Nonlinear Segregation Dynamics in Schooling Markets: the Case of Caste in India*

Moumita Das
Shreya Dutt
Gagandeep Sachdeva
Kartik Srivastava

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ABSTRACT. We study whether local schooling markets in India exhibit tipping-point dynamics in student caste composition. Using near-universal administrative panel data on schools, we define villages as local schooling markets and estimate village-level composition thresholds from the relationship between baseline caste shares and subsequent enrollment flows, adapting the Card et al. (2008) fixed-point procedure to multi-school markets. We study two caste contrasts: upper-caste versus all disadvantaged groups combined, and intermediate-caste versus the most marginalized. Estimated thresholds differ sharply across contrasts and concentrate at very different baseline shares, indicating that tipping is boundary-specific rather than a generic feature of composition change. Around these thresholds, within-village school segregation rises discontinuously by 12% for the upper-caste comparison and 42% for the within-disadvantaged caste comparison. These are driven by re-sorting across schools within the local market rather than shifts in village composition. School inputs and public grant flows exhibit parallel discrete changes at the same thresholds, with per-student grants jumping by about 30%. Threshold locations are lower where caste identity is more salient and higher where schooling markets are thicker, though both gradients largely reflect state-level heterogeneity. Together, these findings show that institutional responses to composition amplify household sorting, generating a supply-side response that affects school quality.

1 Introduction

How do local schooling markets respond when student demographic composition changes? This is an exceedingly important question in the context of stratified societies with poor education outcomes, where there are aggregate differences in learning outcomes across social groups. Even when the overall share of students

*Moumita Das, University of California, Santa Cruz (mdas3@ucsc.edu); Shreya Dutt, Boston University (dshrey@bu.edu); Gagandeep Sachdeva, University of California, Santa Cruz (gsachdev@ucsc.edu); Kartik Srivastava, Harvard Kennedy School (kartiksrivastava@g.harvard.edu). We thank David Lagakos, Benjamin Marx, Dilip Mookherjee, and Paul Novosad for valuable feedback.

from a given social group rises gradually, schooling systems may not adjust smoothly. Instead, local schooling markets may exhibit threshold dynamics, where small changes in baseline composition trigger discrete reallocations of students across schools and shifts in school resources. If household sorting and institutional responses are sensitive to peer composition, small changes in baseline group shares can trigger self-reinforcing reallocations once composition crosses locally salient thresholds. Whether such tipping dynamics operate in schooling markets is an open empirical question with direct implications for the geography of educational opportunity and for policies designed to improve equity in schooling.

This paper provides evidence on composition thresholds in local schooling markets. We ask whether the relationship between baseline disadvantaged-group enrollment shares and subsequent outcomes—enrollment flows, within-village segregation, school inputs, and public funding—is nonlinear, with a threshold at which behavior changes sharply. Our conceptual framework, which adapts the tipping models of Schelling (1971) and Card et al. (2008) to multi-school local markets, identifies conditions under which an integrated allocation is locally unstable: when the more dominant social group is sufficiently more sensitive to peer composition than the minority group, small deviations from integrated enrollment amplify, generating abrupt sorting across schools within the same local market.[1] Our theoretical framework generates three empirical implications. First, enrollment flows change discontinuously at a threshold in baseline composition of the minority group. Second, within-market segregation of social groups also exhibits threshold behavior in consonance with the changes in student composition. Third, school inputs and resources may also respond discretely at the same threshold, through either household-driven demand shifts or supply-side institutional responses.

We test these predictions using near-universal administrative data on schools in India over three multi-year intervals across a period of 12 years, detailing student enrollment by social group, school infrastructure, and coarse indicators of scholastic aptitude. Local schooling markets in this context are typically defined by villages, and group composition is measured along caste boundaries that are socially and politically salient.[2] The setting is well-suited to studying threshold dynamics for

[1]The key departure from the residential tipping model of Card et al. (2008) is threefold: households sort across schools without changing residence, so school segregation can rise even when village composition is fixed; school quality responds endogenously to composition, creating a supply-side amplification channel absent from the neighborhood model; and the presence of both government and private providers introduces a sectoral reallocation margin with no analogue in housing markets. The instability condition depends on the comparison group's excess sensitivity to minority peer composition relative to the minority group, not on either group's sensitivity in isolation. As a result, tipping is boundary-specific and need not operate symmetrically across different caste contrasts.

[2]Villages in rural India typically contain multiple schools within short geographic distances, making them a natural unit for defining local schooling markets. Notably, the thinness of village markets,

several reasons. Households in rural India choose across multiple schools within and near villages, including both government and private providers, creating scope for discrete sectoral reallocation when peer environments shift (Muralidharan and Kremer, 2008b; Kingdon, 2017b). Caste is a salient and persistent dimension of social stratification in India with well-defined hierarchies, shaping both social interactions and economic opportunities (Munshi, 2019; Deshpande, 2011; Thorat and Newman, 2010; Hanna and Linden, 2012). Caste-based social distance and discrimination can generate sharp sensitivity to peer composition on the part of higher-status groups, which our framework identifies as the key condition for tipping. On the supply side, school inputs and resources need not adjust smoothly to changes in student composition. If funding, staffing, or infrastructure provision responds nonlinearly to enrollment patterns due to administrative constraints, capacity thresholds, or demand-driven adjustments (Hanushek, 2006; Jackson et al., 2016; Andrabi et al., 2017), then changes in composition can generate discrete shifts in school environments, potentially amplifying underlying tipping dynamics and reinforcing sorting across schools, which has a range of downstream impacts on school quality.

Empirically, we identify tipping points using a two-step procedure that links baseline composition to subsequent enrollment flows. First, we estimate district-level thresholds as the point at which the relationship between baseline minority share and subsequent enrollment changes crosses zero, i.e., where subsequent enrollment flows switch sign relative to the district trend, following the fixed-point approach in Card et al. (2008), which builds on earlier work on tipping and segregation dynamics (Schelling, 1971; Cutler et al., 1999; Ellen, 2000). Second, we refine these thresholds to the village level using local information around the tipping region, allowing for heterogeneity in threshold locations across local schooling markets.[3] We then estimate regression-discontinuity specifications around these thresholds to test for discontinuous changes in enrollment, segregation, and school inputs, following the standard RD framework (Imbens and Lemieux, 2008; Lee and Lemieux, 2010; Calonico et al., 2014).

Figures 3 and 4 serve complementary purposes: the first illustrates how the district-level threshold is identified; the second illustrates the tipping dynamic

i.e. the small number of schools per village, actually amplifies the importance of studying tipping dynamics. In a village with three or four schools, a small reallocation of households across schools can shift the minority share of an individual school substantially, generating large changes in within-village segregation from what would be a negligible movement in a denser urban market. Thin markets are therefore precisely the settings where composition-sensitive sorting has the largest discrete consequences for the distribution of students across schools.

[3]Because villages contain relatively few schools, we use a two-step procedure that anchors thresholds at the district level before refining them using local information, improving precision in thin markets.

itself. Figure 3 shows the district-level estimation step: each point is a school in Dhubri, Assam; the horizontal axis is its baseline SC+ST+OBC share; the vertical axis is the subsequent change in General caste enrollment share, demeaned by district$\times$interval. The dashed curve is a local polynomial fit, and the vertical line marks $\hat{\kappa}_d \approx 0.42$, which is the zero crossing of the flow function, estimated following the Card et al. (2008) (henceforth CMR) fixed-point procedure. This zero crossing is the district-level anchor we refine to the village level in the second step. Figure 4 then shows what the tipping dynamic looks like directly at the village level, which is the unit of the local schooling market and the level at which household sorting operates. Each point is a school in Kodumur, Kurnool district, Andhra Pradesh; the solid vertical line marks the village-level estimate $\hat{\kappa}_v \approx 0.62$ and the dotted line marks the district anchor $\hat{\kappa}_d \approx 0.55$. Below $\hat{\kappa}_v$, General caste enrollment changes are near zero, i.e. schools in this range track the village average regardless of how minority-heavy they are. Above $\hat{\kappa}_v$, General caste enrollment falls sharply relative to the village mean, consistent with households reallocating away from schools whose minority share has crossed a locally salient threshold. This sign reversal is the empirical signature of the tipping dynamic our RD design exploits.

Our findings suggest that minority student composition has a disproportionate and non-linear effect on school-level segregation in villages, with important downstream implications for local education markets. First, we identify locally relevant composition thresholds using the relationship between baseline composition and subsequent enrollment flows. The location of these thresholds differs systematically across caste contrasts, i.e., which groups are identified as minority versus comparison groups. This indicates that tipping is not a generic feature of composition change, but depends on which social boundary determines relative sensitivity to peer composition, consistent with the model's prediction that instability arises from group-specific responses to peer environments.[4] Second, within-village school segregation shifts sharply in the tipping region, indicating that threshold responses operate primarily through re-sorting of students across schools within local markets rather than through uniform changes in village-level composition. Third, school inputs and public funding respond endogenously to

[4] The Indian government classifies populations into four mutually exclusive social categories: General (a residual category that includes upper-caste groups), Other Backward Classes (OBC), Scheduled Castes (SC), and Scheduled Tribes (ST). SC and ST groups are constitutionally recognized as historically disadvantaged communities with longstanding social exclusion, while OBC is a broader and more heterogeneous category of socially and educationally disadvantaged groups (Deshpande, 2011; Munshi, 2019). The first contrast we study compares General to all disadvantaged groups combined, capturing dynamics at the upper-caste boundary. The second contrast compares OBC to SC+ST, isolating within-disadvantaged-group dynamics in settings where social distance, economic status, and political representation may differ across groups.

this re-sorting. Inputs and grant flows exhibit discrete changes around the same thresholds, consistent with institutional responses that may amplify initial sorting dynamics. Learning outcomes respond less sharply, suggesting that the immediate effects of tipping operate through the allocation of students and resources rather than contemporaneous achievement. Fourth, post-threshold adjustments differ systematically between government and private schools, with private schools exhibiting distinct changes in inputs and capacity relative to government schools, providing direct evidence that sectoral reallocation is a central channel through which tipping reshapes local schooling environments.

An important concern is that the patterns we document may partly reflect underlying spatial segregation within villages or concurrent changes in school supply, rather than tipping dynamics in school choice per se. In many rural settings, villages are internally organized into hamlets that are often segregated along caste lines (Munshi and Rosenzweig, 2006; Andrabi et al., 2017), and expansions in school supply may also generate discrete changes in enrollment. While these factors may affect observed composition, our empirical strategy focuses on within-village variation to isolate tipping behavior, and we show in robustness analyses that the main threshold patterns are not driven by these alternative explanations.[5]

We extend this framework to study how tipping dynamics vary with the salience of caste identity and the strength of social norms. Our model predicts that tipping is more likely when higher-status groups are more sensitive to peer composition, suggesting that threshold behavior should be more pronounced in areas where caste-based social distance and discrimination are stronger. We examine heterogeneity in tipping dynamics using proxies for caste salience and bias, survey-based measures of practices such as untouchability (Anderson et al., 2015; Munshi, 2019).[6] Beyond this setting, this framework can be extended to study how institutional and social environments shape the stability of integrated schooling allocations, and to evaluate whether policy interventions such as school construction, desegregation efforts, or information campaigns can mitigate tipping by altering either the supply of schools or the salience of group-based preferences.

The sorting dynamics we study have important downstream implications. In stratified societies, schools are a primary site of both human capital formation

[5] These tests include restricting attention to villages with limited school entry, controlling for baseline school density, and examining whether results persist within more geographically compact schooling markets.

[6] Survey measures of practices such as untouchability capture variation in social norms and discriminatory attitudes. These measures record whether households in a district report practices such as refusing to share food, water, or domestic space with members of lower-caste groups, providing a district-level proxy for the intensity of caste-based stigma and social distance (Anderson, 2011; Coffey et al., 2018). Higher reported untouchability rates indicate settings where social norms more strongly reinforce group boundaries, which likely amplifies the salience of caste composition in school choice decisions.

and cross-group interaction. Changes in peer composition can affect learning through peer effects (Hoxby, 2000; Sacerdote, 2011), while segregation may limit exposure to diverse peers and restrict the formation of cross-group social networks that shape later labor market outcomes (Munshi, 2003; Jackson, 2010). Because job information and opportunities are often transmitted through social networks, reduced peer diversity can translate into lower job arrival rates and weaker labor market outcomes for disadvantaged groups (Chetty et al., 2014b, 2022). By generating discrete changes in peer environments, tipping points may therefore amplify inequality not only in school resources and learning, but also in the formation of social capital and long-run economic opportunities.

This paper contributes to three strands of literature. First, it builds on the theoretical and empirical literature on tipping and social interactions in the context of group composition. Unlike prior work that focuses on residential segregation, our setting features multi-school markets with endogenous supply responses, allowing us to study how tipping interacts with institutional adjustment. Schelling (1971) showed that mild preferences over group composition can generate tipping points at which neighborhood composition changes abruptly. Card et al. (2008) provided evidence of such dynamics in residential settings in the context of race in the US, showing that small changes in minority population shares produce sharp shifts in subsequent demographic flows. We adapt this framework to local schooling markets and derive the conditions under which an integrated multi-school allocation becomes locally unstable, yielding testable predictions about the shape of enrollment flow functions and the behavior of segregation measures. Relative to Card et al. (2008), our setting allows for supply-side responses that affect school quality, which we show generate an additional channel through which thresholds can amplify initial sorting.

Second, this paper contributes to a substantial literature on school choice, peer effects, and segregation. A large body of work documents that peer composition affects student outcomes through learning spillovers and changes in classroom environment (Hoxby, 2000; Sacerdote, 2011). Research on school choice and sorting shows that household demand for particular peer environments can generate segregation even in formally integrated systems (Epple and Romano, 1998; Tiebout, 1956). Our contribution is to show that the relationship between composition and sorting is nonlinear: gradual changes in baseline composition can trigger discrete reallocations once thresholds are crossed, implying that the effects of composition change may be concentrated at particular margins rather than uniformly distributed. This nonlinearity has important implications for both human and social capital formation, since schools shape not only learning outcomes but also peer networks that influence later-life opportunities. It also implies that policy interventions may have highly state-dependent effects: changes in composition or school access may have limited impact in some settings but generate large effects when local markets are near tipping points, creating both challenges for policy design and opportunities to target interventions at critical margins.

Third, the paper speaks to a growing literature on inequality in access to school resources. A long-standing finding in this literature is that disadvantaged students tend to attend schools with worse inputs and resources (Hanushek, 2006; Jackson et al., 2016). We show that institutional responses to composition—through administrative planning, grant disbursement, and capacity adjustment—can generate discrete changes in school resources at the same thresholds where household sorting occurs, reinforcing rather than attenuating initial inequalities. Even in the absence of direct peer effects, institutional responses to composition can generate inequality through discrete changes in school inputs. This supply-side amplification mechanism is distinct from the peer-effect channel and suggests that equity-oriented resource allocation rules may need to be designed with threshold dynamics in mind.

Our setting–caste composition in Indian villages–has features that are specific to India but that also illuminate mechanisms of broader relevance. The salience of caste boundaries as a basis for social distance and household sorting is a feature of this context, but the underlying forces of preference heterogeneity over peer composition, institutional frictions that generate non-smooth input responses, and the coexistence of public and private providers are present in many countries. The tipping framework and the empirical patterns we document therefore have implications for understanding segregation dynamics in any setting where households choose across multiple schools, group-based social preferences generate differential sensitivity to peer composition, and resource allocation is mediated through administrative or market-based systems. In particular, our analysis of sectoral sorting between government and private schools is directly relevant to the large literature on the effects of school choice policies, which alter the menu of alternatives available to households and can amplify or mitigate stratification depending on how households respond to peer composition (Hsieh and Urquiola, 2006; MacLeod and Urquiola, 2015; Epple and Romano, 1998). More broadly, our results speak to work on school voucher programs and education reforms aimed at improving access for disadvantaged groups, where changes in choice sets may generate unintended sorting and segregation effects (Friedman, 1962; Rouse, 1998; Angrist et al., 2002). They also connect to a growing literature on the joint determination of residential location and school choice, in which housing and schooling decisions interact to shape patterns of segregation and inequality (Tiebout, 1956; Bayer et al., 2004). Together, these links suggest that nonlinear responses to composition are likely to be a general feature of education systems, with important implications for how policy interventions affect both equity and efficiency.

The remainder of the paper is organized as follows. Section 2 describes the institutional setting and empirical context. Section 3 presents the conceptual framework. Section 4 describes the data. Section 5 presents the empirical strategy. Section 6 reports the main results. Section 7 provides evidence on how threshold locations vary with caste salience and market structure, and Section 8 shows that the main results are robust to alternative sample restrictions and local market definitions. Section 9 concludes.

2 Institutional background

In this section, we provide institutional context on (i) how demographic caste categories are defined and used in education administration, (ii) how government and private schools differ in funding, capacity, and constraints, and (iii) which policies shape access and competition for educational resources.

2.1 Caste categories in education

The Indian government has four main statutory mutually exclusive social categories: *General*, *Other Backward Classes (OBC)*, *Scheduled Castes (SC)*, and *Scheduled Tribes (ST)*. SC and ST groups are constitutionally recognized as historically disadvantaged communities, with SC communities historically subjected to untouchability and severe social exclusion, and ST communities comprising marginalized indigenous groups. OBC is a broader administrative category that groups together castes deemed "socially and educationally backward". Unlike SC/ST, it is more internally heterogeneous and its political incorporation has evolved substantially in the last 20 years such that it is no longer accurate to homogeneously characterize these groups as disadvantaged in the sense that most SC/ST groups are (Jaffrelot (2003); Deshpande (2011)). General is a residual category that includes upper-caste groups and can generally be considered to be at the top of this hierarchical stratification.

Grouping SC/ST together with OBC can be politically and socially consequential. First, SC/ST disadvantage has historically reflected more acute social distance and exclusion, while the OBC category includes groups with a wider range of socioeconomic status and political power (Deshpande (2011)). Second, caste politics in many parts of the country has involved explicit competition between OBC and SC/ST groups over political representation and the allocation of public resources, including education-related resources and public employment opportunities, since these are often zero-sum considerations (Jaffrelot (2003)). These distinctions matter for interpretation because a given rise in the combined non-General share can represent very different local social environments depending on whether it is driven by SC/ST concentration or by OBC concentration.[7]

For this reason, the empirical analysis uses two composition contrasts throughout: (i) *General versus (SC+ST+OBC)*, which captures the salience of the General-caste boundary and the combined presence of disadvantaged groups; and (ii) *OBC versus (SC+ST)*, which isolates within-disadvantaged-group dynamics and asks when OBC enrollment flows change regime as baseline SC+ST concentration becomes very high.

2.2 Structure of the school system

India's elementary and secondary school system has both public and private schools, with the latter becoming an increasingly common alternative to traditionally under-resourced and lower-quality public schools (Muralidharan and Kremer, 2008b; Kingdon, 2017b). This distinction between school "management" type is a central focus of this paper.

Public schools are the backbone of the public system and are subject to administrative rules governing teacher deployment, infrastructure provision, and program financing. A large share of school financing and program support for government schools has historically operated through "centrally sponsored schemes", i.e. schemes that are primarily funded by the federal government, which finance school improvement grants and multiple categories of school inputs through annual planning and approval processes (Department of School Education & Literacy, Ministry of Education, Government of India (2021, 2022)). These schemes emphasize equity and include components that finance teaching-learning materials, minor repairs, and school operating expenses, as well as larger interventions that vary by state and year. Because these resources are mediated through annual planning and administrative implementation, inputs can respond discretely rather than smoothly to local conditions, and the mapping from funds to measured school environments can be uneven across margins and time.

Private schools operate under different incentives and constraints. They depend on fee revenue and local demand, face fixed-cost viability constraints, and may adjust staffing and inputs through managerial decisions. Importantly, private schooling is not only an urban phenomenon: a substantial literature documents widespread private-school presence and competition with government schools even in rural India (Muralidharan and Kremer (2008a); Kingdon (2017a); Andrabi

[7]The political economy motivation for separating OBC from SC/ST is particularly salient in the education context. OBC political incorporation after the recommendations of the Mandal Commission in 1992 reshaped local competition for public resources and opportunities, and social distance and stigma can differ markedly between SC/ST groups and many OBC groups (Jaffrelot (2003); Deshpande (2011)).

et al. (2013)). This creates scope for sectoral sorting: as school peer environments change, households may reallocate across public and private schools, and private schools may expand or contract differentially in the same local market.

Public schools are, thus, tightly linked to administrative planning, teacher postings, and grant flows. Private schools are more flexible on some margins (staffing mix, capacity expansion) but constrained by fee-paying demand. If tipping dynamics operate through parental reallocation across sectors, then discontinuities should be visible not only in aggregate composition and segregation but also in different post-threshold trajectories of inputs and resources in public versus private schools.

2.3 Reservation policies, RTE, and educational competition

Affirmative action in India is most prominently implemented through constitutionally recognized reservations (i.e quotas) in higher education admissions and public employment, with separate quotas for SC, ST, and (in most settings) OBC groups. These policies shape educational competition and political conflict because caste groups may have sharply different stakes in access to scarce public opportunities (Jaffrelot (2003)). However, these reservation quotas do not map one-to-one into the organization of local schooling markets, where government elementary schools are typically open-access within catchment areas rather than quota-based in the same way as higher education.

The most direct school-level access mandate is the Right of Children to Free and Compulsory Education (RTE) Act, 2009, implemented from 2010. RTE establishes a legal entitlement to free and compulsory elementary education and imposes obligations on schools and governments.[8] The economics of this provision are directly relevant to our setting: the 25% quota has been shown to affect cross-caste social interactions and peer environments in private schools (Rao, 2019), and its incidence—who bears the cost of mandated integration—varies with market conditions and compliance rates (Romero and Singh, 2022).

RTE directly links access in some private schools to disadvantaged categories that include SC/ST and often other underprivileged social groups, which can

[8]Of particular relevance is Section 12(1)(c), which requires many unaided non-minority private schools (and "special category" schools) to admit at least 25% of children at the entry level from "weaker section" and "disadvantaged group" categories, with reimbursement at the per-child cost incurred by the government (India Code (2009); Ministry of Education, Government of India). The Act defines "disadvantaged group" to include children belonging to SC, ST, and "socially and educationally backward class," among other groups as notified by states (India Code (2009); Tucker (2012)). The Supreme Court upheld the core constitutionality of this provision while exempting private unaided minority schools, reinforcing that the mandate is not uniform across all private institutions (Right to Education Initiative (2012); Supreme Court of India (2012)).

affect the feasible extent of sectoral sorting for some villages. This policy environment is such that local markets can experience simultaneous changes in (i) peer composition and (ii) the administrative and fiscal environment of schools, creating scope for threshold responses in enrollment, inputs, and within-village segregation, which is the focus of our study.

3 Conceptual framework

We develop a framework to study how changes in group composition generate nonlinear sorting across schools. The framework builds on the tipping models of Schelling (1971) and Card et al. (2008), but adapts them to local schooling markets in ways that are substantively distinct from the residential setting. Similar to CMR, we identify a locally salient composition threshold from the zero crossing of subsequent group flows. However, in CMR, households sort across neighborhoods, and the mechanism runs through housing demand, prices, and residential mobility. In our setting, households sort across schools within the same village without changing where they live: school segregation can increase even if village residential composition is fixed. This is particularly relevant for developing countries and rural areas in particular, where residential mobility is low. Second, whereas CMR neighborhoods are spatial units with relatively fixed housing stock, schools are institutional providers whose inputs (such as grants, staffing, infrastructure, and quality) may respond endogenously to student composition. This supply-side channel creates an amplification mechanism that we formalize below and test empirically. Third, schooling markets contain both public and private providers. A household responding to a changing peer environment can switch schools within the public sector, but can also exit to the private sector entirely. This sectoral sorting channel has no analogue in residential sorting models and generates distinct predictions about differential adjustment across school types. Together, these features make peer composition in schools a more direct input into the education production environment than neighborhood composition is in housing markets: it affects classroom interactions, parental demand, teacher effort, learning spillovers, and the formation of cross-group social networks. This is why tipping in schooling markets has implications not only for segregation but for human capital and social capital formation.

We proceed in two steps. We first analyze a single-school model to show how composition-dependent demand can generate multiple equilibria and an unstable interior allocation. We then embed schools in a village market with two schools, derive explicit choice probabilities from household utility maximization, and analyze whether the integrated allocation is stable. The village model yields testable predictions about the shape of enrollment flows and the behavior of within-village segregation as baseline composition changes.

3.1 A school-level model of composition-dependent demand

Consider a school with a fixed number of seats normalized to one. There are two groups of households, indexed by $g \in \{N, M\}$, where N denotes the comparison group and M denotes the minority group whose share is the focus of our analysis. Let $s \in [0, 1]$ denote the share of minority students in the school.

Bid functions Let

$$b^g(n^g,\, s)$$

denote the willingness to pay of the n^g-th highest-demand household from group g for a seat in a school with minority share s. This is the school-market analogue of the bid functions in Card et al. (2008). It captures the net value of attending the school, incorporating fees, access costs, expected school quality, and preferences over peer composition.

Assumption 1 (Inverse-demand monotonicity)**.** $\partial b^g / \partial n^g \leq 0$: the marginal household's willingness to pay is weakly decreasing in the number of group-g seats allocated.

Assumption 2 (Differential composition sensitivity)**.** $\partial b^N / \partial s < 0$ and $\partial b^M / \partial s \geq 0$: rising minority share reduces the comparison group's willingness to pay but does not reduce the minority group's willingness to pay.

Assumption 2 formalizes the key asymmetry: the comparison group is averse to minority peer composition, while the minority group is not (or is less so). The sign restriction on $\partial b^M / \partial s$ can be relaxed; what matters is the difference in sensitivities.

Equilibrium A mixed allocation assigns a share s of seats to minority households and $1 - s$ to comparison households. The equilibrium condition equates the marginal willingness to pay across groups:

$$b^M(s,\, s) \;=\; b^N(1 - s,\, s). \tag{1}$$

The left side is the willingness to pay of the s-th minority household; the right side is the willingness to pay of the $(1 - s)$-th comparison household, both evaluated at minority share s.

Stability To assess stability, consider how the right side of (1) changes as minority share rises. Totally differentiating $b^N(1-s,s)$ with respect to s:

$$\frac{d}{ds}\, b^N(1-s,\, s) \;=\; -\frac{\partial b^N}{\partial n^N} \;+\; \frac{\partial b^N}{\partial s}. \tag{2}$$

The first term is non-negative by Assumption 1: as the comparison group shrinks, the marginal comparison household has higher demand, pushing b^N up. The second term is negative by Assumption 2: higher minority share directly reduces comparison-group willingness to pay. If the first force dominates at low s but the second dominates at high s, then $b^N(1-s,s)$ is non-monotonic in s. Multiple equilibria can then arise, and at least one interior equilibrium is locally unstable. This unstable interior allocation defines a school-level tipping threshold.

3.2 A village model of sorting across schools

We now embed schools in a village with multiple schools, where segregation is determined by how students are distributed across schools rather than by overall composition alone.

Consider a village with two schools, $j \in \{A, B\}$. Let $\bar{s} \in [0,1]$ denote the overall village minority share, treated as exogenous. Let $s_j \in [0,1]$ denote the share of minority students currently enrolled in school j. In any period, the village's minority students fill a share $\bar{s}$ of total seats, so the composition vector (s_A, s_B) is constrained to satisfy a village-level adding-up condition. For tractability we assume schools are equal in size and have equal baseline quality ($A_A = A_B$), so $\frac{1}{2}(s_A + s_B) = \bar{s}$, i.e., $s_B = 2\bar{s} - s_A$. The symmetry assumption ensures that the integrated allocation $s_A = s_B = \bar{s}$ is a fixed point of the enrollment dynamics derived below. The requirement that both shares lie in $[0,1]$ restricts s_A to the admissible interval $\mathcal{I}(\bar{s}) = [\max(0,\, 2\bar{s}-1),\, \min(1,\, 2\bar{s})]$. When $\bar{s} \le \frac{1}{2}$, this simplifies to $s_A \in [0, 2\bar{s}]$, so full segregation into school A ($s_A = 2\bar{s}$, $s_B = 0$) is feasible; when $\bar{s} > \frac{1}{2}$, the lower bound is positive. The stability analysis is local and holds in a neighborhood of $\bar{s}$ within $\mathcal{I}(\bar{s})$ for any $\bar{s} \in (0,1)$.

A household of group g choosing school j obtains utility

$$U_{jg} \;=\; A_j - \alpha_g\, s_j + \varepsilon_{jg}, \tag{3}$$

where A_j is a school-quality index, $\alpha_g \ge 0$ is group g's sensitivity to minority share, and ε_{jg} is an idiosyncratic preference shock, i.i.d. across households and schools. We maintain throughout:

Assumption 3 (Differential group sensitivity)**.** $\alpha_N > \alpha_M \ge 0$.

We assume ε_{jg} is distributed i.i.d. Type-I extreme value with scale parameter $\sigma > 0$, with standard discrete-choice results yielding the logit choice probability that a group-g household chooses school A:

$$P_A^g(s_A, s_B) \;=\; \frac{\exp\big[(A_A - \alpha_g s_A)/\sigma\big]}{\exp\big[(A_A - \alpha_g s_A)/\sigma\big] + \exp\big[(A_B - \alpha_g s_B)/\sigma\big]}. \tag{4}$$

Equivalently, letting $\Delta A = A_A - A_B$ and $\delta_g = \alpha_g/\sigma$,

$$P_A^g(s_A, s_B) \;=\; \frac{1}{1 + \exp\big[-(\Delta A/\sigma) + \delta_g(s_A - s_B)\big]}. \tag{5}$$

The complementary probability is $P_B^g = 1 - P_A^g$.

Two features of (5) are central to the tipping mechanism. First, $\partial P_A^g/\partial s_A < 0$: a higher minority share in school A reduces the probability that either group chooses it, but the reduction is larger for group N because $\delta_N > \delta_M$. Second, $\partial P_A^g/\partial s_A = -\partial P_A^g/\partial s_B$ (given the adding-up constraint), so that composition asymmetries between the two schools are the relevant margin.

Enrollment dynamics Next-period minority share in school A is the fraction of school A's students who are minority. Under the logit model, a share $\bar{s}$ of the village's students are minority and choose school A with probability P_A^M; a share $1 - \bar{s}$ are comparison-group students and choose school A with probability P_A^N. The resulting minority share in school A next period is:

$$s_A' \;=\; \frac{\bar{s}\, P_A^M(s_A,\, s_B)}{\bar{s}\, P_A^M(s_A,\, s_B) \;+\; (1 - \bar{s})\, P_A^N(s_A,\, s_B)}. \tag{6}$$

This formulation incorporates both groups' choices. The denominator is total enrollment in school A under the discrete-choice model; at $A_A = A_B$ and $s_A = s_B = \bar{s}$, both choice probabilities equal $\frac{1}{2}$, so the denominator equals $\frac{1}{2}$ and the integrated allocation is a fixed point. Imposing the adding-up constraint $s_B = 2\bar{s} - s_A$:

$$s_A' \;=\; \frac{\bar{s}\, P_A^M\big(s_A,\, 2\bar{s} - s_A\big)}{\bar{s}\, P_A^M\big(s_A,\, 2\bar{s} - s_A\big) \;+\; (1 - \bar{s})\, P_A^N\big(s_A,\, 2\bar{s} - s_A\big)} \;=:\; G(s_A;\, \bar{s}). \tag{7}$$

The adding-up constraint then determines $s_B' = 2\bar{s} - s_A'$. Equation (7) defines the one-dimensional dynamical system we analyze.

3.3 Segregation and tipping

Equilibrium and segregation An equilibrium is a fixed point of G:

$$s_A^* \;=\; G(s_A^*;\, \bar{s}). \tag{8}$$

The integrated allocation corresponds to $s_A^* = \bar{s}$. Define within-village segregation by the dissimilarity index:

$$S(s_A, s_B) \;=\; \frac{|s_A - \bar{s}|}{2\,\bar{s}(1-\bar{s})}, \tag{9}$$

where the adding-up constraint $s_B = 2\bar{s} - s_A$ implies $|s_A - \bar{s}| = |s_B - \bar{s}|$, so this expression coincides with the standard dissimilarity index $D = \frac{1}{2}\sum_j |M_j/M - N_j/N|$ for two equal-sized schools, normalized to $[0, 1]$. $S = 0$ at the integrated allocation and $S > 0$ whenever schools have unequal minority shares.

Stability The integrated allocation $s_A^* = \bar{s}$ is locally stable if $|G'(\bar{s};\, \bar{s})| < 1$. At $s_A = \bar{s}$ with $A_A = A_B$, both choice probabilities equal $\frac{1}{2}$ and their derivatives are $dP_A^g/ds_A\big|_{\bar{s}} = \delta_g/2$ where $\delta_g = \alpha_g/\sigma$. Applying the quotient rule to (7):

$$G'(\bar{s};\, \bar{s}) \;=\; \bar{s}(1-\bar{s})\,\frac{\alpha_M - \alpha_N}{\sigma}. \tag{10}$$

Since $\alpha_N > \alpha_M$ (Assumption 3), $G'(\bar{s};\, \bar{s}) < 0$. The integrated allocation is unstable when $|G'(\bar{s};\, \bar{s})| > 1$, i.e., when

$$\bar{s}(1-\bar{s}) \;>\; \frac{\sigma}{\alpha_N - \alpha_M}. \tag{11}$$

The instability condition depends on $\alpha_N - \alpha_M$: only the comparison group's *excess* sensitivity over the minority group drives tipping. Higher α_N lowers the tipping threshold; higher α_M raises it.

Proposition 1 (Tipping in school sorting)**.** *Suppose $A_A = A_B$ and $\alpha_N - \alpha_M > 4\sigma$. Then there exists a threshold*

$$\kappa \;=\; \frac{1 - \sqrt{1 - 4\sigma/(\alpha_N - \alpha_M)}}{2} \;\in\; \left(0,\, \tfrac{1}{2}\right) \tag{12}$$

in village minority share such that:

(i) For $\bar{s} < \kappa$ (or $\bar{s} > 1 - \kappa$), the integrated allocation $s_A = s_B = \bar{s}$ is locally stable: small perturbations to school composition are reversed.

(ii) For $\kappa < \bar{s} < 1-\kappa$, the integrated allocation is locally unstable: small perturbations grow in magnitude each period, and the system moves toward a persistent asymmetric allocation with $S > 0$, generating positive within-village segregation.

(iii) At $\bar{s} = \kappa$, the integrated allocation undergoes a stability transition, and within-village segregation S increases sharply as $\bar{s}$ crosses κ.

If $\alpha_N - \alpha_M \leq 4\sigma$, integration is stable for all $\bar{s} \in [0, 1]$.

Proof. See Appendix F. □

3.4 Endogenous school responses

School environments may adjust endogenously to student composition. We capture this by allowing the school quality index to depend on own minority share:

$$A_j \;=\; \bar{A}_j + \phi_j(s_j), \tag{13}$$

where $\bar{A}_j$ is a baseline quality level and ϕ_j is a continuously differentiable function.

Corollary 2 (Amplification)**.** *Suppose $\phi'_A = \phi'_B = \phi'(\bar{s})$ (symmetric quality response at the integrated allocation). The tipping threshold κ is unchanged by endogenous quality: the terms $\phi'(\bar{s})$ cancel in the differential sensitivity $\alpha_N^{\text{eff}} - \alpha_M^{\text{eff}} = \alpha_N - \alpha_M$. However, if $\phi'(\bar{s}) < 0$ (school quality falls with minority share), the stable asymmetric allocation involves greater composition divergence across schools, and school inputs move in the same direction as enrollment flows at the threshold κ. If $\phi'(\bar{s}) > 0$, institutional responses attenuate sorting above κ.*

Proof. See Appendix F. □

This corollary generates an additional empirical prediction: school inputs should exhibit discrete changes at the same threshold κ where enrollment flows switch sign, and the sign of the input response determines whether institutional adjustment amplifies or dampens tipping.

3.5 Empirical implications

The framework yields three testable predictions, each corresponding to the threshold $\kappa = \frac{1-\sqrt{1-4\sigma/(\alpha_N-\alpha_M)}}{2}$ in village minority share.

1. **Enrollment flows** The relationship between baseline village minority share $\bar{s}$ and the persistence of within-village composition deviations is nonlinear. For $\bar{s} < \kappa$, deviations in school-level minority shares decay back toward the

integrated allocation each period. For $\bar{s} > \kappa$, deviations grow in magnitude, with schools diverging toward a persistent between-school asymmetry. This implies a change in the autocorrelation structure of enrollment gaps at the threshold κ.

2. **Within-village segregation** Within-village segregation S is low and stable for $\bar{s} < \kappa$ and rises sharply as $\bar{s}$ crosses κ. In the limit of small σ, the increase is discontinuous at κ.

3. **School inputs and resources** If school quality responds endogenously to composition (Corollary 2), school inputs and public funding exhibit discrete changes at the same threshold κ, in the direction that amplifies or attenuates initial sorting.

Heterogeneity across social environments The tipping threshold κ falls when the comparison group's excess sensitivity $\alpha_N - \alpha_M$ is larger relative to preference dispersion σ. Higher α_N—stronger aversion by the dominant group to minority peer composition—generates instability at lower minority shares. Higher α_M works in the opposite direction, raising κ. This delivers the cross-sectional prediction tested in Section 7.1: tipping thresholds should be lower, and threshold responses stronger, in areas where caste-based social distance is more salient—that is, where the comparison group's sensitivity to minority composition is relatively high.

We test these predictions using a regression-discontinuity design centered on empirically estimated thresholds. The tipping threshold κ is not directly observed but is identified by the composition level at which enrollment flows cross zero, following Card et al. (2008). We then estimate discontinuous changes in segregation and school inputs around these estimated thresholds.

4 Data

Our analysis relies on a large-scale administrative census of schools covering the universe of recognized institutions in India. We define local schooling markets at the village level and construct measures of caste composition and within-market segregation using school-level enrollments. Below, we describe our key data sources and construction of indicators.

4.1 Schools

The Unified District Information System for Education (UDISE) is an annual, near-universal census of recognized schools from pre-primary through grade 12 produced by the Ministry of Education, Government of India.[9] This data collection began in 2005 and, as of the latest wave, UDISE provides detailed information on 1.49 million schools, 9.5 million teachers, and over 265 million students. We use their waves in 2005, 2009, 2014, 2015, 2016, and 2017.[10] We organize these snapshots into three intervals: 2005–2009, 2009–2014, and 2014–2017. This allows us to construct changes in caste enrollment shares over a fixed horizon, which provides the flow outcomes used to identify composition thresholds.

In this dataset, each school has detailed information on its location (state, district, block, village, and pincode), management type (public or private), and enrollment by grade, gender, and social category (General, Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC)). The dataset also reports staffing, infrastructure, and learning outcomes at the school-year level. We define villages as local schooling markets and treat the set of schools in a village as the relevant choice set when constructing segregation measures and tipping points, consistent with evidence that school choice in rural India is highly localized (Muralidharan and Kremer, 2008a; Andrabi et al., 2017).

4.2 Caste composition and segregation measures

We study how school environments change around locally relevant composition thresholds. This requires measuring both the caste composition of students attending schools and how unevenly caste groups are distributed across schools within a village. As discussed above, we work with two composition contrasts that are separately instructive and cumulatively holistic: General versus (SC+ST+OBC) and OBC versus (SC+ST).

For each school and year, we compute caste shares in enrollment for $g \in \{\mathrm{GEN}, \mathrm{SC}, \mathrm{ST}, \mathrm{OBC}\}$ as defined in Appendix A.

4.2.1 Segregation measures

We quantify within-village caste segregation using three complementary measures (full definitions and construction details are in Appendix B).

Dissimilarity Let $N_{\mathrm{MG},svt}$ and $N_{\mathrm{MAJ},svt}$ denote minority- and majority-group enrollment in school s in village v at time t, with village totals $N_{\mathrm{MG},vt}$ and $N_{\mathrm{MAJ},vt}$.

[9] UDISE+ website.

[10] Intermediate years contain duplicated and unreliable records. We restrict our core analysis to these clean cross-sections.

The dissimilarity index is

$$\mathfrak{D}_{vt} = \frac{1}{2} \sum_{s \in S(v)} \left| \frac{N_{\mathrm{MG},svt}}{N_{\mathrm{MG},vt}} - \frac{N_{\mathrm{MAJ},svt}}{N_{\mathrm{MAJ},vt}} \right|,$$

ranging from 0 (minority students distributed proportionally across all schools in the village) to 1 (full concentration in a subset of schools).

The isolation index,

$$\mathfrak{I}_{vt} = \sum_{s \in S(v)} \frac{N_{\mathrm{MG},svt}}{N_{\mathrm{MG},vt}} \cdot \frac{N_{\mathrm{MG},svt}}{N_{svt}},$$

captures a complementary dimension: the average minority share in the schools attended by minority students, measuring the extent to which minority students are exposed primarily to same-group peers.

Enrollment Quotients At the school level, the enrollment quotient for the minority group is

$$\mathfrak{Q}^{\mathrm{MG}}_{svt} = \frac{\text{MG Share}_{svt}}{\overline{\text{MG Share}}_{vt}},$$

where MG Share$_{svt} = N_{\mathrm{MG},svt} / N_{svt}$ and $\overline{\text{MG Share}}_{vt}$ is the village-wide enrollment-weighted minority share. A value of 1 means the school mirrors the village composition; values below 1 indicate under-representation and values above 1 indicate over-representation. We summarize the within-village distribution of $\ln \mathfrak{Q}$ with two dispersion measures: the enrollment-weighted mean absolute log EQ ($\mathfrak{Q}_{\mathrm{absld}}$) and the enrollment-weighted standard deviation of log EQ ($\mathfrak{Q}_{\mathrm{sdln}}$).

As shown in Appendix B.3, dissimilarity equals one-half the enrollment-weighted sum of absolute gaps between minority and majority EQs, so the village-level index and the school-level representation measures are algebraically linked. We compute all indices for both composition contrasts used in the paper (General versus SC+ST+OBC, and OBC versus SC+ST).

4.3 School inputs, funding, and learning outcomes

We use information on school inputs and outputs from UDISE, grouping inputs into three categories: physical infrastructure, teacher resources, and government grants. The components of the composite infrastructure index include the availability of computers, drinking water, electricity, and a library, as well as a measure of classroom condition; Appendix A.1 lists them in full. We combine them into a composite infrastructure score by standardizing each component within year and averaging.

For teaching resources, we use staffing levels and derived measures such as pupil–teacher ratios (PTR), and we use the number (or share) of teachers with at least a graduate degree as a proxy for teaching qualifications. We also use the total amount of grant funding received and spent by each school that finance school improvement projects, normalizing by student enrollment levels. These grants include resources that finance special training programs designed to integrate out-of-school children into age-appropriate grades in public schools.

On the output side, UDISE reports pass rates and the share of students scoring at least 60 percent on standardized examinations. We focus on the latter as our preferred measure for learning outcomes because they are less sensitive to no-detention policies and provide a more stable signal than binary pass/fail indicators.

4.4 Summary statistics and sample structure

Table 1 summarizes key features of the analysis sample. First, villages are small schooling markets: the typical village contains only a few schools, but both enrollment levels and caste composition vary widely across villages. Second, school-level caste shares are substantially more dispersed than village-level shares, consistent with meaningful within-village unevenness in where students enroll across schools. Third, the dissimilarity indices we use as our primary indicator for segregation are sizeable on average and highly variable across villages, both for the General versus SC+ST+OBC contrast and for the OBC versus SC+ST contrast, indicating substantial heterogeneity in within-market segregation intensity. Finally, the school indicators on learning outcomes, infrastructure, teacher resources, and per-student grant flows exhibit substantial dispersion, leaving scope for discrete changes in both school resources and learning environments around composition thresholds.

Table 2 reports district and school counts by year-pair (2005–2009, 2009–2014, and 2014–2017). Districts contain large numbers of schools on average, which is central for identifying district-level threshold objects.

Table 3 reports village and school counts by year-pair. Villages contain few schools in every interval, and the distribution is skewed with a long right tail. This limited within-village school count implies that village-specific non-linearities are difficult to estimate directly from school-level variation in narrow bandwidths, motivating the two-step approach that uses richer district-level school counts to anchor threshold estimation and then refines cutoffs to the village level.

5 Empirical strategy

5.1 Estimating district and village composition thresholds

We begin by estimating locally relevant tipping points—thresholds in caste composition at which enrollment, school quality, or segregation measures shift discretely rather than adjusting smoothly. We implement the threshold estimation procedure for both caste contrasts used throughout the paper: (i) *General versus (SC+ST+OBC)* and (ii) *OBC versus (SC+ST)*. The two-step approach—district threshold κ_d followed by village threshold κ_v—is motivated by the fact that villages are small schooling markets with few schools in each interval (Table 3), which makes direct village-level tipping-point estimation unstable for most villages. By contrast, districts contain large numbers of schools (Table 2), which allows the tipping region to be located precisely at the district level and then refined to the village level using only the information that is locally informative.

For each year-pair interval (2005–2009, 2009–2014, 2014–2017), we define a baseline minority composition measure and then construct flows—changes in caste enrollment shares from the baseline to the end of the interval—as the objects that reveal whether markets move away from integrated compositions once the baseline share crosses a threshold of the minority base.

Step 1: District anchor κ_d. We fix a district d and estimate a single district-level anchor κ_d using school-level observations pooled across the three intervals $\tau \in \{2005\text{–}2009, 2009\text{–}2014, 2014\text{–}2017\}$. The district anchor procedure is adapted from the fixed-point tipping approach in Card et al. (2008). We identify tipping by relating subsequent changes in group enrollment to the baseline group share, after removing district$\times$interval mean differences in enrollment flows.

Let $m_{id\tau}$ denote the baseline minority share associated with school i in district d during interval τ. We define the flow for the relevant majority group as

$$\Delta w_{id\tau} \equiv \frac{w_{i,\tau} - w_{i,0}}{N_{i,0}},$$

where $w_{i,0}$ and $N_{i,0}$ denote baseline majority-caste enrollment and total enrollment in school i, and $w_{i,\tau}$ denotes majority-caste enrollment at the end of interval τ. We remove district$\times$interval mean differences by demeaning this flow:

$$R_{id\tau} \equiv \Delta w_{id\tau} - \mathbb{E}[\Delta w_{id\tau} \mid d, \tau] \,.$$

The core object is a district-specific response function pooled across intervals,

$$R_d(m) \equiv \mathbb{E}[R_{id\tau} \mid m_{id\tau} = m, d],$$

which maps the baseline minority share to the expected demeaned flow within district d. We approximate $R_d(m)$ flexibly using a quartic polynomial in m and define the district anchor κ_d as the relevant zero crossing of the fitted relationship. Operationally, we fit the quartic using all school-interval observations in district d, after district×interval demeaning, and locate the value of m at which the predicted demeaned flow equals zero.

The zero crossing has an intuitive interpretation. Since $R_{id\tau}$ is defined relative to the district×interval mean, the condition $R_d(\kappa_d) = 0$ identifies the baseline minority share at which schools in district d are predicted to experience majority-caste enrollment changes that are, on average, in step with their district-specific interval trend. Baseline shares below and above κ_d are associated with different relative enrollment-flow regimes, so κ_d serves as the district-level composition threshold around which subsequent enrollment dynamics are expected to change sign.

Step 2: Village refinement via a local linear approximation around κ_d. The district anchor κ_d locates the region in which enrollment dynamics begin to change sign at the district level. The second step refines this anchor to a village-specific threshold using a local approximation around κ_d based on schools within each village. This refinement follows the workhorse logic of local polynomial methods used in regression discontinuity and related settings: in a sufficiently small neighborhood of a reference point, an unknown conditional expectation function can be well-approximated by a low-order (in particular, first-order) polynomial (Imbens and Lemieux (2008); Lee and Lemieux (2010); Calonico et al. (2014)).

Let $R_v(m)$ denote the village-specific response function that maps the baseline minority share m to the expected demeaned flow for schools in village v (holding district×interval effects fixed). In a neighborhood of the district anchor, a first-order Taylor expansion yields

$$R_v(m) \approx R_v(\kappa_d) + R'_v(\kappa_d)\,(m - \kappa_d), \tag{14}$$

so that locally the response is summarized by a village-specific level and slope evaluated at the district tipping region. Writing $\alpha_v \equiv R_v(\kappa_d)$ and $\beta_v \equiv R'_v(\kappa_d)$, we estimate (α_v, β_v) from a local linear regression of the demeaned flow on the centered baseline share $(m - \kappa_d)$ using school observations in village v and kernel weights that place greater weight on schools whose baseline composition lies closer to κ_d. This weighting implements the idea that observations near κ_d are most informative about the local slope and intercept that govern behavior in the tipping region (Imbens and Lemieux (2008); Lee and Lemieux (2010)).

Because many villages contain few schools, the village-specific local estimates $(\hat{\alpha}_v, \hat{\beta}_v)$ and the implied village thresholds derived from them can be noisy. We therefore partially pool village estimates toward the district anchor, paralleling the logic used when estimating noisy unit-level parameters such as teacher or firm effects, where shrinkage improves mean-squared error by stabilizing estimates in small samples (Kane and Staiger (2008); Chetty et al. (2014a); Card et al. (2013)).

The intercept α_v measures whether, at the district anchor κ_d, schools in village v are predicted to have flows above or below the district×interval trend. The slope β_v measures how sensitively those flows change with baseline composition in the neighborhood of κ_d. The implied (raw) village threshold is the baseline share at which the local approximation predicts zero demeaned flow:

$$\hat{\kappa}_v^{raw} = \kappa_d - \frac{\hat{\alpha}_v}{\hat{\beta}_v}. \tag{15}$$

Equivalently, $\hat{\kappa}_v^{raw}$ is the level at which the village-specific local relationship predicts that subsequent enrollment dynamics are neither above nor below the district×interval trend. This construction preserves the fixed-point interpretation of the district anchor while allowing villages to differ in both the level and the local slope of the response function in the tipping region. Mathematical details of this process are outlined in Appendix C.

This two-step approach is a partial-pooling estimator designed for thin village markets. We use the district to locate the tipping region with high precision and then recover village heterogeneity via a local correction around that region, shrinking noisy village estimates back toward the district anchor when villages have few schools. This is a setting where direct village tipping-point estimation would be unreliable because a root-finding step requires substantial support near the root and a non-flat local slope. The remedial two-step approach makes village-level thresholds feasible without restricting attention to an unrepresentative subset of large villages, where there is a high density of schools and thus the necessary support.

5.2 Regression discontinuity specifications around κ_v

Arriving at $\hat{\kappa}_v$ for the villages in our sample, we study how outcomes change as baseline composition crosses the village tipping point. For each school i in village v and interval τ, define the running variable

$$r_{iv\tau} \equiv m_{iv\tau} - \hat{\kappa}_v.$$

Here $m_{iv\tau}$ is the baseline minority share for school i in village v and interval τ, while $\hat{\kappa}_v$ is the village-level tipping threshold.

We estimate local polynomial specifications within a symmetric bandwidth $|r_{iv\tau}| \leq H$ that allow both a jump (a discontinuous change in level) and a kink (a discontinuous change in slope) at $r = 0$. A jump captures an immediate change in the level of an outcome when baseline composition moves from just below to just above the estimated threshold, holding the smooth relationship between outcomes and baseline composition fixed. A kink captures a change in the marginal relationship between the outcome and baseline composition at the threshold: the outcome may continue to vary smoothly at $r = 0$, but the slope of the outcome with respect to baseline composition changes discretely. In this context, a jump is consistent with an abrupt reallocation or discrete institutional response at the tipping point, whereas a kink is consistent with a change in the intensity of sorting or resource responses once the baseline share crosses the threshold.

Let $Y_{iv\tau}$ denote an outcome for school i in village v and interval τ, and let $D_{iv\tau} \equiv \mathbf{1}\{r_{iv\tau} \geq 0\}$. The baseline specification is

$$Y_{iv\tau} = \alpha + \delta\, D_{iv\tau} + \sum_{p=1}^{P} \beta_p r_{iv\tau}^p + \sum_{p=1}^{P} \gamma_p\, D_{iv\tau}\, r_{iv\tau}^p + \lambda_{d\tau} + \varepsilon_{iv\tau}, \tag{16}$$

where $\lambda_{d\tau}$ denotes district$\times$interval fixed effects. The parameter δ captures the jump at the threshold, while the interaction terms allow the polynomial relationship between outcomes and the running variable to differ on either side of the threshold. We estimate (16) for $P \in \{1, 2, 3\}$, fully interacting $D_{iv\tau}$ with $f(r_{iv\tau})$ up to order P.

We report standard errors clustered at the village level and bootstrap inference to incorporate uncertainty from estimating κ_d and κ_v.[11] The main tables set $H = 0.10$, meaning the RD specifications use observations within ten percentage points of the estimated village threshold $\hat{\kappa}_v$. This bandwidth is chosen to balance bias and precision given the within-village school counts described in Section 4.

To test whether sorting and responses differ by school ownership, we extend (16) by allowing the response to the threshold to differ for private schools relative to public schools. Let $\text{Private}_{iv\tau}$ indicate whether school i is privately managed. A

[11]Inference for κ_d and κ_v must account for the fact that thresholds are estimated objects obtained through a search and root-finding step. Because the tipping point is estimated via a search procedure, conventional large-sample approximations can be nonstandard when the threshold is not identified under the null. We therefore implement a cluster bootstrap at the village level. In each replicate, villages are resampled with replacement within district, and all school observations belonging to a village drawn m_v times receive weight m_v. These multiplicity weights preserve within-village dependence and propagate uncertainty from both the district threshold estimation and the village refinement step (Hansen (1996); Andrews (1993); Hansen (2000)).

parsimonious specification that allows the kink to differ by ownership is:

$$Y_{iv\tau} = \alpha + \delta\, D_{iv\tau} + \sum_{p=1}^{P} \beta_p r_{iv\tau}^{p} + \sum_{p=1}^{P} \gamma_p\, D_{iv\tau}\, r_{iv\tau}^{p} + \theta\,(D_{iv\tau}\, r_{iv\tau}) \times \text{Private}_{iv\tau} + \lambda_{d\tau} + \varepsilon_{iv\tau}, \tag{17}$$

where $r_{iv\tau}$ is the running variable, $D_{iv\tau} \equiv \mathbf{1}\{r_{iv\tau} \geq 0\}$, and $\lambda_{d\tau}$ denotes district$\times$interval fixed effects. The parameter θ captures differential kink heterogeneity for private schools.

When relevant, we also allow the jump to differ by ownership by adding a private-specific jump interaction:

$$\phi\, D_{iv\tau} \times \text{Private}_{iv\tau},$$

where ϕ captures the additional discrete change in the level of $Y_{iv\tau}$ at the threshold for private schools relative to government schools.

We apply (16) to all the outcome variables discussed above, and all results are reported separately for the two relevant composition contrasts.

6 Primary results

We evaluate the effect of sharp changes in enrollment dynamics at the estimated tipping point $\hat{\kappa}_v$ in three key places: (i) how caste composition evolves (enrollment shares), (ii) how measured inputs and public funding shift, and (iii) how segregation across schools within villages changes. The results differ in informative ways across the two caste partitions: General versus (SC+ST+OBC) exhibits regime changes at lower baseline disadvantaged-group shares, while OBC enrollment dynamics shift sharply only when baseline SC+ST shares are very high.

6.1 General versus (SC+ST+OBC)

Before turning to the RD estimates, we document where the estimated thresholds lie. For the General versus (SC+ST+OBC) contrast, Figure 1 shows that $\hat{\kappa}_v$ places substantial mass near zero. Many villages have estimated thresholds at very low baseline minority shares, so the enrollment system effectively operates in the post-threshold regime across much of its empirical support: even modest disadvantaged-group presence is associated with a discrete change in enrollment dynamics. These are genuine non-zero crossings of the enrollment flow function—not boundary artifacts—as confirmed by the fact that 394 of 638 districts (61.8%) yield a well-identified $\hat{\kappa}_d$ with a zero crossing strictly in the interior of the observed composition distribution (Section 7). The concentration at low shares reflects a substantive finding: the General-caste tipping region tends to occur early in the composition distribution. Figures 3 and 4 illustrate the estimation procedure for representative cases: $\hat{\kappa}_d$ is the zero-crossing of the quartic fit to demeaned enrollment flows at the district level, and $\hat{\kappa}_v$ is a local linear correction around that anchor using the village's own schools near the tipping region. Appendix C.4 documents that 68% of villages rely on the district anchor after shrinkage, consistent with the thin markets where direct village-level root-finding would be unreliable.[12]

We deploy our primary specification (equation 16), and see significant changes in enrollment composition, which is then associated with different post-threshold gradients.[13] Throughout, the outcome variables are endline enrollment flows—the change in each group's share over the subsequent interval—rather than the baseline shares used to construct $\hat{\kappa}_v$. Table 4 shows evidence of a regime change in enrollment dynamics at $\hat{\kappa}_v$. At the threshold, disadvantaged-group shares increase discretely: the jump is 1.00 percentage point for SC, 0.50 for ST, and 1.77 for OBC, implying a 3.48 percentage-point increase in the combined minority share, while the General-caste jump is small and not statistically distinguishable from zero (0.21 pp, $p = 0.71$). These patterns indicate that crossing the tipping point is associated with an immediate reallocation in enrollment composition toward disadvantaged groups.

The kink estimates capture how the marginal relationship between baseline composition and subsequent enrollment changes differs on either side of the threshold. The kink in the General-caste flow is negative (-0.2966) and the kink in the total minority flow is also strongly negative (-0.9220).[14] A useful way to interpret the sign pattern, which shows a positive jump for minority shares paired with negative kinks, is that the threshold is associated with an immediate step change in composition, but that further increases in baseline minority share beyond $\hat{\kappa}_v$ are associated with a flattening or reversal in the subsequent flow relationship.

[12]Appendix Table 25 provides the effective sample and matching process. In the General versus (SC+ST+OBC) analysis, 211,984 villages (67.81%) use the district κ_d directly after shrinkage, while 100,630 (32.19%) receive a village-refined estimate. Among the refined villages, the mean number of observations receiving meaningful kernel weight is 10.85 (tenth percentile: 6, ninetieth percentile: 18), with an effective sample size of approximately 9.03 (Appendix Table 26). The refinement is therefore estimating a local slope and intercept from a small but non-negligible set of informative observations near the district tipping region, not fitting a high-order village-level curve. Appendix Table 27 shows that reliance on the district anchor varies somewhat across the three intervals but remains substantial in each, consistent with persistently thin village markets throughout the sample period.

[13]Our conclusions in this analysis are robust to allowing higher-order flexibility ($P = 2, 3$). Appendix D.1 reports the full $P = 2$ and $P = 3$ tables.

[14]Throughout the results, jump coefficients for enrollment share and segregation index outcomes are expressed in percentage points (i.e., multiplied by 100). Kink coefficients retain their original units—the change in the outcome share per unit change in the running variable $r_{iv\tau}$—and are not rescaled.

In other words, we see a discrete shift in composition at the tipping point, followed by a different post-threshold mapping from baseline composition to subsequent enrollment changes.

Our analysis of village-level segregation outcomes provides direct evidence that the tipping point we are studying operates through within-village re-sorting across schools, not merely through uniform shifts in village-wide group shares. Table 9 shows a positive jump in dissimilarity of 1.45 percentage points, indicating that immediately above $\hat{\kappa}_v$, the distribution of General versus (SC+ST+OBC) students across schools becomes more uneven. This is a finding about the school-market itself: dissimilarity increases when different schools in the same village diverge more in their group composition.

The other segregation measures help interpret the direction of that unevenness and point towards a consonant insight. Exposure increases by 1.28 percentage points while isolation decreases by 1.28 percentage points at the threshold, indicating a discrete change in the average peer environment experienced by minority students. The threshold is associated with a reconfiguration of how groups are distributed across schools: some schools become more minority-concentrated (raising dissimilarity), while minority students on average become less isolated (consistent with some minority enrollment moving into schools where they are more exposed to non-minority peers). The enrollment-quotient variance has a strong negative kink (-2.9138), implying that the sensitivity of within-village over- and under-representation to baseline composition changes sharply at $\hat{\kappa}_v$. Taken together, these measures paint a consistent picture of a regime shift in within-village sorting patterns at the tipping point.

Next, we focus on how these changes in composition and segregation are associated with differences in downstream education outcomes. We find limited evidence of any similar sharp changes in learning outcomes at the threshold. Table 5 shows no statistically precise discontinuities in the share scoring at least 60% at $\hat{\kappa}_v$ across grades and gender. This does not rule out learning effects, but it suggests that the most immediate discontinuities operate through enrollment composition, inputs, and sorting rather than through measured achievement outcomes over the same interval horizon. [15]

Where we do see discrete changes is in the set of inputs and resources targeted at schools. We find a substantial increase in per-student grant intensity at the

[15] The share scoring at least 60% is a school-reported pass-rate measure with limited ability to detect modest learning effects. Third-party surveys have consistently documented a large gap between official pass rates—which are high across most Indian schools—and actual foundational learning levels: for instance, a substantial share of upper-primary students cannot read a simple Grade 2 text or perform basic arithmetic (ASER Centre, 2022, 2018). The compressed distribution of this variable across schools makes it a weak proxy for learning quality, and any composition-driven learning effects may therefore operate below its detection threshold.

tipping point, followed by a different post-threshold gradient. Table 6 shows large positive jumps in per-student grants received (Rs. 77.48) and spent (Rs. 76.35), together with a negative jump in the infrastructure index (-0.074 s.d.) and a positive jump in the probability of road approachability (4.12 pp). A discrete jump in per-student grant intensity at $\hat{\kappa}_v$ is consistent with a discrete shift in the level of school-level program activity under government grant programs. For instance, this could be explained by a change in the set of schools receiving (or utilizing) school/composite grant components for maintenance, teaching and learning materials, and related inputs once village composition crosses the tipping region. In this interpretation, the threshold coincides with a change in the realized planning and spending environment faced by schools, generating an abrupt change in recorded grants received and spent rather than a smooth adjustment with baseline composition.

The kinks for grants are strongly negative (around -940 for both received and spent), which suggests that grant intensity rises discretely at the threshold but then declines or grows less quickly as baseline minority shares move further above $\hat{\kappa}_v$, thus implying diminishing marginal increases in per-student funding as composition becomes more heavily disadvantaged.

Table 7 indicates that the teaching environment changes along multiple margins at $\hat{\kappa}_v$, and the signs imply a mixed but on net less favorable bundle at the threshold. On the one hand, PTR falls by 6.23, which improves the student-to-teacher ratio. However, given that General-caste enrollment drops discretely at the threshold while teacher assignments are subject to administrative inertia, this improvement is most plausibly driven by the loss of students rather than any increase in teaching capacity. On the other hand, the fraction of graduate teachers falls by 5.89 percentage points and total instructional days fall by about 37.94 days, both of which indicate a deterioration in teacher qualifications and instructional time. The positive kinks imply that these margins do not continue to evolve with baseline composition in the same way beyond the threshold: the relationship between baseline composition and PTR, graduate-teacher share, and instructional days becomes substantially different in the post-threshold region. Crossing the tipping point is thus associated with an immediate disruption in instructional capacity (fewer instructional days and lower measured teacher qualifications), even as PTR mechanically improves due to declining enrollment, and subsequent adjustments in the post-threshold region partially reshape these gradients rather than extending the pre-threshold trends.

Table 8 shows that these input changes are broad-based across infrastructure components. Because the component outcomes are standardized (year-by-year), the jump coefficients can be read as changes in standard-deviation units at the tipping point. Crossing $\hat{\kappa}_v$ is associated with discrete declines in the availability of computers (-0.105 s.d.), drinking water (-0.073 s.d.), electricity (-0.199 s.d.), libraries (-0.083 s.d.), and classroom-condition measures (-0.023 s.d.).[16] The corresponding kinks are positive and precisely estimated (e.g., 1.71 for computers and 2.78 for electricity), indicating that the relationship between baseline composition and infrastructure becomes less negative (or more positive) as baseline minority share moves further above $\hat{\kappa}_v$. Taken together, these patterns indicate that schools crossing the tipping point experience a discrete decline in their standing relative to the annual infrastructure distribution, followed by post-threshold gradients that differ from the pre-threshold relationship between baseline composition and infrastructure provision.

6.2 OBC versus (SC+ST)

The distribution of $\hat{\kappa}_v$ for the OBC versus (SC+ST) contrast is the mirror image of the General partition: Figure 2 shows that estimated thresholds concentrate near one, meaning sharp changes in OBC enrollment dynamics arise mainly in villages with exceptionally high baseline SC+ST shares. Across most of the observed SC+ST distribution the mapping from baseline composition to subsequent enrollment changes is comparatively smooth. This contrast in threshold location—regime shifts at low minority shares under the General-caste boundary versus very high shares under the within-disadvantaged-group boundary—motivates treating the two partitions separately and reinforces the model's prediction that instability depends on which group boundary governs relative sensitivity to peer composition.

The OBC versus (SC+ST) contrast is instructive precisely because it differs from the General versus (SC+ST+OBC) analysis in both where tipping occurs and how the threshold manifests. Under the General-caste partition, regime changes arise at relatively low disadvantaged-group shares and are associated with discrete level jumps in enrollment composition and grant intensity. Under the OBC versus (SC+ST) partition, tipping concentrates at the upper tail of the baseline SC+ST distribution, meaning regime changes arise only in more extreme composition environments, and the threshold response operates more through slope changes than level jumps. We proceed through the same set of outcomes, highlighting departures from the previous section.

Table 10 shows that the discontinuity at $\hat{\kappa}_v$ is not characterized by a discrete increase in OBC share: the OBC jump is small and not statistically precise. This

[16] Because each component is standardized within year, these jumps measure changes relative to the annual cross-sectional distribution of schools. A negative jump therefore reflects a decline in standing relative to the annual mean, which could partly arise from faster infrastructure improvement in schools that do not cross the tipping point, rather than absolute deterioration at threshold-crossing schools.

contrasts with the clear level shifts in SC, ST, and OBC shares documented under the General partition. Instead, the threshold here is associated with a discrete decline in the General-caste flow (jump of -4.46 pp) and in the total flow (jump of -4.78 pp), indicating that the regime change at very high SC+ST shares operates through the exit of higher-caste groups rather than a reallocation toward SC+ST students. The kinks are strongly negative for OBC (-0.8951) and for the total share (-1.1796), implying that the marginal relationship between baseline composition and subsequent enrollment changes becomes sharply more negative beyond the tipping region—a pattern that parallels the negative kinks in the General partition but is expressed more through gradients than jumps.

Segregation responds strongly when indices are computed as OBC versus (SC+ST). Table 14 shows a large positive jump in dissimilarity of 4.21 percentage points and a large negative kink (-1.0386), indicating a sharp increase in within-village unevenness at the tipping point and a different post-threshold gradient in sorting intensity. These dissimilarity effects are substantially larger than the 1.45 percentage-point jump documented under the General partition, consistent with particularly intense within-village re-sorting when the relevant caste boundary is between OBC and SC+ST groups at extreme composition levels. Exposure and isolation also shift sharply in opposite directions (-5.55 pp for exposure and $+5.55$ pp for isolation), pointing to a discrete change in the average peer environment experienced by OBC students once SC+ST shares become sufficiently high.

As under the General partition, Table 11 shows no robust discontinuities in the share scoring at least 60% at $\hat{\kappa}_v$ across grades and gender, reinforcing the interpretation that the most immediate discontinuities operate through enrollment composition and school inputs rather than contemporaneous achievement.

The most striking departure from the General partition is in grant responses. Table 12 shows that per-student grants received and spent fall discretely at the threshold (approximately Rs. -28.97 and Rs. -30.35), in contrast to the large positive grant jumps under the General versus (SC+ST+OBC) partition. This sign reversal is consistent with a different institutional margin becoming salient at very high SC+ST shares: rather than a discrete increase in program activity at the threshold, grant intensity contracts, possibly reflecting different administrative conditions in the most heavily disadvantaged composition environments. Teaching-resource responses also differ (Table 13): there is no statistically precise jump in pupil–teacher ratios, but there are positive jumps in the fraction of graduate teachers (1.38 pp) and instructional days (13.51 days), together with large positive kinks. Unlike the deterioration in teacher qualifications and instructional time documented under the General partition, teaching inputs here improve modestly at the threshold, suggesting that the institutional response to tipping in high SC+ST environments operates through a different mix of resource margins.[17]

6.3 Heterogeneity by school type

Differences between public and private schools provide an opportunity to investigate the differences in household behavior and the allocation of inputs in response to changing enrollment compositions. Private schools face different incentives and constraints than government schools, including fee-based revenue, scope for adjusting capacity, and different administrative exposure to public grants. As a result, sorting across sectors and differential adjustment by ownership should be visible in the post-threshold slopes of inputs and resources. We test this by estimating the ownership-heterogeneity specification in Section 5.2, which allows the post-threshold kink to differ for private schools.

6.3.1 General versus (SC+ST+OBC)

Tables 15–17 report heterogeneity by school type for the General versus (SC+ST+OBC) contrast. Evaluating private schools separately from public schools, we find three noteworthy insights.

First, post-threshold resource trajectories differ substantially between private and public schools for funding and the composite infrastructure index. The private-school kink interaction is positive and statistically significant for grants spent and received (approximately Rs. +693 and Rs. +641), implying that the post-threshold decline in per-student grant intensity observed in government schools is substantially attenuated (and may reverse) in private schools. We interpret this as consistent with a mechanism wherein the threshold coincides with shifts in sectoral composition and reporting of grant utilization: public schools remain the primary recipients of government grants, but private schools may differentially adjust inputs through non-grant channels (fees, donations, management discretion), generating different post-threshold gradients in measured resources. Two alternative interpretations deserve note. First, if higher-income families sort into private schools at the tipping point, private schools may gain fee revenue that substitutes for or supplements grant-linked funding, generating a different post-threshold resource trajectory through the demand side rather than the supply side. Second, differences in how private and public schools record and report grant utilization could contribute to the observed gradient difference, in which case the ownership heterogeneity partly reflects administrative reporting rather than actual resource adjustment. In the same table, the private-school kink

[17] These qualitative conclusions are robust to $P = 2$ and $P = 3$ specifications. Appendix D.2 reports the full tables.

interaction is also positive for the infrastructure index (+0.802), indicating that the post-threshold infrastructure gradient differs meaningfully by ownership in the tipping region.

Second, teaching-resource gradients change more sharply in private schools once the baseline share crosses $\hat{\kappa}_v$. The private-school kink interaction is large and positive for pupil–teacher ratios (+80.31), the fraction of graduate teachers (+54.85), and instructional days (+228.54). Because PTR is an inverse measure of staffing intensity, this implies that private schools exhibit a substantially different post-threshold staffing trajectory than government schools, while simultaneously showing stronger post-threshold gradients in teacher qualifications and instructional days. Unlike government school teachers, who are subject to administrative assignment and strong employment protections, private school staffing is more flexible in both directions. The positive PTR kink interaction for private schools is therefore most plausibly driven by student inflows—General-caste families sorting into the private sector post-threshold—rather than by teacher reductions, consistent with the sectoral reallocation mechanism. One interpretation is that the tipping region is associated with reallocation of students across sectors and differential adjustment by private schools along margins that are more managerial than administratively assigned.

Third, the component infrastructure results show broad-based ownership heterogeneity. Private schools have substantially larger post-threshold kink shifts for computers (+1.986 s.d.), drinking water (+1.282 s.d.), libraries (+1.342 s.d.), and good classrooms (+5.225 s.d.). To interpret the slope magnitudes: at a baseline minority share 10 percentage points above $\hat{\kappa}_v$—approximately the analysis bandwidth—these interactions imply that private schools have a differential of 0.20, 0.13, 0.13, and 0.52 standard deviations, respectively, relative to government schools. Since these outcomes are standardized, these differentials indicate economically large differences in post-threshold gradients across ownership types. In combination with the composite-index results, the component patterns suggest that the sectoral channel is not driven by any single facility.

Overall, the heterogeneity results by school ownership type indicate that the threshold is associated not only with changes in average inputs, but also with a reallocation and/or differential adjustment across ownership types, consistent with sorting across public and private schools being an important part of the mechanism.[18]

[18] As with our primary results, Appendix D.1 shows that these ownership-heterogeneity patterns remain qualitatively similar under $P = 2$ and $P = 3$ specifications.

6.3.2 OBC versus (SC+ST)

Tables 18–20 report ownership heterogeneity for the OBC versus (SC+ST) contrast, where the tipping region corresponds to very high baseline SC+ST shares. The sectoral channel remains visible, but differs from the General partition in two important respects: the grant-linked ownership differential is substantially weaker, and the composition of ownership heterogeneity shifts toward infrastructure and teaching margins.

The grant interactions are much less precisely estimated than in the General partition. Unlike the large and statistically significant private-school kink interactions on grants received and spent documented above, the composite results here show that post-threshold gradients differ by ownership primarily for road approachability and the infrastructure index rather than for grant flows. This is consistent with the broader finding that the grant response flips sign under the OBC versus (SC+ST) partition: in very high SC+ST environments, the institutional funding channel operates differently, and private schools do not exhibit the same divergence from government schools in measured grant trajectories.

Teaching-resource heterogeneity nonetheless remains economically meaningful. The private-school kink interactions indicate that private schools have different post-threshold gradients in staffing intensity, teacher qualifications, and instructional days than government schools in the high SC+ST region. While the specific magnitudes differ from the General partition, the directional pattern—private schools adjusting more flexibly along managerial margins—is consistent with sectoral sorting being active even when the relevant caste boundary is within disadvantaged groups.

Finally, the component infrastructure heterogeneity indicates that ownership differences persist across multiple provision margins, although the pattern is less uniformly strong than under the General partition. Taken together, the OBC versus (SC+ST) ownership results suggest that sectoral mechanisms remain relevant in extreme composition environments, but the strongest ownership differentiation is concentrated in resource and infrastructure margins rather than in grant-linked outcomes, reflecting the different institutional conditions under which this tipping region arises.[19]

7 Correlates of the threshold location

Our model predicts that tipping thresholds are lower where the comparison group's sensitivity to minority peer composition is greater, and higher where

[19] These qualitative conclusions are robust to $P = 2$ and $P = 3$ specifications. Appendix D.2 reports the full tables.

households face a more diverse schooling environment. We test both predictions by correlating estimated district tipping points $\hat{\kappa}_d$ with district-level proxies for caste-based social norms and local market structure.

Before turning to what predicts threshold location, we note that not all districts yield an estimated tipping point. A district-level threshold $\hat{\kappa}_d$ exists only when the enrollment flow function has a zero crossing over the observed range of baseline compositions—that is, when there is a composition level at which subsequent flows switch sign relative to the district trend. In districts where the flow function is monotone (always positive or always negative across observed compositions), no tipping point is detected. Of the 638 districts in our sample, 394 (61.8%) have an estimated $\hat{\kappa}_d$ and 244 (38.2%) do not, a pattern that holds identically across both caste contrasts. The correlates below therefore reflect two margins: the extensive margin (whether a tipping point exists at all) and the intensive margin (where it lies, conditional on existence). We report results for both.

7.1 Caste Salience and Norms

We use the district-level share of households reporting untouchability practices from the India Human Development Survey (IHDS) as a proxy for caste-based social distance.[20] Our model predicts that districts with stronger caste-based social norms will have lower tipping thresholds, since higher-status households in such environments are more sensitive to minority peer composition at lower shares.

Dividing districts into terciles of this measure, average estimated tipping points fall from approximately 0.77 in the lowest-untouchability tercile to 0.64 in the highest—a gradient of roughly 0.13, or about 17 percent of the mean. This is consistent with our model prediction: where social distance toward disadvantaged groups is more intense, higher-status households are sensitive to minority peer composition at lower shares, generating tipping behavior earlier in the composition distribution.

The tercile gradient above reflects the intensive margin—the location of $\hat{\kappa}_d$ conditional on its existence. Table 21 reports OLS regression results for both margins: the extensive margin (regressing $\mathbf{1}[\hat{\kappa}_d \text{ exists}]$ on the untouchability measure) and the intensive margin (the location of $\hat{\kappa}_d$ conditional on existence). The raw coefficient is negative and significant (approximately -0.21 to -0.31 depending on the margin and matching specification) but attenuates to near zero once state fixed

[20] The IHDS is a nationally representative household survey and it includes a direct question on whether households practice untouchability, capturing self-reported behavioral practices—such as refusing to share food, water, or domestic space with members of lower-caste groups—rather than merely stated attitudes, making it a direct indicator of the degree to which caste identity actively governs social interactions, particularly in assessing the norms among the more privileged groups directed at historically disadvantaged groups (Desai and Vanneman, 2015).

effects are added. Income and education controls do not restore the relationship. The intensive margin, when restricted to higher-density districts, yields somewhat larger within-state coefficients (-0.10 to -0.12), suggesting modest within-state heterogeneity where local markets are more active.

Figures 5 and 6 in Appendix E show the corresponding binscatter plots for the extensive and intensive margins.

7.2 Market Structure

A higher tipping threshold requires greater preference dispersion σ, so our model would predict that districts with richer outside options and more differentiated school markets have higher $\hat{\kappa}_d$. We examine five district-level variables at baseline: an outside option index (the average of standardized baseline private school share, private enrollment share, and log school count, capturing both the availability of private alternatives and the overall thickness of the local market), private school share, private enrollment share, urban school share, and baseline dissimilarity (SC+ST versus General). On the extensive margin all five are positively correlated with estimated tipping points ($\rho \approx 0.07$–0.22), consistent with the prediction. Table 22 shows, however, that all five attenuate substantially once state fixed effects and baseline composition are controlled for.

Both sets of correlations share the same qualitative structure: meaningful raw cross-sectional gradients that are largely absorbed by state fixed effects. The dominant variation in tipping point location operates at the state level, reflecting deep historical and institutional determinants of caste relations and schooling market structure. Within states, conditional on baseline composition, neither untouchability intensity nor market structure substantially predicts where thresholds lie. This pattern is consistent with a broader finding in the literature that the most salient determinants of caste relations and institutional conditions in India operate at the state level, reflecting deep historical differences in how caste-based political mobilization and patronage structures have developed across states (Chandra, 2004; Wilkinson, 2004).

8 Robustness

The main threshold patterns in Section 6 could in principle reflect two confounds: (i) composition changes driven by the *entry* of new schools rather than by the reallocation of existing students, and (ii) school-density gradients that mechanically generate apparent discontinuities in enrollment flows near certain composition values. We address both by re-estimating the full pipeline—threshold identification and RD specifications—across four alternative sample and market definitions that restrict the sample and the geographic scope of local markets in progressively more stringent ways. The four specifications are described below.

First, we evaluate a sample of entry-limited schools. School entry during an interval may generate discrete composition changes through supply expansion rather than through household reallocation. To isolate demand-side dynamics, we restrict the analysis to villages in which the number of schools does not increase during the interval. This removes the confound from new school entry while preserving a large sample ($N \approx 2{,}354{,}122$ school-interval observations). The entry-limited restriction asks whether threshold dynamics are evident even among villages where the school choice set is stable, which is the cleanest test of the tipping mechanism as modeled.

Second, we repeat the analysis from the specification above but with controls for density. The entry-limited sample may still contain variation in baseline school density that correlates with both baseline composition and subsequent enrollment flows. Controlling for baseline school density removes the concern that apparent threshold responses reflect density gradients rather than compositional dynamics. This specification retains the same sample as above but adds a flexible control for baseline school density within the local bandwidth.

Third, we construct an alternative definition of schooling markets, focusing on PIN (postal) codes. Tipping dynamics in the model operate within a local schooling market in which households can feasibly choose across schools. If the village contains schools that are geographically far apart, the assumption of a single market may be too broad. We address this by restricting to villages whose schools fall within a compact geographic area defined by a single PIN code prefix. This reduces the sample to $N \approx 1{,}613{,}094$ but strengthens the geographic coherence of the local market definition.

Fourth and last, we focus on a subset of schooling markets that are larger. We implement a distance-based compactness restriction, retaining only villages in which all schools fall within a radius corresponding to the 75th percentile of within-village inter-school distances. This produces the most restrictive sample ($N \approx 1{,}349{,}403$) but ensures the cleanest separation between within-market dynamics and cross-market composition spillovers.

Tables 23–24 report RD estimates for enrollment composition, segregation, and key input measures across the four specifications, separately for both types of caste contrasts. The main empirical patterns, i.e. positive jumps in within-village segregation, discrete changes in per-student grant intensity, and differential ownership responses, are qualitatively robust across all four specifications. The robustness to the entry-limited sample is key, and it confirms that the threshold responses observed in the main analysis are not artifacts of new school entry generating mechanical composition shifts. The robustness to compact market definitions also confirms that the results are not driven by geographically dispersed villages where the market definition is ambiguous. Quantitatively, the estimates are somewhat attenuated in the most restrictive specifications, consistent with the fact that compactness restrictions select villages in denser, more economically developed areas where sorting dynamics may be less extreme. The key insights are, however, qualitatively robust across all specifications.

9 Conclusion

This paper asks whether local schooling markets in India exhibit threshold behavior in response to caste composition change. Using a near-universal administrative panel of Indian schools, we estimate village-level tipping points from the relationship between baseline caste composition and subsequent enrollment flows, then quantify how enrollment, segregation, school inputs, and ownership patterns shift in a regression-discontinuity window around these thresholds.

Three findings stand out. First, tipping points are a real and detectable feature of these markets. Enrollment dynamics change regime at estimated thresholds rather than adjusting smoothly, and the location of these thresholds depends on which caste boundary defines the contrast. The General-versus-all partition produces tipping at relatively low disadvantaged-group shares; the OBC-versus-SC+ST partition concentrates at very high SC+ST shares, arising primarily in more extreme composition environments. Second, crossing a threshold reshapes the within-village sorting of students across schools. Dissimilarity and related segregation measures rise discontinuously in the tipping region, indicating that the mechanism operates through household reallocation within the local market, not merely through composition changes at the village level. Third, school environments and resource allocation respond at the same thresholds. Input margins and public funding measures shift sharply, while learning outcomes measured by passing rates respond more weakly—consistent with achievement adjusting more slowly than sorting or being measured with more noise over the relevant horizons. Ownership heterogeneity shows that these post-threshold changes differ systematically between government and private schools, providing direct evidence on mechanism: the tipping region induces both sectoral sorting and ownership-specific resource adjustment.

Two extensions characterize where thresholds lie. Tipping points are lower—minority-share thresholds occur earlier in the distribution—in districts with more intense untouchability practices, consistent with the prediction that stronger caste-based social distance generates tipping at lower composition levels. Market structure (private school presence, outside options, urbanization) is positively correlated with tipping point location in the cross section, but both gradients are largely absorbed by state fixed effects, pointing to deep historical and political determinants of caste relations as the dominant source of cross-district variation.

The results have practical implications. Policies aimed at reducing within-village segregation or equalizing school quality may need to account for the nonlinearity documented here: marginal composition shifts can have limited effects far from a threshold but large effects when markets are near one. Equity-oriented resource rules may also be partly offset by the institutional responses we document, which reallocate resources at the same thresholds where sorting intensifies. More broadly, the evidence that thresholds are lower where social norms are more intense suggests that norm-changing or anti-discrimination interventions, by reducing the sensitivity of higher-caste households to minority peer composition, could shift tipping points upward and stabilize more integrated allocations.

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Table 1: Summary Statistics (All India)

	Mean	**Std. Dev.**
Panel A: Village Characteristics (N= 567746)		
Schools per Village	3.33	7.71
Total Enrollment	6577.39	21170.44
SC Enrollment Share	13.69%	13.60%
ST Enrollment Share	12.80%	22.67%
OBC Enrollment Share	30.13%	22.54%
General Enrollment Share	43.37%	25.24%
Panel B: School Characteristics (N = 1.06mn/year)		
Total School Enrollment	247.00	414.00
SC Enrollment Share in School	14.48%	19.21%
ST Enrollment Share in School	14.22%	27.11%
OBC Enrollment Share in School	30.15%	28.63%
General Enrollment Share in School	41.15%	31.02%
Total Instruction Days	321.41	172.07
Grants Received per Student (Rs.)	207.52	1074.90
Grants Spent per Student (Rs.)	193.43	914.55
Age of School	34.96	64.35
Number of Teachers	5.89	7.53
Pct. Private	0.19%	0.39%
Pct. Urban	0.15%	0.35%
Share of Boys with Grade $\geq$ 60% (8th)	3.80%	18.05%
Share of Girls with Grade $\geq$ 60% (8th)	3.71%	16.15%
Infrastructure Index (z-score)	0.00	0.39
Panel C: Dissimilarity Indices		
SC+ST+OBC vs General Dissimilarity Index	29.34%	22.93%
OBC vs SC+ST Dissimilarity Index	30.35%	24.42%

Notes: Panel A reports village-level summary statistics averaged across the three intervals (2005–2009, 2009–2014, 2014–2017). Panel B reports school-level characteristics pooled across all interval-year observations; $N \approx 1.06$ million school-year observations per year. Enrollment shares are fractions of total enrollment. Grants are denominated in nominal Indian rupees. The Infrastructure Index is constructed as the first principal component of school facility indicators and standardized to mean zero and unit standard deviation. Panel C reports dissimilarity indices computed at the village level across the two caste contrasts. SC = Scheduled Caste; ST = Scheduled Tribe; OBC = Other Backward Class; General = upper-caste residual category.

Table 2: District and School Counts by Year-Pair

			Schools per District						
Interval	Districts	Schools	Mean	Std Dev	Median	P10	P90	Min	Max
2005–2009	452	803228	1777.05	1364.94	1547.00	268.00	3533.00	6	9045
2009–2014	579	1028855	1776.95	1386.00	1470.00	314.00	3571.00	1	9103
2014–2017	531	793779	1494.88	1260.00	1220.00	165.00	3140.00	26	6905

Notes: Each row corresponds to one estimation interval. Districts and Schools counts reflect the DISE sample used in the tipping-point analysis after dropping observations with missing caste enrollment shares. The distribution columns summarize the number of schools per district within each interval. Intervals are defined by the academic years used to compute enrollment changes: 2005–2009, 2009–2014, and 2014–2017.

Table 3: Village and School Counts by Year-Pair

			Schools per Village						
Interval	Villages	Schools	Mean	Std Dev	Median	P10	P90	Min	Max
2005–2009	316371	803228	2.54	4.32	2.00	1.00	5.00	1	966
2009–2014	424774	1028855	2.42	3.33	1.00	1.00	5.00	1	221
2014–2017	299630	793779	2.65	4.36	2.00	1.00	5.00	1	740

Notes: Each row corresponds to one estimation interval. Villages are defined as the smallest administrative unit in the DISE data and serve as the local schooling market in the analysis. The distribution columns summarize the number of schools per village within each interval. Villages with only a single school are included; the large maximum values reflect urban agglomerations.

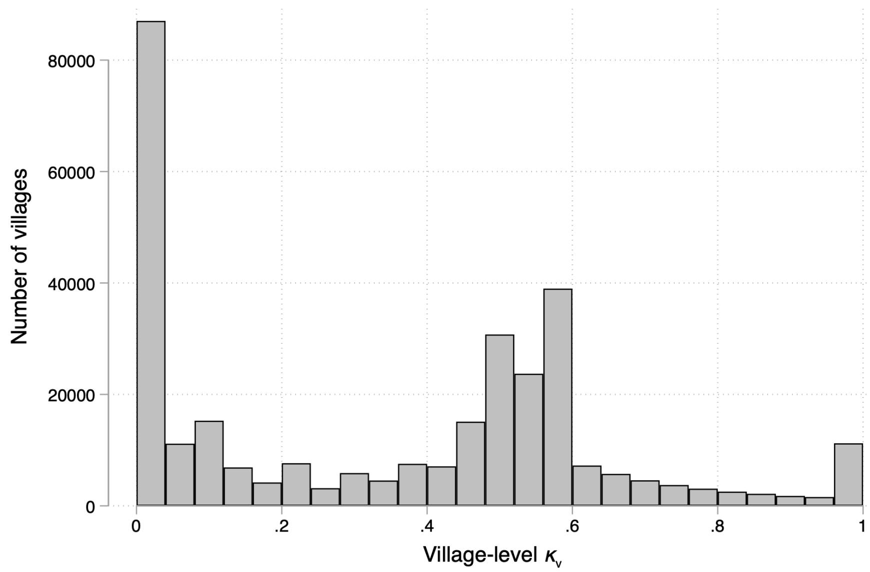

Figure 1: Distribution of $\hat{\kappa}_v$: General vs (SC+ST+OBC)

Notes: Each bar shows the number of villages whose estimated village-level tipping point $\hat{\kappa}_v$ falls in the corresponding bin of baseline SC+ST+OBC enrollment share. $\hat{\kappa}_v$ is constructed as a shrinkage-adjusted local refinement of the district tipping point $\hat{\kappa}_d$, estimated following the Card–Mas–Rothstein fixed-point procedure. The sample includes all villages with a valid tipping point estimate across the three estimation intervals (2005–2009, 2009–2014, 2014–2017).

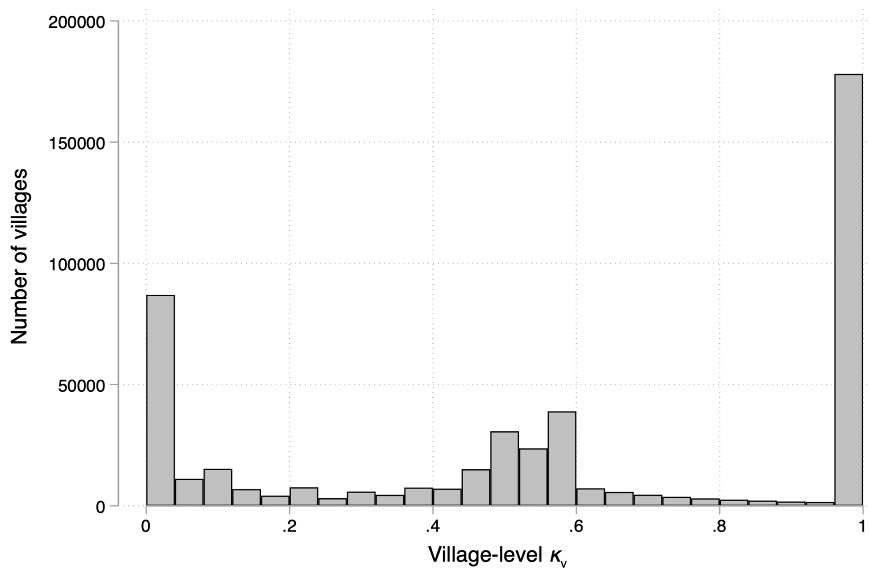

Figure 2: Distribution of $\hat{\kappa}_v$: OBC vs (SC+ST)

Notes: Each bar shows the number of villages whose estimated village-level tipping point $\hat{\kappa}_v$ falls in the corresponding bin of baseline SC+ST enrollment share. $\hat{\kappa}_v$ is constructed as a shrinkage-adjusted local refinement of the district tipping point $\hat{\kappa}_d$, estimated following the Card–Mas–Rothstein fixed-point procedure. The sample includes all villages with a valid tipping point estimate across the three estimation intervals (2005–2009, 2009–2014, 2014–2017).

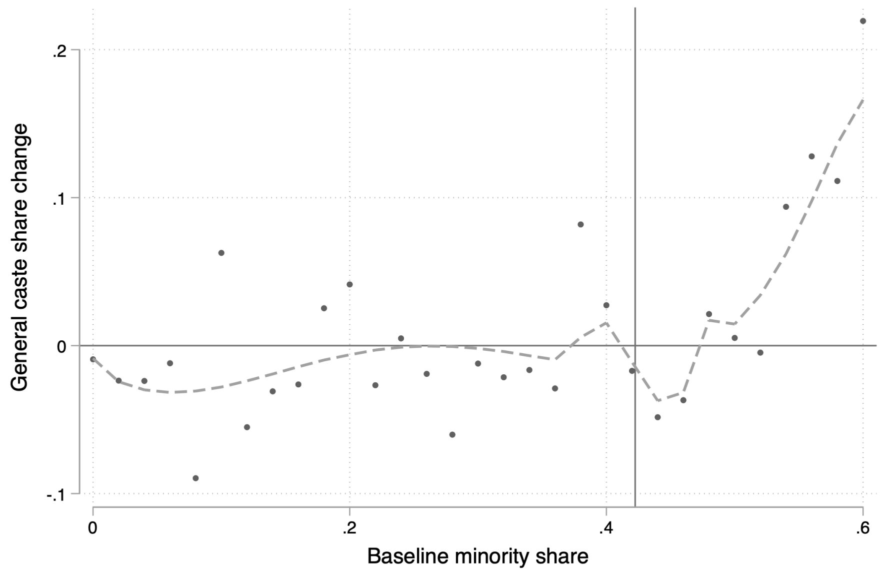

Figure 3: κ_d estimated in Dhubri, Assam (General vs SC+ST+OBC)

Notes: Each point is a school in Dhubri district, Assam. The horizontal axis is the school's baseline SC+ST+OBC enrollment share; the vertical axis is the subsequent change in General caste enrollment share, demeaned by district$\times$interval to remove common trends. The dashed curve is a local polynomial fit. The vertical line marks $\hat{\kappa}_d \approx 0.42$, the estimated district-level tipping point: the zero crossing of the enrollment flow function where General caste flows switch sign, estimated following the Card–Mas–Rothstein fixed-point procedure.

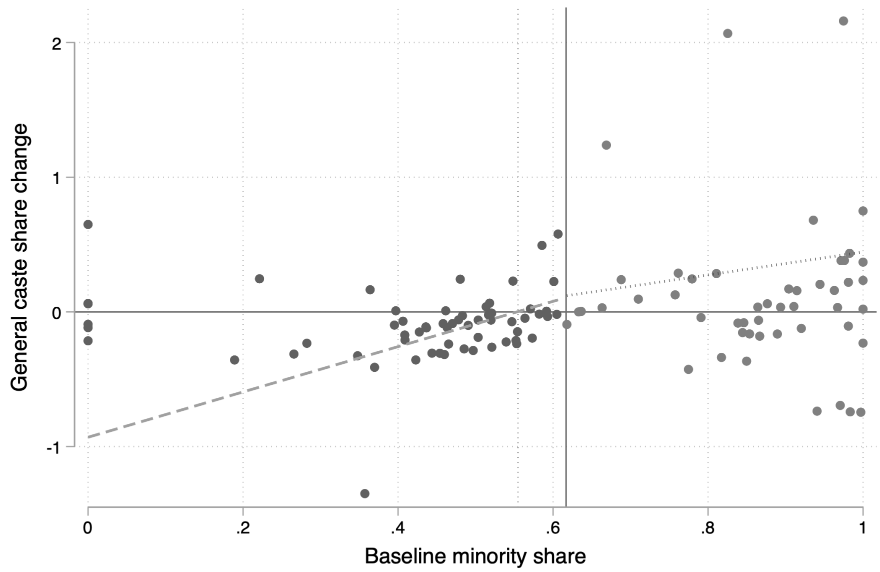

Figure 4: κ_v estimated in Kodumur, Andhra Pradesh (General vs SC+ST+OBC)

Notes: Each point is a school in Kodumur, Kurnool district, Andhra Pradesh. The horizontal axis is the school's baseline SC+ST+OBC share; the vertical axis is the subsequent change in General caste enrollment share, demeaned by village mean to remove common trends. The solid vertical line marks the village-level tipping point $\hat{\kappa}_v \approx 0.62$ (shrinkage-adjusted local refinement); the dotted vertical line marks the district anchor $\hat{\kappa}_d \approx 0.55$. The dashed curve is a local polynomial fit. Below $\hat{\kappa}_v$, General caste enrollment changes are near zero; above it, they are sharply negative — consistent with General caste households sorting away from schools whose minority share crosses the local threshold. This village illustrates a case where the village-level estimate lies above the district anchor, reflecting local composition shifted toward higher minority shares relative to the district average.

Table 4: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) GC	(2) SC	(3) ST	(4) OBC	(5) Total
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0021	0.0100***	0.0050***	0.0177***	0.0348***
	(0.0056)	(0.0022)	(0.0009)	(0.0048)	(0.0106)
p-value	0.7114	0.0000	0.0000	0.0002	0.0011
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.2966***	-0.2518***	-0.0674***	-0.3062***	-0.9220***
	(0.0975)	(0.0333)	(0.0201)	(0.0796)	(0.1563)
p-value	0.0024	0.0000	0.0008	0.0001	0.0000
Outcome summary statistics (estimation sample)					
DV mean	0.0180	0.0054	0.0026	0.0129	0.0388
N	458,246	458,246	458,246	458,246	458,246
Adj. R^2	0.2113	0.0148	0.0180	0.0096	0.1065

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.3998	-0.2452	-0.3269	-0.1850
	(1.2333)	(0.4877)	(1.0145)	(0.6884)
p-value	0.4809	0.4830	0.5320	0.5166
Kink: $\mathbf{1}\{r \geq 0\} \times r$	2.7806	28.3925*	-5.4680	20.3805
	(23.6911)	(10.9554)	(21.5349)	(24.4370)
p-value	0.4239	0.0578	0.4879	0.4271
Outcome summary statistics (estimation sample)				
DV mean	63.9238	64.3342	59.4678	61.6524
N	209,333	209,046	84,500	85,722
Adj. R^2	0.0218	0.0917	0.0790	0.0896

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0412***	-0.0739***	76.3468***	77.4781***
	(0.0020)	(0.0024)	(5.0759)	(7.1640)
p-value	0.0000	0.0000	0.0000	0.0001
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5012***	1.0408***	-939.9349***	-940.7177***
	(0.0405)	(0.0518)	(138.1025)	(163.7722)
p-value	0.0000	0.0000	0.0001	0.0003
Outcome summary statistics (estimation sample)				
DV mean	1.1166	-0.0082	237.3996	256.8263
N	507,703	509,122	509,122	509,122
Adj. R^2	0.2079	0.1202	0.0777	0.0739

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-6.2286***	-5.8888***	-37.9445***
	(0.2706)	(0.2015)	(0.9953)
p-value	0.0000	0.0000	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	45.3449***	77.6144***	532.7619***
	(5.8077)	(4.4426)	(22.6259)
p-value	0.0001	0.0000	0.0000
Outcome summary statistics (estimation sample)			
DV mean	39.6788	61.1054	306.1003
N	507,069	507,069	509,122
Adj. R^2	0.1772	0.2695	0.3006

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.1047***	-0.0729***	-0.1990***	-0.0828***	-0.0233***
	(0.0065)	(0.0057)	(0.0063)	(0.0058)	(0.0063)
p-value	0.0000	0.0000	0.0000	0.0000	0.0095
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.7105***	1.0037***	2.7826***	1.0926***	0.4481**
	(0.1483)	(0.1206)	(0.1344)	(0.1241)	(0.1360)
p-value	0.0000	0.0000	0.0000	0.0000	0.0169
Outcome summary statistics (estimation sample)					
DV mean	-0.0299	-0.0033	-0.0448	0.0165	-0.0201
N	509,122	481,946	508,202	508,927	478,217
Adj. R^2	0.0504	0.0630	0.1003	0.1193	0.0622

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: RD terms at κ_v (jump and kink): Segregation Indices

	(1) Dissimilarity	(2) Exposure	(3) Isolation	(4) Enrollment Quotient (variance)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0145***	0.0128***	-0.0128***	0.0276
	(0.0018)	(0.0017)	(0.0017)	(0.0156)
p-value	0.0000	0.0000	0.0000	0.1768
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.9229***	0.0321	-0.0321	-2.9138***
	(0.0360)	(0.0376)	(0.0376)	(0.3118)
p-value	0.0000	0.4137	0.4137	0.0000
Outcome summary statistics (estimation sample)				
DV mean	0.1174	0.4137	0.5863	0.1092
N	206,364	206,364	206,364	206,364
Adj. R^2	0.1499	0.5224	0.5224	0.0960

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) GC	(2) SC	(3) ST	(4) OBC	(5) Total
RD terms at κ_v					
Jump: $1\{r \geq 0\}$	-0.0446***	-0.0020	0.0012	-0.0023	-0.0478***
	(0.0071)	(0.0025)	(0.0011)	(0.0061)	(0.0123)
p-value	0.0000	0.4155	0.2850	0.7051	0.0001
Kink: $1\{r \geq 0\} \times r$	0.1593	-0.3820***	-0.0618***	-0.8951***	-1.1796***
	(0.1321)	(0.0563)	(0.0203)	(0.1132)	(0.2183)
p-value	0.2280	0.0000	0.0023	0.0000	0.0000
Outcome summary statistics (estimation sample)					
DV mean	0.2399	0.0135	0.0046	0.0138	0.2718
N	464,990	464,990	464,990	464,990	464,990
Adj. R^2	0.1764	0.0132	0.0290	0.0117	0.0871

Notes: The running variable is $r \equiv minority\_base - \kappa_v$, where *minority_base* is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 11: RD terms at κ_v (jump and kink) and outcome summary statistics: share scoring $\geq 60\%$

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.8848	-0.5209	-1.0727	-0.6658
	(1.3584)	(1.0094)	(0.9772)	(1.3928)
p-value	0.4413	0.4415	0.3219	0.4589
Kink: $\mathbf{1}\{r \geq 0\} \times r$	9.4401	16.2178	2.0512	30.0738
	(16.9495)	(16.4408)	(18.6416)	(45.6402)
p-value	0.3773	0.3591	0.4980	0.4954
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is $r \equiv \textit{minority\_base} - \kappa_v$, where *minority_base* is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 12: RD terms at κ_v (jump and kink) and outcome summary statistics: infrastructure

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0070	0.0081	-30.3527**	-28.9726*
	(0.0035)	(0.0036)	(7.2079)	(8.5435)
p-value	0.1733	0.1627	0.0217	0.0507
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5769***	1.3010***	-1,476.8***	-1,646.0***
	(0.0581)	(0.0685)	(140.156)	(161.211)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is $r \equiv minority\_base - \kappa_v$, where *minority_base* is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 13: RD terms at κ_v (jump and kink) and outcome summary statistics: teaching

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5328	1.3767**	13.5110***
	(0.3989)	(0.3095)	(1.6275)
p-value	0.2152	0.0373	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	53.5230***	103.486***	667.966***
	(8.3063)	(5.8574)	(31.6477)
p-value	0.0057	0.0000	0.0000
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.311
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is $r \equiv minority\_base - \kappa_v$, where *minority_base* is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 14: RD terms at κ_v (jump and kink): Segregation Indices

	(1) Dissimilarity	(2) Exposure	(3) Isolation	(4) Enrollment Quotient (variance)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0421***	-0.0555***	0.0555***	0.0402
	(0.0028)	(0.0031)	(0.0031)	(0.0462)
p-value	0.0000	0.0000	0.0000	0.3941
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-1.0386***	1.0565***	-1.0565***	-2.9602***
	(0.0467)	(0.0547)	(0.0547)	(0.4897)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	0.0997	0.5916	0.4084	0.1782
N	106,785	106,785	106,785	106,785
Adj. R^2	0.1358	0.4844	0.4844	0.0396

Notes: The segregation indices are computed for the *OBC versus (SC+ST)* contrast. The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level OBC share. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) procedure using the *OBC versus (SC+ST)* composition contrast. We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 15: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0084	-0.0575***	-2.0230	0.2515
	(0.0043)	(0.0076)	(4.3978)	(5.0748)
p-value	0.1653	0.0000	0.4550	0.5022
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5080***	0.8759***	-848.2986***	-826.6187***
	(0.0448)	(0.0545)	(162.1343)	(192.9005)
p-value	0.0000	0.0000	0.0016	0.0048
Kink$\times\mathbf{1}\{Private\}$	0.2156*	0.8020***	693.2688***	641.9407**
	(0.0862)	(0.1543)	(167.3002)	(198.4301)
p-value	0.0856	0.0082	0.0060	0.0276
Outcome summary statistics (estimation sample)				
DV mean	1.1166	-0.0082	237.3996	256.8263
N	507,703	509,122	509,122	509,122
Adj. R^2	0.2093	0.1212	0.0843	0.0791

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 16: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.9210	-3.6419***	-31.0130***
	(1.0284)	(0.5073)	(3.3914)
p-value	0.3407	0.0000	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	29.8911***	64.7628***	423.2637***
	(5.0016)	(4.8793)	(22.2994)
p-value	0.0001	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	80.3074**	54.8452***	228.5358**
	(21.7572)	(11.0053)	(69.7265)
p-value	0.0220	0.0092	0.0325
Outcome summary statistics (estimation sample)			
DV mean	39.6788	61.1054	306.1003
N	507,069	507,069	509,122
Adj. R^2	0.1775	0.2712	0.3302

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$ (where `govt_private`$= 1$ indicates private). District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.1191***	-0.0639**	-0.0441*	-0.1034***	-0.1504***
	(0.0256)	(0.0157)	(0.0158)	(0.0188)	(0.0173)
p-value	0.0018	0.0272	0.0523	0.0006	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.1001***	0.7833***	2.6221***	1.0856***	-0.6684***
	(0.1269)	(0.1317)	(0.1441)	(0.1276)	(0.1472)
p-value	0.0000	0.0000	0.0000	0.0000	0.0017
Kink$\times\mathbf{1}\{Private\}$	1.9864***	1.2823**	-0.8280*	1.3415**	5.2252***
	(0.5248)	(0.3188)	(0.3300)	(0.3893)	(0.3595)
p-value	0.0082	0.0163	0.0772	0.0172	0.0000
Outcome summary statistics (estimation sample)					
DV mean	-0.0299	-0.0033	-0.0448	0.0165	-0.0201
N	509,122	481,946	508,202	508,927	478,217
Adj. R^2	0.0673	0.0630	0.1150	0.1282	0.0741

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 1, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$ (where `govt_private`= 1 indicates private). District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 18: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0070	0.0081	-30.3527**	-28.9726*
	(0.0035)	(0.0036)	(7.2079)	(8.5435)
p-value	0.1733	0.1627	0.0217	0.0507
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5769***	1.3010***	-1476.8000***	-1646.0000***
	(0.0581)	(0.0685)	(140.1560)	(161.2110)
p-value	0.0000	0.0000	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	-0.0861	-0.1935	389.8180	358.3180
	(0.1130)	(0.1303)	(291.7820)	(351.7310)
p-value	0.4378	0.3952	0.4071	0.4322
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification allowing both a jump and a kink at $r = 0$ and allow the kink to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 19: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5121	1.2573**	13.3386***
	(0.4024)	(0.3054)	(1.6350)
p-value	0.2250	0.0450	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	54.2249***	104.2450***	668.2040***
	(8.3036)	(5.8549)	(31.6516)
p-value	0.0052	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	-14.7428	-0.2790	57.8245
	(14.7929)	(11.7312)	(90.1184)
p-value	0.3249	0.4905	0.4559
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification allowing both a jump and a kink at $r = 0$ and allow the kink to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 20: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0374**	-0.0108	0.0552***	-0.0250**	0.0366**
	(0.0101)	(0.0080)	(0.0090)	(0.0085)	(0.0091)
p-value	0.0127	0.2751	0.0034	0.0487	0.0157
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.7922***	0.7450***	2.5998***	1.3868***	1.1417***
	(0.2064)	(0.1560)	(0.1702)	(0.1579)	(0.1742)
p-value	0.0000	0.0017	0.0000	0.0000	0.0001
Kink$\times\mathbf{1}\{Private\}$	0.2758	0.6466**	0.6887*	0.4094	0.6860*
	(0.4759)	(0.2326)	(0.3851)	(0.3514)	(0.3660)
p-value	0.2860	0.0408	0.0824	0.2253	0.0697
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification allowing both a jump and a kink at $r = 0$ and allow the kink to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 21: Untouchability Norms and District Tipping Points

	Extensive margin		Intensive margin	
	Raw OLS	State FE	Raw OLS	State FE
Panel A: General vs. (SC+ST+OBC)				
Untouchability rate (weighted)	-0.266**	-0.022	-0.214***	-0.049
	(0.113)	(0.165)	(0.066)	(0.099)
State FE	No	Yes	No	Yes
Observations	350	350	244	244
R^2	0.016	0.208	0.037	0.245
Panel B: OBC vs. (SC+ST)				
Untouchability rate (weighted)	-0.266**	-0.022	-0.214***	-0.049
	(0.113)	(0.165)	(0.066)	(0.099)
State FE	No	Yes	No	Yes
Observations	350	350	244	244
R^2	0.016	0.208	0.037	0.245

Notes: Outcome in columns (1)–(2) is an indicator for whether a district tipping point $\hat{\kappa}_d$ exists (extensive margin); outcome in columns (3)–(4) is the level of $\hat{\kappa}_d$ conditional on existence (intensive margin). Sample: districts matched to IHDS via exact, fuzzy-high, or fuzzy-mid crosswalk. State FE columns include state fixed effects. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 22: Market Structure Correlates of District Tipping Points

	General vs. (SC+ST+OBC)		OBC vs. (SC+ST)	
	Raw OLS	State FE	Raw OLS	State FE
Panel A: Extensive margin (tipping point exists)				
Outside option index	0.122***	0.071	0.122***	0.071
	(0.036)	(0.044)	(0.036)	(0.044)
N	441	441	441	441
Private school share (2009)	0.589***	0.510*	0.589***	0.510*
	(0.211)	(0.277)	(0.211)	(0.277)
N	441	441	441	441
Private enrolment share (2009)	0.207	0.291	0.207	0.291
	(0.139)	(0.185)	(0.139)	(0.185)
N	441	441	441	441
Urban school share (2009)	0.500***	0.303*	0.500***	0.303*
	(0.101)	(0.168)	(0.101)	(0.168)
N	441	441	441	441
Baseline dissimilarity (SC vs. General)	0.007***	0.004*	0.007***	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)
N	441	441	441	441
Panel B: Intensive margin (tipping point level, $\hat{\kappa}_d$)				
Outside option index	-0.013	-0.012	-0.013	-0.012
	(0.022)	(0.027)	(0.022)	(0.027)
N	281	281	281	281
Private school share (2009)	-0.185	-0.053	-0.185	-0.053
	(0.129)	(0.157)	(0.129)	(0.157)
N	281	281	281	281
Private enrolment share (2009)	-0.022	0.061	-0.022	0.061
	(0.086)	(0.127)	(0.086)	(0.127)
N	281	281	281	281
Urban school share (2009)	-0.098	0.008	-0.098	0.008
	(0.061)	(0.081)	(0.061)	(0.081)
N	281	281	281	281
Baseline dissimilarity (SC vs. General)	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
N	281	281	281	281

Notes: Each cell reports an OLS coefficient from a regression of the district tipping point outcome on the row variable. Panel A outcome: indicator for tipping point existence. Panel B outcome: estimated tipping point level $\hat{\kappa}_d$, conditional on existence. State FE columns include state fixed effects. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 23: Robustness: Enrollment Composition Jumps at $\hat{\kappa}_v$ — General vs. (SC+ST+OBC)

	(1) Entry-limited	(2) Entry-ltd. + density	(3) Compact (PIN)	(4) Compact (km p75)
Jump at $\hat{\kappa}_v$ (treat coefficient, pp)				
General caste	-0.032	-0.033	-0.036	-0.038
Scheduled Caste	-0.006	-0.006	-0.008	-0.007
Scheduled Tribe	-0.000	-0.000	-0.000	-0.000
OBC	-0.018	-0.018	-0.014	-0.016
Total	-0.057	-0.057	-0.058	-0.062
Kink at $\hat{\kappa}_v$ (tr1 coefficient)				
General caste	-0.281	-0.284	-0.455	-0.284
Scheduled Caste	-0.173	-0.171	-0.164	-0.183
Scheduled Tribe	-0.037	-0.035	-0.042	-0.068
OBC	-0.222	-0.219	-0.181	-0.200
Total	-0.713	-0.710	-0.843	-0.735
N (schools)	2,354,122	2,354,122	1,613,094	1,349,403

Notes: Each cell reports the RD jump or kink coefficient from equation (16) estimated on the indicated sample restriction. Spec (1): villages with no net school entry during the interval. Spec (2): same as (1) with baseline school density control. Spec (3): villages whose schools share a single PIN code prefix, plus density control. Spec (4): villages where all schools lie within the 75th-percentile inter-school radius, plus density control. District×interval fixed effects and village-clustered standard errors in all specifications. Bandwidth $H = 0.10$, polynomial order $P = 1$.

Table 24: Robustness: Enrollment Composition Jumps at $\hat{\kappa}_v$ — OBC vs. (SC+ST)

	(1) Entry-limited	(2) Entry-ltd. + density	(3) Compact (PIN)	(4) Compact (km p75)
Jump at $\hat{\kappa}_v$ (treat coefficient, pp)				
General caste	-0.050	-0.054	-0.056	-0.051
Scheduled Caste	-0.003	-0.004	-0.006	-0.003
Scheduled Tribe	0.000	0.000	0.001	0.001
OBC	-0.006	-0.007	-0.011	-0.004
Total	-0.059	-0.066	-0.072	-0.057
Kink at $\hat{\kappa}_v$ (tr1 coefficient)				
General caste	0.216	0.180	0.216	0.136
Scheduled Caste	-0.362	-0.370	-0.293	-0.354
Scheduled Tribe	-0.057	-0.059	-0.037	-0.069
OBC	-0.867	-0.873	-0.796	-0.868
Total	-1.069	-1.122	-0.910	-1.154
N (schools)	2,354,122	2,354,122	1,613,094	1,349,403

Notes: Each cell reports the RD jump or kink coefficient from equation (16) estimated on the indicated sample restriction. Spec (1): villages with no net school entry during the interval. Spec (2): same as (1) with baseline school density control. Spec (3): villages whose schools share a single PIN code prefix, plus density control. Spec (4): villages where all schools lie within the 75th-percentile inter-school radius, plus density control. District×interval fixed effects and village-clustered standard errors in all specifications. Bandwidth $H = 0.10$, polynomial order $P = 1$.

Appendix

A Definitions of Key Variables

This appendix defines the main variables used in the analysis. Unless noted otherwise, variables are defined at the school–year level. Schools are indexed by s, villages (local schooling markets) by v, districts by d, and calendar years by t.

Total enrollment is N_{svt} and Scheduled Caste (SC) enrollment is N^{SC}_{svt}. When relevant, we also refer to enrollment of General, OBC, and ST students as N^{GEN}_{svt}, N^{OBC}_{svt}, and N^{ST}_{svt}, respectively.

Throughout, "percent" means that the underlying ratio has been multiplied by 100. Variables marked "(std)" denote a within–calendar-year z-score (mean 0, standard deviation 1) computed across schools in that year.

The main empirical analysis works with changes in school and village outcomes between two survey waves. We index intervals by $\tau \in \{2005\text{–}2009,\ 2009\text{–}2014,\ 2014\text{–}2017\}$. For any school-level variable Y_{svt} observed at the beginning (t_0) and end (t_1) of interval τ, the corresponding change is

$$\Delta Y_{sv\tau} \equiv Y_{svt_1} - Y_{svt_0}.$$

A.1 Outcome variables

Enrollment composition

School-level caste shares (levels). For group $g \in \{\mathrm{GEN}, \mathrm{SC}, \mathrm{OBC}, \mathrm{ST}\}$,

$$\mathrm{Share}^{g}_{svt} \equiv 100 \times \frac{N^{g}_{svt}}{N_{svt}}.$$

Changes in school-level caste shares. For each caste group g and interval τ,

$$\Delta\mathrm{Share}^{g}_{sv\tau} \equiv \mathrm{Share}^{g}_{svt_1} - \mathrm{Share}^{g}_{svt_0}.$$

In the empirical tables, we denote these as $\Delta s^{\mathrm{GEN}}_{sv\tau}$, $\Delta s^{\mathrm{SC}}_{sv\tau}$, etc.

School resources

Grants received per capita (Rs. per student).

$$\mathrm{GrantsRec}_{svt} \equiv \frac{\text{Grants received}_{svt}}{N_{svt}}.$$

Grants spent per capita (Rs. per student).

$$\text{GrantsExp}_{svt} \equiv \frac{\text{Grants spent}_{svt}}{N_{svt}}.$$

Pupil–teacher ratio (PTR). Let Teachers_{svt} denote the number of teachers in school s in year t,

$$\text{PTR}_{svt} \equiv \frac{N_{svt}}{\text{Teachers}_{svt}}.$$

Fraction of teachers with a graduate degree. Let $\text{GradTeachers}_{svt}$ denote the number of teachers in school s in village v in year t who have at least a graduate degree, and let Teachers_{svt} denote the total number of teachers. We define the fraction of graduate-qualified teachers as

$$\text{FracGradTeachers}_{svt} \equiv \frac{\text{GradTeachers}_{svt}}{\text{Teachers}_{svt}}.$$

Infrastructure components. Let $X_{svt}^{(k)}$ denote the k-th infrastructure component for school s in year t. The list of components includes:

- Electricity availability
- Drinking water availability
- % functional toilets, boys
- % functional toilets, girls
- % classrooms that are good
- % classrooms that do not need repair
- # computers
- ICT Lab availability
- Library availability
- Playground availability
- # medical check-ups
- Ramp availability for children with disabilities

We construct year-standardized (z) versions of each component:

$$Z_{svt}^{(k)} \equiv \frac{X_{svt}^{(k)} - \overline{X}_{\cdot\cdot t}^{(k)}}{\mathrm{sd}\left(X_{\cdot\cdot t}^{(k)}\right)},$$

where $\overline{X}_{\cdot\cdot t}^{(k)}$ and $\mathrm{sd}\left(X_{\cdot\cdot t}^{(k)}\right)$ are the mean and standard deviation of $X^{(k)}$ across all schools in year t.

Average infrastructure quality (std). Let K denote the number of components. The infrastructure index is

$$\mathrm{InfraIndex}_{svt} \equiv \frac{1}{K} \sum_{k=1}^{K} Z_{svt}^{(k)}.$$

Learning outcomes

Share scoring at least 60% (by grade and gender). For grade $G \in \{5, 8\}$ and gender $g \in \{\text{boys}, \text{girls}\}$, define

$$\mathrm{Pass}{\geq}60\%_{g,G,svt} \equiv 100 \times \frac{\#\{\text{students of group } g \text{ in grade } G \text{ with score} \geq 60\%\}}{\#\{\text{students of group } g \text{ in grade } G \text{ who took the exam}\}}.$$

B Segregation Measures and Enrollment-Quotient Relationships

This appendix describes the measures used to quantify caste segregation within village-level schooling markets. We use (i) the canonical school-side dissimilarity index, which aggregates how unevenly minority students are distributed across schools within a village, and (ii) school-level enrollment quotients (EQ), which compare a school's minority share to its village benchmark and provide within-village variation in representation. We summarize the distribution of EQs within each village using dispersion measures such as the enrollment-weighted mean absolute log EQ and the enrollment-weighted standard deviation of log EQ. Finally, we formalize the algebraic link between enrollment quotients and village-level dissimilarity.

To keep notation general, we refer to the minority group as MG and the majority group as MAJ.

B.1 Dissimilarity and related indices

Village-level dissimilarity index (school-side). We construct canonical dissimilarity indices for enrollments within every village, following Asher et al. (2024). Let $S(v)$ denote the set of schools in village v, and let $N_{\text{MG},svt}$ and $N_{\text{MAJ},svt}$ denote MG and MAJ enrollment in school s in year t. Define village totals $N_{\text{MG},vt} = \sum_{s \in S(v)} N_{\text{MG},svt}$ and $N_{\text{MAJ},vt} = \sum_{s \in S(v)} N_{\text{MAJ},svt}$. The school-side dissimilarity index is

$$\text{DISSIMILARITY}_{vt} = \frac{1}{2} \sum_{s \in S(v)} \left| \frac{N_{\text{MG},svt}}{N_{\text{MG},vt}} - \frac{N_{\text{MAJ},svt}}{N_{\text{MAJ},vt}} \right|. \tag{18}$$

A dissimilarity index close to 1 indicates that minority students are highly concentrated in a small subset of schools, while a value near 0 corresponds to an even distribution across schools.

Isolation index.

$$\text{ISOLATION}_{vt} \equiv \sum_{s \in S(v)} \left(\frac{N_{\text{MG},svt}}{N_{\text{MG},vt}} \right) \left(\frac{N_{\text{MG},svt}}{N_{svt}} \right),$$

where $N_{svt} = N_{\text{MG},svt} + N_{\text{MAJ},svt}$ is total enrollment in school s.

Exposure index (minority to majority). Let A_{svt} denote MG enrollment, B_{svt} MAJ enrollment, and $T_{svt} = A_{svt} + B_{svt}$ total enrollment. Let $A_{vt} = \sum_{s \in S(v)} A_{svt}$. The exposure index is

$$\text{Exposure}_{vt}^{A \to B} \equiv \sum_{s \in S(v)} \left(\frac{A_{svt}}{A_{vt}} \right) \left(\frac{B_{svt}}{T_{svt}} \right).$$

B.2 Enrollment quotients and within-village dispersion

For school s in village v at time t, define the enrollment quotient for the minority group as

$$\text{EQ}_{svt}^{\text{MG}} \equiv \frac{\dfrac{N_{\text{MG},svt}}{N_{\text{MG},svt} + N_{\text{MAJ},svt}}}{\dfrac{N_{\text{MG},vt}}{N_{\text{MG},vt} + N_{\text{MAJ},vt}}} = \frac{\text{MG Share}_{svt}}{\overline{\text{MG Share}_{vt}}}. \tag{19}$$

A value of 1 indicates that the school's MG share equals the village-wide MG share; values below 1 indicate under-representation, and values above 1 indicate over-representation. Analogously define $\mathrm{EQ}^{\mathrm{MAJ}}_{svt}$.

Log EQ and village-level dispersion. Let $\alpha_{svt} \equiv N_{svt} / \sum_{s' \in S(v)} N_{s'vt}$ denote the enrollment share of school s. We construct:

$$\mathrm{EQ\_absld}_{vt} \equiv \sum_{s \in S(v)} \alpha_{svt} \left| \ln \mathrm{EQ}^{\mathrm{MG}}_{svt} \right| \quad \text{(enrollment-weighted mean absolute log EQ)},$$

$$\mathrm{EQ\_sdln}_{vt} \equiv \sqrt{\sum_{s \in S(v)} \alpha_{svt} \left(\ln \mathrm{EQ}^{\mathrm{MG}}_{svt} \right)^2} \quad \text{(enrollment-weighted standard deviation of log EQ)}.$$

B.3 Algebraic link between dissimilarity and enrollment quotients

Recall (18) and the enrollment quotients. Let $N_{vt} = N_{\mathrm{MG},vt} + N_{\mathrm{MAJ},vt}$ and define the summand as $T_{svt} = |N_{\mathrm{MG},svt}/N_{\mathrm{MG},vt} - N_{\mathrm{MAJ},svt}/N_{\mathrm{MAJ},vt}|$. One can show that

$$T_{svt} = \left| \alpha_{svt} \left(\mathrm{EQ}^{\mathrm{MG}}_{svt} - \mathrm{EQ}^{\mathrm{MAJ}}_{svt} \right) \right|,$$

so that

$$\mathrm{DISSIMILARITY}_{vt} = \frac{1}{2} \sum_{s \in S(v)} \left| \alpha_{svt} \left(\mathrm{EQ}^{\mathrm{MG}}_{svt} - \mathrm{EQ}^{\mathrm{MAJ}}_{svt} \right) \right|. \tag{20}$$

Zero dissimilarity corresponds to $\mathrm{EQ}^{\mathrm{MG}}_{svt} = 1$ for all s, i.e., minority students are evenly represented across schools.

C Threshold Estimation Details: Demeaning, Local Regression, and Shrinkage

This appendix provides additional implementation detail for the village refinement step in Section 5.1. The unit of observation is the school. We index schools by i, villages by v, districts by d, and year-pair intervals by τ. The district anchor κ_d is estimated once per district, using school-level observations pooled across intervals after removing district×interval mean differences in enrollment flows.

C.1 Demeaning and the flow outcome

We remove district–interval level differences by subtracting the district×interval mean:

$$R_{id\tau} \equiv \Delta g_{id\tau} - \mathbb{E}[\Delta g_{id\tau} \mid d, \tau]. \tag{21}$$

This demeaning step ensures that the flow outcome used in the threshold estimation is measured relative to the district-specific trend in each interval.

C.2 Exact village-level regression and local weights

Let $x_i \equiv m_{id\tau} - \kappa_d$ and $y_i \equiv R_{id\tau}$. For each village v, we estimate

$$y_i = \alpha_v + \beta_v x_i + \varepsilon_i, \qquad i \in v, \tag{22}$$

using Gaussian kernel weights

$$\omega_i(\kappa_d) = \exp\left(-\frac{1}{2}\left(\frac{|x_i|}{h_v}\right)^2\right), \tag{23}$$

where h_v is chosen by a K-nearest-neighbor bandwidth rule. The weights place greater emphasis on schools whose baseline composition lies closer to the district anchor κ_d. The implied raw village threshold is

$$\hat{\kappa}_v^{raw} = \kappa_d - \frac{\hat{\alpha}_v}{\hat{\beta}_v}. \tag{24}$$

This is the baseline minority share at which the village-specific local linear approximation predicts zero demeaned flow.

C.3 Shrinkage toward the district anchor

Because many villages contain few schools, the raw village-level correction can be noisy. We therefore apply variance-based shrinkage toward the district anchor:

$$\hat{\kappa}_v = \kappa_d + w_v\left(\hat{\kappa}_v^{raw} - \kappa_d\right), \qquad w_v \in [0, 1], \tag{25}$$

where w_v is smaller when the estimated variance of $\hat{\kappa}_v^{raw}$ is large. When the village-level estimate is imprecise, the final threshold remains closer to the district anchor; when the village-level estimate is more precise, the final threshold places more weight on the local refinement.

C.4 Threshold Estimation Diagnostics

Table 25: Shrinkage usage (village level)

	Count	Share (%)
Used district kappa	211984	67.810
Used village refinement	100630	32.190
Total villages	312614	100

Table 26: Kernel-local diagnostics (village level)

Variable	N	Mean	P10	P50	P90	[Min, Max]
N_v meaningful weights (*Nwin*)	105050	10.85	6.00	9.00	18.00	[6.00, 248.00]
Effective sample size (N_{eff})	105050	9.03	5.78	7.38	13.74	[5.64, 221.73]
Kernel bandwidth used (h)	105050	0.456	0.100	0.426	0.926	[0.100, 1.000]
Slope t-stat (*tstat*; winsorized p1–p99)	102312	1.10	-0.79	0.84	3.28	[-2.74, 8.44]

Clipped t-stats outside [p1, p99]: 2047 villages.

Table 27: Share of villages effectively using district kappa, by interval

Interval	Villages using $\kappa_{village}$	Share using $\kappa_{village}$	Mean *Nwin*	P10–P90 *Nwin*	Median N_{eff}
2005–2009	206120	0.443	10.88	[6.00, 18.00]	7.34
2009–2014	280155	0.352	10.84	[6.00, 18.00]	7.37
2014–2017	211944	0.421	11.06	[6.00, 18.00]	7.44

D Main Results: Robustness to Higher-Order Polynomials

D.1 General versus (SC+ST+OBC)

D.1.1 Robustness to $P = 2$

Table 28: RD terms at κ_v (jump and kink)

	(1) GC	(2) SC	(3) ST	(4) OBC	(5) Total
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0064	0.0108***	0.0060***	0.0182***	0.0286**
	(0.0077)	(0.0026)	(0.0013)	(0.0065)	(0.0136)
p-value	0.4076	0.0000	0.0000	0.0049	0.0359
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-1.7115***	-0.9469***	-0.4045***	-1.5951***	-4.6580***
	(0.3419)	(0.1029)	(0.0733)	(0.2792)	(0.5074)
p-value	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 2, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 29: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.8848	-0.5209	-1.0727	-0.6658
	(1.3584)	(1.0094)	(0.9772)	(1.3928)
p-value	0.4413	0.4415	0.3219	0.4589
Kink: $\mathbf{1}\{r \geq 0\} \times r$	9.4401	16.2178	2.0512	30.0738
	(16.9495)	(16.4408)	(18.6416)	(45.6402)
p-value	0.3773	0.3591	0.4980	0.4954
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 2, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 30: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0070	0.0081	-30.3527**	-28.9726*
	(0.0035)	(0.0036)	(7.2079)	(8.5435)
p-value	0.1733	0.1627	0.0217	0.0507
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5769***	1.3010***	-1476.8000***	-1646.0000***
	(0.0581)	(0.0685)	(140.1560)	(161.2110)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 2, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 31: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5328	1.3767**	13.5110***
	(0.3989)	(0.3095)	(1.6275)
p-value	0.2152	0.0373	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	53.5230***	103.4860***	667.9660***
	(8.3063)	(5.8574)	(31.6477)
p-value	0.0057	0.0000	0.0000
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 2, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 32: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0374**	-0.0108	0.0552***	-0.0250**	0.0366**
	(0.0101)	(0.0080)	(0.0090)	(0.0085)	(0.0091)
p-value	0.0127	0.2751	0.0034	0.0487	0.0157
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.7922***	0.7450***	2.5998***	1.3868***	1.1417***
	(0.2064)	(0.1560)	(0.1702)	(0.1579)	(0.1742)
p-value	0.0000	0.0017	0.0000	0.0000	0.0001
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 2, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 33: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-3.3218	-1.8697	-4.0027	-0.4855
	(1.6480)	(1.3703)	(3.4938)	(1.4776)
p-value	0.0967	0.2741	0.3060	0.5114
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-60.2851	44.3928	-96.7992	32.4349
	(96.2716)	(40.9357)	(69.6265)	(80.9797)
p-value	0.4678	0.3195	0.2284	0.4990
Kink$\times\mathbf{1}\{Private\}$	224.2000	28.7407	274.1000	44.3988
	(113.2)	(56.2108)	(131.1)	(106.8)
p-value	0.0865	0.4508	0.0629	0.4653
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,935	127,889	54,431	55,133
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 34: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0125	-0.0726	0.3230	1.9995
	(0.0048)	(0.0080)	(6.9861)	(8.9813)
p-value	0.0641	0.0000	0.4700	0.4308
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-1.9180	3.6734	-3,867.2	-4,002.1
	(0.1506)	(0.1837)	(502.5)	(666.6)
p-value	0.0000	0.0000	0.0000	0.0035
Kink$\times\mathbf{1}\{Private\}$	-0.0843	-0.0716	48.1063	-86.8523
	(0.1701)	(0.2297)	(454.0)	(623.8)
p-value	0.4605	0.5127	0.4657	0.4420
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,426	297,728	297,728	297,728
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 35: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-2.8703	-4.6753	-38.9822
	(1.0576)	(0.5489)	(3.5490)
p-value	0.0781	0.0000	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	139.8	254.4	1,482.0
	(20.4934)	(16.0028)	(75.9559)
p-value	0.0005	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	-48.1044	-55.8607	-585.0
	(36.1909)	(23.5754)	(139.1)
p-value	0.4094	0.4420	0.4650
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,555	296,555	297,728
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 36: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.1370	-0.0788	-0.0778	-0.1229	-0.1529
	(0.0263)	(0.0169)	(0.0169)	(0.0197)	(0.0185)
p-value	0.0005	0.0128	0.0008	0.0001	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	5.1375	3.2176	9.5696	4.8670	0.3781
	(0.4813)	(0.4298)	(0.4728)	(0.4392)	(0.4801)
p-value	0.0000	0.0000	0.0000	0.0000	0.4285
Kink$\times\mathbf{1}\{Private\}$	0.6384	0.3534	0.9225	0.3361	0.6583
	(0.8210)	(0.6476)	(0.6730)	(0.6235)	(0.7757)
p-value	0.4382	0.4546	0.3869	0.4513	0.4234
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,728	275,853	297,352	297,636	279,668
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 37: RD terms at κ_v (jump and kink): Segregation Indices

	(1) Dissimilarity	(2) Exposure	(3) Isolation	(4) Enrollment Quotient (variance)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0612***	-0.0013	0.0013	0.1397***
	(0.0026)	(0.0026)	(0.0026)	(0.0274)
p-value	0.0000	0.3486	0.3486	0.0039
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.7605***	-0.2301***	0.2301***	-3.3128***
	(0.0451)	(0.0469)	(0.0469)	(0.4189)
p-value	0.0000	0.0026	0.0026	0.0000
Outcome summary statistics (estimation sample)				
DV mean	0.1014	0.4740	0.5260	0.1772
N	131,674	131,674	131,674	131,674
Adj. R^2	0.1793	0.4378	0.4378	0.1169

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.1.2 Robustness to $P = 3$

Table 38: RD terms at κ_v (jump and kink)

	(1) GC	(2) SC	(3) ST	(4) OBC	(5) Total
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0025	0.0129***	0.0057***	0.0283***	0.0444***
	(0.0101)	(0.0028)	(0.0019)	(0.0079)	(0.0166)
p-value	0.8024	0.0000	0.0026	0.0004	0.0076
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-3.2318***	-1.6581***	-0.7507***	-1.8764***	-7.5169***
	(0.8251)	(0.2743)	(0.1735)	(0.6581)	(1.3083)
p-value	0.0001	0.0000	0.0000	0.0044	0.0000

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order 3, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 39: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-1.4640	-0.9730	-1.6475	-1.0722
	(1.8027)	(1.3527)	(1.1896)	(1.8123)
p-value	0.3948	0.4027	0.2707	0.4511
Kink: $\mathbf{1}\{r \geq 0\} \times r$	23.6190	52.6995	21.0610	132.4870
	(32.2795)	(35.4596)	(37.1756)	(95.2790)
p-value	0.4078	0.4033	0.4613	0.4609
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv$ `minority_base` $- \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 40: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0086	0.0048	-34.8244**	-34.2623**
	(0.0045)	(0.0043)	(9.6142)	(11.1970)
p-value	0.2104	0.2999	0.0321	0.0428
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.7761***	1.6080***	-2286.4000***	-2553.7000***
	(0.0788)	(0.0839)	(191.2660)	(206.1060)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 41: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5268	1.1148**	11.5970***
	(0.4814)	(0.3637)	(2.0177)
p-value	0.3146	0.0302	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	84.6510***	153.6790***	988.8170***
	(11.7795)	(8.1911)	(44.1114)
p-value	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 42: RD terms at κ_v (jump and kink) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0450***	-0.0174	0.0642***	-0.0249**	0.0530***
	(0.0122)	(0.0097)	(0.0109)	(0.0101)	(0.0117)
p-value	0.0058	0.1768	0.0000	0.0489	0.0018
Kink: $\mathbf{1}\{r \geq 0\} \times r$	2.5813***	1.2547***	3.8052***	2.3312***	2.2372***
	(0.2894)	(0.2347)	(0.2522)	(0.2330)	(0.2583)
p-value	0.0000	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 43: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-4.7401***	-2.2256*	-1.1424	-1.2181
	(1.4655)	(1.1782)	(1.0977)	(1.4466)
p-value	0.0126	0.0955	0.3110	0.3776
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-3.7805	-10.8353	3.4559	25.2793
	(17.9612)	(16.7416)	(19.0565)	(45.6262)
p-value	0.4617	0.4540	0.4860	0.4945
Kink$\times\mathbf{1}\{Private\}$	56.1729	58.1187	17.3680	15.7574
	(49.7073)	(50.8914)	(48.2524)	(72.2515)
p-value	0.3222	0.3484	0.4798	0.4934
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 44: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index (z score)	(3) Grants Exp. (per capita, Rs.)	(4) Grants Recd. (per capita, Rs.)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0070	0.0081	-30.3527**	-28.9726*
	(0.0035)	(0.0036)	(7.2079)	(8.5435)
p-value	0.1733	0.1627	0.0217	0.0507
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5769***	1.3010***	-1476.8000***	-1646.0000***
	(0.0581)	(0.0685)	(140.1560)	(161.2110)
p-value	0.0000	0.0000	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	-0.0861	-0.1935	389.8180	358.3180
	(0.1130)	(0.1303)	(291.7820)	(351.7310)
p-value	0.4378	0.3952	0.4071	0.4322
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 45: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5121	1.2573**	13.3386***
	(0.4024)	(0.3054)	(1.6350)
p-value	0.2250	0.0450	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	54.2249***	104.2450***	668.2040***
	(8.3036)	(5.8549)	(31.6516)
p-value	0.0052	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	-14.7428	-0.2790	57.8245
	(14.7929)	(11.7312)	(90.1184)
p-value	0.3249	0.4905	0.4559
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 46: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0374**	-0.0108	0.0552***	-0.0250**	0.0366**
	(0.0101)	(0.0080)	(0.0090)	(0.0085)	(0.0091)
p-value	0.0127	0.2751	0.0034	0.0487	0.0157
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.7922***	0.7450***	2.5998***	1.3868***	1.1417***
	(0.2064)	(0.1560)	(0.1702)	(0.1579)	(0.1742)
p-value	0.0000	0.0017	0.0000	0.0000	0.0001
Kink$\times\mathbf{1}\{Private\}$	0.2758	0.6466**	0.6887*	0.4094	0.6860*
	(0.4759)	(0.2326)	(0.3851)	(0.3514)	(0.3660)
p-value	0.2860	0.0408	0.0824	0.2253	0.0697
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 47: RD terms at κ_v (jump and kink): Segregation Indices

	(1) Dissimilarity	(2) Exposure	(3) Isolation	(4) Enrollment Quotient (variance)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0612***	-0.0013	0.0013	0.1397***
	(0.0026)	(0.0026)	(0.0026)	(0.0274)
p-value	0.0000	0.3486	0.3486	0.0039
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.7605***	-0.2301***	0.2301***	-3.3128***
	(0.0451)	(0.0469)	(0.0469)	(0.4189)
p-value	0.0000	0.0026	0.0026	0.0000
Outcome summary statistics (estimation sample)				
DV mean	0.1014	0.4740	0.5260	0.1772
N	131,674	131,674	131,674	131,674
Adj. R^2	0.1793	0.4378	0.4378	0.1169

Notes: The running variable is the baseline minority share relative to the village tipping point, $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline SC+ST+OBC share and κ_v is the village-level tipping point constructed as a Taylor approximation around the district tipping point κ_d (estimated following the Card–Mas–Rothstein fixed-point strategy). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.2 OBC versus (SC+ST)

D.2.1 Robustness to $P = 2$

Table 48: RD terms at κ_v (jump and kink)

	(1) GC	(2) SC	(3) ST	(4) OBC	(5) Total
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0543***	-0.0005	0.0018	-0.0020	-0.0551***
	(0.0099)	(0.0033)	(0.0014)	(0.0082)	(0.0161)
p-value	0.0000	0.8769	0.2250	0.8076	0.0006
Kink: $\mathbf{1}\{r \geq 0\} \times r$	0.5738	-0.9263***	-0.1945***	-2.7837***	-3.3306***
	(0.4247)	(0.1670)	(0.0754)	(0.3995)	(0.7046)
p-value	0.1766	0.0000	0.0099	0.0000	0.0000

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level. Bandwidth = 0.10, polynomial order $P = 2$. Bootstrap standard errors based on $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 49: RD terms at κ_v (jump and kink) and outcome summary statistics: share scoring $\geq$ 60%

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.8848	-0.5209	-1.0727	-0.6658
	(1.3584)	(1.0094)	(0.9772)	(1.3928)
p-value	0.4413	0.4415	0.3219	0.4589
Kink: $\mathbf{1}\{r \geq 0\} \times r$	9.4401	16.2178	2.0512	30.0738
	(16.9495)	(16.4408)	(18.6416)	(45.6402)
p-value	0.3773	0.3591	0.4980	0.4954
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 2$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 50: RD terms at κ_v (jump and kink) and outcome summary statistics: infrastructure and fiscal transfers

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0070	0.0081	-30.3527**	-28.9726*
	(0.0035)	(0.0036)	(7.2079)	(8.5435)
p-value	0.1733	0.1627	0.0217	0.0507
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.5769***	1.3010***	-1476.8000***	-1646.0000***
	(0.0581)	(0.0685)	(140.1560)	(161.2110)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is $r \equiv$ `minority_base` $- \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 2$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 51: RD terms at κ_v (jump and kink) and outcome summary statistics: teachers and instructional days

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5328	1.3767**	13.5110***
	(0.3989)	(0.3095)	(1.6275)
p-value	0.2152	0.0373	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	53.5230***	103.4860***	667.9660***
	(8.3063)	(5.8574)	(31.6477)
p-value	0.0057	0.0000	0.0000
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 2$. District$\times$interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 52: RD terms at κ_v (jump and kink) and outcome summary statistics: school facilities

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0374**	-0.0108	0.0552***	-0.0250**	0.0366**
	(0.0101)	(0.0080)	(0.0090)	(0.0085)	(0.0091)
p-value	0.0127	0.2751	0.0034	0.0487	0.0157
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.7922***	0.7450***	2.5998***	1.3868***	1.1417***
	(0.2064)	(0.1560)	(0.1702)	(0.1579)	(0.1742)
p-value	0.0000	0.0017	0.0000	0.0000	0.0001
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where $\texttt{minority\_base}$ is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 2$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 53: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-4.1352	-2.5014	-3.9770	-0.5324
	(1.8659)	(1.4270)	(3.6037)	(1.7078)
p-value	0.0713	0.1654	0.3092	0.5086
Kink: $\mathbf{1}\{r \geq 0\} \times r$	18.5705	26.2970	-81.4114	28.7010
	(68.1609)	(43.8038)	(105.0444)	(86.4664)
p-value	0.4380	0.4248	0.4386	0.5114
Kink$\times\mathbf{1}\{\text{Private}\}$	-49.7367	18.6839	229.8166	43.9546
	(35.7962)	(56.3376)	(132.4895)	(107.0502)
p-value	0.2388	0.5085	0.1674	0.4646
Outcome summary statistics (estimation sample)				
DV mean	68.8538	70.3519	63.3836	66.6283
N	127,999	127,951	54,428	55,128
Adj. R^2	0.0610	0.0554	0.1452	0.0724

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 54: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0119	-0.0664	6.3728	5.7501
	(0.0055)	(0.0084)	(8.9132)	(10.1556)
p-value	0.1340	0.0000	0.4082	0.4605
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-4.4923	8.5379	-6170.2598	-6223.0923
	(0.3561)	(0.4370)	(1084.7643)	(1561.6576)
p-value	0.0000	0.0000	0.0012	0.0081
Kink$\times\mathbf{1}\{$Private$\}$	0.1994	-0.4499	1551.5262	1077.9237
	(0.0861)	(0.1388)	(1066.3047)	(1562.6724)
p-value	0.1102	0.0320	0.2446	0.4072
Outcome summary statistics (estimation sample)				
DV mean	1.1166	0.0263	260.2820	279.8004
N	507,703	507,703	507,703	507,703
Adj. R^2	0.2101	0.1298	0.1094	0.1118

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{$Private$\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 55: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-4.1820	4.0282	-5.7692
	(1.1216)	(0.9637)	(5.0932)
p-value	0.0361	0.0222	0.2986
Kink: $\mathbf{1}\{r \geq 0\} \times r$	314.2030	557.3675	2470.7427
	(47.1993)	(43.1161)	(264.4800)
p-value	0.0031	0.0000	0.0000
Kink$\times\mathbf{1}\{\text{Private}\}$	80.6593	83.8184	1160.1371
	(21.7755)	(21.5423)	(128.7249)
p-value	0.0219	0.0228	0.0000
Outcome summary statistics (estimation sample)			
DV mean	39.6788	63.7436	345.5872
N	507,069	507,069	507,703
Adj. R^2	0.1782	0.2799	0.3052

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 56: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.1457	-0.0888	-0.1041	-0.1285	-0.1608
	(0.0270)	(0.0164)	(0.0190)	(0.0218)	(0.0202)
p-value	0.0003	0.0000	0.0001	0.0002	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	11.2655	4.8180	18.1040	9.9215	2.1881
	(1.1155)	(1.0172)	(1.6679)	(1.2263)	(1.1770)
p-value	0.0000	0.0000	0.0000	0.0000	0.0437
Kink$\times\mathbf{1}\{\text{Private}\}$	2.0280	1.2452	2.7322	2.2127	1.3986
	(0.5248)	(0.6249)	(0.6803)	(0.6326)	(0.7837)
p-value	0.0069	0.0674	0.0075	0.0171	0.1608
Outcome summary statistics (estimation sample)					
DV mean	-0.0299	0.0351	-0.0040	0.0080	-0.0033
N	509,122	470,965	509,121	509,135	480,838
Adj. R^2	0.0682	0.0621	0.1233	0.1238	0.0847

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 57: RD terms at κ_v (jump and kink): Segregation Indices

	(1) Dissimilarity	(2) Exposure	(3) Isolation	(4) Enrollment Quotient (variance)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0421***	-0.0555***	0.0555***	0.0402
	(0.0028)	(0.0031)	(0.0031)	(0.0462)
p-value	0.0000	0.0000	0.0000	0.3941
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-1.0386***	1.0565***	-1.0565***	-2.9602***
	(0.0467)	(0.0547)	(0.0547)	(0.4897)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	0.0997	0.5916	0.4084	0.1782
N	106,785	106,785	106,785	106,785
Adj. R^2	0.1358	0.4844	0.4844	0.0396

Notes: The segregation indices are computed for the *OBC versus (SC+ST)* contrast. The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level OBC share. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) procedure using the *OBC versus (SC+ST)* composition contrast. We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 2$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

D.2.2 Robustness to $P = 3$

Table 58: RD terms at κ_v (jump and kink)

	(1) GC	(2) SC	(3) ST	(4) OBC	(5) Total
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0485***	0.0036	0.0035**	0.0120	-0.0292*
	(0.0119)	(0.0040)	(0.0018)	(0.0091)	(0.0174)
p-value	0.0000	0.3667	0.0498	0.1851	0.0924
Kink: $\mathbf{1}\{r \geq 0\} \times r$	1.3452	-1.3747***	-0.2137	-3.0824***	-3.3257**
	(1.0191)	(0.4088)	(0.1839)	(0.8196)	(1.6754)
p-value	0.1869	0.0008	0.2454	0.0002	0.0471

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level. Bandwidth = 0.10, polynomial order $P = 3$. Bootstrap standard errors based on $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 59: RD terms at κ_v (jump and kink) and outcome summary statistics: share scoring $\geq$ 60%

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-1.4640	-0.9730	-1.6475	-1.0722
	(1.8027)	(1.3527)	(1.1896)	(1.8123)
p-value	0.3948	0.4027	0.2707	0.4511
Kink: $\mathbf{1}\{r \geq 0\} \times r$	23.6190	52.6995	21.0610	132.4870
	(32.2795)	(35.4596)	(37.1756)	(95.2790)
p-value	0.4078	0.4033	0.4613	0.4609
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where minority_base is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 3$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 60: RD terms at κ_v (jump and kink) and outcome summary statistics: infrastructure and fiscal transfers

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-0.0086	0.0048	-34.8244	-34.2623
	(0.0045)	(0.0043)	(9.6142)	(11.1970)
p-value	0.2104	0.2999	0.0321	0.0428
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-0.7761	1.6080	-2286.4000	-2553.7000
	(0.0788)	(0.0839)	(191.2660)	(206.1060)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is $r \equiv$ `minority_base` $- \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 3$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 61: RD terms at κ_v (jump and kink) and outcome summary statistics: teachers and instructional days

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-0.5268	1.1148	11.5970
	(0.4814)	(0.3637)	(2.0177)
p-value	0.3146	0.0302	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	84.6510	153.6790	988.8170
	(11.7795)	(8.1911)	(44.1114)
p-value	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 3$. District×interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 62: RD terms at κ_v (jump and kink) and outcome summary statistics: school facilities

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	0.0450	-0.0174	0.0642	-0.0249	0.0530
	(0.0122)	(0.0097)	(0.0109)	(0.0101)	(0.0117)
p-value	0.0058	0.1768	0.0000	0.0489	0.0018
Kink: $\mathbf{1}\{r \geq 0\} \times r$	2.5813	1.2547	3.8052	2.3312	2.2372
	(0.2894)	(0.2347)	(0.2522)	(0.2330)	(0.2583)
p-value	0.0000	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC + ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial RD allowing both a jump and a slope change at $r = 0$ within $|r| \leq 0.10$ with polynomial order $P = 3$. District$\times$interval fixed effects are included in all specifications. Standard errors (in parentheses) are clustered at the village level and are bootstrapped with $B = 100$ replications. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 63: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Grade $\geq$ 60% (5b)	(2) Grade $\geq$ 60% (5g)	(3) Grade $\geq$ 60% (8b)	(4) Grade $\geq$ 60% (8g)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	-5.1737**	-1.6197	-3.2522	-1.2642
	(2.0955)	(1.2736)	(2.6167)	(1.6866)
p-value	0.0387	0.2395	0.2878	0.4319
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-13.5399	10.4063	66.9153	65.8217
	(56.4418)	(52.2206)	(97.7770)	(78.6324)
p-value	0.4365	0.4705	0.4553	0.5104
Kink$\times\mathbf{1}\{Private\}$	24.0933	15.4346	-100.0559	-95.3521
	(58.6032)	(35.7358)	(78.7966)	(96.9997)
p-value	0.4820	0.4832	0.2717	0.4337
Outcome summary statistics (estimation sample)				
DV mean	68.8259	70.3156	63.3629	66.6018
N	127,901	127,854	54,418	55,118
Adj. R^2	0.0609	0.0552	0.1452	0.0721

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 64: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Road Approachable	(2) Infra Index	(3) Grants Exp.	(4) Grants Recd.
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0089	-0.0525***	-4.0084	-2.8929
	(0.0073)	(0.0118)	(12.2017)	(14.4634)
p-value	0.2873	0.0141	0.5121	0.5280
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-3.9797***	8.1688***	-9769.2041***	-11489.0276***
	(0.5712)	(0.5904)	(1454.6387)	(1564.4263)
p-value	0.0007	0.0000	0.0017	0.0008
Kink$\times\mathbf{1}\{Private\}$	-0.4003	-0.4982	524.6772	574.8264
	(0.1143)	(0.1829)	(1075.6824)	(1529.1045)
p-value	0.2852	0.0280	0.4458	0.4567
Outcome summary statistics (estimation sample)				
DV mean	1.0965	0.0027	232.1020	254.7883
N	297,384	297,686	297,686	297,686
Adj. R^2	0.1511	0.1130	0.0837	0.0867

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 65: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Pupil Teacher Ratio	(2) Frac Teachers Graduates	(3) Total Instructional Days
RD terms at κ_v			
Jump: $\mathbf{1}\{r \geq 0\}$	-6.3601***	6.6525***	-25.4389***
	(1.2774)	(0.9108)	(4.6572)
p-value	0.0088	0.0001	0.0004
Kink: $\mathbf{1}\{r \geq 0\} \times r$	497.1464***	766.7203***	5445.9201***
	(50.8891)	(51.7099)	(276.3900)
p-value	0.0000	0.0000	0.0000
Kink$\times\mathbf{1}\{Private\}$	84.1501***	71.6058***	1515.4011***
	(20.9816)	(20.8345)	(127.5694)
p-value	0.0066	0.0142	0.0000
Outcome summary statistics (estimation sample)			
DV mean	38.9008	62.9245	325.3110
N	296,525	296,525	297,686
Adj. R^2	0.1501	0.2471	0.2788

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 66: RD terms at κ_v with management heterogeneity (private) and outcome summary statistics

	(1) Computers	(2) Drinking Water	(3) Electricity	(4) Library	(5) Good Classrooms
RD terms at κ_v					
Jump: $\mathbf{1}\{r \geq 0\}$	-0.1613***	-0.0914***	-0.1242***	-0.1280***	-0.1648***
	(0.0275)	(0.0140)	(0.0168)	(0.0200)	(0.0189)
p-value	0.0000	0.0000	0.0000	0.0000	0.0000
Kink: $\mathbf{1}\{r \geq 0\} \times r$	20.9398***	7.9680***	29.4226***	17.4452***	4.3795***
	(1.3425)	(1.5732)	(1.7680)	(1.6046)	(1.5171)
p-value	0.0000	0.0000	0.0000	0.0000	0.0092
Kink$\times\mathbf{1}\{Private\}$	1.5591	0.9639	1.5390*	1.7772*	1.4541
	(1.5143)	(1.0764)	(0.8773)	(0.9014)	(1.0836)
p-value	0.3011	0.3944	0.0753	0.0504	0.1795
Outcome summary statistics (estimation sample)					
DV mean	0.0057	0.0248	0.0015	0.0147	-0.0032
N	297,686	275,814	297,310	297,594	279,629
Adj. R^2	0.0593	0.0503	0.1074	0.1117	0.0702

Notes: The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level minority share defined as SC+ST. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) tipping-point procedure using the *OBC versus (SC+ST)* composition contrast (rather than the earlier *GC versus (OBC+SC+ST)* contrast). We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. To test for heterogeneity by management, we additionally allow the *kink* to differ for private schools by interacting the kink term with $\mathbf{1}\{\text{Private}\}$. District$\times$interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 67: RD terms at κ_v (jump and kink): Segregation Indices

	(1) Dissimilarity	(2) Exposure	(3) Isolation	(4) Enrollment Quotient (variance)
RD terms at κ_v				
Jump: $\mathbf{1}\{r \geq 0\}$	0.0421***	-0.0555***	0.0555***	0.0402
	(0.0028)	(0.0031)	(0.0031)	(0.0462)
p-value	0.0000	0.0000	0.0000	0.3941
Kink: $\mathbf{1}\{r \geq 0\} \times r$	-1.0386***	1.0565***	-1.0565***	-2.9602***
	(0.0467)	(0.0547)	(0.0547)	(0.4897)
p-value	0.0000	0.0000	0.0000	0.0000
Outcome summary statistics (estimation sample)				
DV mean	0.0997	0.5916	0.4084	0.1782
N	106,785	106,785	106,785	106,785
Adj. R^2	0.1358	0.4844	0.4844	0.0396

Notes: The segregation indices are computed for the *OBC versus (SC+ST)* contrast. The running variable is $r \equiv \texttt{minority\_base} - \kappa_v$, where `minority_base` is the baseline (pre-period) village-level OBC share. The threshold κ_v is the village-level tipping point estimated by re-implementing the Card–Mas–Rothstein (CMR) procedure using the *OBC versus (SC+ST)* composition contrast. We estimate a local-polynomial specification within $|r| \leq 0.10$ with polynomial order $P = 3$, allowing both a *jump* at $r = 0$ and a *kink* (change in slope) at $r = 0$. District×interval fixed effects are used for all columns. Standard errors (in parentheses) are clustered at the village level and are bootstrapped from $B = 100$ replications. DV means are computed over the regression estimation sample. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

E Untouchability norms: binscatter figures

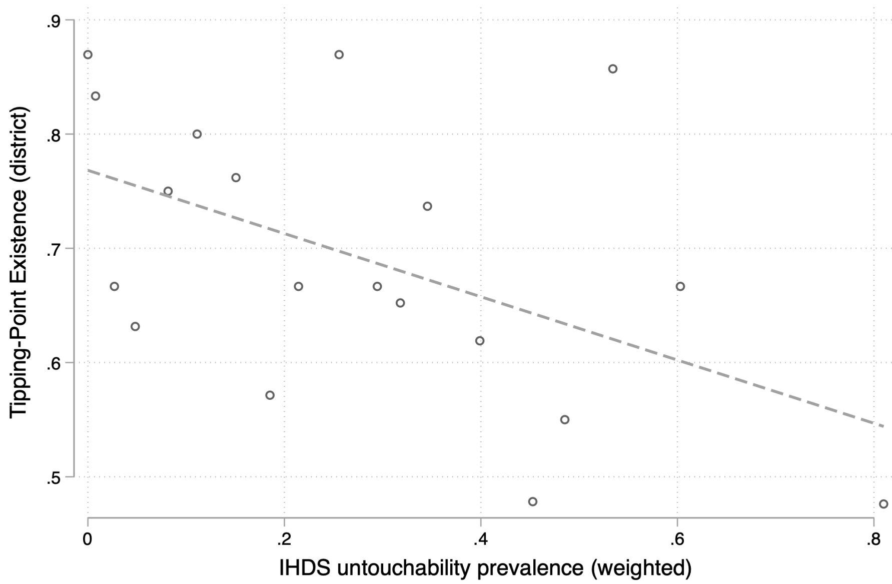

Figure 5: Untouchability prevalence and tipping-point existence (extensive margin). Each point is the mean untouchability rate and mean tipping-point existence indicator within a bin of districts (General vs. SC+ST+OBC contrast, expanded sample). The line is a linear fit.

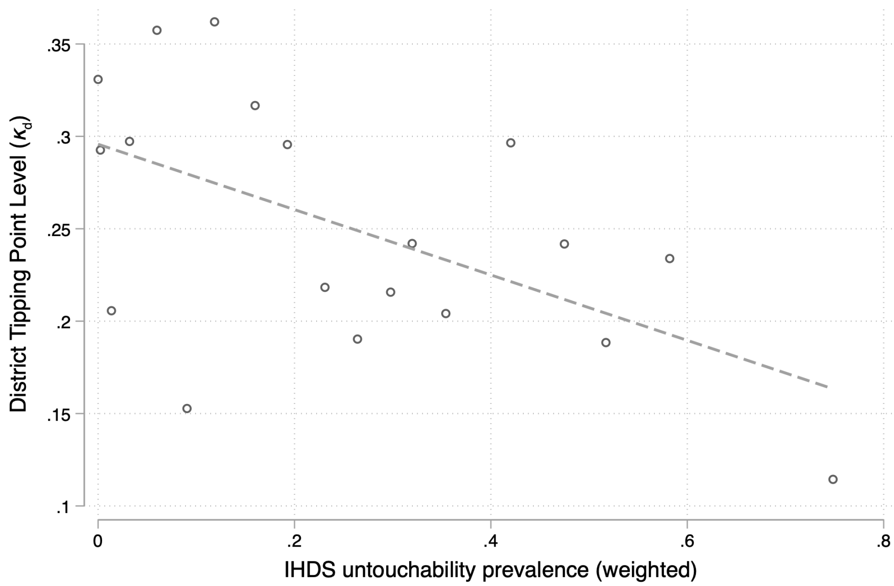

Figure 6: Untouchability prevalence and tipping-point level (intensive margin). Each point is the mean untouchability rate and mean estimated $\hat{\kappa}_d$ within a bin of districts, conditional on existence (General vs. SC+ST+OBC contrast, expanded sample). The line is a linear fit.

F Proofs

F.1 One-School Model: Multiple Equilibria

Let $b^N(n^N, s)$ and $b^M(n^M, s)$ denote inverse demand functions satisfying Assumptions 1 and 2. Define

$$F(s) \;=\; b^M(s,\, s) - b^N(1-s,\, s). \tag{26}$$

Equilibria of the one-school model correspond to zeros of F.

Lemma 1 (Non-monotonicity of b^N)**.** *Under Assumptions 1 and 2, if there exist values $s_\ell < s_h$ such that*

$$\left|\frac{\partial b^N}{\partial s}\right|_{s=s_\ell} < \left|\frac{\partial b^N}{\partial n^N}\right|_{s=s_\ell} \quad \textit{and} \quad \left|\frac{\partial b^N}{\partial s}\right|_{s=s_h} > \left|\frac{\partial b^N}{\partial n^N}\right|_{s=s_h},$$

then $b^N(1-s, s)$ is non-monotonic in s.

Proof. From equation (2), $\frac{d}{ds} b^N(1-s,s) = -\frac{\partial b^N}{\partial n^N} + \frac{\partial b^N}{\partial s}$. At s_ℓ, the first term dominates and the derivative is positive. At s_h, the second term dominates and the derivative is negative. By continuity, the derivative changes sign on (s_ℓ, s_h). □

Lemma 2 (Multiple equilibria)**.** *If $b^M(s,s)$ is strictly decreasing in s and $b^N(1-s,s)$ is non-monotonic, then $F(s)$ may have more than one zero. If there exist $s_1 < s_2$ with $F(s_1) = F(s_2) = 0$ and $F'(s_1) < 0 < F'(s_2)$, then s_1 is locally stable and s_2 is locally unstable.*

Proof. F is continuous on $[0,1]$. Since $b^M(s,s)$ is decreasing and $b^N(1-s,s)$ is non-monotonic, F need not be monotone and the intermediate value theorem permits multiple zeros. Stability at s^*: the allocation is stable if $F'(s^*) < 0$ and unstable if $F'(s^*) > 0$. □

F.2 Two-School Model: Stability of the Integrated Allocation

Proof of Proposition 1. Setup. The enrollment dynamics are given by (7):

$$G(s_A;\,\bar{s}) \;=\; \frac{\bar{s}\,P_A^M(s_A,\,2\bar{s}-s_A)}{\bar{s}\,P_A^M(s_A,\,2\bar{s}-s_A)\;+\;(1-\bar{s})\,P_A^N(s_A,\,2\bar{s}-s_A)}.$$

At the integrated allocation $s_A = \bar{s}$ with $A_A = A_B$, we have $P_A^M = P_A^N = \frac{1}{2}$, so $G(\bar{s};\bar{s}) = \bar{s}$.

Derivation of $G'(\bar{s};\,\bar{s})$. Let $\delta_g = \alpha_g/\sigma$. Imposing the adding-up constraint $s_B = 2\bar{s} - s_A$, the total derivative of the logit probability with respect to s_A is

$$\left.\frac{dP_A^g}{ds_A}\right|_{\bar{s}} \;=\; -\frac{\delta_g}{2},$$

where the factor of 2 arises because increasing s_A by one unit simultaneously decreases s_B by one unit, doubling the composition gap. Writing $G = N/D$ with $N = \bar{s}\,P^M$ and $D = \bar{s}\,P^M + (1-\bar{s})\,P^N$, and evaluating at $s_A = \bar{s}$ where $N = \bar{s}/2$ and $D = 1/2$:

$$N' = \bar{s}\cdot\left(-\tfrac{\delta_M}{2}\right) = -\frac{\bar{s}\,\delta_M}{2},$$

$$D' = \bar{s}\cdot\left(-\tfrac{\delta_M}{2}\right) + (1-\bar{s})\cdot\left(-\tfrac{\delta_N}{2}\right) = -\frac{\bar{s}\,\delta_M + (1-\bar{s})\,\delta_N}{2}.$$

By the quotient rule:

$$G'(\bar{s};\,\bar{s}) = \frac{N'D - ND'}{D^2} = \frac{-\frac{\bar{s}\delta_M}{2}\cdot\frac{1}{2} - \frac{\bar{s}}{2}\cdot\left(-\frac{\bar{s}\delta_M+(1-\bar{s})\delta_N}{2}\right)}{\left(\frac{1}{2}\right)^2}$$

$$= 4\left[-\frac{\bar{s}\delta_M}{4} + \frac{\bar{s}\big(\bar{s}\delta_M + (1-\bar{s})\delta_N\big)}{4}\right]$$

$$= \bar{s}\big[\bar{s}\delta_M + (1-\bar{s})\delta_N - \delta_M\big] = \bar{s}(1-\bar{s})(\delta_N - \delta_M)\cdot(-1)\cdot(-1)$$

$$= \bar{s}(1-\bar{s})\,\frac{\alpha_M - \alpha_N}{\sigma}.$$

Since $\alpha_N > \alpha_M$ (Assumption 3), $G'(\bar{s};\,\bar{s}) < 0$.

Stability condition. The integrated allocation is locally stable iff $|G'(\bar{s};\,\bar{s})| < 1$, i.e.,

$$\bar{s}(1-\bar{s})\,\frac{\alpha_N - \alpha_M}{\sigma} < 1 \quad\Longleftrightarrow\quad \bar{s}(1-\bar{s}) < \frac{\sigma}{\alpha_N - \alpha_M}.$$

Instability holds when the reverse inequality holds. This establishes part (i) and the instability claim in part (ii).

Derivation of κ. The threshold κ is the smaller root of $\bar{s}(1-\bar{s}) = \sigma/(\alpha_N - \alpha_M)$, i.e., $\bar{s}^2 - \bar{s} + \sigma/(\alpha_N - \alpha_M) = 0$. Under $\alpha_N - \alpha_M > 4\sigma$, the discriminant $1 - 4\sigma/(\alpha_N - \alpha_M) > 0$ and the roots are real. The smaller root is

$$\kappa \;=\; \frac{1 - \sqrt{1 - 4\sigma/(\alpha_N - \alpha_M)}}{2} \;\in\; \left(0,\,\tfrac{1}{2}\right).$$

By symmetry of $\bar{s}(1-\bar{s})$ around $\frac{1}{2}$, the larger root is $1-\kappa$. For $\bar{s} \in (\kappa, 1-\kappa)$, the parabola $\bar{s}(1-\bar{s}) > \sigma/(\alpha_N - \alpha_M)$, so $|G'| > 1$ and the integrated allocation is unstable. For $\bar{s} < \kappa$ or $\bar{s} > 1-\kappa$, it is stable. This establishes parts (i) and (ii). Part (iii) follows because $|G'(\bar{s};\bar{s})|$ crosses 1 continuously at $\bar{s} = \kappa$, so the transition from stability to instability—and the associated movement of the system toward a persistent asymmetric allocation with $S > 0$—is sharp at κ. If $\alpha_N - \alpha_M \leq 4\sigma$, then $\bar{s}(1-\bar{s}) \leq 1/4 < \sigma/(\alpha_N - \alpha_M)$ for all $\bar{s} \in [0,1]$, so integration is globally stable. □

F.3 Endogenous Quality: Proof of Corollary 2

Proof. Substituting $A_j = \bar{A}_j + \phi_j(s_j)$ into the utility (3), household g's net payoff from school A is

$$U_{Ag} = \bar{A}_A + \phi(s_A) - \alpha_g\, s_A + \varepsilon_{Ag},$$

where we write $\phi = \phi_A = \phi_B$ at the integrated allocation by symmetry. The effective slope of the indirect utility with respect to s_A at $s_A = \bar{s}$ is $\phi'(\bar{s}) - \alpha_g$, so the effective sensitivity is $\tilde{\alpha}_g = \alpha_g - \phi'(\bar{s})$. The differential sensitivity entering the stability condition is

$$\tilde{\alpha}_N - \tilde{\alpha}_M \;=\; \big(\alpha_N - \phi'(\bar{s})\big) - \big(\alpha_M - \phi'(\bar{s})\big) \;=\; \alpha_N - \alpha_M.$$

Hence $G'(\bar{s};\bar{s}) = \bar{s}(1-\bar{s})(\tilde{\alpha}_M - \tilde{\alpha}_N)/\sigma = \bar{s}(1-\bar{s})(\alpha_M - \alpha_N)/\sigma$ is unchanged, and κ is unchanged. However, the stable asymmetric allocation above κ is affected: when $\phi'(\bar{s}) < 0$, school quality falls with minority share, reducing the effective "pull" back toward integration and therefore increasing the degree of composition divergence across schools in the persistent asymmetric allocation. Inputs and enrollment flows thus move in the same direction at κ. When $\phi'(\bar{s}) > 0$, quality rises with minority share and the asymmetric allocation involves less composition divergence. □