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MY BROTHER'S KEEPER? THE IMPACT OF TARGETED EDUCATIONAL SUPPORTS

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ABSTRACT

The My Brother's Keeper (MBK) Challenge developed by President Obama supports communities that promote civic initiatives designed to improve the educational and economic opportunities specifically for young men of color. In Oakland, California, the MBK educational initiative features the African American Male Achievement (AAMA) program. The AAMA focuses on regularly scheduled classes exclusively for Black, male students and taught by Black, male teachers who focus on social-emotional training, African-American history, culturally relevant pedagogy, and academic supports. In this study, we present quasi-experimental evidence on the dropout effects of the AAMA by leveraging its staggered scale-up across high schools in the Oakland Unified School District (OUSD). We find that AAMA availability led to a significant reduction in the number of Black males who dropped out as well as smaller reductions among Black females, particularly in 9th grade.

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INTRODUCTION

Social policies across a broad set of domains (e.g., labor, housing, social services, health care, urban development, and education) frequently rely on broad eligibility rules and generic design features that are applied universally to the diverse population of participants. However, the "My Brother's Keeper" (MBK) initiative introduced in 2014 by President Obama (and continuing under the aegis of the Obama Foundation) embeds a different approach. The MBK initiative is a public-private partnership that engages local communities in multi-faceted efforts specifically designed "to address persistent opportunity gaps facing boys and young men of color" (My Brother's Keeper, 2016). The explicit focus of this initiative on Black males has been a source of controversy from observers across the political spectrum. For example, critics have argued that this initiative is discriminatory either because it singles out Black males for attention or because it deprioritizes equity-related challenges among other demographic subgroups (Crenshaw, Ocen, & Nanda, 2015; Clegg, 2014; Jacobs & Fulwood III, 2014).

In response, supporters of the MBK initiative (e.g., powell & Rockeymoore, 2014) have appealed to "targeted universalism" as a salient conceptual framework. Advocates of targeted universalism argue that targeted policies (e.g., affirmative action) often suffer from a lack of enduring political support while universal policies can actually exacerbate inequity (powell, 2008; powell, Menendian, & Reece, 2009).[1] In contrast, targeted universalism calls for combining the clear articulation of universal goals with targeted approaches for achieving them. powell, Menendian, & Reece (2009) note that "this approach targets the varying needs of each group while reminding us that we are all part of the same social fabric." From this perspective, the MBK initiative can be viewed as a proof point for the kinds of differentiated strategies that could support other subgroups as well as an approach that may generate unanticipated benefits.[2]

The ongoing debate about the MBK initiative raises fundamental issues about both how we engage diversity in pluralistic societies and how we can best design policies that support the universal goals we have for all its members. Emerging evidence on the design, theoretical framing, and impact

[1] For example, powell, Menendian, & Reece (2009) note that the Social Security Act of 1935 initially excluded domestic and agricultural workers to garner Southern support, effectively excluding 65% of Blacks from its benefits. Racial gaps in Social Security benefits also exist currently, partly due to differential mortality. Veghte et al. (2016) note the median White non-Hispanic household has over twice the Social Security wealth as the median Black household.

[2] Advocates of targeted universalism often point to the "curb cut effect" (Blackwell, 2017) as an example of such unanticipated benefits. This refers to how the broad adoption of curb cuts, narrowly intended to support the mobility of people with disabilities, soon came to be appreciated by most pedestrians.

of specific MBK initiatives may meaningfully inform the ongoing consideration of these issues. In this study, we seek to provide such evidence by examining the African American Male Achievement (AAMA) initiative in the Oakland Unified School District (OUSD). The AAMA is "an ambitious project designed to dramatically improve academic and ultimately life outcomes for African American male students in Oakland." As we describe in more detail below, the AAMA centers on regularly scheduled classes taught by Black, male teachers and emphasizes social-emotional development, African American history, and culturally relevant pedagogy. The AAMA also features academic and social supports and enrichment activities. The City of Oakland's MBK plan prominently features the AAMA as "a leading example of Oakland's willingness to confront racial equity locally, and be a national model of change" (City of Oakland, 2016).[3]

After describing the AAMA's programmatic features and the varied theoretical and empirical literatures in which it is situated, we turn to examining its impact. Our panel-based approach leverages the staggered expansion of the AAMA across grades and over time in different OUSD high schools to examine the reduced-form effects of program access on counts of Black males who dropped out of high school. Specifically, we examine "difference in difference" (DD) specifications based on event dropout data at the school-grade and year level. We also examine contemporaneous data on dropout counts among Black female students both to examine possible spillover effects and to assess "difference in difference in differences" (DDD) specifications under the conservative assumption of no spillover effects. We find that access to the AAMA significantly reduced the number of Black male dropouts, particularly in 9th grade. Our main estimates imply that, in the average pre-AAMA school-grade cohort of 61.3 Black males, AAMA access reduced the number who dropped out over the next year from 5.2 to 3.0 (i.e., a 43 percent reduction). This implies that AAMA access increased the one-year school-persistence rate of Black males by 3.6 percentage points (i.e., from 91.5 percent to 95.1 percent).[4] We also find evidence of smaller but statistically significant reductions in the dropout counts of Black females.

The AAMA program and these results have broader relevance for the theory, policy, and practice of current efforts to improve the equity of educational outcomes in at least five distinct

[3] However, it should also be noted that the correspondence between the MBK initiative and the AAMA program is not a complete one. The AAMA actually preceded the MBK initiative by several years. Furthermore, some observers of the MBK initiative have strongly criticized the framing of young Black males as "problems" to be fixed (Dumas, 2016; Johnson & Philoxene, 2018; Laymon, 2014) whereas the AAMA program prioritizes Black male empowerment and critical engagement with larger structural inequities in society.

[4] Alternatively, using the grade-transition rates of Black males during the pre-AAMA period, we estimate that AAMA access in 9th and 10th grades would increase the implied rate of on-time high-school completion by 3.2 percentage points.

ways. First, our study of the AAMA provides leading evidence on the impact of the Obama Foundation's MBK initiative. Nearly 250 communities from all 50 states have committed to the MBK Community Challenge and have received over $600 million in grants and in-kind resources as well as $1 billion in low-interest financing (My Brother's Keeper ,2016). However, we know of no prior evidence on the effectiveness of these recent investments. Second, our finding that the AAMA had positive effects on Black males (and the suggestive evidence of its spillover benefits for Black females) provides novel evidence consistent with the promise of "targeted universalism" as a broader policy-design and political strategy.

Third, we are in a period when federal education policies, including those related to equity, are waning. In particular, civil-rights groups have argued (Klein, 2019) that some state accountability plans under the federal Every Student Succeeds Act (ESSA) serve vulnerable students poorly (e.g., by not reporting performance data clearly). In this context, local innovations in educational practice (i.e., such as the AAMA) have an enhanced relevance for guiding our current evidence-based school-improvement strategies (e.g., Petrilli, 2019). Fourth, several recent studies (e.g., Whitehurst, 2009; Jackson and Makarin, 2017) have motivated enthusiasm for high-quality curricula as a compellingly low-cost and scalable reform strategy. Because the AAMA centers in part around an innovative curriculum, this study adds to the evidence on the promise of highly effective curricula. However, the real-world challenges of supporting teachers' capacity to deliver such curricula with fidelity and at scale also need to be kept in mind (Blazar et al. 2019). Finally, our study of the AAMA adds to other recent quasi-experimental evidence (e.g., Dee and Penner, 2017) which suggests that culturally relevant pedagogy can be a particularly potent combination of curricula and teaching practice for students that schools have historically underserved. Further research that examines the theorized psychological mediators mentioned in this study will provide important guidance on how the active ingredients of culturally relevant pedagogy can be instantiated in everyday school practices.

AFRICAN AMERICAN MALE ACHIEVEMENT (AAMA) PROGRAM

Program Features and History

The centerpiece of the AAMA program is the Manhood Development Program (MDP). The MDP is a class that meets every day during regularly scheduled school hours.[5] Embedding the

[5] More recently, additional AAMA-affiliated and college-approved courses were available in some schools such as "African-American Power in the U.S.," "The World's Great Men and Women of Color," and "Revolutionary Literature" (Bakari 2019).

program in a regular class is an intentional design feature that seeks to provide participating students with sustained engagement in a caring community (i.e., changing students' experience of the schooling system) rather than episodic instruction in an after-school or pull-out program. To support further the MDP's emphasis on unity and to create "a powerful peer-based support system" (Watson, 2014), the course also emphasizes a "heterogeneous cohort model" in which students with higher and lower-performing academic results are mixed together in each class. MDP instruction draws in part on the "180 Degrees" social-emotional curriculum and includes units such as "The Emotional Character of Manhood" and "How Do I See Myself/Life's Hard Questions." Other MDP units focus on culturally relevant perspectives on history and society. These units include "The African American Holocaust," "The Struggle for Liberation and Dignity," and "The Black Male Image in American Media." The course also includes community-based projects (e.g., oral histories of Black residents in Oakland).

The MDP instructors who deliver this curriculum are carefully selected and trained Black males who have a history of involvement in the Black community and are expected to take on a nurturing, familial relationship with students. The training of MDP instructors also emphasizes culturally relevant teaching methods, fostering students' critical engagement, and equipping students with "identity resources" to counter the pervasive negative stereotypes and low expectations of Black males (Bakari, 2019). MDP instruction also seeks to support a college-going culture through personalized guidance (e.g., transcript evaluation, college and career counseling) and field trips that emphasize culture and awareness of colleges and careers. Additionally, the MDP course itself satisfies California's "A-G" requirements for admission to the University of California and California State University systems. The broader AAMA program also includes community events and annual celebrations that highlight the successes of Black male students throughout the district.

The AAMA began operations among 9th graders in 3 regular, comprehensive OUSD high schools during the 2010-11 school year. The program soon expanded to serve students in other grade levels and schools throughout the district.[6] The factors that preceded the creation and sustained operations of the AAMA are notable in that they appear to reflect unique determinants both within Oakland and at the federal level. Specifically, the AAMA program grew out of Oakland's long-standing position "at the forefront of national and local efforts to reverse negative

[6] In some cases, the program operated in a school for several years before discontinuing. Currently, the AAMA is active in 6 OUSD high schools. AAMA programming has also recently expanded to 4 middle schools and 4 elementary schools.

trends as they pertain to this group of youths" (Ginwright, Chatmon, & Hodge, 2019). However, in spite of repeated efforts to change schooling experiences and outcomes for Black students, educational advocates argued OUSD was failing to serve Black students well and brought a lawsuit against the district. In 1998, The U.S. Department of Education's Office of Civil Rights (OCR) agreed, finding the district out of compliance with Title VI of the Civil Rights Act of 1965. A subsequent court order required the district to provide Black students equal access to educational resources.

However, a district review in 2010 found that "past initiatives had done little to transform the experiences, access, or educational attainment" of Black males (Watson, 2014). For example, despite being 16 percent of the student population, Black males represented 42 percent of suspensions annually and 75 percent of arrested students on campus (Ginwright, Chatmon, & Hodge, 2019). Roughly 20 percent of Black male students were chronically absent across all grade levels, and in spite of accountability mandates, just 28 percent of Black males met state standards in English and 30 percent did so in math (Watson, 2018). Moreover, 55 percent of Black males were off-course from graduating on-time or were at-risk of doing so compared with 37.5 percent of students in the district overall (Lin, 2012; Marxer et al., 2012; Oakland Unified School District, 2011). Students often fell off track very early in high school and never recovered. These struggles mirrored national challenges in meeting the needs of Black male students (Ginwright, 2010; Noguera, 2008).

The OUSD Superintendent, Tony Smith, collaborated with community leaders, parents, educators, and local philanthropists to launch the AAMA Taskforce and to explore new approaches to supporting OUSD's Black male students. Crucially, the prior ruling on the lack of compliance with Title VI enabled the district to focus resources specifically on Black male students (Ginwright, Chatmon, & Hodge, 2019). The AAMA Taskforce sought to create a program grounded in recognizing the educational potential of Black males (Ginwright, Chatmon, & Hodge, 2019; Givens & Nasir, 2018). The overarching goal for AAMA was to improve academic and life outcomes for Black male students, by reducing the number of high-school dropouts, decreasing exclusionary discipline, increasing attendance, decreasing incarceration rates, and increasing academic achievement and attainment (Ginwright, Chatmon, & Hodge, 2019). The district partnered with Chris Chatmon who designed and continues to lead the AAMA program, now in its 10th year of operations under *five* different OUSD superintendents.

Theoretical Frameworks

As noted earlier, OUSD grounds its motivation for the AAMA program in targeted universalism. This framework underscores the need for targeted means to achieve universally shared social-policy goals. However, the design of the AAMA also has clear links to other prominent conceptual frameworks. Most obviously, the AAMA explicitly embraces "culturally relevant pedagogy" (CRP) as part of its design. Several decades of prominent, qualitative scholarship in education research have stressed the promise of CRP (i.e., culturally aligned content and classroom practices) to unlock the educational potential of historically marginalized students (e.g., Ladson-Billings, 1992b, 1994, 1995; Ladson-Billings & Tate, 1995). A fundamental motivation for CRP is that marginalized students often experience alienating school and classroom practices that are mis-aligned with their cultural knowledge and out-of-school experiences (Banks, 1991; Gay, 1988; Ladson-Billings, 1992a; Nasir & Saxe, 2003; Valenzuela, 1999). CRP instead advocates for instructional practices (and school environments) that are intentionally aligned with the cultural priors of students, validate and affirm their cultural identities and intellectual capacity, and that cultivate critical engagement with their surrounding environments (De Royston & Vakil, 2019; Gay, 2010).

The key features of CRP and the AAMA program also appear to have a strong correspondence with a more recent and independent body of social-psychological evidence on specific mediators (and brief, targeted interventions) that promote academic motivation and performance. For example, classroom exercises that encourage students to identify and affirm their personal values (e.g., Cohen et al., 2006) and that promote belongingness in school (e.g., Walton and Cohen, 2011) show promise and are consistent with CRP's emphasis on promoting learning environments that are affirming rather than marginalizing. Similarly, "growth mindset" interventions that promote students' belief in their latent capacity to learn (e.g., Yeager et al., 2019) parallel CRP's emphasis on stressing students' assets and strengths rather than framing them as problems to be "fixed." Furthermore, interventions that forewarn (and forearm) students about stereotypes (e.g., Johns et al., 2005) or underscore external attributions for their life challenges (e.g., Ben-Zeev et al., 2005) are consistent with CRP's emphasis on a heightened and highly critical engagement with both personal experiences and social history.

However, there is an important distinction between these social-psychological interventions and CRP-based programs like the AAMA. The psychological interventions are typically quite brief (e.g., 15 minutes) and focus narrowly on a singular mechanism. In contrast, programs like the AAMA arguably integrate elements from *all* of these particular mechanisms and deliver them to students on

an unusually sustained and intensive basis (i.e., in a regularly scheduled year-long class). Programs like the AAMA may also address a fundamental concern with the existing evidence on these varied interventions; namely, their failure to replicate consistently (e.g., Dee, 2015). One compelling explanation for these failed replications is that the brief, initial impetus of a psychological intervention relies on highly supportive contexts that support and amplify their proximate impact (Yeager & Walton, 2011).

Because programs like the AAMA seek to change the broad context of classrooms and schools, they may be more effective in cultivating learning environments that are necessary to sustain early improvements in motivation and engagement. Additionally, the AAMA's emphasis on selecting and supporting highly effective teaching further adds to these potentially critical environmental moderators of individual mechanisms. Because the AAMA also relies exclusively on race and gender-congruent instructors, it may also reduce implicit teacher biases and stereotype threat while promoting role-model effects (e.g., Dee, 2004; Dee and Gershenson, 2017).

The design features of the AAMA and these varied mediators are also consistent with economic models of motivation and engagement. For example, Benabou and Tirole (2003) present a model in which intrinsic motivation is formed in the presence of asymmetric information. That is, individuals do not fully understand their own capacity for achievement and so rely on cues provided by their environment (i.e., the "looking-glass self"; Cooley, 1902). In this manner, educational environments that strongly and credibly signal students' capacity to learn may promote academic identification and catalyze intrinsic motivation.

Another relevant body of theoretical scholarship focuses on social identities and their role in shaping varied behaviors (Akerlof & Kranton, 2010). A simple adaptation of a social-identity model presented by Akerlof and Kranton (2002) illustrates the potential impact of programs like the AAMA. Consider a static model in which a student chooses a level of effort, e. In part, this choice is conventionally based on how effort maps into skills (i.e., $k(e)$), the economic value of those skills (i.e., w) and a quadratic term for the disutility of effort. However, another "identity" argument of the utility function includes a fixed term, I, that reflects the value of an individual's authentic social identity and a loss function based on how a student's effort differs from the expectation of their effort signaled by their schooling environment, e^s. This two-part formulation closely tracks with a long-standing and influential insight from W.E.B DuBois's 1903 book, *The Souls of Black Folk*. DuBois (1903) introduced the term "double consciousness" to explain the internal "strife" marginalized people can experience

when they simultaneously understand both their self-worth and how they are viewed by a racist environment (i.e., a low e^s).[7]

In this set-up, a student's overall utility function, U, applies weight, p, to their economic utility and $(1-p)$ to their identity utility:

$$U = p\left(wk(e) - \frac{1}{2}e^2\right) + (1-p)\left(I - \frac{1}{2}(e-e^s)^2\right).$$

Akerlof and Kranton (2002) note that conventional economic models of human-capital investments effectively assume $p = 1$ while ethnographic studies of high-school students suggest instead that social concerns have more salience for their behavior than economic ones (i.e., p is quite small). Regardless, the basic theoretical insight here is that CRP-based programs that, like the AAMA, are embedded in the school environment, may reduce the psychological conflict associated with double consciousness in these settings through affirmation, high expectations, and belongingness reflected in increased e^s. It is straightforward to show that increased e^s unambiguously leads to an increase in a student's optimally chosen effort e^* (i.e., $\frac{\partial e^*}{\partial e^s} > 0$) and that this effect is increasing in p, the weight placed on the identity term.

Empirical Literature

Our study of the AAMA program can also be situated within a variety of recent empirical literatures. The most directly relevant are the recent qualitative and descriptive studies of the AAMA (Watson, 2014, 2018; Givens and Nasir, 2018). These studies find evidence of the AAMA's success on several fronts. For example, ethnographic studies highlight the deep connections the program fosters between participating students and instructors, with particularly noteworthy changes in how discipline is used by instructors and perceived by students (Nasir, Ross, McKinney de Royston, Givens, & Bryant, 2013; Watson, 2014). Survey data indicate a large number of students believe that their MDP instructor wants them to succeed, cares for and respects them, encourages them to do well, and is someone they trust. Parents also seem to build trust and connections with schools because of AAMA (Watson, 2014). Givens and colleagues (2016) find that the program helps foster

[7] Dubois (1903) wrote "It is a peculiar sensation, this double-consciousness, this sense of always looking at one's self through the eyes of others, of measuring one's soul by the tape of a world that looks on in amused contempt and pity. One ever feels his twoness,—an American, a Negro; two souls, two thoughts, two unreconciled strivings; two warring ideals in one dark body, whose dogged strength alone keeps it from being torn asunder. The history of the American Negro is the history of this strife,—this longing to attain self-conscious manhood, to merge his double self into a better and truer self."

a caring community that supported the development of new definitions of Black manhood among students. The district also documented reductions in disciplinary infractions, including a fifty percent reduction in the Black male suspension rate, and improvements in academic performance for Black male students, including a ten-percentage point increase in Black students on the honor roll, and an 18-percentage point increase in cohort graduation rates. These reports were careful to note that the changes could not be directly attributed to the AAMA program, but they do suggest positive changes occurring in OUSD as the AAMA program developed (Watson, 2018).

Our quasi-experimental study seeks to complement these studies with causally credible evidence on the extent to which access to the AAMA program has influenced dropping out of high school. We know of no other such quantitative evidence on the AAMA or any other MBK-affiliated program. However, our results are related to other empirical literatures. One is the large body of evidence that Black students benefit from having race-congruent teachers on a broad array of short and long-term educational outcomes (Dee, 2004, 2005; Francis, 2012; Campbell, 2012; Gershenson, Hart, Hyman, Lindsay, & Papageorge, 2018; Gershenson, Holt, & Papageorge, 2016; Holt & Gershenson, 2017; Lindsay & Hart, 2017; Nicholson-Crotty, Grissom, Nicholson-Crotty, & Redding, 2016). Though the AAMA does feature race-congruent teachers, its key program features are also unique because the teachers are at the intersection of both race and gender and because the AAMA also focuses on distinctive design features related to curriculum, classroom culture, and instructional practices.

The AAMA also has similarities with charter academies that exclusively serve male or Black students. Qualitative studies suggest such schools benefit male students of color, particularly with regards to social supports and educator relationships (Fergus & Noguera, 2010; Fergus, Noguera, & Martin, 2014; Oeur, 2018). However, the AAMA also differs significantly from these initiatives because it operates within traditional, co-educational schools and does so on a district-wide scale. This study of the AAMA is also related to recent studies that provide quantitative evidence on the impact of other forms of culturally relevant pedagogy. Studies of a Mexican-American Studies course in the Tucson Unified School District (Cabrera et al., 2014) and an ethnic-studies course in the San Francisco Unified School District (Dee and Penner, 2017) provide evidence that access to these courses improves several academic outcomes. However, the AAMA differs from these courses in notable ways including the targeted focus on Black males, its comparative district-wide scale, and the program's breadth in combining culturally relevant pedagogy with social-emotional supports and academic mentoring with out-of-class social supports and cultural opportunities. In sum, OUSD's

AAMA program provides a compelling opportunity to examine the efficacy of a unique, ambitious, and multi-faceted approach to meeting the developmental needs of Black male students. In the next sections, we turn to the data and methods we use to examine the AAMA's educational impact.

DATA

For our key outcome variable, "event" dropouts, we relied on annual files produced by the California Department of Education (CDE). These files report counts of enrolled students and the number who dropped out by the subsequent academic year.[8] The CDE files report the enrollment and corresponding event dropout counts annually for cells at the school, grade, race, and sex level. Our analysis relies on files from a 12-year period (i.e., AY 2005-06 through AY 2016-17) for the 9 regular, comprehensive schools in the Oakland Unified School District (OUSD) serving students in grades 9 through 12. We excluded OUSD's alternative high schools (e.g., "continuation" schools serving students at high risk of dropping out). We also excluded one, smaller high school (MetWest High School), which has an alternative curriculum and inconsistent data on its AAMA programming.

This study window precedes the introduction of the first AAMA programs in three OUSD high schools in AY 2010-11 and spans its subsequent expansion to three other OUSD high schools. The remaining three other high schools did not offer the AAMA program during this time. Five of the nine high schools in this study have balanced panel data on enrollment and dropouts (i.e., 4 grades observed in each of 12 years). In one of the remaining schools (i.e., Castlemont High School), the CDE only reports enrollment and dropout counts at the 12th grade level. In another school (i.e., Fremont High School), the CDE only reports data since 2012.[9] The remaining two high schools have unbalanced school-grade-year panel data because they opened during the study window and expanded to higher grades on a year-to-year basis.[10] Our resulting data set consists of 310 school-grade-year cells which identify the enrollment and dropout outcomes for 15,250 student-year observations of Black male high-school students.

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[8] The CDE definition of event dropouts is consistent with the federal approach. Students who graduated, transferred to another school, died, moved to another country, or are missing school due to illness are not considered dropouts. Unsurprisingly, event dropouts are at quite high risk of failing to graduate high school. For example, estimates based on the nationally representative High School Longitudinal Study of 2009 (HSLS:09) indicate that, among students who dropped out for as little as 4 weeks, only about a third were poised for on-time graduation.

[9] In both cases, this reporting may reflect the fact that these schools hosted a community of smaller schools during this period.

[10] As one of several robustness checks, we report our results using only schools with balanced panel data and find similar results.

The identifying variation in this study relies on the staggered availability of the AAMA at the school-grade level across different years. That is, our reduced-form estimates identify the impact of AAMA *availability* on all Black male students.[11] The AAMA program was first available for 9th graders at three OUSD high schools during the 2010-11 school year. Over the subsequent six years, the program expanded both to three other high schools and to higher grades within participating schools. The program also became unavailable in some schools and grades because of staffing and funding constraints or because of changes in the support of the school principal. We identified the school-grade-year cells in which the AAMA was active by relying on multiple sources. Specifically, we examined student-level roster data available from AAMA staff, OUSD course enrollment data, staffing data, publicly available and internal archival documents on program operations in discussions with central program leaders.

Table 1 reports summary statistics for the key variables in this study. On average, the school-grade cells in our study enrolled roughly 49 Black male students. On average, 3.4 of these students dropped out by the following year.[12] We also report the corresponding data for Black females who have similar enrollment numbers but a slightly lower average dropout count. We describe below how we use these data in our analysis. On average, the AAMA was available in 17 percent of the school-grade-year cells in our data set. In the first five years of our study window, the AAMA was universally unavailable. By the final year, it was available in roughly 36 percent of the school-grade observations. Table 1 also indicates that the AAMA was particularly common in 9th grade and, to a lesser extent, 10th grade.

SPECIFICATIONS

We begin with a fixed-effects specification of the following structure:

$$Y_{sgt} = \alpha_{sg} + \gamma_t + \beta\left(AAMA_{sgt}\right) + \theta X_{sgt} + \varepsilon_{sgt}$$

where Y_{sgt} presents the dropout outcome for school-grade cell *sg* in year *t*. The terms, α_{sg} and γ_t, represent fixed effects unique to each school-grade observation and year, respectively. The term,

[11] The available OUSD data suggest that, when the AAMA was available, generally 15 to 25 percent of Black male students in the school-grade cohort participated. Our reduced-form estimates reflect both the direct effects of participation and possible spillover effects on non-participating Black males.

[12] These full-sample means mask heterogeneity over both time and grade levels. Consistent with OUSD's rising high-school graduation rate, dropouts of Black males fell over this period. Furthermore, prior to the AAMA, Black males were particularly likely to drop out in 12th grade. Consistent with this study's findings, Black males in OUSD are now substantially less likely to dropout in 9th grade where the AAMA is particularly active but remain at comparatively high risk in 12th grade where the program is less active.

$AAMA_{sgt}$, is a binary indicator for whether the AAMA was available in that school-grade-year cell. The remaining variables represent other control variables we describe below and a mean-zero error term that accommodates clustering at the school-grade level. This specification can be understood as a "difference in differences" (DD) specification with school-grade as the cross-sectional unit of observation and year as the time dimension. We also report the results of such DD specifications that introduce grade-specific and school-specific year fixed effects. In models that condition on school-by-year fixed effects, our analysis effectively relies on the variation among grades in the same school and year, only some of which had direct access to the AAMA program.

Several other analytical details of this approach merit further discussion. First, in the main results we report, our dependent variable is the natural log of the dropout counts among Black male students. Second, our set of covariates includes the natural log of the baseline enrollment of Black male students. However, because some dropout counts (and a few enrollment counts) are zero, we impute 0.5., and our covariate set also includes dummy variables for whether the dependent variable or the enrollment count is based on this imputation. We also examine approaches that do not rely on this imputation. Specifically, we find similar results in models that instead transform these count data using the inverse hyperbolic sine. Furthermore, we find similar results from conditional maximum likelihood estimate of a fixed-effects negative binomial and Poisson specifications (Hausman, Hall, & Griliches, 1984). We report the key results of these and other robustness checks in Appendix Table 1.

An additional concern is the reliability of the statistical inferences based on this approach. For example, because there are only 33 unique school-grade clusters in these data, the conventional clustering procedure we use may reflect some finite-sample bias. To assess the empirical relevance of this concern, we also report inferences using the procedure recently developed by Pustejovsky and Tipton (2018) for fixed-effect applications like this. We also report results that weight our specification by the average enrollment at the school-grade level. Finally, as an additional check, we also discuss p-values based on randomization inference. In this permutation-based procedure, we randomly assign treatment status within school-grade units over multiple replications (i.e., 10,000) to construct a sampling distribution for our estimates under the null hypothesis of no effect.

Another concern is the recent evidence that fixed-effects estimates like ours may not actually correspond to the average treatment effect (ATE) of interest. For example, de Chaisemartin and D'Haultfoeuille (2019) show that, when treatment effects are not constant across groups and time, our DD approach generates a weighted sum of treatment effects in each group and period where

some of the weights can actually be negative. Following their procedure, we calculated the implied weights and found that they were uniformly positive, both for models based on Black males and on Black females.[13] A related concern is that DD specifications like ours effectively weight the impacts associated with specific school-grade cells by the conditional variance in treatment (e.g., Angrist & Pischke, 2008). This implies that the early adopting school-grade cells (i.e., those that adopt in the middle of our study window) receive a larger weight than those that adopted nearer the end of the study window. We implemented a test recently introduced by Gibbons et al. (2018) and found that we cannot reject the null hypothesis that our reported estimates are equivalent to an estimate reweighted to address this concern. We report this reweighted estimate in Appendix Table 1.

The binary treatment indicator in the "static" specification above also embeds an assumption that the impact of AAMA availability does not vary over time. However, there is a theoretical reason to suspect that the AAMA has larger effects in the 9th grade (i.e., when social identity in a new school setting is most malleable). Furthermore, the impact of AAMA availability may have dynamic properties. For example, the impact of access in one grade may persist to later grades even if the program is unavailable.[14] As a practical matter, our data do not provide much scope to discriminate among these hypotheses as the AAMA was often introduced in grade 9 and then expanded to higher grades in later years. Given the theoretical guidance, we focus on estimates that allow the impact of the AAMA to vary by grade. However, we find similar results in semi-dynamic specifications that instead allow the first exposure to AAMA availability to have different effects in later years and that allow for "dosage" effects from cumulative access to the program. We report these findings in Appendix Tables 2 and 3.

We also report the results from parallel DD specifications that examine the impact of AAMA availability on the dropout counts of Black *females*. These estimates could reflect the spillover effects on females of having the AAMA available to their male peers. However, we can also view these results as a falsification exercise. That is, in the absence of specification error, we'd expect the impact of AAMA availability on females to be smaller, if not absent. Alternatively, we could view any impact of the AAMA on Black females as indicative of a potential internal-validity threat (i.e., a

[13] Another recent study (Goodman-Bacon, 2018) proposes a decomposition and analysis of the underlying 2 X 2 DD estimates. However, that approach assumes that cross-sectional units can only move from a no-treatment condition to treatment. Therefore, it cannot be applied in this context where some cross-sectional units enter and subsequently leave the treatment condition.

[14] The fact that program impact in earlier grades (i.e., reducing dropouts) creates selection into other school-grade-year cells further complicates the dynamic character of the AAMA's impact. This implies that program availability is not an event as in a typical DD design and suggests privileging semi-dynamic DD specifications over static ones.

reflection of unobserved and confounding dropout determinants unique to the school-grade-year cells as they adopted the AAMA). For example, the adoption of the AAMA could coincide with other school efforts to support all students. As practical matter, we cannot distinguish the extent to which effects on Black females reflect spillover effects or an internal-validity threat.

To assess the empirical relevance of this concern, we also report the results of "difference in difference in differences" (DDD) specifications that assume any impact on Black females reflects a source of bias. Specifically, we stack the school-grade-year data for Black males and females (n = 620) to estimate a DDD specification which takes the following form:

$$Y_{sgbt} = \alpha_{sgt} + \delta_{sgb} + \gamma_{bt} + \beta\left(AAMA_{sgbt}\right) + \theta X_{sgbt} + \varepsilon_{sgbt}$$

The first three terms on the right-hand side of this equation represent an unrestrictive set of fixed effects for all possible two-way interactions. That is, this specification conditions on fixed effects unique to each school-grade-year cell, each school-grade-gender cell, and each gender-year cell. The treatment indicator of interest, $AAMA_{sgbt}$, is a three-way interaction between being in a school-grade cell and year in which the AAMA was available and also being male. This model can condition on fixed effects specific to each school-grade-year cell because the dropout data from Black females provides a "control" group within these cells.

RESULTS

In Table 2, we report the key results from different versions of our basic DD specification where the natural log of dropout counts is the dependent variable. These estimates consistently indicate that, when the AAMA became available in a school and grade, the number of Black males who dropped out of school fell significantly relative to the contemporaneous changes in other school-grade observations. These results also indicate that the impact of AAMA access was particularly large in 9th (and, to a lesser extent, 10th) grade. This heterogeneity is consistent with the hypothesis that the AAMA promotes a positive social identity in the highly evaluative context of schools (i.e., because the effect is larger at a time when social identities are particularly malleable). However, the null hypothesis of a common treatment effect across grades is only rejected in models that also condition on year-grade and school-year fixed effects (i.e., column 6 in Table 2).

The magnitudes of the impact estimates in Table 2 merit careful interpretation. These point estimates imply quite large *percent* changes. For example, column (1) in Table 2 implies that AAMA access reduced dropout counts by 43 percent (i.e., $e^{-0.559} - 1$). However, these estimates are more clearly plausible when benchmarked against the relevant means in the data. Specifically, in the 5

years prior to the introduction of the AAMA, these school-grade cells averaged an enrollment of 61.3 Black males, 5.2 of whom dropped out by the start of the next year. So, a 43 percent reduction implies that AAMA access reduced the number of dropouts by 2.2 students (i.e., 0.43 X 5.2). Alternatively, it implies that AAMA access reduced the one-year event dropout rate from roughly 8.5 percent to 4.8 percent. A third way to frame these estimates is in terms of their impact on an imputed on-time high-school graduation rate based on the grade-specific rates of school persistence during the pre-AAMA period. Using this approach and the results in Table 2, we find that access to the AAMA during 9th and 10th grades implies the high-school graduation rate for Black males increased by at least 3.2 percentage points.[15]

In Table 3, we similarly report the key results based on the dropout data are for Black females. Though Black females did not participate in the AAMA, they may have benefited from positive peer-group effects due to the participation of Black males. The results in Table 3, which indicate that AAMA access reduced dropout counts among Black females, are consistent with this hypothesis. And, plausibly, the estimated effects of AAMA access on Black females are smaller than the corresponding estimates for males. For example, column (1) in Table 3 implies that AAMA access reduced dropout counts for Black females by 29 percent (i.e., $e^{-0.340} - 1$). Furthermore, the estimated impact on Black females also appears to be concentrated in the 9th grade (i.e., column (6) in Table 3).

However, an alternative interpretation of the results in Table 3 is that they instead reflect unobserved confounds that are coincident with the introduction of the AAMA in specific schools and grades. The robustness of the results in Tables 2 and 3 to conditioning on school-by-year fixed effects (i.e., column 6) suggests this is not so. However, it may be that a school principal concerned about student performance *in a particular grade* simultaneously welcomed the AAMA program and introduced other unobserved initiatives. In this scenario, Table 3's estimated effects of AAMA access on Black females could instead reflect the impact of other unobserved but coincident interventions.

In Table 4, we present DDD estimates that embed this conservative assumption using the stacked data on Black males and females. In particular, these DDD estimates condition on fixed effects unique to each school-grade-year cell. This approach effectively relies on comparisons in the same school, grade, and year across Black males for whom AAMA is relevant and Black females for

[15] This conservative estimate embeds the assumption that AAMA access only influences event dropouts in grades 9 and 10 and has no dynamic effect on later dropout behavior.

whom the presence of the program is assumed to be wholly irrelevant. Under this conservative approach, the estimated impact of the AAMA on the dropout counts is still qualitatively large and statistically significant. Specifically, column 5 in Table 4 implies that AAMA access reduced the dropout counts of Black males by 19 percent (i.e., $e^{-0.216} - 1$).

Overall, these findings suggest that the AAMA program was effective in increasing the school persistence of Black males and may have had spillover benefits for Black females. However, another potential threat to the internal validity of this evidence is the possibility that the presence of the AAMA program in a particular school, grade, and year led to mobility of students into (or out of) the school. To examine the empirical relevance of this concern, we estimated auxiliary regressions where the natural log of *enrollment* was the dependent variable. We report the key results of this analysis in Table 5. Both DD and DDD specifications consistently suggest that the presence of the AAMA program had small and statistically insignificant effects on the number of enrolled Black males. These results suggest that student mobility across schools in the community does not confound this study's main results.

We also explored the robustness of our results to a variety of alternative approaches to estimation, inference, and sample construction. First, we examined the statistical significance of our main result (i.e., column 1, Table 2) under randomization inference.[16] That is, over 10,000 replications, we randomly assigned treatment status within school-grade observations and estimated the impact of this simulated treatment. Figure 1 shows the distribution of these simulated impact estimates. Notably, none of these simulated estimates was as large as the actual estimate in absolute value, implying a p-value < 0.0001. We also examined the robustness of our inferences after correcting for the finite-sample bias that might be due to the small number of school-grade clusters (Pustejovsky and Tipton 2018) and when weighting our estimation by enrollment. The results of these approaches (Appendix Table 1) are quite similar to those reported in Table 2.

Another potential concern is that, in the presence of heterogeneous treatment effects across school-grade cells, our DD estimates may not correspond to the average treatment effect (ATE) of interest. A recent study by Gibbons et al. (2018) proposes a reweighting procedure that recovers an ATE estimate and a test for whether it differs from the conventional DD estimate. We implemented this procedure and found it generated a somewhat larger estimate (Appendix Table 1) but that this was not statistically distinguishable from the DD estimate in Table 2 (p-value = 0.2321). We also

[16] This permutation-based method may be particularly appropriate in quasi-experimental settings like ours where the underlying variation can be more readily understood as design-based rather than based on sampling variation.

examined alternative approaches to modeling dropout counts. These approaches consisted of transforming dropout counts using the inverse hyperbolic sine (Bellemare & Wichman, forthcoming) and estimating conditional maximum-likelihood versions of Poisson and negative binomial regressions for specifications with fixed effects (Hausman et al., 1984). These approaches also generated qualitatively similar results (Appendix Table 1).

We also examined our key results in estimates based on alternative sample definitions. Specifically, we conducted an analysis excluding data from three smaller high schools that were particularly likely to have a zero count for dropouts. And, in a separate analysis, we limited our approach to data from high schools with a balanced panel of grade observations across our studies. We found similar results under both of these sample restrictions (Appendix Table 1).

Finally, we also considered alternative approaches to modeling the potentially dynamic impact of AAMA access. Guided by our underlying theoretical framework, our core analysis focused on the potential treatment heterogeneity related to the immediate effect of AAMA access by grade of exposure. However, it may also be that a student's first year of access to the AAMA has lingering effects on subsequent years. Alternatively, there may be unique effects associated with cumulative access to the AAMA over time (i.e., a dosage effects). As a practical matter, the data may afford little latitude to distinguish among these patterns. The AAMA was often introduced in 9th grade in a participating school and expanded to later grades thereafter. Therefore, for some cohorts, there is a collinearity between effects in later grades, lagged effects of initial exposure, and the effects of cumulative exposure. Nonetheless, in Appendix Tables 2 and 3, we present estimates based on alternative measurement of the dynamic effects of AAMA access. Unsurprisingly, we find results quite similar to those based on exposure by grade.

CONCLUSIONS

The quasi-experimental evidence presented in this study indicates that access to the AAMA as it expanded its operations across Oakland's high schools led to a meaningful reduction in the dropout counts of Black males, particularly in 9th grade. Based on these event-dropout results, we estimate that access to the AAMA in 9th and 10th grades increased the on-time high-school graduation rate of Black males by about 3 percentage points. As a descriptive context for these gains, we note that, between the graduating classes of 2010 and 2018, the state-calculated high-school graduation rate for Black males in OUSD increased from 46 to 69 percent. This targeted gain among Black males exceeded the contemporaneous districtwide improvement in OUSD's high-school

graduation rate by about 5 percentage points. Our results also suggest the AAMA program contributed substantially to these gains and might have greater impact if it had a more robust (and similarly effective) presence in 12th grade where dropout rates are substantially higher. Nonetheless, the social-welfare benefits of these improvements in school persistence can be substantial. A large body of empirical studies have found evidence that links improvements in educational attainment to gains on a broad array of lifelong social and economic indicators such as employment, earnings, health outcomes, the use of public assistance, incarceration, and civic engagement (e.g., Belfield & Levin, 2007).

While the results of this study are highly encouraging, two potential caveats merit further consideration. First, as with any promising intervention, the capacity of other districts to replicate the impact of this program is an open question. The fact that the impact we document occurred as the program dramatically increased its operations across OUSD schools suggests that scalability is practical. However, the AAMA program may have also benefited from the unique Oakland context and the unusual stability of its founding leadership and key staff. These key contextual resources may not be available to other districts who hope to replicate this program. The recent expansion to other school districts of programs modeled on the AAMA will provide important opportunities to assess this challenge.

A second important consideration is how the cost effectiveness of AAMA compares to other programs that similarly show promise in promoting high-school persistence. A recent practice guide on dropouts sponsored by the U.S. Department of Education (Rumberger et al., 2017) provides a variety of relevant evidentiary benchmarks. One uniquely apt point of comparison is the "Becoming a Man" program, which removes males from traditional classes once a week for 1-hour, small-group sessions grounded in cognitive behavioral therapy (CBT). A study of this program in Chicago public schools found that program access increased high-school graduation rates by 3 percentage points (Heller et al., 2017, study 1). However, this out-of-class programming is also fairly expensive. Specifically, the direct cost of fielding the two-year program among 9th and 10th graders was nearly $4,000 per participant in 2010 dollars. However, much of the AAMA programming is embedded in a conventional academic class that, in the absence of the AAMA, would be staffed by other OUSD teachers who also receive instructional support (e.g., professional development). Therefore, the more relevant direct costs of AAMA participation are the comparatively modest ones related to out-of-class activities (e.g., leadership activities, conferences, and administrative overhead).

This comparison suggests the AAMA can be uniquely cost-effective largely because so much of the program is embedded in the reallocation of the resources funding conventional school operations.

More generally, the evidence of positive impact presented here suggests that this programmatic innovation and its conceptual foundations (e.g., targeted universalism) merit further scrutiny and consideration. The ongoing efforts to adapt and replicate AAMA-like programs in other school districts will provide such opportunities. Furthermore, consistent with targeted universalism, OUSD has recently implemented educational programming that targets Black females, Latino/a, and Asian/Pacific Islander students. The broad, ongoing implementation of MBK programs in communities across the United States also provides compelling opportunities to identify effective programs that merit further replication and scrutiny.

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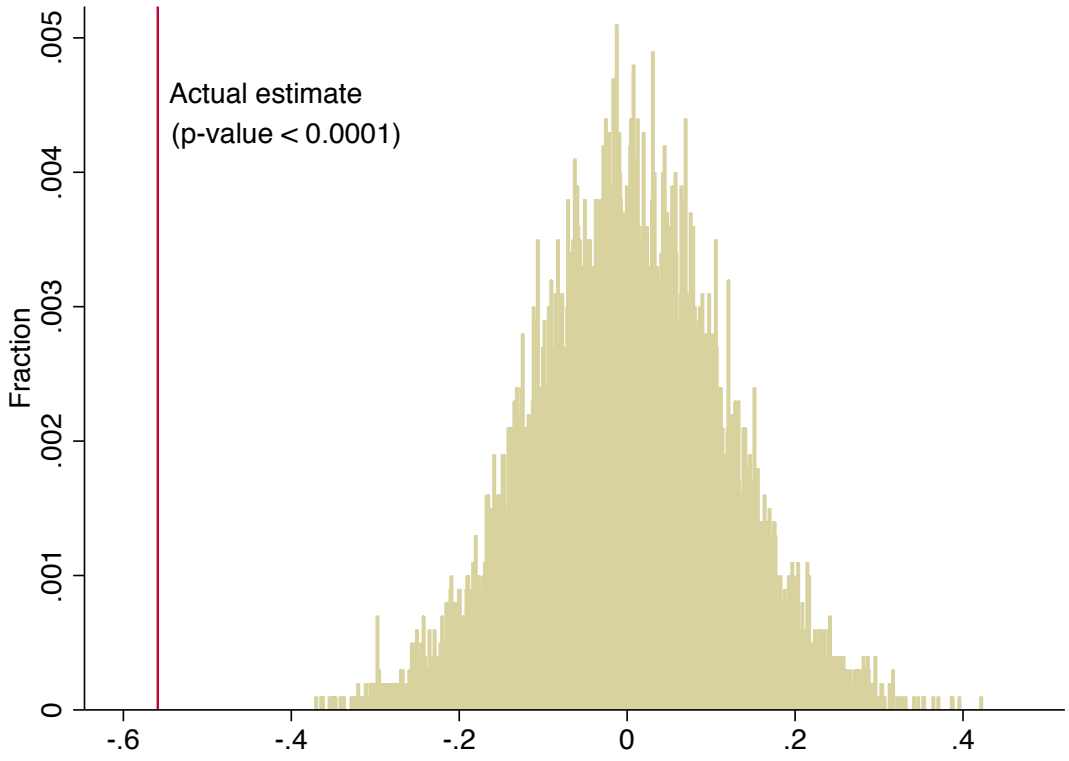

Figure 1 – Distribution of Simulated Impact Estimates (10,000 replications)

Table 1 - Descriptive Statistics

Variable	Mean	Standard Deviation
Dropouts - Black Males	3.40	6.60
Enrollment - Black Males	49.19	39.99
Dropouts - Black Females	2.48	4.05
Enrollment - Black Females	47.46	40.78
AAMA	0.17	0.37
AAMA X Grade 9	0.08	0.28
AAMA X Grade 10	0.05	0.21
AAMA X Grade 11 or 12	0.04	0.19

Notes: This dataset consists of n=310 school-grade-year observations of high schools in the Oakland Unified School District (OUSD) observed annually from the 2005-06 through 2016-17 school years. These data represent 15,250 student-year observations of Black males and 14,713 student-year observations of Black females.

Table 2 - The Estimated Effects of AAMA Availability on Dropout Counts among Black Males

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
AAMA	-0.559***	-	-0.484***	-	-0.556***	-
	(0.166)		(0.152)		(0.184)	
AAMA X Grade 9	-	-0.821***	-	-0.856***	-	-0.959***
		(0.262)		(0.263)		(0.195)
AAMA X Grade 10	-	-0.351**	-	-0.269	-	-0.407
		(0.142)		(0.188)		(0.256)
AAMA X Grade 11 or 12	-	-0.386	-	-0.330	-	-0.166
		(0.235)		(0.238)		(0.272)
p-value: (H_0: $\beta_1 = \beta_2 = \beta_3$)	-	0.2110	-	0.1850	-	0.0174
Fixed Effects?						
School X Grade	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y
Year X Grade	N	N	Y	Y	Y	Y
School X Year	N	N	N	N	Y	Y

Notes: The dependent variable is the natural log of the dropout counts in the school-grade-year cell (N = 310). All models also condition on the natural log of the corresponding enrollment count and on binary indicators for imputed dropout and enrollment counts (see text for details). Standard errors are clustered at the school-grade level.

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3 - The Estimated Effects of AAMA Availability on Dropout Counts among Black Females

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
AAMA	-0.340**	-	-0.339**	-	-0.128	-
	(0.139)		(0.129)		(0.178)	
AAMA X Grade 9	-	-0.498**	-	-0.572***	-	-0.472***
		(0.239)		(0.200)		(0.152)
AAMA X Grade 10	-	-0.218	-	-0.207	-	-0.016
		(0.180)		(0.242)		(0.244)
AAMA X Grade 11 or 12	-	-0.233	-	-0.238	-	0.254
		(0.168)		(0.176)		(0.258)
p-value: (H_0: $\beta_1 = \beta_2 = \beta_3$)	-	0.5901	-	0.3764	-	0.0307
Fixed Effects?						
School X Grade	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y
Year X Grade	N	N	Y	Y	Y	Y
School X Year	N	N	N	N	Y	Y

Notes: The dependent variable is the natural log of the dropout counts in the school-grade-year cell (N = 310). All models also condition on the natural log of the corresponding enrollment count and on binary indicators for imputed dropout and enrollment counts (see text for details). Standard errors are clustered at the school-grade level.

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 4 - The Estimated Effects of AAMA Availability on Dropout Counts

	Difference in Differences (DD)				Difference in Difference in Differences (DDD)	
	Black Males		Black Females			
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
AAMA	-0.559***	-	-0.340**	-	-0.216**	-
	(0.166)		(0.139)		(0.091)	
AAMA X Grade 9	-	-0.821***	-	-0.498**	-	-0.329**
		(0.26)		(0.239)		(0.121)
AAMA X Grade 10	-	-0.351**	-	-0.218	-	-0.141
		(0.142)		(0.180)		(0.187)
AAMA X Grade 11 or 12	-	-0.386	-	-0.233	-	-0.124
		(0.235)		(0.168)		(0.151)
p-value: (H_0: $\beta_1 = \beta_2 = \beta_3$)	-	0.2110	-	0.5901	-	0.4832
Fixed Effects?						
School X Grade	Y	Y	Y	Y	N	N
Year	Y	Y	Y	Y	N	N
Year X Gender	N	N	N	N	Y	Y
School X Grade X Gender	N	N	N	N	Y	Y
School X Grade X Year	N	N	N	N	Y	Y

Notes: The dependent variable is the natural log of the dropout counts in the school-grade-year cell. All models also condition on the natural log of the corresponding enrollment count and on binary indicators for imputed dropout and enrollment counts (see text for details). The sample size for each DD specification is 310 and for each DDD specification, 620. Standard errors are clustered at the school-grade level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5 - The Estimated Effects of AAMA Availability on Enrollment Counts

	Difference in Differences (DD)				Difference in Difference in Differences (DDD)	
	Black Males		Black Females			
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
AAMA	-0.039	-	0.0124	-	-0.050	-
	(0.064)		(0.064)		(0.067)	
AAMA X Grade 9	-	-0.090	-	-0.037	-	-0.048
		(0.126)		(0.084)		(0.093)
AAMA X Grade 10	-	-0.015	-	0.103	-	-0.117
		(0.074)		(0.082)		(0.073)
AAMA X Grade 11 or 12	-	-0.012	-	-0.012	-	0.021
		(0.110)		(0.144)		(0.106)
Fixed Effects?						
School X Grade	Y	Y	Y	Y	N	N
Year	Y	Y	Y	Y	N	N
School X Grade X Year	N	N	N	N	Y	Y
School X Grade X Gender	N	N	N	N	Y	Y
Year X Gender	N	N	N	N	Y	Y

Notes: The dependent variable is the natural log of the enrollment counts in the school-grade-year cell (n=310). All models also condition on a binary indicator for imputed enrollment counts (see text for details). The sample size for each DD specification is 310 and for each DDD specification, 620. Standard errors are clustered at the school-grade level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 1 - The Estimated Effects of AAMA Availability on Dropout Counts of Black Males, Alternative Specifications

		Estimate by Grade		
Description	Overall Estimate	9th Grade	10th Grade	11th/12th Grade
Baseline specification (Table 2)	-0.559*** (0.166)	-0.821*** (0.262)	-0.351** (0.142)	-0.386 (0.235)
Finite-sample cluster adjustment (Pustejovsky and Tipton 2018)	-0.559*** (0.169)	-0.821** (0.284)	-0.351* (0.154)	-0.386 (0.252)
Weighted Least Squares (WLS)	-0.439** (0.183)	-0.702** (0.260)	-0.191 (0.168)	-0.289 (0.254)
Reweighted estimates (Gibbons et al. 2018)	-0.721*** (0.203)	-	-	-
Inverse hyperbolic sine	-0.501** (0.205)	-0.833** (0.365)	-0.337 (0.234)	-0.171 (0.247)
Fixed effects negative binomial	-0.473*** (0.171)	-0.831*** (0.239)	-0.367 (0.289)	0.062 (0.263)
Fixed effects Poisson	-0.383*** (0.132)	-0.867*** (0.207)	-0.487* (0.260)	0.141 (0.185)
Omitting smaller high schools (n = 222)	-0.387** (0.152)	-0.614*** (0.206)	-0.190 (0.171)	-0.254 (0.232)
Balanced panel (n = 240)	-0.634*** (0.193)	-0.914*** (0.277)	-0.365** (0.163)	-0.446 (0.293)

Notes: See text for specification details. Standard errors are reported in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 2 - The Estimated Effects of AAMA Availability on Dropout Counts

Independent variable	Black Males	Black Females
AAMA X First Exposure	-0.827***	-0.545**
	(0.254)	(0.224)
AAMA X 1 Year After First Exposure	-0.432**	-0.159
	(0.160)	(0.117)
AAMA X 2 Years After First Exposure	-0.489**	-0.134
	(0.196)	(0.171)
AAMA X 3 Years After First Exposure	-0.049	-0.102
	(0.248)	(0.138)
p-value: (H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4$)	0.1906	0.3987

Notes: The dependent variable is the natural log of the dropout counts in the school-grade-year cell. All models also condition on the natural log of the corresponding enrollment count and on binary indicators for imputed dropout and enrollment counts, school-grade fixed effects, and year fixed effects. The sample size for each DD specification is 310. Standard errors are clustered at the school-grade level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 3 - The Estimated Effects of AAMA Availability on Dropout Counts

Independent variable	Black Males	Black Females
AAMA X 1st Year	-0.754***	-0.524**
	(0.253)	(0.225)
AAMA X 2nd Year	-0.350**	-0.239
	(0.164)	(0.211)
AAMA X 3rd or 4th Year	-0.388	-0.129
	(0.289)	(0.176)
p-value: (H_0: $\beta_1 = \beta_2 = \beta_3$)	0.3123	0.3814

Notes: The dependent variable is the natural log of the dropout counts in the school-grade-year cell. All models also condition on the natural log of the corresponding enrollment count and on binary indicators for imputed dropout and enrollment counts, school-grade fixed effects, and year fixed effects. The sample size for each DD specification is 310. Standard errors are clustered at the school-grade level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$