

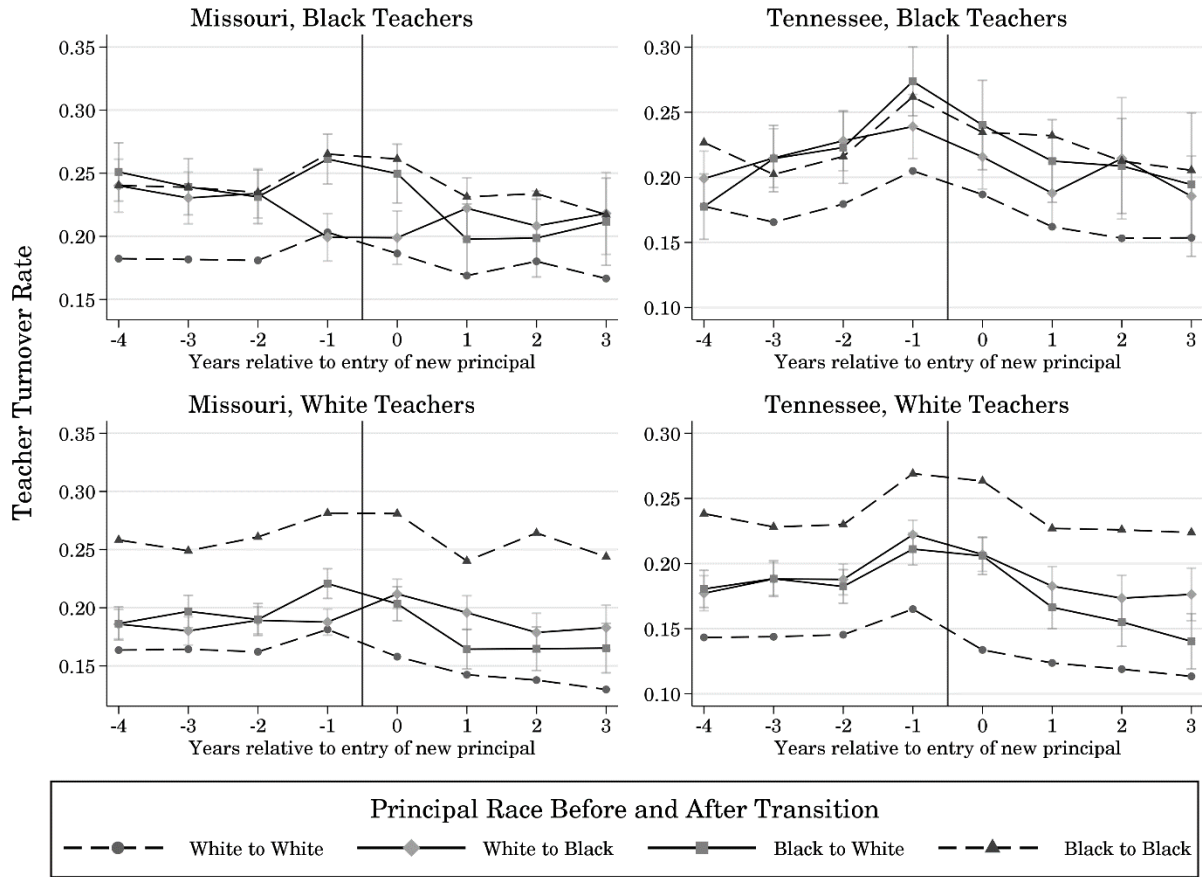
School Principal Race, Teacher Racial Diversity, and Student Achievement

Brendan Bartanen
Texas A&M University

Jason A. Grissom
Vanderbilt University

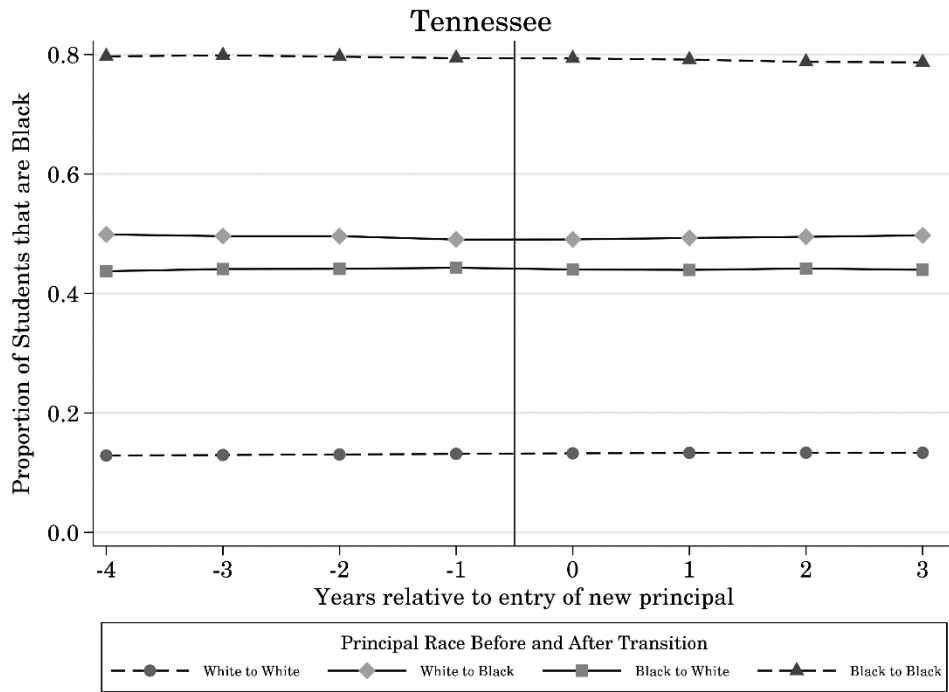
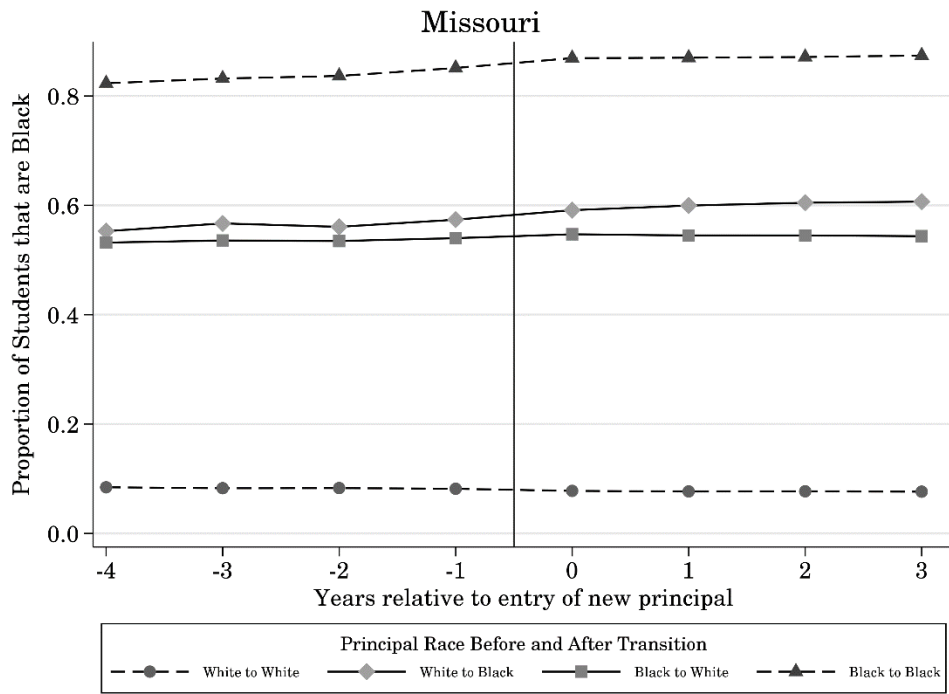
ONLINE APPENDIX

Appendix Figure 1: Teacher Turnover Before and After Principal Transitions (Returning Teachers Only)



Notes: These figures plot event studies (8-year window) of the proportion of a school's Black and White teachers that leave their position. Teachers who were hired by the new principal (i.e., in year 0 or later) are dropped. Sample includes all principal transitions between Black and White from Missouri and Tennessee, respectively. Models include school and year fixed effects. Schools with multiple principal transitions have a corresponding number of 8-year windows in the regression model. School-by-year observations are weighted by the number of Black or White teachers (not counting teachers who were dropped).

Appendix Figure 2: Black Student Composition Before and After Principal Turnover



Notes: These figures plot event studies (8-year window) of the proportion of a school's students that are black by year. Models include school and year fixed effects. Plots include all principal transitions, such that school-by-year observations are duplicated by the total number of principal transitions across the data stream. Errors bars show 95% confidence intervals.

Appendix Table 1: Predicting Racial Composition of Teaching Staff with Leads and Lags

	Missouri			Tennessee		
	(1)	(2)	(3)	(4)	(5)	(6)
Black Principal (t + 3)	0.002 (0.005)	0.001 (0.004)	-0.001 (0.004)	-0.001 (0.003)	-0.003 (0.003)	-0.004 (0.003)
Black Principal (t + 2)	0.003 (0.005)	0.002 (0.004)	0.004 (0.004)	-0.001 (0.003)	-0.003 (0.003)	-0.003 (0.003)
Black Principal (t + 1)	-0.004 (0.004)	-0.004 (0.004)	-0.002 (0.004)	0.005 (0.003)	0.004 (0.003)	0.000 (0.003)
Black Principal	0.016 ^{***} (0.004)	0.016 ^{***} (0.004)	0.016 ^{***} (0.004)	0.024 ^{***} (0.004)	0.022 ^{***} (0.004)	0.019 ^{***} (0.004)
Black Principal (t - 1)	0.010 ^{***} (0.004)	0.008 ^{**} (0.004)	0.009 ^{**} (0.004)	0.011 ^{***} (0.003)	0.011 ^{***} (0.003)	0.009 ^{**} (0.004)
Black Principal (t - 2)	0.010 ^{**} (0.004)	0.009 ^{***} (0.003)	0.009 ^{**} (0.004)	0.011 ^{***} (0.003)	0.011 ^{***} (0.003)	0.007 ^{**} (0.003)
Black Principal (t - 3)	0.009 ^{**} (0.004)	0.008 ^{**} (0.003)	0.003 (0.003)	0.002 (0.003)	0.002 (0.003)	0.004 (0.004)
Black Principal (t - 4)	0.007 [*] (0.004)	0.006 (0.004)	0.003 (0.004)	0.012 ^{***} (0.004)	0.007 [*] (0.004)	0.004 (0.004)
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
District-by-Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
School-Specific Trends	No	No	Yes	No	No	Yes
Observations	721531	721531	721531	458853	458853	458853
R ²	0.406	0.409	0.412	0.383	0.383	0.387

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher is Black. Models estimated via OLS. Models control for school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch) and principal characteristics (categorical indicators for principal experience and tenure in school, indicator for Ed.S. degree, indicator for Ph.D. degree, flag for male gender). Columns 1 and 4 include year fixed effects in lieu of district-by-year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 2: Predicting Black Hires with Leads and Lags

	Missouri			Tennessee		
	(1)	(2)	(3)	(4)	(5)	(6)
Black Principal (t + 3)	0.013 (0.014)	0.005 (0.012)	0.006 (0.014)	0.008 (0.010)	0.006 (0.011)	-0.010 (0.015)
Black Principal (t + 2)	0.009 (0.016)	0.015 (0.015)	0.019 (0.016)	0.001 (0.012)	-0.001 (0.012)	-0.012 (0.014)
Black Principal (t + 1)	-0.008 (0.013)	-0.012 (0.014)	-0.007 (0.015)	0.008 (0.011)	0.009 (0.011)	-0.009 (0.014)
Black Principal	0.036** (0.013)	0.039*** (0.014)	0.036** (0.014)	0.075*** (0.011)	0.073*** (0.011)	0.056*** (0.013)
Black Principal (t - 1)	0.048*** (0.014)	0.041*** (0.016)	0.039** (0.016)	-0.003 (0.011)	-0.001 (0.011)	-0.018 (0.015)
Black Principal (t - 2)	-0.010 (0.013)	-0.012 (0.013)	-0.012 (0.014)	0.005 (0.012)	0.001 (0.013)	-0.015 (0.015)
Black Principal (t - 3)	0.011 (0.015)	0.010 (0.014)	0.005 (0.015)	-0.007 (0.012)	-0.004 (0.012)	-0.005 (0.015)
Black Principal (t - 4)	0.002 (0.013)	-0.006 (0.013)	-0.008 (0.014)	0.020* (0.011)	0.018 (0.012)	0.006 (0.016)
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
District-by-Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
School-Specific Trends	No	No	Yes	No	No	Yes
Observations	106853	106853	106853	70735	70735	70735
R ²	0.387	0.403	0.415	0.370	0.375	0.389

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher is Black. Models estimated via OLS. Models control for school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch) and principal characteristics (categorical indicators for principal experience and tenure in school, indicator for Ed.S. degree, indicator for Ph.D. degree, flag for male gender). Columns 1 and 4 include year fixed effects in lieu of district-by-year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 3: The Effect of Teacher Demographics on the Probability that a New Principal is Black

	Missouri			Tennessee		
	(1)	(2)	(3)	(4)	(5)	(6)
Departing Principal is Black	0.1918*** (0.0446)	0.1911*** (0.0435)	0.1954*** (0.0468)	0.3598*** (0.0364)	0.3617*** (0.0355)	0.3383*** (0.0385)
% Change in % Black Hires	-0.0009 (0.0012)			-0.0019 (0.0011)		
% Change in % Black Teachers		-0.0002 (0.0027)			-0.0038 (0.0024)	
% Black Students - % Black Hires			0.0016 (0.0012)			0.0038*** (0.0008)
Observations	2354	2354	2354	1767	1767	1767
R^2	0.485	0.485	0.487	0.407	0.407	0.422

Standard errors clustered by district shown in parentheses. The unit of observation is a principal transition. All change variables are between the two years prior to the new principal. Sample includes all principal transitions in districts that employed both Black and White principals. Hiring and composition changes are estimated using the five years prior to the principal transition. Models include district and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 4: Does Having More Black Principals Increase the Number of Black Teachers in a District?

	Missouri			Tennessee		
	(1)	(2)	(3)	(4)	(5)	(6)
Proportion of Black Principals	0.054** (0.024)	0.060*** (0.022)	0.061*** (0.023)	0.075** (0.037)	0.075** (0.037)	0.075 (0.060)
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Controls	No	Yes	Yes	No	Yes	Yes
District-Specific Trends	No	No	Yes	No	No	Yes
Observations	9135	8540	8540	1524	1515	1515
R^2	0.941	0.946	0.969	0.966	0.966	0.975

Notes: District-level clustered standard errors shown in parentheses. Unit of observation is district-by-year. The dependent variable is the proportion of teachers in the district who are Black. Demographic controls include district-level averages of student demographics and district enrollment size.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 5: Demographics of Prior and Hiring Schools for White Teacher Transfers

	% Black Students			% Black Students – % Black Teachers		
	Hiring	Prior	Difference	Hiring	Prior	Difference
Panel A: Missouri						
All Moves	15.1	16.0	-0.9	10.1	10.7	-0.5
White Principal to White Principal	8.7	9.1	-0.3	7.0	7.3	-0.3
White Principal to Black Principal	63.6	34.3	29.2	34.3	22.2	12.0
Black Principal to White Principal	34.0	68.6	-34.6	22.6	37.1	-14.6
Black Principal to Black Principal	80.1	82.9	-2.8	37.4	38.3	-0.8
Panel B: Tennessee						
All Moves	22.2	25.0	-2.8	12.1	13.6	-1.6
White Principal to White Principal	13.7	15.2	-1.5	8.8	9.9	-1.2
White Principal to Black Principal	49.9	31.9	18.0	23.2	18.3	4.9
Black Principal to White Principal	30.0	55.6	-25.6	16.7	26.0	-9.3
Black Principal to Black Principal	68.7	71.9	-3.2	26.1	26.6	-0.5

Notes: The left column categorizes the type of transfer (e.g., White Principal to Black Principal means that a teacher transferred from a school where their principal was White to a school where their principal was Black). The school characteristics for hiring and prior school are tabulated in the teacher's final year in the prior school to avoid double counting.

Appendix Table 6: Zero-Sum Analysis of Teacher Hiring

	Missouri				Tennessee			
	Proportion Black Students (Prior School) (1)	Change Black Students (Hiring – Prior) (2)	Black Mismatch (Prior School) (3)	Change Black Mismatch (Hiring – Prior) (4)	Proportion Black Students (Prior School) (5)	Change Black Students (Hiring – Prior) (6)	Black Mismatch (Prior School) (7)	Change Black Mismatch (Hiring – Prior) (8)
Panel A								
Black Principal	0.026*** (0.009)	-0.026*** (0.010)	0.003 (0.006)	-0.016* (0.009)	0.005 (0.005)	-0.005 (0.005)	-0.002 (0.004)	-0.021*** (0.006)
Panel B								
Race Match with Principal	-0.005 (0.005)	0.006 (0.005)	-0.010*** (0.003)	0.008** (0.004)	-0.004 (0.004)	0.004 (0.004)	-0.006** (0.003)	0.005 (0.003)
Black Principal	0.010 (0.009)	-0.011 (0.009)	-0.004 (0.006)	-0.011 (0.009)	-0.007 (0.005)	0.007 (0.005)	-0.005 (0.004)	-0.018*** (0.006)
Black Teacher	0.187*** (0.006)	-0.187*** (0.006)	0.030*** (0.004)	-0.028*** (0.004)	0.124*** (0.005)	-0.124*** (0.005)	0.005* (0.003)	-0.002 (0.003)
Panel C								
Race Match x Black Teacher	0.005 (0.010)	-0.005 (0.010)	-0.014* (0.008)	-0.004 (0.011)	-0.012 (0.007)	0.012 (0.007)	-0.010* (0.005)	-0.013* (0.008)
Race Match x White Teacher	-0.016 (0.010)	0.016* (0.010)	-0.007 (0.006)	0.019** (0.009)	0.003 (0.006)	-0.003 (0.006)	-0.001 (0.004)	0.024*** (0.006)
Black Teacher	0.177*** (0.010)	-0.176*** (0.010)	0.034*** (0.007)	-0.017* (0.010)	0.131*** (0.007)	-0.131*** (0.007)	0.010* (0.005)	0.017** (0.007)
Observations	80902	80902	80902	80902	53173	53173	53173	53173

Notes: School-level clustered standard errors in parentheses. In each column, the unit of observation is teacher-by-year. The dependent variable is listed above the column number. Models estimated via OLS. Models include school and year fixed effects and school characteristics. In Panel C, the main effect of principal race is omitted from the model to estimate race-specific matching effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 7: Average Teacher Turnover Rates by Principal Race

	Missouri			Tennessee		
	All Principals	Black Principals	White Principals	All Principals	Black Principals	White Principals
Panel A: All Teacher Turnover						
Black Teachers (%)	28.0	30.8	23.2	22.3	23.6	20.1
White Teachers (%)	17.2	27.2	16.6	15.9	23.2	15.0
Panel B: Exit Education System						
Black Teachers (%)	14.3	15.5	12.1	8.3	8.1	8.5
White Teachers (%)	8.5	14.0	8.2	7.8	10.9	7.4
Panel C: Within-District Move						
Black Teachers (%)	8.3	9.5	6.3	10.5	12.1	7.9
White Teachers (%)	4.1	7.5	3.9	4.8	8.3	4.4
Panel D: Across-District Move						
Black Teachers (%)	2.8	3.1	2.4	1.9	1.8	2.1
White Teachers (%)	3.3	4.3	3.2	2.2	2.8	2.1
Panel E: Change Positions						
Black Teachers (%)	2.4	2.5	2.3	1.6	1.6	1.6
White Teachers (%)	1.3	1.2	1.3	1.2	1.2	1.2

Notes: This table is constructed using the full analytic sample of teachers and principals from Tennessee and Missouri.

Appendix Table 8: Principal-Teacher Race Match with Differing Controls for Principal Turnover

	Missouri				Tennessee			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Race Match with Principal	-0.025*** (0.003)	-0.020*** (0.003)	-0.025*** (0.003)	-0.025*** (0.003)	-0.025*** (0.003)	-0.023*** (0.002)	-0.026*** (0.003)	-0.025*** (0.003)
Black Teacher	-0.003 (0.004)	-0.006 (0.003)	-0.004 (0.004)	-0.004 (0.004)	-0.015*** (0.003)	-0.016*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)
Black Principal	-0.010 (0.008)	-0.003 (0.007)	-0.012* (0.007)	-0.009 (0.007)	-0.009 (0.008)	-0.012* (0.006)	-0.021*** (0.007)	-0.018*** (0.007)
Principal Turnover		0.019*** (0.002)	-0.000 (0.006)	0.004 (0.007)		0.022*** (0.003)	0.007 (0.007)	0.025*** (0.008)
Principal Turnover x Black Principal			0.029*** (0.007)	0.027*** (0.007)			0.028*** (0.009)	0.032*** (0.009)
Principal Turnover x Black Teacher			-0.009* (0.006)	-0.010* (0.006)			0.005 (0.007)	0.002 (0.007)
Principal Turnover x Race Match Current			0.019*** (0.006)	0.034*** (0.009)			0.011* (0.007)	-0.005 (0.010)
Principal Turnover x Race Match Next Year				-0.007 (0.010)				-0.041*** (0.011)
Principal Turnover x Race Match Current x Race Match Next Year				-0.014 (0.014)				0.039*** (0.015)
Drop Principal Turnover Years	Yes	No	No	No	Yes	No	No	No
Observations	750977	926487	926487	926487	465075	556208	556208	556208
R ²	0.079	0.084	0.084	0.084	0.072	0.074	0.074	0.074

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher left their position between year t and t+1. Models estimated via OLS. Models control for teacher characteristics (race, gender, education, experience, tenure in school, and whether the principal hired the teacher), school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch) and principal characteristics (race, gender, principal experience, tenure in school, education level).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 9: Principal-Teacher Race Matching and Teacher Turnover with Teacher Fixed Effects

	Missouri					Tennessee				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Race Match with Principal	-0.016*** (0.005)	-0.020*** (0.005)	-0.020*** (0.003)	-0.020*** (0.003)	-0.024*** (0.004)	-0.028*** (0.005)	-0.031*** (0.005)	-0.032*** (0.005)	-0.037*** (0.005)	-0.047*** (0.005)
Teacher Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
District-by-Year Fixed Effects	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
School-Specific Trends	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Controls for Principal Turnover	No	No	No	No	Yes	No	No	No	No	Yes
Observations	873890	873884	893556	893556	893556	542218	542212	542212	542212	542212
R ²	0.220	0.236	0.056	0.062	0.062	0.262	0.279	0.289	0.296	0.296

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher left their position between year t and t+1. Models estimated via OLS. Models control for school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch) and principal characteristics (categorical indicators for principal experience and tenure in school, indicator for Ed.S. degree, indicator for Ph.D. degree, flag for male gender).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 10: Sensitivity of Main Effect of Principal Race to Controls for Observed Characteristics (Teacher Turnover Models)

	Missouri				Tennessee			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Black Principal	0.007 (0.006)	0.009 (0.006)	-0.007 (0.007)	-0.006 (0.007)	-0.004 (0.007)	-0.004 (0.007)	-0.018*** (0.007)	-0.017** (0.007)
Black Teacher	-0.001 (0.004)	-0.001 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.015*** (0.003)	-0.015*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)
Race Match with Principal			-0.025*** (0.004)	-0.025*** (0.004)			-0.025*** (0.003)	-0.025*** (0.003)
Principal Characteristics								
Ed.S. Degree	0.004** (0.002)		0.004** (0.002)		-0.002 (0.004)		-0.002 (0.004)	
Ph.D. Degree	0.002 (0.003)		0.002 (0.003)		0.001 (0.005)		0.002 (0.005)	
Male	-0.005** (0.002)		-0.005** (0.002)		-0.006* (0.003)		-0.006* (0.003)	
1-2 Years of Principal Exp.	-0.001 (0.003)		-0.001 (0.003)		0.006 (0.005)		0.006 (0.005)	
3-4 Years of Principal Exp.	-0.003 (0.003)		-0.003 (0.003)		0.003 (0.005)		0.003 (0.005)	
5+ Years of Principal Exp.	-0.008** (0.003)		-0.007** (0.003)		0.008 (0.006)		0.008 (0.006)	
1-2 Years in Current School	-0.001 (0.003)		-0.001 (0.003)		-0.009** (0.004)		-0.009** (0.004)	
3-4 Years in Current School	-0.004 (0.003)		-0.004 (0.003)		-0.012*** (0.005)		-0.012*** (0.005)	
5+ Years in Current School	-0.001 (0.003)		-0.001 (0.003)		-0.016*** (0.006)		-0.016*** (0.006)	
Observations	893556	893556	893556	893556	556208	556208	556208	556208
R ²	0.084	0.084	0.084	0.084	0.074	0.074	0.074	0.074

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher left their position between year t and t+1. Models estimated via OLS. Models control for teacher characteristics (race, gender, education, experience, tenure in school, and whether the principal hired the teacher), school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch), school fixed effects, school-specific trends, and district-by-year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 11: Balance of Principal Observable Characteristics

	Ed.S. Degree	Doctoral Degree	Male	Years of Experience	Tenure in School
	(1)	(2)	(3)	(4)	(5)
Panel A: Missouri					
Black Principal	0.026 (0.029)	-0.048 (0.034)	-0.118** (0.053)	-1.049*** (0.362)	-0.672** (0.281)
Observations	995139	995139	995323	880448	866995
R^2	0.721	0.724	0.769	0.719	0.696
Panel B: Tennessee					
Black Principal	0.052 (0.034)	0.077** (0.035)	-0.034 (0.050)	-0.536* (0.295)	-0.389* (0.214)
Observations	694238	694238	691422	536279	591057
R^2	0.793	0.769	0.819	0.805	0.758

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher left their position between year t and $t+1$. Models estimated via OLS. Models control for teacher characteristics (race, gender, education, experience, tenure in school, and whether the principal hired the teacher), school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch), school fixed effects, school-specific trends, and district-by-year fixed effects. Years of experience tenure in school are missing for some principals because they are calculated according to the observable years of data. Principals who started their careers or school tenure prior to the start of the administrative data have missing values.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 12: Do Principal-Teacher Race-Match Effects Vary by Teacher Quality?

	(1)
Race Match with Principal	-0.029***
	(0.004)
Race Match with Principal x Low VA	0.007
	(0.008)
Race Match with Principal x High VA	0.001
	(0.007)
Observations	255164
R^2	0.082

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. The dependent variable is an indicator for whether the teacher left their position between year t and $t+1$. Models estimated via OLS. Models control for school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch) and principal characteristics (categorical indicators for principal experience and tenure in school, indicator for Ed.S. degree, indicator for Ph.D. degree, flag for male gender), and interactions between teacher race and all other controls. Value-added is estimated using the drift-adjusted, leave-year-out approach described in Chetty et al. (2014). To construct a time-invariant, categorical value-added measure, we average teacher-by-year estimates within teacher, then split teachers into low VA (bottom 25%), middle VA (middle 50%), and high VA (top 25%). The sample is restricted to teachers for whom we can calculate value-added.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 13: Predicting Teacher Assignment to Tested Grade and Subject

	Math or Reading	Math	Reading
	(1)	(2)	(3)
Race Match with Principal	0.007 (0.005)	0.002 (0.005)	0.005 (0.004)
Observations	618980	618980	618980
R^2	0.088	0.068	0.085

Notes: School-level clustered standard errors in parentheses. The unit of observation is teacher-by-year. In each column the dependent variable is an indicator for whether the teacher is a “tested teacher” (i.e., can be identified in the student-teacher linkage files as being responsible for students’ test scores for accountability purposes) in math/reading. The first two columns use an indicator that is equal to one if the teacher is tested in math and/or reading. Models estimated via OLS. Models control for school demographics (enrollment size, proportion of Black students, proportion of Hispanic students, proportion of students qualifying for free/reduced-price lunch) and principal characteristics (categorical indicators for principal experience and tenure in school, indicator for Ed.S. degree, indicator for Ph.D. degree, flag for male gender), and interactions between teacher race and all other controls.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 14: Are Same-Race Principals More Likely to Assign Students to Same-Race Teachers?

	Assigned to Black Teacher (Math)	Assigned to Black Teacher (Reading)
	(1)	(2)
Black Principal x Black Student	-0.002 (0.003)	-0.004 (0.003)
Black Student	0.001 (0.012)	-0.005 (0.012)
School-by-Grade-by-Year FE	Yes	Yes
Observations	3005790	4122069
R^2	0.736	0.691

Notes: School-level clustered standard errors in parentheses. Unit of observation is student-by-year. The dependent variable is a binary indicator for whether the student's assigned teacher in the given subject is Black. Models estimated via OLS. For students with multiple teacher assignments in a given year, the student has multiple observations that are weighted by the percentage claim of each teacher. Models include: school-by-grade-by-year fixed effects, prior-year test scores and attendance, student characteristics. Additionally, we control for interactions between student race and all school- and grade-level characteristics. The main effects of these characteristics are absorbed by the school-by-grade-by-year FE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 15: Sensitivity of Main Effect of Principal Race to Controls for Observed Characteristics (Student Achievement Models)

	Math				Reading			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Black Principal	-0.002 (0.010)	-0.003 (0.010)	-0.001 (0.010)	-0.002 (0.010)	-0.004 (0.005)	-0.004 (0.005)	-0.003 (0.005)	-0.004 (0.005)
Race Match with Principal			0.010 (0.006)	0.010 (0.006)			0.002 (0.004)	0.002 (0.004)
Principal Characteristics								
Ed.S. Degree	-0.001 (0.006)		-0.001 (0.006)		0.000 (0.003)		0.000 (0.003)	
Ph.D. Degree	-0.015 (0.009)		-0.015 (0.009)		-0.002 (0.005)		-0.002 (0.005)	
Male	0.011* (0.006)		0.011* (0.006)		0.001 (0.003)		0.001 (0.003)	
1-2 Years of Principal Exp.	0.007 (0.009)		0.007 (0.009)		0.004 (0.005)		0.004 (0.005)	
3-4 Years of Principal Exp.	0.011 (0.010)		0.011 (0.010)		0.003 (0.005)		0.003 (0.005)	
5+ Years of Principal Exp.	-0.000 (0.011)		-0.000 (0.011)		0.002 (0.006)		0.002 (0.006)	
1-2 Years in Current School	0.003 (0.008)		0.003 (0.008)		-0.001 (0.004)		-0.001 (0.004)	
3-4 Years in Current School	0.008 (0.009)		0.008 (0.009)		0.005 (0.005)		0.005 (0.005)	
5+ Years in Current School	0.006 (0.011)		0.007 (0.011)		0.004 (0.005)		0.004 (0.005)	
Observations	2998877	2998877	2998877	2998877	4111974	4111974	4111974	4111974
R ²	0.618	0.618	0.618	0.618	0.646	0.646	0.646	0.646

School-level clustered standard errors in parentheses. Models control for school demographics, principal characteristics, and interactions between teacher race and all other controls.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 16: The Impact of Principal Race on Student Suspensions

	All Suspensions		In-School Suspensions		Out-of-School Suspensions	
	(1)	(2)	(3)	(4)	(5)	(6)
Black Principal	-0.003 (0.004)	-0.002 (0.005)	-0.004 (0.006)	-0.002 (0.007)	0.001 (0.002)	0.002 (0.003)
Race Match with Principal	-0.003 (0.003)	-0.004 (0.004)	-0.005 (0.004)	-0.004 (0.005)	0.001 (0.002)	0.000 (0.002)
Race Match with Principal x 2nd-3rd Year in School		0.003 (0.003)		0.001 (0.003)		0.002 (0.002)
Race Match with Principal x 4th-5th Year in School		0.001 (0.004)		-0.002 (0.004)		0.002 (0.003)
Race Match with Principal x 6th+ Year in School		-0.003 (0.005)		-0.004 (0.005)		-0.001 (0.003)
Observations	7346634	7346634	7346634	7346634	7346634	7346634
R^2	0.286	0.286	0.231	0.231	0.261	0.261

Notes: School-level clustered standard errors in parentheses. In each model the dependent variable is a binary indicator for whether the student was suspended one or more times during the school year. Models estimated via OLS. Models include: school-by-grade-by-race fixed effects, prior-year suspensions, student characteristics, school characteristics, grade characteristics, principal tenure in school, and year fixed effects. Additionally, we control for interactions between student race and all school- and grade-level controls. “Year in school” variables refer to the number of years the principal has worked in the school as the principal, with the omitted category being “1st year in school.”

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 17: Race-Specific Estimates of Principal-Student Race-Match Effects on Suspensions

	All Suspensions		In-School Suspensions		Out-of-School Suspensions	
	(1)	(2)	(3)	(4)	(5)	(6)
Black Matches (Black Principal x Black Student)						
Match	-0.009 (0.006)	-0.009 (0.007)	-0.013 (0.008)	-0.010 (0.010)	0.000 (0.004)	0.000 (0.005)
Match x Principal 2nd-3rd Year in School		0.001 (0.005)		-0.004 (0.006)		0.001 (0.004)
Match x Principal 4th-5th Year in School		-0.000 (0.007)		-0.009 (0.008)		0.002 (0.006)
Match x Principal 6th+ Year in School		-0.004 (0.008)		-0.004 (0.009)		-0.004 (0.006)
White Matches (White Principal x White Student)						
Match	0.001 (0.003)	-0.002 (0.004)	-0.000 (0.004)	-0.003 (0.005)	0.001 (0.001)	-0.002 (0.002)
Match x Principal 2nd-3rd Year in School		0.005 (0.004)		0.004 (0.004)		0.003 (0.002)
Match x Principal 4th-5th Year in School		0.006 (0.005)		0.007 (0.006)		0.003 (0.003)
Match x Principal 6th+ Year in School		0.000 (0.007)		-0.002 (0.008)		0.003 (0.003)
Observations	7346634	7346634	7346634	7346634	7346634	7346634
R ²	0.286	0.286	0.231	0.231	0.261	0.261

Notes: School-level clustered standard errors in parentheses. In each model the dependent variable is a binary indicator for whether the student was suspended one or more times during the school year. Models estimated via OLS. Models include: school-by-grade-by-race fixed effects, prior-year suspensions, student characteristics, school characteristics, grade characteristics, principal tenure in school, and year fixed effects. Additionally, we control for interactions between student race and all school- and grade-level controls. “Year in school” variables refer to the number of years the principal has worked in the school as the principal, with the omitted category being “1st year in school.”

* p < 0.10, ** p < 0.05, *** p < 0.01