Exploring the Relationship between Demographic Isolation and Professional Experiences of Black and Latinx Teachers

Susan Kemper Patrick, PhD, American University

Francisco Arturo Santelli, Vanderbilt University

Abstract: Educational leaders throughout the United States have repeatedly emphasized the importance of increasing the number of Black and Latinx teachers in American schools. Prior qualitative work suggests that Black and Latinx teachers who are demographically isolated in their schools often report negative experiences. Drawing on theories of proportional representation in organizations, we use Tennessee statewide survey and administrative data to examine whether self-reported professional experiences of Black and Latinx teachers are different when they are demographically isolated. We estimate models using two measures of demographic isolation: a continuous measure and a theoretically generated ordinal measure. We find that, for Black teachers, the percentage of Black teachers in the school is positively associated with teachers' perceived satisfaction and support and with the frequency of collaboration. There is also some evidence of threshold effects of demographic isolation for Black teachers, as Black teachers in schools in which at least 60% of fellow teachers are Black report significantly higher satisfaction and support than other Black teachers. Our models do not find any associations between isolation and professional experience for Latinx teachers, but a small sample size and lack of variation in demographic isolation among Latinx teachers makes it difficult to estimate these associations. Our findings suggest that both ordinal and continuous measures of demographic isolation may be useful when examining relationships between demographic isolation and workplace experiences. Because we study factors linked to turnover in prior research, these analyses can contribute to the broader discussion about the retention of Black and Latinx teachers.

Keywords: isolation, relational demography, social isolation, Black teachers, Latinx teachers

This is the working paper version. Citation for the final published version:

Patrick, S.K., & Santelli, F.A. (2022). Exploring the Relationship between Demographic Isolation and Professional Experiences of Black and Latinx Teachers. *Journal of Education Human Resources, 40*(2), 138-168. https://doi.org/10.3138/jehr-2021-0042

Introduction

Policy makers and researchers have increasingly paid attention to large representational gaps between Black and Latinx teachers and students (Ingersoll et al., 2019; U.S. Department of Education, 2016). While Black, Latinx, and White students compose the three largest racial/ethnic groups in U.S. schools, Black and Latinx teachers are underrepresented in the teaching workforce (The Education Trust, 2020; U.S. Department of Education, 2016). Research suggests that students benefit from having demographically congruent teachers, in ways including higher student achievement (Egalite et al., 2015; Joshi et al., 2018), more equitable disciplinary outcomes (Lindsay & Hart, 2017), and increased postsecondary attendance rates (Gershenson et al., 2018). Thus, closing representational gaps by hiring and retaining more Black and Latinx teachers is one way to improve educational experiences for Black and Latinx students. Structural barriers, such as lower rates of college entrance and low representation in education training programs, may restrict new Black and Latinx teachers entering the profession (Ahmad & Boser, 2014; Redding & Baker, 2019). While the numbers of new Black and Latinx teachers have somewhat increased over the past four decades (U.S. Department of Education, 2016), many schools continue to struggle to retain their current teachers of color (Achinstein et al., 2010; Ingersoll et al., 2019).

Recent analyses using the Schools and Staffing Survey find that teachers of color leave at higher rates than White teachers nationally (Carver-Thomas & Darling-Hammond, 2019; Ingersoll et al., 2019). Research on teacher turnover underscores the importance of supportive working environments—especially administrative support, peer collaboration, and teacher autonomy/influence—in predicting which teachers remain in their schools or in the profession (Borman & Dowling, 2008; Carver-Thomas & Darling-Hammond, 2019; Ingersoll et al., 2019; Nguyen et al., 2020). Ingersoll et al. (2019) finds that predictive relationships between working conditions and turnover are stronger for teachers of color. Similarly, Sun's (2018) analysis in North Carolina reports that higher-performing Black teachers were more likely to be retained in schools with higher teacher ratings of principal leadership and professional development. Black teachers also have reduced job satisfaction and heightened turnover intentions in racialized school climates, where they experience race-based stress, microaggressions, and isolation (Frank et al., 2021; Grooms et al., 2021). Other research indicates that Black teachers may be particularly likely to leave their schools when the teaching staff is predominantly White and may seek school environments with higher proportions of Black students and teachers (Frankenberg, 2009; Ravenell et al., 2018; Sun, 2018).

Theories of social isolation and demographic difference in organizations provide insight into these patterns. Kanter's (2008) theory of proportional representation in organizations posits that workers in "skewed groups," with less than 15% representation in a workgroup, are tokenized and experience heightened visibility and exclusion in the workplace. Bristol (2020b) has extended on Kanter's work by exploring variation in experiences for workers within skewed groups. Focusing on demographically isolated Black male teachers, he found that teachers who were the only Black males on faculty reported more social isolation than those who worked with other Black male teachers but were still in the numerical minority. Our data indicate that a large proportion of Black and Latinx teachers in Tennessee

are demographically isolated, which we define as being one of few teachers with a certain demographic trait in their school.

Qualitative researchers have explored how demographic isolation may shape the workplace experiences of Black and Latinx teachers. Black teachers reported having more restricted social networks, expectations to take on tokenized disciplinary roles, little respect for their pedagogical expertise among peers, and fewer opportunities to participate in leadership roles (Bristol & Shirrell, 2019; Brown, 2012; Nelson, 2019). Latinx teachers reported similar experiences with marginalization in schools where they were demographically isolated, as well as expectations to perform additional work with language translation and taking care of immigrant students (Arce, 2004; Flores, 2011). Despite these challenges, demographically isolated Black and Latinx teachers also describe benefits of their roles, such as working in schools with advantageous working conditions (e.g., smaller class sizes, more resources, and professional autonomy) and developing a sense of pride by better serving demographically similar students (Achinstein et al., 2010; Bristol, 2020a; Flores, 2015, 2017; Kelly, 2007).

In this paper, we draw on Kanter (2008) and Bristol's (2020b) theories, as well as the relational demography literature, to develop multiple quantitative measures of isolation for teachers based on workplace demographic representation. Using four years of statewide survey and administrative data from Tennessee, we examine how aspects of Black and Latinx teachers' professional experiences—namely, perceptions of administrative support, climate, satisfaction, and collaboration—vary across levels of demographic isolation. We explore aspects of teachers' professional experiences linked to turnover among Black and Latinx teachers in prior research (Ingersoll et al., 2019; Sun, 2018). Because Black and Latinx teachers are often underrepresented and demographically isolated in schools (The Education Trust, 2020), these analyses may inform broader discussions among practitioners and policy makers about how to improve demographic representation among teachers. In the following section, we situate our analysis in theoretical work on demographic isolation and relational demography.

Theories of Demographic Isolation in the Workplace

In her seminal study of gender dynamics within a large corporation during the 1970s, Rosabeth Kanter explored how organizational structures and numerical representation hampered women's professional opportunities. Kanter (2008) developed three classifications for group types, categorized by ratios of two social groups in the workplace. Balanced groups have a 60:40 to 50:50 composition of two social groups, where each is considered a "potential subgroup" and has considerable influence over the organization. Tilted groups occur when there is approximately a 65:35 ratio of two groups, with a "majority" and "minority" group. Skewed groups have more extreme distributions, composed of an 85:15 ratio of two groups, with the majority group called "dominants" and those in the minority called "tokens."

Kanter (2008) argued that organizational minorities in skewed groups—or tokenized workers—had workplace experiences that limited their professional opportunities. Kanter outlined three main consequences of tokenized status: performance pressures, boundary heightening, and role encapsulation. Performance pressures referred to the necessity for tokenized workers to perform jobs

"under public and symbolic conditions different from those of the dominants" (p. 212) including hypervisibility in the organization. Boundary heightening occurred when dominants, feeling a threat to their casual ways of being in the workplace due to the presence of tokenized workers, participated in exclusionary practices to maintain comfort and dominance. Tokenized workers also faced role encapsulation, which is being placed in limited roles aligned with generalizations about their group and provided with limited ability to take substantive action in the organization. These experiences contrast with workers in balanced or tilted groups. Kanter posits that treatment of workers in balanced groups depends more on general working conditions or personal factors than on group membership. Minority workers in tilted groups may still be excluded by majority workers but can generate alliances and coalitions that mitigate adverse working experiences.

One limitation of Kanter's work is the minimal attention to the experiences of "solos," or those who are the only members of their groups. Bristol (2020b) has expanded on Kanter's theories by examining how experiences vary within skewed groups. In a phenomenological study exploring the work experiences of Black male teachers, he developed two classifications for teachers in the numerical minority: "loners," who were the only Black male teachers on faculty, and "groupers," who were one of a few Black male teachers on faculty but still in the numerical minority. He found that loners experienced more social isolation and tokenizing experiences in the workplace than groupers. Groupers felt more connected with their peers and had stronger relationships with both Black and White teachers. His findings demonstrate the need to consider heterogeneity of teachers' experiences when they are in the numerical minority.

Kanter focuses on one case—women in professional roles in corporations—but posits that proportional representation would operate similarly in other situations in which organizational members comprise two subgroups.[1] Therefore, the classification of group types—and not the specific identities of group members—are privileged as the most important determinant of workplace experiences. This conceptualization has been criticized for ignoring workers' broader context and historical power dynamics in society (Acker, 1990), and it does not account for organizational members' multiple and intersecting identities. Relational demography theories further consider how the relationship between an individual's own attributes (e.g., age, race, gender, tenure) and the composition of their workgroup influences their job attitudes, performance, and turnover (Tsui & O'Reilly, 1989). In particular, relational demography posits that similarity among organizational members can engender more positive work interactions and greater organizational attachment. When individuals experience greater dissimilarity with their workgroups (because they have fewer colleagues who share their attributes), they tend to perceive more conflict, hold their workgroups in lower regard, report lower satisfaction, and turn over more often (Jackson et al., 1991; Tsui et al., 1992). Empirical work using this conceptual lens typically examines how perceptions and professional outcomes vary based on the degree of similarity between individuals' demographic characteristics (e.g., race/ethnicity) and their workgroups' demographic composition (e.g., percentage of workgroup of a given race/ethnicity; Riordan & Shore, 1997).

[1] Kanter, writing in the 1970s, presented gender as a binary, but most sociologists now consider gender a more complex social identity.

Taken together, these theories suggest that workers will have more negative experiences when they do not share demographic attribute(s) with their co-workers. In this paper, we focus on one aspect of demographic isolation—isolation by race/ethnicity—among teachers. We hypothesize that Black and Latinx teachers have adverse professional experiences when they work in schools in which they are demographically isolated by race/ethnicity, especially when they are solos (i.e., the only teachers in their schools with their race/ethnicity) or work in skewed groups (i.e., when less than 15% of teachers in their schools share their race/ethnicity). Next, we review qualitative research on experiences of Black and Latinx teachers when they are demographically isolated.

Qualitative Research on Demographically Isolated Teachers

Consequences of Token Status in Schools for Black and Latinx Teachers

Qualitative work on demographically isolated Black and Latinx teachers—often situated in Kanter's (2008) theories of proportional representation—provides deeper insights into how teachers experience being one of the only teachers in their school identifying with their race/ethnicity. In a phenomenological study, Bristol and Goings (2019) examined boundary-heightening experiences of Black male teachers. Their participants reported that their organizational fit and pedagogical expertise were often questioned by White colleagues. The teachers described participation in "superficial boundary crossing" (p. 59) by attempting to interact with White colleagues on positive terms, finding that White colleagues were often uncomfortable and rebuffed these attempts. In her ethnographic study of Latina teachers in two California districts, Flores (2011) found that Latina teachers were excluded from socialization with White teachers and had attempts to employ their culture in the classroom questioned by peers and administrators. Similarly, Bristol and Shirrell (2019) and Nelson (2019) found that demographically isolated Black teachers had fewer social connections in their school than those who taught in schools with more Black teachers. In these studies, demographically isolated Black and Latinx teachers consistently reported discriminatory and exclusionary experiences that had adverse effects on their professional status.

Other work has described role encapsulation among Black and Latinx teachers. Brown (2012) discussed this phenomenon among Black male teachers and highlighted how Black male teachers were expected by fellow educators to improve the educational prospects of Black boys, while their general pedagogical expertise was ignored. Black male teachers interviewed by Bristol and Mentor (2018) reported that they were "uniquely responsible for managing student misbehavior" (p. 225) and expected by peers and administrators to be disciplinarians for Black boys. Demographically isolated Latina teachers were similarly asked by colleagues and administration to fill roles aligned with ethnic stereotypes, including language translation and care duties for immigrant students (Flores, 2011). As Brown (2012) argues, these role expectations are aligned with stereotypes of ethnic and racial groups, leaving Black and Latinx teachers to perform narrow roles that devalue their general pedagogical expertise and increase their workloads.

Finally, this research illustrates performance pressures felt by demographically isolated Black and Latinx teachers, who often expressed frustration that they had to act inauthentically to meet expectations set

by colleagues and administration. In Flores (2011), demographically isolated Latina teachers took on a "`professional' disposition with their white colleagues" (p. 325) and felt constrained by administration and peers in their ability to speak Spanish or employ their culture in the workplace. Black male teachers expressed an inability to act authentically in schools, which some linked to avoiding the "social perception of Black men as angry" (Bristol, 2020b, p. 298). This work highlights how demographically isolated Black and Latinx teachers felt that they must constrain expressions of their identity when demographically isolated in the workplace.

Variation in the Experiences of Isolated Teachers

While Kanter (2008) posited that tokenized workers have similar experiences regardless of identity, more recent research finds that demographic isolation leads to adverse workplace experiences specifically for teachers who experience more systematic discrimination in society. For example, Nelson (2019) explored the asymmetrical experiences of demographically isolated White and Black teachers. Demographically isolated White teachers—who were in the numerical minority in their schools but in the numerical majority in larger society—received more personal social and professional resources from their same-race networks than demographically isolated Black teachers. Black teachers in the numerical minority in their school were often excluded from White teachers' social networks and separated geographically from their department colleagues to teach in high-traffic areas, where they were expected to serve as disciplinarians.

Importantly, Black and Latinx teachers are not monolithic; while expectations for teachers may be rooted in racial, ethnic, and gender stereotypes, teachers' own perceptions of identity and responses to stereotyped expectations vary. Instead of using panethnic identifiers (e.g., Latinx), Latinx Americans often prefer to identify with their countries of origin or as Americans (Taylor et al., 2012; Viano & Baker, 2020) but may be pushed to perform an American Latinx identity as they experience legal and social marginalization in American society (Bowman, 2001). There are also differences in interpretations of identity between first- and second-generation immigrants from Latin American countries (Cooper et al., 2009; Portes & MacLeod, 1996). Personal ideologies and interpretations of workplace conditions also vary among demographically isolated teachers. In an extended case study of Black teachers in majority White schools, Kelly (2007) found that some Black teachers embraced a traditional civil rights ideology that included a belief in their ability to mitigate racist attitudes through interpersonal interactions. This work illustrates how stereotypes imposed upon demographically isolated teachers and their own sense of identity shape workplace experiences.

Working conditions and student demographics are another source of variation in demographically isolated teachers' experiences. In Bristol (2020a), loner Black male teachers often reported better working conditions, such as smaller class sizes and more autonomy, than grouper teachers. They were less likely to turn over than grouper teachers in the study, despite describing more negative interactions with White teachers. Arce (2004) interviewed Latinx bilingual teachers who felt socially and politically isolated, while other similarly situated teachers felt that isolation afforded them independence to employ emancipatory pedagogy. Student demographics is another factor associated with differences in experiences. In her research with Latina teachers, Flores (2015, 2017) highlights how teachers in her

study employed Chicana/Latina cultural pedagogy incorporating immigrant narrative scripts and creating cultural activities for students. While resulting in additional work, Latina teachers said the work was "a source of professional gratification" and not an additional burden (Flores, 2017, p. 322). In Achinstein et al.'s (2010) review of research on retention of teachers of color, they found that teachers of color often reported that working with students of color was a primary reason for staying in the profession.

Taken together, qualitative research on demographically isolated teachers displays the diversity of factors contributing to teachers' professional experiences. While tokenized teachers experience performance pressures, role encapsulation, and boundary heightening, those experiences are not mechanical consequences of demographic isolation. Working conditions and teaching context also shape how demographically isolated teachers experience the workplace. This research also suggests that the consequences of demographic isolation are more salient for Black and Latinx teachers than for White teachers due to racial and ethnic stereotyping that leads to discriminatory and exclusionary workplace experiences. Much of the existing qualitative research focuses on a small number of demographically isolated teachers across a few teaching contexts—often situated in large urban districts or in schools in California and the northeastern United States. As a result, it is difficult to disentangle how demographic isolation and teaching context may interact to influence the professional experiences of teachers. In this study, we explore the relationships between demographic isolation, teaching context, and professional experiences using statewide administrative and survey data in Tennessee.

Data and Methods

Our analysis is a descriptive study with two objectives: (1) to present multiple methods of measuring demographic isolation using a large administrative dataset and (2) to explore whether isolation is associated with differences in Black and Latinx teachers' perceptions of administrative support and professional satisfaction, collaboration, and intent to stay in their school. In the following sections, we review the context, data, measures, and analytic methods.

Context and Data

This study used statewide administrative and survey data from Tennessee collected by a partnership between the Tennessee Department of Education (TDOE) and the Tennessee Education Research Alliance (TERA). Tennessee educates approximately one million students within 1800 public schools, and the state employs about 65,000 classroom teachers. Mirroring the demographics of the US teaching force, Tennessee's teachers are overwhelmingly White and mostly women (U.S. Department of Education, 2016). While about one-third of Tennessee's students are Black or Latinx, only 11% of teachers are Black and only 1% are Latinx (Tennessee Department of Education, 2018). Prior research in Tennessee found that Black teachers are more likely than White teachers to change schools and exit the teaching profession, and these turnover rates are particularly high when working with a predominantly White teaching staff (Ravenell et al., 2018). A recent Education Trust (2020) report on teacher and student demographics suggests that the racial/ethnic dynamics in Tennessee may be similar to patterns in other southeastern and some midwestern states.

Our analysis used panel administrative data covering four academic years (2016–2017 to 2019–2020). The administrative data capture teacher-level demographic, experience, performance, and assignment information as well as contextual characteristics of schools/districts. We also used data from four years of the Tennessee Educator Survey (TES), an annual survey administered to all public-school teachers during the spring semester. The TES includes a core set of questions to gather feedback about school climate, leadership, instruction, and evaluation. Teachers are then randomly assigned to answer additional questions about specific professional issues. During these years, the statewide teacher response rate averaged 57%. Confidential survey responses are linked to teachers' demographic, experience, performance, and assignment information using an anonymized teacher identification number.

Sample

This analysis includes all Black and Latinx Tennessee public school teachers who responded to TES survey questions in 2017, 2018, 2019, or 2020 capturing our dependent variables (described in the subsequent section). We further restricted our sample to teachers in traditional public schools whose administrative records indicate they employed at least five teachers.[2] Because our analysis focuses on measures created from teacher responses to the annual statewide teaching survey, our sample draws from almost all districts in Tennessee but is not representative of the state's teaching force. While all teachers are invited to participate in the TES, not all teachers responded to the survey, and response rates varied somewhat by teacher race/ethnicity and teaching context. Most importantly for our analysis, Black and Latinx teachers tend to have lower survey response rates than White teachers and they are more likely to work in charter schools whose staffing data are inconsistent and excluded in our analysis. Across the four years that we study, 33% of the state's Black teacher-by-year observations and 45% of the state's Latinx teacher-by-year observations are included in our analysis (N = 11,151 teacher-by-year observations).

The statewide sample is useful for our analysis for two reasons. First, we explore methods of documenting and describing the phenomenon of demographic isolation among teachers using large-scale quantitative data. Second, prior research suggests that both teachers' own race/ethnicity and teaching context may influence how isolation shapes their professional experiences. Our sample is large enough for us to separately analyze the effect of isolation for Black and Latinx teachers,[3] and it includes teachers across a broad range of teaching contexts, including school level, school performance, district size, and geographic locale. Table 1 includes descriptive information about the sample.

[2] A small number of schools list fewer than five teachers per year in the state's administrative staffing data. We posit that racial isolation may operate differently in such small schools. Charter school teachers are also not included in our analysis. While charter school teachers are invited to participate in the TES, we have not included them in this analysis because survey response rates tend to be low among charter school teachers and their administrative data are often incomplete.

[3] We have not included Asian, Pacific Islander, and Native American teachers in this analysis because they collectively account for less than 1% of the state's teaching workforce.

Table 1. Descriptive Statistics of Sample, by Race/Ethnicity

	Black Teachers	Latinx Teachers
Teacher Characteristics		
Female	80%	79%
Teacher Lowest Prior Performance Tercile	37%	35%
Teacher Second Prior Performance Tercile	27%	27%
Teacher Highest Prior Performance Tercile	27%	23%
Teacher Missing Prior Performance	9%	15%
Average Years of Experience	12.7	8.1
School/District Characteristics		
Elementary	47%	41%
Middle	23%	16%
High School	21%	35%
K-8/K-12/Other	10%	9%
School Lowest Prior Performance Tercile	41%	32%
School Second Prior Performance Tercile	30%	29%
School Highest Prior Performance Tercile	26%	36%
School Missing Prior Performance	4%	3%
Percent Economically Disadvantaged Students	50%	35%
Percent English Learner Students	6%	6%
Percent Black Students	56%	27%
Percent Latinx Students	14%	15%
Percent White Students	28%	54%
Average District Size (number of schools)	105.2	58.9
City/Suburb District	83%	71%
Rural/Town District	17%	29%
Teacher Demographics		
Percent Black Teachers in School	40%	12%
Percent Latinx Teachers in School	1%	4%
Percent White Teachers in School	58%	86%
Demographic Isolation		
Solo (only teacher in school of same race/ethnicity)	6%	48%
Skewed (< 15% teachers in school are same race/ethnicity)	25%	51%
Minority (15–39% teachers in school are same race/ethnicity)	24%	1%
Potential subgroup (40–60% teachers in school are same race/ethnicity)	15%	0%
Majority (61–85% teachers in school are same race/ethnicity)	23%	0%
Dominant (> 85% teachers in school are same race/ethnicity)	8%	0%
Total Teacher-by-Year Observations	9,870	1,341

Measuring Demographic Isolation

We created our variables of interest using administrative data that captures the racial/ethnic identity of all Tennessee teachers (using five racial categories and one ethnicity category). While we focus our

analysis on Black and Latinx teachers, we used demographic information for all teachers to create our measures of demographic isolation. Race and ethnicity categories in administrative data often collapse complicated racial and ethnic identities into discrete categories (Viano & Baker, 2020). Increasingly, researchers reject claims that administrative data are neutral and objective and call for more critical examination of how such data is used in statistical analyses (Garcia & Mayorga, 2018; Gillborn et al., 2018; Zuberi & Bonilla-Silva, 2008). In our study, the potential effects of demographic isolation likely involve both self-identification and others' perceptions of a teacher's racial or ethnic identity—which are difficult to distinguish in administrative data. Tennessee's data include both self- and other-identified racial and ethnic indicators from multiple sources, each of which captures ethnicity (Latinx or not Latinx) and racial identity (Asian, Black, Indigenous, Pacific Islander, White) separately. For our analysis, we categorized individuals who are identified as Black and/or Latinx. We privileged self-identified over other-identified data and only used other-identified data when self-identified data were not available. This type of categorization is coarse, may not reflect how teachers would describe their own identity, and conflates teachers' racial and ethnic self-identification and the way they are identified by others in the workplace. Additional race and ethnicity data—such as information on immigration, language, phenotype, and self-identification over time (Viano & Baker, 2020)—could provide more nuance to these analyses, but are not available in the administrative data used in this study. In our sample, there are a very small number of teachers (N = 60 teacher-by-year observations) who identify as both Latinx and Black and who appeared in both sets of analyses.

We created two measures to capture demographic isolation. First, we created an ordinal variable aligned with compositional categories used by Kanter (2008) and Bristol (2020b). This variable has six categories: (1) solo teachers, who are the only teachers in their schools with their race/ethnicity; (2) tokenized teachers in skewed groups, in which a teacher is not the only one but less than 15% of teacher peers share their racial/ethnic identity; (3) teachers in the minority, in which 15–39% of their peers share their racial/ethnic identity; (4) teachers in a potential subgroup in which 40–60% of their peers share their racial/ethnic identity; (5) teachers in the majority, in which 61–85% of their peers share their racial/ethnic identity; and (6) dominant teachers, who work in schools in which more than 85% of their peers share their racial/ethnic identity. While organizational research on workgroup composition has also used ordinal measures (Ely, 1994; Riordan & Shore, 1997), these categories are more nuanced than prior work examining how the relative racial composition of teacher peers is associated with teacher satisfaction or turnover. For example, both Fairchild et al. (2012) and Mueller et al. (1999) created binary indicators capturing whether a teacher works in a school in which more than 50% of teachers (Mueller et al., 1999) or more than 70% of teachers (Fairchild et al., 2012) share their racial/ethnic identity.

Second, we created a set of continuous measures that capture the percentage of a school's teaching staff who are identified as Black or Latinx. These measures align with how racial composition of students is commonly measured in analyses examining teacher satisfaction and turnover (e.g., Hanushek et al., 2004; Sun, 2018). Although these measures capture finer variation in racial/ethnic composition of the teaching staff than the ordinal variable, these continuous variables also assume that the relationship between racial/ethnic isolation and the professional experiences of teachers is linear. Prior conceptual

work by Kanter and Bristol suggest that teachers' experiences with representation may be more strongly influenced by thresholds, so that the important differences may be in being the only teacher of your race/ethnicity (i.e., solo) or being tokenized because your representation is low.

Both measurements of isolation have drawbacks that influence our analysis. As illustrated in Table 1, only a very small percentage of Latinx observations in our sample (approximately 1%) are teachers working in schools in which more than 15% of the teaching staff is Latinx. This is both a limitation of our sample and study context and a challenge when exploring the relationship between isolation and professional experiences for Latinx teachers. For example, we lacked sufficient variation to explore any differences in professional experiences between Latinx teachers who are solos or tokenized and Latinx teachers in schools with greater proportional representation. For Latinx teachers, the continuous variable (measuring percentage of Latinx teachers in the school) offered greater variation to exploit but assumed a linear relationship.

Measures of Professional Experiences

To develop the dependent variables, we drew on prior qualitative work highlighting that isolated teachers often feel excluded by or disconnected from their colleagues (Bristol & Goings, 2019; Bristol & Shirrell, 2019; Flores, 2011; Nelson, 2019) and teacher retention studies emphasizing how turnover is often associated with teachers' perceptions of their administrative support, faculty influence, and collaboration among faculty (Ingersoll et al., 2019; Nguyen et al., 2020). We identified survey items on four years of the Tennessee Educator Survey (TES) addressing these professional experiences in schools (see Table 2 for the text of these items).

The first measure—labeled "Satisfaction and Support"—is created from items on the core section of the TES taken by every participating teacher. We had initially anticipated developing multiple scales from these survey items, which ask teachers about perceptions of school leadership, faculty influence and relationships, and general satisfaction on a four-point Likert scale (1 = "Strongly Disagree"; 4 = "Strongly Agree"). However, exploratory factor analysis suggested that these items load onto one factor. We ran separate factor analyses by year, and eigenvalues for this single factor ranged from 4.52 to 6.52 (with factor loadings for each individual item ranging from 0.66–0.91). As shown in Table 2, some questions are not asked in every year. To create this scale, we averaged all responses on the available items for a given year. This scale had high internal consistency (α = 0.93–0.95). In Table 2, we show means and standard deviations for the aggregate measure and individual items by year on the original scale. In subsequent analyses, we use standardized measures—which have been standardized across all teacher respondents within year—to ease interpretation.

Table 2. Measures of Professional Experiences

	2017		2018		2019		2020		All Years	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Satisfaction and Support Scale (4-point scale)	2.95	(0.76)	3.00	(0.74)	3.08	(0.75)	3.14	(0.72)	3.04	(0.75)
Individual Survey Items:										
There is an atmosphere of trust and mutual respect within this school.	2.94	(0.86)	2.99	(0.80)	3.02	(0.79)	3.14	(0.78)	3.02	(0.81)
The staff feels comfortable raising issues and concerns that are important to them with school leaders.	3.01	(0.84)	2.98	(0.87)	3.02	(0.88)	3.09	(0.85)	3.02	(0.86)
Teachers are encouraged to participate in school leadership roles.	3.13	(0.76)	3.14	(0.77)	3.17	(0.74)	3.19	(0.73)	3.16	(0.75)
I like the way things are run at this school.	2.88	(0.84)	2.88	(0.86)	2.94	(0.86)	3.02	(0.82)	2.93	(0.85)
I am generally satisfied with being a teacher in this school.	.	.	3.16	(0.77)	3.22	(0.75)	3.21	(0.77)	3.19	(0.76)
The staff at this school like being here; I would describe us as a satisfied group.	2.94	(0.83)	2.94	(0.80)	.	.	.	.	2.94	(0.82)
I feel appreciated for the job that I am doing.	3.04	(0.85)	3.02	(0.85)	.	.	.	.	3.03	(0.85)
The principal at my school communicates a clear vision for this school.	.	.	3.23	(0.80)	3.26	(0.78)	3.33	(0.74)	3.27	(0.78)
School leadership effectively handles student discipline and behavioral problems.	2.78	(0.88)	2.74	(0.90)	2.83	(0.90)	2.88	(0.89)	2.81	(0.89)
School leadership is adequately visible and available to address staff/student needs.	3.14	(0.79)	3.52	(0.70)	3.53	(0.66)	.	.	3.40	(0.74)
Collaboration Scale (5-point scale)	3.04	(1.02)	3.06	(0.97)	3.09	(1.04)	3.16	(0.98)	3.08	(1.01)
Individual Survey Items:										
Review student assessment data to make instructional decisions	3.37	(1.33)	3.23	(1.29)	3.38	(1.37)	3.45	(1.35)	3.35	(1.33)
Plan a lesson with another teacher	3.13	(1.59)	3.18	(1.61)	3.40	(1.57)	3.44	(1.63)	3.26	(1.60)
Provide or receive feedback about instructional practices	3.10	(1.35)	2.92	(1.33)	3.14	(1.34)	3.17	(1.33)	3.08	(1.34)
Observe another teacher's classroom to get ideas about instruction	2.06	(1.14)	1.99	(1.12)	2.09	(1.21)	2.03	(1.22)	2.05	(1.17)
Work with grade-level team	.	.	3.59	(1.51)	3.33	(1.62)	3.42	(1.56)	3.45	(1.57)
Work with a subject-area team	.	.	3.46	(1.46)	3.25	(1.49)	3.37	(1.47)	3.35	(1.48)
Meet to do activities together	3.20	(1.33)	.	.	.	.	.	.	3.20	(1.33)
Work to develop materials or activities for a particular class	3.33	(1.49)	.	.	.	.	.	.	3.33	(1.49)
Intent to Stay in School (Binary)	.	.	0.66	(0.47)	0.69	(0.46)	0.72	(0.45)	0.69	(0.46)
Original Survey Item (4-point scale):										
I think about transferring to another school.	.	.	2.11	(1.05)	2.06	(0.98)	1.96	(0.98)	2.06	(1.01)

The second measure—labeled "Collaboration"—is created from survey questions asking about collaboration on the TES's professional learning module, which is randomly given to a subset of teachers. As a result, the subsample of teachers who responded to these specific questions is smaller than the sample for "support and satisfaction," but should be representative of the full sample. These questions asked teachers to estimate the frequency with which they participated in various types of collaboration on a five-point scale (1 = "Not this year"; 2 = "Once or twice a semester"; 3 = "About once a month"; 4 = "Two or three times per month"; 5 = "Once a week or more"). Exploratory factor analyses suggested that these items load onto one factor (eigenvalues = 1.74–2.54), so we created a collaboration frequency scale averaging all individual items available in a given year. This scale had an acceptable level of internal consistency (α = 0.71–0.75). See Table 2 for means and standard deviations for each individual item and the aggregate measure.

Finally, as a supplementary analysis meant to inform whether demographic isolation itself may be antecedent to turnover, we included a measure created from a single survey question asking teachers about whether they thought about transferring to another school. This item is asked on the TES's labor market module, which is randomly given to a subset of teachers. As with the collaboration measure, fewer teachers responded to this question, but this subsample should be representative of the full sample. This question asked teachers the extent to which they agreed with the statement "I think about transferring to another school" on a four-point scale (1 = "Strongly Disagree" to 4 = "Strongly Agree"). To create our analytic measure, we collapsed responses into a binary variable and reverse-coded this item to ease interpretation. Thus, we have labeled this measure "Intent to Stay in School."

Covariates

Our analysis also incorporated a set of control variables to capture other information about teachers, schools, and districts. At the teacher level, we included a binary measure for teachers identified as female, years of experience, and an ordinal measure capturing teachers' prior performance (measured by annual classroom observation scores).[4] To capture teaching context, we included a categorical measure of school tier (i.e., elementary, middle, high, K–8/K–12/other), an ordinal measure of prior school performance (measured by Tennessee's accountability system), a continuous measure of school district size (i.e., number of schools in the district), a binary indicator for districted located in a city/suburb based on designations of the National Center for Educational Statistics, and a set of continuous variables capturing percentages of students in a school identified as economically disadvantaged, as English learners, as Black, as Latinx, and as White.

[4] Tennessee adopted a multi-measure teacher evaluations system in 2011 that requires all teachers to participate in at least one classroom observation. We first identified a teacher's average observation score from the year prior to the survey and then created terciles within years based on these scores. We also included an indicator for missing scores so that first-year teachers, new-to-Tennessee teachers, and other teachers missing prior year scores were still included in our analysis.

Analytic Method

We first explored various approaches for measuring demographic isolation and then identified Black and Latinx teachers who are isolated in their school. As part of this analysis, we explored whether demographic isolation appears more common among certain types of teachers or teachers in certain types of schools.

Next, we ran a series of regression models estimating relationships between isolation and measures of teachers' professional experiences. Our analysis started with a base model using the equation

$$\text{Prof}_{isdy} = \beta_0 + \beta_1 \text{Isolation}_{isdy} + \theta_y + \varepsilon_{isdy,} \quad (1)$$

in which Prof_{isdy} represents the reported professional experience (i.e., support and satisfaction, collaboration, intent to stay in school) of teacher i in school s in district d in year i as a function of the intercept (β_0), an isolation measure (β_1), year fixed effects (θ_i), and an idiosyncratic error term (ε_{isdy}). When the dependent variable is intent to stay in school, we use linear probability models. Because relational demography posits that isolation may influence teachers differently depending on their own identity, we have chosen to run separate models for Black and Latinx teachers. All models include year indicators and standard errors clustered at the teacher level to account for the nested structure of the data.

We also estimated models with teacher-level, school-level, and district-level covariates to better capture relationships between demographic isolation and professional experiences while accounting for teaching context. This is particularly important because, as shown in Table 3 and discussed at the beginning of the results, the teaching context for solo and tokenized Black teachers appeared to be different, on the average, from that for Black teachers who are not demographically isolated. The full model uses the following equation:

$$\text{Prof}_{isdy} = \beta_0 + \beta_1 \text{Isolation}_{isdy} + \beta_2 \text{Teacher}_{isdy} + \beta_3 \text{School}_{sdy} + \beta_4 \text{District}_{dy} + \theta_y + \varepsilon_{isdy} \quad (2)$$

These models include vectors of the teacher (β_2), school (β_3), and district (β_4) covariates described above.

Positionality Statement

Before discussing the results, we want to briefly note our own positionality in conducting this research. Susan identifies as White and was born in the United States. As a White woman and former teacher, Susan has worked in many professional settings in which many of her colleagues shared her racial and gender identity but also witnessed the structural and interpersonal inequities facing her Black and Latinx students and colleagues. Francisco identifies as a White Venezuelan Latino. Born in Venezuela, he has spent nearly all his life living in the United States as a citizen. As a public-school teacher, he witnessed both the systemic obstacles faced by students and teachers of color and the ingenuity those students

and teachers brought to the classroom. Both authors recognize that their experiences and identities shape the biases and assumptions undergirding this research.

Table 3. Measures of Professional Experiences and Context by Race/Ethnicity and Demographic Isolation

	Black Teachers			Latinx Teachers		
	Isolated		Not isolated	Isolated		Not isolated
	Solo	Token		Solo	Token	
Teacher Characteristics						
Female	78%	79%	80%	79%	78%	77%
Teacher Lowest Prior Performance Tercile	42%	35%	38%	36%	36%	15%
Teacher Second Prior Performance Tercile	26%	30%	26%	29%	25%	15%
Teacher Highest Prior Performance Tercile	24%	28%	27%	21%	24%	38%
Teacher Missing Prior Performance	7%	8%	8%	14%	15%	31%
Average Years of Experience	13.9	13.1	12.5	8.8	7.6	7.5
Teaching Context						
Elementary	50%	50%	46%	47%	35%	62%
Middle	21%	20%	24%	17%	15%	0%
High School	15%	22%	20%	25%	43%	23%
K-8/K-12/Other	14%	8%	10%	11%	7%	15%
School Lowest Prior Performance Tercile	30%	28%	46%	32%	33%	8%
School Second Prior Performance Tercile	33%	31%	29%	34%	25%	46%
School Highest Prior Performance Tercile	33%	39%	21%	30%	41%	23%
School Missing Prior Performance	4%	3%	4%	4%	1%	23%
Percent Economically Disadvantaged Students	33%	31%	59%	37%	34%	18%
Percent English Learner Students	2%	4%	6%	4%	7%	4%
Percent Black Students	13%	23%	70%	25%	29%	19%
Percent Latinx Students	9%	13%	14%	12%	19%	11%
Percent White Students	76%	60%	14%	61%	49%	67%
Average District Size (number of schools)	28.1	38.7	134.6	48.6	67.1	153.2
City/Suburb District	40%	65%	91%	59%	82%	93%
Rural/Town District	60%	35%	9%	41%	18%	7%
Total Teacher-by-Year Observations	548	2,441	6,881	644	684	13

Results

In our statewide sample, many Black and Latinx teachers worked as solos (the only Black or Latinx teachers in their schools) or were tokenized within skewed groups (in which less than 15% of the teaching staff was Black or Latinx). In Table 1, we present percentages of teachers within each ordinal compositional category, as well as the average of each of the continuous measures. Approximately one-

third of Black teachers and 99% of Latinx teachers in our sample were solos or in skewed groups.[5] The continuous measures of teacher racial/ethnic composition similarly underscore how Black teachers, on average, taught in schools employing relatively more Black teachers, while Latinx teachers tended to teach in schools in which the teaching staff was overwhelmingly White. These patterns mirror national trends reported by Frankenberg (2009) and highlight how teachers—like students—are often racially and ethnically segregated into schools.[6]

In Table 3, we show descriptive differences in individual characteristics and teaching contexts of solos, tokenized teachers, and teachers who are not demographically isolated (i.e., in schools where more than 15% of their colleagues share their race/ethnic identity). There are not many differences in individual characteristics across categories. A slightly higher percentage of Black teachers who are solos had lower prior performance (as measured by annual observations).

For Black teachers, the teaching context of solo and tokenized teachers tends to be quite different, on average, from that of teachers who are not isolated. Solo and tokenized Black teachers are more likely to teach in schools with higher prior performance in the state's accountability system, serve fewer economically disadvantaged students, and serve fewer Black and Latinx students. Demographically isolated Black teachers are also much more likely to work in smaller districts located outside of cities and suburbs. For example, 60% of solo Black teachers work in rural or small-town districts, compared with just 9% of Black teachers who are not demographically isolated. For Latinx teachers, the teaching contexts for solo and tokenized teachers are more similar. Like solo Black teachers, solo Latinx teachers in our sample are more likely to teach in smaller school districts located in rural areas or towns. Of the teachers in our sample who teach in rural or town districts, 20% of Black teachers and 68% of Latinx teachers are solos (compared with 3% of Black teachers and 41% of Latinx teachers in suburb or city districts).

These differences in teaching context highlight why accounting for teaching context when examining relationships between demographic isolation and professional experiences of teachers is important. In the remaining analyses, we present one set of results without accounting for covariates and another accounting for all the individual and contextual variables included in Table 3. In Table 4 and Figure 1, we present results for Black teachers. For the ordinal variable (shown in columns 1, 2, 5, 6 in Table 4), Black teachers in each group (skewed, minority, potential subgroup, majority, and dominant) are compared with solo Black teachers. In Table 5 and Figure 2, we present these results for Latinx teachers. For the ordinal variable (shown in columns 1, 2, 5, 6 in Table 5), we have restricted the analysis just to solo and tokenized teachers due to very small numbers of Latinx teachers in other compositional categories. Across both sets of measures, positive coefficients would indicate that teachers who are less

[5] Because only a handful of Latinx teachers in our sample are not demographically isolated, our subsequent regression analyses using the ordinal categories only compare solo and tokenized Latinx teachers.

[6] Although not the focus of this paper, we also calculated the extent to which White teachers in the same sample (Tennessee teachers from traditional public schools who responded to this same set of survey items over the four years studied) experienced demographic isolation. Fewer than 1% of these White teachers are solos or tokenized, and 97% of White teachers work in schools where the teaching staff is more than 60% White.

demographically isolated have more positive professional experiences. All figures show marginal effects from the regression analyses with all other covariates held at their mean. We discuss findings for Black and Latinx teachers separately.

Table 4. Professional Experiences of Black teachers, by level of isolation

	Panel A: Satisfaction and Support				Panel B: Collaboration			
	1	2	3	4	5	6	7	8
Ordinal Variable (solo is reference)								
Skewed	-0.078	-0.038			0.103	0.060		
	(0.052)	(0.055)			(0.101)	(0.108)		
Minority	-0.278***	-0.036			0.298**	0.249+		
	(0.054)	(0.068)			(0.101)	(0.129)		
Potential subgroup	-0.347***	-0.036			0.283**	0.234		
	(0.058)	(0.080)			(0.109)	(0.150)		
Majority	-0.243***	0.128			0.545***	0.482**		
	(0.054)	(0.088)			(0.103)	(0.164)		
Dominant	-0.188**	0.224*			0.703***	0.678***		
	(0.064)	(0.098)			(0.122)	(0.182)		
Continuous Variable								
Percent Black teachers in school (by 10%)			-0.0181***	0.039***			0.064***	0.066***
			(0.004)	(0.009)			(0.016)	(0.008)
Teacher/school/district covariates		X		X		X		X
Observations	9524	9524	9524	9524	2817	2817	2817	2817

Note. All models include year indicators. Standard errors are clustered at the teacher level.
* p < 0.05, ** p < 0.01, *** p < 0.001.

Table 5. Professional Experiences of Latinx teachers, by level of isolation

	Panel A: Satisfaction and Support				Panel B: Collaboration			
	1	2	3	4	5	6	7	8
Binary Variable (solo is reference)								
Skewed	-0.073	-0.051			0.107	0.116		
	(0.064)	(0.068)			(0.108)	(0.125)		
Continuous Variable								
Percent Latinx teachers in school			-0.021	0.124			-0.120	-0.380
			(0.135)	(0.131)			(0.240)	(0.216)
Teacher/school/district covariates		X		X		X		X
Observations	1270	1270	1270	1270	399	399	399	399

Note. All models include year indicators. Standard errors are clustered at the teacher level.
* p < 0.05, ** p < 0.01, *** p < 0.001

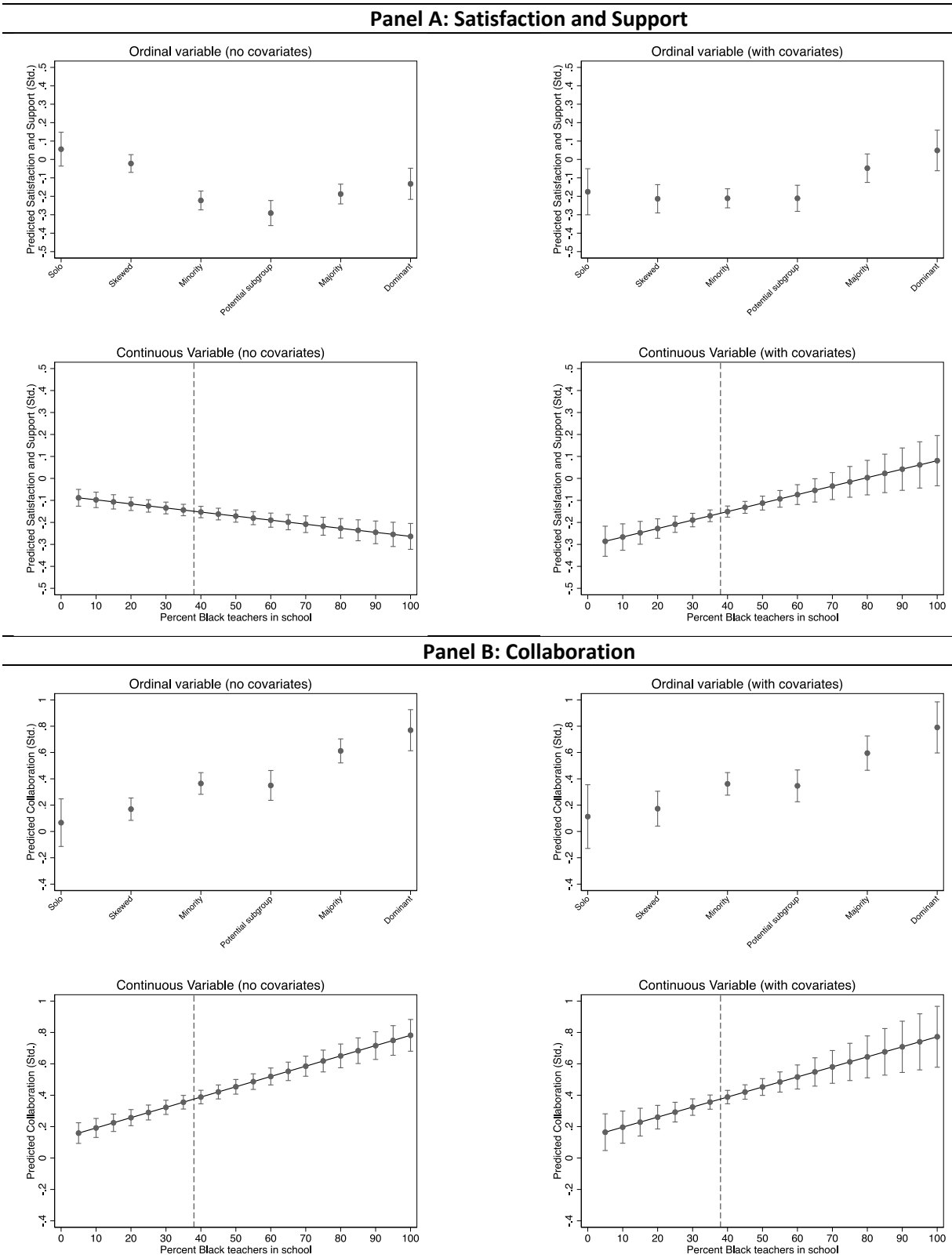

Figure 1. Professional experiences of Black teachers, by demographic isolation

Note. All figures represent marginal effects with all other covariates held at their mean. The dotted lines in the continuous variable figures represent the average percentages of Black teachers in the schools for Black teachers in our sample.

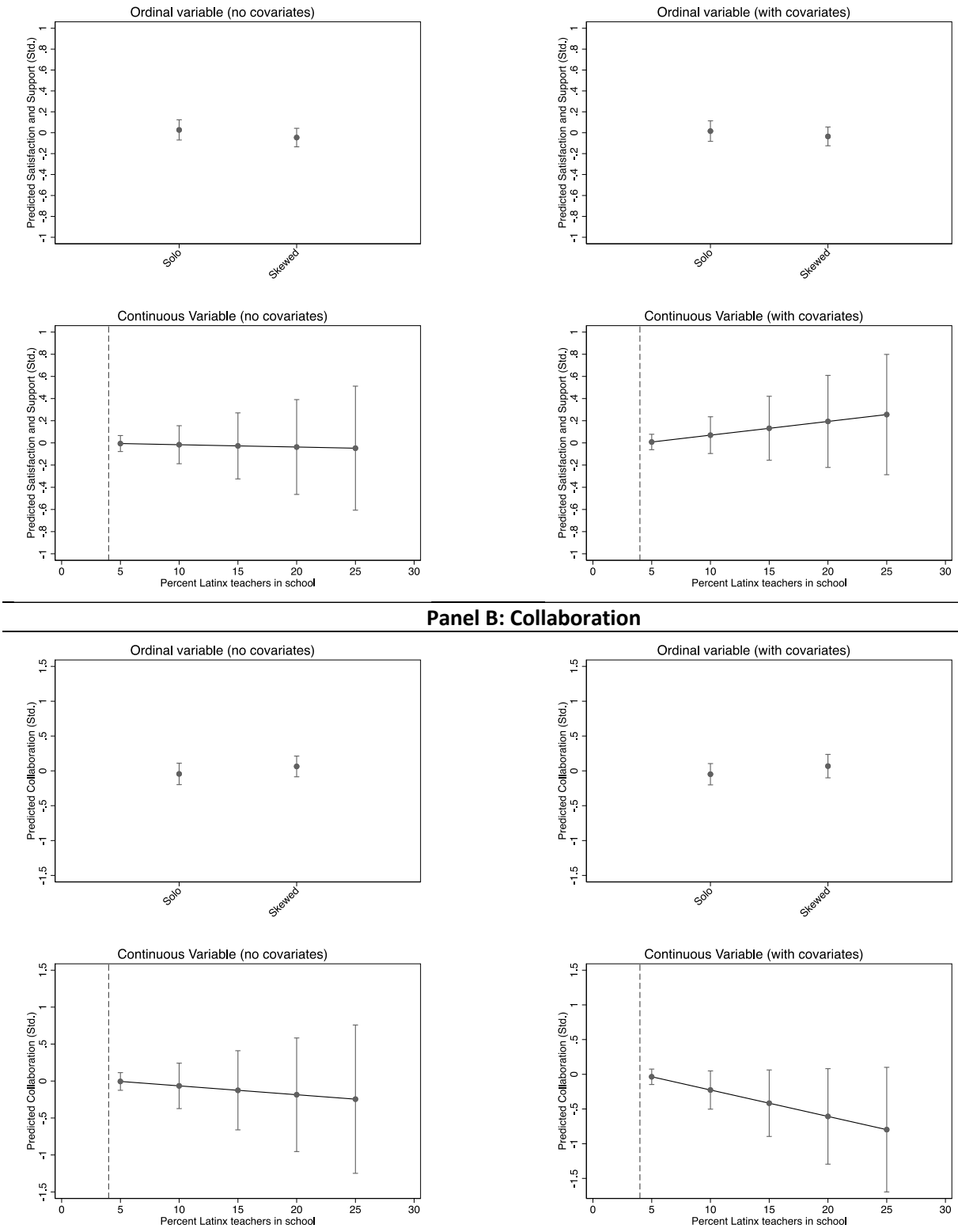

Figure 2. Professional experiences of Latinx teachers, by isolation

Note. All figures represent marginal effects with all other covariates held at their mean. The dotted lines in the continuous variable figures represent the average percentages of Latinx teachers in the schools for Latinx teachers in our sample.

For Black teachers in our sample, reported satisfaction and support are significantly associated with both measures of demographic isolation, but the direction of the relationship changes depending on whether the models include teacher and contextual covariates. As shown in column 1, Black teachers who teach in schools with relatively more Black teachers (i.e., minority, potential subgroups) or schools in which Black teachers are in a majority (i.e., majority and dominant) report, on the average, relatively lower satisfaction and support than solo Black teachers (differences range from 0.19–0.35 standard deviations) when models include no covariates beyond year indicators. However, once the covariates are accounted for, this relationship changes direction so that solo Black teachers have significantly lower reported support and satisfaction, on the average, than dominant Black teachers (0.22 standard deviation difference). Linear models, presented in columns 3 and 4 in Table 4, similarly suggest that Black teachers' reported satisfaction and support increase as the percentages of Black teachers in their schools increase when covariates are accounted for (a 10% increase in the percentage of Black teachers is associated with a 0.04 standard deviation increase in satisfaction and support, all else equal). However, results from the ordinal variable indicate that this relationship may not be linear. As illustrated in Panel A of Figure 1, Black teachers in majority and dominant categories report higher support and satisfaction than Black teachers in tokenized, minority, and potential subgroup categories (in which less than 60% of teachers in their schools are Black) when models include covariates, although only the difference between dominant and solo teachers is statistically significant.

There are also significant differences in reported frequency of collaboration across measures of demographic isolation. Unlike the satisfaction and support results, these patterns are similar in models with and without covariates. In both models using ordinal categories (columns 5 and 6 of Table 4), solo Black teachers report, on the average, significantly less frequent collaboration than Black teachers who are in majority and dominant subgroups (differences range from 0.48 to 0.70 standard deviation). Both models using the continuous variable (columns 7 and 8 in Table 4) estimate that a 10% increase in percentage of Black teachers in the school is associated with a 0.06-standard-deviation increase in reported collaboration. As illustrated in Panel B of Figure 2, the estimated relationship between demographic isolation and reported collaboration appear more linear.

Our analysis for Latinx teachers is more limited. We do not find strong evidence that solo Latinx teachers report, on the average, different professional experiences than Latinx teachers in skewed groups. For support and satisfaction (illustrated in Panel A of Table 5 and Figure 2), most coefficients are negative, but none are statistically significant at conventional levels. The magnitude of the coefficients in satisfaction and support models for Latinx teachers are somewhat similar to that of those for Black teachers, but the standard errors are much larger due to the small sample size. We similarly find limited evidence of a relationship between demographic isolation and reported frequency of collaboration. The estimated coefficients are positive when frequency of collaboration for Latinx teachers in skewed groups and for solo teachers is compared (columns 5 and 6 in Table 5) and negative in models estimating relationships between the percentage of Latinx teachers in the school and the frequency of collaboration (columns 7 and 8), but none of these coefficients are statistically significant at conventional levels. Because there is less variation in demographic representation for Latinx teachers

and there are many fewer Latinx teachers in our sample, we are limited in our ability to determine if demographic isolation is associated with professional experiences for Latinx teachers.

In Table 6, we present a supplementary analysis of whether demographic isolation is associated with teachers' self-reported intention to stay in their school. For Black teachers, we find the same general pattern reported in the support and satisfaction analysis. In models without controls (column 1 of Table 6), demographically isolated Black teachers report higher intentions to stay compared to Black teachers in minority, potential subgroup, and majority categories. However, the sign of the coefficients switches once the model controls for covariates (column 2 of Table 6), and solo Black teachers are, all else equal, 12.8% less likely to report that they intend to stay in their school compared to Black teachers in schools in which they are the dominant racial/ethnic group (this difference, although large, is not statistically significant). The pattern of results in column 2 suggests that there is not a linear relationship between demographic isolation and intent to stay, and there is no significant relationship found when the continuous measure is used and covariates are included (column 4 of Table 6). For Latinx teachers, we similarly do not find evidence of a significant relationship between demographic isolation and intent to stay in school, and this may be due to the small sample size.

Table 6. Intent to Stay in School, by race/ethnicity and isolation

	Panel A: Black Teachers				Panel B: Latinx Teachers			
	1	2	3	4	5	6	7	8
Ordinal Variable (solo is reference)								
Skewed	0.008	0.054			-0.076	-0.051		
	(0.043)	(0.045)			(0.054)	(0.057)		
Minority	-0.075+	0.055						
	(0.045)	(0.055)						
Potential subgroup	-0.129**	0.043						
	(0.048)	(0.066)						
Majority	-0.115**	0.078						
	(0.047)	(0.075)						
Dominant	-0.098+	0.128						
	(0.056)	(0.087)						
Continuous Variable								
Percent Black or Latinx teachers in school (10s)			-0.015***	0.010			0.032	0.097
			(0.004)	(0.008)			(0.073)	(0.081)
Teacher/school/district covariates		X		X		X		X
Observations	1955	1955	1955	1955	306	306	306	306

Note. All models include year indicators. Standard errors are clustered at the teacher level.
+ p < .10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Discussion

Drawing on theories of proportional representation and relational demography in the workplace (Bristol 2020b; Kanter, 2008; Riordan & Shore, 1997; Tsui & O'Reilly, 1989), we explore the relationship between demographic isolation and professional experiences of Black and Latinx teachers in Tennessee. For Black teachers, our results are consistent with Kanter's theories about adverse workplace experiences for

those in skewed groups, as well as relational demography's main tenet that demographic similarity in the workplace is associated with more positive professional experiences. Once our models account for teacher and contextual characteristics, we find that Black teachers who are solos or who work in skewed groups report significantly lower levels of satisfaction and support as well as less frequent collaboration, especially compared with Black teachers who are in the demographic majority. We find suggestive evidence that, controlling for covariates, demographic isolation is negatively associated with Black teachers' intent to stay in their school, but this relationship is not as strong or consistent. In our ordinal measure of demographic isolation, we separate solo teachers as a distinct category because of Bristol's (2020b) prior work differentiating the experience of "loner" and "grouper" Black male teachers. We find no evidence of a significant difference in reported satisfaction and support or collaboration between solo and tokenized Black or Latinx teachers. This could be due to the nature of the survey questions about satisfaction and support, which are more general perceptual questions rather than about individual experiences with discrimination or exclusion.

Our analysis builds on past qualitative work on Black and Latinx teachers who are demographically isolated by assessing the relationship between isolation and professional experiences using quantitative measures in a broader range of teaching contexts. In our models with Black teachers, the estimated relationship between demographic isolation and reported satisfaction and support changes from negative to positive when covariates are introduced. This pattern, along with the descriptive statistics comparing the teaching contexts of isolated and nonisolated Black teachers, suggests that these contextual characteristics are associated both with the likelihood that Black teachers are demographically isolated and with teachers' reported satisfaction and support. This finding, which has methodological implications discussed below, is consistent with prior work showing that loner Black male teachers are sometimes more satisfied with their workplaces because they work at better resourced schools (Bristol, 2020a). Unlike the satisfaction and support models, the estimated relationship between collaboration and demographic isolation are consistent across models with and without covariates. This pattern suggests that, across teaching contexts, demographically isolated Black teachers may face boundary heightening in which White teachers exclude them from opportunities for peer collaboration and social relationships. This finding aligns with qualitative and social network research describing how demographically isolated Black teachers report fewer social connections in their schools (Bristol & Goings, 2019; Bristol & Shirrell, 2019; Nelson, 2019).

Patterns for Black and Latinx teachers are more similar than they first appear. As for Black teachers, there are not statistically significant differences in reported experiences for solo and tokenized Latinx teachers. We do not observe Latinx teachers who are working in schools with a more substantial share of Latinx teachers. This is a limitation of our sample and context, and this issue is compounded by the relatively small sample size of Latinx teachers. As a result, we cannot say much about whether patterns align with prior qualitative work, such as studies done by Flores (2017; 2011). Notably, Flores studies the experiences of Latina teachers in California, and the demographics of California schools are different than Tennessee, with much larger shares of Latinx students and teachers (National Center for Education Statistics, 2019; National Teacher and Principal Survey, 2018). Broadly, Tennessee's teacher and student demographics and dynamics of demographic isolation among teachers are more like those of other

southeastern and midwestern states. While we do not claim that the patterns reported here are broadly generalizable, our findings may be most applicable in contexts with similar demographic dynamics among teachers.

We offer one approach for assessing demographic isolation using large-scale quantitative data. In particular, we present two potential measures of demographic isolation: an ordinal measure using theoretically driven thresholds for proportional representation and a continuous measure capturing greater variation in the demographic composition of staff but assuming a linear relationship. Our findings suggest that using both approaches may be helpful to test whether there are threshold effects. In particular, our analysis of the relationship between demographic isolation and satisfaction and support for Black teachers indicates that Black teachers in the majority (in which more than 60% of teachers are Black) report higher satisfaction and support than other Black teachers once teacher and contextual characteristics are accounted for.

Our measures and analytic approach have important limitations that must be recognized to put our findings in proper context. First, our analysis only measures demographic isolation along one dimension of social identity—race/ethnicity—and the administrative data available to capture racial/ethnic identity are limited. Our analysis does not account for the intersection of race, ethnicity, and gender identities, and small sample sizes of Black male and Latinx male teachers make this difficult analytically. This limitation creates a conundrum for future quantitative research, because Black male and Latinx male teachers are so underrepresented. Targeted sampling may be necessary to study this phenomenon with an intersectional lens, or to study how demographic isolation may be associated with the professional experiences of Asian, Pacific Islander, or indigenous teachers. Relatedly, our analysis is limited by the small number of Latinx teachers in the Tennessee context, and future research in different states would be necessary to confirm whether Latinx teachers' professional experiences differ when they are demographically isolated. Second, our measures of professional experience cannot replicate the richness and specificity of qualitative studies of isolation. For example, our measures of collaboration broadly assess teachers' reported frequency of collaboration but cannot capture whether teachers feel excluded from peer collaborations in their school. Third, our satisfaction and support findings suggest that it is important to account for teaching context when exploring the relationship between demographic isolation and professional experiences of teachers. While we include an array of teacher, school, and district characteristics in our covariate-adjusted regression models, numerous aspects of teaching context are unobserved in our study. We were unable to measure the racialized dimensions of school context or experiences with microaggressions, which may create adverse workplace experiences for teachers of color, regardless of demographic isolation (Frank et al., 2021; Grooms et al., 2021) Future analyses may be able to study the same group of teachers longitudinally to better account for observed and unobserved aspects of teaching context and, therefore, better isolate the relationship between being demographically isolated and professional experiences.

Despite these limitations, our findings have implications for educational leaders, especially those responsible for human resources and educator development. First, given that demographic isolation is due to a lack of Black and Latinx teachers in certain schools, human resource managers should consider proactive strategies to recruit more Black and Latinx teachers. In a recent report, Carver-Thomas (2018)

outlined numerous strategies to recruit more teachers of color, such as district partnerships with minority-serving postsecondary institutions, hiring practices with clear guidelines that do not cater to insiders, and grow-your-own programs that encourage students to get postsecondary training and then return as teachers. Additionally, robust induction, mentoring, and peer support programs may help to mitigate the social exclusion felt by Black and Latinx teachers who are demographically isolated (Carver-Thomas, 2018). School leaders may be well positioned to provide additional support for isolated teachers, given that prior work identifies administrative support as particularly important for retaining teachers of color (Ingersoll et al., 2019; Sun, 2018). Research suggests that providing more professional autonomy, leadership opportunities, mentorship, and emotional and social support networks are strategies that school leadership could employ to improve retention among demographically isolated teachers of color (Bristol, 2020a; Arce, 2004; Achenstein et al., 2010). School leaders should be attuned to race-based stress and microaggressions in the school environment and cultivate a school culture that actively mitigates such racialized experiences (Grooms et al., 2021; Frank et al., 2021).

Alone, such practices cannot undo systematic racism or ingrained prejudices that may undergird the social exclusion felt by many Black and Latinx teachers and may be particularly harmful when they are demographically isolated. While increasing the representation of Black and Latinx teachers is necessary to combat demographic isolation, it is likely not sufficient to create inclusive school communities. Instead, commitment to anti-racist practices, along with cultural and structural changes that redistribute organizational influence away from White teachers, is necessary to create supportive and equitable working conditions for all teachers.

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