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Who Becomes a Teacher? Racial Diversity in the K-12 to Teacher Pipeline

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Introduction

Several studies have documented the benefits to students of color of having teachers of their same race, but while U.S. K-12 students have grown more racially diverse over time, the U.S. teacher workforce remains overwhelmingly White. Nationally, the gap in racial and ethnic diversity between students and teachers is attributable to racial disparities in both educational attainment and progress through the teacher pipeline: certification tests and academic requirements for teaching disproportionately affect teaching candidates of color, and racial gaps in teacher hiring and retention further reduce the racial diversity of the teacher workforce.¹ Most evidence, however, comes from cross-sectional data, making it difficult to compare the relative importance of each stage of the educational and teacher

pipelines in driving the overall lack of racial diversity of the teacher workforce. In this policy brief, I use longitudinal data from Massachusetts to follow K-12 students as they progress through higher education and into the teacher pipeline. I first document racial differences in educational attainment and entry into and persistence through the teacher pipeline. I then simulate the effects of intervening at different stages on the racial diversity of the teacher workforce in the state. Findings show that more than half of the diversity gap between K-12 students overall and those students who become teachers emerges by the time these students graduate from college. Black, Hispanic, and Asian college graduates are less likely to take any teacher certification test in MA than White graduates. People of color who take the

This brief summarizes research by Melanie Rucinski using longitudinal data from Massachusetts to follow K-12 students as they progress through higher education and into the teacher pipeline.

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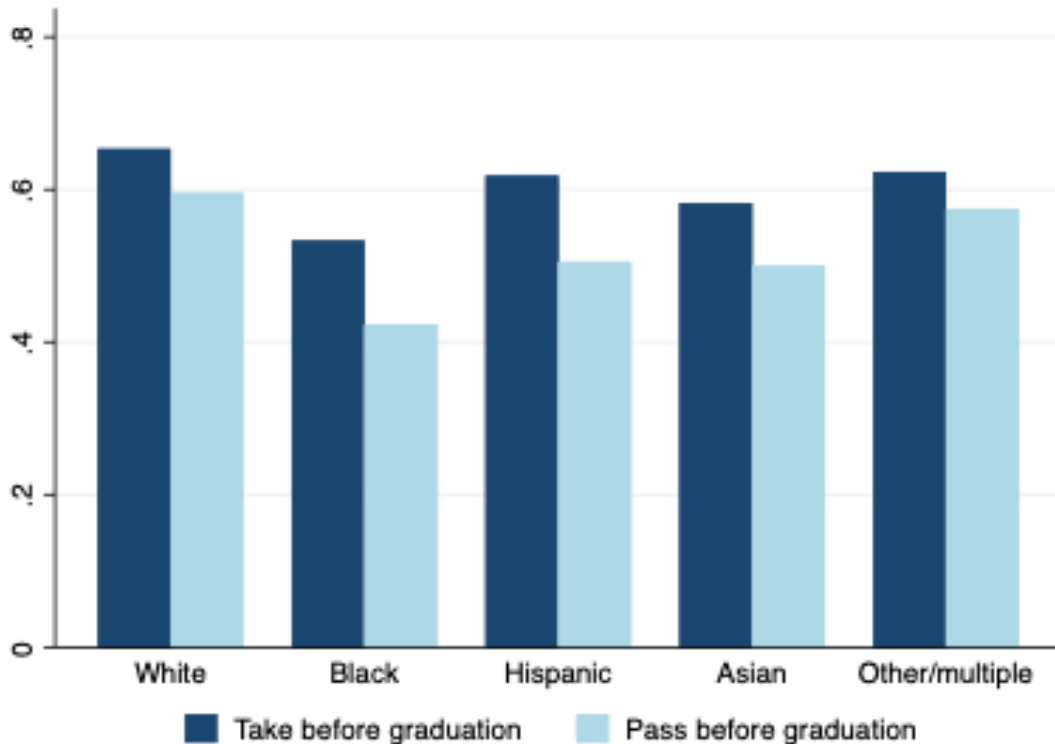
certification test, however, are about as likely to eventually become teachers as White test-takers, and once hired, they are equally likely to be retained. These results build on earlier work finding that teacher certification test-takers in MA are significantly more likely to be White than K-12 students in the state.² By linking K-12 students to higher education and teacher certification data, I show that much of the loss of racial diversity between students and prospective teachers results from racial disparities in educational attainment. My results suggest that there is limited scope to increase representation of teachers of color solely by addressing racial disparities in the teacher training and certification pipeline. Building a significantly more racially diverse teacher

workforce will be virtually impossible without improving high school and college graduation rates for Black and Hispanic K-12 students.

Context

All novice teaching candidates in Massachusetts, regardless of their intended grade or subject, must take the Communications and Literacy Skills (Comm/Lit) test of the Massachusetts Tests for Educator Licensure (MTEL) to be eligible for an initial or provisional license. Partially because the Comm/Lit test may be used as an entrance or graduation requirement for undergraduate education programs, over half of Comm/Lit takers in the study sample across all racial groups took the test prior to graduating from college (Figure 1).

Figure 1: Comm/Lit certification test timing³



First-time teaching candidates must also demonstrate content expertise by passing subject- and grade-specific MTEs to earn an initial or provisional license. About 16% of novice teachers in the sample did not have a license at the time they started teaching. Teaching before earning a license is particularly common among Black and Hispanic novice teachers, a pattern partially driven by these teachers being more likely to teach in charter schools, which are not subject to traditional licensure requirements. Of those teachers who did not have a license when they first started teaching, 25% earned a license by the end of their first year in the classroom, and an additional 13% earned a license before beginning their second year of teaching.

Findings

Public school students in the Massachusetts graduating classes of 2003-2013⁵ were 70% White, 9% Black, 14% Hispanic, 5% Asian, and 1.5% other races or multiracial.⁶

Figure 3 shows how the diversity of this pool changes as students progress through high school graduation, higher education, and the teacher pipeline.

Most of the decrease in racial diversity between students and the eventual teacher workforce emerges before students complete their postsecondary education: 4-year college graduates during this time period were 13 percentage points more likely to be White than high school students, while those hired as teachers were only 5.5 percentage points more likely to be White than college graduates. In general, the pool of potential teachers grows less diverse as students progress through secondary and higher education and enter the teacher school pipeline, but from the point of taking the certification test through early career retention, racial diversity is relatively unchanged.

Figure 2: Licensure status of novice teachers⁴

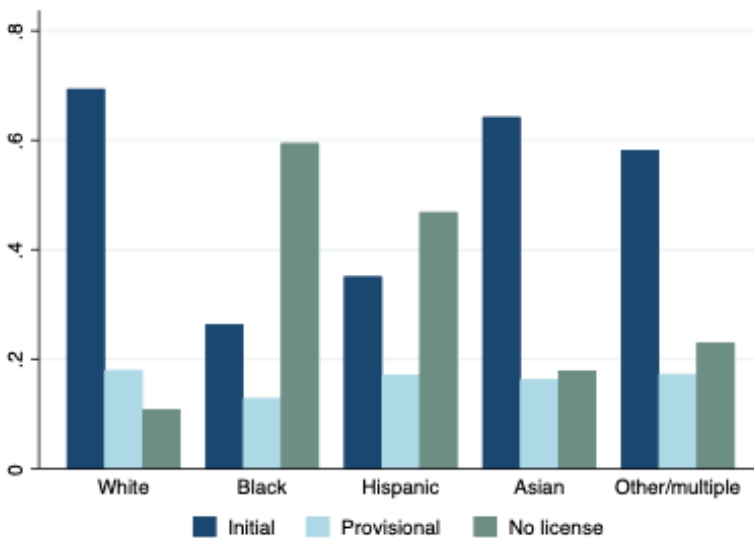


Figure 3: Racial diversity at each pipeline stage⁷

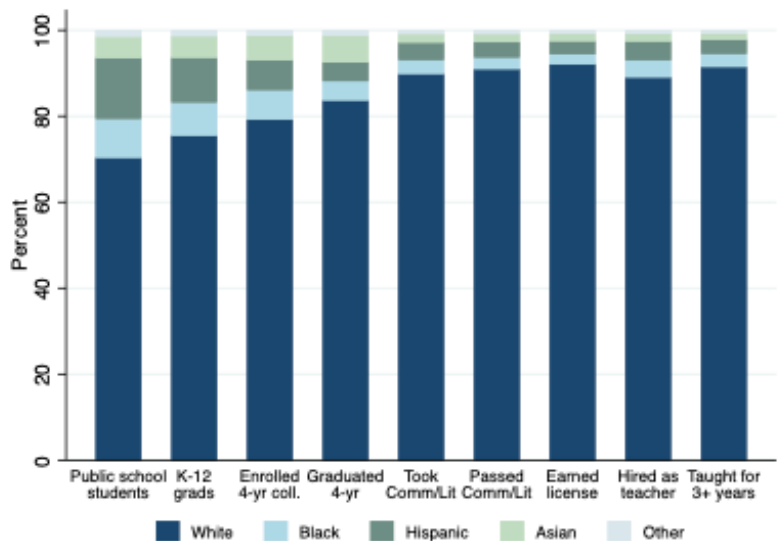
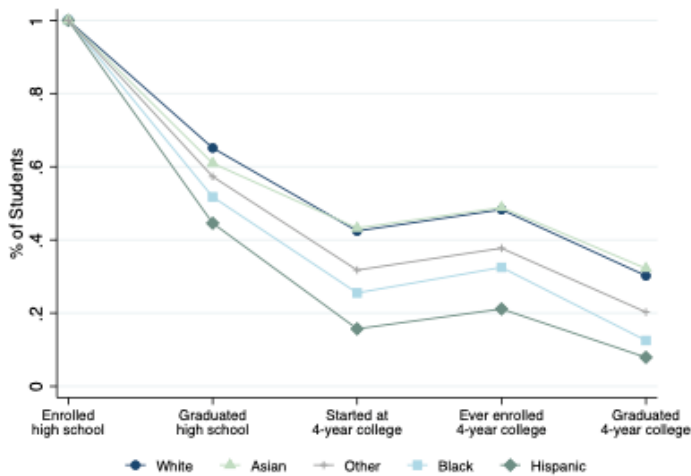


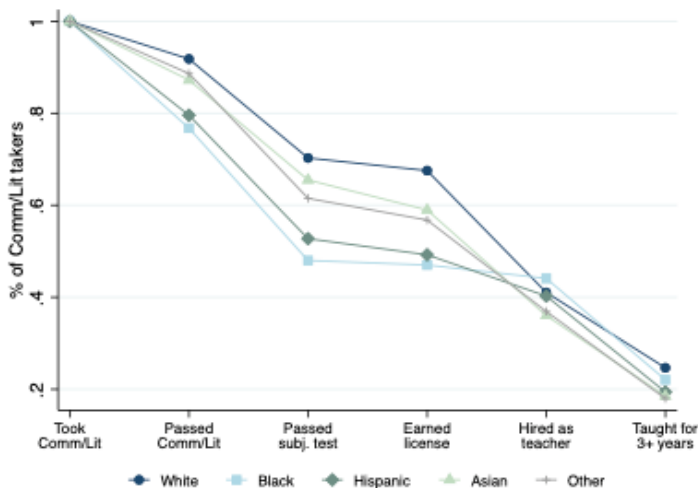
Figure 4 breaks down the pattern observed in Figure 3 into racial differences in educational attainment (panel A) and racial differences in persistence through the teacher pipeline (panel B).

Figure 4: Racial differences in persistence through the pipeline⁸

(A) Educational attainment



(B) Teacher pipeline



Black and Hispanic students in the sample were 73% as likely as White and Asian students to graduate from high school but only 32% as likely to earn a college degree. Thus, while Black and Hispanic students constituted 23% of public school students in the classes of 2003-2013, they made up only 9% of four-year college graduates from MA public schools. Since MA K-12 students are now about one third Black and Hispanic, this implies that Black and Hispanic college graduates would need to become teachers at over three times the rate of their White peers to produce a teacher workforce as diverse as the current student body in the state.

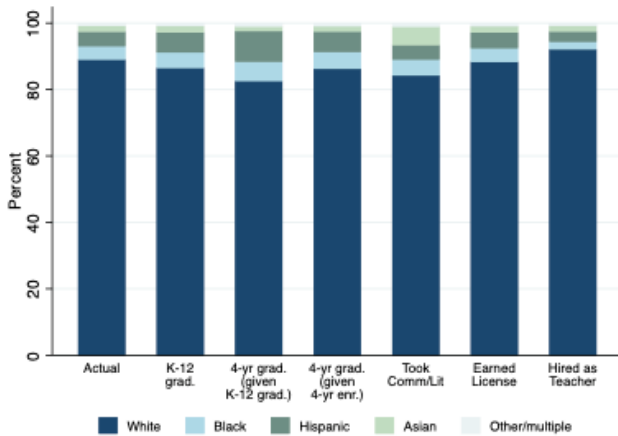
Panel B of Figure 4 focuses on the subset of K-12 graduates from MA public schools who took the Comm/Lit test in Massachusetts between 2007 and 2017. Black, Hispanic, and Asian test-takers within this group were all less likely to pass the Comm/Lit test than their White peers. Even among those who passed the test, prospective teachers of color were less likely to earn a license, largely because they were less likely to take and pass the subject- and grade-specific MTELs required for licensure than White teaching candidates. Black and Hispanic test-takers, however, became teachers at similar rates to White test-takers despite being less likely to earn a license. Overall, test-takers of color were only slightly less likely than White test-takers to teach in Massachusetts for at least three years.

Simulations

Taken together, these results suggest that the most impactful interventions to improve diversity in the teacher workforce would have to occur early in the pipeline, during high school and college. To show this more clearly, Figure 5 illustrates the potential diversity of this subset

of the MA teacher workforce (2003-2013 graduates of Massachusetts public schools) that could result from closing racial gaps at six different stages of the pipeline.⁹

Figure 5: Simulations¹⁰



While the potential teacher workforce remains over 80% White in all simulations, Figure 5 shows that closing gaps in educational attainment—equalizing high school and 4-year college graduation rates between White students and students of color—could have substantial effects towards increasing Black and Hispanic representation in the teacher workforce. Asian students graduate from college at slightly higher rates than their White peers, but are far less likely to take the Comm/Lit. As a result, the pool of Asian teachers would increase the most if Asian college graduates took the Comm/Lit at the same rate as White college graduates. Because Black, Hispanic, and Asian license holders are equally or more likely than White license holders to be hired as teachers, closing racial gaps in hiring would entail employing relatively more White teachers, resulting in a less diverse teacher workforce than exists in reality. Instead, the simulation results emphasize the

importance of early interventions to increase the diversity of the teacher workforce.

Discussion

88% of teachers in Massachusetts are White, compared to only 56% of students, a gap that has grown in recent years as students have become increasingly racially diverse while the racial composition of teachers has remained largely unchanged. I find that much of this gap can be explained by racial disparities in educational attainment among MA K-12 students: Black and Hispanic students are only three-quarters as likely to graduate from high school, and one-third as likely to earn a 4-year college degree, as White and Asian students. These disparities generate a racial gap between K-12 students and the pool of potential teachers that would be extremely difficult, if not impossible, to close through interventions further along the teacher training and certification pipeline.

Underscoring this result, simulations show that addressing racial disparities in four-year college enrollment and graduation has the largest potential impacts on teacher diversity. While closing racial gaps in teacher entry among college graduates could also improve diversity, the broader implications of such a policy are unclear. Future research could explore which careers graduates are choosing over teaching to determine the potential costs and benefits of intervening at this stage of the pipeline.

My results suggest that there is limited scope to increase representation of teachers of color at any point after candidates pass the Comm/Lit test: candidates of color who pass the Comm/Lit test are more likely to be hired than White

candidates and are equally likely to be retained in the classroom for at least three years. Massachusetts is distinct from other states in its lack of racial gaps in teacher hiring and retention. Uncovering why this is the case could provide important lessons for addressing racial disparities in other states.

Footnotes

1. Lindsay, C.A., Blom, E., & Tilsley, A. (2017). Diversifying the Classroom: Examining the Teacher Pipeline. Available at <https://www.urban.org/features/diversifying-classroom-examining-teacher-pipeline>. Putman, H., Hansen, M., Walsh, K., & Quintero, D. (2016). High hopes and harsh realities: The real challenges to building a diverse workforce. Available at <https://www.brookings.edu/research/high-hopes-and-harsh-realities-the-real-challenges-to-building-a-diverse-teacher-workforce/>.
2. Rucinski, M. & Goodman, J. (2019). Racial Diversity in the Teacher Pipeline: Evidence from Massachusetts. Rappaport Institute.
3. Figure 1 notes: The figure shows the share of K-12 alumni Comm/Lit takers who take and pass the test before college graduation. It includes test-takers who had not graduated from college by spring 2020, comprising 22% of White test-takers, 32% of Black test-takers, 34% of Hispanic test-takers, 25% of Asian test-takers, and 27% of test-takers in the other/multiracial group.
4. Figure 2 notes: Figure 2 shows the type of license teachers held when they first started teaching. Detailed information about each license type is available online at <https://www.doe.mass.edu/licensure/academic-prek12/teacher/license-types.html>.
5. The 2002-03 school year is the earliest year in which enrollment data are available. The sample is cut off at the graduating class of 2013 because this is the latest year a student could reasonably graduate from high school, attend college for four years, and be observed as a classroom teacher for an additional three years by spring 2020 (the last year for which I have personnel data).
6. Because students in the other and multiracial group constitute less than 2% of the sample, I focus on Black, Hispanic, and Asian students when discussing students of color throughout the brief. Results for the other and multiracial group are included in the figures and appendix tables.
7. Figure 3 notes: Figure shows diversity at each stage of the human capital and teacher pipeline. The figure is restricted to MA K-12 public school students eligible to graduate between 2003 and 2013.
8. Figure 4 notes: Figure shows racial differences in educational attainment (panel A) and persistence through the teacher pipeline (panel B). Panel A is restricted to students eligible to graduate from MA public schools between 2003 and 2013. Panel B is restricted to students from the graduating cohorts of 2003 through 2013 who took the Comm/Lit test in MA between 2007 and 2017.
9. The outcome in all simulations is the potential diversity of teachers from the MA public school graduating classes of 2003-2013; the simulations do not incorporate other cohorts or teaching candidates from private schools or other states. Because these cohorts are relatively recent—a high school senior in 2013 would start teaching in the 2017-18 school year or later—and certification test-takers who are not from MA public schools look similar to those who are in terms of their demographics and persistence through the teacher pipeline, the results are likely generalizable to MA teaching candidates overall.

10. Figure 5 notes: The first bar shows the actual racial composition of teachers in MA who were also public school students in the state and graduated between 2003 and 2013. In order, the simulations show the potential racial diversity of this subset of the teacher workforce that could result from closing racial gaps in: (1) high school graduation, (2) college graduation among high school graduates, (3) college graduation among students who ever enroll at a four-year college, (4) certification test-taking among college graduates, (5) licensure rates among certification test-takers, and (6) hiring among licensed teachers. All simulations take racial gaps at all other stages of the pipeline as given.

Tables

Table 1: Racial diversity at each pipeline stage (%)

	Enrolled K-12 (1)	Graduated K-12 (2)	Enrolled 4-yr coll. (3)	Graduated 4-yr coll. (4)	Took Comm/Lit (5)	Passed Comm/Lit (6)	Earned License (7)	Hired as Teacher (8)	Taught 3+ yrs. (9)
White	70.4	75.5	79.2	83.7	89.9	91.0	92.1	89.1	91.5
Black	9.1	7.7	6.9	4.5	3.2	2.7	2.3	4.0	3.1
Hispanic	14.2	10.4	7.0	4.4	4.0	3.5	3.0	4.4	3.3
Asian	4.9	4.9	5.6	6.2	1.9	1.9	1.7	1.7	1.5
Other	1.5	1.4	1.3	1.2	0.9	0.9	0.8	0.8	0.7

Table 2: Racial differences in persistence through the pipeline

(A) Educational attainment					
	Enrolled K-12 (N) (1)	Graduated K-12 (%) (2)	Started at 4- year coll. (%) (3)	Ever enrolled 4- year coll. (%) (4)	Graduated 4- year coll. (%) (5)
White	668,713	65.1	42.4	48.3	30.2
Black	86,087	51.7	25.5	32.5	12.5
Hispanic	134,685	44.6	15.7	21.1	7.9
Asian	46,703	60.9	43.2	48.8	32.2
Other	14,105	57.3	31.7	37.7	20.3

(B) Teacher pipeline						
	Took Comm/Lit (N) (1)	Passed Comm/Lit (%) (2)	Passed subj. test (%) (3)	Earned license (%) (4)	Hired as teacher (%) (5)	Taught 3+ years (%) (6)
White	30,610	91.8	70.3	67.5	41.0	24.7
Black	1,102	76.8	48.0	47.0	44.1	22.1
Hispanic	1,371	79.6	52.7	49.2	40.3	19.4
Asian	658	87.2	65.5	59.0	36.0	18.5
Other	317	88.6	61.5	56.8	36.9	18.0

Table 3: Simulations

	Actual	K-12 grad.	4-yr grad. (given K-12 grad.)	4-yr grad. (given 4-yr enr.)	Took Comm/Lit	Earned license	Hired as teacher
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
White	89.1	86.5	82.6	86.2	84.2	88.4	92.1
Black	4.0	4.6	5.8	5.2	4.8	4.1	2.3
Hispanic	4.4	6.0	9.1	6.1	4.4	4.7	3.0
Asian	1.7	1.9	1.4	1.6	5.5	1.9	1.7
Other	0.8	0.9	1.1	1.0	1.1	0.9	0.8