

NBER WORKING PAPER SERIES

THE POLITICAL BOUNDARIES OF ETHNIC DIVISIONS

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Working Paper 24625
<http://www.nber.org/papers/w24625>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
May 2018

We thank Eli Berman, Chris Blattman, Monica Martinez-Bravo, Ruben Enikolopov, Claudio Ferraz, Thiemo Fetzer, Jeremy Magruder, Stelios Michalopoulos, Ted Miguel, Dilip Mookherjee, Ben Olken, Gerard Padro-i-Miguel, Debraj Ray, Enrico Spolaore, Mathias Thoenig, Oliver Vanden Eynde, as well as seminar participants at the NBER Political Economy Summer Institute meeting, the NBER Economics of National Security Winter meeting, UC Berkeley, Stanford SITE, Georgetown, Boston University, the BREAD/NBER pre-conference meeting, NEUDC, PacDev, University of Arkansas, ESOC, and ABCDE for helpful comments. Gudgeon is grateful to the Weiss Family Program Fund for financial support. We thank Ben Olken, Monica Martinez-Bravo, Andreas Stegmann, Jan Pierskalla, Audrey Sacks, and the Indonesian National Violence Monitoring System for sharing data. Andrea Adhi and Gedeon Lim provided excellent research assistance. All errors remain ours. A previous version of this paper circulated under the title, “Local Government Proliferation, Diversity, and Conflict.” The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

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NBER Working Paper No. 24625
May 2018
JEL No. D72,D74,H41,H77,O12,Q34

ABSTRACT

This paper argues that redrawing subnational political boundaries can transform ethnic divisions. We use a natural policy experiment in Indonesia to show how the effects of ethnic diversity on conflict depend on the political units within which groups are organized. Redistricting along group lines can reduce conflict, but these gains are undone or even reversed when the new borders introduce greater polarization. These adverse effects of polarization are further amplified around majoritarian elections, consistent with strong incentives to capture new local governments in settings with ethnic favoritism. Overall, our findings illustrate the promise and pitfalls of redistricting in diverse countries.

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An online appendix is available at: <http://www.nber.org/data-appendix/w24625>

1 Introduction

Ethnic divisions are a persistent source of instability in diverse countries. Interethnic tensions are widely associated with weak public goods provision and conflict (Alesina et al., 1999; Esteban et al., 2012; Montalvo and Reynal-Querol, 2005). With few exceptions, though, the longstanding literature on diversity offers mostly fatalistic conclusions, leaving policymakers with little insight on how to ameliorate ethnic divisions. This paper investigates the promise and pitfalls of one potential policy option: redrawing subnational boundaries.

Changing political boundaries can transform ethnic divisions by changing the incentives for group mobilization. If political control is a key source of interethnic contestation, then changes in the composition of the electorate could affect violence. Pioneering work on ethnicity and conflict recognized this possibility (Horowitz, 1985), but it has not yet been tested empirically. The global proliferation of administrative units over the last 30 years of decentralization offers a unique opportunity to do so. This massive wave of redistricting constitutes perhaps the largest shift in the locus of politics since the creation of new nation states after World War II.¹

The key contribution of this paper is to show that political boundaries endogenously determine whether ethnic diversity causes instability. We exploit a natural policy experiment in Indonesia to estimate the effects of redistricting on social conflict. Where feasible, creating homogenous new political units reduces violence. Yet, in practice, redistricting along group lines is rarely so simple and may instead foster new divisions.² We show that the potential gains in stability are often undone and even reversed in areas where new group divisions become salient and polarizing. These boundary-induced changes in ethnic divisions necessarily change the way different groups interact and compete for political relevance. In newly polarized settings, we find that the ensuing majoritarian electoral contests to control valuable public resources further amplify incentives for violence and may lead to fresh cycles of conflict beyond the first few years after redistricting.

Indonesia offers a rich setting to study changes in ethnic divisions. First, like many other new democracies, political violence remains a major policy concern (Butcher and Goldsmith, 2017). After the fall of a highly centralized, authoritarian regime, many feared the diverse country would break apart as local conflicts tore at ethnic, religious, and regional seams. These large-scale internecine conflicts have subsided, replaced by more sporadic outbursts of low-intensity social conflict and recurring electoral violence. Amplified by decentralization, ethnic mobilization around elections and political patronage are pervasive.³ Meanwhile, institutional constraints on violence remain relatively weak. While distinct from civil wars, these outbreaks of local conflict may accumulate over time and also exert lasting adverse effects by eroding trust in the political process (Dercon and Gutiérrez-Romero, 2012), by undermining

¹Grossman and Lewis (2014) document the global pervasiveness of this phenomenon across all levels of administration. For example, from 1990 to 2010, Nigerian states increased from 22 to 37, Ugandan districts from 34 to 112, and Kenyan districts from 47 to 70. Czechoslovakia and Hungary increased their municipalities by 50 percent from 1989 to 1993. Brazilian municipalities increased from 3,974 in 1980 to 5,560 in 2000. Vietnam increased its provinces from 40 to 64 from 1996 to 2003.

²Consider a stylized case where two minority groups break away to form their own district. Previously pitted together against a larger majority, these two groups now face fresh incentives for conflict in the newly polarized district.

³Aspinall (2011, p. 298) notes that, “Since the introduction of direct local government head elections, there has been a shift in favor of alignment between the ethnic identity of local government heads and the local populations they govern. Electoral winners tend to be drawn from the largest ethnic group in the district or province.” We provide further qualitative context in Appendix D.1, which also shows that greater diversity within newly created district boundaries is associated with closer elections and stronger individual preferences for politicians’ ethnicities and patronage.

local institutions (Michalopoulos and Papaioannou, 2013), by weakening social capital and deepening ethnic cleavages (Dower et al., 2017; Rohner et al., 2013a), and by planting the seeds for more serious, future conflict (Rohner et al., 2013b).

Second, the Indonesian context allows us to overcome a host of endogeneity and measurement challenges typically associated with identifying the effects of changing political boundaries. Decentralization reforms beginning in the late 1990s led to a dramatic increase in the number of district governments across the archipelago from 302 in 1999 to 514 in 2014 (see Figures 1 and 2). Motivated by a desire to reduce sociopolitical tensions, the central government created a very favorable environment for such redistricting.⁴ This allows us to rule out first order concerns about strategic violence aimed at achieving or preventing certain types of partitions. Moreover, we show that an abrupt centrally-imposed moratorium between 2004 and 2006 generates plausibly exogenous variation in the timing of redistricting across locations.⁵ We exploit this staggered process in a generalized difference-in-difference (DiD) framework.

Using universal Population Census data from 2000, we measure how homogenized the new, smaller districts are relative to the original district based on the same, initial populations. Indonesia is home to over 1,000 self-identified ethnic groups, allowing us to distinguish two key measures in the literature: fractionalization and polarization. Ethnic fractionalization (F), which captures the likelihood of meeting someone outside your group, declines substantially on average at the original district level. However, some of the newly drawn borders encompass fewer, large groups, thereby increasing ethnic polarization (P), which also captures differences in preferences across groups proxied by language. Indeed, while homogenization was an objective of redistricting in many areas, policy constraints directly limited the feasible changes in diversity. We isolate these constraints to show that the cross-district variation in feasible redistricting schemes drives the changes in diversity and conflict.

We estimate the effects of these changes in ethnopolitical boundaries on conflict using new data developed by the Indonesian National Violence Monitoring System. Based on systematic coding of print newspaper archives, the data capture over 230,000 violent incidents at a high spatial and temporal frequency from 2000 to 2014. While limited initially to high-conflict regions, these data offer more comprehensive coverage than other sources for Indonesia and rival some of the best geospatial event-based sources in sub-Saharan Africa and South Asia (e.g., ACLED) in terms of depth and detail.⁶ Reported violent events include, among others, attempts to influence the allocation of resources and express popular dissatisfaction with local governance (Barron et al., 2014). Vigilantism and public mobilization along ethnic lines are common (Wilson, 2015) as is strategic violence around elections (Harish and Toha, 2017).

Despite policymakers' goals, redistricting does not change the average incidence of social conflict. This somewhat surprising finding can be explained by heterogeneous changes in ethnic divisions. Reductions in conflict in newly homogenous units are offset by increases in newly polarized units. Our estimates suggest that political boundaries can explain around half of the endogenous long-run correlation between ethnic polarization and conflict in the cross-section. These changes arise in both the *parent*

⁴Mietzner (2014, p. 62) notes that decentralization "was designed to secure the long-term survival of the nation-state by reconciling the regions with a capital that had systematically undermined their local identities since the 1950s." And Aspinall (2013, p. 39) notes that the policy "rationale for creating a new district out of an old one is to provide an administrative home for a local ethnic or sub-ethnic group that lives in a concentrated area and to ameliorate tension with other groups."

⁵We build upon Burgess et al. (2012) who use similar variation in their study of deforestation externalities due to redistricting.

⁶The overlap of split districts with the violence data introduces sample size limitations that we address, but the Indonesian setting is perhaps the best available to credibly identify the effects of changes in political boundaries on conflict.

district, which retains the original seat of government, and the *child* district, which acquires a new local government and capital (see Figure 3 for an example). Robustness checks, including a machine learning approach to selecting controls, rule out numerous other confounding effects of redistricting and changes in media attention. Overall, the abrupt reconfiguration of the diverse electorate gives rise to fresh incentives for violence that are amplified in polarized settings.

These border-induced changes in ethnic divisions may have persistent effects on conflict as a result of political cycles. Violence ratchets up around the first mayoral elections, particularly where they are closely contested. New ethnic divisions, and polarization in particular, exacerbate violence around these majoritarian elections, especially in child districts where the stakes are high given the fundamental role of the initial administration in establishing the new government and its first budget. We see no such amplification around parliamentary elections, which is consistent with incentives for violence differing under proportional representation. Moreover, this amplification effect persists into the next mayoral election five years later and also drives violence in intervening periods, pointing to new cycles of political conflict. The more pronounced cycles in child districts are consistent with differences in the scale of changes in contestable public resources but may also point to nascent differences in local state capacity. Ethnic favoritism helps rationalize electoral violence and perpetuate grievances, a mechanism we validate using nighttime light intensity to capture village-level changes in access to publicly-provided electricity after redistricting.

Our results line up nicely with case studies in Indonesia. In Section 6.3, we discuss a case of redistricting in West Kalimantan that illustrates how border-induced changes in ethnic divisions affect conflict. Diprose (2009) offers similar insights on Central Sulawesi as do Nolan et al. (2014) on Papua, noting that “local elections in relatively new districts can exacerbate existing social fault lines.” With a bottom-up approach to redistricting, it is sometimes difficult for local parties to foresee all the complex new divisions that might arise with new borders. Wilson (2015, p. 33) nicely summarizes the Indonesian context, arguing that redistricting “created confusion regarding lines of authority” and “involved renegotiating the boundaries of collective identities” as “local government bureaucratic precincts were altered, and some networks of resource distribution that relied upon state agents were disrupted or excluded by these shifting boundaries.” As a result, “ethnic identities have been politicised as clientilistic networks. . . mobilising support along communal lines.” Of course, conflict is by no means a foregone conclusion. However, by localizing political contestation, redistricting may make it easier to solve collective action problems that might otherwise forestall violence.

Similar findings may be at play outside Indonesia as well. In Uganda, for example, Green (2008) argues descriptively that “the huge expansion in the number of new districts has led to local-level conflict by altering relations between local ethnic groups.” Although dramatic, the wave of redistricting we study is comparable in scale and purpose to efforts across sub-Saharan Africa, Asia, and Eastern Europe (see Grossman and Lewis, 2014; Grossman et al., 2017). A small but growing political science literature examines this process, documenting similar institutional underpinnings (see Pierskalla, 2016a, for a survey). In diverse countries, as in Indonesia, the resulting shift in the locus of politics can fundamentally change relevant group boundaries. How these changes affect incentives for conflict is very much an open question to which the Indonesian setting is uniquely well suited to answer.

Related Literature. This paper makes several contributions to the political economy literature. Our

central contribution is to show that subnational borders can reshape the ethnic divisions underlying conflict. We argue that the ethnic divisions underlying widely-used diversity measures are neither fixed nor exogenous and instead depend on the political boundaries within which groups are organized. Case studies as well as lab and survey experiments across Africa find that interethnic preferences are context-dependent (Berge et al., 2015; Eifert et al., 2010; Habyarimana et al., 2007; Lowes et al., 2015; Posner, 2004), and Blouin and Mukand (forthcoming) and Yanagizawa-Drott (2014) show that public media can manipulate these preferences. We show that subnational boundaries are a policy choice that can change ethnic cleavages by reorienting which groups are relevant to one's own.⁷ While prior literature has recognized this political endogeneity of ethnic divisions (see Fearon, 2006; Posner, 2017), we provide the first empirical test using border changes. Our findings highlight important policy tradeoffs and demonstrate how majoritarian elections may exacerbate the new ethnic divisions.

More generally, we offer policy lessons that go beyond the otherwise pessimistic conclusions from the literature on diversity and conflict. Alesina et al. (2011) and Michalopoulos and Papaioannou (2016) identify adverse long-run effects of colonial partitioning of ethnic groups across national borders. Although infeasible to undo most national borders, within-country redistricting may change the equilibrium relationship between diversity and conflict. Amodio and Chiovelli (forthcoming) also study equilibrium changes but focused on geographic mobility, showing that abrupt, migration-induced changes in local polarization exacerbate conflict in post-Apartheid South Africa. Our effect sizes are smaller. This is intuitive because their results are based on changes in the underlying population, which introduces new groups and non-ethnic divisions (e.g., immigrant-native). By comparison, redistricting holds the local population fixed and instead reorients the relevant group divisions within new boundaries. This is important from a policy perspective given that redistricting is typically more feasible than resettlement.

Furthermore, we provide a rich context to identify which configurations of diversity stoke lower-intensity political conflict. Esteban and Ray (2011a) show that in conflict over public goods (e.g., political power), polarization should be relatively more important than fractionalization as polarization captures differences in intergroup preferences and the strength of in-group ties.⁸ Esteban et al. (2012) provide supportive cross-country evidence using proxies for the relative publicness of resources within countries. Redistricting and local government proliferation offer a more precise public resource shock. We find that polarization matters relatively more than fractionalization, particularly in child districts, where new government institutions are being formed and elections are being held for the first time. We explicitly link polarization to violence around majoritarian elections but not proportional-representation elections, a distinction in line with predictions in Esteban and Ray (2008b). These results help clarify both the type of conflict and the type of diversity that might matter in new democracies undergoing similar decentralization processes.

⁷In this respect, our identification strategy is somewhat akin to Hjort (2014) who uses the random assignment of workers to ethnically mixed teams to understand how diversity shapes productivity in a flower plant in Kenya around a period of national interethnic strife. Hence, our notion of time-varying diversity is distinct from variation due to migration or differential mortality and fertility, which may be confounded with a host of other factors whose effects on conflict are of separate interest.

⁸Spolaore and Wacziarg (2017) make similar points in a related setup with the additional insight that contests over rival goods may be more likely between groups with similar preferences, a prediction borne out empirically when examining international conflict, which typically involves contestation of private resources such as oil (Caselli et al., 2015; Spolaore and Wacziarg, 2016). Other models of conflict emphasize the conditions giving rise to mobilization along ethnic as opposed to other group lines (e.g., Caselli and Coleman, 2013; Esteban and Ray, 2008a, 2011b). Consistent with some of these predictions, our results highlight the important role of ethnic markers in mobilizing around newly contestable local politics.

Finally, our results suggest that the growing number of studies exploiting subnational variation in diversity should use spatial boundaries at levels of aggregation that are outcome-relevant.⁹ This echoes recent work arguing that local diversity can have different effects than diversity at the aggregate, country level given the different nature of interaction within and between jurisdictions (Alesina and Zhuravskaya, 2011; Desmet et al., 2016; Montalvo and Reynal-Querol, 2017).

Roadmap. Section 2 details the context of decentralization and district proliferation in Indonesia. Section 3 presents motivating evidence on diversity and conflict and a conceptual framework showing how redistricting can reshape ethnic divisions. Section 4 proposes measures of border-induced changes in diversity and presents the new conflict data. Section 5 develops the empirical strategy and presents core results. Section 6 identifies electoral mechanisms linking the changing ethnic divisions to new conflict dynamics. Section 7 concludes with a discussion of policy implications and future research.

2 Background: Local Government Proliferation

The number of districts in Indonesia increased by nearly 70 percent over a 15 year period. This background section details the central role districts play in government, key features of the redistricting process, and the fundamental changes in the scope of government that follow. For reference, Appendix Figure A.1 provides a timeline of key events discussed below.

2.1 Decentralization and the Transfer of Power to District Governments

Indonesia has four main tiers of government. The largest tier is the province, of which there were 34 in 2014. Provinces are divided into districts known as *kabupaten* in rural areas and *kota* in urban areas. In 2014, there were 514 districts. Districts are in turn divided into 7,094 subdistricts (*kecamatan*), which are further subdivided into more than 80,000 villages, the smallest unit of government.

The resignation of President Suharto in May 1998 ushered in a wave of decentralization reforms that shifted the balance of power away from the central government and provinces and towards the districts. Effective January 2001, districts assumed responsibility for nearly all public policy with the exception of the few areas naturally reserved for the central government (e.g., foreign affairs, fiscal and monetary policy). Accordingly, districts assumed extensive decision-making power over local expenditures.

District heads or mayors, known as *bupati* and *walikota*, supervise the budget process, amalgamating spending requests from lower levels of government and submitting the final budget to local parliament for approval. The district executive plays a significantly larger role than local parliament in determining the composition and allocation of public goods (see Lewis, 2017b; Martinez-Bravo et al., 2017).¹⁰ While

⁹As better data on subnational diversity become available (e.g., Gershman and Rivera, 2016), it is tempting to take the analysis to increasingly granular geography. This might be appropriate for questions about intergroup contact and preferences but perhaps less appropriate for studying conflict if the resources being contested are determined and allocated at higher levels of administration. This is in line with the warning by Michalopoulos and Papaioannou (2017) regarding the modifiable areal unit problem (MAUP) in the use of spatial data where results depend on the level of aggregation.

¹⁰Mayors also appoint all subdistrict heads beginning in 2004 and have long appointed village heads in urban areas (Martinez-Bravo, 2014). These local officials play important roles in local public goods provision by navigating relations with the district government where the resources initially flow from the center (see, e.g., Section 6.2 on electricity). They also play an important role in mobilizing voters around elections, effectively greasing the patronage politics discussed in Section 3.

parliamentarians remain important, they tend to be less individually accountable than mayors and more beholden to national party politics than to the local population (Lewis, 2017a).

Major electoral reforms also accompanied decentralization. Previously appointed by the central government, district heads were now elected via majority vote by members of the local parliament, who were in turn popularly elected according to a closed-list proportional representation system. Democracy deepened further in 2005 as district heads and their running mates were now directly elected via plurality/majority voting. Given the power of the district executive, these quinquennial mayoral elections, which occur at different times across districts, are a focal point of local political contestation.¹¹

2.2 Creating New Districts

Until the late 1990s, district boundaries were relatively stable (Booth, 2011). Many boundaries originated under colonial rule when the Dutch used local leaders for indirect rule. In practice, these administrative divisions spanned large swathes of territory with many different groups (Cribb, 2013). Post-independence, new districts arose with the goal of uniform population (Charras, 2005). However, due to imbalances in population density across islands, many districts continued to span large areas and multiple ethnic homelands. These expansive, arbitrary (post-)colonial boundaries remained largely in place until the fall of Suharto, when subsequent governments facilitated dramatic redrawing of the district map. The number of districts ballooned from 302 in 1999 to 514 in 2014 (see Figure 1) through a process known colloquially as *pemekaran* or blossoming.

Redistricting Process. Subdistricts break off from their original district to create new districts. After a split, the *original district* is divided in (at least) two: The single *parent district* contains the original district name and capital with pre-existing institutions. The *child district(s)* receives a new name, capital, district head, parliament, and government apparatus. Figure 3 provides an example of this distinction with the original district of Aceh Tenggara splitting into the parent of Aceh Tenggara and the child of Gayo Lues. This also highlights the fact that original districts split up along contiguous, pre-existing subdistrict lines.

Local elites and interest groups initiate the action to split in accordance with a redistricting law passed in 2000. The regulation stipulates that new districts must have: (i) at least three subdistricts, (ii) support among the original district mayor and parliamentarians, and (iii) demonstrated socioeconomic capacity in terms of basic public goods and economic infrastructure.¹² We discuss these policy constraints in Section 4.1 as they determined the scope of feasible changes in ethnic divisions.

For identification purposes, we focus on the wave of redistricting from 2001–3 and 2007–8.¹³ The central government twice stopped the redistricting process via national moratoria, the first of which occurred from 2004–6 and the second from 2009–2012 as clearly seen in Figure 1.¹⁴ In both cases, the

¹¹As Aspinall (2011, p. 305) notes, decentralization “shifted state resources and hence the focus of political contestation down toward the base of the political system.” Booth (2011, p. 46) argues, “Certainly the devolution of resources to the district level, where it has occurred has made the job of district head . . . very attractive to those who in the past had only managed to achieve lower-level positions in provincial or regional bureaucracies, or who had been largely excluded from official positions.”

¹²Given the favorable returns to parent and child districts (see below), splitting proposals were generally widely supported by original district parliamentarians who represent constituencies in both areas prior to redistricting (Pierskalla, 2016b).

¹³The redistricting in 1999 occurred before the new government regulation on *pemekaran* and substantively differs from later rounds of redistricting. Several were long-standing requests from the Suharto era, and others were initiated by the central government (Fitriani et al., 2005). These areas only enter our main analysis if they later split again.

¹⁴The primary stated reason for the moratoria was the drain on fiscal resources and lack of capacity to meet the staffing needs

duration and enforcement of the ban was uncertain. Indeed, applications for new districts continued to arrive at the national parliament with more than 100 proposals at various stages of completion awaiting consideration in 2005–6 (BAPPENAS, 2007). Our main empirical strategy, which builds on Burgess et al. (2012), exploits this first moratorium by comparing districts that split around this policy shock. What is crucial for our identification is that the timing of redistricting is not driven by trends in conflict or correlated factors therein.¹⁵ Section 4 provides supportive evidence.

Changes in Local Government. To understand how redistricting reshapes local government, a brief timeline is instructive. After a new child district is ratified, an interim executive along with local parliamentarians oversee the transition process with a focus on the first mayoral election. On average, those quinquennial elections first take place within 21 months after redistricting. The mayor is then tasked with operationalizing and staffing up to 30 new local government agencies in the new capital. By this time, roughly two years after redistricting, central government transfers have begun flowing into child district coffers. Local public expenditures begin increasing shortly thereafter, taking similar shape as in other districts with around 40–50 percent of spending on personnel. In the parent district, elections take place on the same local, five-yearly timeline as they would have absent redistricting, but in the meantime, local institutions undergo restructuring as the governed area and populace change.

Taking the original district as a whole, there are considerable gains to redistricting in terms of political representation and public resources as shown in Appendix A. First, most child district residents experience a significant reduction in distance to government representatives and institutions in the district capital. Second, the number of legislators per capita always (weakly) increases with redistricting due to apportionment rules. Third, fiscal allocation rules imply a significant, roughly 20 percent long-run increase in annual transfers, relative to a base of around 200 USD per capita. While the scale of changes in local government may differ between parent and child districts, the significant shock to politically-relevant ethnic divisions is shared by residents of both. We describe these changes and their potential implications for violence in the following sections.

3 Conceptual Framework: The Political Boundaries of Ethnic Divisions

Implicit in much of the literature on diversity is the notion that ethnic divisions are shaped by political boundaries. The scope for ethnic mobilization and patronage networks depends on the size and cohesion of groups *within the electorate*. This suggests that by changing political boundaries, redistricting has the potential to reshape these intergroup divisions and, in turn, social tensions and conflict. But whether this actually happens, and how quickly it happens in practice, is unclear and yet crucial for informing policy. In the remainder of this section, we provide motivating evidence on diversity and conflict in Indonesia and then propose a simple conceptual framework showing how redistricting can change the

of new child district governments. Upon lifting the first moratorium, the government tightened the law on redistricting by increasing the minimum number of subdistricts to five and requiring original districts to have existed for at least seven years.

¹⁵Note that this design does not exploit variation from districts that never split. This prioritizes internal over external validity, a tradeoff we discuss further in Section 5.5. Prior studies identify incentives for creating new districts, including efficiency gains in the provision of public goods, ethnic homogenization, and rent seeking (see Fitriani et al., 2005; Nolan et al., 2014; Pierskalla, 2016b). While we find similar evidence, what’s important for identification is that these underlying incentives do not predict early versus later timing of redistricting.

ethnic divisions underlying this relationship.

3.1 Motivating Evidence on Diversity and Conflict in Indonesia

Ethnic diversity has long been associated with adverse social consequences ranging from weaker social capital to greater conflict. Since the seminal book by [Horowitz \(1985\)](#), researchers have identified these relationships across many countries.

Similar patterns hold in Indonesia. Indeed, in the late 1990s, ethnic divisions were a factor in major conflicts across the archipelago, including, among others, separatist movements in Aceh and Papua, communal violence in Maluku and Central Sulawesi, and political violence in West and Central Kalimantan ([Barron et al., 2014](#)).¹⁶ Consistent with these pervasive divisions, [Mavridis \(2015\)](#) shows that residents of more ethnically diverse districts exhibit lower generalized trust and less community participation. Even as many of the most intense conflicts subsided by the mid-2000s, ethnicity remained a key vehicle for political mobilization across the country (see [Allen, 2014](#); [Aspinall, 2011](#); [Fox and Menchik, 2011](#)). The introduction of direct majority/plurality elections for mayors reinforced this tendency.¹⁷ Indeed, we show in Appendix [D.1](#) that electoral competition is much stiffer in diverse districts, where fractionalization and polarization are associated with narrower victory margins, especially in newly created districts. Relatedly, clientelism and patronage pervade local politics, with patronage networks often based on local ethnic identities and intermediated by lower-level officials such as village heads ([Aspinall, 2013](#); [Aspinall and Sukmajati, eds, 2016](#)).

As in other countries, these ethnic group dynamics occasionally manifest in conflict. Ideally, group-based contests over distributive goods occur peacefully through the political process. However, in settings with weak institutions (e.g., newly democratic countries), violence may be an effective means of influencing elections or the allocation of public resources. These low-intensity, localized bouts of violence are prevalent in modern Indonesia.¹⁸ While distinct from full-blown civil war, these episodes of violence are a major policy concern given their potential to undermine efforts to build local state capacity and to snowball into more systematic, large-scale conflict.

Using new data detailed in Section [4.2](#), we document a strong positive correlation between ethnic diversity—as measured by either fractionalization or polarization—and the incidence of conflict in Indonesian districts since 2000. Simple regressions suggest that a one standard deviation increase in fractionalization (polarization) is associated with a 15 (8) percent increase in the likelihood of conflict.

¹⁶Like [Fearon \(2006\)](#), we view ethnicity as determined by descent but subject to politics and history and not merely biological.

¹⁷Ethnic or regional political parties are effectively banned in Indonesia due to a host of legal requirements implemented with democratization in 1999, mandating that political parties must have widespread geographic coverage—in terms of institutional presence—in order to be eligible to contest elections (see [Hillman, 2012](#), for details). Nevertheless, mobilization along identity lines in local elections is widespread ([Aspinall, 2011](#)). At the same time, class cleavages and family dynasties are less important in local politics than elsewhere in Southeast Asia (see [Aspinall and Asad, 2016](#)).

¹⁸For example, [Tadjoeddin \(2012\)](#) finds that violence occurred in 23 percent of the first direct mayoral elections between 2005–2007. [Harish and Toha \(2017\)](#) show that conflict around local elections is a persistent problem. They classify over 1,000 electoral violence episodes into voter-targeted, candidate-targeted, and government-targeted. We provide examples using our data in Section [4.2](#) and discuss their findings in Appendix [B.2](#).

3.2 A Simple Model

We present here a simple conceptual framework to clarify how redistricting can change the ethnic divisions linking diversity to conflict. We focus on what Ray and Esteban (2016) call *social conflict* that is often organized around groups. Esteban and Ray (2011a) formally model the equilibrium effects of diversity on group-based conflict over rival (private) and non-rival (public) goods. They note that political power is a leading example of contestable public goods, and, for exposition purposes, we emphasize as much given the implications of redistricting. They show that in a contest over a purely public resource, the level of per capita conflict is increasing in group polarization, the value of the resource, and within-group cohesion. We use a vastly simplified two-group model below to frame our discussion of how redistricting affects violence by changing political boundaries.

Baseline Setup. Suppose an original district \mathcal{O} is composed of two groups with population G_1 and G_2 and total population $G = G_1 + G_2$. Denote by g_i the share of group i in the population (e.g., G_1/G). These groups compete over a public prize. The prize, being non-excludable and non-rival, is not diminished by group size, but the winner of the contest gets to choose the mix of public goods that their group prefers. We assume the winner chooses a level that provides their own group with value R per person and the other group with 0. The leader of each group i chooses total violence V_i given its per unit cost γ . The probability of group i winning control over the public prize is given by the contest function $\frac{V_i}{V_1 + V_2}$. Each group leader chooses V_i to maximize per capita payoffs. That is, each group i , taking as given the other's choices V_{-i} , maximizes $\left(\frac{V_i}{V_1 + V_2} R - V_i \frac{\gamma}{G_i} \right)$.

The Nash equilibrium level of conflict per capita, $\frac{V}{G} = \frac{V_1 + V_2}{G_1 + G_2}$, is given by $\frac{V}{G} = g_1 g_2 \left(\frac{R}{\gamma} \right)$. Thus, total violence per capita in the district depends on the value of the public prize R , the costs of conflict γ and a measure of diversity, $g_1 g_2$, which is greatest when both groups are of equal size. For two groups, this measure equals $0.5 \times$ a standard fractionalization measure.

Effects of Redistricting. Models of conflict over a public good implicitly assume that the boundaries of the contest are fixed. In practice, though, the boundaries of local government are a policy choice. If the primary source of conflict is over the control and distribution of local public resources, then changes in the borders of the electorate should have ramifications for conflict. Here we trace out the implications of changing borders on conflict under the assumption that splitting creates new, separate contests in parent and child districts.¹⁹

Under these assumptions, changes in conflict within the original district boundaries are directly linked to changes in diversity. Conflict within each of the new districts will now be a function of the diversity *within* each new area. Assume for now that winning the prize continues to yield R per person within group and 0 otherwise and that the costs of conflict remain unchanged. Using \mathcal{P} to denote the parent and \mathcal{C} the child district, the change in total violence per-capita at the original district level is:

$$\frac{\Delta V}{G} = \left(\frac{G_{\mathcal{P}}}{G} g_{\mathcal{P},1} g_{\mathcal{P},2} + \frac{G_{\mathcal{C}}}{G} g_{\mathcal{C},1} g_{\mathcal{C},2} - g_1 g_2 \right) \frac{R}{\gamma}, \quad (1)$$

¹⁹Consistent with this assumption, the conflict data detailed in Section 4.2 suggest very little cross-border violence before or after redistricting in our setting ($< 0.1\%$ of all events).

where $g_{i,j}$ is the share of group j in new district i , and $G = G_P + G_C$. That is, the change in violence per capita is explicitly a function of the difference in the population-weighted average of diversity within the new units relative to the diversity in the original district pre-split. In the event that the groups separate into perfectly homogeneous child and parent districts, all violence in the original district ceases.

This simple model does not distinguish between ethnic fractionalization and polarization. As written, it suggests using changes in fractionalization, which always decline with splitting (in population-weighted terms). Yet, this is not the case for polarization. An original district with four equally different groups could split into two districts, each with two similarly sized groups contesting power. In this case, polarization increases. [Esteban and Ray \(2011a\)](#) show that this specific feature of diversity is relevant to conflict over public goods, which can be tailored to the winning group's preferences but not fully excluded from losers. In practice, redistricting sometimes implies tradeoffs between changing fractionalization and polarization, and we will let the data speak by considering both measures.

It is also interesting to consider changes *within* the new borders. This requires taking a stance on how violence is initially distributed across parent and child. Letting α be the share of total violence falling in the parent district, the change in conflict within the parent district is given by:

$$\frac{\Delta V_P}{G_P} = \left(g_{P,1}g_{P,2} - \alpha \frac{G}{G_P} g_1 g_2 \right) \frac{R}{\gamma}. \quad (2)$$

If violence is initially distributed according to population ($\alpha = \frac{G_P}{G}$), the change in per-capita violence within the eventual parent border is given by the difference in the diversity within that new unit and the overall diversity in the original district.²⁰ The same holds for child districts.

The model also implies that changes in the value of the public prize (R) or the costs of violence (γ) will change conflict. Redistricting is accompanied by an influx of government resources (R) as well as reductions in the distance to the new capital, which could affect γ . If R/γ increases in the newer units, then this will exacerbate Δ conflict, particularly in newly diverse areas. Adapting the model to incorporate these changes, we find a similar link between changes in diversity and changes in conflict but one that puts greater than population-weight on diversity in the newer units. We opt not to take this simple model too far. Rather, we pursue a reduced form empirical approach that focuses on changes in ethnic divisions as a baseline while incorporating changes in proxies for R and γ for robustness. We also examine differences between parent and child districts, as child districts experience relatively larger changes in R and γ (see Appendix A).

4 Data: Measuring Changing Ethnic Divisions and Conflict

4.1 Border-Induced Changes in Diversity

Indonesia is the fourth most populous country in the world and among its most diverse. More than 1,000 self-identified ethnic groups speaking more than 400 languages span the archipelago. Indonesians

²⁰We can test this assumption in the data using the pre-split distribution of violence across parent and child districts. In general, the population weighted share of incidents in the original district is a very good predictor of the actual number of incidents. Children have slightly less incidents than would be expected based on population shares, and consequently parents have slightly more, but these differences are not very large.

are predominantly Muslim (87 percent) with minority Christian, Hindu, and Buddhist groups. From a policy perspective, diversity manifests at different levels of governance but became especially salient at the district level with decentralization. This section shows how redistricting fundamentally changes which group divisions are politically relevant.

We measure diversity using microdata from the universal 2000 Population Census. This data allow us to link the initial subdistricts in 2000 to their final 2010 district boundaries, providing us with measures of diversity at the original, parent, and child district levels. These are all based on the initial population in 2000 and hence not subject to concerns about endogenous sorting in response to redistricting. The 2000 Census was the first since 1930 to record ethnicity, allowing respondents to report a single affiliation. This led to remarkable cultural distinction, capturing over 1,000 self-identified ethnic groups (Ananta et al., 2015).²¹ The sub-ethnic variation within broader ethnic groups may be relevant for conflict (Desmet et al., 2017). We also capture deeper interethnic cleavages using linguistic differences by mapping Indonesian ethnic groups to languages in the *Ethnologue* data as in Esteban et al. (2012).

We focus on two widely-used measures of ethnic diversity. Ethnic *fractionalization* in district d measures the probability that two randomly chosen individuals belong to different groups: $F = \sum_{j=1}^{\mathcal{N}_e} g_j(1 - g_j)$, where \mathcal{N}_e is the number of ethnic groups in the district, and g_j is the population share of group j . Given the large number of self-reported ethnic identities, fractionalization is quite high and indeed above 0.5 in many districts we study. Adopting the Esteban and Ray (1994) metric, ethnic *polarization* is given by $P = \sum_{j=1}^{\mathcal{N}_e} \sum_{k=1}^{\mathcal{N}_e} g_j^2 g_k \eta_{jk}$, where η_{jk} is the distance between groups j and k .

Polarization aims to capture the deeper cleavages in society and differs from fractionalization in two key respects. First, the squaring of the own-group term emphasizes that stronger within-group identification coincides with greater out-group alienation, which together exacerbate intergroup tensions. As such, polarization is maximized when there are two distinct, equally sized groups. Second, it formally incorporates distances between groups while the standard measure of fractionalization (F) does not. We specify η using the same parametrization of linguistic distances as in Desmet et al. (2009, 2012) and Esteban et al. (2012) (see Appendix E for details). Although less pervasive, religious divisions may be important in some locations. In what follows, we focus our discussion around ethnic diversity but nevertheless incorporate religious diversity in our empirical analysis.²²

Changes in Diversity. Prior to redistricting, these measures of diversity at the original district level demarcated the boundaries of politically-relevant ethnic divisions. After redistricting, diversity within the new parent and child district boundaries becomes salient. Motivated by our conceptual framework, we propose simple but generalizable measures to capture these changes in ethnic divisions.

We compute the difference between the population-weighted average diversity in the new units and diversity in the original 2000 district. For example, if original district \mathcal{O} splits into parent \mathcal{P} and child \mathcal{C} , the change in ethnic fractionalization, $\Delta F = \left(\frac{G_{\mathcal{P}}}{G} F_{\mathcal{P}} + \frac{G_{\mathcal{C}}}{G} F_{\mathcal{C}} \right) - F_{\mathcal{O}}$, where the first term captures the implied F within the new borders. This can be seen as a multi-group generalization of equation (1). By definition, ΔF (weakly) declines. However, the sign of ΔP is less clear, and sometimes, the new borders

²¹In our average original district, there are 549 distinct ethnic groups with 21 having more than 0.1 percent of the population. Consolidating subgroups based on language reduces these numbers to 271 groups, 18 with more than 0.1 percent.

²²We account for religious polarization, but lacking an obvious notion of distance, set $\eta_{jk} = 1 \forall j \neq k$. Given that most religious diversity implies one sizable non-Muslim group, polarization is nearly identical to fractionalization (rank correlation ≈ 0.99). By comparison, ethnic polarization and fractionalization exhibit lower correlation (< 0.2) and are statistically independent.

increase polarization.

On average, $\Delta F = -0.059$ (std. dev.= 0.083) while $\Delta P = -0.0002$ (0.005). Figure 5 compares the original district diversity to the implied diversity after redistricting with the distance to the 45 degree line capturing the Δ . Importantly, there is variation in $\Delta diversity$ across districts with similar initial diversity. Later, we link this variation to constraints imposed by redistricting regulations. Note also that Indonesia's remarkable diversity implies scope for differentiating between the two measures (the correlation between ΔF and ΔP is 0.38).²³ Moreover, these ΔP reflect sizable shifts in ethnic divisions.

To make these numbers concrete, consider two examples of redistricting in our setting. First, some areas, like the original district of Aceh Tenggara, were able to leverage the geographic distribution of groups across subdistricts to split along ethnic lines, and create homogeneous governing bodies. Aceh Tenggara split into one child with 93 percent ethnic Gayo while the parent comprised 47 percent Alas, 17 percent Batak, and 15 percent Gayo. This implied a significant reduction in diversity relative to the original district, which had 39 percent Gayo, 33 percent Alas, and 12 percent Batak. These changes led to $\Delta F = -0.180$ and $\Delta P = -0.003$ and can be seen in Figure 4(a), which plots the boundaries of villages (colored by ethnic majority), subdistricts, and districts, with the latter shown pre- and post-redistricting.

Other districts split in ways that thrust hitherto less salient divisions into the limelight. One interesting example comes from Kotawaringin Timur, once the largest district in Central Kalimantan province and a legacy of Dutch administration in the 1930s, which was comprised of six relatively large groups spanning 26 subdistricts. It was not feasible to homogenize in the way that Aceh Tenggara did (see Figure 4(b)). Instead, the original district split into two child districts and one parent. This reduced fractionalization $\Delta F = -0.068$ but increased polarization $\Delta P = 0.004$ as the new districts comprised similar or fewer groups in more equal proportions than the original district. Section 6.3 discusses at length another interesting case from Bengkayang in West Kalimantan that further clarifies why these border-induced changes in diversity matter politically.

Together, these examples point to the institutional constraints on feasible redistricting schemes. With multiple groups spanning the same subdistricts, creating completely homogenous new districts would have been unworkable given the policy regulations on economic viability, which required sufficient scale. Nevertheless, a menu of possible partitions was available in many districts, and in Section 5.4, we examine whether the effects of redistricting on conflict depend on where the actual $\Delta diversity$ falls within the set of feasible $\Delta diversity$.

4.2 New Conflict Data

We estimate the effects of changes in ethnic divisions using new monthly data on conflict from the National Violence Monitoring System, referred to hereafter by its Indonesian acronym, SNPK (*Sistem Nasional Pemantauan Kekerasan*). Coverage begins in 1998 for nine conflict-prone provinces and increases to 15 provinces plus greater Jakarta beginning in 2005.²⁴ Crucially, conflict locations are recorded at administrative levels that allow us to link event locations to parent and child districts prior to redistricting.

²³By comparison, the migration-induced measures of ΔF and ΔP in the less diverse South African context are correlated at 0.94 (Amodio and Chiovelli, forthcoming).

²⁴While the data is not representative of Indonesia, it spans all major island groups and covers a majority of the Indonesian population. We omit districts in Papua due to problems with the underlying administrative and census data. Data coverage is less reliable in the earliest years, and hence we exclude 1998 and 1999.

Like other geospatial conflict databases such as the Armed Conflict Location & Event Data (ACLED), media reports of violence are the key input to the SNPK. Over a four-year period, project architects collected over 2 million images from the print archives of around 120 local newspapers, including multiple outlets for each province and excluding those with clear biases or no fact-checking (see [Barron et al., 2009, 2014](#)). Despite this rigor, as with all event-based conflict data, one may still worry about bias from selective reporting. We systematically address these concerns in two ways. First, we flexibly control for the number of papers available to coders for each province-month. Second, we use auxiliary Google Trends data to rule out confounding media attention due to redistricting.

Coders used a standard template to assign incidents to 10 mutually exclusive categories based on the underlying trigger. They first code incidents as domestic violence, violent crime, violence during law enforcement, or conflict. Within conflict, coders further categorize based on what is being violently contested: elections and appointments, governance, resource, identity, popular justice, separatist, and other (could not be classified). When reported, coders also indicate the number of injuries or deaths and details on property damage. Further background can be found in Appendix [B.1](#), which also highlights important advantages of the SNPK relative to other violence data.

Outcome: Social Conflict Incidence. Our core outcome is the likelihood of *any social conflict* in a given district-month. We define this measure as any incident excluding domestic violence and crime. From 2000 to 2014, these events occurred in around 63 (36) percent of district-months based on the original district (parent/child) borders. Appendix [B.3](#) demonstrates robustness to category misclassification, and Appendix [B.4](#) shows that our results are driven by events with injuries and property damage rather than deaths per se. Such events are still costly and broadly reflect the sort of social instability that concerns policymakers in many newly democratic countries. This is also consistent with our conceptual framework, motivated by [Esteban and Ray \(2011a\)](#) who note that “social conflict need not manifest itself in civil war alone, and there are various other measures ... for instance, strikes, demonstrations, riots,”

Before proceeding to results, we offer a few illustrative examples of these types of conflict that characterize our outcome measure. The following translated incident descriptions in Maluku Utara district help fix ideas: “(July 13, 2010): In Galela Selatan, supporters of Djasa (a mayoral candidate) destroyed the office of Galela subdistrict, 2 official cars, and billboards of other candidates.” “(August 18, 2011): Office of Morotai District Legislature was bombed; it is suspected as terrorism to prevent the inauguration of the elected mayor.” SNPK records point to various forms of political violence—protests over voter eligibility, clashes between supporters, direct targeting of candidates and government offices overseeing elections—often related to local, mayoral elections (see [Harish and Toha, 2017](#), for a rich accounting). Such violence often involves building damage and injuries rather than deaths. Nevertheless, such incidents can and do escalate.²⁵ Moreover, violence is not limited to election periods. Many events capture groups violently expressing grievances over policy and resource allocation issues.²⁶

²⁵ Consider these incidents from the districts of Kota Subulussalam and Maluku Tenggara Barat: “(November 2, 2013): Demonstrations involving hundreds of supporters of candidates for mayor and vice mayor. The masses demanded an explanation from the Independent Election Commissioner. [7 injured].” and “(May 30, 2002): The chaos of the mayoral election of West Southeast Maluku district is bad. Supporters of Heri Kadubun who were riding in boats were attacked by supporters of the Taher Hanubun group [3 killed, 8 injured].”

²⁶For example, “(April 14, 2008): Hundreds of villagers in Seram Bagian Barat district, demonstrated at the mayor’s office and

5 Results: The Effects of Political Boundaries on Diversity and Conflict

This section presents our main empirical results. We first provide motivating evidence that boundary-induced changes in diversity are associated with conflict. We then estimate a rigorous, generalized difference-in-difference (DiD) that recovers the causal effects of redistricting and links changes in ethnopolitical boundaries to violence. We show that despite policymakers' goals, redistricting causes no change in the average incidence of conflict. We argue that this somewhat surprising finding can be explained by heterogeneous changes in ethnic divisions. In areas able to create homogenous new districts, conflict falls. However, conflict increases in areas where redistricting led to greater polarization among the newly defined electorate.

Our main analysis restricts to 52 original districts (d) in 2000 that split into 133 districts by 2014. Among these, 29 original districts are observed from 2000–14 in the SNPK while 23 enter the data in 2005. Nearly all redistricting occurs in the two years before and after the moratorium on splitting from 2004–6.²⁷ While our effective sample size is constrained, the Indonesian setting is arguably the richest available to study the effects of changes in political boundaries. Granular data on diversity and conflict as well as plausibly exogenous timing of redistricting are simply not available in other countries undergoing similar decentralization reforms. Furthermore, we take several steps to address small-sample biases.

5.1 Simple Difference-in-Difference: Changes in Ethnic Divisions and Conflict

We begin with motivating evidence that changes in ethnic divisions are associated with changes in conflict incidence. We regress the change in the average monthly likelihood of social conflict after redistricting on the change in ethnic diversity implied by the new borders. Figure 6 presents results in graphical form, normalizing $\Delta diversity$ and including regression lines with robust 95 percent confidence intervals. In graph (a), a one standard deviation increase in $\Delta polarization$ (P) is associated with a significant 6.8 percentage point (p.p.) increase in group conflict after redistricting. As a benchmark, consider two districts with roughly one standard deviation difference in ΔP . In Kupang, $\Delta P = -0.001$, and conflict fell by 22.2 p.p., whereas in Kotawaringin Barat, $\Delta P = 0.002$, and conflict increased by 12.4 p.p.²⁸ Meanwhile, graph (b) shows that conflict is less responsive to border-induced changes in fractionalization, despite the positive long-run correlation between initial fractionalization and conflict.

The data in Figure 6 suggests a strong relationship between the political boundaries of ethnic polarization and conflict.²⁹ Of course, there are many reasons why these simple DiD estimates might not reflect causal relationships. The rest of the paper aims to rule out these concerns, to understand the

local parliament. The action continued by blocking Trans-Seram Street until the next day. This action is the result of their demands for development." See Appendix B for other examples.

²⁷Only one area in our study splits again after 2008 (in January 2013), and for simplicity we drop observations in 2013 and 2014 for this district. Results are unchanged under other treatments. Four other areas split for the first time in late 2012–13. However, we exclude these from the analysis in order to focus on areas that were credibly affected by the moratoria.

²⁸Recall that these small changes in polarization often imply large changes in ethnic divisions. In Kupang, for example, $\Delta P = -0.001$ captures the split of an original district with three fairly large groups (38 percent Atoni Metto, 32 percent Rote, and 18 percent Sabu) into three homogenous new districts for each (parent with 63 percent Atoni Metto, one child with 93 percent Rote, and another child with 98 percent Sabu).

²⁹These descriptive results exclude one extreme outlier with ΔP six standard deviations below the mean, are robust to controlling for all three $\Delta diversity$ regressors simultaneously, estimating robust Huber (1973) regressions rather than OLS, and conducting small-sample inference. Note, however, that our main generalized DiD estimates below retain the full sample of districts and are robust to small-sample inference and principled outlier removal procedures detailed in Appendix C.4.

dynamics of conflict after redistricting, and to offer a deeper interpretation of the underlying changes in group divisions and social tensions.

5.2 Average Effects of Redistricting

We use a standard generalized DiD specification to identify the effects of redistricting on conflict:

$$conflict_{dt} = \nu + \beta post-split_{dt} + \theta_t + \theta_d + \theta_d \times t + \varepsilon_{dt}, \quad (3)$$

where $post-split_{dt}$ is an indicator equal to one for all months after the original district’s first redistricting was passed into law.³⁰ The month fixed effects, θ_t , sweep out shocks to conflict incidence that are common across all districts. The district fixed effects, θ_d , take out time-invariant level differences in conflict incidence across districts. Meanwhile, the district-specific time trends, $\theta_d \times t$, are important given differential regional trends in violence and are in line with fixed effects specifications in the conflict literature (e.g., [Dube et al., 2016](#); [Dube and Vargas, 2013](#); [Miguel et al., 2004](#)). As noted earlier, we define $conflict_{dt}$ as a binary indicator for any reported incident of social conflict and show robustness to intensive margin specifications. We estimate all specifications using linear probability models (LPM). The coefficient β identifies the average post-redistricting deviation from district-specific conflict trends. We further estimate versions of equation (3) that disaggregate the original districts d and identify separate β for parent and child districts, allowing each to have its own fixed effect and trend.

The monthly panel specification leverages the granularity of both the conflict data and the policy changes (as split approvals vary at the month level). This allows us to capture episodic as well as recurring violence associated with discontent. This is especially useful for exploring political cycles of violence in Section 6, which vary at a sub-annual frequency. In addition, it may offer power benefits relative to a coarser annual frequency given the considerable within-year variation and relatively weak autocorrelation of conflict (see [McKenzie, 2012](#)). We cluster standard errors at the original district level and demonstrate robustness to a battery of alternative approaches to inference in Appendix C.4.

Identifying Assumptions. Two key assumptions underlie the generalized DiD strategy: (i) the timing of redistricting is orthogonal to conflict and its determinants, and (ii) districts would have exhibited parallel departures from their conflict trends in the post-split period absent splitting. We provide supportive evidence here and present further robustness checks in Section 5.5.

First, we show that the timing of redistricting is plausibly exogenous. Cross-sectional regressions in Table 1 relate a normalized x variable to the timing of the initial split in original district d —measured either as the number of months since January 2000 or an indicator for whether splitting occurred after the moratorium. There are no statistically or economically significant effects of initial diversity within the original district borders in 2000, the eventual parent/child district borders in 2010, or the border-induced change, $\Delta diversity$. Although diverse districts are more likely to split, they are no more likely

³⁰Districts that split into three or more all at once pose no particular difficulty. Out of 52 original districts, 11 split at multiple points in time. Consider, for example, Manggarai district, which first created one child, Manggarai Barat in 2003, and then later the parent district was further subdivided to create Manggarai Timur in 2007. In our baseline, we code these using the first date of the split. Results are robust to dropping these multi-split areas or to assigning the date of the split to the month in which the most splits took place for the given original district. However, in all cases, $\Delta diversity$ is computed over the full period, taking the original district and final parent and child districts.

to do so earlier. Moreover, as seen in the bottom panel, we find similarly insignificant timing effects for a large set of 65 confounding variables considered in robustness checks. Our results are consistent with Burgess et al. (2012) who present complementary evidence on exogenous timing.

Second, we provide evidence of parallel pre-trends. One might worry about spikes or dips in conflict prior to redistricting, particularly if such trends were differential with respect to (changes in) diversity. Event study specifications discussed below rule out these concerns.³¹ Moreover, a standard hazard model specification further shows no systematic relationship between changes in prior conflict and the timing of redistricting.³² Overall, this evidence is consistent with the favorable environment for redistricting and the arbitrariness of approval timing due to the moratorium and other factors.

Null Average Effects. Estimation results for equation (3) can be found in Table 2, which shows that redistricting does not change the local incidence of conflict. Column 1 shows a null effect of splitting on the likelihood of conflict incidents at the original district level. The point estimate and standard error are very small relative to the pre-split mean of around 57 percent of original district-months with any incidents. Nor are the null effects explained by differential pre-trends or countervailing ups and downs in conflict after redistricting. This can be seen in the event study specification in Appendix Figure C.1.1(a). The average likelihood of conflict is relatively flat pre- and post-split.

While informative about overall changes in violence, these original district level results may obscure the different implications of redistricting for child and parent districts. Nevertheless, estimating at this more granular level in column 2 leads to similarly null effects. Moreover, this is not due to differential, offsetting effects in parent or child districts as seen in columns 3 and 4.

5.3 Differential Effects of Redistricting: New Ethnic Divisions Amplify Conflict

Next, we identify a much richer set of post-split conflict dynamics by explicitly considering how redistricting transforms ethnic divisions. At the original district level, we therefore augment equation (3):

$$conflict_{dt} = \nu + \beta post-split_{dt} + \phi (post-split_{dt} \times \Delta diversity_d) + \theta_t + \theta_d + \theta_d \times t + \varepsilon_{dt}. \quad (4)$$

The ϕ coefficients identify whether areas that split into more homogeneous and less polarized units experience a differential reduction in conflict. As outlined in Section 3.2, if original district diversity shapes conflict pre-split while diversity within parent and child districts shapes conflict post-split, then post-split changes in conflict incidence should be a function of $\Delta diversity_d$ ($\phi > 0$).

Importantly, the fixed effects, θ_d , absorb the time-invariant effects of initial diversity on conflict. Unlike the simpler DiD in Figure 6, equation (4) accounts for common shocks across districts, as well as differences in district-specific conflict trends. Recall that the timing of redistricting is uncorrelated with $\Delta diversity$, which also does not exhibit differential pre-trends in conflict (see Appendix Figure C.1.2).

³¹ That redistricting is a largely peaceful process here is likely a consequence of the limited and often favorable fiscal and legislative consequences for the parent, combined with these obvious benefits for child districts. While there are cases of violence perpetrated for and against redistricting, such episodes are limited and do not explain the timing of splitting. Indeed, the leading conflict watchdog group in Indonesia highlights a case of violent pressure for splitting in a district of West Sulawesi but notes that “In most cases, this fragmentation [redistricting] has taken part without violence and indeed without much opposition” (International Crisis Group, 2005).

³² In particular, we estimate a Cox (1972) proportional hazards model for time to split and cluster standard errors by original district. Doing so yields a small and insignificant hazard ratio of 1.18 with a p-value of 0.8.

Moreover, we take several steps in Section 5.4, including a Lasso-based “post-double-selection” procedure (Belloni et al., 2014), to show that $\Delta diversity$ is not simply proxying for other initial district characteristics that amplify conflict after splitting.

Core Results. Table 3 reports estimates of equation (4) at different administrative levels, normalizing the $\Delta diversity$ measures. Column 1 demonstrates the conflict-enhancing effects of creating more polarized districts. A one standard deviation increase in ΔP implies a 3.6 percentage point (p.p.) increase in social conflict that is significant at the 5 percent level. This is smaller than the simple difference-in-difference estimate (Figure 6) and implies a 6.3 percent increase in the likelihood of conflict relative to the mean before redistricting.³³ Furthermore, while Δ religious polarization also enters positively, it is less precisely estimated, perhaps due to the more limited range of districts with significant religious divisions. Meanwhile, ΔF has a weaker effect close to zero, albeit less precisely estimated and hence not statistically different from ΔP (p-value=0.17).

We note upfront a few important points of robustness, leaving further details to Section 5.5. First, our findings are more striking after the principled removal of outliers, which leads to a large increase in the effect size for ΔP in particular (see Appendix Figure C.4.1 and Table C.4.1). Second, the qualitative take-aways are robust to alternative (randomization) inference procedures accounting for the small effective sample size and spatial correlation in unobservables (see Appendix Tables C.4.2 and C.4.3). Third, the point estimates are very similar when estimating equation (4) with each diversity measure on its own (see Appendix Table C.6.4).

We consider several benchmarks to shed deeper light on the causal component of the diversity–conflict relationship that can be attributed to political borders. First, the estimated effects of ΔP and ΔF are smaller than the large positive correlations between conflict incidence and diversity across all districts as discussed in Section 3. In other words, the causal component due to political boundaries is slightly smaller for polarization and significantly smaller if not null for fractionalization. Second, the effect of ΔP on conflict is around one-half of the cross-country correlation between ethnic polarization levels (P)—defined similarly based on *Ethnologue* definitions of ethnolinguistic groups—and low-intensity civil conflict in Esteban et al. (2012).³⁴ Third, the effect of border-induced ΔP in Indonesia is roughly one-quarter as large as the effects of migration-induced ΔP within the black population of South Africa (Amodio and Chiovelli, forthcoming).³⁵ This large difference is plausibly due to the fact that changes in local diversity due to migration capture additional conflict-relevant group divisions besides solely ethnic ones, e.g., between native “sons of the soil” and immigrants (Fearon and Laitin, 2011; Weiner, 1978).

The strong effects of ΔP in column 1 of Table 3 highlight a potentially important unintended consequence of using redistricting to create homogenous political entities. In diverse settings with many groups, while it is possible to reduce the number of groups and hence F , it may not be feasible to simul-

³³Recall that unlike the simple DiD, the regression in column 1 is based on all districts including the extreme outlier in ΔP . Omitting that outlier here leads to a larger effect of 5.8 p.p. See Appendix C.4 for further robustness checks on outliers.

³⁴This is based on re-estimating column 1 of Table 4 in their paper and comparing normalized effect sizes. We omit the Greenberg-Gini index of diversity to maintain a stricter comparison to our results, but the effect sizes are similar when including it. Their estimates are based on pooled OLS panel regressions at the five-year frequency, and the dependent variable equals one if the country experiences more than 25 conflict-related deaths with a mean of 0.28. By comparison, this same threshold and five-year frequency in our data implies a mean of 0.29. Interestingly, they too find weaker effects of ethnic fractionalization on conflict when using the full breadth of groups in *Ethnologue*.

³⁵This is based on rescaling their estimate in column 5 of Table 3 by the standard deviation of ΔP , 0.09, in Table A.2.

taneously ensure that the new boundaries do not engender new polarizing divisions. The two districts of Maluku Utara (MU) and Bolaang Mongondow (BW) illustrate the importance of ΔP . While both significantly homogenized based on F ($\Delta F^{MU} = -0.125$ and $\Delta F^{BW} = -0.097$), the new borders generated new ethnic divisions and a larger increase in polarization in MU ($\Delta P^{MU} = 0.005$ and $\Delta P^{BW} = 0.002$). We observe a 36 p.p. increase in conflict in MU compared to a 7 p.p. decline in BW after redistricting.

Parent and Child District Results. To better understand the tradeoffs associated with redistricting, we estimate equation (4) at the smaller, child and parent district boundaries. Changes in violence within these smaller units should also be a function of $\Delta diversity$, specified here as the difference in diversity between the given child or parent district and the original district. As with specification (4), the goal is to identify how changes in the salience of local diversity affect conflict.

There are several advantages to running our specification at this lower geographic level. First, it leverages greater variation in $\Delta diversity$. Second, it allows us to analyze violence around post-split elections, which occur at different times in the parent and child. Finally, it provides a natural way to investigate whether the effects of changing ethnic divisions vary with the scale of changes in local government. As documented in Appendix A, children experience larger increases in fiscal transfers and a reduction in distance to the capital. In the framework of Section 3.2, this arguably implies a larger, post-split increase in $\frac{R}{\gamma}$ in children than parents. Consequently, we would expect the effects of $\Delta diversity$ to be amplified in child districts.

Columns 2–4 of Table 3 estimate these relationships within the given child and parent boundaries. Together, these more granular results reveal similar effects as those at the aggregate original district level, but also point to potential changes in the geography of violence. Pooling parent and child districts in column 2 yields effects that are statistically indistinguishable from those in column 1. Turning to columns 3 and 4, ΔP has similar effects when splitting the sample into parent and child districts, respectively. The effect size is slightly larger for child districts, which also have relatively lower mean conflict before redistricting. Although this difference is imprecise (p-value=0.23), it is consistent with the larger changes in $\frac{R}{\gamma}$ for child districts. Looking at ΔF , we see similarly weak effects as in the original district specification. However, the positive albeit noisy estimate in column 3 suggests that some of the conflict-inducing changes in ethnic divisions may differentially load onto fractionalization in parent districts.

Discussion. While recent models clarify how conflict responds to diversity in long-run equilibrium, our results identify how political boundaries can shock that equilibrium by changing the salience of different group cleavages in society. The estimates in Table 3 identify the magnitude of this shift over a 5–10 year period. That redistricting can alter the effects of diversity so quickly is perhaps surprising. In Section 6, we link the resulting conflict dynamics to the nature of politics and majoritarian elections. While these effects may yet die out over time, the new ethnic divisions may also deepen, bringing us closer to the long-run correlation between diversity and conflict (within stable boundaries).

Our findings offer two policy-relevant, methodological innovations. First, prior work shows how the colonial partitioning of ethnic groups across international borders contributes to modern conflict (e.g., Michalopoulos and Papaioannou, 2016). Our strategy moves beyond static differences to show how changes in political boundaries reshape the ethnic divisions underlying conflict. While infeasible to study these dynamic changes in national boundaries, within-country boundary changes are pervasive

and informative about general mechanisms linking diversity to conflict. Second, by isolating the contribution of political boundaries, we rule out a host of other confounding changes in local ethnic diversity often associated with migration flows, which are of independent interest in the study of conflict.

Our focus on boundary-induced changes in ethnic divisions further contributes to an ongoing debate over which type of diversity matters for conflict. To the extent that redistricting changes the incidence of local public goods, one expects greater heterogeneity in preferences among the governed population to lead to greater conflict. Moreover, if private resources are changing more slowly than public ones, one would expect changes in fractionalization to be less important than changes in polarization (Esteban and Ray, 2011a).³⁶ Further probing the differences between polarization and fractionalization shows that border-induced changes in the deeper ethnic divisions—as reflected in linguistic distances (η) between groups—are driving the changes in violence around redistricting. Additionally, the key results for ΔF and ΔP hold up to inclusion of $\Delta G/N$ where G/N is the Greenberg-Gini diversity index scaled by population as in the structural equation of Esteban and Ray (2011a) tested by Esteban et al. (2012).

5.4 Identification Checks: Isolating Policy-Induced Changes in Ethnic Divisions

This section addresses three key threats to our interpretation thus far: (i) that $\Delta diversity$ is a proxy for other features of Indonesian districts correlated with future conflict, (ii) that changes in contestable public resources confound the effects of $\Delta diversity$, and (iii) that the identifying variation in $\Delta diversity$ reflects endogenous boundary choices.

Accounting for Confounders. We begin by ruling out omitted factors correlated with $\Delta diversity$ and conflict. Specifically, we follow a standard approach in heterogeneous DiD specifications and augment equation (4) with interactions of post-split and an array of potential confounders. Our approach is twofold. First, we separately consider groups of initial predetermined variables chosen based on intuition and prior work (see, e.g., Fearon and Laitin, 2003; Esteban et al., 2012). These include, among others: security presence; public goods access; remoteness, transportation infrastructure and access to markets; population size and age distributions; natural resource intensity; educational and occupational distributions; and topography, soil quality, and water access. Many are indeed highly correlated with diversity.³⁷ As shown in Appendix Tables C.2.1–C.2.4, some of these factors also mediate the effects of redistricting on conflict. However, the key coefficients of interest on ΔP and ΔF remain mostly unchanged across these different specifications. There are of course hundreds of potential confounding variables that one could combine in various ways in this type of exercise. With limited degrees of freedom, this leaves the door open to cherry-picking (Gelman and Loken, 2014).

Therefore, we adopt a second strategy that leverages machine learning to take a more disciplined approach to ruling out omitted variable bias. We utilize the Belloni et al. (2014) double-selection post-Lasso

³⁶This may also explain some of the differential effects of diversity in parent and child districts as noted above. The relative importance of ΔF (albeit noisy) for parent districts could be consistent with a many-group generalization of the conceptual framework that also allows R to reflect the ratio of public to private goods as in the original Esteban and Ray (2011a) model. While both goods may be growing over time with redistricting in parent and child districts, public goods grow more slowly in the former, leaving greater scope for per capita payoffs (to private goods) to shape conflict incentives. This would imply that changes in ethnic divisions reflected in ΔF amplify conflict relatively more than those in ΔP .

³⁷In a cross-section of 310 Indonesian districts, the full set of 65 covariates used in the Lasso procedure below explain 80 (51) percent of the variance in fractionalization (polarization).

method to select a parsimonious set of influential controls from the large number of variables potentially confounding the relationship between $\Delta diversity$ and conflict. In practice, we expand upon the broad set of covariates noted above and use this approach to select additional interactions with *post-split* while penalizing the tendency towards overfitting through a penalty parameter λ .³⁸ Acknowledging the limits of our natural policy experiment, we choose λ to ensure that the number of variables selected remain sufficiently smaller than the effective degrees of freedom. We set $\lambda = 3,000$ as a baseline and consider alternative values in Appendix C.2.

Panel A of Table 4 presents results based on this principled approach to variable selection. The main qualitative and quantitative findings remain unchanged. The point estimates on ΔP with this rich set of Lasso-selected controls are statistically indistinguishable from the baseline without controls except in column 3 where the estimates here are larger. Note that the fixed λ selects a different number of highly relevant controls across columns, which is due to variation in both the sample size as well as the relevant confounders of $\Delta diversity$. Overall, the conclusions remain unchanged for other reasonable values of λ .

Changes in the Local Public Resources. While the confounding effects of other initial district characteristics is limited, it is also important to account for other factors associated with conflict that change with redistricting. We consider here two significant changes motivated by the conceptual framework, namely, changes in local government transfer revenue and proximity to government institutions in the newly created child district capital. Panel B of Table 4 augments the baseline specification in Table 3 with these two measures (detailed in Appendix A).

We draw a few important takeaways from this exercise. First, the effects of $\Delta diversity$ remain similar, with changes in polarization significantly amplifying conflict. Second, both $\Delta transfers$ and $\Delta distance$ enter as expected. Greater transfers (higher R) and greater proximity to the district capital (lower γ) are associated with more conflict after redistricting, particularly in child districts where these changes are much more pronounced. These findings are suggestive, but we do not push the interpretation too far given concerns about endogeneity and limited degrees of freedom.³⁹ Importantly, though, these results further establish that border-induced changes in ethnic divisions matter per se.

Feasible Redistricting. Although initial diversity in 2000 is predetermined, the particular way in which the borders are drawn, and hence $\Delta diversity$, may be endogenous. One concern is that districts that chose particularly unfavorable borders with high ΔP were the ones where future conflict would have risen anyway, say because of bad governance. We show here that the effects of $\Delta diversity$ on conflict are not explained by the particular way that districts chose to draw new borders but rather by institutional constraints on redistricting and ethnic geography that did not allow for more homogenous new districts.

To do so, we consider all the possible ways an original district could split along subdistrict lines into k new districts, given that regulations require each new district has at least three contiguous subdistricts.

³⁸ Appendix E details the full set of 65 potential confounding variables, and Appendix C.2 details our application of this method, which is particularly effective at dealing with the problem of overfitting in a setting where one aims to learn about a particular causal effect of interest rather than simply develop a good prediction of the outcome. We discipline variable selection around ΔP and ΔF and include $\Delta Relig$ as a control. Interestingly, when disciplining on ΔP alone, ΔF is selected among the small number of included confounders.

³⁹ Further exogeneity may be possible using rules on transfers (Cassidy, 2017) and geographic determinants of capital locations (Campante et al., 2017). However, our main goal here is to rule out confounders of $\Delta diversity$, and the OLS results should help assuage first-order concerns.

This provides us with a distribution of feasible partitions, and associated $\Delta diversity$, for each district. Appendix C.3 provides full details on this NP-hard combinatorial problem.

We use this set of feasible partitions to clarify that our identifying variation in $\Delta diversity$ comes from cross-district variation in the set of feasible partitions, as opposed to similar districts choosing very different ways of redrawing their borders. First, we re-estimate our baseline specifications from Table 3, replacing the realized changes in diversity with the mean, feasible ΔP , ΔF , and $\Delta Relig$ for each district. Table 5 shows that this produces very similar results to our baseline, providing initial evidence that strategic redistricting is unlikely to explain our core effects.

To further clarify this point, we look not at the average but rather at random combinations of extreme feasible $\Delta diversity$. Specifically, we re-estimate our baseline specification randomly assigning ΔP (and associated ΔF and $\Delta Relig$) for each district to be either the maximum or minimum from the feasible set.⁴⁰ We repeat this randomized procedure 50,000 times at the original district level and plot the resulting estimates in Appendix Figure C.3.2. All the estimated effects of min or max feasible ΔP are greater than zero and smoothly distributed around the baseline estimated effect size. This is consistent with the fact that within-district variation in feasible splits is small relative to the between-district variation.⁴¹

Together, these results suggest that unobserved heterogeneity in boundary choice does not explain the effects of $\Delta diversity$ on conflict. This further highlights the importance of the preceding exercise ruling out confounding interactions with *post-split*. More substantively, these results demonstrate the importance of designing redistricting schemes that account for constraints on strategic border formation.

5.5 Additional Robustness Checks

This section describes additional robustness checks fully detailed in the Appendix. Overall, this series of tests further bolsters our causal interpretation of the main findings.

We address concerns about the effective sample size in Appendix C.4. We take the disciplined approach of Belsley et al. (2005) to rule out the influence of outliers in the baseline panel regressions in Table 3. Doing so systematically increases the overall effects of ΔP . Moreover, new conservative refinements to inference due to Young (2016) suggest that outliers are not driving our qualitative takeaways.

Next, in Appendix C.5, we address the concern that SNPK coverage might be changing systematically with redistricting. The main concern is that newspapers differentially report on events in locations with greater changes in ethnic divisions, leading to overestimates of the actual effects. The comprehensive coverage of SNPK from many different outlets provides some reassurance. We provide further supportive evidence using auxiliary Google Trends data capturing the relative monthly frequency of search for the original, parent and child district names. While imperfect, this proxy reflects the frequency of general interest in the given location, some of which may be orthogonal to media reporting incentives. To the extent that Google trends are less prone to differential underreporting than the SNPK data, controlling for such trends should dampen the overall effects we estimate if reporting bias is substantial. Nevertheless, doing so leaves our key results unchanged.

⁴⁰That is, on any given draw, one district would receive its minimum ΔP while another district would receive its maximum ΔP , thereby shuffling randomly across all districts.

⁴¹Appendix Figure C.3.1 further illustrates this point by showing examples of how there is relatively little overlap in the distributions of feasible ΔP across original districts. Indeed, original district fixed effects account for over 88 percent of the variation in feasible ΔP .

In Appendix C.6, we address several other concerns about the baseline generalized DiD specification. First, we consider the number of conflict events rather than a binary indicator, leaving the key takeaways mostly unchanged, though introducing more noise. Second, we omit districts that enter the data in 2005, which is important given that these later entrants were selected on account of policy concerns about recent violence. Third, we separately exclude the regions of Aceh and Maluku, which experienced intense conflict in the late 1990s and early 2000s at the onset of decentralization. Fourth, we vary the $\Delta diversity$ vector. Fifth, we consider an alternative identification strategy that includes as additional control areas those nearby districts that have not undergone redistricting. Sixth, we offer evidence on the external validity of our findings across Indonesia by reweighting the sample of districts to account for the likelihood of redistricting following the standard Horvitz and Thompson (1952) approach. Finally, recall that Appendices B.3 and B.4 demonstrate robustness across alternative groupings of violence categories and show that our effects are driven by events with injuries and property damage but not deaths per se.

6 Ethnic Reconfiguration and Political Cycles of Violence

Our core results show that changes in ethnic divisions—arising purely from a reshuffling of *political* boundaries—can affect conflict within a matter of years. This suggests that the boundaries of political contests fundamentally shape the way that diverse groups interact and compete with one another. This section bolsters this interpretation by linking changes in violence to district politics and local elections. District governments play a large role in the local polity with mayors in control of vast public resources. Given the salience of ethnicity during mayoral elections, we investigate how border-induced changes in ethnic divisions affect violence around these political contests. We show that violence surges around new, closely contested mayoral elections, and that these political conflict cycles are amplified in high $\Delta diversity$ areas. Further, we provide evidence of ethnic favoritism in the allocation of public resources as a potential mechanism for generating grievances and amplifying incentives for ethnic mobilization around these majoritarian contests. We conclude by discussing a case of redistricting that nicely captures our broad empirical findings and clarifies the way that political boundaries shape ethnic divisions.

6.1 Electoral Violence

The empirical evidence thus far suggests redistricting may create strong incentives for group mobilization and violence. In settings with weak institutions, such violence may help shape the degree of control that one’s group exerts over new institutions responsible for public goods or help influence resource allocation after another group assumes control. Here, we provide empirical evidence of these mechanisms in the context of mayoral elections.

In Table 6, we augment the parent/child specifications in Table 3 with indicators for direct mayoral election periods. Since these elections are specific to the new parent or child district, we focus on specifications at that administrative level. These quinquennial elections, which began in 2005, vary in their timing (i) in parent districts, due to predetermined path dependence from Suharto-era election schedules (see Martinez-Bravo et al., 2017; Skoufias et al., 2014), and (ii) in child districts, due to the timing

of redistricting (with elections typically occurring 1.5–2.5 years after the split).⁴² Following Harish and Toha (2017) and others cited therein, we define the election period as a six month window centered on the month of the election, but results are similar for other bandwidths. The coefficient on *post-split* × *first (second) election* identifies whether the incidence of conflict during the first (second) election deviates from the average incidence after redistricting. To see whether electoral violence cycles are more likely in newly polarized areas, we further interact post-redistricting election periods with $\Delta diversity$.

Looking across columns of Table 6, the likelihood of social conflict after redistricting is generally higher around the initial mayoral elections, particularly where redistricting sharply changed ethnic divisions. Column 1 shows this result pooling parent and child districts. Columns 2 and 3 show results separately for parent and child districts, pointing to important differences between pre-existing and new seats of government.

Child districts with ΔP one standard deviation above the mean are nearly 70 percent more likely to exhibit differentially more violence around the first election (comparing 0.027 to 0.041). This result lines up with the fact that polarization is associated with closer elections (see Appendix Table D.1.1), and violence is significantly more pronounced during those close elections (see Appendix Table D.2.1). Moreover, the amplifying effect of ΔP on political violence persists and may even be larger during the second election period 5–8 years after redistricting.

Meanwhile, in parent districts, initial elections are generally less violent. Border-induced changes in ethnic polarization seem less important than changes in fractionalization, which exerts a large albeit noisy positive amplification effect.⁴³ Second election periods appear differentially less violent in high ΔP areas, which is unexpected and helps explain the null ΔP in that bottom section of column 1.

The differential effects of changing ethnic divisions on electoral violence in parent and child districts admit several possible interpretations. The relatively stronger effects of changes in ethnic polarization in child districts might be explained by the greater stakes of winning initial elections to control a completely new local government as opposed to winning control of an existing one. Another explanation for these diverging results could be differential institutional capacity. Parent districts may not only run more effective and safer initial elections than child districts but also learn more quickly how to manage the changing ethnopolitical divisions.

Overall, the results in Table 6 suggest that ethnic mobilization around mayoral elections are an important feature of conflict dynamics after redistricting.⁴⁴ As in the baseline, these results are robust to controlling for confounding media attention using Google trends and to specifying the outcome as the intensive margin number of conflict events.

Furthermore, we show in Table 7 that the amplifying effects of $\Delta diversity$ on conflict around may-

⁴²All direct elections in child districts follow splitting. Some original district have first direct elections that precede splitting, and hence we include a term for first direct elections in addition to the term *post-split* × *first election*. We observe a second quinquennial election for the three-quarters of new districts in existence long enough to hold a second round by 2014.

⁴³This may be consistent with the stronger correlation of *F* and *Relig* than *P* with victory margins in parent districts (see Appendix Table D.1.1). And like child districts, more closely contested elections are associated with greater violence in parents (along the intensive margin, see Appendix Table D.2.1).

⁴⁴This is consistent with Tanasaldy (2012, p. 263) who notes that in several areas of West Kalimantan (in our study), “Due to ethnic polarization introduced in previous elections, masses from each ethnic group tended to rally for candidates from their own ethnic group.” Indeed, we bear this out more generally using individual-level data from a 2014 survey, which shows that $\Delta diversity$, and, in particular, $\Delta polarization$ is strongly correlated with the reported importance to voters of mayoral ethnicity and patronage (see Appendix D.1 for details).

oral elections are a distinctive feature of high stakes majoritarian contests for political control. First, in columns 1–3, we find that the effects of $\Delta diversity$ on conflict do not systematically differ during the quinquennial parliamentary (and presidential) elections taking place in April 2004, 2009, and 2014. Although violence is generally more likely during such periods, $\Delta diversity$ exerts no significant amplifying effects as it does during the (staggered) mayoral elections. This difference is consistent with the fact that proportional representation legislative elections impart very different group-based incentives than the majoritarian mayoral elections (see [Esteban and Ray, 2008b](#)).⁴⁵ As a further validation test in columns 4–6, we show that there are no systematic differential effects of $\Delta diversity$ during the (lunar) holy month of Ramadan when conflict is generally lower but not differential with respect to $\Delta diversity$. Across columns, $\Delta diversity$ exhibits small, insignificant heterogeneous effects that are statistically different from the amplifying effects of $\Delta diversity$ around mayoral elections.

Finally, the changes in violence due to changing ethnic divisions are not merely a transitory phenomenon around elections. Across all results in Tables 6 and 7, the coefficient on $post-split \times \Delta P$ is statistically indistinguishable from that in Table 3, meaning that the post-split differences in the incidence of social conflict extend beyond election periods. This is what one would expect if grievances among losing group continued to manifest in violent acts protesting governance- and resource distribution-related issues in the future. Next, we provide evidence for one potential reason for such grievances, namely ethnic favoritism in the allocation of public resources.

6.2 Ethnic Favoritism

Given hotly contested mayoral elections and their interplay with ethnic divisions, one would expect political favoritism towards co-ethnics. Recent studies document favoritism in resource allocation towards newly elected leaders' ethnic homelands in sub-Saharan Africa (see, e.g., [Burgess et al., 2015](#); [Hodler and Raschky, 2014](#)). While a full accounting of this phenomenon in Indonesia is beyond the scope of this study, we present here evidence consistent with ethnic favoritism as a potential factor contributing to the patterns of discontent underlying the link between changes in ethnic divisions and conflict.

Following prior literature, we use nighttime light intensity as a proxy for local economic development and targeted public resources.⁴⁶ Importantly, electricity cannot be provided solely by villages and often requires support from higher levels of government. Mayors have been responsible for setting electricity policy within their districts since 2005 ([Jayawardena, 2005](#)). Moreover, mayors have significant discretionary power in their choice of how to allocate resources across villages ([Aspinall and Asad, 2015](#); [Pal and Wahhaj, 2016](#)). Altogether, this suggests scope for rivalry across villages in access to this public resource, and indeed, publicly-provided electricity is a factor underlying some of the violent incidents reported in the SNPK data.⁴⁷

⁴⁵Fjelde and Höglund (2016) provide similar empirical evidence across electoral systems in sub-Saharan Africa.

⁴⁶Olivia and Gibson (2015) validate a strong correlation of light intensity with district-level output and expenditure data. In the predominantly rural areas of our study, nighttime lights tend to disproportionately capture public street lights. Moreover, not unlike other areas of the developing world, electricity provision in Indonesia is almost exclusively concentrated in a single public utility company, which is often subject to the same sort of political manipulation identified in South Asia (see [Baskaran et al., 2015](#); [Min, 2015](#)).

⁴⁷For example, in Aceh Selatan district on 17 August 2007, "Hundreds of residents of Meukek subdistrict damaged PLN (Public Electricity Company) office and head of Subranting PLN's house by throwing stones. Citizens were induced to action by irritation due to irregular schedules of power outages. Other examples are provided in Appendix B.1. More recent examples,

We investigate ethnic favoritism by exploiting the fact that redistricting often changes either the identity or strength of the dominant group in the district. We examine changes in resources flowing to village v after redistricting as a function of that village's initial ethnic composition. Specifically, we ask whether the new boundaries imply that the village's initial population (N) share of ethnics from the new district's largest group is (i) larger, (ii) smaller, or (iii) the same as the village's initial share of ethnics from the original district's largest ethnic group. Formally, we compare $\frac{N_{e_{\mathcal{O}}v}}{N_v}$ to $\frac{N_{e_i v}}{N_v}$ where $e_{\mathcal{O}}$ is the largest ethnic group in original district \mathcal{O} , and e_i is the largest group in child or parent district i .⁴⁸

For example, appealing to Figure 4, those Gayo majority villages in the new parent district will fall under (ii) since the Gayo are no longer the largest group. Meanwhile, the Gayo majority villages in the new child district of Gayo Lues will fall under (iii) as the largest group has not changed with redistricting. Note that, like most villages in category (iii), the size of their majority in Gayo Lues has increased, consistent with the general reduction in fractionalization that comes with redistricting.

In Table 8, we show how nighttime light intensity evolves across these three different types of villages after redistricting. We consider interactions of post-split with indicators for the change in alignment status, conditional on year and village fixed effects. Villages that lose their alignment with the largest ethnic group (ii) exhibit differentially lower light intensity after redistricting compared to those that either remain (iii) or become newly (i) aligned with the largest group. The results are consistent at both the parent and child level albeit slightly larger and more precisely estimated for the latter. Column 1 suggests that villages that become newly (remain) aligned with the largest group have 1.1 p.p. (2.8 p.p.) more village area with light coverage post-redistricting relative to those that lose their alignment. These are large differences relative to the mean of 16.3 percent of village area covered with any lights.

These results are suggestive of ethnic favoritism, which may be one vehicle for generating the sort of grievances that lead to persistently higher violence in areas where new boundaries create fresh ethnic divisions, even outside of election periods. We turn now to a case study highlighting some of the particular mechanisms underlying our empirical results.

6.3 Case Study

We discuss here an illustrative case study in West Kalimantan. This region has a significant history of ethnic strife including Dayak violence against the Chinese, and repeated clashes between Dayak and Madurese as well as Malay and Madurese. As in the rest of Indonesia, these large-scale open conflicts largely subsided in the early 2000s, replaced by more sporadic violence that remains a serious concern to policymakers (see Barron et al., 2016). We briefly present this interesting case below.

We focus on the original district of Sambas, which split into three separate districts: Sambas, Bengkayang (in 1999), and Kota Singkawang (from Bengkayang in 2001). Before splitting, Sambas was comprised of 52 percent Malay ethnics, 15 percent Dayak, and 15 percent Chinese, with other smaller groups including Javanese and Madurese. Redistricting significantly altered these group shares.

not (yet) in SNPK, provide further insight into the politicization of electricity provision with demonstrations against both PLN and the mayor (KabarNias, 2015) or being led by village heads against PLN (ProKal, 2016).

⁴⁸Note that if the largest group does not change with splitting, the village will fall under category (iii). Nearly 70 percent of these villages are in districts where the share of the largest group increased. There are 1,764 villages in 32 districts in category (i), 558 villages in 28 districts in category (ii), and 12,182 villages in 119 districts in category (iii).

After the fall of Suharto, demands for decentralization and local empowerment spread across Indonesia, and West Kalimantan was no exception. As Tanasaldy (2012, p. 269) notes “In West Kalimantan such [native empowerment] movements were initially led by Dayaks who demanded more top jobs in the government and competed zealously against the Malays, for those political positions. Held in check during the authoritarian New Order [Suharto era], political polarization between the two ethnic groups was now unavoidable.”

With these mounting tensions came a push for redistricting, motivated in part by a desire to reduce ethnic divisions. Tanasaldy notes that “government officials thought that separating conflict-prone areas and allowing the Dayaks to govern their own areas was a solution to chronic ethnic conflicts there.” After the two splits, the now-parent district of Sambas was about 82 percent Malay, with the next largest group being ethnic Chinese at 8 percent. Bengkayang became 54 percent Dayak, 19 percent Malay, and 6 percent Chinese, while Singkawang was 37 percent Chinese, 20 percent Malay, 17 percent Dayak, and 10 percent Jawa. This split is often depicted as having cleanly separate the three groups: “the Malays in Sambas, the Chinese in Singkawang, and the Dayaks in Bengkayang” (Kobayashi, 2011, p. 374). However, as evident from the group shares, Singkawang remains far more polarized than Benkayang.

In Sambas and Bengkayang, the split was successful in reducing violence as the changing ethnic divisions translated into more amicable politics. Kobayashi nicely summarizes, noting that “district head elections became less tense because the Dayaks and Malays understood each others’ rights to lead districts where they were dominant,” and more generally that “interethnic strife to obtain political positions has declined since 2000.” Government officials often argue that redistricting “contributed to prevention of ethnic violence,” drawing connections, for example, between increased Dayak representation in the civil service and the end of violent street demonstrations.

Meanwhile, Singkawang presents an interesting contrast. Despite being a significant 40 percent plurality, the Chinese had generally stayed out of politics, with the “sons of the soil” Malay typically dominating. However, in 2007, the first direct mayoral election after redistricting brought their numeric advantage to the fore amidst a growing “desire within the Chinese community to increase the number of Chinese in the government and to elect a Chinese mayor” (Kobayashi, 2011, p. 295). In the 2007 election, much to the surprise of the Malay candidates, Hasan Karman, an ethnic Chinese beat the three Malay candidates (whose votes were split). Once in power, though, Karman “fumbled the delicate issue of ethnicity”, as he “irked Malays by building a [Chinese] dragon statue. . . in the heart of the city” and “disparaged the Malay community. . . by [publicly] linking them to pirates” (Sukarsono, 2012).⁴⁹ In the 2012 election, tensions mounted amid Chinese accusations of intimidation and vote-tampering after the Malay candidate won. Violent clashes erupted between Malay security personnel and Chinese protestors outside the election commission office.⁵⁰

Overall, West Kalimantan highlights both the promise and pitfalls of redistricting as a vehicle for reshaping ethnic divisions in society. Greater homogeneity in Sambas and Bengkayang may have helped to resolve some of the longstanding interethnic grievances. However, the new district of Singkawang

⁴⁹These violent incidents are reported in the SNPK data with event details such as “series of arson cases by unknown perpetrators believed to be related to ethnical issues” in May 2010, and “there was a clash in the parade of Singkawang Parliament, the village of Pasiran, the city of Singkawang. Clash involving two groups of the pro and contra period of the construction of a dragon statue that will be built at the crossroads (2 injured)” in July 2010.

⁵⁰This event is reported in the SNPK data on October 1st, 2012 as “a clash between the masses and the police when the Mayoral Candidate campaign handed over evidence of more than 3,000 people being denied the vote. [2 injured]”

gave rise to fresh grievances and cycles of violence by invigorating hitherto less salient ethnic divisions. These cases highlight the tradeoffs of redistricting in diverse societies where creating purely homogeneous political units is not feasible everywhere.

7 Discussion

This paper identified the casual effect of political boundaries on ethnic divisions. We showed how re-drawing subnational boundaries can alter the salience of different ethnic cleavages in society, and, in turn, affect conflict. By bringing the government closer to the governed, redistricting holds promise for increasing social stability. However, this common policy reform is not without pitfalls. Our natural experiment showed in particular that fresh cycles of violence may erupt when new borders increase ethnic polarization. We argued further that electoral democracy may amplify the underlying incentives for group mobilization that often lead to violence. Overall, our findings provide novel evidence on the interlinkages between ethnic and political divisions. These results help inform ongoing debates on the causes of violence as well as policy efforts aimed at curbing it.

Some of our findings suggest that border-induced changes in ethnic divisions may have persistent effects on conflict. This persistence can be interpreted through the lens of models like [Rohner et al. \(2013b\)](#), which feature vicious cycles of inter-group violence and erosion of trust. Political violence in newly created districts may be particularly prone to such dynamics as seen, for example, in the case of Singkawang. While over the long-run redistricting may foster new interethnic interactions, learning and cooperation, it is important to understand and prepare for the scope for violence during the transition.

Local government proliferation is a pervasive feature of decentralization today. Although our findings may not fully generalize to other settings, the widespread prevalence of ethnic mobilization ([Fearon, 2006](#)) and favoritism ([De Luca et al., 2017](#)) suggest that similar conflict dynamics could play out in other diverse countries. For example, [Green \(2010\)](#) discusses some of the same unintended consequences of redistricting in Uganda that we identify empirically in Indonesia. Nevertheless, we acknowledge that ours is only a partial analysis of the vast political and economic implications of redistricting.

We see four important directions for future research on redistricting in Indonesia and elsewhere. First, a small but growing literature highlights the importance of *within*-ethnolinguistic or -religious group heterogeneity in culture ([Desmet et al., 2017](#)), genes ([Arbatli et al., 2015](#)), or income ([Esteban and Ray, 2008a](#); [Mitra and Ray, 2014](#)) in shaping conflict. This is an interesting question in the context of decentralization and one that can be explored using heterogeneity in responses to household survey questions on preferences, variation in vote shares for different parties of the same religion, and within-group educational or occupational inequality.

A second question is whether redistricting can be a vehicle for a central government to constrain secessionist tendencies. Coming on the heels of East Timor's independence and concerns about break-away regions in Aceh and Papua, Indonesian policymakers in the late 1990s strategically chose districts rather than provinces as the primary administrative units allowed to proliferate. According to observers like [Booth \(2011\)](#), their goal, among others, was to fracture the strength of broader regional identities. It would be interesting to explore whether this policy of "breaking up to stay together" stifles secessionist sentiments and ultimately shifts violence from higher to lower levels.

Third and relatedly, redistricting has the potential to activate more granular cultural distinctions. Although many areas created ethnically homogenous districts, sub-ethnic distinctions may have emerged over time as groups sought new vehicles for political mobilization. Redistricting may have contributed to the dramatic growth in the number of self-reported ethnic identities from 1,087 in the 2000 Census round to 1,331 in the 2010 round. As recounted in [Fearon \(2006\)](#), [Horowitz \(1985, p. 66\)](#) provides a telling example of this burgeoning of local identity in the Indian context of state proliferation in the 1950s: In Madras state, "... with large Tamil and Telugu populations, cleavages within the Telugu group were not very important. As soon as a separate Telugu-speaking state was carved out of Madras, however, Telugu subgroups—caste, regional, and religious—quickly formed the bases of political action." In the Indonesian context, one could explore empirically how political boundaries lead to new forms of identity related not only to sub-ethnic distinctions but also to shared national identity ([Bazzi et al., 2018](#)).

Finally, there are several open questions about the public goods and welfare consequences of redistricting. Recent studies identify environmental externalities ([Burgess et al., 2012](#); [Lipscomb and Morarak, forthcoming](#)). There are other interesting implications of reduced government scale and changes in the network of administrative responsibilities; not to mention increased proximity to service providers in the new district capitals. A full account of the welfare implications of redistricting clearly extends beyond the effects of changing ethnic divisions.

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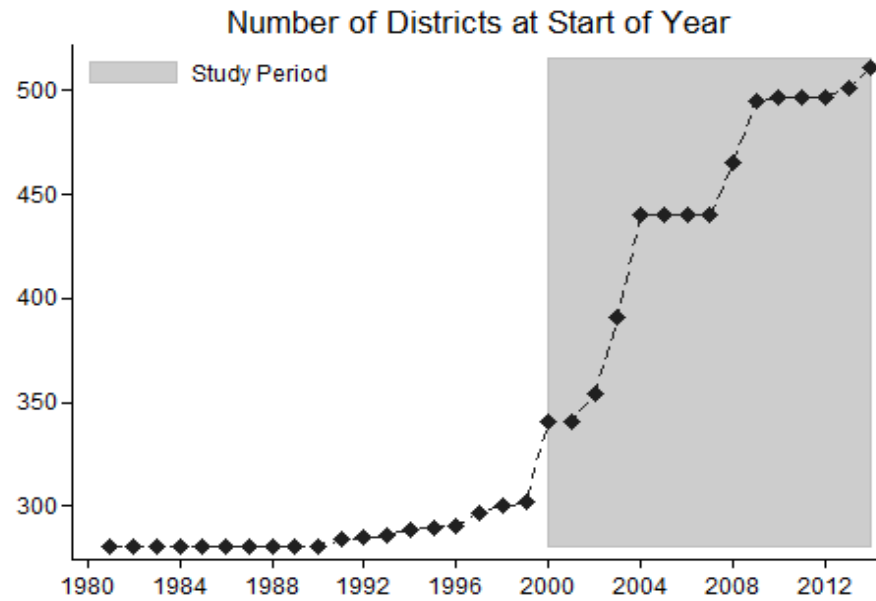
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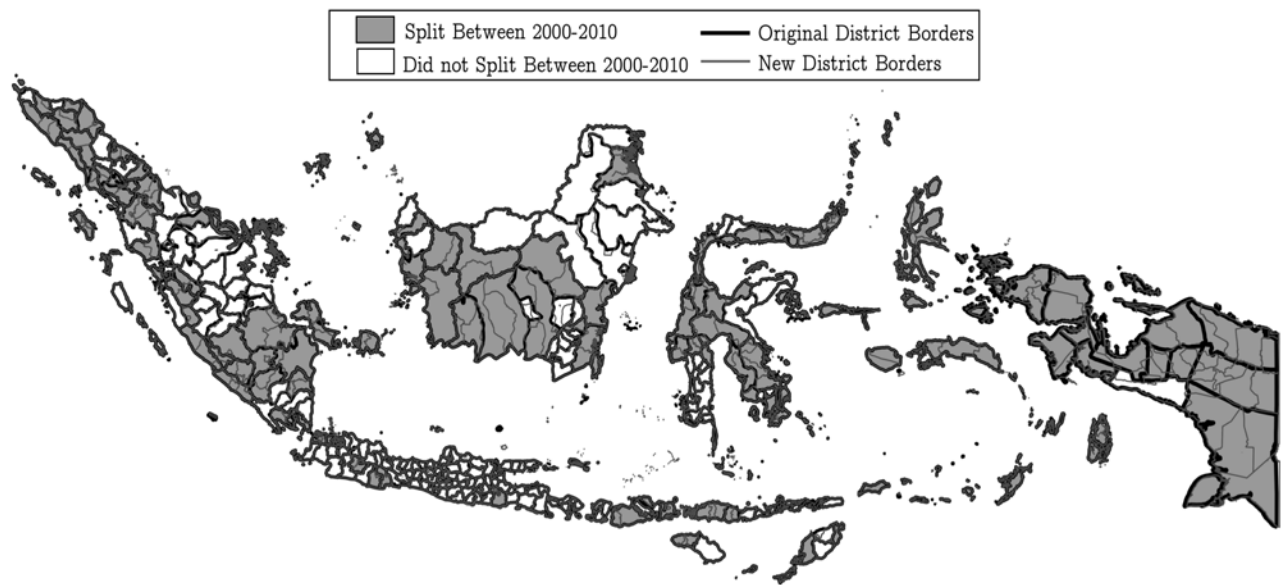
Figures

Figure 1: Indonesia's Remarkable Wave of Redistricting



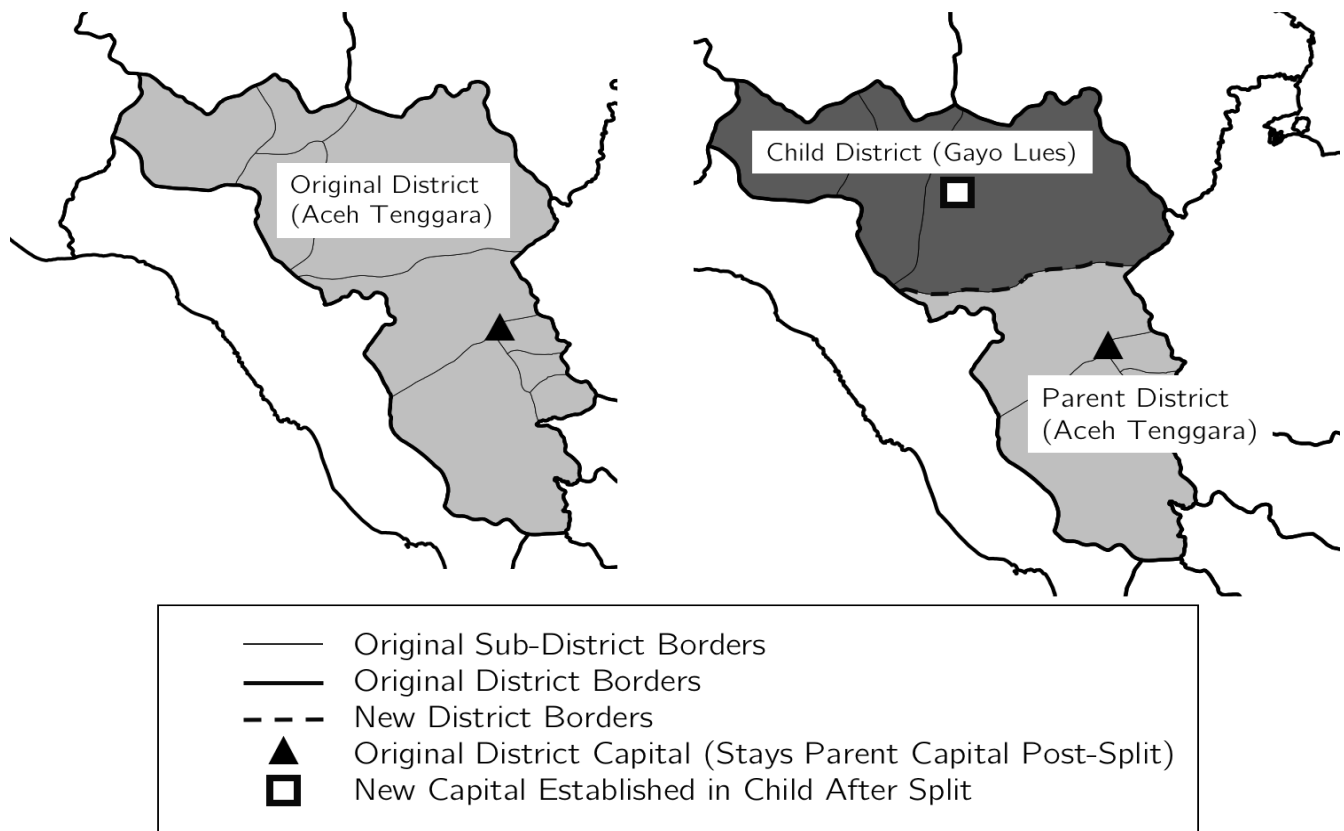
Notes: This figure captures the evolution of new districts across Indonesia from 1980–2014 based on the month each district was passed into law.

Figure 2: Redistricting across the Country



Notes: This map plots the original and new district borders based on district-level shapefiles for 2000 and 2010.

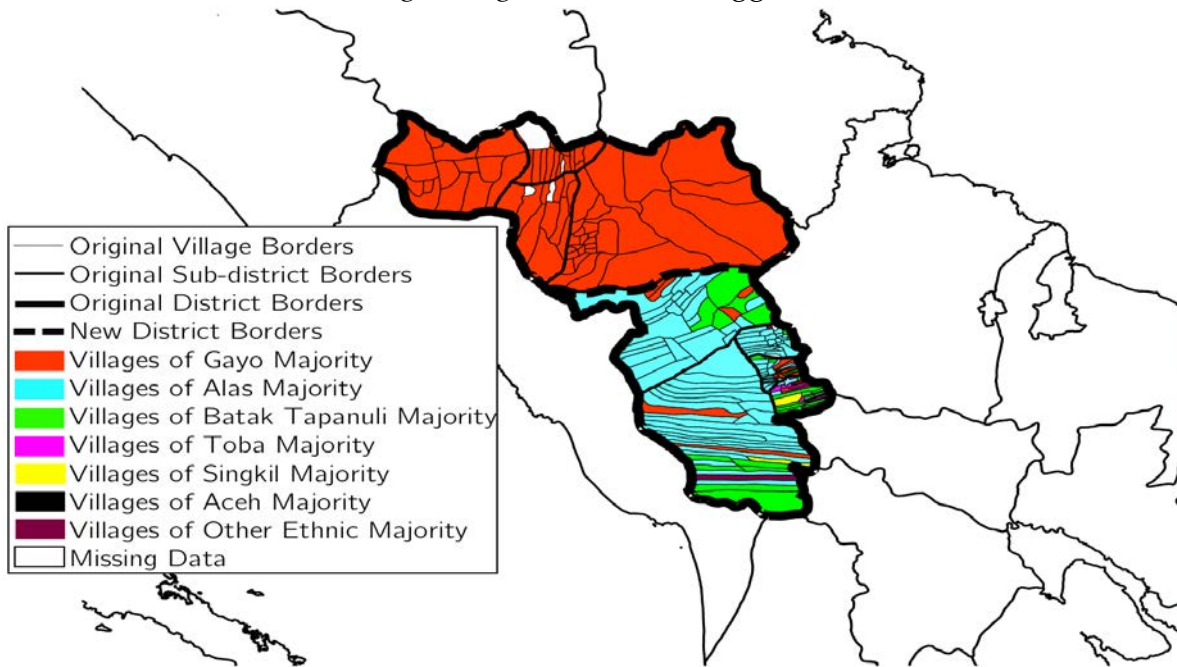
Figure 3: Example of Redistricting into Parent and Child Districts



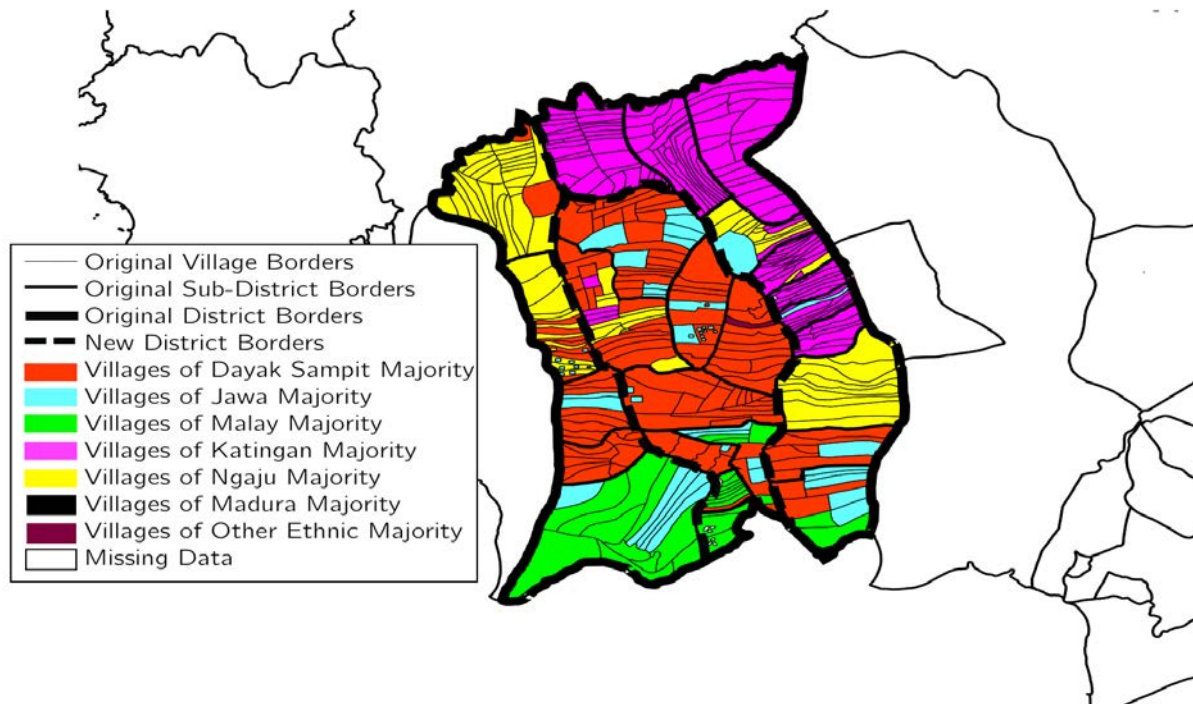
Notes: This figure provides an example of the redistricting process and our nomenclature for the different administrative divisions.

Figure 4: Examples of Border-Induced Δ Diversity

(a) *Homogenizing Case: Aceh Tenggara District*

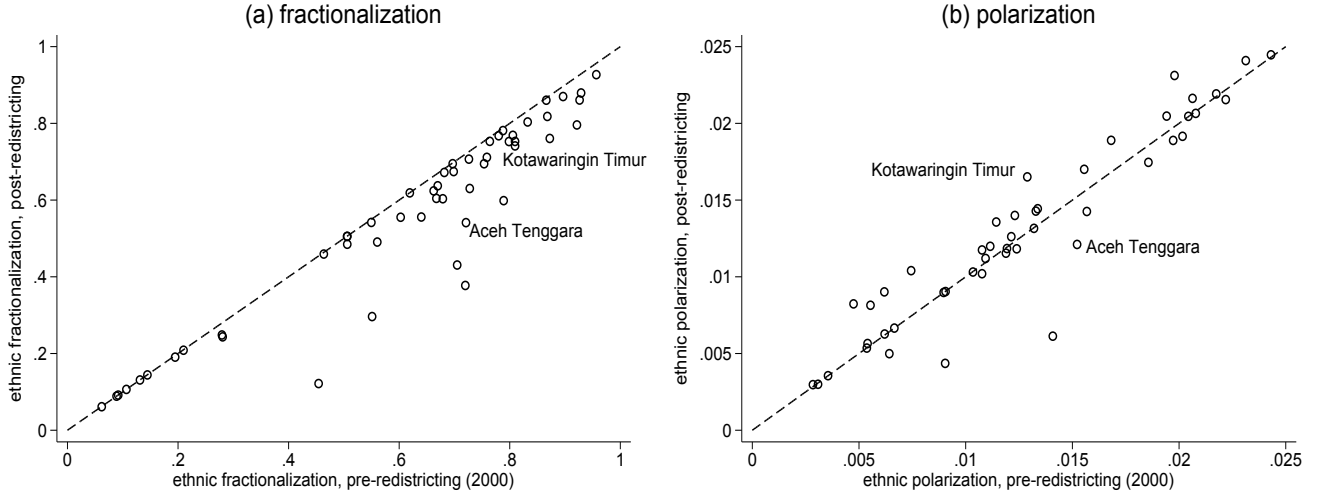


(b) *Newly Salient Divisions: Kotawaringin Timur District*



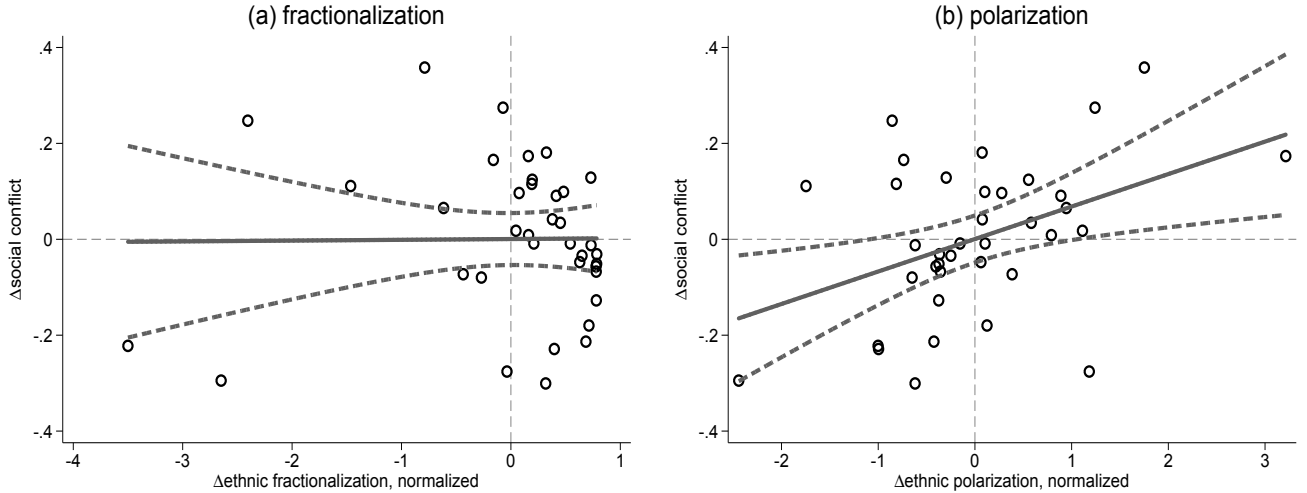
Notes: This figure provides two examples of the types of redistricting patterns that we see in our data in terms of changes in policy-relevant ethnic diversity. Figure (a) shows the original district of Aceh Tenggara as in Figure 3, and Figure (b) shows the original district of Kotawaringin Timur, which splits into two child districts, Seruyan on the left and Katingan on the right with the parent district in the middle. In both figures, we color code the villages based on the majority ethnic group in the village in the 2000 Population Census with red indicating the largest group in the original district as a whole, aqua the second largest, and so on, with a few villages in white with missing data or inability to match with shapefiles.

Figure 5: Diversity Before and After Redistricting



Notes: These figures plot diversity at the original district level baseline boundaries in 2000 (x-axis) against the 2010 boundaries after redistricting (y-axis). The latter measure is the population-weighted average of diversity in the new parent and child districts, but again based on the population residing in those areas at baseline in 2000. The dashed 45 degree line indicates the locus of points along which the new borders imply no change in diversity, and the vertical distance between each point and the line captures our $\Delta diversity$ measure. For presentational purposes, we omit the top 4 districts with baseline polarization >0.025 , though they are of course included in all regression analysis. In both graphs, we identify the two example districts seen in Figure 4.

Figure 6: Simple Difference-in-Difference: Δ Conflict against Δ Diversity



Notes: This figure presents a simple difference-in-difference regression relating $\Delta diversity$ to changes in social conflict captured by the difference in the mean monthly likelihood of any violence before versus after redistricting. The results are restricted to those 38 original districts with conflict data pre- and post-redistricting. Graph (a) shows results for fractionalization and (b) for polarization. The thick dashed lines are robust 95 percent confidence intervals. The point estimate in (a) is 0.002 (0.050) and in (b) is 0.068 (0.029)** with robust standard and the HC3 degrees-of-freedom adjustment. We omit one extreme outlier (with ΔP six standard deviations below the mean) based on standard outlier detection methods. All districts, including this outlier, are retained in the main generalized DiD estimates in the paper, and Appendix C.4 presents a battery of small-sample robustness and inference procedures.

Tables

Table 1: Plausibly Exogenous Timing of Redistricting

	Dependent Variable:	
	no. months until split mean: 53	1(post-moratorium split) mean: 0.31
Panel A: Diversity	Standardized Coefficient	
original district ethnic fractionalization	2.183 (4.267)	0.011 (0.071)
original district Δ ethnic fractionalization	2.328 (3.417)	0.033 (0.061)
child district ethnic fractionalization	2.641 (3.984)	0.009 (0.069)
parent district ethnic fractionalization	4.416 (3.962)	0.051 (0.066)
original district ethnic polarization	-1.829 (2.882)	-0.006 (0.048)
original district Δ ethnic polarization	2.168 (1.880)	0.039 (0.026)
child district ethnic polarization	-1.545 (3.122)	-0.002 (0.045)
parent district ethnic polarization	1.412 (4.002)	0.045 (0.071)
original district religious polarization	1.530 (3.343)	-0.024 (0.060)
original district Δ religious polarization	-1.461 (2.276)	0.022 (0.033)
child district religious polarization	-1.107 (3.821)	-0.063 (0.060)
parent district religious polarization	2.653 (3.749)	0.013 (0.063)
Panel B: 65 Potential Confounders (see Appendix C.2)		
mean standardized coefficient	0.096	-0.005
actual number of significant predictors at 5% level	4	3
expected number of significant predictors at 5% level by chance	3.3	3.3

Notes: Each cell is a different bivariate OLS regression of the timing of the first split on initial district characteristics, each of which is measured in 2000 before the onset of redistricting. The dependent variable in column (1) counts the number of months between January 2000 and the month in which each original district split, and in column (2) is an indicator for whether the split happened after the moratorium from 2004–6. Coefficients are based on standardized variables. Panel A looks at ethnolinguistic and religious diversity, including the Δ measure capturing differences between parent/child and original district diversity levels. Panel B looks at the 65 controls capturing a broad array of confounders associated with proximity to security forces, economic development, public goods, demographics, natural resource intensity, political factors, economic structure, geography/topography, and remoteness. See Appendix C.2 for a discussion of the variables and Appendix E for further details. The mean effect size is the average standardized coefficient. The sample size is the 52 original districts in our main analysis, and all regressions include an indicator if the district entered the SNPK data in 2005. Robust standard errors are in parentheses. Significance levels: * : 10% ** : 5% *** : 1%.

Table 2: Average Effects of Redistricting on Social Conflict

Administrative Unit:	Original District (1)	Parent & Child (2)	Parent (3)	Child (4)
post-split	-0.008 (0.026)	0.001 (0.022)	0.002 (0.028)	0.001 (0.025)
Number of District-Months	7,956	20,220	7,956	12,264
Number of Districts	52	133	52	81
Dep. Var. Mean, Pre-Split	0.57	0.33	0.47	0.25

Notes: The dependent variable in all columns is an indicator equal to one if there is any social conflict in that district-month. *post-split* is an indicator equal to one for all months after which the original or parent district experiences its first redistricting and a child district is officially passed into law. Columns 1–4 are estimated at the respective administrative unit level listed at the top of the column. There are 52 original districts in column 1, 133 parent/child districts in column 2, 52 parent districts in column 3, and 81 child districts in column 4. All specifications include month FE, district FE, district-specific time trends, and dummies for the number of papers used by coders for the given province-month. Standard errors are clustered by original district. Significance levels: * : 10% ** : 5% *** : 1%.

Table 3: Redistricting, Changing Ethnic Divisions, and Conflict

Administrative Unit	Original District (1)	Parent & Child (2)	Parent (3)	Child (4)
post-split	-0.012 (0.025)	-0.003 (0.021)	0.001 (0.026)	-0.005 (0.025)
post-split \times Δ ethnic polarization	0.036** (0.018)	0.032 (0.019)	0.027** (0.013)	0.043* (0.025)
post-split \times Δ ethnic fractionalization	-0.003 (0.019)	0.000 (0.012)	0.035 (0.026)	-0.011 (0.019)
post-split \times Δ religious diversity	0.014 (0.013)	-0.009 (0.011)	-0.031 (0.021)	-0.005 (0.014)
Number of District-Months	7,956	20,220	7,956	12,264
Number of Districts	52	133	52	81
Dep. Var. Mean, Pre-Split	0.57	0.33	0.47	0.25

Notes: The dependent variable in all columns is an indicator equal to one if there was any social conflict in that district-month. *post-split* is an indicator equal to one for all months after which the original or parent district experiences its first redistricting and the child district is officially passed into law. Δ diversity measures are normalized to mean zero, standard deviation one. Columns 1–4 are estimated at the respective administrative unit level listed at the top of the column. Δ of the given diversity measure captures the difference in diversity between pre-redistricting (2000) and post-redistricting (2010) boundaries, based on the initial population in 2000. For the original district, this is a weighted average of the parent and child districts. For the parent and child districts, this is a simple difference of their diversity and the original district's diversity. All specifications include month FE, district FE, district-specific time trends, and dummies for the number of papers used by coders for the given province-month. Standard errors are clustered by original district. See the notes to Table 2. Significance levels: * : 10% ** : 5% *** : 1%.

Table 4: Further Isolating the Effects of Changes in Ethnic Divisions (I)

Administrative Unit	Original District (1)	Parent & Child (2)	Parent (3)	Child (4)
Panel A: Other Controls \times Post-Split Selected via Double Lasso ($\lambda = 3,000$)				
post-split	-0.013 (0.026)	-0.001 (0.017)	-0.017 (0.024)	-0.003 (0.022)
post-split \times Δ ethnic polarization	0.028** (0.013)	0.032** (0.016)	0.079*** (0.016)	0.040 (0.026)
post-split \times Δ ethnic fractionalization	-0.024 (0.020)	-0.003 (0.012)	0.017 (0.040)	0.016 (0.019)
post-split \times Δ religious diversity	0.019 (0.013)	-0.005 (0.012)	-0.026 (0.022)	-0.010 (0.016)
number of post-split \times Lasso-selected controls	6	19	14	12
Number of District-Months	7,956	20,220	7,956	12,264
Number of Districts	52	133	52	81
Dep. Var. Mean, Pre-Split	0.57	0.33	0.47	0.25
Panel B: Accounting for Changes in Local Public Resources After Redistricting				
post-split	-0.006 (0.027)	-0.001 (0.021)	0.002 (0.027)	-0.002 (0.024)
post-split \times Δ ethnic polarization	0.038** (0.014)	0.032* (0.017)	0.023 (0.015)	0.034* (0.020)
post-split \times Δ ethnic fractionalization	-0.006 (0.022)	0.006 (0.012)	0.035 (0.027)	0.005 (0.017)
post-split \times Δ religious diversity	0.013 (0.013)	-0.013 (0.012)	-0.031 (0.021)	-0.014 (0.016)
post-split \times Δ transfer revenue	0.037 (0.028)	0.027** (0.012)	-0.004 (0.021)	0.038*** (0.012)
post-split \times Δ distance to district capital	-0.002 (0.019)	-0.012 (0.013)	0.010 (0.016)	-0.033 (0.020)
Number of District-Months	7,836	19,980	7,836	12,144
Number of Districts	51	131	51	80
Dep. Var. Mean, Pre-Split	0.57	0.33	0.47	0.25

Notes: This table presents two robustness checks on the main results in Table 3. Panel A introduces additional interactions of *post-split* and initial district characteristics. We rely on the Belloni et al. (2014) double-selection post-Lasso approach to select a parsimonious set of influential confounders from the large set of potential covariates we marshal from various data (see Appendix C.2 for details). Subject to a penalty parameter, λ , that helps control overfitting, each column includes a given set of additional *post-split* interactions with the number varying with the specification. Alternative values of λ are explored in Appendix C.2. Panel B augments the baseline specification in Table 3 with two measures capturing changes in public resources and proximity to government institutions due to redistricting. Δ *transfer revenue* is the difference in log average annual transfer revenue post-split and average annual transfer revenue pre-split under the assumptions of allocations proportional to population pre-split in the parent and child district specifications. Δ *distance to district capital* is the population-weighted average village-level difference in log reported travel distance to the district capital in 2011 (post-split) and 2000 (pre-split) as reported by village officials. All variables are normalized to mean zero and standard deviation one. These regressions omit one original district in Jakarta on account of it being in the national capital and not receiving the same stream of general district transfer revenue. The dependent variable in all columns is an indicator equal to one if there was any social conflict in that district-month. All specifications include month FE, district FE, district-specific time trends, and dummies for the number of papers used by coders for the given province-month. Standard errors are clustered by original district. Significance levels: * : 10% ** : 5% *** : 1%.

Table 5: Further Isolating the Effects of Changes in Ethnic Divisions (II)
Mean Feasible Δ Diversity Based on Potential Redistricting Schemes

Administrative Unit	Original District (1)	Parent & Child (2)	Parent (3)	Child (4)
post-split	-0.015 (0.027)	-0.010 (0.022)	-0.005 (0.027)	-0.011 (0.026)
post-split \times mean feasible Δ ethnic polarization	0.053** (0.023)	0.032** (0.014)	0.046*** (0.017)	0.031** (0.014)
post-split \times mean feasible Δ ethnic fractionalization	-0.021 (0.017)	-0.009 (0.011)	0.016 (0.021)	-0.019 (0.016)
post-split \times mean feasible Δ religious diversity	0.009 (0.022)	-0.009 (0.013)	-0.012 (0.026)	-0.001 (0.014)
Number of District-Months	7,680	18,540	7,680	10,860
Number of Districts	50	121	50	71
Dep. Var. Mean, Pre-Split	0.57	0.34	0.47	0.25

Notes: This table presents robustness checks on the main results in Table 3. Instead of actual $\Delta diversity$, this table uses the mean of feasible $\Delta diversity$ based on the simulation of potential legal redistricting schemes (see Section 5.5 and Appendix C.3, which also considers other moments besides the mean). $\Delta diversity$ measures are normalized to mean zero, standard deviation one. These regressions omit two original districts for which a large number of feasible partitions (over which to compute reliable moments) was computationally intractable. The dependent variable in all columns is an indicator equal to one if there was any social conflict in that district-month. All specifications include month FE, district FE, district-specific time trends, and dummies for the number of papers used by coders for the given province-month. Standard errors are clustered by original district. Significance levels: * : 10% ** : 5% *** : 1%.

Table 6: Changes in Ethnic Divisions, Mayoral Elections and Conflict

Administrative Unit	Parent & Child (1)	Parent (2)	Child (3)
post-split	-0.003 (0.022)	-0.002 (0.027)	-0.008 (0.025)
post-split \times Δ ethnic polarization	0.030 (0.019)	0.025* (0.014)	0.042 (0.025)
post-split \times Δ ethnic fractionalization	-0.000 (0.012)	0.034 (0.027)	-0.011 (0.019)
post-split \times Δ religious diversity	-0.007 (0.012)	-0.033 (0.022)	-0.002 (0.015)
post-split \times first election period	0.044 (0.044)	-0.006 (0.051)	0.041* (0.021)
post-split \times first election period \times Δ ethnic polarization	0.026** (0.011)	0.014 (0.022)	0.027*** (0.010)
post-split \times first election period \times Δ ethnic fractionalization	-0.004 (0.018)	0.043 (0.034)	-0.010 (0.018)
post-split \times first election period \times Δ religious diversity	-0.009 (0.016)	0.016 (0.035)	-0.017 (0.021)
post-split \times second election period	0.049** (0.022)	0.042 (0.027)	0.055* (0.032)
post-split \times second election period \times Δ ethnic polarization	0.009 (0.010)	-0.039*** (0.014)	0.056** (0.022)
post-split \times second election period \times Δ ethnic fractionalization	0.001 (0.018)	0.026 (0.030)	-0.012 (0.019)
post-split \times second election period \times Δ religious diversity	0.025 (0.027)	0.052** (0.024)	0.015 (0.031)
Number of District-Months	19,980	7,836	12,144
Num Dist	131	51	80
Pre-Split Mean	0.325	0.467	0.245

Notes: The dependent variable in all columns is an indicator equal to one if there was any social conflict in that parent or child district-month (see the notes to Table 2). *post-split* is an indicator equal to one for all months after which the child district is passed into law. $\Delta diversity$ measures are normalized to mean zero, standard deviation one. Since post-split mayoral elections are specific to the new parent or child district, we focus here on specifications at that administrative level rather than the original district level. The first election period is an indicator capturing the 6 month window around the district-specific date of the first direct election for the district head after splitting into child and parent districts. The parent district elections occur based on the predetermined schedule inherited from the Suharto era while the child district elections typically occur around 1.5–2 years after redistricting. Hence, parent and child district elections occur at different times. The second election period is defined similarly and occurs five years after the initial election. These second election coefficients are only identified for the three-quarters of districts observed for long enough to hold that second round during our study period. We also include controls for the pre-split election periods, which take place in 10 of the original districts. Hence, the reference period in all columns is the pre-redistricting, non-election period. See Appendix E for details. All specifications include month FE, district FE, district-specific time trends, and dummies for the number of papers used by coders for the given province-month. Standard errors are clustered by original district. Significance levels: * : 10% ** : 5% *** : 1%.

Table 7: Political Mechanisms: Mayoral versus Parliamentary Elections versus Ramadan

Administrative Unit	Parent & Child	Parent	Child	Parent & Child	Parent	Child
	event: Parliamentary Election			event: Ramadan		
	(1)	(2)	(3)	(4)	(5)	(6)
post-split	-0.008 (0.021)	-0.009 (0.027)	-0.010 (0.025)	0.007 (0.022)	0.003 (0.028)	0.005 (0.026)
post-split \times Δ ethnic polarization	0.031 (0.019)	0.027** (0.013)	0.041 (0.026)	0.031 (0.019)	0.029** (0.014)	0.040 (0.024)
post-split \times Δ ethnic fractionalization	-0.000 (0.012)	0.034 (0.027)	-0.011 (0.019)	-0.000 (0.013)	0.035 (0.027)	-0.012 (0.020)
post-split \times Δ religious diversity	-0.011 (0.012)	-0.038* (0.021)	-0.005 (0.015)	-0.011 (0.012)	-0.038* (0.021)	-0.005 (0.015)
post-split \times mayoral election period	0.065 (0.043)	0.053 (0.046)	0.046*** (0.017)	0.059 (0.043)	0.046 (0.046)	0.046*** (0.017)
post-split \times mayoral election period \times Δ ethnic polarization	0.016** (0.007)	-0.010 (0.008)	0.039*** (0.010)	0.017** (0.007)	-0.009 (0.007)	0.040*** (0.011)
post-split \times mayoral election period \times Δ ethnic fractionalization	0.001 (0.013)	0.037** (0.016)	-0.008 (0.014)	0.000 (0.013)	0.036** (0.017)	-0.010 (0.014)
post-split \times mayoral election period \times Δ religious diversity	0.007 (0.016)	0.041** (0.016)	-0.003 (0.018)	0.007 (0.016)	0.040** (0.016)	-0.004 (0.017)
post-split \times event period	0.154** (0.066)	0.266*** (0.077)	0.091 (0.085)	-0.068** (0.029)	-0.038 (0.038)	-0.079* (0.041)
post-split \times event period \times Δ ethnic polarization	-0.013 (0.010)	0.002 (0.029)	-0.020 (0.016)	-0.001 (0.006)	-0.008 (0.009)	0.003 (0.008)
post-split \times event period \times Δ ethnic fractionalization	0.008 (0.017)	0.025 (0.040)	0.012 (0.018)	0.003 (0.010)	-0.002 (0.012)	0.007 (0.014)
post-split \times event period \times Δ religious diversity	0.019 (0.011)	0.063** (0.029)	0.007 (0.013)	0.011 (0.009)	0.021 (0.016)	0.006 (0.011)
Number of District-Months	19,980	7,836	12,144	19,980	7,836	12,144
Number of Districts	131	51	80	131	51	80
Pre-Split Mean	0.33	0.47	0.25	0.33	0.47	0.25
Δ polarization \times election = Δ polarization \times event , p-value	0.005	0.654	0.004	0.001	0.915	0.011
Δ fractionalization \times election = Δ fractionalization \times event , p-value	0.689	0.788	0.324	0.883	0.101	0.433

Notes: This table allows the effects of $\Delta diversity$ to vary with mayoral election periods and parliamentary election periods in columns 1–3 and holy month of Ramadan periods in columns 4–6. Mayoral election periods pool the first and second election windows considered separately in Table 6. Parliamentary election periods comprise the 6 month windows centered on the month of April in 2004, 2009, and 2014 when such elections take place simultaneously around the country. Ramadan periods include all Gregorian calendar months during which any of the lunar holy month falls. The own post-split \times $\Delta diversity$ terms therefore capture the differential effects of diversity in all other months outside the given periods of interest. The dependent variable in all columns is an indicator equal to one if there was any social conflict in that parent or child district-month (see the notes to Table 2). *post-split* is an indicator equal to one for all months after which the child district is passed into law. $\Delta diversity$ measures are normalized to mean zero, standard deviation one. All specifications include month FE, district FE, district-specific time trends, and dummies for the number of papers used by coders for the given province-month. Standard errors are clustered by original district. Significance levels: * : 10% ** : 5% *** : 1%.

Table 8: Light Intensity and Changes in Village-Level Alignment with the Largest Ethnic Group in the New Versus Original District

	Parent Child (1)	Parent (2)	Child (3)
post-split	-0.020 (0.012)	-0.006 (0.022)	-0.033** (0.013)
post-split \times Δ share of village in largest ethnic group in district > 0	0.011* (0.006)	0.012 (0.009)	0.021* (0.011)
post-split \times Δ share of village in largest ethnic group in district $= 0$	0.028** (0.013)	0.017 (0.017)	0.040** (0.018)
Number of Village–Years	164,594	85,401	79,193
Dep. Var. Mean, Pre-Split	0.163	0.229	0.114

Notes: The dependent variable is share of village area covered with any nighttime lights. The village-level panel spans 2000–2013. The regressions also control for village and year fixed effects. The regressor in row 2 (3) equals one if the share of the given village belonging to the largest ethnic group in the district increased (remained the same) as a result of redistricting. The ethnic shares are, as throughout the paper, defined based on the population in 2000. Standard errors are clustered at the original district level. Significance levels: * : 10% ** : 5% *** : 1%.