



# School boards and student segregation<sup>☆</sup>

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## ARTICLE INFO

### Article history:

Received 17 July 2017

Received in revised form 11 May 2018

Accepted 21 May 2018

Available online xxxx

### JEL classification:

I21

I24

I28

### Keywords:

School segregation

School boards

Regression discontinuity

Elections

## ABSTRACT

This paper provides the first causal evidence about how elected local school boards affect student segregation across schools. The key identification challenge is that the composition of a school board is potentially correlated with unobserved determinants of school segregation. We overcome this issue using a regression discontinuity design at the electoral contest level, exploiting quasi-random variation from narrowly-decided elections. Such an approach is made possible by a unique dataset, which combines matched information about North Carolina school board candidates with time-varying district-level racial and economic segregation outcomes. Focusing on the political identity of school board members, regression discontinuity estimates reveal that (relative to their non-Democratic counterparts) Democratic board members decrease racial segregation across schools. Our findings suggest that school boards realize such reductions in segregation by shifting attendance zones (which we infer without the need for exact geocoded boundaries) and that white families differentially exit the traditional public school system for local charter schools in response.

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## 1. Introduction

Policymakers have long been preoccupied with the degree of student segregation across schools. As busing and desegregation orders have become less prevalent in recent years, school segregation has risen in many public school districts throughout the United States. This trend has been driven by continued residential segregation from household sorting across neighborhoods (Tiebout, 1956; Bayer et al., 2004) and a lack of open enrollment in many cases

tying residences to particular schools.<sup>1</sup> Addressing student segregation across schools has increasingly fallen under the purview of elected local school boards, principally through the drawing of attendance zone boundaries. Yet, despite the documented importance of peers to educational outcomes,<sup>2</sup> there exists little evidence (causal or otherwise) about the role of school boards in the allocation of students to schools.

In this paper, we examine the causal effect of school board decisions on student segregation. Identification hinges on ruling out

<sup>☆</sup> We would like to thank Patrick Bayer, Stephen Billings, Elizabeth Cascio, Raj Chetty, Kirabo Jackson, Steven Rivkin, Jonah Rockoff, participants at NBER, ASSA/Econometric Society, SOLE, APPAM, AEF, and Duke University, and anonymous referees for helpful comments and suggestions. Thanks also to Brian Clark, Bryant Hopkins, and Andrew Steck for excellent research assistance. Remote access to the data for this study was generously provided by the North Carolina Education Research Data Center (NCERDC). All remaining errors are our own.

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<sup>1</sup> Empirical evidence of education-motivated residential choices in Washington D.C. and North Carolina is presented by Barrow (2002) and Caetano and Macartney (2013), respectively. Both papers find that families sort differentially based on race, with white families more likely to place a higher value on better schools. Heterogeneous preferences are also observed in Bifulco et al. (2009), who contend that school choice in Durham gives rise to more highly segregated schools than would occur from simple proximity-based rules. Hastings et al. (2006) find similar patterns from Charlotte-Mecklenburg's school choice program.

<sup>2</sup> Prominent examples include Hoxby (2000), Hoxby and Weingarth (2005), Graham (2008), and Fruehwirth (2013).

confounding factors; most notably, sorting patterns across neighborhoods (via household preferences) that are correlated with both board composition and segregation across schools. For example, if voters who reside in less segregated neighborhoods tend to prefer board members with a particular political outlook, those members might erroneously appear to reduce segregation across schools. While controlling for residential segregation would eliminate such endogeneity, this approach would be infeasible for unobserved sources of bias. In particular, the mapping between the residential concentration of student types within a district and the feasible ways in which they can be allocated to schools (owing to optimal school size, transportation costs and political constraints) is unknown. Correlation of school board composition with any of these factors would undercut a causal claim.

We address such issues by adopting a regression discontinuity approach implemented at the electoral contest level to exploit quasi-random variation from elections that are narrowly decided. Intuitively, we compare segregation outcomes associated with marginal winners of one type (we focus on political affiliation in our implementation) to those associated with marginal winners of the opposite type, assuming that the opposite winner outcome is a valid counterfactual for the unobserved opposite loser analogue. The assumption implies that confounding factors of winners and losers are continuous at the margin. The comparison then yields the causal effect of one type versus the opposite type on student segregation.

Our empirical strategy leverages a unique dataset, assembled from several sources. From the North Carolina State Board of Elections (henceforth ‘NCSBE’), we obtain a list of candidates for each electoral contest held in North Carolina from 2008 to 2012 inclusive, along with the total number of votes each received. We merge these records with a list of school board members for 109 districts in North Carolina, allowing us to identify election winners and losers. We then link the election candidates and board members to NCSBE voter registration records, which contain information such as the full name, address, age, ethnicity and (most notably for our purposes) stated political party for each voter. Based on a within-county fuzzy match by name, we are able to uncover the characteristics of 74% of school board candidates in our sample. Finally, we connect this school board and election information to time-varying district-level racial and economic segregation outcomes, constructed using administrative records of each student’s residential location and school attended, which are provided by the North Carolina Education Research Data Center (henceforth ‘NCERDC’).

We focus on the political identity of school board members in our analysis. The results indicate that (relative to their non-Democratic counterparts) Democratic board members decrease racial segregation across schools: the estimated causal effect of an electoral win by a Democrat is an 8 percentage point reduction in the black dissimilarity index across schools at the time of the subsequent school board election. Contrasting this estimate with its ordinary least squares counterpart, we find that the latter methodology understates the causal effect, highlighting the bias inherent in more naive approaches.

To establish the main mechanism underlying this effect, we then use student addresses to construct a novel measure of attendance zone shifts without needing to observe exact geocoded boundaries. We show that such shifts occur more frequently following the election of an additional Democrat (relative to non-Democrat), which is in line with them counteracting the effects of neighborhood sorting. Based on this evidence, we consider whether board-induced boundary adjustments lead households to choose a different school or district by moving or opting out of the traditional public school system for private or charter schools. Although we find no short-run evidence of re-sorting or other household responses overall, the findings suggest that board actions to lower

segregation cause white families to differentially leave traditional public schools for charter schools in districts where this option is available.

Our paper is the first to identify the key role that school boards play in influencing student segregation. This is relevant to several strands of literature. The first one seeks to estimate the contribution of schooling inputs to the production of student achievement, focusing primarily on the school and teacher, rather than district, levels (Rivkin et al., 2005; Chetty et al., 2014). Our results, along with related prior research about school board activity (Billings et al., 2014; Hoxby and Weingarth, 2005), suggest that decisions made at the district level by school boards may play an important role in the education production process.

The second strand of literature measures the willingness-to-pay for school quality using discontinuities across school attendance zone boundaries (Black, 1999; Bayer et al., 2007). Our work complements these demand-side analyses by providing supply-side insight into how boundaries are drawn, with boards actively altering them according to heterogeneous preferences over student segregation. This serves as an initial step in reaching a broader general equilibrium understanding of how the peer composition within schools is determined.

In addition, our paper connects with the literature on school choice mechanisms (Abdulkadiroğlu and Sönmez, 2003; Kapor et al., 2017). While analyses typically evaluate the allocation of students to schools primarily in terms of household preferences, we examine the role that elected school board member preferences play in the matching of students to schools. In this regard, our consideration of shifting school attendance zones as a key mechanism for affecting student-school matches relates to work examining the location and shape of such zones (Saporito and Riper, 2016; Monarrez, 2017).

The remainder of the paper proceeds as follows: The next section provides background, describes the data and sets out the measures that we exploit in our analysis. Section 3 details our research design and Section 4 presents the associated results. Section 5 discusses the mechanisms underlying those effects, and Section 6 then concludes.

## 2. Background and data

Local school boards are a distinctive feature of the American education system in which civilian officials, elected by local voters, administer public education within districts. This system of local governance and representation purportedly enables boards and school administrators to meet the needs and preferences of local households. While boards are generally charged with setting district policies (such as through hiring the superintendent), their responsibility for allocating students to schools, with its attendant consequences for school segregation, has been at the center of multiple landmark Supreme Court decisions.

Federal court orders and grants subsequent to *Brown v. Board of Education* induced many districts in the United States to desegregate schools along racial lines. A large literature examines the effectiveness of such policies and the implications for student outcomes (Reber, 2005; Cascio et al., 2008; Hanushek et al., 2009; Johnson, 2011). Often constrained by considerable residential segregation, this requirement was frequently achieved through reassignments and involuntary busing. With the end of court desegregation orders, household sorting has contributed to recent increases in school segregation (Reardon and Yun, 2002; Clotfelter et al., 2008; Lutz, 2011) and school board priorities have become increasingly political.<sup>3</sup>

<sup>3</sup> For example, Republican-affiliated board members gained a majority of the Wake County, North Carolina school board in 2009 and ended busing intended to equalize diversity by implementing a neighborhood-based attendance zone plan (Parcel and Taylor, 2015).

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