years. I focused on college as an 'incubator' for adolescents and on the ways in which colleges can and do confront students with heterogeneity. Specifically, I have investigated whether students' inequality beliefs are affected by rooming with a student from a different racial or ethnic group (experienced heterogeneity) and by their school's racial and socioeconomic composition (exposure to heterogeneity).

The empirical findings reported in this paper provide a cognitive lens for re-evaluating the equalizing promise of higher education. Research shows that US colleges have become more socioeconomically exclusive and less racially diverse, particularly at the top of the hierarchy (Carnevale et al., 2020). Moreover, the higher education experience greatly varies by students' racial and socioeconomic background; college is a comfortable place for the privileged, but (too) often a struggle for students of more humble origins (Espenshade and Radford, 2009). My findings suggest that the variable setting that students enter, comes to shape their views about American society, their place in it, and the limited or limitless opportunities it affords.

Ironically, the smaller roommate effect for white students means that these students are relatively less likely to develop a structuralist understanding of inequality, while minorities who room with a different-race student become more aware of the challenges they face. This asymmetric impact of heterogeneity experiences is illustrative of a general tendency to focus 'upward' when thinking about inequality and

Table 4
Within-student change in inequality beliefs by roommate pairing and racial heterogeneity of the college.

Variables	Meritocracy	Racial discrimination
	Coefficient (SE) (1)	Coefficient (SE) (2)
Roommate X White X Majority-minority college	0.04 (.060)	-0.04 * (.018)
Roommate X White X Heterogeneous college	-0.00 (.019)	-0.05 *** (.001)
Roommate X White X Majority white college	-0.06 * (.024)	-0.05 *** (.001)
Roommate X Black/Hispanic X Majority-minority college	-0.01 (.102)	-0.01 (.021)
Roommate X Black/Hispanic X Heterogeneous college	-0.21 *** (.053)	-0.07 *** (.013)
Roommate X Black/Hispanic X Majority white college	-0.17 † (.100)	-0.10 *** (.013)
College-year (senior)	-0.27 *** (.011)	-0.06 *** (.002)
Constant	3.43 *** (.041)	1.76 *** (.013)
Rho	0.53	0.55
N	13,753	141,597

Note. Coefficients give the experienced heterogeneity effect associated with a different-race roommate pairing for combinations of students' race and exposure to heterogeneity in the college setting, calculated from fixed-effects regression models with interaction-terms as detailed in the Measurement Models section. Negative value indicates change toward structuralist inequality beliefs; a positive value indicates change toward an individualist understanding of inequality. Observations are clustered within individuals, the number of whom is given by the N reported at the bottom of the table. Standard-errors in parentheses. *** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed tests). Source: Author's sample of The College Freshman Survey and College Senior Survey 2006–2010. N = 13,753 (Meritocracy) and N = 141,597 (Racial discrimination).

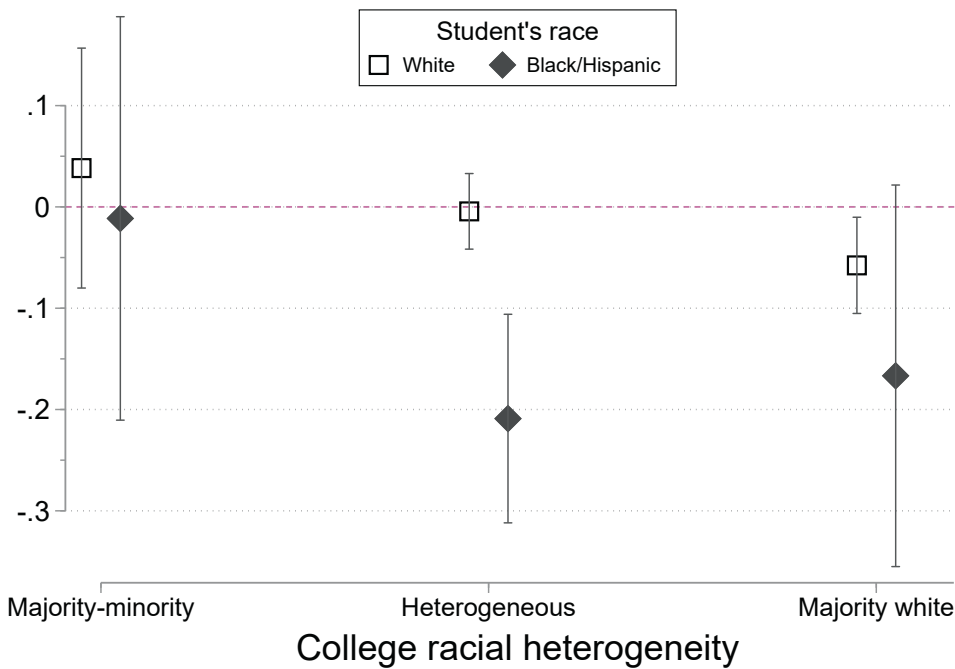


Fig. 5. Effect of experienced heterogeneity on belief in meritocracy by student race and exposure to racial heterogeneity. *Note.* Plotted are the roommate effects on senior-year students' belief that "through hard work, everybody can succeed in American society," for combinations of roommate pairing (experienced heterogeneity), category of school (exposure to racial heterogeneity), and students' race or ethnicity. Open squares report coefficients for white students, grey diamonds for Black and Hispanic students. Negative values indicate change toward structuralist inequality beliefs; a positive value indicates change toward an individualist understanding of inequality. Whiskers give the 95% confidence interval.

Source: Author's sample of The College Freshman Survey and College Senior Survey 2006–2010. N = 13,753.

Table 5
Within-student change in inequality beliefs by roommate pairing and socioeconomic heterogeneity of the college.

Variables	Meritocracy	Racial discrimination
	Coefficient (SE) (1)	Coefficient (SE) (2)
Roommate X White X First-generation college	0.01 (.046)	-0.01 (.008)
Roommate X White X Heterogeneous college	-0.03 (.019)	-0.04 *** (.005)
Roommate X White X Multigeneration college	-0.01 (.025)	-0.07 *** (.006)
Roommate X Black/Hispanic X First-generation college	-0.01 (.108)	-0.06 *** (.017)
Roommate X Black/Hispanic X Heterogeneous college	-0.18 ** (.058)	-0.05 *** (.012)
Roommate X Black/Hispanic X Multigeneration college	-0.22 ** (.073)	-0.08 *** (.015)
College-year (senior)	-0.26 *** (.011)	-0.06 *** (.002)
Constant	3.52 *** (.024)	1.84 *** (.006)
Rho	0.53	0.55
N	13,753	141,597

Note. Coefficients give the experienced heterogeneity effect associated with a different-race roommate pairing for combinations of students' race and exposure to heterogeneity in the college setting, calculated from fixed-effects regression models with interaction-terms as detailed in the Measurement Models section. Negative value indicates change toward structuralist inequality beliefs; a positive value indicates change toward an individualist understanding of inequality. Observations are clustered within individuals, the number of whom is given by the N reported at the bottom of the table. Standard-errors in parentheses. *** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed tests). Source: Author's sample of The College Freshman Survey and College Senior Survey 2006–2010. N = 13,753 (Meritocracy) and N = 141,597 (Racial discrimination).

people's higher attentiveness to personal disadvantages than those facing others (Fiske, 2012; Hecht, 2021). To the students involved, a single heterogeneity experience may reveal both privilege and disadvantage, but another person's privilege is easier to recognize than one's own.

Further, what constitutes an eye-opening experience for some, can be a draining and psychologically costly confrontation for another.

This process of institutional inference has ramifications for the underappreciated civic role—especially the integrative function—that college could play in the lives of young adults. Historically, colleges have had the mission to educate young citizens ('tomorrow's leaders') about their country's past and present, the democratic process, and their part in it. They have the potential, more generally, to broaden students' perspectives and increase intergroup understanding (Gurin et al., 2002). Currently, however, a majority of students receives only limited exposure to socioeconomic and racial heterogeneity, both directly and in the campus environment. For many students, then, increasing diversity in the overall population is met with social isolation in the microcosm of higher education. In the absence of heterogeneity exposure, students come to develop a naïve understanding of American meritocracy in a country that is increasingly divided along racial and socioeconomic lines. For these students, the college experience undermines rather than serves the civic role of higher education.

As such, colleges may reinforce inequality in at least two ways. First, by providing skills and credentials to some people, but not others, they increase the income and wealth gap that separates graduates from the 70% of Americans without a degree (Carnevale et al., 2020). Second, the institutional inference process described in this paper means that homogeneous colleges create settings in which tomorrow's educational elite learns to legitimize this growing financial gap as meritocratically deserved.

More exposure to heterogeneity creates conditions under which students can develop an awareness of the structural processes shaping inequality. The potential of heterogeneity experiences however is subject to students' preferences—some actively try getting to know their peers from different backgrounds, while others avoid it. A purposeful roommate assignment strategy that maximizes heterogeneity helps overcome issues of self-selection and self-sorting. My findings suggest that roommate pairing can be an effective means through which administrators can create conditions for heterogeneity experiences. Be it through purposeful roommate assignment, admission policies, or recruitment efforts, an environment that better reflects the diverse American population would impact the perspective of 20+ million students currently in college and, with it, public opinion, which research

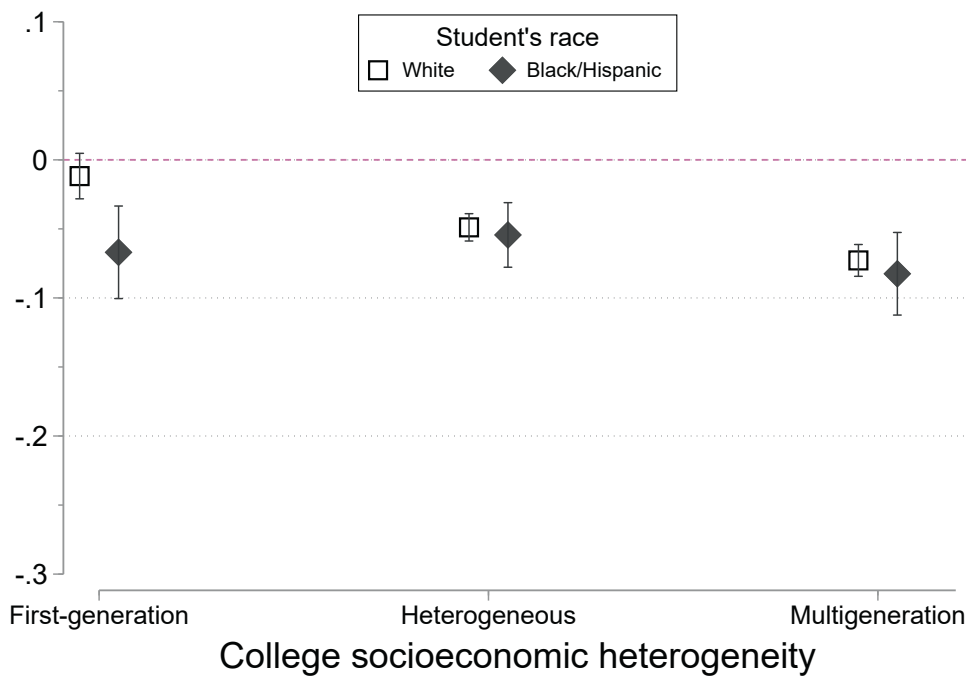


Fig. 6. Effect of experienced heterogeneity on beliefs about racial discrimination by student race and exposure to socioeconomic heterogeneity. *Note.* Plotted are the roommate effects on senior-year students' belief that "racial discrimination is no longer a major problem in America," for combinations of roommate pairing (experienced heterogeneity), category of school (exposure to socioeconomic heterogeneity), and students' race or ethnicity. Open squares report coefficients for white students, grey diamonds for Black and Hispanic students. Negative values indicate change toward structuralist inequality beliefs; a positive value indicates change toward an individualist understanding of inequality. Whiskers give the 95% confidence interval.

Source: Author's sample of The College Freshman Survey and College Senior Survey 1998–2010. N = 141,597.

suggests is approaching a tipping point: only a slim majority of Americans currently expresses satisfaction with the opportunity that their society affords a person to get ahead by working hard (McCall, 2013).

As is, the growing exclusivity and socioeconomic homogeneity of college means that the non-graduate population is also becoming increasingly socioeconomically homogeneous. Low-wage labor markets in particular have become increasingly homogeneous for low-educated workers from poor and minority backgrounds (Kalleberg et al., 2000). By isolating low-wage workers from high-wage workers and from seeing the advantages that their education and socioeconomic background affords them, segregated labor markets may reinforce meritocratic beliefs—in parallel to how Alford Young (2006, p. 59) describes the impact of social isolation for the young Black men he interviewed: "These men, who had virtually no sustained social exposure outside of their community, were unable to register a strong sense of how race or other factors operate as social forces." Paradoxically, then, as the US looks more unequal to the outside observer, people are increasingly less likely to appreciate the breadth of the gap that separates their lives from those of others—not despite but because of the size of the gap.

This study is not without its limitations. My measurement strategy vis-à-vis roommate pairing constitutes an approximation rather than perfect case of an exogenous treatment given that I was unable to independently verify that the process through which students are paired with other students is random, as in Boisjoly et al. (2006). As such, I urge caution in interpreting the results of this study as causal, as would be the case for a true field-experimental design. Note however that for the purpose of this study, the key aspect of the roommate pairing process is that freshmen had no say in whether they would be rooming with a persons of a different race, which research suggests is true at most every college in the US (cf. Sidanius et al., 2010; Laar et al., 2005).

I acknowledge also the relatively crude measurement of 'different-race roommate.' Data limitations meant I could not distinguish between various possible pairings of race and ethnicity nor consider the variety of living arrangements in which students may be living with one, two or more roommates. Variation in roommate pairing may produce interesting effect heterogeneity which this paper has been unable to explore; neither was I able to study variation in living arrangements which plausibly proxy for the degree of exposure and strength of the roommate effect. Consider also the many alternative settings (e.g., classrooms,

sports, clubs, dating) in which a student may have experiences with or be exposed to heterogeneity (cf. Sidanius et al., 2010). These time-varying sources of experiences and exposure pose a challenge to this study's fixed effects design. Further, given that I can draw on just two observation points, it is difficult to fully isolate students' time-constant characteristics from within-individual changes over time.³

Another limitation regards the theoretical mechanism producing belief change which, as in most every study, I could not directly observe. For instance, I cannot rule out that the comparatively smaller roommate effect among white students may obfuscate what could in fact be two countervailing processes of belief change. Such would be the case if exposure to heterogeneity made some students more appreciative of the structural nature of American inequality, as hypothesized, whereas for others it provided 'proof' that race is not an obstacle to college admission, thereby reinforcing their belief in meritocracy.⁴ In other words, the meaningful belief change across racial and ethnic groups that I empirically document may hide heterogeneity *within* those groups in the nature of change and the mechanisms driving it. To policymakers, then, I would stress the need to organize heterogeneity experiences in ways that broaden students' cognitive understanding of the causes of inequality rather than confirm racial or social class stereotypes. This is where lessons learned from decades of scholarship on the contact hypothesis may prove particularly helpful (Pettigrew & Tropp, 2006; Tropp et al., 2022).

A final limitation to note is the scope of this study which does not include the non-college-going population, whose beliefs about inequality tend to be quite different from those of the study population (Mijls, 2018). Focusing on college as an incubator for young adults (cf. Stevens et al., 2008) also means skipping past the formation of inequality belief in childhood and early adolescence, whereas studies suggest that young kids already hold fairly crystalized beliefs about inequality, race, and merit (Almås et al., 2010; Chafel & Neitzel, 2005; Elenbaas & Killen, 2017; McKown, 2004) and that experienced heterogeneity in early life can shape beliefs in adulthood (Eger et al., 2022; Reynolds & Carr, 2022; Berinsky et al., 2022). In light of these studies, it

³ I thank an anonymous reviewer for making this point.

⁴ I thank an anonymous reviewer for suggesting this interpretation.

is reassuring that I still found considerable belief change during the college years—half of all students developed a different understanding of inequality between freshman and senior year—as well as evidence of a consistent impact of experienced heterogeneity. I hope these reflections provide directions for further research and improved methodological strategies.

The institutional inference model developed in this paper sets up a sociological approach for assessing how belief formation is impacted by the meso-level institutions people are embedded in and provides an organizing framework for the study of inequality beliefs. It helps bring together experimental evidence from disparate settings that invariably describes how exposure to and experiences with heterogeneity can foster a more structural understanding of poverty and inequality (Mo & Conn, 2018; Rao, 2019).

It adds an important insight to the burgeoning study of Americans' complex political beliefs (McCall, 2013), especially the question of why people have been unwilling to politically address inequality: institutional inference is the link between the changing institutional landscape of America and citizens' beliefs about inequality. The fact that life in America is increasingly organized in homogeneous institutions—neighborhoods, schools, workplaces—helps explain why social science research and news reporting on inequality have not resonated with people's experiences (Mijis and Roe, 2021). Neither the poor, isolated in inner-city neighborhoods, attending public school or consigned to low-wage labor markets, nor the rich, in their homogeneous suburbs, school and work settings, are able to see the full extent of inequality in America.

Declaration of Competing Interest

None.

Data Availability

The CIRP Freshman Survey and CIRP College Senior Survey on which this paper is based are anonymized secondary data collected and archived through the Cooperative Institutional Research Program at UCLA's Higher Education Research Institute. Data up to 2008 are publicly available for students and researchers at <https://heri.ucla.edu/heri-data-archive>. More recent data are available to researchers upon request, following submission of a research proposal.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.rssm.2023.100814](https://doi.org/10.1016/j.rssm.2023.100814).

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