Veiled Power: How Rosenwald Schools Quietly Shaped the Civil Rights Movement

Omar Wasow* Jacob M. Grumbach*

April 10, 2026

Abstract

What precipitates the collapse of seemingly durable social orders like Jim Crow? During the 1920s, 5,000 schools were built across the rural South through a partnership between philanthropist Julius Rosenwald and Black communities who raised matching funds and donated land. Local elites saw vocational training that would preserve the racial order, but counties with more Rosenwald Schools experienced greater civil rights protest activity in the 1960s. We argue Black educators used accommodationist cover to build *veiled capacity*: organizational infrastructure for collective action behind a veil of compliance. Mediation analysis reveals that pre-existing Black social capital predicted protest through Rosenwald *teacher* placements, not overall Black enrollment. Instrumental variable models suggest the effect is not driven by community selection. Moving from no Rosenwald teachers to the 75th percentile predicts 45% more protest participation. Even under conditions of domination, civic capacity can accumulate where elites cannot see.

Word count: Text: 10,373, Headers: 86, Captions, references, other: 875, Total: 11,248

*Omar Wasow, Asst Professor, University of California, Berkeley. Corresponding author: owasow@berkeley.edu, http://omarwasow.com

Jacob M. Grumbach, Associate Professor, University of California, Berkeley. grumbach@berkeley.edu, https://sites.google.com/view/jakegrumbach

We thank Risa Gelles-Watnick for excellent research assistance. We thank Trevon Logan for helpful feedback. We also thank the Center for the Study of Democratic Politics for supporting this research.

Why do durable social orders persist for decades in some eras, while in others they undergo significant change or even collapse? Historical evidence suggests various forms of path dependence can produce stable social orders that last for centuries (Liebowitz and Margolis 1995; Page 2006). At the same time, social movements, insurgencies, and other efforts to disrupt established hierarchies routinely arise—often seemingly out-of-nowhere—and not infrequently succeed at restructuring society (Stephan and Chenoweth 2008). How can a social order be both long-lasting and susceptible to rapid change? We argue that seemingly accommodationist institutions can accumulate what we call *veiled capacity*—the hidden networks, leadership, and organizational skills that, when activated, have the power to disrupt entrenched hierarchies. We test this theory by examining approximately 5,000 "Rosenwald Schools" built during the 1920s across the rural South through a partnership between Black communities, Booker T. Washington, and philanthropist Julius Rosenwald.

Local white elites saw the schools as tools of social control. A North Carolina state education official, summarizing the program's impact, praised it for bringing "order, peace, docility, out of a more or less chaotic disorderliness" (NC Division of Negro Education 1926). Leading Black intellectuals shared a different concern: that vocational schooling would reinforce Jim Crow by training a generation to accept racial subordination. Yet decades later, counties with more Rosenwald Schools experienced greater civil rights protest activity. We argue that Black educators used this accommodationist cover to build organizational infrastructure for collective action behind a veil of compliance—and we find that the effect runs through the teachers these schools placed in communities, not through enrollment alone.

Our analysis exploits county-level variation in these schools (Deutsch 2011). Though pitched as preparing African Americans to be successful laborers, the schools adopted the state of the art in teaching, architecture, and public health (see Figure 1). Figure 2 shows the significant increase in Rosenwald Schools across 15 states in the 1920s (panel A), as well as estimated total Black enrollment across 10 Southern and border south states (panel B).

The 20th century U.S. South offers a unique context in which to test competing theories of

Figure 1: Students gather in front of the Pee Dee Rosenwald Colored School in South Carolina. *Photo: S.C. Department of Archives and History.*

how segregated schooling might influence processes of political incorporation and state formation. As the site of aggressively enforced segregation and racial hierarchy (e.g., Mickey 2015), African Americans faced limited options for "cultivating civic capacity under domination" (Jagmohan forthcoming). White philanthropic support also shied away from confronting issues of racial violence, like lynching, and prioritized other forms of support, particularly education (Francis 2019). In sum, violent repression of traditional political activity may have made education one of the few viable routes to political empowerment.

The Historical Debates over Black Education

Education has long been seen as both a tool of empowerment and a mechanism of control (Peterson 2010; Paglayan 2021; Hochschild and Scovronick 2003). In the Jim Crow South, this tension was acute. White supremacist terror was routinely directed at Black education: schools were burned, and teachers were brutalized and murdered (Litwack 1998). Yet many advocates believed that Black education was a path of lesser resistance relative to direct political organizing, which provoked even

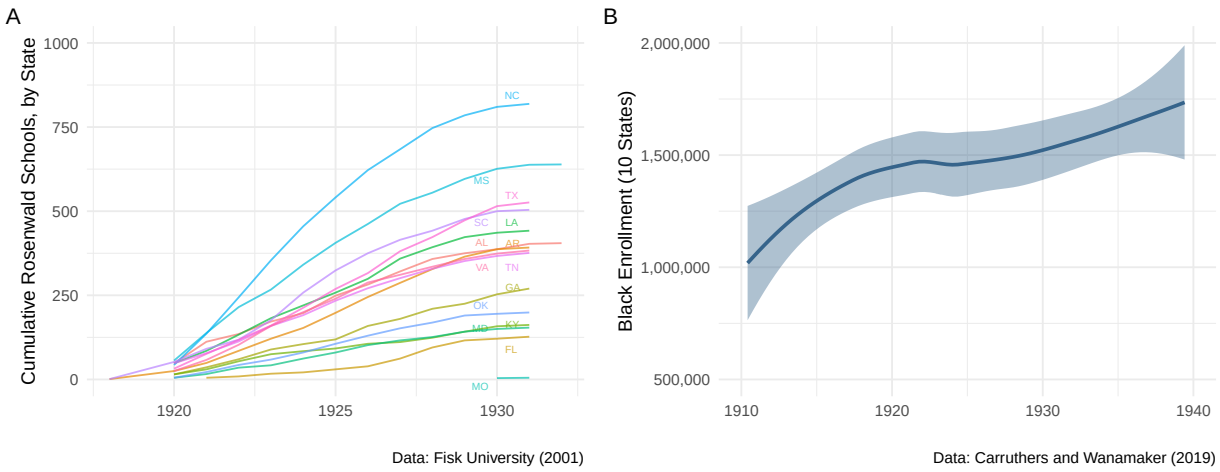

Figure 2: (A) Cumulative Rosenwald Schools across 15 states (1918-1932), and (B) Total Black enrollment across 10 states (1910-1940). Enrollment data excludes Florida, Maryland, Missouri, Oklahoma and Virginia. See Table A2 for Rosenwald Schools by state.

more violent reprisal (Johnson 2010; Foner 1988; Francis 2019). As Anderson (1988) documents, "black education became the ideological medium of conflict between southern whites' wishes for the preservation of traditional, coercive methods of subordination and the educational reformers' demands for modern, subtle forms of social control." In short, the question among Southern whites was not *whether* to control Black people but *how*.

Booker T. Washington advocated that African Americans focus on self-help through vocational education rather than directly challenging white political domination. His strategy emphasized "industrial" schooling—farming, bricklaying, sewing—that would increase Black wealth and competence without threatening white supremacy. As Washington wrote: "It has been necessary to demonstrate to the white man in the South that education does not 'spoil' the Negro" (1913). Washington was acutely aware that visible Black progress could trigger white backlash, cautioning that schools should not be so well-built as to "bring about a feeling of jealousy on the part of the white people who may have a schoolhouse that is much poorer" (Harlan 1983, 198). This vision appealed to northern philanthropists who sought to appease white Southerners (Johnson 2010; Francis 2019). In social science terms, Washington's model of uplift was tradition- and hierarchy-preserving and thus more acceptable to racial authoritarians invested in Jim Crow's race-based social order (Weaver

and Prowse 2020; Sidanius and Pratto 2001).

W. E. B. Du Bois and Ida B. Wells-Barnett sharply criticized this approach. Du Bois described Washington's agenda as "submission and silence as to civil and political rights" and warned that the industrial education model aimed "to make the higher training of Negroes practically difficult, if not impossible" (Du Bois 1903; Lewis 2009, 358), which would impede developing the cadre of Black teachers necessary for even Washington's constrained model. Wells-Barnett argued that "industrial education will not stand [the Negro] in place of political, civil and intellectual liberty" (Wells-Barnett 1904, 521).

The Washington–Du Bois debate has long been framed as a choice between accommodation and resistance, vocational training and liberal education (e.g., Alridge 2015). Yet the Talented Tenth who would lead Black political organizing were trained at institutions like Tuskegee and then taught at the very schools Washington championed. This entanglement suggests a possible synthesis: Rosenwald Schools may have operated simultaneously as the accommodationist institutions Washington advocated and as sites where trained leadership built the movement infrastructure that would later fuel collective action.

Rosenwald Schools and Black Education in the South

Despite the contentious debate over Black education, Booker T. Washington recruited philanthropists to invest in educational institutions. The most ambitious initiative was a partnership between Washington and Julius Rosenwald, a Jewish American businessman who led Sears, Roebuck, and Company. Together they built an estimated 5,004 "Rosenwald Schools" as well as 217 teacher homes and 179 industrial workshops across 15 southern states, with the Fund contributing $4.3 million (about $75 million today) (for further historical background see Hoffschwelle 2006; Deutsch 2011). Aaronson and Mazumder (2011) show that these schools significantly narrowed racial gaps in educational achievement. The Fund's own accounting reveals the depth of this partnership: of the $28.4 million spent on construction, 64 percent came from public tax funds, 17 percent from Black communities, 15 percent from the Rosenwald Fund, and 4 percent from local white donors (Em-

bree 1936). Notably, Black communities contributed more than the Rosenwald Fund itself. Rosenwald's philanthropy also extended beyond school construction: he funded Carter G. Woodson's Association for the Study of Negro Life and History (Givens 2021)—building not just the physical infrastructure of Rosenwald Schools but the intellectual infrastructure that would circulate through them.

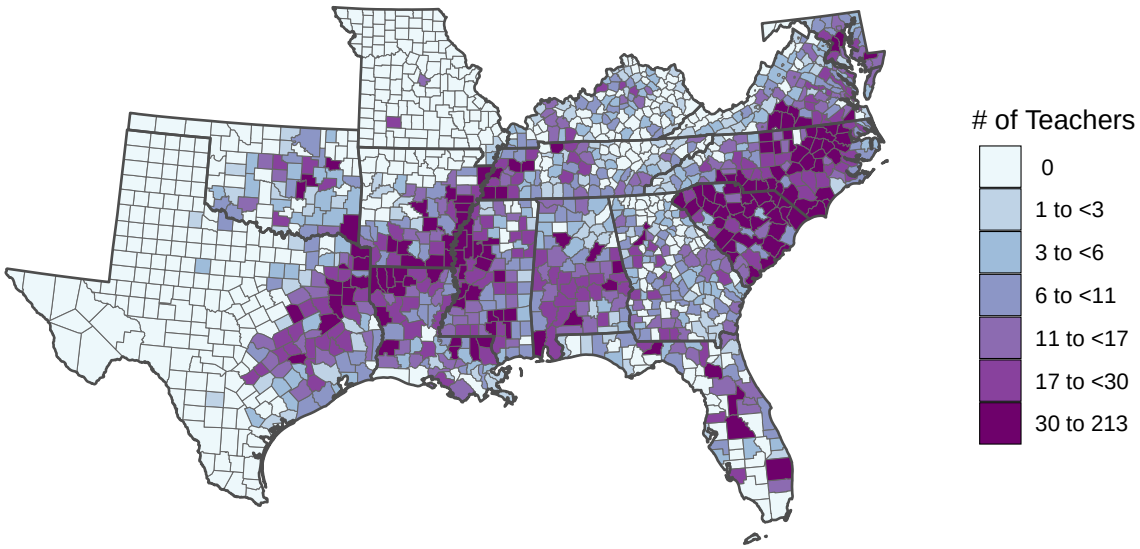

Figure 3: Choropleth map showing number of Rosenwald teachers (classrooms) by county across all 15 Rosenwald states. Analyses use the 14-state subset described in the Data section. See Table A2 for counts by state and Figure A2 for Black enrollment map.

Figure 3 shows the county-level geographic distribution of Rosenwald teachers across the U.S. South. Across the South, Black enrollment increased by nearly half a million students between 1920 and 1930, with Rosenwald Schools a critical part of that growth. Some more urban counties already had high absolute numbers of Black students attending segregated schools. Outside of major metropolitan areas, however, opportunities for schooling were much more limited. By 1920, approximately 70 percent of African Americans had achieved literacy, a dramatic increase from the antebellum period, but the remaining 30 percent who could not read remained concentrated in rural communities with few institutional resources (Deutsch 2011). Rosenwald Schools were primarily focused on addressing that unmet need.

Building Power Behind the Veil

We propose a theory of *veiled capacity* to explain how political power can accumulate under conditions of domination without triggering elite repression. Our framework draws on three foundational concepts from African American intellectual history: W. E. B. Du Bois's metaphor of "the veil," Albert Raboteau's concept of the "invisible institution," and Vanessa Siddle Walker's account of educators as "hidden provocateurs." In *The Souls of Black Folk*, Du Bois (1903) described African Americans as living "within the Veil"—a metaphor capturing how white Americans could not (or would not) perceive Black humanity, capability, and inner life. Du Bois famously asked, "How does it feel to be a problem?" and described the "double-consciousness" of seeing oneself through the eyes of a hostile white society. Here we propose an inversion of the standard interpretation: the veil that obscured Black humanity from white view also *protected* Black capacity-building from elite scrutiny. Local white authorities saw segregated schools producing tractable laborers; they could not see—or did not take seriously—the networks, leadership, and organizational skills that Black communities and educators were building behind the veil. In Scott's (1998) terms, the state's legibility apparatus—enrollment counts, construction reports, financial audits—could track the visible outputs of schooling but not the illegible organizational capacity accumulating beneath them. As Kelly (2010, ch. 3) documents in his oral history of Jim Crow teachers in North Carolina, "quite frequently the [all-white] central office was not even aware that black schools had yearbooks, and they cared little what was included in programs of instruction."

This dynamic parallels what historian Albert Raboteau termed the "invisible institution"—the clandestine religious practices of enslaved African Americans that existed parallel to and beneath white-controlled Christianity (Raboteau 1978). The invisible institution later became the organizational backbone of Black community life and, eventually, civil rights infrastructure. As Johnson (2010, 17) argues, Black educational institutions were "the basis for the tremendous development of black social capital," producing a Black middle class—teachers, social workers, doctors, lawyers—who "would become the backbone of the NAACP's resurgence in the South" and the membership of organizations that made up Black Southern life "behind the veil." In our framework, Rosenwald

Schools functioned similarly: *visible* to local elites as modest, status quo-preserving vocational training, while Black educators quietly developed the networks, leaders, and political resources that would later fuel collective action.

The broader system of segregated schooling was embedded in a regime designed to sustain a sharply unequal status quo (Thuesen 2013). Local white officials tolerated and even encouraged school construction for instrumental reasons: the legal fiction of "separate but equal" required at least nominal investment in Black education, and the Great Migration created labor shortages that schools could help address by anchoring Black families to rural communities—hence the contemporary emphasis on efforts to "change their Negro citizens from liabilities into assets" and "attract the best class of Negroes and keep such in their communities" (Newbold 1925). These instrumental motives meant that local elites had little reason to scrutinize the interior life of the schools they were permitting. In Soifer's (2012) terms, elite tolerance of school construction was a *permissive condition*—a loosening of structural constraints that made organizing possible—while the capacity Black educators built within that opening was the *productive condition* that generated long-run divergence.

We argue that both conditions were necessary for veiled capacity to accumulate. Urban segregated schools sometimes had well-trained Black educators—Jim Crow's closed opportunity structure channeled talented professionals into teaching. Urban Black principals, for example, were "scrutinized" and had to "walk a tightrope" under white school boards who controlled hiring, curriculum, and discipline (Fairclough 2007, ch. 7). Quality without freedom constrained what even the most capable educators could build. Rural schools, by contrast, operated in an administrative vacuum. "That's your school and I want you to run it," a white superintendent in rural Georgia told principal Horace Tate; their only contact was a monthly visit to turn in attendance reports and collect paychecks (Fairclough 2007, ch. 7). "As long as you didn't go over budget, and you didn't rock the boat," recalled one South Carolina principal, whites did not interfere (Fairclough 2007, ch. 7). Yet most rural Black schools—the roughly 20,000 non-Rosenwald schoolhouses that Fairclough (2007, ch. 7) describes as "jerry-built affairs"—lacked the infrastructure and teacher quality to ex-

ploit this freedom. Rosenwald Schools occupied a distinctive position at the intersection of both conditions: they placed college-trained teachers, supported by standardized buildings and national networks, into precisely the settings where white oversight was weakest. Table 1 summarizes this framework.[2]

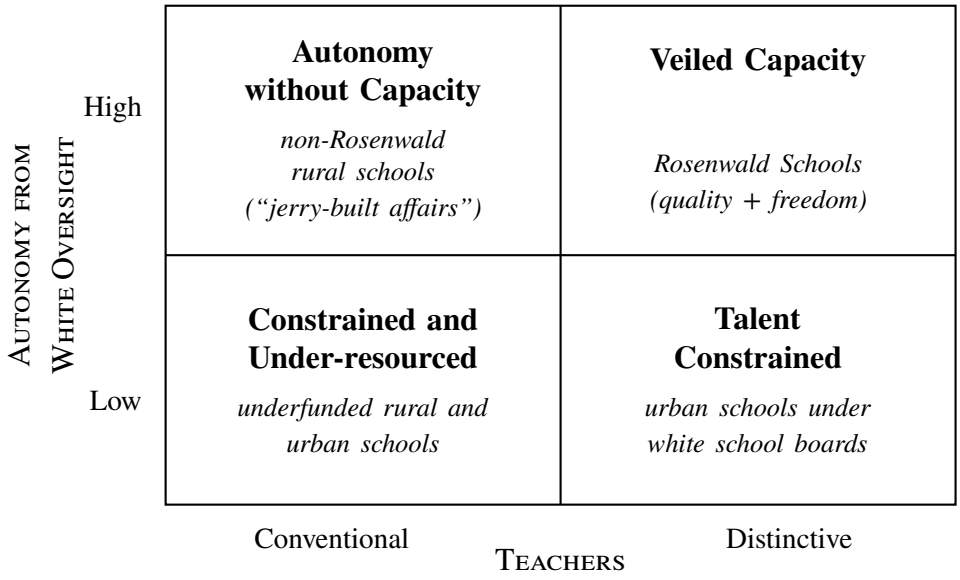

Table 1: Conditions for veiled capacity. Rosenwald Schools (upper right) placed distinctive teachers—college-trained, connected to national networks, supported by quality infrastructure—in settings where white oversight was weakest. Neither autonomy alone (upper left) nor distinctive teachers alone (lower right) was sufficient to generate the hidden organizational capacity that later fueled collective action.

Du Bois identifies the structural condition of invisibility; Raboteau identifies the institutional form that develops beneath it. Walker (2018) adds a crucial third element: the *agents* who deliberately wielded the veil as a strategic weapon. In her archival reconstruction of Black educator networks across the Jim Crow South, Walker shows that Black teachers and administrators operated as what they themselves called "provocateurs"—even as "history scripted these educators as Uncle Toms" (Walker 2018, 3). Drawing on West African trickster traditions, these educators fought injustice with what Walker describes as "the dual weaponry of the appearance of reasoned public petition and stealthy daggers that challenged failed democratic practices" (Walker 2018, 5). Robert

[2]This framework echoes findings from education policy: Rivkin, Hanushek, and Kain (2005) identify teacher quality as the strongest school-level predictor of student outcomes, while Chubb and Moe (1990) find that school autonomy—especially from external bureaucratic control—is a key prerequisite for effective schooling.

Moton, Booker T. Washington's successor at Tuskegee, captured this strategic posture: Negro behavior was "nothing more" than "artful and adroit accommodation of his manners and methods to what he knows to be the weaknesses and foibles of his white neighbor" (Walker 2018, 3). These provocateurs were *strategically illegible*—they understood what the state could see and deliberately operated beneath it. As NAACP attorney Oliver Hill later testified, describing the organizing behind the desegregation cases: "It was the teachers …The educators were organized" (Walker 2018, 3).

Veiled capacity, then, was not merely a passive accumulation of resources behind the veil but a deliberately constructed infrastructure, built by actors who understood that their power depended on its invisibility. Though our empirical analysis focuses on teachers as the measurable channel, veiled capacity as a concept encompasses the full range of what subordinated communities build where elites cannot see: not only organizing networks but also the curricula that reframed Black history as a story of agency, the students whose political consciousness was transformed, and the community institutions that sustained collective identity under repression. In the African American tradition of finding "a way out of no way," veiled capacity names the broader phenomenon of building power under conditions designed to prevent it.

Figure 4 visualizes how this capacity unfolds over time. The growing divergence between the two lines—*veiled capacity*—captures how the organizational infrastructure Black communities and educators were building far exceeded what elites could observe. This capacity remained largely invisible during the Jim Crow era ("Behind the Veil"), became increasingly apparent during a transition period ("Veil Lifting"), and was ultimately revealed as mass collective action during the civil rights movement. Our theory yields distinctive predictions about *which* aspects of Rosenwald Schools mattered most for subsequent political mobilization—predictions we test against competing hypotheses drawn from human capital and social capital accounts below.

The consequences of the broader segregated system were substantial. Carruthers and Wanamaker (2017b) demonstrate that Jim Crow–mandated school segregation resulted in markedly in-

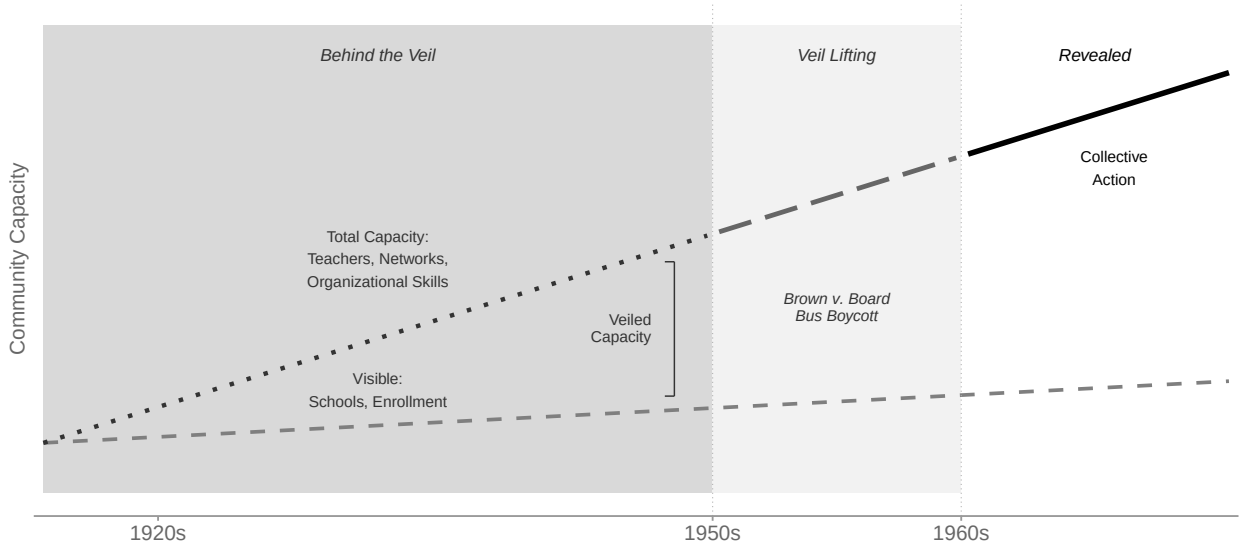

Figure 4: Building power behind the veil. The lower dashed line represents what was visible to white elites: schools built, students enrolled—changes that appeared modest and non-threatening to the racial hierarchy. The upper line represents total capacity: the teachers, networks, and organizational skills that Black educators were building, along with schools and enrollment, largely invisible to elites. The growing gap between the two lines—veiled capacity—captures the divergence between what elites could observe and the hidden organizational infrastructure actually being built. At a critical juncture, triggered by events such as *Brown v. Board of Education* and the Montgomery Bus Boycott, veiled capacity was revealed as collective action during the civil rights movement.

ferior educational quality for Black students, severely constraining economic and social mobility.[3] Indeed, Paglayan's (2024) *Raised to Obey* documents this pattern across two centuries, showing that mass education systems from Prussia to Argentina were designed to produce docility, not engaged citizens—yet "the effort to moralize the masses may have inadvertently equipped ordinary people with skills to move up the social ladder and, eventually, demand more political power" (540). The Rosenwald case extends Paglayan's framework: here, schools were not purely elite impositions but institutions co-produced by Black communities and strategically repurposed by Black educators. Most directly related to our study, Aaronson et al. (2024) find that Rosenwald school construction caused greater NAACP branch activity in the 1940s and 1950s, emphasizing that occupational discrimination raised the opportunity cost of economic activity relative to political activism. Our study complements theirs by examining a different outcome (protest), period (1960s–1970s), and mecha-

[3]As documented by Kelly (2010), this is not to say that segregated education was inferior to no education at all, nor that Black teachers did not contribute to educational achievement in this environment.

nism (veiled capacity rather than labor market opportunity costs). Schickler (2016) shows that racial realignment in American parties was driven from below by grassroots activists, not top-down by elites—a pattern consistent with the bottom-up capacity-building we document.

Distinct Hypotheses

If Rosenwald Schools are associated with later civil rights activism, what explains the connection? Three distinct hypotheses point in different directions—and distinguishing among them matters because each carries different implications for whether Rosenwald Schools actually mattered. The *social capital* hypothesis posits that pre-existing Black community organization independently produced both Rosenwald school construction and later political mobilization. Building on Booker T. Washington's philosophy of Black self-help, Rosenwald structured the program around a matching-fund model that required financial participation from Black communities, the Rosenwald Fund, and local public authorities (Deutsch 2011). Under the standard matching formula, the Fund typically contributed approximately one-third of each school's construction costs, with Black communities and public school authorities expected to provide the remainder (though in aggregate, public funds contributed 64% and the Fund only 15%; see the Rosenwald Schools subsection above). Detailed accounting records from North Carolina in 1925–1926 reveal that Black communities routinely exceeded their expected contributions (Credle 1926). Under the social capital hypothesis, this collective fundraising capacity—not the schools it produced—drove later political mobilization. Communities that were already well-organized raised money for schools *and* later organized protests, but the schools themselves played no causal role.

The *human capital* hypothesis holds that Rosenwald Schools mattered, but primarily by increasing Black enrollment and thus the stock of educated citizens. Education may produce participation through civic knowledge, feelings of efficacy, and literacy necessary for political engagement. Under this account, schools mattered through what they taught, and any school—Rosenwald or otherwise—would have had similar effects.

The *veiled capacity* hypothesis holds that Rosenwald Schools mattered, but not primarily through

overall enrollment. Rather, schools placed teachers in communities who served as organizers, network-builders, vehicles for new ideas and links to Black higher education—activities largely invisible to white authorities. As professionals, teachers may have served as examples of racial uplift and increased perceptions of self-efficacy among non-students. Thus, what was distinctive about Rosenwald Schools was not just the human capital they produced but the leadership networks and organizing potential they enabled (we offer historical examples in the Mechanisms section).

These hypotheses generate distinct empirical predictions. If pre-existing Black social capital drives the association, Black community fundraising should predict protest *directly*, independent of any school-related channel. If human capital is the mechanism, overall Black enrollment should mediate the relationship. If veiled capacity is the principal channel, the Rosenwald-specific teacher measure should predict protest independently of both fundraising and enrollment. Our empirical strategy is designed to assess the relative support for these predictions, while recognizing that definitive adjudication requires assumptions we discuss below.

Yet there is also reason to expect no effect at all. While a growing literature finds positive effects of education on participation in democratic contexts (for a review see Persson 2015; Sondheimer and Green 2010), the Jim Crow South was not a democratic regime for African Americans (Mickey 2015). In authoritarian contexts, education may actually *decrease* participation: repression makes resistance seem futile, and schooling can serve to legitimize the existing order rather than challenge it (Croke et al. 2016). Schools organized to "civilize" indigenous people in the United States "aimed to obliterate American Indian culture through education" (Grinde 2004, 25). Rather than generating participation in the civil rights movement, a plausible outcome of exposure to Rosenwald Schools might have been greater acceptance of the South's racial hierarchy.

Data and Measures

We collect historical education and political participation data from a variety of sources. For variables related to education, we rely on two main sources that measure distinct aspects of Black

schooling. First, we use data on *total* Black educational enrollment from a series of papers by Carruthers and Wanamaker (2013; 2017a; 2017b; 2019). These data contain county-level statistics on Black enrollment across all public schools—including Rosenwald—in 1930. Approximately 70% of Black enrollment was in non-Rosenwald schools. We use this measure both as an independent variable and as a mediator capturing the broad human capital channel.

Second, we collect data on Rosenwald Schools specifically from the Fisk University Rosenwald Database (Fisk University 2001), which contains the geographic location, timing, and building characteristics of every Rosenwald School.[4] To measure the Rosenwald-specific "dose" at a more granular level than the number of schools, we use the number of Rosenwald classrooms in each county. For a small number of schools with missing classroom data, we impute the number of classrooms as a function of total school construction cost within each state.[5]

Rosenwald building plans were named by teacher count—a "Four Teacher Community School" had four classrooms, each staffed by one teacher (see Appendix Figure A1). Throughout the paper, we refer to our measure as the number of Rosenwald *teachers* rather than classrooms or schools, foregrounding human agency rather than physical infrastructure. However, the "teacher" measure should be understood as a proxy for the *bundled treatment* that each Rosenwald school brought to a community: not only a teacher but also a standardized building, dedicated teacher housing, connections to Black colleges and national networks, and accountability to the Rosenwald Fund. This bundle is distinct from both pre-existing community organization (captured by our fundraising measure) and overall enrollment (which reflects all Black schooling, not just Rosenwald).

We use two additional sources for data on political participation. Data on political protests comes from the Dynamics of Collective Action (DCA) database (McAdam et al. 2009). These data, widely used in studies of the causes and consequences of protest activity (e.g., Gillion 2012; 2013;

[4]While economists have used the Rosenwald Database to study educational achievement (Aaronson and Mazumder 2011) and NAACP growth (Aaronson et al. 2024), to the best of our knowledge no political science research has yet used these data.

[5]We first impute classroom counts via linear regression on total construction cost, conditional on state, then apply k-nearest-neighbor imputation on log construction cost for any remaining missing values. A small number of schools with no cost data are assigned based on archival photographs where available or the modal school size (two classrooms) otherwise. Results are robust to excluding imputed observations.

Wasow 2020), contain the city location of civil rights protests in the 1960s, as well as estimates of the number of participants in each protest (estimates are human coded from coverage in *The New York Times*).

To identify a causal effect, we follow Black et al. (2015) and use historical railroad data as a plausibly exogenous assignment mechanism of Rosenwald Schools to counties. Digitized railroad maps from Atack (2015) document the development of trains in the continental United States through about 1911. In particular, we are able to use distance to the route of the Illinois Central Railroad—which connected Chicago to the South—to predict where the Rosenwald Foundation, headquartered in Chicago, was more likely to sponsor schools.

The Fisk database also records the financial contributions to each school's construction by source: Black communities, white donors, the Rosenwald Fund, and public authorities. We aggregate Black contributions at the county level (logged) as our measure of Black community fundraising. In the mediation analysis, this variable serves as a proxy for pre-existing social capital, capturing the organizational capacity communities demonstrated through collective fundraising.

We aggregate all of these data at the county-level and adjust for economic and demographic variables using historical data from the Census (Haines 2001). In our fullest specifications, covariates include county percent Black and its square (to capture nonlinearities), percent Black unemployment, urban proportion, percent foreign born (following Olzak and Shanahan 1996), log total county population, and log Black and white school funding.[6] All models include state fixed effects. Our primary dependent variable is the logged number of Black protest participants between 1960 and 1972 (binary protest results appear in the Appendix).

Table 2 presents the summary statistics for the main county-level demographic variables by the number of Rosenwald teachers, trichotomized for ease of presentation (in all data analyses, the number of Rosenwald teachers is continuous). The Rosenwald data include 894 counties that received at least one school across 15 southern and border south states. The enrollment data from Carruthers and Wanamaker (2013) cover 1062 counties in 10 states. For the remaining Rosenwald

[6]We exclude total public school funding from the models because it correlates at $r = 0.90$ with Black school funding and adds little independent information. Including it leaves all coefficients virtually unchanged.

Table 2: Summary Statistics by Number of Rosenwald Teachers per County in Rosenwald States

	# of Rosenwald Teachers per County, Trichotomized (SD)			
	Zero (N=460)	One to Ten (N=443)	> Ten (N=442)	Total (N=1345)
% Black	9.6 (15.3)	23.1 (18.6)	40.1 (18.6)	24.0 (21.5)
% Urban	15.2 (26.5)	14.8 (22.0)	18.2 (20.1)	16.0 (23.1)
% Black Unemployed	3.7 (3.7)	4.6 (3.1)	4.3 (2.8)	4.2 (3.3)
% Foreign Born	0.7 (1.2)	0.6 (1.1)	0.6 (1.1)	0.7 (1.1)
Black Enrollment (log)	4.5 (1.8)	6.5 (1.2)	7.8 (0.8)	6.2 (1.9)
Population Total (log)	9.3 (0.9)	9.8 (0.7)	10.2 (0.7)	9.8 (0.8)
Black Funding (log)	0.0 (0.0)	6.4 (2.2)	8.6 (1.2)	4.9 (3.9)
White Funding (log)	0.0 (0.0)	2.4 (3.0)	5.5 (3.2)	2.6 (3.4)

states not covered by Carruthers and Wanamaker, we impute county-level Black enrollment using k-nearest-neighbor matching on Black population, white enrollment, total population, and state.[7] Our primary sample includes 14 Rosenwald states (N = 1,345 counties), excluding Missouri, which received only 5 Rosenwald buildings (0.1% of the total).

Methods

We use a three-part empirical strategy to estimate the relationship between Rosenwald Schools and political participation (see Table A1 in the Appendix for a formal overview of all model specifications). First, we use OLS regression to estimate the relationship between Rosenwald teachers and protest activity, controlling for overall Black enrollment and the county-level covariates described above. Including enrollment as a covariate is important because our theory posits that teachers affect participation partly through the mechanism of enrollment. Enrollment-only models (excluding Rosenwald teachers to avoid possible post-treatment bias) appear in the Appendix.

To be interpreted as causal estimates, these models require the assumption that potential outcomes (Black participation under different 'treatment' assignments) are independent of Rosenwald School creation once we adjust for our covariates. This research design is susceptible to omitted variable bias if unobserved factors affect both Black education and potential outcomes. For example, even after adjusting for county demographics and Black community fundraising (our proxy for

[7]Robustness checks confirm that dropping the enrollment control entirely leaves the teacher coefficient virtually unchanged ($\hat{\beta}$ = 0.25 with or without enrollment; see Table 3), indicating that the imputation does not drive results.

pre-existing social capital), unmeasured dimensions of community organization may affect both school creation and civil rights participation.

Second, we use *dual mediation analysis* to decompose the effect of Black community fundraising on protest into three channels: an indirect effect through Rosenwald teachers (veiled capacity), an indirect effect through overall Black enrollment (human capital), and a direct effect of fundraising on protest independent of both mediators (social capital). As described in our theory section, it is plausible that Rosenwald Schools stimulate participation outside of increasing Black school enrollment, for example by bringing new teachers to communities who promote participation through organizing activities unrelated to enrollment. Valid causal interpretation of the mediation estimates requires the assumption of sequential ignorability: that the mediators (teachers and enrollment) are as good as randomly assigned conditional on the treatment and covariates (Imai et al. 2011). We return to possible violations of this assumption in our discussion of limitations.

Third, we use an *instrumental variable* (IV) design exploiting geographic variation in the school assignment process. The Rosenwald program was administered from two key locations: Chicago (the Fund's headquarters, connected to the South via the Illinois Central Railroad) and Nashville (the southern administrative hub). We use distance to each location as instruments for school placement, reporting results from each instrument separately and from a combined model with both. Our intuition for these instruments draws on logistical, bureaucratic, and interpersonal evidence from the historical record. One reported element of the success of Rosenwald Schools was active oversight that required Fund staff to, among other things, visit potential sites for schools, monitor ongoing construction, and audit budgets of completed schools (Hoffschwelle 2006). As the Rosenwald Fund was based in Chicago, ease and cost of transportation from the Midwest to the South was critical to the organization's ability to administer the program over substantial distances. Though automobiles were available in the 1920s, they were still relatively rare and expensive compared to railroads. The same logistical logic applies to Nashville: the Fund relocated its school-building operations from Tuskegee to Nashville in 1920 (Walker 2018; Hoffschwelle 2006), making Nashville the southern hub from which field staff coordinated site visits, construction oversight, and audits

across the region. Distance to Nashville shaped access to this administrative apparatus and thus the likelihood of receiving Rosenwald Schools.

Further, we focus on the Illinois Central line due to the strong documented ties between Julius Rosenwald and that specific railroad company. During World War I, Rosenwald had been "impressed by the efficiency and administrative abilities of the railroad executives" (Bachmann 1976, 98). In 1924 following his appointment to Chairman of Sears, Rosenwald named the vice president of the Illinois Central Railroad, Charles M. Kittle, to be the president of Sears (Bachmann 1976). Finally, we draw on insights from previous studies that use geographic proximity in quasi-experimental designs (Dunning 2012; Black et al. 2015; Enos, Kaufman, and Sands 2019). Black et al. (2015), for instance, uses proximity to railroads—including the Illinois Central line—as an instrument for migration in order to estimate the effects of the Great Migration on health outcomes.

We estimate these IV models using Two-Stage Residual Inclusion (2SRI; Wooldridge 2015), an approach designed for settings where the endogenous variable is a count. Because the number of Rosenwald teachers is a non-negative integer with many zeros, a negative binomial first stage more appropriately models the count structure of the endogenous variable than the linear projection used in standard 2SLS. In 2SRI, we first model teacher counts using a negative binomial regression on the distance instruments (standardized to mean zero and unit variance, with quadratic terms to capture nonlinearities) and controls. We omit state fixed effects from the first stage because the distance instruments capture a continuous geographic process—proximity to administrative hubs—that operated across state boundaries rather than within them.[8] We then include the first-stage residuals as an additional regressor in the second-stage OLS model of protest participation, which includes state fixed effects to control for state-level confounders. This control function approach partials out the endogenous component of teacher assignment, allowing consistent estimation even with a nonlinear first stage (see Appendix Figure A5 for a visual overview).

The exclusion restriction requires that the distance instruments affect protest only through Rosen-

[8]There is no established standard for combining distance-based instrumental variables with geographic fixed effects. Appendix Table A21 shows that including state FE in the first stage absorbs the cross-state identifying variation and weakens diagnostics substantially, while the teacher coefficient remains stable.

wald Schools. Two threats merit discussion: proximity to the Illinois Central Railroad may have facilitated the Great Migration or connected communities to Northern organizers, and proximity to Nashville—home to Fisk University and other Black colleges—may have affected protest through access to higher education independent of Rosenwald. We address these by controlling for urbanization and Black population characteristics and by reporting a Sargan overidentification test in the Appendix.

In all regressions, we report heteroskedasticity-robust (HC1) standard errors; in the 2SRI models, we follow Wooldridge (2015) for inference with generated regressors. All models are unweighted; results are robust to population weighting (Table 3). We also report CBPS and subclassification matching results (Table 3; full models in Appendix). See Appendix Table A1 for a summary of all specifications.

Results: Direct Relationships

Did Rosenwald Schools strengthen or weaken the racial order? And if the latter, was it through the broad human capital of enrollment, pre-existing community organization, or the specific teachers these schools placed in communities? In models with only state fixed effects, Black enrollment and Rosenwald teachers are both positively associated with future protest activity, while Black education funding is negatively associated. These simple associations, however, are confounded by the size of the county-level Black population. Once we add covariates for Black population share and log total population, the coefficients for Black enrollment and Black education funding become small and statistically insignificant (see Appendix Tables A5 and A23 for stepwise results). The coefficient for Rosenwald teachers, on the other hand, remains large and significant: each additional 10 Rosenwald teachers predicts a 0.25-unit increase in log protest activity, corresponding to an approximate 28% increase in the number of protesters ($e^{0.25} \approx 1.28$). Moving from a county at the 25th percentile (0 teachers) to the 75th percentile (15 teachers) predicts roughly a 45% increase in protest participation ($e^{0.375} \approx 1.45$), holding other county characteristics constant. Figure 5 visualizes the marginal

effects from the full model with all controls.

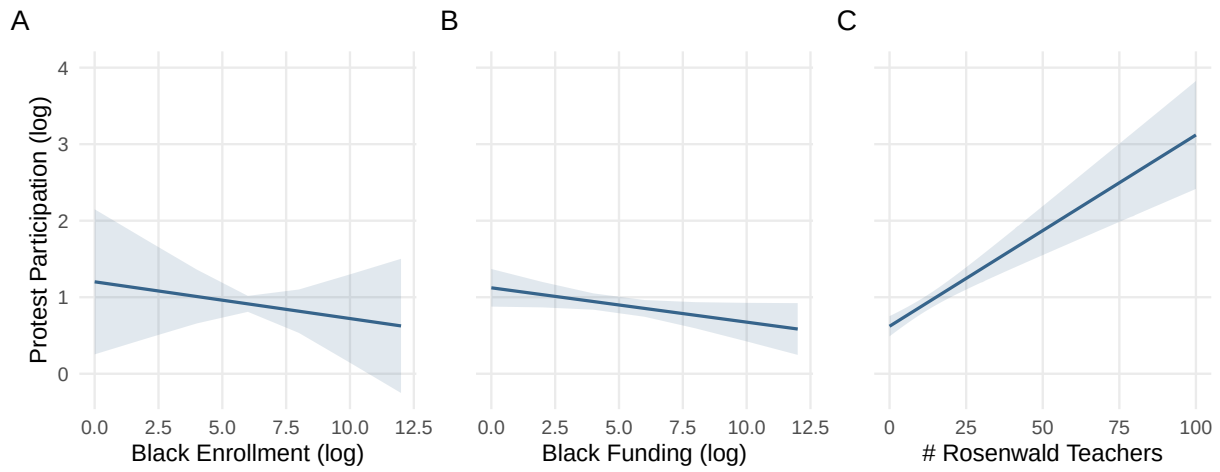

Figure 5: Marginal effects of Black funding, Black enrollment and number of Rosenwald teachers on total number of protest participants (log) (see Model 6 Table A6). Panel C displays predictions for 0–100 teachers; Shelby County, TN (213 teachers) is included in all models but omitted from the plot for ease of visualization.

Figure 5 presents the marginal effects. Rosenwald teachers show a strong positive association with the scale of protest participation (Panel C), while the effects of enrollment (Panel A) and funding (Panel B) are small and, for funding, slightly negative once county demographics are included. The pattern is striking: the number of Rosenwald classrooms—a Rosenwald-specific measure capturing only about 30% of total Black enrollment—predicts protest more strongly than overall Black enrollment, which captures the full universe of Black schooling. Black enrollment does predict protest in simpler specifications, but this association is attenuated once county population is included (see Appendix Tables A5 and A23), suggesting it proxies for the broader constellation of Black institutional life—churches, fraternal organizations, NAACP chapters—rather than an independent education effect. The Rosenwald teacher measure, by contrast, captures a specific programmatic input that varied across communities for reasons partly independent of population size, and remains significant across all specifications. Results using a binary protest indicator (any protest vs. none) are consistent and reported in the Appendix.

Results: Mediation Analysis

The OLS results show that Rosenwald teachers predict protest while enrollment and funding do not—but through which channel does community investment translate into mobilization? To assess the relative support for each hypothesis, we estimate a dual mediation model using structural equation modeling (SEM). The treatment is Black community fundraising—our proxy for pre-existing social capital, though we note that fundraising is itself partly endogenous to the Rosenwald process, as communities organized specifically to secure matching funds. Moreover, because the Fisk database records contributions only for completed schools, fundraising is structurally zero for all counties without Rosenwald Schools; the mediation is therefore identified from intensive-margin variation among treated counties rather than from a comparison of treated and untreated communities. The two parallel mediators are Rosenwald teachers (veiled capacity) and overall Black enrollment (human capital). The direct effect of fundraising on protest—net of both mediators—captures the direct social capital channel.[9]

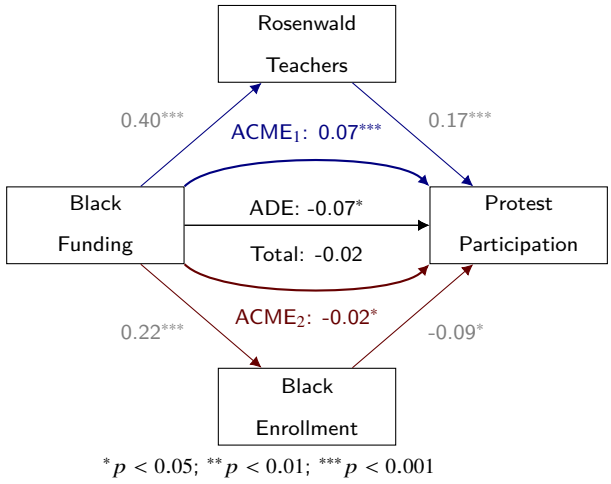

Figure 6: Dual mediation model. Treatment is Black community fundraising (proxy for pre-existing social capital). Blue paths: veiled capacity channel via Rosenwald teachers. Red paths: human capital channel via overall Black enrollment. The direct effect captures the direct social capital channel. All models include county-level controls. See Figure A4 for single-mediator robustness models.

[9]The SEM uses a parsimonious control set (percent Black, log population, urban proportion, and percent foreign born) to ensure model convergence with the simultaneous equation structure.

Figure 6 presents the results of the dual mediation analysis. We interpret this as a descriptive decomposition of the association across competing pathways, noting that the sequential ignorability assumptions required for causal mediation are strong and that the fundraising proxy imperfectly captures pre-existing organizational capacity (e.g., churches, landholding, associational networks). The average causal mediation effect (ACME) through overall Black enrollment is small and negative, suggesting that the human capital channel does not provide a distinguishable pathway connecting community investment to later protest. The average direct effect (ADE) of fundraising on protest, net of both mediators, is also negative and small, providing little support for the hypothesis that pre-existing social capital independently drove later mobilization. By contrast, the indirect effect through Rosenwald teachers ($ACME_1$) is positive and significant, indicating that Black community fundraising increases later protest participation specifically through its effect on the Rosenwald teacher measure.

These results are consistent with the veiled capacity hypothesis. The decomposition suggests that the total association between fundraising and protest is small and negative, but this masks a positive indirect pathway through teachers: the teacher channel is the only positive and significant component, offsetting a negative direct effect and a negligible enrollment channel. We cannot rule out that unmeasured dimensions of pre-existing community organization contribute to both teacher placement and later mobilization, but the pattern is consistent with a story in which community fundraising attracted Rosenwald investment—new schools and the teachers they brought—that built covert civic infrastructure under Jim Crow.

Although the teacher measure captures a bundled treatment (as discussed in the Data section), the decomposition provides some leverage on the bundle's boundaries: the component specifically associated with Rosenwald teachers dominates both the enrollment and direct social capital channels. Single-mediator robustness models yield consistent results (see Appendix Figure A4).[10]

[10]We estimate each mediation pathway individually using the Imai et al. (2011) framework, testing Funding → Teachers → Protest and Funding → Enrollment → Protest separately. The teacher channel is the stronger mediator across all specifications.

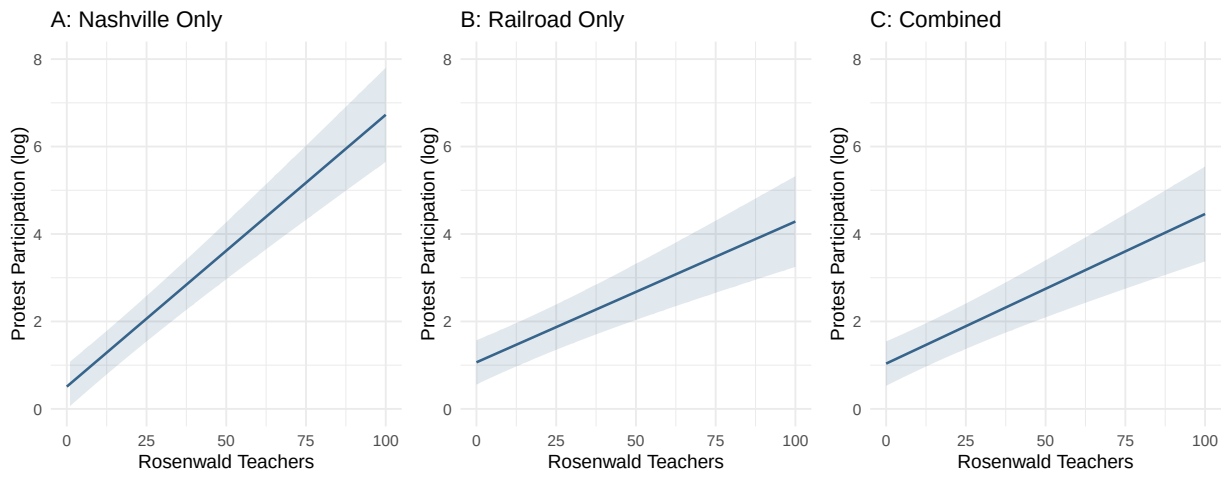

Figure 7: Comparison of second stage marginal effects across three 2SRI specifications: (A) Nashville distance only, (B) Illinois Central Railroad distance only, and (C) combined model with both instruments. All specifications omit state fixed effects from the first stage and include them in the second stage. Consistency across specifications supports robustness of findings. See Table A14 for combined model coefficients and Appendix Section A5.4 for diagnostics.

Results: Instrumental Variable Designs

Did communities with more Rosenwald teachers later protest because of those teachers—or were already-organized communities simply more likely to attract both teachers and protest? The mediation results suggest that fundraising affected protest primarily through the teacher channel, not directly. But mediation relies on the sequential ignorability assumption, which could be violated if unobserved community characteristics jointly determined both teacher placement and later protest. The IV design addresses this confound by exploiting geographic variation in school assignment: if the teacher–protest association survives when teacher placement is driven by proximity to the Illinois Central Railroad or Nashville rather than by community traits, this strengthens the case that the Rosenwald program itself, not the communities that attracted it, drove later mobilization.

Figure 7 compares the marginal effect of Rosenwald teachers on protest participation across all three IV specifications. All three yield positive and statistically significant second-stage effects. In the combined model, each additional 10 Rosenwald teachers predicts roughly a 40% increase in protest participation ($e^{0.34} \approx 1.40$; $p < 0.001$; see Table A14)—somewhat larger than the OLS

estimate of 28%, consistent with IV correcting attenuation from measurement error. State fixed effects are omitted from the first stage to preserve the cross-state identifying variation in distance to the two administrative hubs, while state fixed effects in the second stage control for state-level confounders. The consistency across specifications provides evidence that the teacher–protest association is not an artifact of community selection. Even when teacher placement is driven by geographic proximity to administrative infrastructure rather than by community characteristics, the teacher measure still predicts protest. This strengthens the interpretation from the OLS and mediation analyses: something specific to the Rosenwald program—measured through classroom counts that proxy for teacher placement—rather than pre-existing community characteristics, drove later mobilization.

Specification Robustness

How sensitive are these results to modeling choices? Table 3 summarizes the teacher coefficient across ten alternative specifications, including a binary outcome, population weighting, matching approaches, and sample expansions. Across all specifications, the effect remains positive and significant, with point estimates ranging from 0.13 to 0.26 (a 14–30% increase in protest participation per 10 additional teachers).

Three checks merit highlighting. First, the coefficient is virtually unchanged when enrollment is dropped as a control ($\hat{\beta} = 0.25$), confirming that the teacher effect is not an artifact of the enrollment measure. Second, randomization inference—permuting teacher assignments within states across 1,000 iterations—yields $p < 0.001$, ruling out the possibility that the result reflects the particular geographic distribution of schools rather than a systematic relationship. Third, the null enrollment result persists when enrollment is expressed as a per-capita rate: enrollment rate is significant only when extreme values from counties with very small Black populations are included, and becomes insignificant once these counties are excluded ($p > 0.15$ for counties with Black population above 500). The teacher coefficient remains significant across all population cutoffs.[11] State-clustered

[11]The teacher effect is appropriately measured as a count (number of teachers) rather than a per-capita rate (teachers

standard errors are smaller than the HC1 robust standard errors used throughout, indicating that our primary inference is conservative. See the Appendix for stepwise results (Table A23) and full matching models.

Table 3: Robustness of Rosenwald teacher effect across specifications. All models include state fixed effects and the full set of county-level controls. Estimates report the coefficient on Rosenwald teachers (per 10) with heteroskedasticity-robust standard errors. The primary specification uses logged protest participants as the outcome. The 'Schools' specification reports the coefficient per 10 schools.

Specification	Estimate	Robust SE	p-value	N
Primary (log protest, unweighted)	0.2500	0.0467	0.0000	1345
Binary protest outcome	0.1451	0.0615	0.0183	1345
Excluding Shelby County (Memphis)	0.2404	0.0541	0.0000	1344
Black population weighted	0.1304	0.0507	0.0101	1326
Schools instead of teachers	0.7034	0.1348	0.0000	1345
Excluding zero-enrollment counties	0.2443	0.0468	0.0000	1328
Dropping enrollment control (14 states, excl. MO)	0.2505	0.0468	0.0000	1345
All 15 Rosenwald states (no enrollment)	0.2560	0.0471	0.0000	1459
CBPS matching	0.2284	0.0527	0.0000	1345
Subclassification matching	0.2463	0.0502	0.0000	1345

Where Does the Effect Operate?

Where geographically does the teacher effect operate? An interaction model reveals that the teacher–protest relationship is significantly moderated by county urbanization: the teacher coefficient interacted with urban proportion is positive and significant ($p < 0.01$; see Appendix Section A5.9), while the main effect of teachers at zero urbanization is near zero. Splitting the sample by population confirms that the teacher effect is significant in the largest quartile of counties but not in smaller ones.

This pattern does not undermine the core finding but clarifies its geography. Rosenwald Schools were built in rural areas, consistent with our theory that veiled capacity accumulated where white

per Black population). Each additional teacher adds organizational capacity regardless of the population denominator; expressing teachers as a rate inverts the relationship because small counties with few Black residents but one Rosenwald school have high per-capita rates but low protest.

oversight was weakest. But protest is an inherently urban phenomenon requiring a minimum density of participants, targets, and media coverage. The capacity built in rural schools was likely mobilized in nearby urban centers, as illustrated by Rosenwald alumni like John Lewis, who attended a rural school but organized protests in Nashville and beyond. The county-level analysis captures this rural-to-urban transmission within counties large enough to contain both the school and a town; in the smallest counties, the protest may appear in a neighboring county's urban area and thus be unattributed to the Rosenwald investment that helped produce it. Additionally, the protest data—coded from *New York Times* coverage—systematically undercount events in the most rural areas, further attenuating the detectable effect in small counties.

Mechanisms from Historical Record

If Rosenwald teachers drove later mobilization, how did they do it? Our empirical finding that Rosenwald *teachers*—rather than overall Black enrollment or funding—are the strongest predictor of later protest activity is consistent with the veiled capacity hypothesis: that schools built hidden organizational infrastructure behind the veil of Jim Crow. As Kelly (2010, ch. 6) writes of Jim Crow educators, "participants in my study used schools as spaces of constant possibility and contestation." Drawing primarily on Walker's (2018, 1996) archival research on Black educator networks, Givens (2021) on curricular infrastructure, and approximately 6,400 pages of digitized Rosenwald School records from the North Carolina State Archives, we identify channels through which teachers built veiled capacity and explain why Rosenwald Schools specifically—rather than Black education in general—produced this effect.

Why Teachers?

Teachers as Organizers. Our central empirical finding—that Rosenwald teachers predict protest activity independently of their effect on enrollment—is consistent with extensive historical evidence that Black teachers in the Jim Crow South built organizational infrastructure for political resistance.

Teachers occupied a unique position in this hidden architecture. As salaried professionals whose income derived increasingly from public funds (supplemented by Rosenwald matching grants), they possessed a degree of economic independence from local white *private* employers that most Black community members lacked. This independence freed them to organize covertly in ways that sharecroppers or domestic workers—who depended directly on white patronage—could not (see Walker 1996). Moreover, Jim Crow's closed opportunity structure paradoxically concentrated highly educated professionals in the classroom. As one North Carolina teacher recalled, "we did not have a shortage of black teachers. In fact we were over supplied…They went on and got their masters, doctorates, and things like that. The supply of white teachers wasn't that great, so they were hiring teachers with B certificates" (Kelly 2010, ch. 3). Discrimination barred Black professionals from most other fields, channeling talent into teaching at a level that white schools could not match. Yet as state employees, teachers remained vulnerable to dismissal if their activism became visible, which shaped *how* they organized.

Walker (2018) documents in detail how teachers translated this autonomy into organizational capacity. Because teachers were "voteless and also employees of the city, county or state," educator Henry Hunt developed a "key people" strategy: he organized "non-teaching citizens such as physicians, heads of fraternal organizations, representatives of insurance companies and other self-employed persons" whose financial independence made them less vulnerable to white retaliation (Walker 2018, ch. 7). Educators orchestrated campaigns while using these key people as visible fronts—as Walker describes one such effort, the organizer's associate was "to get the result without showing Mr. Hunt's hand in the plan." Georgia's Black teacher association (GT&EA)—organized in 1878 and 12,000 members strong by the 1960s—formalized this approach through a regional board structure that "allowed local educators to deny involvement in any actions the organization would undertake" (Walker 2018, ch. 9). As early as the 1940s, these networks had organized children to be "taught how to recognize they were being denied their rights and armed with the resilience to believe they did not have to be diminished by America's perverse form of 'justice for all' " (Walker 2018, 4). NAACP attorney Donald Hollowell later confirmed the downstream effects:

"The educators got the plaintiffs …We groomed them for the witness stand" (Walker 2018, 3). In Harmony, Mississippi, the local Rosenwald School served as a social anchor among independent, armed Black landowners who provided a "haven" for movement workers (Umoja 2013, 100).

Teachers as Carriers of Ideas. The social pressure on Black teachers to reproduce subordination was immense. In *The Souls of Black Folk*, Du Bois dramatized the dilemma through a fictional encounter in which a white official tells a returning Black college graduate: "You and I both know, John, that in this country the Negro must remain subordinate…Now, John, the question is, are you, with your education and Northern notions, going to accept the situation and teach the darkies to be faithful servants and laborers as your fathers were…or are you going to try to put fool ideas of rising and equality into these folks' heads, and make them discontented and unhappy?" (Du Bois 1903, ch. 13). How did the college-educated teachers placed through the Rosenwald program respond?

Although Rosenwald Schools emphasized vocational education, the teachers they attracted typically held credentials from Black colleges and normal schools. Du Bois noted the irony that Washington "advocates common-school and industrial training, and depreciates institutions of higher learning; but neither the Negro common-schools, nor Tuskegee itself, could remain open a day were it not for teachers trained in Negro colleges." These college-trained teachers brought not only pedagogical skills but exposure to intellectual traditions of racial uplift and political organizing. They could transmit ideas and organizational models from the broader movement to isolated rural communities.

Givens (2021) documents the infrastructure through which this transmission occurred. Carter G. Woodson's Association for the Study of Negro Life and History (founded 1915) grew into a national knowledge network—by 1928, over 1,600 dues-paying members across 40 states—that "remotely mentored black teachers as a professional class" through what Givens terms "insurgent intellectual networks." Through these networks, teachers gained access to "alternative scripts of knowledge" that reframed Black history as a story of agency rather than subjugation. By 1931, over 80 percent of Black high schools celebrated Negro History Week, a grassroots educational initiative Woodson

created in 1926—evidence of a curriculum infrastructure reaching schools nationwide. Teachers provided what Lee (2002) calls political *activation*: reframing the experience of segregation from an immutable fact of life into an injustice that could be collectively challenged.

Moreover, although the schools were framed as "industrial" institutions, the vocational emphasis may have been more rhetorical than real. Walker documents the pattern vividly: when philanthropists hired Henry Alexander Hunt to run Fort Valley High and Industrial School to train "docile, industrial workers," Hunt "appeared to do so, at least in the early years. But he also gradually introduced the liberal arts …emphasized civic education, started a student NAACP chapter" and eventually oversaw the school's transformation into a four-year college (Walker 2018, ch. 7). As Walker observes, "the educators knew how to circumvent intent" (Walker 2018, ch. 17). Givens (2021) terms this broader pattern "fugitive pedagogy"—organized, covert educational resistance in which schools wore "the mask of compliance" while teachers engaged in what amounted to "a calculated act of subversion." N. C. Newbold, North Carolina's state agent for Negro education, offered a revealing observation from the white side of the veil: "I have never detected any earnest effort on the part of those in authority to over-industrialize the curriculum in Negro schools" (Newbold 1924). The industrial framing made the schools palatable to white elites, while the actual education delivered exceeded what the label implied.

Pathways to New Leaders. Rosenwald Schools also created pathways to higher education for exceptional students who would otherwise have had extremely limited access to education. Prominent Rosenwald alumni—writer Maya Angelou, civil rights leader Medgar Evers, and former Representative John Lewis—illustrate how even ostensibly vocational schools could produce transformative leaders. Less well-known alumni followed similar trajectories: Ellie J. Dahmer attended a Rosenwald School in Jasper County, Mississippi, became a teacher, and later served as a civil rights activist alongside her husband Vernon Dahmer—also a Rosenwald alumnus—whose voter registration work led to his murder by the Ku Klux Klan (Umoja 2013).

More broadly, the Rosenwald case parallels a cross-national pattern: Paglayan (2024) docu-

ments how states that recruited teachers to implement social control agendas in France, Prussia, and Argentina inadvertently created the conditions for collective action against those very agendas. A key mechanism was that teacher training institutions—Normal Schools—brought future teachers together in settings where shared experience forged professional solidarity and political networks. As Paglayan summarizes, "the regime's mobilization of teachers, by way of the training institutions, [begat] the teachers' own use of those same institutions as a resource for their own political mobilization" (Paglayan 2024, ch. 8). Black colleges and normal schools in the U.S. South functioned similarly, producing not just credentialed educators but a networked professional class that carried organizational capacity into the rural communities where Rosenwald Schools placed them.

Why Rosenwald Schools?

Buildings That Attracted Teachers. Attracting qualified teachers to rural areas was a persistent challenge. As a Rosenwald Fund report on North Carolina noted, "Graduates of our better institutions of learning have been unwilling to go into the rural districts and teach in buildings that were entirely inadequate in size and were in such a bad state of repair that proper heating was impossible." The report continued: "The Rosenwald schoolhouse has in a large measure met this objection. With good buildings, properly equipped, well-trained teachers are being attracted to the country schools" (NC Division of Negro Education 1926). The Fund also addressed what the report called "the impossibility of finding a suitable boarding place in the strictly rural districts" by building dedicated teachers' homes that provided "a place where the teacher may live throughout the year" (NC Division of Negro Education 1926). The Rosenwald Fund maintained detailed records of school construction, enrollment, and finances, and conducted regular site visits and audits (see Fisk University 2001). Standardized architectural plans, accountability to external funders, and dedicated teacher housing distinguished Rosenwald Schools from the makeshift facilities that state and local governments had long provided for rural Black communities. This quality infrastructure plausibly helps explain why the Rosenwald-specific teacher measure predicts protest while overall Black enrollment does not: higher-quality schools may have attracted more qualified teachers and retained

them longer.

Schools as Community Infrastructure. Rosenwald School construction followed standardized architectural plans developed in consultation with educators and architects at Tuskegee Institute (Hoffschwelle 2006). The Fund required a minimum of two acres on a public highway for each site, replacing what a contemporary report described as "dilapidated shacks that were formerly, in a large number of cases, located on the edge of thickets or other undesirable places where it was impossible to provide suitable playground" (NC Division of Negro Education 1926). The buildings commonly included a large assembly hall and an "Industrial Room" for hands-on vocational training (see Appendix Figure A1 for a representative floor plan). These spaces allowed schools to function as year-round community centers, hosting meetings, cultural events, and civic gatherings even when classes were not in session (Deutsch 2011). A report on one school's dedication noted that it "has already become the social center of the section" and "has brought to the community some of the very best talent to speak to them, College men and women who know the best things in education" (NC Division of Negro Education 1923). By 1932, the program had produced 5,357 buildings across 883 counties—representing "an investment almost twice as great as the value of all Negro public schools standing in these states when the work was started in 1913" (Embree 1936). The Fund also distributed over 2,600 school libraries containing more than 200,000 books to communities where "often in Negro schools even textbooks are not available, and outside of school lessons reading is almost non-existent" (Embree 1936). To white observers, these were merely functional school buildings; behind the veil, they provided the physical infrastructure for community assembly and organizing.

Because the Fund concentrated these resources in rural areas with few civic institutions beyond the church (Hoffschwelle 2006), the marginal impact of each school was likely greater than it would have been in urban settings. The buildings also served as powerful symbols of Black progress and community agency. Recent scholarship has shown that political symbols—such as Confederate monuments—function as common knowledge heuristics about the prevailing social order (Ankori-

Karlinsky 2025). Rosenwald Schools may have operated as a counter-symbol: where Confederate monuments affirmed the racial hierarchy, a well-built school on a prominent public highway communicated that Black communities could organize, invest, and build. Walker captures this symbolic contest vividly. In one Georgia town, "a statue of a Confederate soldier guarded the entrance to the stately old courthouse where the school board met" (Walker 2018, ch. 3)—yet the Black school building was "the pride of all the citizens." When a North Carolina community finally moved into its new school, former students recalled marching "just as proud as peacocks" into the building: "We were so happy to be inside that building we didn't know what in the world to do" (Walker 1996, Preface). As North Carolina's Superintendent observed at a Rosenwald school dedication, the opportunity to build a school "satisfies the instinct of ownership,—the desire of possession. The parent can say, in some measure at least, 'This is mine and for me.' It touches him as an individual. It recognizes him as a person" (Allen 1928).

Discussion

Several limitations merit discussion. Our analysis relies on county-level aggregate data, introducing the risk of ecological inference. However, the consistency of results across OLS, mediation, matching, and IV approaches—each with different identifying assumptions—provides converging evidence that is difficult to explain by ecological artifacts alone. The instrumental variable strategy provides suggestive evidence of a causal relationship, but the reduced-form estimates are sensitive to specification choices, particularly the inclusion of state fixed effects in the first stage (see Appendix Section A5.4 and Table A21). We present IV results as complementary evidence rather than definitive proof of causation. Residual endogeneity may also remain if the distance instruments are correlated with unobserved community characteristics that independently influenced later mobilization—for example, if proximity to railroads or Nashville captures broader access to organizing networks beyond the Rosenwald program. We address these concerns by controlling for urbanization and Black population characteristics and by reporting a Sargan overidentification test,

which does not reject the null of valid instruments.

The historical protest data—coded from *New York Times* coverage—likely undercount events in rural counties, which could attenuate our estimates. As discussed above, the teacher effect is stronger in more urbanized and larger counties (see Appendix Section A5.9), reflecting both this measurement limitation and the rural-to-urban transmission of capacity we describe. Both biases work against finding an effect.

Moreover, the roughly four-decade gap between school construction (1920s) and the protest outcome (1960s–1970s) spans the Great Migration, during which millions of Black Southerners left the rural counties where Rosenwald Schools were concentrated. While individual Rosenwald alumni like Medgar Evers carried their education to new cities, the county-level estimand likely captures something additional: the *institutional legacy* of Rosenwald investment—the organizational networks, associational capacity, and community infrastructure that persisted in origin counties even as individuals migrated. Notable alumni illustrate the range of individual trajectories the program produced; the county-level analysis captures the average institutional effect across all communities. This interpretation is consistent with the veiled capacity mechanism, which emphasizes institutional infrastructure over individual skills, but it means that both out-migration and rural protest undercounting work against finding an effect, suggesting our estimates may be conservative. Indeed, counties with more Rosenwald teachers experienced larger declines in Black population share between 1930 and 1960 ($p < 0.001$; see Appendix Table A25). This is consistent with Great Migration outflows from the rural areas where Rosenwald Schools were concentrated. That the teacher effect on protest remains significant despite this population loss further suggests the estimates are conservative.

Finally, the specific conditions of the Jim Crow South may limit generalizability, though Paglayan (2024) documents strikingly similar dynamics in nineteenth-century France, Prussia, Chile, and Argentina, suggesting that veiled capacity—the strategic repurposing of educational institutions by subordinated actors—may recur wherever education-based social control creates the conditions for hidden organizing.

Conclusion

Across many countries, subordinate groups confront an impossible dilemma: cooperate with an oppressive order in hopes of building toward a better future, or challenge it directly and risk reprisal (Sidanius and Pratto 2001). Washington and Rosenwald appeared to choose accommodation, and were criticized for it by Du Bois and Wells-Barnett who argued for more forceful advocacy. Despite these concerns, we find Washington accurately forecast that building schools within the constraints of Jim Crow could contribute to profound social change. At the same time, the importance of Rosenwald teachers was consistent with Du Bois's emphasis on a "Talented Tenth," whose leadership proved critical to mobilization. The schools, educators, and communities that developed under this accommodationist cover did ultimately help dismantle Jim Crow. What looked like compliance was also strategy. The Rosenwald case is a story of civic capacity built incrementally under authoritarian conditions, behind the veil of racial domination, until it could be mobilized to force democratic inclusion. Amid rising concern about democratic erosion, Rosenwald Schools and teachers offer a model of how democratic capacity gets *built*.

References

Aaronson, Daniel, and Bhashkar Mazumder. 2011. "The Impact of Rosenwald Schools on Black Achievement." *Journal of Political Economy* 119 (5): 821–888.

Aaronson, Daniel, Mark Borgschulte, Sunny Liu, and Bhashkar Mazumder. 2024. Schooling and Political Activism in the Early Civil Rights Era. Working Paper WP 2024-06 Federal Reserve Bank of Chicago.

Allen, A. T. 1928. "Speech at the Dedication of the Four-Thousandth Rosenwald School, Method, North Carolina." Division of Negro Education Records, North Carolina State Archives. Available at https://digital.ncdcr.gov/Documents/Detail/4000-rosenwald-school-dedication/973973. Ca. 1928.

Alridge, Derrick P. 2015. "On the Education of Black Folk: W. E. B. Du Bois and the Paradox of Segregation." *Journal of African American History* 100 (3): 473–493.

Anderson, James D. 1988. *The Education of Blacks in the South, 1860–1935*. Chapel Hill, NC: University of North Carolina Press.

Ankori-Karlinsky, Lee-Or. 2025. "Political Symbols and Social Order: Confederate Monuments and Performative Violence in the Post-Reconstruction U.S. South." *American Political Science Review*.

Atack, Jeremy. 2015. "Historical Geographic Information Systems (GIS) Database of U.S. Railroads." Published online at https://my.vanderbilt.edu/jeremyatack/data-downloads/.

Bachmann, Lawrence P. 1976. "Julius Rosenwald." *American Jewish Historical Quarterly* 66 (1): 89–105.

Black, Dan A, Seth G Sanders, Evan J Taylor, and Lowell J Taylor. 2015. "The Impact of the Great Migration on Mortality of African Americans: Evidence From the Deep South." *American Economic Review* 105 (2): 477–503.

Carruthers, Celeste K, and Marianne H Wanamaker. 2013. "Closing the Gap? The Effect of Private Philanthropy on the Provision of African-American Schooling in the US South." *Journal of Public Economics* 101: 53–67.

Carruthers, Celeste K, and Marianne H Wanamaker. 2017a. "Returns to School Resources in the Jim Crow South." *Explorations in Economic History* 64: 104–110.

Carruthers, Celeste K, and Marianne H Wanamaker. 2017b. "Separate and Unequal in the Labor Market: Human Capital and the Jim Crow Wage Gap." *Journal of Labor Economics* 35 (3): 655–696.

Carruthers, Celeste, and Marianne Wanamaker. 2019. "County-Level School Enrollment and Resources in Ten Segregated Southern States, 1910-1940." Inter-university Consortium for Political and Social Research [distributor], 2019-05-06. http://doi.org/10.3886/E109625V1.

Chubb, John E., and Terry M. Moe. 1990. *Politics, Markets, and America's Schools*. Washington, DC: Brookings Institution Press.

Credle, W. F. 1926. "The Julius Rosenwald Fund in North Carolina to March 1, 1926.". Memorandum to N. C. Newbold. Correspondence: Rosenwald Fund, Box 2, Folder N, 1925–1926. Division of Negro Education Records, State Archives of North Carolina (MARS ID 104.338).

Croke, Kevin, Guy Grossman, Horacio A Larreguy, and John Marshall. 2016. "Deliberate Disengagement: How Education Can Decrease Political Participation in Electoral Authoritarian Regimes." *American Political Science Review* 110 (3): 579–600.

Deutsch, Stephanie. 2011. *You Need a Schoolhouse: Booker T. Washington, Julius Rosenwald, and the Building of Schools for the Segregated South*. Northwestern University Press.

Du Bois, W.E.B. 1903. *The Souls of Black Folk*. Chicago: A. C. McClurg & Co.

Dunning, Thad. 2012. *Natural Experiments in the Social Sciences: A Design-Based Approach*. Cambridge: Cambridge University Press.

Embree, Edwin R. 1936. *Julius Rosenwald Fund: Review of Two Decades, 1917–1936*. Chicago: Julius Rosenwald Fund.

Enos, Ryan D., Aaron R. Kaufman, and Melissa L. Sands. 2019. "Can Violent Protest Change Local Policy Support? Evidence from the Aftermath of the 1992 Los Angeles Riot." *American Political Science Review* 113 (3): 786–802.

Fairclough, Adam. 2007. *A Class of Their Own: Black Teachers in the Segregated South*. Cambridge, MA: Harvard University Press.

Fisk University. 2001. "Rosenwald Fund Card File Database." Online at http://rosenwald.fisk.edu. Accessed 8/4/2019.

Foner, Eric. 1988. *Reconstruction, 1863-1877: America's Unfinished Revolution*. New York: Harper-Collins.

Fong, Christian, Chad Hazlett, and Kosuke Imai. 2018. "Covariate Balancing Propensity Score for a Continuous Treatment: Application to the Efficacy of Political Advertisements." *The Annals of Applied Statistics* 12 (1): 156–177.

Francis, Megan Ming. 2019. "The Price of Civil Rights: Black Lives, White Funding, and Movement Capture." *Law & Society Review* 53 (1): 275–309.

Gillion, Daniel Q. 2012. "Protest and Congressional Behavior: Assessing Racial and Ethnic Minority Protests in the District." *The Journal of Politics* 74 (4): 950–962.

Gillion, Daniel Q. 2013. *The Political Power of Protest: Minority Activism and Shifts in Public Policy*. New York: Cambridge University Press.

Givens, Jarvis R. 2021. *Fugitive Pedagogy: Carter G. Woodson and the Art of Black Teaching*. Cambridge, MA: Harvard University Press.

Grinde, Donald A. 2004. "Taking the Indian Out of the Indian: US Policies of Ethnocide Through Education." *Wicazo Sa Review* 19 (2): 25–32.

Haines, Michael R. 2001. "Historical, Demographic, Economic, and Social Data: The United States, 1790-1970." Published online at Inter-university Consortium for Political and Social Research. https://doi.org/10.3886/ICPSR02896.v3.

Harlan, Louis R. 1983. *Booker T. Washington: The Wizard of Tuskegee, 1901–1915*. New York: Oxford University Press.

Hochschild, Jennifer L, and Nathan Scovronick. 2003. *The American Dream and the Public Schools*. Oxford University Press.

Hoffschwelle, Mary S. 2006. *The Rosenwald Schools of the American South*. University Press of Florida.

Imai, Kosuke, Luke Keele, Dustin Tingley, and Teppei Yamamoto. 2011. "Unpacking the Black Box of Causality: Learning about Causal Mechanisms from Experimental and Observational Studies." *American Political Science Review* 105 (4): 765–789.

Jagmohan, Desmond. forthcoming. *Dark Virtues: Booker T. Washington's Tragic Realism*. Princeton, NJ: Princeton University Press.

Johnson, Kimberley. 2010. *Reforming Jim Crow*. New York: Oxford University Press.

Kelly, Hilton. 2010. *Race, remembering, and Jim Crow's teachers*. Routledge.

Lee, Taeku. 2002. *Mobilizing Public Opinion: Black Insurgency and Racial Attitudes in the Civil Rights Era*. Chicago: University of Chicago Press.

Lewis, David Levering. 2009. *W. E. B. Du Bois, 1868-1919: A Biography*. Henry Holt and Co.

Liebowitz, Stan J, and Stephen E Margolis. 1995. "Path Dependence, Lock-in, and History." *Journal of Law, Economics, & Organization*: 205–226.

Litwack, Leon F. 1998. "The White Man's Fear of the Educated Negro: How the Negro Was Fitted for His Natural and Logical Calling." *The Journal of Blacks in Higher Education* (20): 100–108.

McAdam, Doug, John McCarthy, Susan Olzak, and Sarah Soule. 2009. "Dynamics of Collective Action." Version 10 online at https://web.stanford.edu/group/collectiveaction/.

Mickey, Robert. 2015. *Paths Out of Dixie: The Democratization of Authoritarian Enclaves in America's Deep South, 1944-1972*. Princeton: Princeton University Press.

NC Division of Negro Education. 1923. "Monthly Report of the State Agent for Negro Schools." Division of Negro Education Records, North Carolina State Archives. Available at https://digital.ncdcr.gov/Documents/Detail/correspondence-n.-c.-newbold-october-november-1923/974794. Ca. 1923.

NC Division of Negro Education. 1926. "Effects of the Rosenwald Work in North Carolina." Rosenwald Fund Correspondence, Box 8. State Archives of North Carolina. Available at https://digital.ncdcr.gov/Documents/Detail/effects-of-the-rosenwald-work-in-north-carolina/1262011. Undated report, ca. 1920s.

Newbold, N. C. 1924. "Correspondence Regarding Negro School Curriculum." Division of Negro Education Records, North Carolina State Archives. Available at https://digital.ncdcr.gov/Documents/Detail/correspondence-rosenwald-fund-box-3-folder-b-1924-1925/983416. Ca. 1924–1925.

Newbold, N. C. 1925. "Speeches: Conference on Negro Education in North Carolina." Division of Negro Education Records, North Carolina State Archives. Available at https://digital.ncdcr.gov/Documents/Detail/speeches-conference-on-negro-education-in-north-carolina-by-n.-c.-newbold-november-16-1925/959011. November 16, 1925.

Olzak, Susan, and Suzanne Shanahan. 1996. "Deprivation and Race Riots: An Extension of Spilerman's Analysis." *Social Forces* 74 (3): 931–961.

Page, Scott E. 2006. "Path Dependence." *Quarterly Journal of Political Science* 1 (1): 87–115.

Paglayan, Agustina. 2024. *Raised to Obey: The Rise and Spread of Mass Education*. Princeton University Press.

Paglayan, Agustina S. 2021. "The Non-Democratic Roots of Mass Education: Evidence From 200 Years." *American Political Science Review* 115 (1): 179–198.

Persson, Mikael. 2015. "Education and Political Participation." *British Journal of Political Science* 45 (3): 689–703.

Peterson, Paul E. 2010. *Saving Schools: From Horace Mann to Virtual Learning*. Cambridge, MA: Harvard University Press.

Raboteau, Albert J. 1978. *Slave Religion: The "Invisible Institution" in the Antebellum South*. New York: Oxford University Press.

Rivkin, Steven G., Eric A. Hanushek, and John F. Kain. 2005. "Teachers, Schools, and Academic Achievement." *Econometrica* 73 (2): 417–458.

Schickler, Eric. 2016. *Racial Realignment: The Transformation of American Liberalism, 1932–1965*. Princeton, NJ: Princeton University Press.

Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press.

Sidanius, Jim, and Felicia Pratto. 2001. *Social Dominance: An Intergroup Theory of Social Hierarchy and Oppression*. New York: Cambridge University Press.

Soifer, Hillel David. 2012. "The Causal Logic of Critical Junctures." *Comparative Political Studies* 45 (12): 1572–1597.

Sondheimer, Rachel Milstein, and Donald P Green. 2010. "Using Experiments to Estimate the Effects of Education on Voter Turnout." *American Journal of Political Science* 54 (1): 174–189.

Stephan, Maria J, and Erica Chenoweth. 2008. "Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict." *International Security* 33 (1): 7–44.

Stock, James H., and Motohiro Yogo. 2005. "Testing for Weak Instruments in Linear IV Regression." In *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg*, ed. Donald W. K. Andrews and James H. Stock. Cambridge: Cambridge University Press.

Thuesen, Sarah Caroline. 2013. *Greater Than Equal: African American Struggles for Schools and Citizenship in North Carolina, 1919-1965*. Chapel Hill, NC: UNC Press Books.

Umoja, Akinyele Omowale. 2013. *We Will Shoot Back: Armed Resistance in the Mississippi Freedom Movement*. New York: NYU Press.

Walker, Vanessa Siddle. 1996. *Their Highest Potential: An African American School Community in the Segregated South*. Chapel Hill, NC: University of North Carolina Press.

Walker, Vanessa Siddle. 2018. *The Lost Education of Horace Tate: Uncovering the Hidden Heroes Who Fought for Justice in Schools*. New York: The New Press.

Washington, Booker T. 1913. "Industrial Education and the Public Schools." In *The Negro's Progress in Fifty Years*, ed. Emory R. Johnson. Vol. XLIX. The Annals of Political and Social Science.

Wasow, Omar. 2020. "Agenda Seeding: How 1960s Black Protests Moved Elites, Public Opinion and Voting." *American Political Science Review* 114 (3): 638–659.

Weaver, Vesla M, and Gwen Prowse. 2020. "Racial Authoritarianism in US Democracy." *Science* 369 (6508): 1176–1178.

Wells-Barnett, Ida B. 1904. "Booker T. Washington and His Critics." *World Today* 6: 518–521.

Wooldridge, Jeffrey. 2015. "Control Function Methods in Applied Econometrics." *Journal of Human Resources* 50 (2): 420-445.

Appendix

A Overview of Model Specifications

Table A1 summarizes the four main model specifications.

Table A1: Overview of Model Specifications

Quantity of Interest	**Approach**	**Model Details**
1. Direct effect of Black enrollment	OLS	$y_i = \alpha + \beta_1 Enrollment_i + \beta_x \mathbf{X}_i + \epsilon_i$
2. Direct effect of Rosenwald teachers	OLS	$y_i = \alpha + \beta_1 RT_i + \beta_2 Enroll_i + \beta_x \mathbf{X}_i + \epsilon_i$
3. Dual mediation: Black fundraising → teachers + enrollment → protest	SEM	$RT_i = \alpha_1 + \gamma_1 Fund_i + \beta_x \mathbf{X}_i + \epsilon_i$ $Enroll_i = \alpha_2 + \gamma_2 Fund_i + \beta_x \mathbf{X}_i + \eta_i$ $y_i = \alpha_3 + \delta_1 RT_i + \delta_2 Enroll_i + \delta_3 Fund_i + \beta_x \mathbf{X}_i + \nu_i$
4. Causal effect of Rosenwald teachers via combined 2SRI	IV: NB 1st stage	$RT_i = f(Dist_i^{Nash}, Dist_i^{Rail}, \mathbf{X}_i) + \epsilon_i$
	IV: OLS 2nd stage	$y_i = \alpha + \beta_1 RT_i + \beta_2 \hat{u}_i + \beta_x \mathbf{X}_i + \mathbf{S}_i + \nu_i$

y_i = protest participation (binary or log). RT_i = Rosenwald teachers. $Fund_i$ = Black community fundraising.

$\hat{u}_i$ = control function residual from first stage. $\mathbf{X}_i$ = county demographic covariates. $\mathbf{S}_i$ = state fixed effects.

SEM = Structural Equation Model. 2SRI = Two-Stage Residual Inclusion. NB = Negative Binomial.

B Rosenwald Schools by State

Table A2: Number and percent of Rosenwald buildings (schools, teacher homes, and workshops) by State

State	N	Percent
Alabama	405	7.5%
Arkansas	391	7.2%
Florida	127	2.4%
Georgia	271	5.0%
Kentucky	161	3.0%
Louisiana	442	8.2%
Maryland	155	2.9%
Mississippi	639	11.8%
Missouri	5	0.1%
North Carolina	819	15.2%
Oklahoma	199	3.7%
South Carolina	503	9.3%
Tennessee	375	6.9%
Texas	526	9.7%
Virginia	382	7.1%

C Rosenwald School Floor Plan

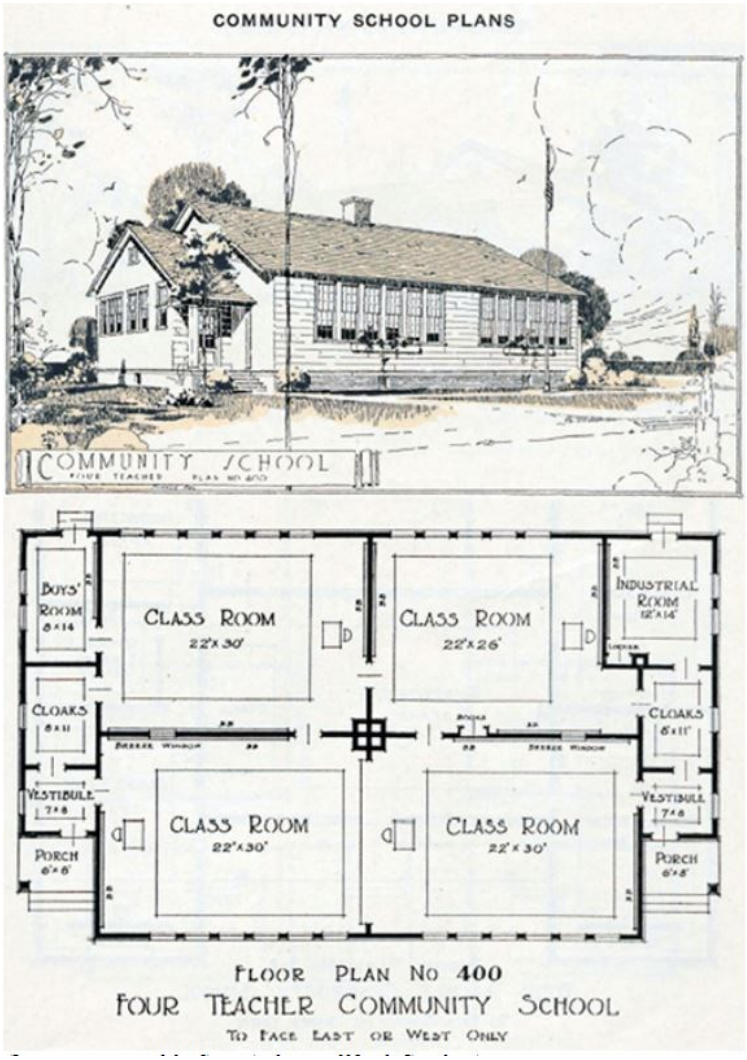

Figure A1: Standardized floor plan for a "Four Teacher Community School" (Floor Plan No. 400). The plan shows four classrooms, an Industrial Room for vocational training, and cloakrooms. Each classroom corresponds to one teacher—the basis for our Rosenwald teacher measure. Plans specified that schools "face East or West only" to maximize natural lighting. *Image courtesy of the State Archives of North Carolina.*

D Enrollment Map

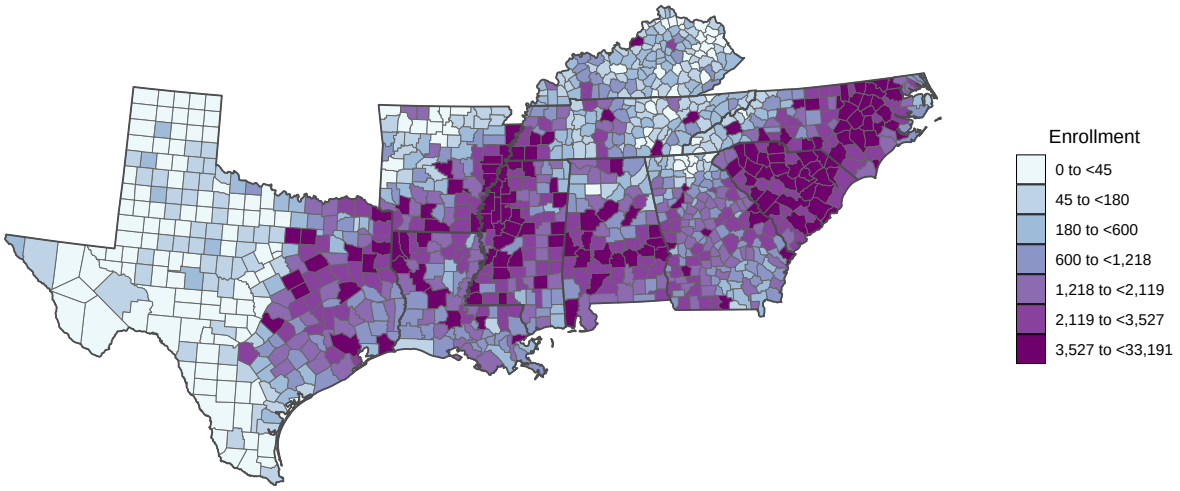

Figure A2: Choropleth map showing density of Black enrollment by county in 1930.

A4.1 Direct Relationships: Protest vs Enrollment and Rosenwald Teachers

The following tables present the full regression results underlying the main-text figures. Tables show stepwise addition of controls for both binary (any protest) and continuous (log protest participants) outcomes, with enrollment and Rosenwald teachers as separate predictors.

Figure A3 presents the marginal effects of enrollment, funding, and Rosenwald teachers on the probability of any protest activity (binary outcome). Results are consistent with the log protest models in the main text: Rosenwald teachers are the strongest predictor.

Table A3: Protest Activity (binary, log-odds) vs Enrollment (log)

	Dependent variable:					
	Protest Activity (binary)					
	(1)	(2)	(3)	(4)	(5)	(6)
Black Enrollment (log)	1.26***	1.43***	1.25***	0.70***	0.70***	0.40
	(0.12)	(0.14)	(0.16)	(0.16)	(0.16)	(0.25)
% Black		−0.06**	−0.04	−0.02	−0.01	0.01
		(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
(% Black)^2		0.001*	0.001	0.0004	0.0004	0.0002
		(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
% Black Unemployment			0.19***	0.07	0.06	0.07
			(0.04)	(0.05)	(0.05)	(0.05)
Urban (prop)				4.26***	4.21***	3.91***
				(0.52)	(0.53)	(0.57)
% Foreign Born					0.04	0.03
					(0.11)	(0.11)
Total Population (log)						0.44
						(0.30)
Funding: Blacks (log)	−0.12**	−0.10*	−0.09	0.01	0.02	0.01
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)
Funding: Whites (log)	0.05	0.05	0.05	0.01	0.01	0.01
	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
State fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.28	0.29	0.31	0.38	0.38	0.38
Observations	1,345	1,345	1,345	1,345	1,345	1,345
Note:						*p<0.05; **p<0.01; ***p<0.001

Table A4: Odds Ratio of Protest Activity (binary) vs Rosenwald Teachers (10s)

	Dependent variable:					
	Protest Activity (binary)					
	(1)	(2)	(3)	(4)	(5)	(6)
# Rosenwald Teachers	1.17*	1.17*	1.17*	1.16*	1.16*	1.16*
	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)
Black Enrollment (log)	3.20***	3.79***	3.14***	1.86***	1.85***	1.45
	(0.39)	(0.53)	(0.49)	(0.30)	(0.30)	(0.36)
% Black		0.95*	0.96	0.99	0.99	1.01
		(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
(% Black)^2		1.00*	1.00	1.00	1.00	1.00
		(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
% Black Unemployment			1.21***	1.07	1.07	1.07
			(0.05)	(0.05)	(0.05)	(0.05)
Urban (prop)				66.07***	62.45***	48.40***
				(33.31)	(32.52)	(26.91)
% Foreign Born					1.05	1.04
					(0.11)	(0.11)
Total Population (log)						1.45
						(0.42)
Funding: Blacks (log)	0.86***	0.88**	0.89**	0.98	0.99	0.98
	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)
Funding: Whites (log)	1.03	1.03	1.03	0.99	0.99	0.99
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
State fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.29	0.29	0.32	0.38	0.38	0.38
Observations	1,345	1,345	1,345	1,345	1,345	1,345
Note:						*p<0.05; **p<0.01; ***p<0.001

Table A5: Protest Activity (log) vs Enrollment (log)

	Dependent variable:					
	Protest Activity (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
Black Enrollment (log)	0.48***	0.56***	0.45***	0.16**	0.16**	−0.06
	(0.05)	(0.07)	(0.07)	(0.06)	(0.05)	(0.06)
% Black		−0.05***	−0.04**	−0.03*	−0.03*	−0.003
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
(% Black)^2		0.001***	0.001***	0.001***	0.001***	0.001**
		(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
% Black Unemployment			0.10***	0.05**	0.04**	0.04*
			(0.02)	(0.02)	(0.02)	(0.02)
Urban (prop)				3.65***	3.46***	2.95***
				(0.32)	(0.32)	(0.32)
% Foreign Born					0.14	0.12
					(0.07)	(0.07)
Total Population (log)						0.49***
						(0.12)
Funding: Blacks (log)	−0.10***	−0.08**	−0.08***	−0.005	−0.004	−0.01
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Funding: Whites (log)	0.06*	0.05	0.06*	0.02	0.02	0.01
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
State fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.18	0.20	0.21	0.32	0.32	0.33
Observations	1,345	1,345	1,345	1,345	1,345	1,345
Note:						*p<0.05; **p<0.01; ***p<0.001

Table A6: Protest Activity (log) vs Rosenwald Teachers (10s)

	Dependent variable:					
	Protest Activity (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
# Rosenwald Teachers	0.34***	0.32***	0.33***	0.27***	0.27***	0.25***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Black Enrollment (log)	0.40***	0.50***	0.39***	0.13*	0.12*	−0.05
	(0.05)	(0.07)	(0.07)	(0.05)	(0.05)	(0.06)
% Black		−0.05***	−0.04**	−0.03*	−0.03*	−0.01
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
(% Black)^2		0.001***	0.001***	0.001***	0.001***	0.001**
		(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
% Black Unemployment			0.10***	0.05**	0.05**	0.04**
			(0.02)	(0.02)	(0.02)	(0.02)
Urban (prop)				3.46***	3.25***	2.86***
				(0.32)	(0.32)	(0.32)
% Foreign Born					0.15*	0.14
					(0.07)	(0.07)
Total Population (log)						0.39***
						(0.11)
Funding: Blacks (log)	−0.14***	−0.12***	−0.12***	−0.04	−0.04	−0.04*
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Funding: Whites (log)	0.01	0.01	0.01	−0.01	−0.01	−0.02
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
State fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.22	0.23	0.25	0.34	0.34	0.35
Observations	1,345	1,345	1,345	1,345	1,345	1,345
Note:						*p<0.05; **p<0.01; ***p<0.001

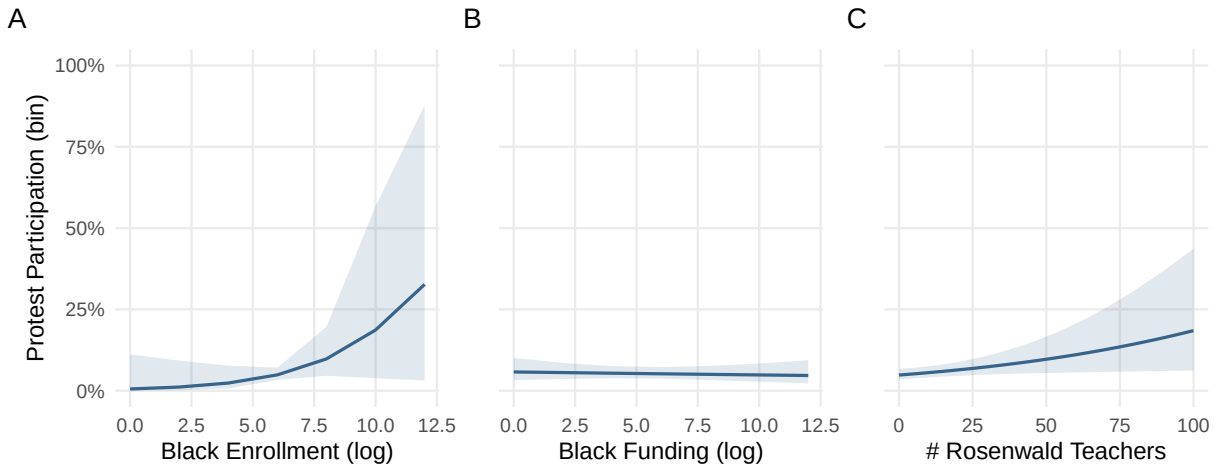

Figure A3: Marginal effects of (A) Black enrollment, (B) Black school funding, and (C) number of Rosenwald teachers on probability of any protest participation (binary outcome). Panel C displays predictions for 0–100 teachers; Shelby County, TN (213 teachers) is included in all models but omitted from the plot for ease of visualization. See Table A4.

A4.2 Mediation: Single-Mediator Robustness Models

The following analyses test each mediation pathway individually, complementing the dual SEM model presented in the main text. We report results for two pathways that match the dual SEM's causal ordering: Funding → Teachers → Protest and Funding → Enrollment → Protest.

Table A7: Mediation: Funding → Teachers → Protest (Binary)

	Dependent variable:		
	Protest (Binary)	Rosenwald Teachers (10s)	Protest (Binary)
	glm: quasibinomial link = logit	*OLS*	*glm: quasibinomial link = logit*
	model: x → y	model: x → m	model: x + m → y
	(1)	(2)	(3)
Funding: Blacks (log)	0.01	0.12***	−0.02
	(0.05)	(0.02)	(0.05)
# Rosenwald Teachers			0.15*
			(0.07)
Black Enrollment (log)	0.40	−0.04	0.37
	(0.25)	(0.05)	(0.25)
% Black	0.01	0.02*	0.01
	(0.03)	(0.01)	(0.03)
(% Black)^2	0.0002	0.0000	0.0002
	(0.0003)	(0.0001)	(0.0003)
Total Population (log)	0.44	0.41***	0.37
	(0.30)	(0.08)	(0.29)
% Black Unemployment	0.07	−0.02	0.07
	(0.05)	(0.01)	(0.05)
Urban (prop)	3.91***	0.36	3.88***
	(0.57)	(0.20)	(0.56)
% Foreign Born	0.03	−0.07	0.04
	(0.11)	(0.04)	(0.11)
Funding: Whites (log)	0.01	0.13***	−0.01
	(0.04)	(0.02)	(0.04)
Constant	−10.69***	−4.97***	−9.57***
	(2.20)	(0.64)	(2.20)
State fixed effects?	Yes	Yes	Yes
Observations	1,345	1,345	1,345
R^2		0.52	
Adjusted R^2		0.52	
Residual Std. Error		1.25 (df = 1322)	
F Statistic		65.95*** (df = 22; 1322)	
Note:			*p<0.05; **p<0.01; ***p<0.001

Table A8: Mediation: Funding → Teachers → Protest (Log)

	Dependent variable:		
	Protest (Log) model: x → y	Rosenwald Teachers (10s) model: x → m	Protest (Log) model: x + m → y
	(1)	(2)	(3)
Funding: Blacks (log)	−0.01	0.12***	−0.04
	(0.02)	(0.02)	(0.02)
# Rosenwald Teachers			0.25***
			(0.04)
Black Enrollment (log)	−0.06	−0.04	−0.05
	(0.08)	(0.05)	(0.08)
% Black	−0.003	0.02*	−0.01
	(0.01)	(0.01)	(0.01)
(% Black)^2	0.001**	0.0000	0.001**
	(0.0002)	(0.0001)	(0.0002)
Total Population (log)	0.49***	0.41***	0.39***
	(0.11)	(0.08)	(0.11)
% Black Unemployment	0.04*	−0.02	0.04*
	(0.02)	(0.01)	(0.02)
% Foreign Born	0.12*	−0.07	0.14*
	(0.06)	(0.04)	(0.06)
Urban (prop)	2.95***	0.36	2.86***
	(0.29)	(0.20)	(0.29)
Funding: Whites (log)	0.01	0.13***	−0.02
	(0.02)	(0.02)	(0.02)
Constant	−4.18***	−4.97***	−2.93**
	(0.95)	(0.64)	(0.96)
State fixed effects?	Yes	Yes	Yes
Observations	1,345	1,345	1,345
R^2	0.33	0.52	0.35
Adjusted R^2	0.32	0.52	0.34
Residual Std. Error	1.85 (df = 1322)	1.25 (df = 1322)	1.83 (df = 1321)
F Statistic	29.61*** (df = 22; 1322)	65.95*** (df = 22; 1322)	30.82*** (df = 23; 1321)
Note:			*p<0.05; **p<0.01; ***p<0.001

A4.3 Mediation: Funding → Enrollment → Protest

We estimate mediation models where Black funding is the treatment and enrollment is the mediator. Funding is temporally and causally prior to enrollment, making it a cleaner treatment variable for mediation analysis.

Table A9: Mediation: Funding → Enrollment → Protest (Binary)

	Dependent variable:		
	Protest (Binary)	Black Enrollment (Log)	Protest (Binary)
	glm: quasibinomial link = logit model: x → y	*OLS* model: x → m	*glm: quasibinomial link = logit* model: x + m → y
	(1)	(2)	(3)
Funding: Blacks (log)	0.02	0.04***	0.01
	(0.05)	(0.01)	(0.05)
Black Enrollment (log)			0.40
			(0.25)
% Black	0.05*	0.13***	0.01
	(0.02)	(0.004)	(0.03)
(% Black)^2	−0.0001	−0.001***	0.0002
	(0.0002)	(0.0000)	(0.0003)
Total Population (log)	0.81***	0.93***	0.44
	(0.19)	(0.03)	(0.30)
% Black Unemployment	0.07	0.04***	0.07
	(0.05)	(0.01)	(0.05)
Urban (prop)	3.81***	−0.14	3.91***
	(0.56)	(0.10)	(0.57)
% Foreign Born	0.03	−0.03	0.03
	(0.11)	(0.02)	(0.11)
Funding: Whites (log)	0.01	−0.01	0.01
	(0.04)	(0.01)	(0.04)
Constant	−12.47***	−5.05***	−10.69***
	(1.91)	(0.30)	(2.20)
State fixed effects?	Yes	Yes	Yes
Observations	1,345	1,345	1,345
R^2		0.88	
Adjusted R^2		0.88	
Residual Std. Error		0.65 (df = 1323)	
F Statistic		482.21*** (df = 21; 1323)	
Note:			*p<0.05; **p<0.01; ***p<0.001

Table A10: Mediation: Funding → Enrollment → Protest (Log)

	Dependent variable:		
	Protest (Log) model: x → y	Black Enrollment (Log) model: x → m	Protest (Log) model: x + m → y
	(1)	(2)	(3)
Funding: Blacks (log)	−0.02	0.04***	−0.01
	(0.02)	(0.01)	(0.02)
Black Enrollment (log)			−0.06
			(0.08)
% Black	−0.01	0.13***	−0.003
	(0.01)	(0.004)	(0.01)
(% Black)^2	0.001***	−0.001***	0.001**
	(0.0001)	(0.0000)	(0.0002)
Total Population (log)	0.44***	0.93***	0.49***
	(0.09)	(0.03)	(0.11)
% Black Unemployment	0.04*	0.04***	0.04*
	(0.02)	(0.01)	(0.02)
Urban (prop)	2.96***	−0.14	2.95***
	(0.29)	(0.10)	(0.29)
% Foreign Born	0.12*	−0.03	0.12*
	(0.06)	(0.02)	(0.06)
Funding: Whites (log)	0.01	−0.01	0.01
	(0.02)	(0.01)	(0.02)
Constant	−3.89***	−5.05***	−4.18***
	(0.86)	(0.30)	(0.95)
State fixed effects?	Yes	Yes	Yes
Observations	1,345	1,345	1,345
R^2	0.33	0.88	0.33
Adjusted R^2	0.32	0.88	0.32
Residual Std. Error	1.85 (df = 1323)	0.65 (df = 1323)	1.85 (df = 1322)
F Statistic	31.00*** (df = 21; 1323)	482.21*** (df = 21; 1323)	29.61*** (df = 22; 1322)

Note: *p<0.05; **p<0.01; ***p<0.001

A4.4 Combined Single-Mediator Results

Figure A4 presents single-mediator robustness models that test each pathway from the dual SEM individually. Panels A–B test Funding → Teachers → Protest; Panels C–D test Funding → Enrollment → Protest. Consistent with the dual SEM, the teacher pathway shows the stronger mediation effect.

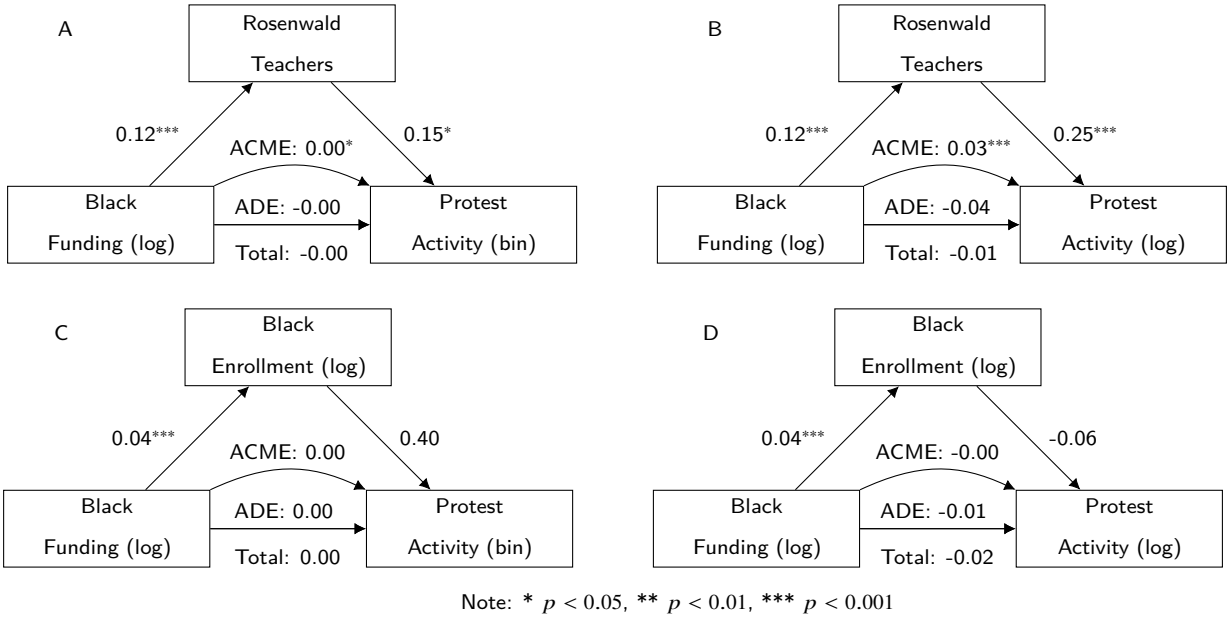

Figure A4: Single-mediator robustness models. Panels A–B: Funding → Teachers → Protest (binary and log outcomes). Panels C–D: Funding → Enrollment → Protest (binary and log outcomes). All models include state fixed effects and county-level controls.

E Alternative IV Specifications: Single-Instrument Approaches

In the main text, we present results from a combined 2SRI model that uses both distance to Nashville and distance to the Illinois Central Railroad as instruments for Rosenwald teacher placements, modeling the two key nodes of the school assignment process jointly. Here, we present results from models that use each instrument separately. These single-instrument specifications allow readers to assess the robustness of our findings to different identifying assumptions and to compare the strength of each instrument individually. All specifications omit state fixed effects from the first

stage and include them in the second stage.

All distance instruments are standardized (mean zero, unit variance) before entering the models. Standardization serves several purposes: it ensures comparability across instruments (a one-unit change represents one standard deviation for both railroad and Nashville distance), improves numerical stability of the quadratic specification (raw distances in hundreds of km produce squared terms in tens of thousands, inflating collinearity), and aids convergence of the negative binomial first stage. Coefficients in the IV tables should be interpreted as the effect of a one-standard-deviation change in distance. Standardization is a linear rescaling and does not affect the substance of any results.

A5.1 IV: 2SRI Distance to Nashville

A5.1.1 Diagram of 2SRI Model

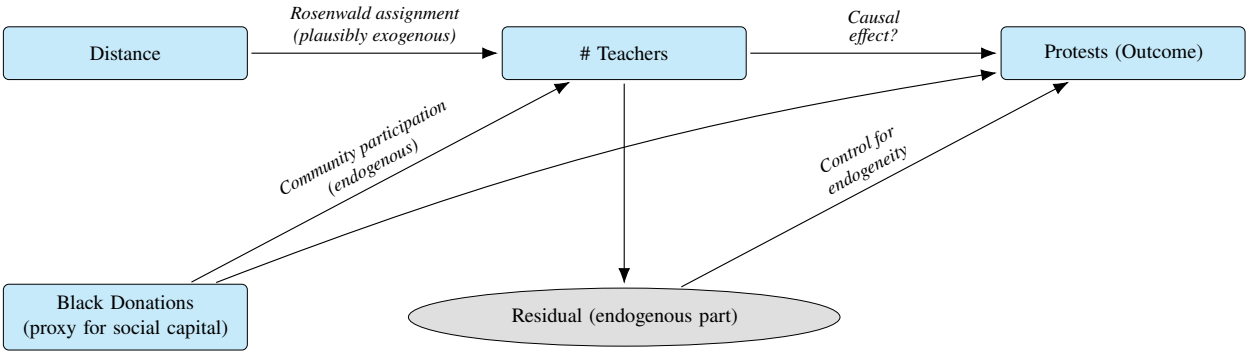

Figure A5: Control-function (2SRI) diagram illustrating the instrumental variable logic. "Distance" represents the geographic instruments used across specifications: distance to Nashville, distance to the Illinois Central Railroad, or both (combined model). In the first stage, we model the county-level number of teachers as a function of distance (plausibly exogenous) and Black donations (a proxy for pre-existing social capital, endogenous). In the second stage, we estimate the teacher–protest relationship while controlling for the first-stage residuals, which capture the endogenous component of teacher assignment conditional on the instruments and donations.

A5.1.2 Nashville 2SRI: Negative Binomial First Stage

Table A11: Distance to Nashville 2SRI Models: Negative Binomial and OLS

	Dependent variable:	
	Rosenwald Teachers	log(Protest Pop)
	negative binomial	*OLS*
	First Stage	Second Stage
	(1)	(2)
Dist. Nashville (km)	0.10***	
	(0.03)	
(Distance to Nashville)^2	−0.01*	
	(0.002)	
# Rosenwald Teachers		0.06***
		(0.01)
First-Stage Residual (Count Eq.)		−0.08***
		(0.01)
Black Enrollment (log)	0.44***	0.004
	(0.05)	(0.05)
% Black	−0.02**	−0.02
	(0.01)	(0.01)
(% Black)^2	0.0001*	0.001**
	(0.0001)	(0.0002)
Urban (prop)	0.82***	2.72***
	(0.13)	(0.38)
% Foreign Born	−0.02	0.12
	(0.02)	(0.07)
Total Population (log)	−0.05	0.12
	(0.06)	(0.11)
Funding: Blacks (log)	0.37***	−0.09***
	(0.01)	(0.02)
Funding: Whites (log)	0.02**	−0.04
	(0.01)	(0.02)
Constant	−3.25***	−0.55
	(0.44)	(1.01)
State fixed effects?	Yes	Yes
Observations	1,311	1,311
R^2		0.39
Adjusted R^2		0.38
Log Likelihood	-3,079.92	
Akaike Inf. Crit.	6,181.85	
Note:		*p<0.05; **p<0.01; ***p<0.001

A5.2 IV: 2SRI Distance to Illinois Central Railroad

The relationship between Rosenwald teacher counts and distance to the Illinois Central Railroad is nonlinear. Schools were least common very close to the Illinois Central Railroad (where existing Black education infrastructure was likely stronger) and very far from the railroad. The highest concentration appears in intermediate-range areas—geographically distant enough to qualify for Rosenwald support but close enough to be administratively and logistically feasible.

Table A12: Distance to Illinois Central 2SRI Models, Negative Binomial and OLS

	Dependent variable:	
	Rosenwald Teachers	Protest Activity (log)
	negative binomial	*OLS*
	(1)	(2)
Dist to IC Railroad	−0.099**	
	(0.034)	
(Dist to IC Railroad)^2	0.009**	
	(0.003)	
# Rosenwald Teachers		0.032***
		(0.007)
First-Stage Residual (NB Model)		−0.006
		(0.005)
Black Enrollment (log)	0.847***	−0.008
	(0.066)	(0.055)
% Black	0.019*	−0.013
	(0.009)	(0.014)
(% Black)^2	−0.0003**	0.001**
	(0.0001)	(0.0002)
Urban (prop)	−0.488*	3.293***
	(0.199)	(0.383)
% Foreign Born	−0.088**	0.125
	(0.030)	(0.070)
Total Population (log)	0.220**	0.284*
	(0.085)	(0.113)
Funding: Blacks (log)		−0.042
		(0.022)
Funding: Whites (log)		−0.018
		(0.025)
Observations	1,318	1,318
R^2		0.346
Log Likelihood	-3,611.463	
Note:		*p<0.05; **p<0.01; ***p<0.001

Table A13: Distance to Illinois Central 2SRI: Zero Inflation and OLS Models

	Dependent variable:		
	Rosenwald Teachers (n)		log(Protest Pop + 1)
	zero-inflated count data		*OLS*
	First: Zero (OR)	First: Count (IRR)	Second: OLS
	(1)	(2)	(3)
Dist. Illinois Central (std.)	0.971	1.140**	
	(0.355)	(0.057)	
(Dist. Illinois Central, std.)^2	2.042*	0.958	
	(0.687)	(0.029)	
# Rosenwald Teachers			0.041***
			(0.008)
First-Stage Residual (Inflation Eq.)			−0.070
			(0.055)
First-Stage Residual (Count Eq.)			−0.274**
			(0.137)
Black Enrollment (log)	0.787	1.373***	−0.020
	(0.240)	(0.079)	(0.088)
% Black (z)	1.099	1.130	0.303
	(0.620)	(0.092)	(0.223)
(% Black)^2	1.925	0.979	0.234**
	(0.955)	(0.028)	(0.083)
Urban (prop)	0.048*	1.636***	2.925***
	(0.063)	(0.213)	(0.433)
% Foreign Born	1.118	0.973	0.145**
	(0.179)	(0.022)	(0.033)
Total Population (log)	1.053	1.032	0.402***
	(0.506)	(0.069)	(0.237)
Funding: Blacks (log)	0.013	1.309***	−0.070*
	(6.480)	(0.020)	(0.023)
Funding: Whites (log)	0.067	1.045***	−0.021
	(35.693)	(0.007)	(0.021)
Constant	7.561	0.064***	−3.019***
	(27.778)	(0.027)	(1.839)
Log Likelihood (ZINB)	−2901.939	−2901.939	
Theta (overdispersion)	5.434	5.434	
McFadden R^2 (ZINB)	0.304	0.304	
Clusters (states)	14	14	14
Observations	1,318	1,318	1,345
Adjusted R^2			0.339

Note: Cols 1–2 report odds ratios and incidence-rate ratios; SEs via delta method. Col 3 reports state-clustered SEs.

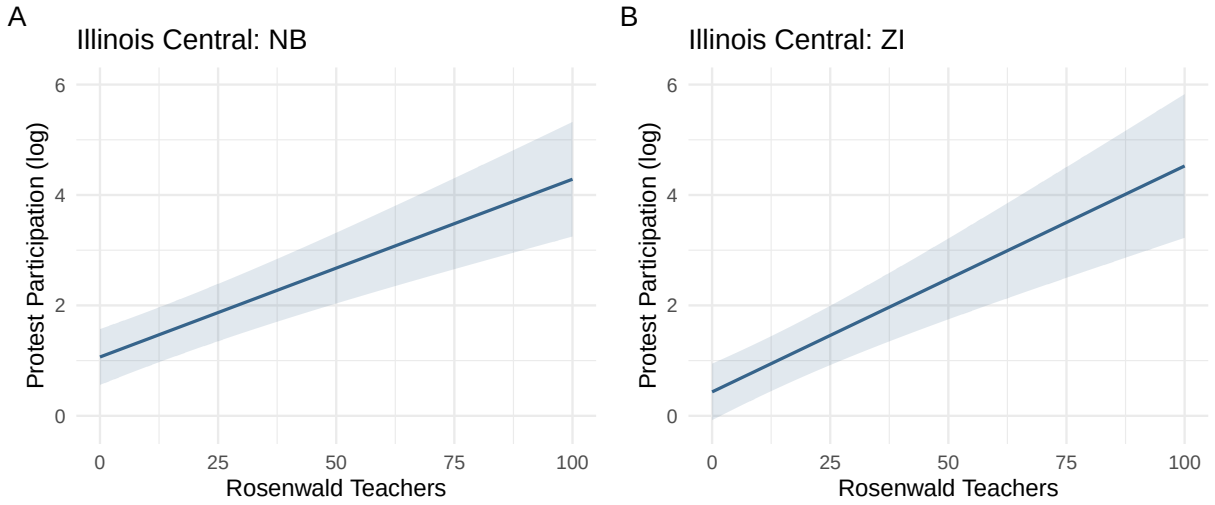

Figure A6: Marginal effect of Rosenwald teachers on protest participation using Railroad-only 2SRI models. Panel A shows results from negative binomial first stage; Panel B shows results from zero-inflated first stage.

A5.3 Combined 2SRI Results

Table A14 presents the full combined 2SRI model results. Column 1 shows the negative binomial first stage predicting Rosenwald teachers from both distance instruments. Column 2 shows the second stage OLS with the control function residual. Column 3 shows a standard 2SLS specification for comparison.[12]

[12]The joint Wald test for all distance instruments in the NB first stage is significant ($p < 0.01$). An OLS proxy first stage yields an F-statistic above the conventional Stock-Yogo threshold of 10 (see Table A15 for exact values).

Table A14: Combined 2SRI: Distance to Nashville + Illinois Central

	Dependent variable:		
	Rosenwald Teachers	log(Protest Pop + 1)	
	negative binomial	*OLS*	
	First Stage (NB)	Second Stage (2SRI)	Second Stage (2SLS)
	(1)	(2)	(3)
Dist. Illinois Central (std.)	0.049*		
	(0.025)		
(Dist. Illinois Central, std.)^2	−0.006		
	(0.022)		
Dist. Nashville (std.)	0.070		
	(0.038)		
(Dist. Nashville, std.)^2	−0.068*		
	(0.032)		
# Rosenwald Teachers		0.034***	
		(0.007)	
First-Stage Residual (Hybrid)		−0.008	
		(0.005)	
Rosenwald Teachers (fitted)			0.067*
			(0.030)
Black Enrollment (log)	0.430***	−0.012	−0.008
	(0.052)	(0.055)	(0.057)
% Black	−0.016*	−0.012	−0.009
	(0.006)	(0.014)	(0.014)
(% Black)^2	0.0001*	0.001**	0.0004*
	(0.0001)	(0.0002)	(0.0002)
Urban (prop)	0.814***	3.306***	3.148***
	(0.133)	(0.383)	(0.416)
% Foreign Born	−0.009	0.124	0.162*
	(0.022)	(0.070)	(0.074)
Total Population (log)	−0.045	0.288*	0.107
	(0.064)	(0.114)	(0.158)
Funding: Blacks (log)	0.372***	−0.041	−0.100*
	(0.012)	(0.022)	(0.047)
Funding: Whites (log)	0.023***	−0.019	−0.071
	(0.007)	(0.025)	(0.046)
State fixed effects?	Yes	Yes	Yes
First stage model	*NB*	*NB*	*OLS*
Observations	1,318	1,318	1,318
R^2		0.346	0.325
Adjusted R^2		0.335	0.314
Log Likelihood	-3,092.886		
Note:			*p<0.05; **p<0.01; ***p<0.001

A5.4 IV Diagnostics: Comparing Instrument Approaches

This section presents a comprehensive set of diagnostic tests for the instrumental variable analysis. All specifications omit state fixed effects from the first stage to preserve cross-state identifying variation and include state fixed effects in the second stage (see Table A21 for sensitivity to this choice). We evaluate: (1) first-stage instrument strength across all three specifications, (2) reduced-form estimates testing whether instruments predict the outcome directly, (3) endogeneity tests justifying the IV approach, (4) an overidentification test for the combined model, and (5) a comparison of 2SRI and 2SLS estimates.

A5.4.1 First-Stage Instrument Strength

A central concern in any IV analysis is whether the instruments are sufficiently strong to avoid weak-instrument bias. In the standard linear IV framework, the Stock-Yogo threshold of $F > 10$ provides a widely used benchmark (Stock and Yogo 2005). However, because our first stage is a negative binomial model—appropriate given that the endogenous variable (Rosenwald teachers) is a count—the standard F-statistic does not directly apply. Instead, the primary measure of first-stage strength is the Wald χ^2 test of joint significance of the distance instruments in the NB model. There is no standard "$\chi^2 > X$" rule analogous to Stock-Yogo, so we assess instrument strength in three ways: (1) the NB Wald χ^2 and its p-value, (2) a likelihood-based partial pseudo-R^2 measuring the marginal contribution of the instruments, and (3) an OLS proxy F-statistic that enables comparison with the conventional $F > 10$ threshold even though the actual first stage is nonlinear.

Table A15 reports these diagnostics across all three IV specifications. All Wald tests reject the null of jointly insignificant instruments at $p < 0.05$. The combined specification is the strongest on the NB Wald metric, which is one reason we use it as our primary IV model. An informative pattern emerges when comparing the NB Wald and OLS F across specifications: Nashville has a strong NB Wald but the weakest OLS F, while the railroad shows the opposite pattern. This reflects the nonlinear first-stage relationship visible in Figure A7: the inverted-U shape of Nashville's effect on teacher counts is well captured by the NB model but poorly approximated by OLS. The combined

model, using both instruments, is strong on both metrics.

Table A15: First-stage instrument strength across three IV specifications. NB Wald tests joint significance of distance instruments in negative binomial first stage. OLS F-statistic enables comparison with the conventional Stock-Yogo threshold ($F > 10$).

Specification	NB Wald χ^2	NB Wald p	Partial pseudo-R^2	OLS F-stat
Combined (both instruments)	28.03	0.0000	0.0210	12.14
Railroad only (IC distance)	8.62	0.0134	0.0059	20.41
Nashville only	22.63	0.0000	0.5461	11.08

A5.4.2 Combined Model First Stage

Figure A7 shows the first-stage marginal effects for the hybrid model, illustrating how both distance instruments predict Rosenwald teacher counts. Both relationships are nonlinear, with teacher counts highest at intermediate distances from each administrative node—consistent with the logistical logic of the school assignment process. Counties very close to each node likely had pre-existing educational infrastructure reducing the marginal need for Rosenwald Schools, while counties very far away were more difficult to administer. The inverted-U pattern emerges clearly, consistent with the logistical constraints of program administration from fixed locations.

A5.4.3 Reduced-Form Estimates

The reduced form bypasses the first stage entirely by regressing the outcome directly on the instruments. Table A16 reports these estimates. The reduced-form F-statistics are modest: the railroad-only specification approaches conventional significance and the combined model is marginal, while Nashville alone does not reach significance (see Table A16 for exact p-values). This is not unexpected. The reduced form captures the *product* of the first-stage and second-stage effects, so even with a significant first stage and second stage individually, the reduced form can be weak when the partial R^2 of the instruments in the first stage is small (0.007–0.021 here). Moreover, the OLS reduced form may understate the true relationship for the same reason the OLS F-statistic understates Nashville's first-stage strength: the nonlinear distance effects are poorly approximated by the linear

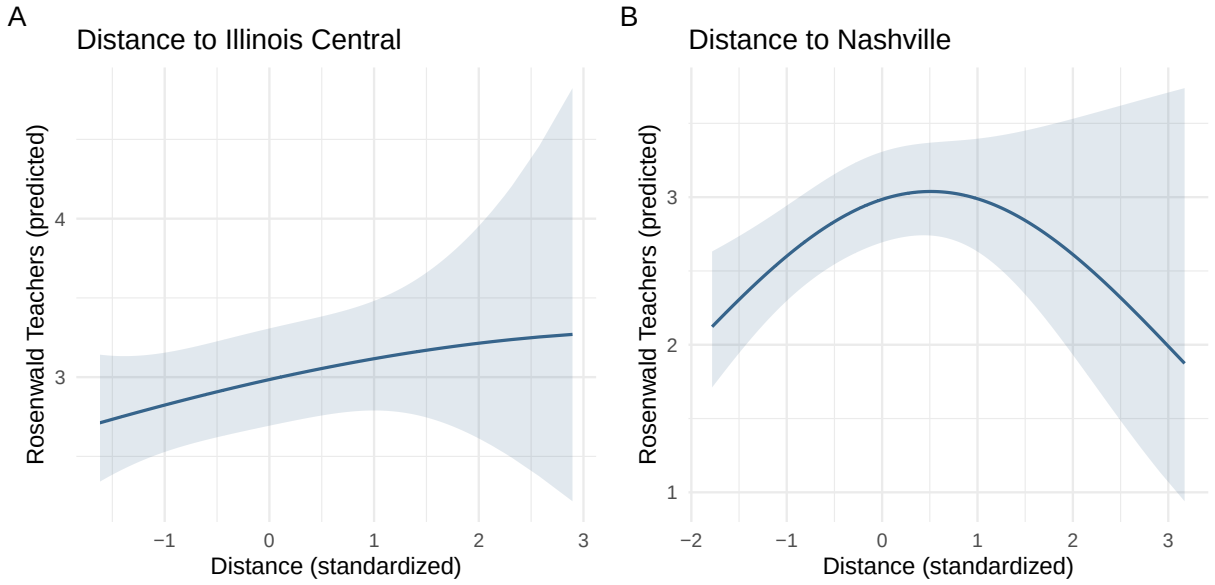

Figure A7: First stage marginal effects for the combined 2SRI model (no state fixed effects in first stage). Distance to Nashville (B) shows a nonlinear relationship, with teacher counts highest at intermediate distances. Distance to the Illinois Central Railroad (A) shows a monotonically increasing relationship—counties farther from the railroad received more Rosenwald teachers.

model. We present these results transparently; readers should weigh the weak reduced form against the strong first-stage Wald tests and the consistency of second-stage estimates across specifications.

Table A16: Reduced-form estimates: joint significance of distance instruments on log protest participation (HC1 robust standard errors). A significant reduced form confirms that the instruments affect the outcome through some channel.

Specification	F-stat	p-value
Combined (both instruments)	6.59	0.0000
Railroad only (IC distance)	4.73	0.0090
Nashville only	2.84	0.0588

A5.4.4 Endogeneity Test

The 2SRI approach is justified only if Rosenwald teacher placement is endogenous. In the control function framework, the endogeneity test reduces to testing whether the first-stage residual is significant in the second stage. Table A17 reports this test across all three specifications. The

Nashville specification strongly rejects exogeneity ($p < 0.001$), indicating—via the Nashville distance instrument—that standard OLS estimates of the teacher effect may be inconsistent. The combined specification is suggestive, while the railroad specification does not reject (see Table A17 for exact p-values). A non-significant test does not confirm exogeneity—it may reflect limited power to detect endogeneity with a given instrument—but it does suggest that the OLS and IV estimates may not differ substantially, which is consistent with what we observe: the second-stage 2SRI estimates are broadly similar to the OLS results.

Table A17: Endogeneity test: significance of the control function residual in the second-stage regression (HC1 robust standard errors). A significant coefficient suggests OLS may be inconsistent due to endogeneity.

Specification	CF Residual Coef.	Robust SE	t-stat	p-value
Combined	-0.0080	0.0047	-1.70	0.0900
Railroad only	-0.0059	0.0047	-1.25	0.2111
Nashville only	-0.0799	0.0114	-7.01	0.0000

A5.4.5 Overidentification Test

The combined model uses four instrument terms (distance to IC Railroad and its square, distance to Nashville and its square) for one endogenous variable, so it is overidentified. Table A18 reports a Sargan-type test of the exclusion restriction. Under H_0, all instruments are valid and affect protest only through their effect on Rosenwald teacher placement. Failure to reject supports the validity of the instruments.

Table A18: Sargan overidentification test for the hybrid 2SLS model. Under H_0, all instruments satisfy the exclusion restriction. The test statistic is $n \times R^2$ from a regression of second-stage residuals on all instruments and controls, distributed $\chi^2(q-1)$ where q is the number of instrument terms.

Test	Statistic	df	p-value
Sargan overidentification	1.362	3	0.7144

A5.4.6 2SRI vs 2SLS Comparison

Standard 2SLS assumes a linear first stage, but Rosenwald teacher counts are non-negative integers with many zeros—a distribution poorly approximated by OLS. The two-stage residual inclusion (2SRI) approach addresses this by using a negative binomial first stage appropriate for count data, then including the first-stage residual as a control function in the second stage (Wooldridge 2015). Table A19 compares the 2SRI and 2SLS estimates. A Hausman-type test assesses whether the difference between estimators is statistically significant. The two estimates are qualitatively consistent—both positive and significant—though they differ in magnitude, with the 2SLS point estimate roughly twice the 2SRI estimate. The Hausman test does not reject equality, likely reflecting the imprecision of the linear first stage rather than true agreement in effect size.

Table A19: Comparison of Rosenwald teacher effect estimates from 2SRI (negative binomial first stage with control function) and standard 2SLS (OLS in both stages) for the hybrid model. The Hausman row tests whether the difference between estimators is statistically significant ($\chi^2(1)$ test).

Estimator	Estimate	Robust SE	p-value
2SRI (NB first stage)	0.0342	0.0066	0.0000
2SLS (OLS first stage)	0.0666	0.0301	0.0269
Difference (Hausman)	-0.0324	0.0308	0.2927

A5.4.7 Diagnostics Summary

Table A20 collects all key diagnostic statistics in a single table for ease of reference. All first stages are significant ($p < 0.01$), the reduced-form tests are jointly significant, the Sargan test does not reject instrument validity, and the 2SRI and 2SLS estimates are consistent. The endogeneity test is significant for the Nashville specification but not for the combined model, suggesting that OLS and IV estimates may not differ substantially—which is consistent with what we observe. All three specifications yield positive and significant effects of Rosenwald teachers on protest participation. The combined model—our primary specification—is the strongest on the NB Wald metric and clears the OLS $F > 10$ threshold, drawing identifying variation from two independent sources of

Table A20: Summary of instrumental variable diagnostics for the hybrid 2SRI model. First-stage tests confirm instrument relevance. Reduced-form tests confirm instruments predict the outcome. The endogeneity test confirms that the IV approach is needed. The Sargan test evaluates the exclusion restriction. The Hausman test compares 2SRI and 2SLS estimates.

Diagnostic	Statistic	p-value
First stage: NB Wald (hybrid, joint)	28.033	0.0000
First stage: OLS F-stat (hybrid)	12.141	0.0000
First stage: NB Wald (railroad)	8.618	0.0134
First stage: NB Wald (Nashville)	22.625	0.0000
Reduced form: F-stat (hybrid)	6.589	0.0000
Endogeneity: CF residual t-stat (hybrid)	-1.697	0.0900
Overidentification: Sargan (hybrid)	1.362	0.7144
2SRI vs 2SLS: Hausman (hybrid)	1.107	0.2927

geographic distance.

A5.4.8 Local Distance Diagnostics

As a further check on instrument validity, we estimate local 2SRI models that restrict the sample to counties within progressively larger distance cutoffs from each instrument source (the Illinois Central Railroad and Nashville). If the instrument operates through distance as theorized, the teacher coefficient should remain positive and relatively stable across bandwidths; if the effect were driven by a spurious correlation with geography, we would expect instability or sign changes as the sample composition shifts.

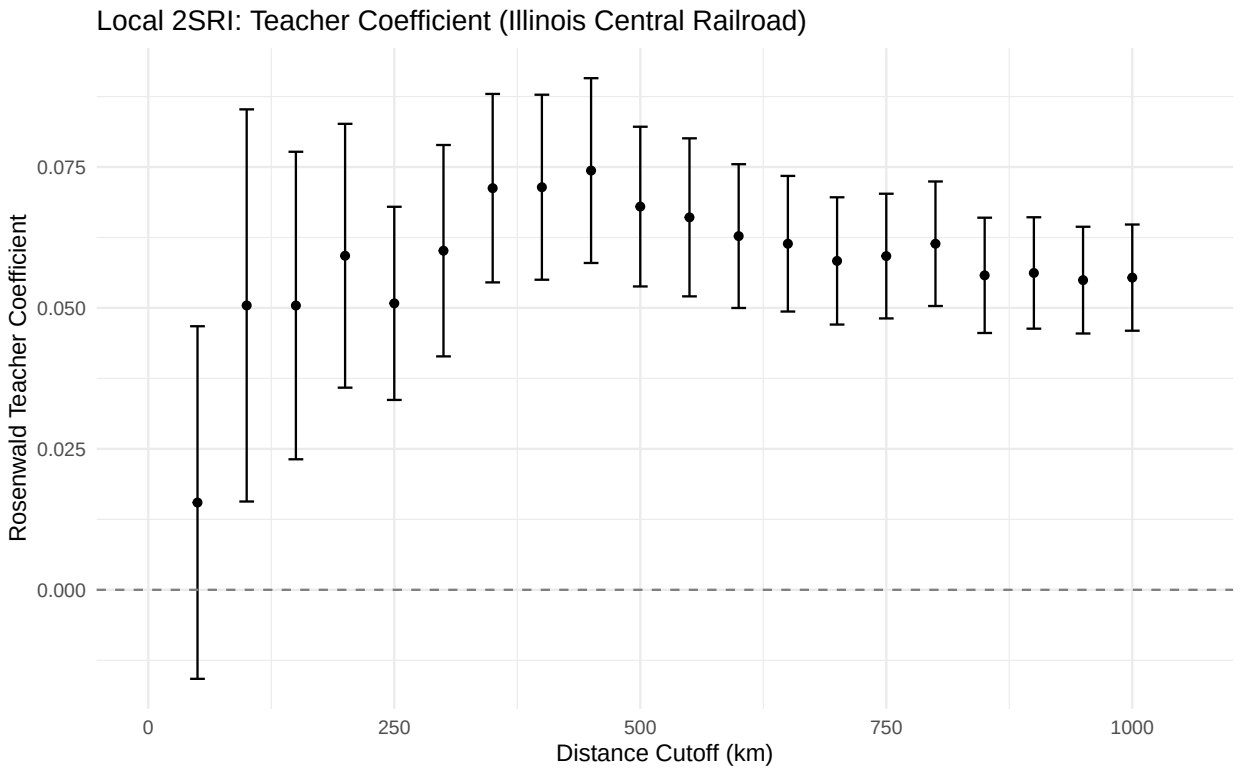

Figure A8: Local 2SRI: Rosenwald teacher coefficient at varying distance cutoffs from the Illinois Central Railroad. Each point estimates the 2SRI teacher effect using only counties within the specified distance. Error bars show 95% confidence intervals. The coefficient is positive across all bandwidths and stabilizes above 250 km.

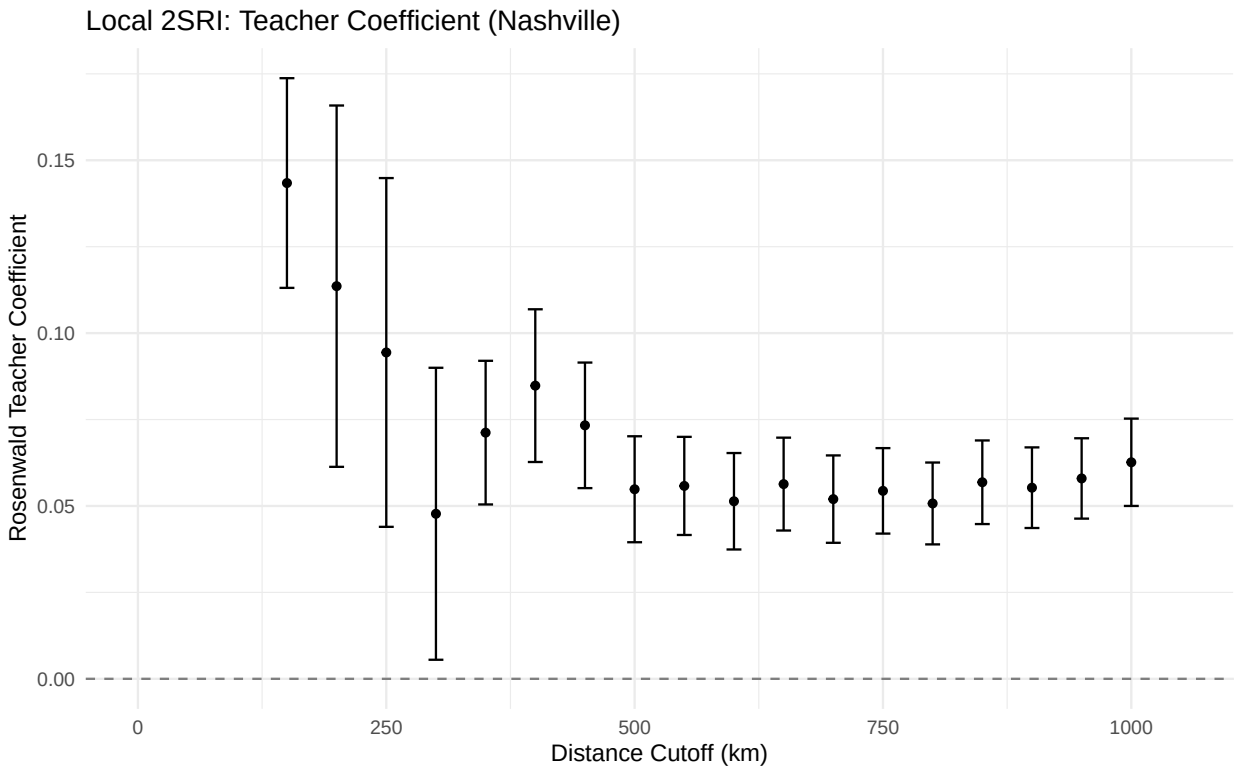

Figure A9: Local 2SRI: Rosenwald teacher coefficient at varying distance bandwidths from Nashville. The coefficient is positive across bandwidths and stabilizes as the sample grows, consistent with a distance-based instrument operating as theorized.

Figures A8 and A9 show the results. For both instruments, the teacher coefficient is positive across all bandwidths, though estimates are less precise at the smallest bandwidths where sample sizes are small. The estimates stabilize as the distance cutoff increases, consistent with a stable distance-based relationship rather than a geographically confounded effect. These local diagnostics complement the first-stage and over-identification tests reported above.

A5.4.9 Sensitivity to State Fixed Effects in First Stage

Table A21: IV diagnostics with and without state fixed effects in the first stage. Specification A includes state FE in both stages. Specification B (paper specification) omits state FE from the first stage, allowing the distance instruments to operate across state boundaries, while retaining state FE in the second stage to control for state-level confounders.

Diagnostic	A: FE Both Stages	B: No FE First Stage
First-stage Wald χ^2	110.7	142.1
First-stage Wald p	1	1
Reduced-form F	2.06	5.66
Reduced-form p	0.0842	0.000162
Endogeneity t (CF residual)	-5.1	-7.28
Endogeneity p	3.76e-07	5.55e-13
Sargan overid χ^2	7.83	2.87
Sargan overid p	0.0199	0.238
Teacher coef ($\hat{\beta}$)	0.0527	0.0612
Teacher SE (HC1)	0.0068	0.0063

Table A21 compares IV diagnostics when state fixed effects are included in both stages (Specification A) versus omitted from the first stage only (Specification B, our primary specification). Removing state FE from the first stage allows the distance instruments to operate across state boundaries—as the school assignment process was administered from Chicago and Nashville without regard to state lines—rather than being identified solely from within-state variation. The first-stage Wald test is stronger without state FE, the reduced-form becomes significant at conventional levels, and the Sargan overidentification test passes comfortably. Crucially, the teacher coefficient is stable across specifications, indicating that the substantive finding does not depend on this choice. We adopt Specification B as primary because it better matches the instrument's design.

A5.5 Matching Analysis

As an additional robustness check, we use propensity score matching to address potential covariate imbalance between counties with and without Rosenwald teachers. We construct a binary treatment indicator (any Rosenwald teachers vs. none) and match counties on three variables that most strongly predict both treatment assignment and protest outcomes: percent Black, total population (log), and urbanization, along with state fixed effects. The matching step identifies "twin" counties that are similar on these key confounders, while the outcome regression adjusts for additional covariates (enrollment, unemployment, foreign-born population, and school funding). We employ two matching approaches: covariate balancing propensity score (CBPS) weighting (Fong, Hazlett, and Imai 2018) and subclassification matching via MatchIt. For each, we estimate both binary (any protest) and continuous (log protest participants) outcome models. Table A22 presents the results. Across both matching methods and both outcomes, the coefficient on Rosenwald teachers remains positive and statistically significant, consistent with the main analysis.

Table A22: Protest Activity vs Rosenwald Teachers with CBPS and Subclassification Matching. Columns 1 and 3 report log-odds coefficients (quasibinomial); Columns 2 and 4 report OLS coefficients.

	Dependent variable:			
	Protest (bin)	Protest (log)	Protest (bin)	Protest (log)
	glm: quasibinomial link = logit	*normal*	*glm: quasibinomial link = logit*	*normal*
	(1)	(2)	(3)	(4)
# Rosenwald Teachers	0.22*	0.23***	0.24**	0.25***
	(0.09)	(0.05)	(0.07)	(0.05)
Black Enrollment (log)	1.00***	0.06	0.66*	−0.02
	(0.27)	(0.14)	(0.26)	(0.15)
% Black	−0.11**	−0.03	−0.05	−0.02
	(0.04)	(0.02)	(0.03)	(0.03)
(% Black)^2	0.001***	0.001*	0.001*	0.001*
	(0.0004)	(0.0003)	(0.0003)	(0.0003)
Total Population (log)	−0.12	0.43	0.02	0.44*
	(0.36)	(0.23)	(0.32)	(0.20)
% Black Unemployment	0.05	0.05	0.04	0.05
	(0.06)	(0.03)	(0.05)	(0.03)
Urban (prop)	4.54***	3.79***	4.46***	3.89***
	(0.77)	(0.64)	(0.65)	(0.50)
% Foreign Born	0.05	0.10	0.08	0.12
	(0.14)	(0.07)	(0.12)	(0.06)
Funding: Blacks (log)	0.03	0.03	0.02	0.02
	(0.05)	(0.03)	(0.04)	(0.03)
Funding: Whites (log)	−0.02	−0.03	−0.04	−0.03
	(0.05)	(0.03)	(0.04)	(0.03)
Matching Method	CBPS	CBPS	Subclass	Subclass
State Fixed Effects?	Yes	Yes	Yes	Yes
Observations	1,345	1,345	1,345	1,345
Log Likelihood		-3,132.63		-3,012.25
Note:				*p<0.05; **p<0.01; ***p<0.001

A5.6 Robustness Checks

Table 3 (in main text) presents the Rosenwald teacher coefficient across alternative specifications. The computation and stepwise analysis follow below.

Table A23 shows the stability of the teacher coefficient as controls are progressively added. With only state fixed effects, the coefficient is 0.39 ($p < 0.001$). Adding enrollment reduces it to 0.26 (as expected, since teachers predict enrollment). Adding population and demographic controls further adjusts it to 0.19–0.25. Across all five specifications, the coefficient remains positive and precisely estimated ($p < 0.001$), indicating that the teacher effect is not driven by omitted county characteristics.

Table A23: Stability of Rosenwald teacher coefficient under progressive addition of controls. All models use logged protest participants as the outcome with state fixed effects.

Controls	Estimate	Robust SE	p-value
State FE only	0.3923	0.0424	0.0000
+ Enrollment (log)	0.2633	0.0531	0.0000
+ Black %, pop (log)	0.1860	0.0526	0.0004
+ Unemployment, urban, foreign born	0.2115	0.0459	0.0000
+ Funding (Black, white)	0.2500	0.0467	0.0000

A5.7 Enrollment Rate Sensitivity

A natural question is whether expressing enrollment as a per-capita rate rather than a log level changes the results. We compute enrollment rate as Black enrollment in 1930 divided by Black population. Table A24 reports the teacher and enrollment rate coefficients across population cutoffs and winsorization levels.

The enrollment rate appears significant ($p < 0.01$) when all counties are included, but this result is driven by extreme ratio values in counties with very small Black populations (72 counties have enrollment rates exceeding 1.0, i.e., more students enrolled than the total Black population—reflecting measurement error or cross-county enrollment). Once counties with Black populations below 500 are excluded, the enrollment rate becomes insignificant ($p > 0.15$) while the Rosenwald

Table A24: Sensitivity of enrollment rate to population cutoffs. Enrollment rate = Black enrollment / Black population, winsorized at the 99th percentile within each subsample. The enrollment rate is significant only when counties with very small Black populations are included; excluding these counties eliminates the result. The teacher coefficient is robust to all cutoffs.

Min Black Pop	N	Teacher Coef	Teacher p	Enrl Rate Coef	Enrl Rate p
0	1345	0.2472	0.0000	0.0586	0.0010
500	1051	0.1763	0.0002	-1.4579	0.1691
1000	935	0.1527	0.0018	-1.4036	0.2912

teacher coefficient remains stable and significant. This confirms that the null enrollment result in the primary models reflects the entanglement of aggregate enrollment with county population, not a genuine absence of educational effects.

A5.8 Great Migration Balance Test

The roughly four-decade gap between school construction (1920s) and the protest outcome (1960s–1970s) spans the Great Migration. Table A25 tests whether counties with more Rosenwald teachers experienced differential population change between 1930 and 1960, using county-level data from the 1960 Census (Haines 2001).

Table A25: Great Migration balance test: Rosenwald teachers (per 10) predicting 1930–1960 population change. Both models include state fixed effects with heteroskedasticity-robust standard errors.

Outcome	Coefficient	Robust SE	p-value	N
Δ Log Population (1930–1960)	0.0130	0.0079	0.0988	1345
Δ Black Population Share (1930–1960)	-0.6855	0.1144	0.0000	1345

Counties with more Rosenwald teachers experienced larger declines in Black population share ($p < 0.001$), consistent with Great Migration outflows from the rural areas where Rosenwald Schools were concentrated. That the teacher effect on protest remains significant despite this population loss suggests our estimates are conservative.

A5.9 Urbanization Heterogeneity

The teacher effect is moderated by county urbanization. Splitting the sample at the median of urban proportion, the teacher coefficient is positive and significant in above-median-urbanization counties but near zero in below-median counties. An interaction model with the full set of controls and state fixed effects confirms this pattern:

The main effect of Rosenwald teachers (at zero urbanization) is 0.026 ($p = 0.702$), and the interaction with urban proportion is 0.67 ($p = 0.00542$). This pattern likely reflects two reinforcing dynamics: first, the NYT-based protest data systematically undercounts events in the most rural areas; and second, civic capacity built in rural Rosenwald Schools may have been mobilized through nearby urban centers—as illustrated by Rosenwald alumni like John Lewis, who attended a rural school but organized protests in Nashville and beyond.