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SEGREGATION AND SCHOOL FUNDING
DISPARITIES IN CALIFORNIA:
CONTEMPORARY TRENDS 50 YEARS
AFTER SERRANO

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Nail Hassairi**
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In 1967, John Serrano met with his son's school principal to discuss the educational offerings available at their local school district. Four years later, the Supreme Court of California remanded judgment on *Serrano v. Priest* (I), stating unequal provision of education based on geographic location was unconstitutional.¹ Following that decision, school districts in at least forty-two other states filed similar lawsuits. By motivating other education finance litigation, the case's significance is often compared to *Brown v. Board of Education*.² Whereas *Brown* highlighted a separate and unequal system of education that led to variation in resource availability for students, *Serrano* sought declaratory judgment based on California's failure to meet federal

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¹ *Serrano v. Priest*, 487 P.2d 1241 (1971).

² See generally *Brown v. Bd. Of Educ. Of Topeka, Kan.*,
78 S. Ct. 753 (1955).

and state constitutional requirements pertaining to equal protection under the law.³

In this paper, we present a longitudinal analysis of the school finance system of California and assess changes that have taken place over the past 30 years. This time period follows additional judicial mandates grounded in *Serrano (I, II)*, Proposition 13 (a 1978 ballot initiative limiting property tax increases), Proposition 98 (a ballot initiative guaranteeing a specified level of education funding), and subsequent legislative reforms that have shaped school finance in California in the fifty years after *Serrano*. We start with an overview of the relevant background regarding *Serrano*, describing the influence of *Serrano* on school finance in California. We then describe our methods and findings and conclude with implications for California's current school finance practices.

BACKGROUND

A. Serrano Judicial Decisions

The key challenge *Serrano (I)* plaintiffs attempted to address was insufficient funding for students that required resources and support above what districts provided.⁴ The initial *Serrano* decision was upheld in *Serrano v. Priest*, henceforth *Serrano (II)*,⁵ despite the contemporary decisions handed down in *San Antonio Independent School District v. Rodriguez*.⁶ Court-ordered mandates in *Serrano (II)* found the

³ See David G. Martinez, *A Study of School Finance in Arizona: Equity, English Language Learners, and the Allocation of Funding* (2018) (Ph. D. dissertation, Arizona State University) (on file with author); see also David G. Martinez, *Interrogating Social Justice Paradigms in School Finance Research and Litigation*, 52 INTERCHANGE 297 (2021).

⁴ See *Serrano*, 487 P.2d at 1241.

⁵ *Serrano v. Priest*, 557 P.2d 929 (1976).

⁶ *San Antonio Indep. Sch. Dist. v. Rodriguez*, 93 S. Ct. 1278 (1973).

2] Segregation and School Funding Disparities

legislative response of *Serrano (I)* insufficient, requiring re-evaluation and increases in funding. *Serrano (I)* forced state legislators to equalize general per-pupil revenue, guaranteeing a 10% ceiling for revenue differences between districts. The ruling did not include specific remedies pertaining to student learning.⁷ Moreover, *Serrano (I)* mandates did not provide an avenue to address economic or racial/ethnic segregation.⁸ The case was motivated in part by historical segregation of Black, Indigenous, and other People of Color (BIPOC) communities, which impacts the educational experience of BIPOC students.⁹

While *Serrano (I)* legislative mandates were, to some extent, effective at limiting revenue differences across districts, the ruling excluded any method for addressing writ large segregation that supports funding variation.¹⁰ *Serrano (I)* remedies also did not address achievement gaps in California that are much harder to mediate, especially in communities with high proportions of BIPOC students requiring further scrutiny and redress.¹¹ Post-*Serrano (I)*, the persistence of a student achievement gap continued to hinder schooling progress in California. Despite *Serrano* mandates, BIPOC students, and students in poverty, continued to

⁷ See Frances Contreras & Maria Oropeza Fujimoto, *College Readiness for English Language Learners (ELLs) in California: Assessing Equity for ELLs under the Local Control Funding Formula*, 94 PEABODY J. OF EDUC. 209 (2019); see Julian Vasquez Heilig et al., *Community-based School Finance and Accountability: A New Era for Local Control in Education Policy?*, 49 URBAN EDUC. 871 (2014).

⁸ See *Serrano*, 487 P.2d.

⁹ See Eric A. Houck & Brittany C. Murray, *Left behind: District Secession and the Re-Segregation of American Schools*, 94 PEABODY J. OF EDUC. 388 (2019); see JAMES W. GUTHRIE ET AL., *MODERN EDUCATION FINANCE AND POLICY*, (James W. Guthrie ed. 2007).

¹⁰ See *Serrano v. Priest*, 487 P.2d 1241 (1971).

¹¹ See Vasquez Heilig *supra* note 7.

lag academically in comparison to middle or upper middle-class White peers.

In the years following the *Serrano (II)* decision, a number of factors led to the passage of Proposition 13. This initiative reduced local property tax rates to a 1% cap resulting in a 60% loss of local property tax revenue, forcing the state to fund education through state level surplus funding, thereby granting California greater control over school policy.¹² Decades later, Proposition 98 would reserve approximately 40% of the state's general fund for education. In 2013, California passed the Local Control Funding Formula (LCFF), a major K-12 finance overall that targeted additional funds to districts enrolling greater proportions of low-income students, English learners, and foster youth. LCFF includes funding weights that effectively neutralize wealth disparities across districts.

B. The Impact and Distribution of Public Education Funding

Only recently have scholars reached a general consensus that additional funding leads to improved outcomes.¹³ Early correlational analyses beginning with the Coleman Report in 1966 identified a positive relationship between funding and achievement for lower-income students, with household income and parental educational attainment being the strongest predictors. More recent causal work drawing on longitudinal data and quasi-experimental methods has added far more concrete evidence that substantial and sustained funding increases improve long-term student outcomes, particularly for

¹² *Id.*

¹³ See Christopher A. Candelaria & Kenneth A. Shores, *Court-Ordered Finance Reforms in the Adequacy Era: Heterogeneous Causal Effects and Sensitivity*, 14 EDUC. FIN. & POLICY 31 (2019).

students from low-income households.¹⁴ However, the debate about the appropriate level and distribution of school funding has continued.

The U.S. schooling system is unique among advanced economies in that public school districts serving wealthier and more privileged student populations receive equal or more resources than schools serving predominantly underrepresented minority and low-income students.¹⁵ One of the major reasons for this variance is state school finance systems that vary widely in their degree of funding equity or “progressivity,” where greater funds are allocated to higher-poverty school districts. Several policy reports rank states by funding progressivity.¹⁶ As many as one-third of states allocate *less* funding to their highest-poverty districts and those enrolling greater percentages of students of color. Even in progressively funded states, some districts insufficiently fund their students relative to their need due to significant racial/ethnic and economic segregation across districts.¹⁷

¹⁴ See C. Kirabo Jackson et al., *The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms*, 131 QUARTERLY J. OF ECON 157 (2016); see Candelaria & Shores, *supra* note 13.

¹⁵ See Prudence L. Carter, *Education Equality Is a Multifaceted Issue: Why We Must Understand the School’s Sociocultural Context for Student Achievement*, 2 THE RUSSELL SAGE FOUND. J. OF THE SOC. SCI. 142 (2016); see David G. Martinez & Daniel D. Spikes, *Se Acabaron Las Palabras: A Post-Mortem Flores v. Arizona Disproportional Funding Analysis of Targeted English Learner Expenditures*, EDUC. POLICY (2020).

¹⁶ See Bruce D. Baker et al., *Is School Funding Fair?* A National Report Card, Educ. L. Ctr. (2014); see BRUCE D. BAKER ET AL., *THE ADEQUACY AND FAIRNESS OF STATE SCHOOL FINANCE SYSTEMS*, (2d ed. 2020); see Matthew M. Chingos & Kristin Blagg, *Do Poor Kids Get Their Fair Share of School Funding?*, EDUC. POLICY PROGRAM (May 2017).

¹⁷ See Bruce D. Baker & Sean P. Corcoran, *The Stealth Inequalities of School Funding*, CAP (Sept. 19, 2012),

Why do states operate such vastly different school finance systems? Ultimately, the Tenth Amendment of the U.S. Constitution guarantees states' rights to manage their system of schooling, including how states:

- raise revenue and distribute funds for schooling;
- control teacher licensure;
- prescribe curricular offerings;
- establish student performance standards;
- mandate school attendance;
- create, reorganize, consolidate, and abolish school districts;
- authorize schooling charters; and
- delegate to subordinate agencies such as local school boards.

The federal role in school finance increased during the Civil Rights era, and federal funding now represents approximately 10% of overall education funding.¹⁸ Litigation similar to (and inspired by) *Serrano* pushed states to provide a greater share of K-12 funding, and state funding now accounts for approximately 45% of education funding on average nationally. However, an equal share is supported through local tax levies, the majority of which is generated through local property value.

Proponents of local tax-based school funding argue that local autonomy to generate and distribute school monies allows individuals within the community

<https://www.americanprogress.org/article/the-stealth-inequities-of-school-funding/>; see Ericka S. Weathers & Victoria E. Sosina, *Separate Remains Unequal: Contemporary Segregation and Racial Disparities in School District Revenue* (Stanford Ctr. For Educ. Policy Analysis, Working Paper No. 19-02, 2019).

¹⁸ Sheila E. Murray et al., *Education-Finance Reform and the Distribution of Education Resources*, 88 AM. ECON. REV. 806 (1998); WAYNE J. URBAN ET AL., *AMERICAN EDUCATION: A HISTORY* (6TH ED. 2019).

to engage in the management of schooling more acutely. Proponents of greater local funding further contend that willingness to pay taxes to support education is strongest when the proceeds are to be spent within the community.¹⁹ Critics, however, argue that there are trade-offs between local investment and equity, noting that large variation in school funding occurs due to community wealth.²⁰ Moreover, extant equalization policies are inadequate. Studies show policy-driven segregation prevents BIPOC communities from accessing economic prosperity and civic participation (e.g., voting), promotes unfair housing practices, and reduces land ownership.²¹

Schooling Segregation and Inequality

Separate and unequal schools during the time period between the end of the Civil War and the Civil Rights Movement era typified the educational experience of BIPOC students.²² Against the backdrop of the Jim Crow Era, the segregation of BIPOC students allowed state leaders to provide inferior learning environments, including insufficient levels of school

¹⁹ See John E. Coons, et al., *Educational Opportunity: A Workable Constitutional Test for State Financial Structures*, 57 CAL. L. REV. 305 (1969); see Raquel Fernandez & Richard Rogerson, *Equity and Resources: An Analysis of Education Finance Systems*, 111 J. OF POL. ECON. 858 (2003); see Joseph T. Henke, *Financing Public Schools in California: The After-math of Serrano v. Priest and Proposition 13*, 21 UNIV. OF S. FLA. L. REV. (1986).

²⁰ See Marguerite Roza et al., *Do Districts Fund Schools Fairly?*, EDUC. NEXT (Aug. 17, 2007), <https://www.educationnext.org/do-districts-fund-schools-fairly/>.

²¹ See RICHARD ROTHSTEIN, *THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA* (2017).

²² See URBAN ET AL, *supra* note 18.

funding.²³ After the 1954 *Brown v. Board of Education* and 1968 *Green v. New Kent County* decisions, and the passage of the Elementary and Secondary Education Act in 1965, school desegregation efforts supported greater access.²⁴

Following the *Brown* decision, districts began creating exclusionary and segregated attendance boundaries. White parents became more likely to either enroll their children in private schools, where a much smaller proportion of minoritized students attended, or retreat to the suburbs.²⁵ Wealthy and politically savvy parents from suburban enclaves worked to gerrymander school district boundaries, guaranteeing the ongoing segregation of schools. The *Milliken v. Bradley* Supreme Court decision placed the burden of proof on plaintiffs in district segregation cases to demonstrate that the state was responsible for holistically obfuscating the tenets of *Brown*.²⁶

²³ See CHARLES T. CLOTFELTER, *AFTER BROWN: THE RISE AND RETREAT OF SCHOOL DESEGREGATION* (2011); Gary Orfield & Chungmei Lee, *Why Segregation Matters: Poverty and Educational Inequality*, UCLA: CIVIL RIGHTS PROJECT (Jan. 2005), <https://civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/why-segregation-matters-poverty-and-educational-inequality/orfield-why-segregation-matters-2005.pdf>.

²⁴ See Elementary and Secondary Education Act of 1965, Pub. L. No. 89-10, 79 Stat. 27.

²⁵ See DOUGLAS MASSEY & NANCY A. DENTON, *AMERICAN APARTHEID, SEGREGATION AND THE MAKING OF THE UNDERCLASS* (1993); CLOTFELTER, *supra* note 23; Paul A. Jargowsky, *Take the Money and Run: Economic Segregation in US Metropolitan Areas*, 61 AM. SOCIOLOG. REV. 984 (1996); GARY ORFIELD & SUSAN E. EATON, *DISMANTLING DESEGREGATION: THE QUIET REVERSAL OF BROWN V. BOARD OF EDUCATION* (1996); Sean F. Reardon & Ann Owens, *60 Years After Brown: Trends and Consequences of School Segregation*, 40 ANN. REV. SOCIO. 199 (2014).

²⁶ *Milliken v. Bradley*, 418 U.S. 717, 744–45 (1974).

Most recently, efforts to reduce across-district segregation were further deteriorated in *Parents Involved in Community Schools v. Seattle School District No. 1*, which prevents school districts from using information about race in efforts to balance racial composition of schools within their jurisdiction.²⁷ Together, the *Parents Involved* and *Milliken* decisions halted progress on desegregation both within and across school districts. Adding to this is the significant role of local property taxes in the funding of public schools, which allows wealthier, often predominantly White school districts to design funding inequities through racially-motivated school district boundaries.²⁸ Thus, desegregation efforts have largely stalled since the 1980s, with many studies pointing to increased racial segregation over the past three decades, although the findings differ depending on the context and segregation measure used.²⁹

Segregation measures that assess “exposure” generally show increased racial segregation beginning in the 1990s. In contrast, “unevenness” indices, which are robust in the changes in overall student demographics, generally show stabilized levels of segregation. Regardless of recent trends, studies show that desegregated schools are better equipped to counterbalance students’ non-school challenges to a

²⁷ *Parents Involved in Cmty. Schs. V. Seattle Sch. Dist. No. 1*, 551 U.S. 701, 710.

²⁸ See Reardon & Owens, *supra* note 25; Bruce D. Baker & Kevin G. Welner, *Premature Celebrations: The Persistence of Inter-District Funding Disparities*, 18 EDUC. POL. ANALYSIS ARCHIVES, no. 9, 2010; Victoria E. Sosina & Ericka S. Weathers, *Pathways to Inequality: Between-District Segregation and Racial Disparities in School District Expenditures*, 5 AERA OPEN, no. 3, 2019.

²⁹ See CLOTFELTER, *supra* note 23; Ann Owens et al., *Income Segregation Between Schools and School Districts*, 53 AM. EDUC. RSCH. J. 1159 (2016); Orfield & Lee, *supra* note 23.

greater extent than segregated schools, especially in schools with high concentrations of poverty.³⁰

To date, racial segregation exists above and beyond economic segregation.³¹ Segregation between districts accounts for two-thirds of total racial segregation between schools, and two recent studies link greater inter-district segregation to greater funding disparities across districts.³² Taken together, this research suggests that segregation and school finance equity are intertwined policy areas that require greater attention.

Policy Responses to Segregation and Funding Inequity

Initial desegregation litigation and policy reforms focused on sorting across schools in the same districts. Next, as a result of “white flight” to the suburbs, policy efforts then transitioned to focusing on inter-district sorting,³³ where much of the focus was placed on funding equity litigation and state policy affecting

³⁰ Adam Gamoran & Brian P. An, *Effects of School Segregation and School Resources in a Changing Policy Context*, 38 EDUC. EVALUATION & POL. ANALYSIS 43 (2016); Argun Saatcioglu, *Disentangling School- and Student-Level Effects of Desegregation and Resegregation on the Dropout Problem in Urban High Schools: Evidence from the Cleveland Municipal School District*, 112 TCHRS. COLL. REC. 1391 (2010).

³¹ See Owens et al., *supra* note 29.

³² See Sosina & Weathers, *supra* note 28; Kori J. Stroub & Meredith P. Richards, *From Resegregation to Reintegration: Trends in the Racial/Ethnic Segregation of Metropolitan Public Schools, 1993–2009*, 50 AM. EDUC. RSCH. J. 497 (2013); Ericka S. Weathers & Victoria E. Sosina, *Separate Remains Unequal: Contemporary Segregation and Racial Disparities in School District Revenue* (Stanford Ctr. for Educ. Pol. Analysis, Working Paper No. 19-02, 2019).

³³ See Massey & Denton, *supra* note 25; CLOTFELTER, *supra* note 23; Jargowsky, *supra* note 25.

funding between districts. (e.g., *Serrano*). Recent federal efforts, however, have returned to an intra-district focus, with an emphasis on whether school districts allocate their funds equitably across schools.³⁴

Inter-district inequity was amenable to litigation using states' constitutional clauses and funding increases that include Weighted Student Funding.³⁵ Inter-district resource disparities suggest that states may need to adjust their funding formulas to close equity gaps or consolidate school districts, since many school district boundaries were drawn specifically to racially segregate neighborhoods.³⁶ Another potential policy response is voluntary student transfer or assignment policies with surrounding districts.³⁷ Fininigan and Holme argue that

³⁴ See William A. Owings & Leslie S. Kaplan, *The Alpha and Omega Syndrome: Is Intra-District Funding the Next Ripeness Factor?*, 36 J. EDUC. FIN. 162 (2010); Lauren A. Webb, *Educational Opportunity for All: Reducing Intradistrict Funding Disparities*, 92 NYU L. REV. 2169 (2017); Kacey Guin et al, *Do Districts Fund Schools Fairly?*, 7 EDUC. NEXT 68 (2007).

³⁵ See Bruce D. Baker, *Within-District Resource Allocation and the Marginal Costs of Providing Equal Educational Opportunity: Evidence from Texas and Ohio*, 17 EDUC. POL. ANALYSIS ARCHIVES, no. 3, 2009; Helen F. Ladd, *Reflections on Equity, Adequacy, and Weighted Student Funding*, 3 FIN. & POL. 402 (2008).

³⁶ See William Duncombe & John Yinger, *Does School District Consolidation Cut Costs?*, 2 EDUC. FIN. & POL. 341 (2007); Raquel Fernandez & Richard Rogerson, *Equity and Resources: An Analysis of Education Finance Systems*, 111 J. POL. ECON. 858 (2003).

³⁷ See, PHILIP TEGELER & LILY MILWIT, TITLE I FUNDING AND SCHOOL INTEGRATION: THE CURRENT FUNDING FORMULA'S DISINCENTIVES TO DECONCENTRATE POVERTY AND POTENTIAL WAYS FORWARD, NAT'L COAL. ON SCH. DIVERSITY (2019), <https://files.eric.ed.gov/fulltext/ED603774.pdf>.

inter-district transfer programs provide a potential solution for regional educational inequities.³⁸

Labor Market Patterns and Geographical Segregation

Previous school finance studies do not specifically compare student segregation across school districts within the same geographic labor market. Such analysis provides important insights for state and federal policymakers aiming to address resource disparities in K-12 schools. The most effective approaches for federal policymakers to design and target policies to improve resource equity depends on levels of student segregation, in particular within states and metropolitan areas. Our work thus addresses an important gap in school finance literature – we argue that different types of student segregation have divergent policy implications. Most importantly, we assume total student segregation for a given state is comprised of two elements: segregation across geographic labor markets, and segregation within geographic labor markets (across school districts).

We draw this distinction because the boundaries of geographic labor markets have implications for school finance and student desegregation. Labor market boundaries are based on empirical data of employees commuting to work and home. The borders of geographic labor markets represent non-arbitrary barriers over which fewer employees tend to cross when commuting to work. Inter-district segregation that exists within labor markets can be addressed through school district choice and bussing/transporting policies or through altering district boundary lines, whereas across

³⁸ See KARA S. FINNIGAN & JENNIFER JELLISON HOLME, REGIONAL EDUCATIONAL EQUITY POLICIES: LEARNING FROM INTER-DISTRICT INTEGRATION PROGRAMS, NAT'L COAL. ON SCH. DIVERSITY (2015), <https://files.eric.ed.gov/fulltext/ED571630.pdf>.

labor market segregation may require non-education policies that affect issues pertaining to housing and employment.³⁹

As one example, metropolitan areas of Texas have substantial racial/ethnic segregation; however, Latinx students are also especially concentrated along the U.S. Mexico border. Desegregation efforts may occur within the border region or within other metropolitan areas but integration across large geographic areas of the state would likely involve housing, workforce, or other non-education policies, rather than redrawing district boundaries or adopting district choice policies.

Purpose

In this paper we synthesize several pieces of empirical evidence to understand trends in segregation and school finance equity in California in the years following the *Serrano* decision. We posit the following research questions:

Research question 1: How has the nature of student segregation across schools in California changed over the past 30 years, from 1987-88 forward? In particular, to what extent is segregation caused by sorting of students across regions in the state, within regions across school districts, and within districts across individual schools?

Research question 2: To what extent have income-based funding inequities across districts in California changed over the past 25 years, and how do those changes compare to funding inequities across schools

³⁹ See Kendra Bischoff & Sean F. Reardon, *Residential Segregation by Income, 1970–2009*, in *DIVERSITY AND DISPARITIES: AMERICAN ENTERS A NEW CENTURY* 208 (John Logan ed. 2018).

within districts, during the period from 2013-14 to 2017-18?

Research question 3: How have student demographics and the structure of the California education system (number and size of schools and districts) changed over this period?

As discussed further below, while district-level finance data and school-level student demographic data are available annually from 1987–88 forward, school-level finance data are only available biannually, and only from 2013–14 to 2017–18. While this shortened time frame limits our ability to track intra-district finance equity over time, the years align well with the implementation of the Local Control Funding Formula, a major state school finance reform in California that was phased in over time from 2013–14 to 2018–19. We assess developments and changes in segregation and education finance, describe the state of within- and across-district segregation and funding equity over the past thirty years, and outline policies that could leverage the progress made on both education finance and desegregation, while acknowledging and working around the setbacks stemming from the *Milliken* and *Parents Involved* decisions. We argue that a deeper understanding of fiscal disparities, fifty years after *Serrano* sought to close these gaps, will help state education leaders move closer to the unfinished work of providing equitable learning opportunities.

Data and Methods

Data

The data for this study are drawn from multiple sources. We use district level finance data, school level

demographic data, and labor market boundaries from the National Center for Education Statistics.⁴⁰ These data are available for school years 1987–88 forward. School-level finance data are drawn from the Office of Civil Rights Data Collection project, which provides three waves of data, corresponding to school years 2013–14, 2015–16, and 2017–18.

Defining Labor Market Areas

For this study, following Knight⁴¹, labor market boundaries are based on metro and micropolitan Core-Based Statistical Areas (CBSAs) and U.S. Census places of work. Metropolitan CBSAs are individual counties or groups of counties with populations of 50,000 or more, encompassing at least one urban “core” area plus the adjacent communities that have a “high degree of social and economic integration with the core”⁴², based on the Employment Interchange Measure (EIM). EIM measures commuting ties between two adjacent geographic entities, calculated as the sum of: (a) the percent of workers living in the smaller community who commute to work in the larger community; and (b) the percent of jobs in the smaller community that employ individuals who live in the larger community. A CBSA includes adjacent communities when they have an EIM

⁴⁰ See Lori L. Taylor, *Comparable Wages, Inflation, and School Finance Equity*, 1 EDUC. FIN. & POL. 349 (2006); STEPHEN Q. CORMAN ET AL., EDUCATION DEMOGRAPHIC AND GEOGRAPHIC ESTIMATES (EDGE) PROGRAM: AMERICAN COMMUNITY SURVEY COMPARABLE WAGE INDEX FOR TEACHERS (ACS-CWIFT), U.S. DEP’T OF EDUC. (2019), https://nces.ed.gov/programs/edge/docs/EDGE_ACS_CWIFT_FILEDOC.pdf.

⁴¹ David S. Knight, *Accounting for Teacher Labor Markets and Student Segregation in Analyses of Teacher Quality Gaps*, 49 EDUC. RESEARCHER 454 (2020).

⁴² United States Census 2016.

of 15 percentage points or greater. Micropolitan CBSAs, as defined by the U.S. Census, are individual counties or groups of counties that encompass a core urban area with a population between 10,000 and 50,000, and include adjacent communities with high social and economic integration with the core (i.e., an EIM of at least 15 percentage points). In addition to metro and micropolitan CBSAs, all regions in the U.S. fall into a “place of work area” as defined by the U.S. Census. When places of work straddle multiple metropolitan areas, each metropolitan area is defined as a separate labor market.⁴³ Thus, if “white flight” is characterized by relocation from urban areas to suburban ones in a different school district, the suburban and urban areas may be within the same labor market and analyzing segregation within LMAs may shed some light on the extent and trend in white flight over time.⁴⁴

Measuring Student Segregation

Studies show different measures of student segregation produce different results with respect to both overall level and trends over time.⁴⁵ There are two main categories of segregation indices – unevenness indices and isolation indices. Isolation indices assess, for example, the likelihood that a Black student attends a school with at least one White student. These measures offer several advantages, as they most closely measure integration and interaction between race.⁴⁶ However, isolation indices are sensitive to changes in the overall racial composition of a district or state, and many states have undergone substantial demographic changes over the past three decades. In contrast, unevenness indices

⁴³ See Knight, *supra* note 41.

⁴⁴ URBAN ET AL., *supra* note 18.

⁴⁵ Reardon & Owens, *supra* note 25.

⁴⁶ CLOTFELTER, *supra* note 23.

assess, for example, the proportion of students who would need to change districts to achieve racial parity. To avoid conflating changes in overall student demographics with changes in student segregation, we use an unevenness index rather than an isolation index. Specifically, we use the Theil M information theory index, which has the crucial property that it can be decomposed in a way that will allow us to study racial segregation across and within LMAs and districts.⁴⁷ That is, for any measure of total student segregation in a given year, we determine what proportion of segregation results from the particular region of the state in which a student lives (i.e., the particular LMA), the district they attend within their LMA, or the school they attend within their district. Policy efforts to address segregation and education finance equity both focus on either across-district or within-district differences. While state legislators have primary control over across-district enrollment and finance trends, local school district leaders have more sway over within-district differences.

Measuring Education Finance Equity

Scholars have not reached consensus on the best approach to measuring education finance equity. Early studies and some recent ones have used various indices that capture overall variation.⁴⁸ A more recent, regression-based, approach estimates the relationship between per-pupil funding (or some other school resource) and a population of interest, such as Black, Latinx, Indigenous, or other people of color, low-income

⁴⁷ Benjamin Elbers, *A Method for Studying Difference in Segregation Across Time and Space*, SOCIO METHODS & RSCH. (2018); Ricardo Mora & Javier Ruiz-Castillo, *Entropy-Based Segregation Indices*, 41 SOCIO. METHODOLOGY, 159–94, (2011); Sean F. Reardon & Glenn Firebaugh, *Measures of Multigroup Segregation*, 32 SOCIO. METHODOLOGY, 33–67 (2002).

⁴⁸ Murray et al., *supra* note 18.

students, or English learners. This approach allows analysts to control for a variety of cost factors such as district size, local wage levels, or special education services.⁴⁹ We estimate the following model, indexing for districts d and year t :

$$Y_{dt} = \alpha \% P_{dt} + \sum_{\tau=1995}^{2018} \delta_t (I_{t=\tau} + \beta_{\tau} \% P_{dt} + \lambda X_{dt}) + e_{dt}$$

where Y_{dt} refers to per-pupil expenditures, P_{dt} refers to a district's residential poverty rate, based on the U.S. Census Small Area Income and Poverty Estimates, δ , β , and λ , are regression coefficients, X_{dt} is a matrix of controls (cost of wage index, district size, and the proportion of students receiving special education services), and e_{dt} represents the error term.

We use a similar approach to measure intra-district finance equity, this time indexing for school s , districts d , and year t :

$$Y_{sdt} = \alpha \% FRL_{st} + \sum_{\tau=2014}^{2018} \delta_t (I_{t=\tau} + \beta_{\tau} \% FRL_{st} + \lambda F_d) + e_{sdt}$$

where Y_{sdt} represents per-pupil state and local expenditures on teacher salaries, FRL_{st} is the proportion of students in a given school receiving FRL, and F_d are district fixed effects. The inclusion of district-level fixed effects allows us to assess the relationship between funding and school poverty *within school districts*. From

⁴⁹ David S. Knight & Jesús Mendoza, *Does the Measurement Matter? Assessing Alternate Approaches to Measuring State School Finance Equity for California's Local Control Funding Formula*, 5 AERA OPEN 1, 1-31 (2019); Taylor, *supra* note 40.

these models we estimate predicted values of funding or expenditure levels, for schools or districts serving high and low percentages of low-income students, each year. For residential poverty rates (our district-level analysis), we use 0 and 30%, while for the FRL variable (our school-level analysis), we use 0 and 80%. Both levels correspond roughly to the 10th and 90th percentiles, respectively.⁵⁰ We examine both revenues and expenditures but present our results for expenditures. Results based on revenues are qualitatively similar and are available from the authors upon request.

Findings

Segregation

Figure 1 shows changes in segregation over time, disaggregated by source. Panel A shows statewide trends, and Panel B shows the same measures by region. The top solid line in each graph represents total segregation across all schools in the state based on Thiel's H index. The long dash line represents segregation across neighboring school districts – those in the same LMA. Thus, the area between the solid and long-dash lines represents within-district racial segregation. Racial segregation within school districts in California is stable, moving from 30% of total across-school segregation in 1987–88 to 29% in 2018–19. The short-dash line represents segregation across LMAs, so the area between the short and long dash lines represents racial segregation across neighboring school districts (those in the same LMA). Panel A makes clear that racial segregation in California schools results primarily from sorting of students across school districts in the same LMA, and this form of racial segregation is increasing over time, representing 42.9% of total segregation in 1987–88 and 46.4% in 2018–19. Segregation across

⁵⁰ Knight & Mendoza, *supra* note 49.

regional areas (LMAs) is not a large source of racial segregation and decreases from 27% to 24% of total segregation over this time period.

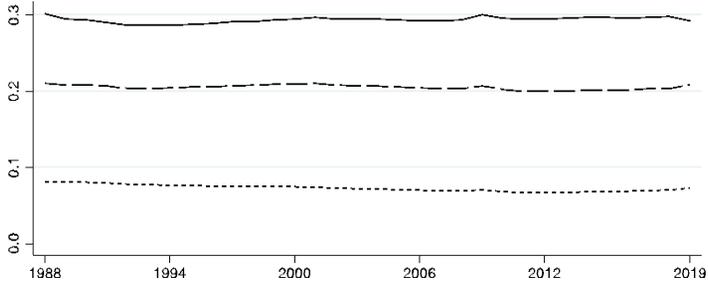
Panel B shows that the source of segregation differs across regions. Across-district segregation is largest in Southern California and the Bay Area, where most LMAs include a large number of neighboring school districts. In more rural parts of the state, the Central and Northern regions, where each LMA has fewer districts, racial segregation stems primarily from sorting across geographic regions (i.e., LMAs). In these areas, school bussing and inter-district choice programs will not be as effective for desegregating schools since most of the segregation derives from sorting across LMAs. In short, while we find relatively little change in statewide segregation in California schools over the last 30 years, both overall and within school districts, we observe a shift toward greater segregation among neighboring school districts in the same LMA. That trend is particularly salient in Southern California and the Bay Area, where most of the state's population resides (83% of students statewide). This shift has important implications for school finance equity moving forward, since state school finance policy allocates funding allotments to school districts. The fact that a smaller proportion of segregation exists across LMAs (about 25%) suggests that efforts to increase racial integration across and within school districts may be a viable policy approach for improving access to equitable funding. With that said, because about one-quarter of racial segregation stems from sorting across LMAs, bussing and inter-district choice policies alone will not ensure that districts with a lower tax base (or with greater need) have sufficient funding.

2] Segregation and School Funding Disparities

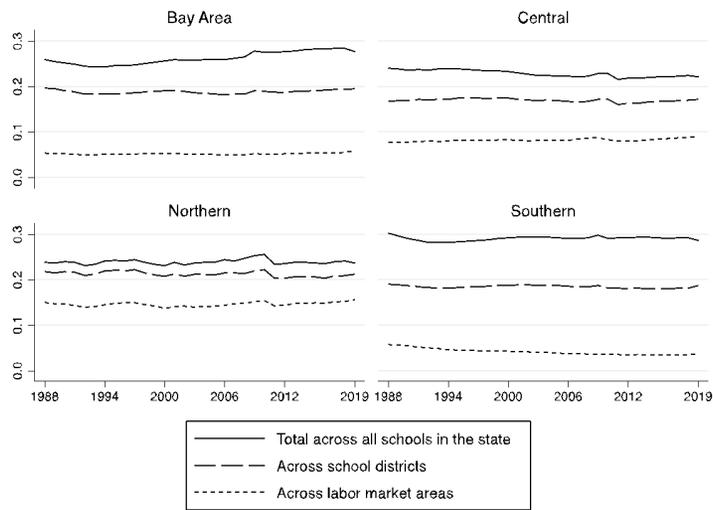
FIGURE 1

Decomposition of segregation in California, 1987-88 to 2018-19

A. Statewide



B. By region



Within-district Finance Equity

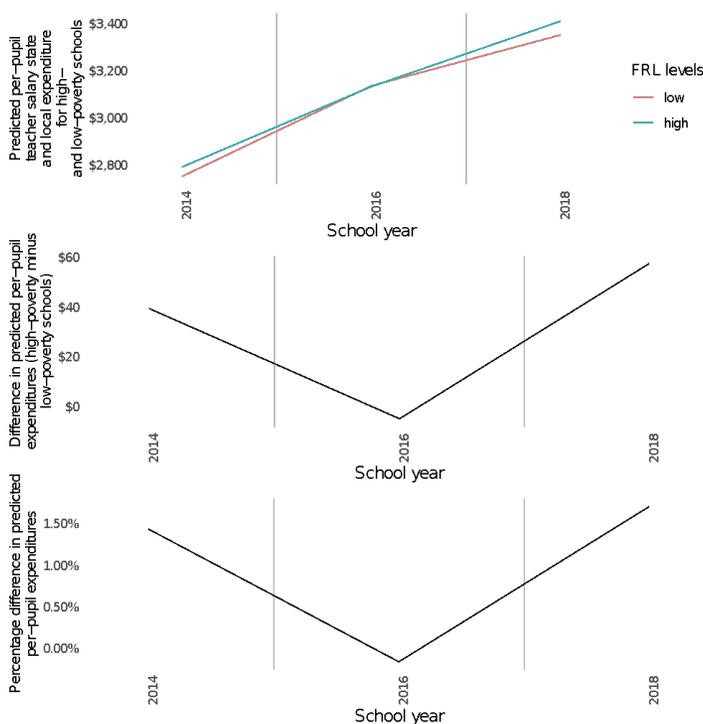
Building on our analysis of across- and within-district segregation, we next explore how funding is distributed to schools both across and within school districts, and how these trends have changed over time. This parallel analysis sheds additional light on whether school finance equity issues can be resolved at the state or local level.

Figure 2 shows measures of school finance equity within school districts for three school years, 2013–14, 2015–16, and 2017–18. The funding measure reflects total per-pupil expenditures on teacher salaries from state and local sources, a rough proxy for the level of material resources allocated to the school (data limitations prevent us from analyzing additional school years or other resource variables, such as total per-pupil expenditures). The top panel shows that schools have experienced roughly a 10% increase in teacher salary funding over this 5-year period. Differences in per-pupil spending between the highest and lowest poverty schools within each district has remained close to zero, on average, ranging from a high of \$60 per student (1.5%) to approximately zero (Panels B and C). This relatively even level of spending across high and low-poverty schools within districts is out of sync with evidence on effective funding models. Studies show higher poverty school districts require at least 20% or more funding than otherwise similar lower poverty districts to provide the same level of educational opportunity.⁵¹

⁵¹ BAKER ET AL., THE ADEQUACY AND FAIRNESS OF STATE SCHOOL FINANCE SYSTEMS, *supra* note 16; WILLIAM D. DUNCOMBE ET AL., HANDBOOK OF RESEARCH IN EDUCATION FINANCE AND POLICY (2nd Edition 2015); Duncombe & Yinger, *supra* note 36.

FIGURE 2

Average expenditure rates for high- and low-poverty schools and the difference between them



Across-district Finance Equity

We next explore spending differences across school districts. District-level finance data are available each year from 1994–95 to 2018–19, allowing for a more complete picture of resource allocation in the state. Figures 3 and 4 present overall spending differences, while Figure 5 shows differences in spending between

high and low-poverty school districts. Figure 3 shows the log of the ratio of spending differences between the 95th and 5th percentile of per-pupil expenditures. The graph suggests that overall differences in per-student spending across school districts has increased over time, particularly in the second year of LCFF in 2014–15. Figure 4 suggests changes in per-student spending over time were not as dramatic for the typical school district. The figure displays a box-and-whisker plot, where vertical lines extend to the 95th and 5th percentile, the box extends to the 75th and 25th percentile, and the bold middle line is the median. While these two figures demonstrate greater across-district spending differences, they do not address whether those differences are correlated with student poverty.

In Figure 5, we show results based on our regression-based approach to measuring school finance equity, discussed earlier. The top panel shows that in the mid-1990s, high- and low-poverty districts in California received approximately the same level of spending per student. Higher-poverty districts gained a spending advantage from 2001–02 to 2007–08, but this progressive funding pattern faded during the Great Recession-era budget cuts. Consistent with prior literature, we find that across-district funding equity in California increased following the gradual implementation of LCFF. In the most recent years of data, however, the spending advantage for higher-poverty districts levels off and slightly declines, ending at approximately a 10% greater spending in high-poverty school districts. While across-district spending is, thus, more equitable than within-district spending, neither spending pattern aligns with recommendations found in the literature.⁵²

⁵² BAKER ET AL., *supra* note 16; DUNCOMBE ET AL., *supra* note 51.

2] Segregation and School Funding Disparities

FIGURE 3

Difference in spending across school districts, based on the natural logarithm of the ratio of the 95th and 5th percentile of per-pupil expenditures, 1994-95 to 2018-19

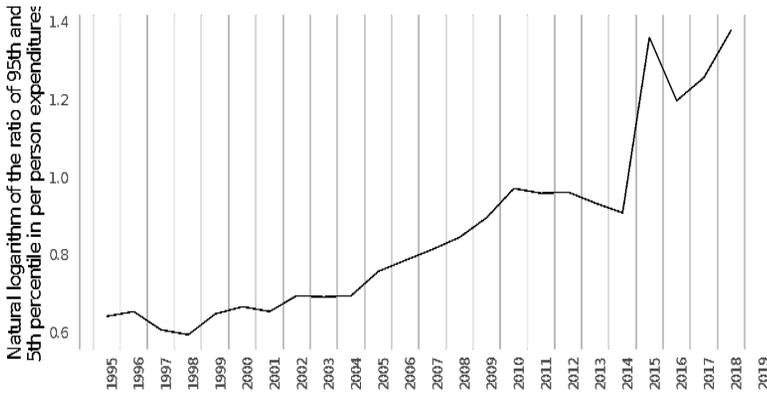


FIGURE 4

Mean per-pupil expenditures in California schools over time, 1994-95 to 2018-19

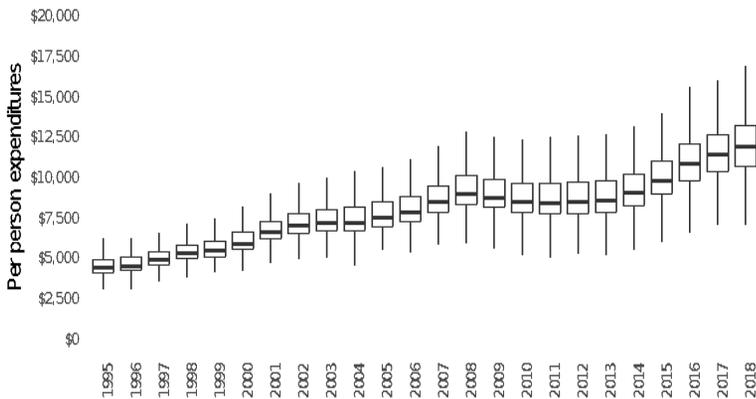
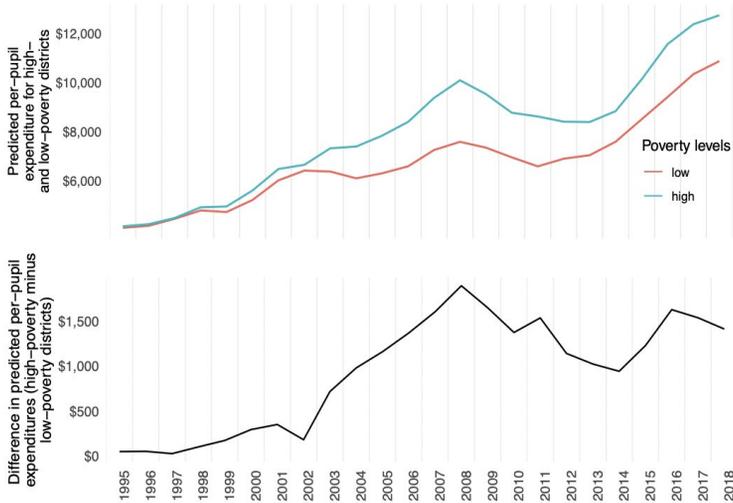


FIGURE 5

Average expenditure rates for high- and low-poverty districts and the difference, 1994-95 to 2017-18

**Structural Changes**

One possible solution to both segregation and funding inequity between districts would be to consolidate districts or redraw their boundaries.⁵³ To assess the extent to which this trend is already taking place, Figure 6 shows the number of school districts and schools in California over the past 30 years, as well as the number of students who identify with one of seven racial/ethnic categories. The number of school districts fell by 15% in the early 90s and has remained roughly constant ever since. The middle panel of the figure shows the number of schools is increasing over the period under

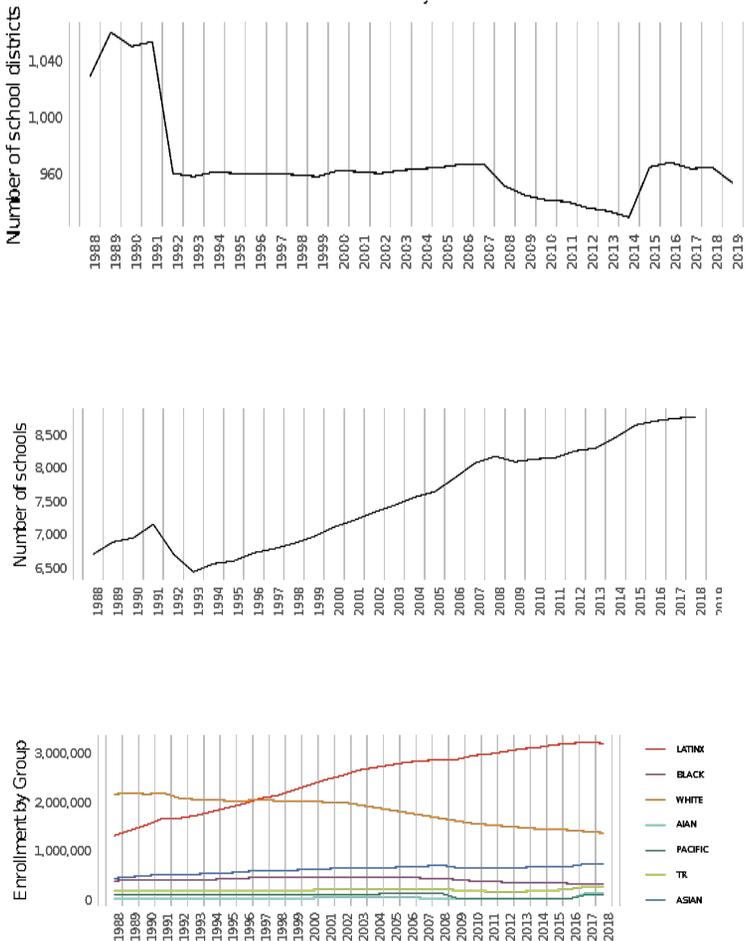
⁵³ Duncombe & Yinger, *supra* note 36.

2] Segregation and School Funding Disparities

examination. Finally, the state has been going through a major demographic transition (bottom panel of the figure), as the number of Latinx students has increased over time, while the number of White students has decreased.

FIGURE 6

Trend in the number of districts, schools, and student demographics in California, 1987-88 to 2018-19



Implications

The landmark *Serrano v. Priest* court case sought to remove funding disparities between poor and wealthy school districts. At that time, Black, Indigenous, and Latinx students in the state attended school districts that spent far less than majority White districts. This study drew on multiple sources of data to assess the level and trends of racial segregation and income-based funding equity in California's public education system, 50 years after *Serrano*. We identified three key findings through this analysis. First, just under half of total racial segregation across California schools, 46.4% in 2018–19, stems from sorting of students across neighboring school districts and this figure has increased over the past three decades. This finding suggests that school finance reform and inter-district integration efforts both represent viable policy levers for improving students' access to adequate resources. However, another 30% of racial segregation stems from student sorting across schools in the same district, suggesting that many predominantly White districts enroll a meaningful share of BIPOC students. This finding implies that school finance reforms and inter-district integration efforts alone will be insufficient for improving resource equity for all students. Instead, state policymakers and district leaders need to ensure that districts allocate funds in line with student needs. Second, while state legislators have substantially improved the extent to which higher-poverty districts are targeted with additional funds, school district leaders have not followed suit. While higher-poverty districts in California have, on average, approximately 10% greater spending levels than lower-poverty districts; our results show that within school districts, high- and low-poverty schools receive approximately the same level of funding per student.

2] Segregation and School Funding Disparities

Thus, moving forward, effective school finance reforms should focus on both across- and within-district resource equity.

CONCLUSION

John Serrano started a 50-year struggle to reconcile education equity and improve overall educational achievement in the state of California. The state's school finance system has experienced substantial change during this time-period. LCFF has improved finance equity, but the state's public education system is not aligned with recommendations of education finance equity scholars. Spending on education, especially in schools serving greater proportions of students from low-income backgrounds, generates higher returns than many other social investments, including education spending on wealthier schools. Moreover, targeting resources to higher-need schools represents a moral imperative, given well-documented historical efforts to prevent low-income and BIPOC students from receiving an adequate education. Despite progress in recent years, the California public schooling system requires additional reforms to improve educational justice in the state.