# A Wave of Lynching:

## Morality and Authority in Post-Tsunami Aceh

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Lynching is publicly displayed violence executed by a group of civilians against alleged wrongdoers. This challenge to the state's monopoly of violence is surprisingly prevalent today. In India, the Supreme Court recently urged the parliament to curb the epidemic of mob lynching.[1] In Brazil, more than one million people have participated in acts of lynching over the past sixty years.[2] And in Indonesia, more than 1,600 people died as a result of lynching-related violence between 2005 and 2014.[3]

Despite the modern-day prevalence of lynching, most research still focuses on the Southern U.S. after the Civil War.[4] Other research on contemporary lynching provides detailed descriptions of lynching in particular contexts.[5] However, there is a notable deficit in systematic analysis of theoretical arguments.[6] We extend prior work in developing a novel argument that explains contemporary lynching, which we assess using systematic evidence on lynching in Indonesia.

We argue that two conditions can create a context ripe for lynching: shared morality around a salient collective threat, which provides a justification for violence, and weak authority, which creates the opportunity for extralegal justice. Lynching is then typically a response to a morally salient collective threat, which has not been sufficiently addressed by existing authorities.

The empirical analysis of these conditions is challenging, as they are endogenous to lynching. Lynching could undermine authority and harden moral beliefs. This makes it hard to identify the causal direction unless one identifies a plausibly exogenous shock. To this end, we analyze the 2004 Indian Ocean earthquake and tsunami, a devastating natural disaster that killed more than 227,000 people in several countries. This disaster provided an exogenous shock to morality and authority in the particularly hard-hit Indonesian province of Aceh, creating a unique case upon which to test our argument.

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The death of more than 150,000 people in Aceh led, according to prior research, to a heightened sense of morality based on existing religious beliefs. Most Acehnese interpreted the tsunami as a punishment, warning, or test by god, which led to a religious revival.[7] Immoral behavior was variously blamed as the origin of the tsunami and framed as a salient collective threat to moral purity and the future existence of Aceh.[8]

At the same time, the tsunami weakened existing authority. When the tsunami hit, Aceh was in the middle of a civil war in which the Free Aceh Movement (*Gerakam Aceh Merdeka*, GAM) fought for secession against Indonesian government forces. Shortly after, the two rival sides signed a peace agreement, which effectively terminated the conflict, an unlikely development without the tsunami. The peace agreement was followed by a rapid decline in police and government forces,[9] and other forms of authority as GAM demobilized and ceded control of territories, thus generating a situation of institutional flux in Aceh. By flux, we mean a series of unpredictable changes, which tend to create a perception of extreme uncertainty among residents. The tsunami thus not only destroyed the built infrastructure but also upset the institutions governing Acehnese society.

Our argument implies that the intensified morality and weakened authority should increase the likelihood of lynchings in Aceh in comparison, on average, to other parts of Indonesia. Moreover, the impact should be greatest in those regions of Aceh in which the shock to authority was greatest and the local population had the highest levels of shared morality.

We test these implications using World Bank data from the National Violence Monitoring System (NVMS), which covers the period from 1998 to 2014 for nine Indonesian provinces including Aceh.[10] Using regression analysis, we find that Aceh saw an increase of lynchings after the tsunami, compared to other areas of Indonesia where lynching rates varied from province to province but on average remained relatively constant. Restricting the analysis to the province of Aceh only, we find that the increase was indeed greater in those areas in which the shock to existing authority was greatest and the local population had higher pre-existing levels of shared morality. We also show a notable increase in lynchings due to perceived sexual transgressions in those areas where we expect shared morality to be strongest, emphasizing the importance of moral purity as key driver.

This article contributes to existing literature in two ways. First, we contribute to theorizing on collective violence. Previous research in political science primarily examined organizations like rebels, militias, and terrorist groups. The study of lynch mobs, which can emerge in the absence of pre-existing organizational capital, is instructive for wider processes of violent mobilization. The importance of moral beliefs in this process has been considered previously, but usually with regard to individual participation.[11] Moving the attention to prevailing moral beliefs on a community level may help us understand the emergence of a broad range of violent actors.

Second, we contribute to literature on post-conflict violence. Previous studies have mainly looked at crime,[12] but less at community violence in the wake of conflict.[13] Community violence is a particularly suitable thermometer for the evolution of local

authority in post-conflict countries. Indeed, we provide compelling evidence that the period of flux with a deficit in authority that followed the end of the conflict had serious effects on violence in Aceh.

## Morality, Authority, and Lynching

**The Concept of Lynching**  For the purposes of this article, we understand lynching as publicly displayed violence executed by a group of civilians against alleged wrongdoers. Lynching can thus be defined along four criteria: First, lynching requires an act of physical violence. Second, lynching is perpetrated by a group of civilians, rather than members of a standing armed organization, differentiating it from violence used by gangs, rebels, and regular security forces. Third, the perpetrators must act against some alleged wrongdoing. While hard to observe, the concept of lynching requires such a qualification to distinguish it from other forms of violence like riots, which do not require a particular wrongdoing. Fourth, lynching requires some form of public display, often enacted as a spectacle.[14] This differentiates lynching from clandestine forms of collective violence like social cleansing.

Our definition of lynching closely resembles the definition of collective vigilantism adopted in the Introduction of this special symposium.[15] We prefer the term lynching as we are interested in explaining acts of violence. Vigilantism denotes a more sustained activity which includes, in addition to acts of punitive violence, the prevention and investigation of violence.[16]

**Morality**  Given that lynching happens, by definition, in response to alleged wrongdoing, it is necessary that the participants hold some shared moral justification for their use of violence.[17] We understand morality as a code of conduct describing right and wrong behavior.[18] We follow Haidt's understanding of moral pluralism, meaning that morality is universal to all human societies, but the content of morality differs across societies.[19] Hence, while individualistic Western societies largely prioritize moral beliefs based on fairness and the avoidance of harm, group-focused moralities formed around loyalty, authority, and purity are also common. The use of certain types of violence may thus not always be immoral. In fact, Fiske and Rai describe a large number of circumstances in which violence is used for moral purposes.[20]

The moral justification for lynching participants is predicated on a salient collective threat to their group.[21] A collective threat is here a shared perception of impending harm. Put simply, collective threats provide a narrative on what the source of a problem is, who the victims and perpetrators are, and the possible playbook of responses. Salient collective threats tend to be grounded in relevant myths[22] that credibly resonate with people's everyday experience and previous beliefs, including religion and local customs, and relate to a peril visible in the midst of society, rather than to some distant group or event.[23]

Criminal offenses like stealing, child abuse, rape, and murder are perhaps the most common wrongdoings couched into collective threat narratives,[24] but more specific

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forms of immoral behavior can also be seen as a collective threat, in particular when they relate to a group's sacred values, which hold "importance far beyond the utility they possess."[25] For example, for some Hindus in India who view the cow as a sacred animal, protecting their "mother"[26] and other sacred traditions against alleged Muslim maltreatment may be justified.[27] In the U.S. South after the Civil War, formerly enslaved people and the Black crime myth came to represent a collective threat to the white supremacist moral community.[28] In contemporary Latin America, a crime epidemic has put petty delinquents down as the ultimate threat to public security.[29] As a result, opinion polls show widespread support among the general population for extralegal killing of criminals.[30] Lynching targets are then not viewed as petty wrongdoers, but representatives of a broader collective threat to sacred values, like Hindu tradition, white supremacy, and public security, and must thus be confronted to keep communities safe.

A salient collective threat allows local issues to be recast as symptoms of a broader societal problem and to identify specific individuals as representatives of the threat. In the case of lynching, a target must come to visibly embody the collective threat. This is essentially a process of scapegoating, in which an individual takes on the properties of the collective threat.[31] To facilitate the process of scapegoating, targeted people are metaphorically and physically stripped of other identity markers, until they come only to represent the "much larger social evil."[32] Targets are often dehumanized using terms that facilitate the violence process, such as rats or animals, or terms that clearly relate them to the broader threat they are seen to represent, such as *bandidos*[33] and "savages."[34]

A salient collective threat also creates peer pressure for members of the community to act, a powerful mechanism which raises the costs of non-participation and pushes people to fall in line. Not only can peer pressure within a moral community stimulate mobilization, it also elevates the costs of going against the lynching, as mobs may punish those that fail to stand up for the group.[35]

Furthermore, communities with strong moral ties can credibly convey the impression that no legal consequences are to be expected. As community members believe that it is a moral duty to act, and anticipate that their kin will also participate, the chance of arrest is diminished. The resulting mass of people, which creates asymmetry between attackers and the weaker targets,[36] allows its members to express "unlimited sadism" without risking retribution from victims or punishment.[37] This is only possible where community members expect their neighbors to participate as well as refrain from snitching on them, which is more likely when participants subscribe to the same moral code. This reflects a typical property of sacred values, namely that "tradeoffs or compromises are felt to be acts of betrayal."[38]

Importantly, it is not necessary that community members share the belief in a collective threat to initiate a lynching. In fact, a perceived moral crisis can lead those members seeking to sustain the shared moral values to instigate lynching as a means to produce a stronger sense of a moral threat. In the U.S. South, for example, the success of the biracial Populist Party[39] and greater heterogeneity in white religious denominations[40] made lynchings more common. It seems that lynching was used as a tool to promote white group cohesion in the face of moral crisis by emphasizing racial conflict.

**Authority**   Given that lynching is a form of extralegal justice, weak authority should provide a ripe context for it.[41] We distinguish between two aspects of state authority:[42] the capacity to prevent and punish the act of lynching and the legitimacy to deal with a specific transgression.

We understand the capacity of an authority as "the degree of control that [its] agents exercise over persons, activities, and resources within the government's territorial jurisdiction."[43] A state's capacity to prevent lynching depends on both the strength of its capabilities to enforce compliance and its willingness to do so.

Firstly, the extent to which citizens choose to comply with existing systems of justice depends on the state's capabilities to punish and deter non-compliant behavior in a given area. The capabilities of an authority to enforce compliance vary across its territory. States do not always monopolize violence within their territory and are sometimes unable to prevent civilians taking justice into their own hands. When an authority lacks the capabilities to enforce its rules, a greater opportunity for lynching exists, given that lynching participants do not have to fear legal consequences.[44]

Secondly, even when an authority has the capabilities to prevent lynching, it might lack the willingness to punish and prevent a specific wrongdoing. This may arise in societies where authorities do not wish to address collective threats that emerge from local moral concerns. Cow slaughtering in India[45] and witchcraft in Mozambique[46] may represent such threats. In the U.S. South, the state often had the capabilities to stop a lynching and punish crimes, yet often supported this heinous form of violence as the "correct" response to perceived transgression.[47]

In addition to capacity, compliance also depends on the belief among citizens that this authority is the rightful organization through which to address some injustice, hence that it is legitimate.[48] This relates to a key function of states: protection. With protection, states eliminate potential threats to their population.[49] When citizens perceive an authority to act satisfactorily and fairly, they feel a voluntary sense of obligation to obey and thus leave the provision of justice to existing authority.[50]

But citizens do not always view the way in which justice is dealt out by an authority as legitimate.[51] When authorities are perceived as responding insufficiently to wrongdoing, support for vigilante justice increases,[52] making lynching more likely.[53] This can relate to a sense of generalized impunity as in Venezuela,[54] or to corrupt and unfair practices of justice administration as in Nigeria.[55] In the U.S. South, lynching has also been shown to be a response to an unwanted "style of criminal justice"—soft, deliberative, and humanitarian, focusing on due process—rather than to the "absence of law."[56]

**Connecting Morality, Authority, and Lynching**   As the preceding discussion sets out, we argue that greater shared morality and weaker authority can create a favorable context for lynching. However, the independent effects of each may be hard to separate in practice. Authority is often tied to morality: when a state authority does not sufficiently address collective threats that are relevant to prevailing moral beliefs, either due to the lack of capacity or willingness, it loses legitimacy and ultimately the likelihood of

obedience. In such a context, the civilians' use of violence for the purpose of protection against collective threats might become morally "virtuous."[57]

Moreover, when morality binds communities around a salient threat, it makes it more challenging for the state to prevent collective action.[58] It is especially during transitional periods with heightened uncertainty and community crises when established authorities come under pressure of salient moral concerns about collective threats.[59]

This means that the conditions of authority and morality are hard to separate and observe in isolation. Moreover, given the often slow-changing nature of both morality and authority across a society, it is an even more challenging task. We next turn to the case of Indonesia, which presents a rare opportunity to empirically assess the impact of morality and authority on contemporary lynching, before we specify the observable implications of our argument.

## Background of the Case

We focus on lynching in Indonesia before and after the 2004 Indian Ocean tsunami. This tragic natural disaster killed more than 150,000 people in the province of Aceh alone. It had far-reaching consequences beyond the immediate damage to lives and property.[60] Post-traumatic stress disorder was common,[61] and 100,000s of Acehnese were temporarily displaced.[62]

According to existing research on Aceh, the tsunami led to a religious revival, including a focus on immoral behavior as a collective threat, and ended the military authority that had been dominant during conflict and led to a situation of institutional flux. It thus provides a unique case in which both morality and authority rapidly shifted, offering an opportunity to assess our claims. As we describe in detail below, we identify these effects by comparing Aceh with parts of Indonesia that were not affected by the tsunami. Moreover, within Aceh we compare those areas in which the shock to existing authority was likely greatest and the local population had higher pre-existing levels of shared morality.

Besides the unique context provided by the tsunami, Indonesia is also an ideal case study as it has a long history of collective violence (see Appendix 1).[63] In particular, it is one of the countries with the most contemporary lynchings.[64] Moreover, the National Violence Monitoring System (NVMS) collected fine-grained data on collective violence, covering the years between 1998 and 2014.[65] These data are ideally suited for our analysis, as they track lynching over the whole period, pre- and post-tsunami.

**Morality in Post-Tsunami Aceh**   The tsunami led to an Islamic religious revival in Aceh.[66] Anthropologists have registered numerous accounts of Acehnese becoming more faithful and interpreting the tsunami as either a punishment or warning from god.[67] While swings in society-wide morality are generally hard to observe, the tsunami provides a clear rupture in this regard. The content of moral beliefs did not necessarily change, but their salience was clearly affected by the widespread belief that the tsunami was an

act of god and that Aceh needed a "total reconstruction."[68] The following excerpt from an interview by Kloos with a local resident illustrates why many Acehnese became more religious in the aftermath of the tsunami:

> For Ikhsan, the disaster had made shockingly visible how wealth—money, clothes, cars, houses—could disappear in a flash. "When the tsunami happened, money did not matter at all. God does not look at our feathers." It was a democratic disaster, in every aspect a pure manifestation of God's power. Afterwards, he became more concerned about his daily religious duties. A reinvigorated religious diligence was born out of God's "warning" (*peringatan*) and out of the gratitude he felt for the lives not lost.[69]

Several authors stress that the post-tsunami period was seen by locals as a moral crisis,[70] which demanded an immediate shift towards moral improvement.[71] In this context, "concerns about 'correct' behavior [were] propelled to the forefront of political debate."[72] Immoral behavior was variously identified as the cause of the tsunami.[73] Sinful behavior, including adultery or heresy and more generally "actions forbidden by God,"[74] thus needed to be punished to re-establish the right moral order.[75] The conflict was also often interpreted as a source of chaos (and a cause of the tsunami) that had to be overcome by strict adherence to moral order.[76] Several of the salient concerns in post-tsunami/post-conflict Aceh are related to the moral foundation of purity, which requires that people act in consonance with sacred practices, dictated in this case by local traditions and Islam.

The related process of Sharia law implementation started before the tsunami, as it was first legally introduced in Aceh in 2002[77] after the government allowed a broader autonomy package to the province to counteract separatist insurgents.[78] However, against the backdrop of a heightened sense of religious morality, its implementation received a significant boost in the period following the tsunami.[79] Sharia law in Aceh is most known for sanctioning immoral behavior like gambling, alcohol consumption, and *khalwat*, the "illicit proximity of an unmarried couple of opposing sexes,"[80] using public canings,[81] first used in June 2005.[82] Aceh remains the only Indonesian province with Sharia law. We see its expansion and wide acceptance in this period as indicative of the heightened sense of morality that followed the tsunami. The implementation of Sharia law could alternatively be seen as part of an expanding state engaging in the management of vices.[83] Pro-Sharia activists have argued "that the post-conflict, post-tsunami situation offers an unprecedented opportunity for bringing Aceh back to its 'true' Islamic identity."[84] However one interprets these developments,[85] immoral behavior and a lack of religious purity were perceived as clear and salient collective threats to the population.

**Authority in Post-Tsunami Aceh**    The tsunami weakened authority structures grounded in military actors and created a situation of institutional flux. When the tsunami hit, Aceh was in the midst of a civil war between government forces and the Free Aceh Movement (*Gerakam Aceh Merdeka*, GAM), a rebel group demanding the secession of

Aceh from the rest of Indonesia since the 1970s.[86] After the end of the Suharto regime in 1998, GAM became a powerful rebel organization, controlling large parts of Aceh's countryside. However, in the immediate aftermath of the tsunami, GAM declared a ceasefire and eventually signed a peace deal in Helsinki in August 2005. Such a rapid negotiated settlement would have been highly unlikely without the tsunami (for an extended description, see Appendix 1).

Overall, this peace process led to institutional flux in Aceh, as the influence of military actors suddenly diminished. On the government side, more than 30,000 Indonesian military and police members left Aceh.[87] Also, the agreement set a limit to police presence (9,100 for a population of 4.4 million). While the effective number of police in Aceh were higher (more than 13,000 in 2008), Aceh still had very low levels of policing compared to other areas of Indonesia. In addition, the police and military deliberately used a "soft approach" for small scale violence after the agreement, in general showing a lower willingness to tackle low-level incidents than previously, or in other parts of Indonesia.[88] There was thus a significant reduction in the capacity of the state to enforce compliance across Aceh. Beyond reduced capacity, changes in the provision of security created uncertainty for local residents, amounting to a situation of flux.

During conflict, GAM-appointed representatives were in charge of local services and dispute settlement in their areas of influence, and the organization was fully embedded into the Acehnese society.[89] The agreement led to their demobilization. High-ranking GAM members became part of the political elite and lost credibility in the process due to association with corruption and illegal activities.[90] While GAM continued with its administration of local affairs, they could not count on their military wing.[91] In sum, even though GAM developed an influential political party and received support from voters, it was unable to exert the same authority it had during times of military conflict, again increasing uncertainty with regard to security provision and justice administration

The tsunami and conflict ending further coincided with a transition to democracy. The opening in the rest of the country after the fall of Suharto's regime in 1998 was held back in Aceh due to the civil war. Several authors have attributed increases in community violence in the rest of Indonesia after 1998 to the political transition.[92] Furthermore, the process of decentralization[93] was particularly important in Aceh after the peace agreement.[94] Hence, uncertainty over authority was in part a product of a broader transition in the aftermath of the tsunami and conflict, which we describe as a situation of institutional flux.[95] Previous research on collective violence has similarly found a relationship between a situation of flux and increasing levels of collective violence.[96]

**Observable Implications of our Argument**    Taken together, existing research suggests that the tsunami led to an increased salience of moral concerns and a decrease in authority. We thus propose the following general, observable implication:

> *Hypothesis 1: Lynching is more likely to increase in Aceh than in other parts of Indonesia following the tsunami.*

While an aggregate increase of lynching in Aceh would offer some support for our theory, to more convincingly demonstrate the validity of our claims, we require firmer evidence that any change in lynching is related to our proposed mechanisms. Identifying suitable indicators to measure changes in morality and authority in post-tsunami Aceh is challenging because, for example, no existing survey tracks relevant questions from before to after the tsunami. We therefore focus instead on baseline characteristics of communities that should make them more susceptive to the changes in morality and authority following the tsunami.

With regards to authority, the communities most likely to suffer a significant reduction in authority are those based in areas formerly controlled by GAM fighters. For a long period, GAM exerted firm control over large segments of the Acehnese population. Following the tsunami and end of the conflict, GAM forces demobilized, reducing capabilities in these regions. The end of the conflict also made the close control of territory less important, reducing the willingness of authorities to dedicate resources to prevent low level violence. We thus propose a second observable implication:

> *Hypothesis 2: Lynching is more likely to increase in previously GAM-controlled areas of Aceh than in other parts of Aceh following the tsunami.*

With regards to morality, existing qualitative evidence suggests that immoral behavior in accordance with strict Islamic traditions was the most salient collective threat following the tsunami. In this case, we argue that those areas with greater religious homogeneity prior to the tsunami would be the most likely to respond to the tsunami with a strengthening and deepening of their moral religious beliefs. In more homogenous areas, most people share their moral convictions grounded in religion and are thus most susceptible to perceive wrongdoing as a violation of their collective consciousness.[97] Homogenous moral communities are thus more likely to engage in punishing practices to protect community norms, which in our case are grounded mainly in local Islamic traditions. We thus propose a third observable implication:

> *Hypothesis 3: Lynching is more likely to increase in areas of Aceh with higher levels of religious homogeneity than in other parts of Aceh following the tsunami.*

Finally, an increase in morality based on the protection of strict Islamic traditions is also likely to impact the types of wrongdoing that motivate lynching. We therefore expect to observe an increase in lynching for wrongdoings that closely align with religious morality in areas more predisposed towards shared moral beliefs, which in Aceh often concerns adultery and *khalwat*, the "illicit proximity of an unmarried couple of opposing sexes."[98] We thus propose a fourth observable implication:

> *Hypothesis 4: Lynching motivated by religious wrongdoings is more likely to increase in areas of Aceh with higher levels of religious homogeneity than in other parts of Aceh following the tsunami.*

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## Research Design

**Dependent Variable**   Our main dependent variable is the number of lynching events in a given month and administrative area. To measure lynching, we use data from the National Violence Monitoring System (NVMS), collected by the World Bank.[99] This dataset is mainly based on local newspaper reports and covers the period from 1998 to 2014 for the "high-conflict provinces"[100] of Aceh, Maluku, North Maluku, Central Sulawesi, Central Kalimantan, West Kalimantan, East Nusa Tenggara, Papua, and West Papua.[101] The NVMS registers incidents of violence including their location and date, whether it was a crime or part of conflict, its physical impact, and the actors involved.

Lynching is distinguished from other forms of violence (e.g., riots, fights, vandalism, and domestic violence). Violent events were coded as lynching when they involved "one-way violence where many people (referred to as "group/masses") gather suddenly to attack an individual or a small group. Minimum number of Side 1 (i.e., the lynching perpetrators) is five persons, while ratio of Side 1 and Side 2 (i.e., the targets of the lynching) is greater than or equal to 3:1."[102] While the specification of numbers of perpetrators and targets is necessarily arbitrary, this operationalization generally reflects our definition of lynching as an asymmetric act of violence.

Direct perpetrators of lynching violence are mostly young males,[103] but large crowds have attended lynchings with as many as 1,500 people gathering.[104] Whereas victims of mobs are often people from outside the community,[105] representatives of authorities, like police officers[106] and village heads,[107] are not exempt from becoming victims of mob violence. In Figure A1 in the Appendix, we show the distribution of lynchings from 1998 to 2014 across the nine covered provinces. Over the whole period, West Kalimantan has the highest number of lynchings, and North Maluku has the lowest.

News reporting is unlikely to capture the full extent of lynching events, given that lynchings sometimes go unnoticed. However, authors studying the Indonesian case argue that the type of local newspaper sources used for the NVMS provide a reasonably close approximation.[108]

However, the tsunami and conflict ending may have affected the reporting temporarily and in particular regions, and thus threaten the validity of our analysis. First, the tsunami may have crowded out the reporting of other events, particularly in the most affected areas in the early period after the tsunami. This crowding out bias is likely to lead to an underestimation of the observed effect of the tsunami on lynchings, making it less likely to find support for our argument. Second, the conflict in Aceh may have suppressed reporting on community violence before 2005, as war reporting was the main focus and reporters of the main source covering Aceh (Serambi Indonesia) had difficulties accessing GAM-controlled areas. Hence, the observed effect of the tsunami on lynchings in previously conflict-affected areas may be overestimated. We are confident that this reporting bias for conflict-affected areas is unlikely to influence our results. First, we have no reason to believe that lynching rates were higher in conflict-affected areas controlled by military actors than in less conflict-affected areas prior to 2005. Second, lynching rates were very low in less conflict-affected areas prior to 2005.

A resulting difference-in-differences could thus not derive from differential pre-tsunami levels of lynching (see also Figure A4).

The NVMS coverage of news sources in Aceh increased from 2005 to 2008. For the time before 2005 the NVMS relied on one local news source (*Serambi Indonesia*) and two outside news sources from neighboring Medan. This increased to four local newspapers in 2008.[109] We address this reporting bias by mainly undertaking analyses focusing only on Aceh, where we expect these biases to be limited, given that we are interested in the difference-in-differences rather than the mere over-time effect (i.e., differences across the province of Aceh rather than across Indonesian provinces). Also, we include time and region fixed effects and restrict the analysis window to account for remaining bias. For illustrative analysis going beyond Aceh, we provide robustness checks with highly penalizing assumptions about reporting bias that we discuss below.

**Analysis Strategy**    For our analysis, we use linear regression. Data are aggregated on the month and *Kabupaten* (regency) levels and cover the years 1998–2014. The nine provinces covered in the dataset have 143 *Kabupaten*. For the Aceh analysis we focus on the twenty-three *Kabupaten* within Aceh.

The dependent variable is a count of lynching events. For ease of interpretation, we use this count variable in our main analysis. Additional analyses use a log-transformed dependent variable to reduce heteroscedasticity and a count model to account for the possible over-dispersion of the dependent variable.

Our first analysis explores the overall impact of increased morality and reduced authority across all nine provinces. We interact an indicator of Kabupaten in Aceh with a variable capturing the period post-tsunami (the point from which we expect authority and morality to shift). The tsunami happened on December 26, 2004. Hence, the timing variable takes a value of 0 for months before and 1 for months after the tsunami. This in effect represents a difference-in-differences analysis, exploring how the prevalence of lynching shifts following the tsunami in Aceh vis-à-vis the average prevalence of lynching in other parts of Indonesia.

To test the specificity of our theoretical argument, we then attempt to capture the differential impact of the tsunami across space, identifying those parts of Aceh with an increased likelihood of lynching after the tsunami using baseline conditions. To capture shifts in authority, we employ two indicators. First, we interact the post-tsunami variable with a variable capturing previous GAM control. To capture GAM control across Aceh, we use a village head survey from 2008.[110] If more than half of surveyed village heads in a given administrative unit stated that their village was considered a "GAM base" between 2001 and 2005, the respective location received a value of 1, otherwise 0. We interact this GAM presence variable with our "after tsunami" timing variable. In total, twelve of the twenty-three Kabupaten in Aceh are identified as having some level of GAM control prior to the tsunami. This variable coincides largely with recruitment estimates from the Combined Intelligence Unit during 2002 and 2003 to capture traditional GAM areas.[111] Secondly, we use the Uppsala Global Events Dataset to identify where

conflict violence took place in Aceh.[112] We use the four Kabupaten in Aceh with the highest conflict fatalities (i.e., more than 200 fatalities) as a secondary indicator of GAM control. High levels of lethal conflict violence are the most clearly observable indicator of GAM presence and indicate those contested areas in which control over the population is likely to be of strategic importance during the conflict.[113]

To capture shifts in morality, we use two proxies for religious homogeneity. First, we interact the share of religious buildings that are Islamic with the post-tsunami variable. We build on De Juan, Pierskalla, and Vüllers in using the 2003 Indonesian village-level census (*Pendataan Potensi Desa*, PODES) and take the mean of the number of Islamic buildings divided by other religious buildings across all villages in each Kabupaten.[114] Aceh is largely Islamic, but this variable captures some of the heterogeneity of religious faith across a Kabupaten. The variable ranges from 0.76 to 1 with a mean of 0.97. For a second measure of religious homogeneity, we interact the post-tsunami variable with a variable indicating if a Kabupaten is on the coast. We expect that the coastal areas—historically trade hubs dominated by Islamic merchants—will have a higher level of Islamic homogeneity. Meanwhile, we expect the more mountainous inland regions—less tightly-controlled by Islamic merchant communities and thus more susceptible to missionaries and the spread of other religious traditions—to be more diverse.[115] Indeed, the mean share of Islamic religious buildings is 7 percent higher in coastal Kabupaten (0.99) in comparison to non-coastal Kabupaten (0.92) in Aceh.

To account for omitted variable bias stemming from time-invariant characteristics and common shocks, we use two-way fixed effects:[116] administrative unit fixed effects adjust for time-invariant characteristics, such as history of collective violence, terrain, and remoteness; and month fixed effects adjust for common shocks to all areas including national elections, international dynamics, and changes in reporting. Two-way fixed effects also help account for systematic differences in reporting across the territory and during specific times. For comparison, we also show results without fixed effects. Errors are clustered at the lowest administrative unit level to account for serial autocorrelation.[117]

In addition, we include a series of control variables with spatial and temporal variation. To account for specific dynamics of violence potentially related to lynching, we include the following indicators drawn from the NVMS: number of killings, number of violent crimes, and involvement of the police in a violent incident. We further account for yearly population number, poverty levels, and total GDP extracted from the World Bank repository;[118] we use nightlight emissions from the National Centers for Environmental Information[119] to account for economic activity. We also use a one-month lagged dependent variable to account for previous levels of lynching. Summary statistics (Table A1 and A2) and sources for all variables (Table A3) are presented in the Appendix.

## Findings

First, we show the descriptive development of lynchings prior to and following the tsunami in Aceh in comparison to the other eight provinces covered by the World

**Figure 1** Yearly Lynchings per One Million Inhabitants in Aceh and Other Provinces of Indonesia

Lynchings in Aceh and other provinces of Indonesia, 1998-2014
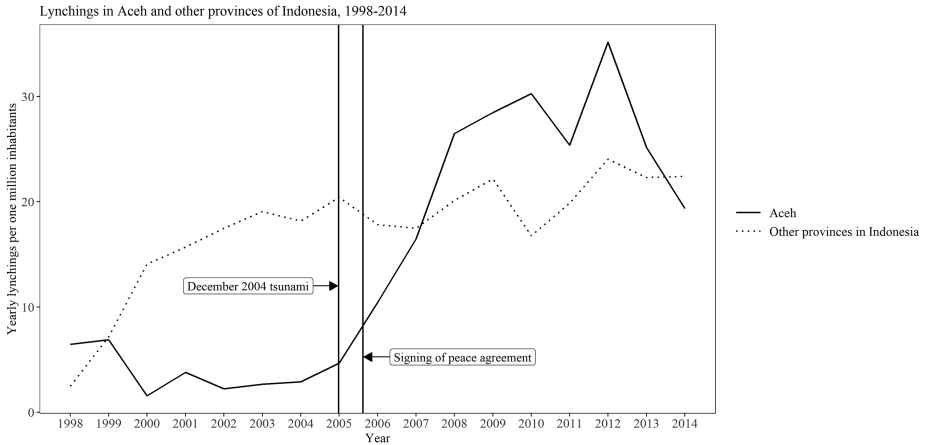


Bank data. In Figure 1, we see an increase in lynchings in post-tsunami Aceh while they remain on average relatively constant elsewhere (see also Figure A2). In line with Hypothesis 1, the post-tsunami yearly lynchings in Aceh are roughly six times higher than the pre-tsunami lynchings, and only start to peter out in 2012.[120] The figure also suggests that the data generally meet the parallel trends assumption and so are suitable for the difference-in-differences analysis we undertake.[121]

Turning to systematic analysis of Hypothesis 1, Table 1 shows the coefficients for the interaction term capturing the impact of the tsunami in Aceh (Aceh X After tsunami), with data from all nine provinces aggregated on the Kabupaten level. The interaction term is significantly related to lynchings across all model specifications. Coefficients are relatively stable in models with and without control variables, a lagged dependent variable as well as month and Kabupaten fixed effects. The most demanding Model (3) shows roughly an additional 0.3 monthly lynchings per Kabupaten in post-tsunami Aceh (between three and four additional lynchings per year, per Kabupaten). This is in the order of a six-fold increase given the pre-tsunami mean of 0.06 monthly lynchings per Kabupaten. We also ran a series of highly demanding models accounting for reporting bias, and the results remain largely stable (available in the Appendix).[122] We therefore find convincing evidence that lynchings in Aceh did indeed increase significantly in the period following the tsunami, offering support for Hypothesis 1.[123]

Next, we assess whether the rise in lynchings in post-tsunami Aceh is driven, as we argued, by shifts in morality and authority. We thus turn to within-Aceh analysis. For our authority argument (Hypothesis 2), we include two variables, *GAM control*, capturing Kabupaten in Aceh previously controlled by the GAM, and *Conflict violence*, capturing Kabupaten with the highest levels of conflict violence. To examine morality (Hypothesis 3),

**13**

**Table 1** The Impact of the Tsunami on Lynching, All Nine Indonesian Provinces

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After tsunami | 0.270** | 0.338*** | 0.305*** | 0.301*** | 0.304*** |
|  | (0.086) | (0.072) | (0.065) | (0.064) | (0.071) |
| Constant | 0.168*** | 0.012 | 0.015 | 0.030 | −0.003 |
|  | (0.037) | (0.085) | (0.074) | (0.062) | (0.013) |
| $N$ | 25740 | 25560 | 25560 | 25560 | 25560 |
| adj. $R^2$ | 0.011 | 0.23 | 0.24 | 0.24 | 0.57 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses.
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
#$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

**Table 2** Authority, Morality, and the Impact of the Tsunami on Lynching in Aceh

|  | (6) | (7) | (8) | (9) |
|---|---|---|---|---|
| GAM control X After tsunami | 0.192# |  |  |  |
|  | (0.098) |  |  |  |
| Most violence X After tsunami |  | 0.348** |  |  |
|  |  | (0.097) |  |  |
| Islam Share X After tsunami |  |  | 0.880** |  |
|  |  |  | (0.291) |  |
| Coastal X After tsunami |  |  |  | 0.200* |
|  |  |  |  | (0.291) |
| Constant | 0.227# | 0.206* | 0.308* | 0.287** |
|  | (0.113) | (0.078) | (0.111) | (0.098) |
| $N$ | 4487 | 4691 | 4079 | 4691 |
| adj. $R^2$ | 0.169 | 0.169 | 0.170 | 0.164 |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses.
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
#$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

we include the variables, *Islam share*, capturing the share of Islamic religious institutions in each Kabupaten, and *Coast*, capturing Kabupaten located at the coastline. All variables are interacted with our post-tsunami variable. Results are presented on Table 2[124] using the most conservative model with the same specification as Model 3 on Table 1.[125]

**Table 3** Authority, Morality, and Lynching Due to Sexual Indiscretion in Aceh

| | (10) Lynching due to sexual indiscretion | (11) Lynching due to sexual indiscretion | (12) Lynching due to sexual indiscretion | (13) Lynching due to sexual indiscretion |
|---|---|---|---|---|
| Most Violence X After Tsunami | 0.002 (0.042) | | | |
| GAM Control X After tsunami | | 0.045 (0.043) | | |
| Islam Share X Tsunami | | | 0.367[*] (0.143) | |
| Coastal X Tsunami | | | | 0.080[**] (0.027) |
| Constant | 0.020 (0.030) | 0.004 (0.028) | 0.015 (0.032) | 0.017 (0.026) |
| N | 4691 | 4487 | 4079 | 4691 |
| adj. $R^2$ | 0.063 | 0.067 | 0.071 | 0.067 |

Standard errors in parentheses.
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity. $^{\#} p < 0.10$, $^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

In support of Hypothesis 2, we find that those parts of Aceh most likely to suffer a reduction in authority following the tsunami were also those likely to see increased lynching (see also Figures A2 and A3). Those Kabupaten previously controlled by GAM were likely to feature an additional 0.2 monthly lynchings post-tsunami (more than two per year). This effect is significant in most models and the coefficient consistent in most model specifications (see Table A8). Similarly, those Kabupaten that suffered the highest levels of lethal conflict violence (see Figure A3) were more likely to see an increase in post-tsunami lynching (i.e., approximately four additional lynchings per year). Collectively these findings provide support for our authority argument. In those areas most impacted by the GAM demobilization and the downgrading of government force, the tsunami created a situation of flux and an opportunity for civilians to rise up to provide their own brand of justice. This is robust across all specifications (see Table A9).

In support of Hypothesis 3, we find that those areas with a higher baseline susceptibility to moral claims are also more likely to observe an increase in lynching in the post-tsunami period. Moving from the Kabupaten with the lowest (0.76) to the highest (1) level of religious homogeneity doubles the number of monthly lynchings (0.06 to 0.13). Similarly, coastal Kabupaten, which we expect to be more susceptible to collective threats based around moral arguments, are more likely than the inland Kabupaten to observe an increase in lynching (see Figure A5). Both findings are significant across all specifications (see Tables A10 and A11).

To further test the specificity of our theory, we turn to Hypothesis 4. We previously argued that the increased salience of morality in the post-tsunami period occurred around the perceived collective threat to religious values. Of the motives for lynching coded in the World Bank data, "sexual indiscretion" stands out as uniquely related to this collective threat. This often refers to *khalwat* (a suspected sexual encounter between unmarried people, literally "seclusion"). In its monitoring reports, the World Bank referred to lynching due to *khalwat* as "moral vigilantism,"[126] and Human Rights Watch has registered many such attacks in Aceh since 1999.[127] Community members who encounter, usually young, couples engaging in sexually inappropriate behavior before they get married may publicly shame them, beat them up, or douse them in sewage.[128]

Table 3 reports the results using the most conservative model specification but focusing only on those lynchings motivated by sexual indiscretion (see Figure A6). Interestingly, those areas formerly contested by GAM do not see an increase in this form of lynching. However, in those areas in which we expect to observe a stronger moral community based around religious homogeneity, we see an increase in lynching due to khalwat. This offers support for Hypothesis 4 and shows that lynching in post-tsunami Aceh, at least in part, responded to concerns related to a more salient morality built around collective threats to religious purity.

**Non-Equivalent Dependent Variables and Alternative Explanations**   To assess the validity of our findings, we perform a number of additional analyses (Appendix). Firstly, one criticism that could be levelled is that we are simply picking up on a general effect in which social violence in Aceh increased following the tsunami. If the tsunami affects lynching through the conditions we posit, it should not equally affect other forms of violence. We can thus examine non-equivalent dependent variables, including riots, fights, vandalism, and domestic violence. Particularly, riots and fights are similar to lynching, and while weakened authority may raise the opportunity for these forms of collective violence, increased morality is, in theory, less clearly related to them. Increased religiosity may even reduce such forms of collective violence.[129] In Tables A12–A15, we see that our independent variables are not related to riots and vandalism and show mixed results for fights. Interestingly, those Kabupaten with the highest levels of previous conflict violence are more likely to observe domestic violence,[130] but no other variable displays a notable effect. This suggests that our theory is not about violence in general, but specific to lynching.

Second, given that the tsunami was such a massive shock to the whole of society, we consider alternative explanations that may also account for the striking pattern of increased lynching. Most importantly, lynching may be a function of crime, as it is a response to wrongdoing. Crime is in fact associated with lynching when analyzing the whole of Indonesia (Table A5), and we include it as control variable in most models. However, if increased lynchings in post-tsunami Aceh are determined by crime, we should also see increased crime in post-tsunami Aceh. This may well be the case due to the economic damage of the tsunami that led to widespread impoverishment. However, we find that

crime and assaults have, if anything, decreased in post-tsunami Aceh, and thus follow the opposite trend of lynchings (Tables A16–A17). Increased lynchings in post-tsunami Aceh can thus not be explained as a function of crime.

Third, it could be argued that the increase in lynching resulted not from socio-political changes but were more directly a result of the physical damage and resulting reduction in capacity in certain areas. To test this, we rerun the analysis using an indicator for the Kabupaten most affected by the tsunami, which we measure as more than 1,000 fatalities per Kabupaten related to the tsunami (see Table A18). The coefficient is not significantly different from 0, suggesting that the increase in lynching is due to broader changes that occurred across Aceh in response to the tsunami rather than a direct effect of the damage caused by the tsunami itself. In the Appendix we also briefly discuss other developments initiated by the tsunami, including disaster-induced displacement, lawlessness in the wake of the tsunami, and the massive arrival of international aid, and set out why these are unlikely to undermine our results.

**Robustness Checks** We undertake a series of robustness checks. Results are in line with our main findings, with minor differences in terms of coefficient sizes and significance levels. First, we log-transform the dependent variable to approximate a continuous scale and reduce heteroscedasticity (Tables A19–A20). Second, we lag all independent variables to make sure that we analyze the effect of independent variables measured before the dependent variable (Table A21). Third, we reduce the window of observation to guard against picking up temporal trends that are unrelated to the tsunami (Tables A22–A23). Fourth, we replicate the analyses without adjusting for crime, given that crime may be a mediator rather than a confounder (Tables A24–A25). Fifth, we replicate the analysis using an alternative indicator for religious homogeneity. We identify those Kabupaten with the highest share of *majlis ta'lim*, Islamic knowledge sharing groups that are common across the region.[131] The results are consistent with the primary analysis (Table A26). Finally, we use a negative binomial model to account for possible over-dispersion in the count data (Tables A28–A29).

**Conclusion**

In this article, we argue that two conditions cause lynchings: a shared morality based on a salient collective threat, which justifies the use of violence, and a weak authority unable or unwilling to address collective threats, which offers an opportunity for extralegal justice. To examine this argument, we analyze the evolution of lynchings in Indonesia before and after the Indian Ocean tsunami in 2004. The tsunami represents a shock to both conditions that favor lynching, according to context-based research on the severely affected Aceh province.

Our analysis suggests that the tsunami had a substantive and causal impact on lynching in Aceh. Lynching increased across Aceh, but importantly, the impact was greatest

in those regions in which the shock to authority was greatest, generating an accentuated situation of institutional flux, and the local population had higher pre-existing levels of shared morality. The association between religious homogeneity and lynching due to sexually "inappropriate" behavior is particularly suggestive for changes in morality. The tsunami did not affect other similar forms of violence like riots or fights, which indicates that our theorizing is specific to lynching and not collective violence in general.

This article makes two main contributions. First, it provides novel theorizing on the drivers of contemporary lynching. Inspired by a rich case-based literature on lynching, our argument may help to integrate findings across contexts. Second, this article provides an empirical examination of lynching that allows for cautious causal inference, rarely attempted in previous research on the topic. The difference-in-differences analysis using fine-grained data allows us to compare time periods around a clear rupture. This is particularly important for the condition of morality, as society-wide changes in morality are hard to observe and slow-moving.

The main limitation lies in the difficulty in disentangling the effects of each condition. In the context of the tsunami, changes in morality and authority took place together as a larger bundle. For example, more salient moral beliefs may be a reaction to receding state authority, and morality "builds and binds" communities, which might weaken state authority.[132] Hence, an attempt to study the independent effects of each of the conditions is a serious challenge. Future research in other settings should address the relative importance of both conditions.

The two conditions together have large explanatory value for lynchings in and beyond Indonesia. While the dramatic increase in lynchings in Aceh is perhaps unique, the underlying process resembles the development in other areas of Indonesia. The disintegration of social and political order in the late 1990s after the fall of the Suharto regime has been interpreted as a time of uncertainty, declining authority, and moral crisis, which may explain the subsequent wave of lynchings.[133] Providing more nuance to this development, Jaffrey argues that the Indonesian state rebuilt its coercive capacity starting in 2005, and lynchings in fact accompanied this process.[134] Our findings with regard to weakened authority may thus be explained more by the situation of flux created in the wake of the tsunami rather than by state weakness per se,[135] similar to the developments during the post-Suharto transition.

The literature provides examples of similar developments in other contexts. A crisis of authority and moral indignation[136] has facilitated lynchings in contemporary Latin America.[137] Also, the urgent need to restore a moral order, expressed in the expansion and acceptance of Sharia Law in post-tsunami Aceh, finds its unlikely equivalent in the introduction of the racially discriminating Jim Crow Laws in the postbellum U.S. South.[138] The two contexts are evidently different in many ways, especially regarding the relevant collective threats: religious impurity in Indonesia and racial competition in the U.S. However, in both cases the times of heightened morality were accompanied by a wave of lynching violence. Despite the dramatic development in Aceh, the conditions for lynching may thus not be unique to this context.

Future research on collective violence and lynchings can take several directions. Most importantly, additional data, beyond the well-documented case of the U.S. are

needed to pursue systematic research on lynching.[139] To our knowledge, there is no data-set that includes comparable event reports across countries, necessary to analyze the correlates of lynching on a broader scale.

Theorizing on lynching has often focused on its proximate conditions, rather than the broader institutional context. Most contemporary lynchings are concentrated in countries with imperfect democracies in the global south where the state may be strong enough to manage the threat of large-scale collective violence, but not legitimate enough to prevent less organized forms of extralegal justice. Given that lynching represents such a clear challenge to the authority of these states, more research exploring the role of political institutions would likely help develop a deeper understanding of lynching and inform policy attempting to prevent this deadly form of collective violence.

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81. Public canings are not included in the NVMS data. E-mail exchange with Adrian Morel, leader of the World Bank data collection in Aceh from 2006 to 2009, April 2020.

82. Aspinall, 210.

83. Feener.

84. Kloos, 2014, 69.

85. Others have interpreted the expansion of Sharia law as a separate force either driving or mitigating lynching. See *Policing Morality. Abuses in the Application of Sharia in Aceh, Indonesia*, Human Rights Watch (New York, 2010); Kloos, 2017, 136. We agree with anthropologists who argue that Sharia law's influence on community violence may be overstated (Otto and Otto, 212; Kloos, 2014, 137). In fact, citizens may even act in opposition to the Sharia police, as they distrust the local government and see Sharia institutions as ineffective. See Arskal Salim, *Serambi Mekkah yang Berubah* (Jakarta: Pustaka Alvabet, 2010), *Aceh Conflict Monitoring Update, June 2008*, World Bank (2008).

86. Aspinall.

87. Ibid.

88. Patrick Barron, *When Violence Works: Postconflict Violence and Peace in Indonesia* (Ithaca: Cornell University Press, 2019).

89. Kirsten E. Schulze, *The Free Aceh Movement (GAM): Anatomy of a Separatist Organization* (Washington D.C.: East-Wester Center, 2004).

90. Barron.

91. Terence Lee, "Political Orders and Peace-Building: Ending the Aceh Conflict," *Conflict, Security & Development*, 20 (January 2020), 115–39.

92. Welsh; Colombijn, Barron, Jaffrey, and Varshney; Yuhki Tajima, *The Institutional Origins of Communal Violence: Indonesia's Transition from Authoritarian Rule* (Cambridge: Cambridge University Press, 2014).

93. Welsh, 491; Jan H. Pierskalla and Audrey Sacks, "Unpacking the Effect of Decentralized Governance on Routine Violence: Lessons from Indonesia," *World Development*, 90 (2017), 213–28.

94. Jaffrey, 2019, argues that the rise in vigilantism in Indonesia is explained by state-rebuilding during a process of democratization.

95. Kloos, 2014, calls post-tsunami Aceh more broadly a "society in flux" (p.88).

96. Jonathan Obert and Eleonora Mattiacci, "Keeping Vigil: The Emergence of Vigilance Committees in Pre-Civil War America," *Perspectives on Politics*, 16 (September 2018), 600–16.

97. Emile Durkheim, *The Division of Labor in Society* (New York: Simon and Schuster, 1997).

98. Human Rights Watch.

99. World Bank (2014).

100. Barron, Jaffrey, and Varshney; Jaffrey, 2019.

101. Other provinces are covered since 2005 and thus not included.

102. World Bank (2014).

103. Kloos, 2014.

104. Serambi News, "Hakimi Siapa pun yang Main Hakim Sendiri," *Serambi Indonesia*, Nov. 19, 2012.

105. Siti Marhamah, Main Hakim Sendiri terhadap Pelaku Khalwat (Studi Kasus di Kecamatan Sukamakmur Aceh Besar) (UIN Ar-Raniry, 2019).

106. Serambi Indonesia, Curi Kambing, Dua Oknum TNI Dikeroyok Massa, Dec. 28, 2013, https://aceh. tribunnews.com/2013/12/28/curi-kambing-dua-oknum-tni-dikeroyok-massa. [Accessed: 23-May-2020].

107. Merdeka.com, "Diduga korupsi, kepala desa Karanganyar digerudug ratusan warga," Jul. 19, 2014.

108. Patrick Barron and Joanne Sharpe, "Local Conflict in Post-Suharto Indonesia: Understanding Variations in Violence Levels and Forms Through Local Newspapers," *Journal of East Asian Studies*, 8 (October2008), 395–423.

109. This information is not available on the World Bank Microdata website. It was shared with us in private communications.

110. Patrick Barron, Macartan Humphreys, Laura Paler, Yuhki Tajima, and Jeremy Weinstein, *Aceh Reintegration and Livelihood Survey 2008* (World Bank 2008). See also Appendix.

111. Schulze, 18.

112. Ralph Sundberg and Erik Melander, "Introducing the UCDP Georeferenced Event Dataset," *Journal of Peace Research*, 50 (November 2013), 523–32.

113. Stathis N. Kalyvas, *The Logic of Violence in Civil War* (Cambridge: Cambridge University Press, 2006).

114. Alexander De Juan, Jan H. Pierskalla, and Johannes Vüllers, "The Pacifying Effects of Local Religious Institutions: An Analysis of Communal Violence in Indonesia," *Political Research Quarterly*, 68 (April 2015), 211–24.

115. See Appendix in De Juan, Pierskalla, and Vüllers.

116. Scott Cunningham, *Causal Inference: The Mixtape* (New Haven: Yale University Press, 2021).

117. Alberto Abadie, Susan Athey, Guido W. Imbens, and Jeffrey Wooldridge, *When Should You Adjust Standard Errors for Clustering?* (National Bureau of Economic Research, 2017).

118. See databank.worldbank.org.

119. See ngdc.noaa.gov/eog/gcv4_readme.txt.

120. Given that the NVMS used additional sources to report lynchings after the tsunami, some of this effect may be due to reporting bias. However, reporting bias cannot fully account for the observed variation (see discussion below).

121. The NVMS data begin in 1998. However, for the analysis covering all Indonesia we focus on the period 2000–2014 as fluctuations in the data from 1998–2000 potentially violate the parallel trends assumption. Results do not change using the full sample (Table A27).

122. Given that the NVMS used more sources covering Aceh starting in 2005, we use a much more restrictive analysis strategy to account for reporting bias. Instead of using the full number of lynching incidents for the post-2004 period, we first divide events coming from Aceh by 4 as if the NVMS would have continued to use one local newspaper, based on the assumption that lynchings are linearly dependent on number of sources. Second, we multiply Kabupaten level lynching incidents from pre-2005 Aceh by 4. This is a highly penalizing approach, given that it assumes that newspaper reports are independent from each other. In reality, many events are reported by several newspapers. Also, we know from inspecting information about sources, which is available for the years 2009–2012, that Serambi Indonesia and Waspada (the two papers that are used throughout the whole period of observation) accounted for about 54 percent of the reported lynching incidents in Aceh. In this restrictive analysis, while coefficients are smaller, they remain significant in most model specifications, see Tables A30 and A31.

123. Tables A5–A7 display results with control variables.

124. Original sources for the Islam Share and GAM Control variables contain missing values, explaining the reduced number of observations in those models.

125. In the within-Aceh analysis, we use the full NVMS data from 1998–2014 as the parallel trends assumption appears to be met, see figures A2–A5 in the Appendix. The Appendix also includes the full complement of models (see A8–A11).

126. *Aceh Conflict Monitoring Update, June 2006*, World Bank (2006).

127. Human Rights Watch.

128. Kate Lamb, "'A Vigilante State': Aceh's Citizens Take Sharia Law into Their Own Hands," *The Guardian*, Jan. 27, 2018; Kloos, 2014.

129. De Juan, Pierskalla, and Vüllers.

130. Gudrun Østby, Michele Leiby, and Ragnhild Nordås, "The Legacy of Wartime Violence on Intimate-Partner Abuse: Microlevel Evidence from Peru, 1980–2009," *International Studies Quarterly*, 63 (January 2019), 1–14.

131. The majlis variable is included in all four waves of the PODES survey. In line with our argument that religious morality increased in Aceh following the tsunami, we find that the percentage of villages with an Islamic majlis increased from 0.65 in 2002 to 0.89 in 2008. In the rest of Indonesia, the share declined from 0.54 to 0.41.

132. Jonathan Haidt, "The New Synthesis in Moral Psychology," *Science*, 316 (2007), 998–1002.

133. Colombijn; Tajima; Welsh, 493; see also Appendix 1.

134. Jaffrey, 2022.

135. Colombijn, 323; Jaffrey, 2022.

136. Rodríguez Guillén.

137. Godoy.

138. Pfeifer.

139. Amy Kate Bailey and Stewart E. Tolnay, *Lynched: The Victims of Southern Mob Violence* (Chapel Hill: University of North Carolina Press, 2015); Lisa D. Cook, "Converging to a National Lynching Database: Recent Developments and the Way Forward," *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 45 (April 2012), 55–63.

# APPENDIX

## 1. Further description of context

### *Political transition and collective violence in Indonesia*

Over the course of its post-independence history, Indonesia has been afflicted by diverse forms of collective violence (Anderson 2000; Bertrand 2004; Colombijn and Lindblad 2002; Sidel 2006; van Klinken 2007). During the authoritarian governments of Sukarno and Suharto, mass-scale violence has been used and tolerated by the regime to silence the opposition.

In this article, we focus on the period following the end of the New Order regime of President Suharto in 1998. Bertrand (2004) considers the year 1998 as a critical juncture for violence, as the transition to democracy was accompanied by a reinterpretation of what it meant to be Indonesian and an increased importance of Islam. The democratic transition also implied major changes to the institutional set-up of the Indonesian state, including decentralization, but also a deep economic crisis in 1998 (Tadjoeddin and Murshed 2007; Pierskalla and Sacks 2017). These processes have given rise to ethnic conflicts in Maluku, Kalimantan, Aceh, Papua, and East Timor with large-scale violence peaking around the year 2003 (Barron, Jaffrey, and Varshney 2016). The overall improvement of the situation after 2003 can be partially explained by a professionalization of the security sector (Barron, Jaffrey, and Varshney 2016; Tajima 2014; 2013). However, in the wake of these large-scale conflicts that ended between 2000 and 2005, several authors have stressed the importance of what they call small-scale, routine or everyday violence on the community level (Barron 2019; Tadjoeddin and Murshed 2007; Tajima 2013). Thus, while collective violence overall decreased after 2003, it also became more dispersed and related to community affairs.

Community violence has existed since the times of the Suharto regime, which tolerated practices of popular justice (Tajima 2014, 63; Jaffrey 2019). However, reports of lynchings have become more common during the transition period after the New Order regime (Colombijn 2002). Perhaps the most notorious reports are from an anti-witchcraft campaign in Banyuwangi (Herriman 2007). By some estimates, more than 160 people accused of sorcery were killed in that region in 1998 alone (Sidel 2006). However, based on newspaper reports, Welsh found that crimes like theft and extortion were the most common catalysts for lynchings in the transition period (Welsh 2008). She argues that the introduction of decentralization and the related power vacuums predominantly caused the lynchings. Several authors have argued that lynching has become part of the violent repertoire of local communities when confronted with petty delinquents (Colombijn 2002; Sidel 2006; Welsh 2008).

### GAM conflict

When the tsunami hit, Aceh was in the midst of an ongoing civil war between the government of Indonesia and the Free Aceh Movement (Gerakam Aceh Merdeka

– GAM), a rebel group demanding the secession of Aceh from the rest of Indonesia (Aspinall 2009). The GAM struggle was based on a nationalist ideology, masterminded by their historical leader Hasan di Tiro, who traced the Acehnese to a separate history and ethnic identity distinct from the Javanese-dominated Indonesia, which he saw as a legacy of the former Dutch colony. Based on this separatist ideology, GAM started an armed insurgency in 1976. However, it was only after the end of the Suharto regime in 1998 when GAM became a powerful rebel organization which controlled large parts of Aceh's countryside, peaking in 2000 to 2001 (Aspinall 2009). During this time, GAM-appointed representatives were increasingly in charge of local services and dispute settlement, and the organization was fully embedded into the Acehnese village society (Schulze 2004). As its goal was to secede from the rest of Indonesia, GAM had a particular interest to set up institutions and demonstrate their ability to govern (Lee 2020).

The government's response to GAM was brutal, with relatively high levels of violence. Both parties to the conflict perpetrated numerous human rights violations. During the Aceh insurgency, between 10.000 and 30.000 people were killed (Amnesty International 2013). In this period of armed violence, both the government and GAM attempted to exert authority over communities, and thus have allowed little space for community agency, in particular in the provision of justice. Negotiations between the government and GAM first started in 2000, but were initially unsuccessful. Under martial law starting in 2003, the Indonesian National Military was able to push GAM back into rural hinterlands. During this period, the military deployed "28,000 troops and 12,000 police […] to fight against an estimated 5000 GAM insurgents" (HRW 2003). At the eve of the tsunami, the military declared that GAM had 2500 combatants at large (Miller 2008).

While part of the GAM leadership held in prison died during the tsunami, Yusuf Irwandi, a key GAM leader, was able to escape his prison cell thanks to the tsunami (Miller 2008). He fled to Sweden and later became the first democratically elected governor of Aceh. In the immediate aftermath of the tsunami, GAM declared a ceasefire and soon after started negotiations with the government in Helsinki. In August 2005, they signed a Memorandum of Understanding, which provided greater autonomy to Aceh (rather than secession) and the demilitarization of the Aceh Province (Kingsbury 2006). This outcome would have been impossible without the military balance tipping towards the government side and the newly elected president Susilo Bambang Yudhoyono who recognized that a military victory was difficult to achieve (Aspinall 2009). However, the tsunami surely accelerated the negotiations, created a moment of ripeness and helped both sides overcome their respective reservations (Kreutz 2012; Beardsley and McQuinn 2009; Le Billon and Waizenegger 2007). The arrival of thousands of aid workers also made major offensives almost unthinkable (Barron 2019, 128; Sindre 2014). Hence, a negotiated settlement of the Aceh conflict in 2005 would have been highly unlikely without the tsunami, as Irwandi himself stated: "Had there been no tsunami, the war would have got even bloodier and I don't know what the outcome would have been." (Wandi and Large 2008, 80) For some Acehnese, the tsunami was "God's way to enforce peace" (Samuels 2012, 193).

In addition to these developments, customary justice (*Adat*) was also affected by the tsunami. Adat justice is an informal community mediation practice, whereby village

leaders settle disputes over diverse issues (including petty theft) (Amdani 2014). Reports suggest that it has been weakened by the tsunami, as village leaders in coastal areas died and infrastructure was devastated (UNDP 2006; 2008).

## 2. Summary statistics and sources of variables

**Table A1**   Summary statistics (for Kabupaten/months covering all 9 provinces)

|  | count | mean | sd | min | max |
|---|---|---|---|---|---|
| Lynching | 29172 | 0.24 | 0.89 | 0 | 18 |
| Aceh | 29172 | 0.16 | 0.37 | 0 | 1 |
| After tsunami | 29172 | 0.59 | 0.49 | 0 | 1 |
| Aceh_After_Tsun | 29172 | 0.09 | 0.29 | 0 | 1 |
| Total killings | 29172 | 0.92 | 10.15 | 0 | 1167 |
| Crime | 29172 | 1.74 | 4.97 | 0 | 83 |
| Police intervention | 29172 | 0.15 | 0.50 | 0 | 10 |
| Yearly population | 29172 | 180485.31 | 147965.05 | 6144 | 1034100 |
| Area | 29172 | 8577.00 | 11170.60 | 26.18 | 119749 |
| Poverty level | 29172 | 40884.62 | 39610.13 | 2302 | 369000 |
| Yearly GDP | 29172 | 948050.77 | 1.55e+06 | 17510 | 1.64e+07 |
| Nightlight luminosity | 28968 | 1.11 | 4.68 | 0 | 55.31429 |
| Observations | 29172 |  |  |  |  |

**Table A2**   Summary statistics (for Aceh)

|  | count | mean | sd | min | max |
|---|---|---|---|---|---|
| Lynching | 4692 | 0.24 | 0.63 | 0 | 5 |
| GAM Control | 4488 | 0.55 | 0.50 | 0 | 1 |
| Most Violence | 4692 | 0.17 | 0.38 | 0 | 1 |
| Islam Share | 4080 | 0.98 | 0.05 | .7601481 | 1 |
| Coastal | 4692 | 0.78 | 0.41 | 0 | 1 |
| After tsunami | 4692 | 0.59 | 0.49 | 0 | 1 |
| GAM Control X After Tsunami | 4488 | 0.32 | 0.47 | 0 | 1 |
| Most Violence X After Tsunami | 4692 | 0.10 | 0.30 | 0 | 1 |
| Islam Share X After Tsunami | 4080 | 0.58 | 0.48 | 0 | 1 |
| Coastal X After tsunami | 4692 | 0.46 | 0.50 | 0 | 1 |
| Total killings | 4692 | 2.40 | 7.93 | 0 | 172 |
| Crime | 4692 | 1.41 | 2.19 | 0 | 22 |
| Police intervention | 4692 | 0.18 | 0.55 | 0 | 10 |
| Yearly population | 4692 | 207288.35 | 154437.43 | 22734 | 1034100 |
| Area | 4692 | 2813.67 | 2215.60 | 61.36 | 12100 |
| Poverty level | 4692 | 47894.55 | 39034.35 | 5100 | 225940 |
| Yearly GDP | 4692 | 1.50e+06 | 2.24e+06 | 109358.8 | 1.64e+07 |
| Nightlight luminosity | 4692 | 3.12 | 8.07 | 0 | 55.31429 |
| Riot | 4692 | 0.01 | 0.09 | 0 | 2 |
| Fight | 4692 | 0.08 | 0.29 | 0 | 3 |

(*Continued*)

**Table A2** (continued)

| | count | mean | sd | min | max |
|---|---|---|---|---|---|
| Vandalism | 4692 | 0.40 | 1.11 | 0 | 20 |
| Domestic violence | 4692 | 0.09 | 0.39 | 0 | 9 |
| Assault | 4692 | 1.55 | 2.87 | 0 | 33 |
| Crime | 4692 | 1.41 | 2.19 | 0 | 22 |
| Tsunami affected | 4692 | 0.65 | 0.48 | 0 | 1 |
| Tsunami most affected | 4692 | 0.35 | 0.48 | 0 | 1 |
| Majelis (mean) | 924 | 0.73 | 0.21 | .12 | 1 |
| Distance to police station (mean) | 4080 | 7.33 | 4.73 | 1.404494 | 20.3262 |
| Observations | 4692 | | | | |

**Table A3**  Independent Variables Correlations

| | GAM Control | Most Violence | Islam Share | Coastal |
|---|---|---|---|---|
| **GAM Control** | 1.00 | | | |
| **Most Violence** | 0.39 | 1.00 | | |
| **Islam Share** | 0.38 | 0.14 | 1.00 | |
| **Coastal** | 0.27 | 0.22 | 0.49 | 1.00 |

**Table A4**  Sources of variables

| Variables | Source | Coverage | Lowest level of aggregation | Further description |
|---|---|---|---|---|
| Lynching | NVMS | 1998-2014 | Kecamatan | "One-way violence where many people (referred to as 'group/masses') gather suddenly to attack an individual or a small group. Minimum number of Side 1 is 5 persons, while ratio of Side 1 and Side 2 is ≥ 3:1." |
| Lynching due to theft | NVMS | 1998-2014 | Kecamatan | "Retaliation over theft" |
| Lynching due to sexual indiscretion | NVMS | 1998-2014 | Kecamatan | "Retaliation over sexual indiscretion (Violence perpetrated to respond to/punish sexual indiscretion for example fornication/adultery/affairs." |

(*Continued*)

**Table A4**   (continued)

| Variables | Source | Coverage | Lowest level of aggregation | Further description |
|---|---|---|---|---|
| Riots | NVMS | 1998-2014 | Kecamatan | "One-way violence where a group of people (more than 15 or referred to as 'group/ masses') moving through several locations to attack people and/or destroy property" |
| Fights | NVMS | 1998-2014 | Kecamatan | "Two-way violence between small groups or individual(s) (smaller in scale than a group clash)." |
| Vandalism | NVMS | 1998-2014 | Kecamatan | "Violence is committed mainly to target property." |
| Domestic violence | NVMS | 1998-2014 | Kecamatan | "Domestic violence consists of acts of violence committed by a family member against other family member(s), where the family members live under one roof/same household. These include violence committed by a family member against domestic workers and violence between cohabitating couples. In a case where an uncle hits his nephew and the nephew lives with the uncle, the incident will be categorized as domestic violence. However, if they do not live under one roof the incident will then be categorized as a different type of violence. Cases of parents not sending their children to school, not caring for them and/or abandoning them are not counted as cases of domestic violence in the NVMS database unless there are reports of physical violence." |

(*Continued*)

**Table A4** (continued)

| Variables | Source | Coverage | Lowest level of aggregation | Further description |
|---|---|---|---|---|
| Assault | NVMS | 1998-2014 | Kecamatan | "One-way physical attack by individual(s) or small groups against other individual(s), e.g., beating/chasing/killing/molestation/rape. Ratio of Side1 and Side 2 is less than 3 : 1" |
| Crime | NVMS | 1998-2014 | Kecamatan | "Violent crime comprises acts of violence that occur without any prior dispute between parties. The motivation behind a criminal act can be monetary, for example, robbery or abduction; or personal pleasure, for example, rape or serial killings. In contrast, violence in the context of conflict occurs due to pre-existing disputes between those involved such as dispute over land, election, religion or other such matters. As such, in the NVMS system, an act of killing can be coded as 'Conflict' if there is a dispute behind it, e.g., in a killing of a certain group figure by other groups, or can be coded as 'Crime' if there is no pre-existing dispute between parties, for example, serial killings." |
| Population number | World Bank | 1998-2014 | Kabupaten | Number of inhabitants |
| Poverty level | World Bank | 1998-2014 | Kabupaten | |
| Total GDP | World Bank | 1998-2014 | Kabupaten | |
| Nightlight emissions | National Centers for Environmental Information | 1998-2014 | Kecamatan/Kabupaten | For Aceh analysis, we use Kecamatan data, for Indonesia analysis, we use Kabupaten data |

**Table A4**  (continued)

| Variables | Source | Coverage | Lowest level of aggregation | Further description |
|---|---|---|---|---|
| GAM presence | Barron et al. (2008) | 2007 | Village (Desa) | Village head survey used to create an estimate of GAM presence in Kecamatan (and Kabupaten). Question used: "Q 126 Was this village considered a "basis GAM" by the government during this period?" Responses aggregated to Kecamatan/ Kabupaten level. If some of surveyed village leaders said yes (=1), we consider village has had GAM presence before August 2005. |
| Tsunami victims | WHO (2013) | N/A | Kabupaten | Number of fatalities. |
| Most Violence | UCDP Global Events Data | 1989-2018 | Kabupaten | Number of conflict related fataliteis |
| Islam Share | PODES Survey | 2003 | Kecamatan | Mean of the number of Islamic building divided by other religious building across all villages in each Kabupaten. Calculated by De Juan, Pierskalla and Vüllers (2015). |
| Coastal | Coded for this paper by the authors. | N/A | Kabupaten | Captures the Kabupaten that include coastline. |

## 3. Additional Figures

**Figure A1**  Lynching across nine Indonesian provinces, 1998 to 2014
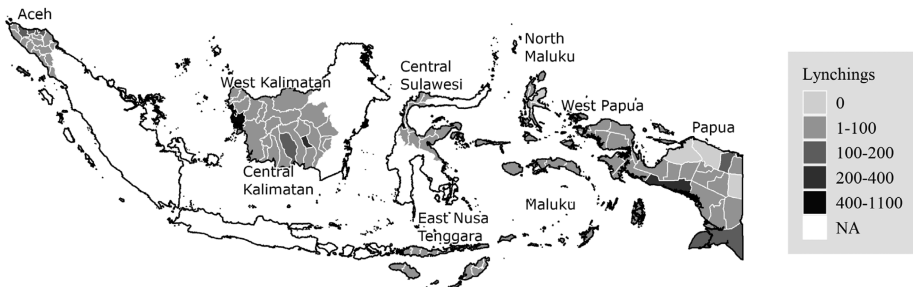
**Figure A2**  Monthly lynchings in Aceh and other provinces of Indonesia, 1998-2014
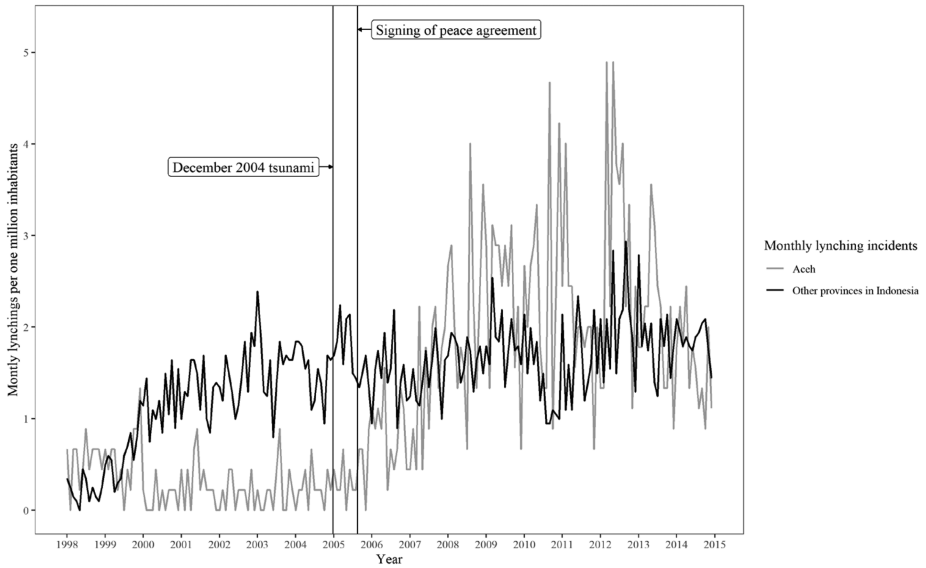


**Figure A3**  Mean count of lynchings in Aceh and areas controlled/not controlled by GAM, 1998-2014
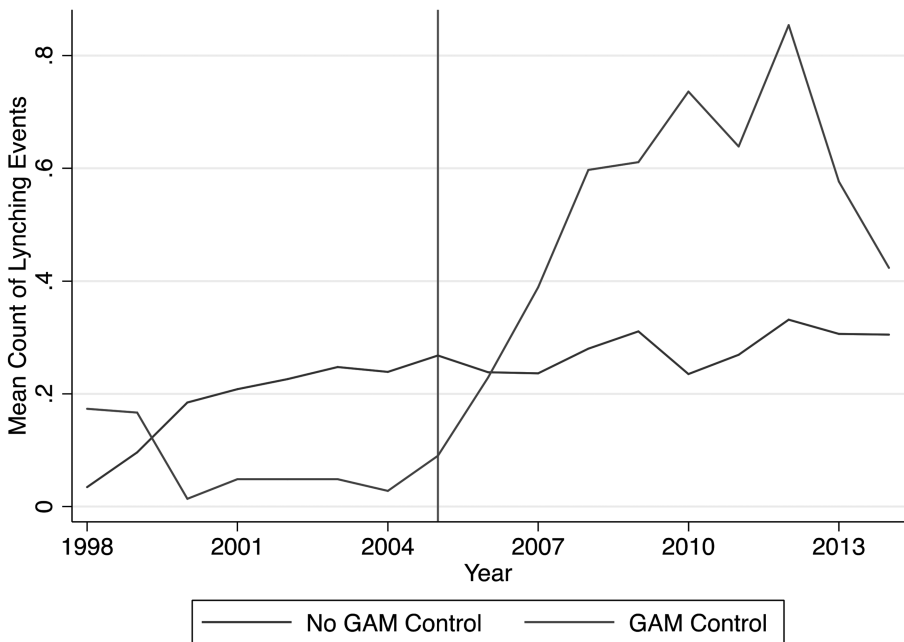
**Figure A4** Mean count of lynchings in Aceh in areas with most conflict violence vs. areas with less conflict violence, 1998-2014
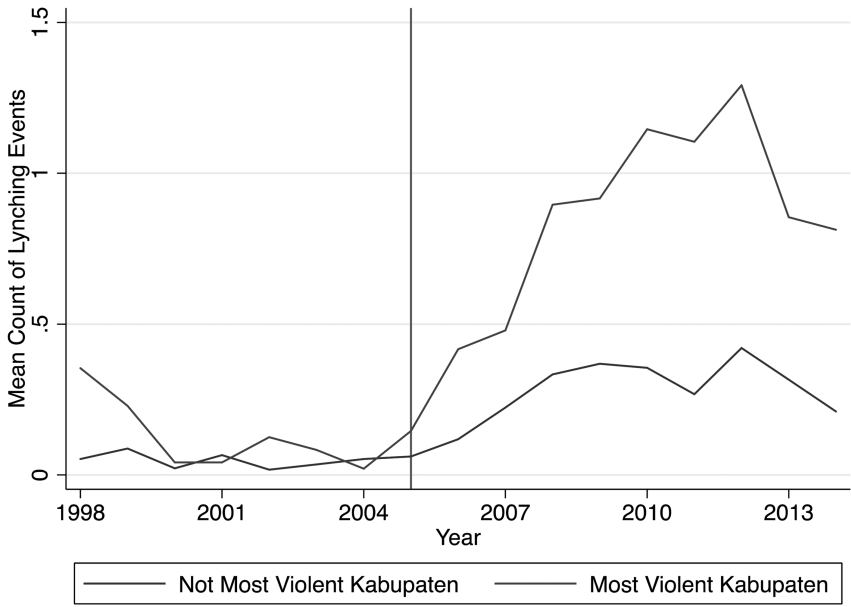


**Figure A5** Mean count of lynchings in Aceh in inland/coastal areas, 1998-2014
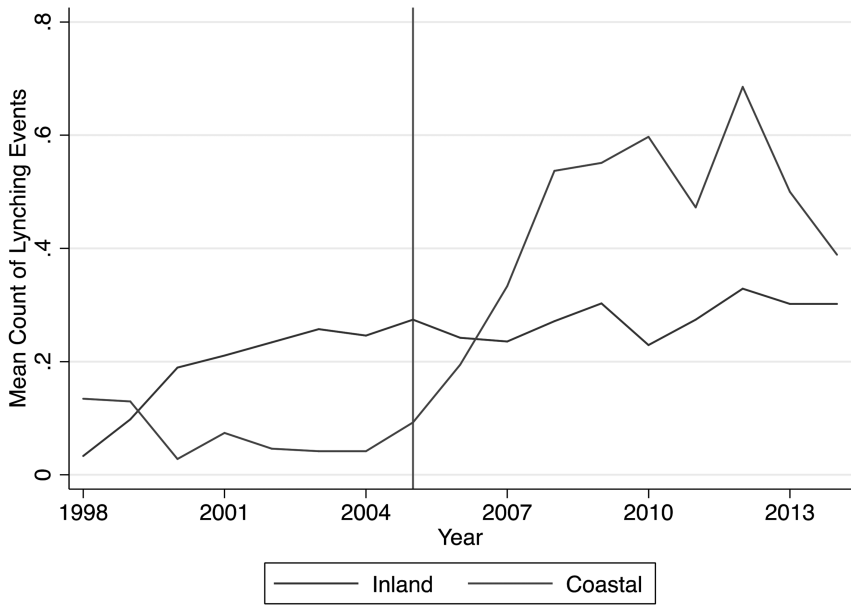
**Figure A6** Mean count of lynchings for sexual indiscretion in Aceh in inland/coastal areas, 1998-2014
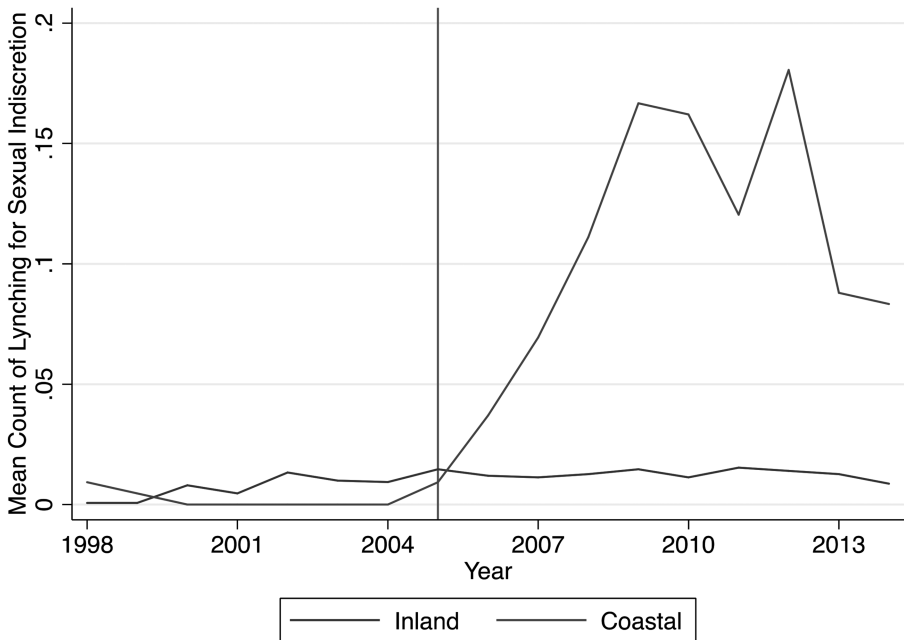


## 4. Additional Analysis

**Table A5** Identical to Table 1 with control variables displayed

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After tsunami | 0.270** | 0.338*** | 0.305*** | 0.301*** | 0.304*** |
|  | (0.086) | (0.072) | (0.065) | (0.064) | (0.071) |
| Total killings |  | −0.000 | −0.000 | −0.000 | −0.001 |
|  |  | (0.001) | (0.001) | (0.001) | (0.001) |
| Total crime |  | 0.094*** | 0.086*** | 0.086*** | 0.089*** |
|  |  | (0.011) | (0.010) | (0.010) | (0.011) |
| Police involvement |  | 0.034# | 0.034* | 0.033# | 0.058** |
|  |  | (0.018) | (0.017) | (0.017) | (0.022) |
| Yearly population |  | 0.000# | 0.000# | 0.000* | 0.000*** |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) |
| Area |  | −0.000# | −0.000 | −0.000# | −0.000# |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) |
| Poverty level |  | −0.000* | −0.000* | −0.000*** | −0.000*** |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) |

*(Continued)*

**Table A5** (continued)

| | | | | | |
|---|---|---|---|---|---|
| Yearly GDP | | −0.000* | −0.000* | −0.000# | 0.000 |
| | | (0.000) | (0.000) | (0.000) | (0.000) |
| Nightlight luminosity | | 0.013* | 0.011* | 0.012* | 0.027* |
| | | (0.005) | (0.005) | (0.005) | (0.012) |
| Lagged DV | | | 0.108*** | 0.108*** | 0.184*** |
| | | | (0.019) | (0.019) | (0.018) |
| After tsunami | | | −0.009 | −0.016 | −0.034* |
| | | | (0.067) | (0.017) | (0.014) |
| Aceh | | | | | −0.242*** |
| | | | | | (0.055) |
| Constant | 0.168*** | 0.012 | 0.015 | 0.030 | −0.003 |
| | (0.037) | (0.085) | (0.074) | (0.062) | (0.013) |
| $N$ | 25740 | 25560 | 25560 | 25560 | 25560 |
| adj. $R^2$ | 0.011 | 0.230 | 0.239 | 0.237 | 0.574 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, coastal area, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity. $^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A6** Table 2 with control variables displayed

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| GAM Control X After tsunami | 0.192# | | | |
| | (0.098) | | | |
| Most Violent X After tsunami | | 0.348** | | |
| | | (0.097) | | |
| Islam Share X After tsunami | | | 0.880** | |
| | | | (0.291) | |
| Coastal X After tsunami | | | | 0.200** |
| | | | | (0.065) |
| Lagged DV | 0.085** | 0.083** | 0.088** | 0.088** |
| | (0.028) | (0.023) | (0.029) | (0.028) |
| After tsunami | −0.009 | 0.026 | −0.773** | −0.083 |
| | (0.099) | (0.102) | (0.250) | (0.104) |
| Total killings | −0.000 | 0.001 | −0.002 | −0.002 |
| | (0.003) | (0.002) | (0.003) | (0.003) |
| Total crime | 0.008 | 0.006 | 0.005 | 0.007 |
| | (0.011) | (0.011) | (0.012) | (0.011) |
| Police involvement | 0.026# | 0.028# | 0.031# | 0.032# |
| | (0.015) | (0.015) | (0.017) | (0.016) |

(*Continued*)

**Table A6** (continued)

| | | | | |
|---|---|---|---|---|
| Yearly population | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Area | 0.000 | −0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Poverty level | −0.000** | −0.000** | −0.000** | −0.000** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Yearly GDP | −0.000** | −0.000* | −0.000** | −0.000** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Nightlight luminosity | 0.020*** | 0.017*** | 0.016*** | 0.016*** |
| | (0.002) | (0.002) | (0.003) | (0.003) |
| Constant | 0.227# | 0.206* | 0.308* | 0.287** |
| | (0.113) | (0.078) | (0.111) | (0.098) |
| $N$ | 4487 | 4691 | 4079 | 4691 |
| adj. $R^2$ | 0.169 | 0.169 | 0.170 | 0.164 |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses,
Standard errors clustered at regency level. Control variables include: After tsunami, coastal area, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A7**  Table 3 with control variables displayed

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| GAM Control X After tsunami | | 0.045(0.043) | | |
| Most Violent X After tsunami | 0.002(0.042) | | | |
| Islam Share X After tsunami | | | 0.367*(0.143) | |
| Coastal X After tsunami | | | | 0.080**(0.027) |
| Total killings | 0.000(0.000) | 0.000(0.001) | 0.000(0.001) | 0.000(0.001) |
| Total crime | −0.001(0.002) | −0.001(0.002) | −0.001(0.003) | −0.001(0.002) |
| Police involvement | 0.006(0.007) | 0.006(0.007) | 0.006(0.008) | 0.007(0.007) |
| Yearly population | 0.000(0.000) | 0.000(0.000) | 0.000(0.000) | 0.000(0.000) |
| Area | 0.000(0.000) | −0.000(0.000) | −0.000(0.000) | −0.000(0.000) |
| Poverty level | −0.000(0.000) | −0.000(0.000) | −0.000(0.000) | −0.000(0.000) |
| Yearly GDP | −0.000(0.000) | −0.000(0.000) | −0.000(0.000) | −0.000(0.000) |
| Lagged DV | 0.024#(0.013) | 0.022(0.014) | 0.022(0.015) | 0.022(0.014) |
| Constant | 0.020(0.030) | 0.004(0.028) | 0.015(0.032) | 0.017(0.026) |

(*Continued*)

**Table A7** (continued)

| N | 4691 | 4487 | 4079 | 4691 |
|---|---|---|---|---|
| adj. $R^2$ | 0.063 | 0.067 | 0.071 | 0.067 |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, coastal area, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^\#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A8** All model specifications for GAM control

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| GAM Control | $0.273^*$ | $0.207^\#$ | $0.192^\#$ | $0.192^*$ | $0.233^{**}$ |
| X After Tsunami | (0.131) | (0.106) | (0.098) | (0.091) | (0.078) |
| Constant | $0.136^\#$ | $0.244^\#$ | $0.227^\#$ | $0.190^*$ | $-0.076^\#$ |
| | (0.077) | (0.123) | (0.113) | (0.084) | (0.038) |
| N | 4488 | 4488 | 4487 | 4487 | 4487 |
| adj. $R^2$ | 0.129 | 0.163 | 0.169 | 0.141 | 0.226 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^\#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A9** All model specifications for Conflict Violence

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Most Violent X After | $0.458^{**}$ | $0.375^{**}$ | $0.348^{**}$ | $0.352^{**}$ | $0.487^{**}$ |
| tsunami | (0.125) | (0.109) | (0.097) | (0.100) | (0.138) |
| Constant | 0.130 | $0.221^*$ | $0.206^*$ | $0.176^{**}$ | $-0.060$ |
| | (0.070) | (0.084) | (0.078) | (0.055) | (0.031) |
| N | 4692 | 4692 | 4691 | 4691 | 4691 |
| adj. $R^2$ | 0.132 | 0.163 | 0.169 | 0.142 | 0.231 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A10**   All model specifications for Islamic Share

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Islam Share X After | 1.268** | 0.957** | 0.880** | 0.989** | 1.481** |
| tsunami | (0.412) | (0.316) | (0.291) | (0.287) | (0.418) |
| Constant | 0.150 | 0.331* | 0.308* | 0.275** | 0.713** |
|  | (0.092) | (0.119) | (0.111) | (0.084) | (0.246) |
| $N$ | 4080 | 4080 | 4079 | 4079 | 4079 |
| adj. $R^2$ | 0.127 | 0.164 | 0.170 | 0.139 | 0.211 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^*p < 0.05,$ $^{**}p < 0.01,$ $^{***}p < 0.001$

**Table A11**   All model specifications for Coastal

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Coastal X After tsunami | 0.298** | 0.217** | 0.200** | 0.196** | 0.132* |
|  | (0.088) | (0.070) | (0.065) | (0.059) | (0.049) |
| Constant | 0.130 | 0.309** | 0.287** | 0.258** | −0.110** |
|  | (0.080) | (0.104) | (0.098) | (0.075) | (0.034) |
| $N$ | 4692 | 4692 | 4691 | 4691 | 4691 |
| adj. $R^2$ | 0.121 | 0.158 | 0.164 | 0.137 | 0.214 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^*p < 0.05,$ $^{**}p < 0.01,$ $^{***}p < 0.001$

**Table A12** Non-equivalent dependent variable: Riots

|                          | (1)<br>Riots | (2)<br>Riots | (3)<br>Riots | (4)<br>Riots |
|--------------------------|--------------|--------------|--------------|--------------|
| GAM Control              |              | 0.003(0.006) |              |              |
| Most Violent X After<br>tsunami | 0.016(0.010) |     |              |              |
| Islam Share X After<br>tsunami  |     |              | 0.035(0.036) |              |
| Coastal X After<br>tsunami      |     |              |              | −0.003(0.004) |
| Constant                 | −0.032$^*$(0.013) | −0.029$^*$(0.014) | −0.029$^*$(0.014) | −0.027$^*$(0.012) |
| N                        | 4692         | 4488         | 4080         | 4692         |
| adj. $R^2$               | 0.031        | 0.031        | 0.027        | 0.030        |

Standard errors in parentheses
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^\#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$


**Table A13** Non-equivalent dependent variable: Fights

|                          | (1)<br>Fights | (2)<br>Fights | (3)<br>Fights | (4)<br>Fights |
|--------------------------|---------------|---------------|---------------|---------------|
| GAM Control              |               | 0.035$^\#$(0.020) |            |               |
| Most Violent X After<br>tsunami | 0.055$^\#$(0.031) |   |               |               |
| Islam Share X After<br>tsunami  |      |               | −0.177$^\#$(0.093) |          |
| Coastal X After<br>tsunami      |      |               |               | 0.012(0.019) |
| Constant                 | 0.087$^\#$(0.048) | 0.091$^\#$(0.052) | 0.108$^\#$(0.052) | 0.100$^*$(0.046) |
| N                        | 4692          | 4488          | 4080          | 4692          |
| adj. $R^2$               | 0.055         | 0.056         | 0.052         | 0.054         |

Standard errors in parentheses
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^\#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A14**   Non-equivalent dependent variable: Vandalism

|  | (1)<br>Vandalism | (2)<br>Vandalism | (3)<br>Vandalism | (4)<br>Vandalism |
|---|---|---|---|---|
| GAM Control |  | −0.124(0.089) |  |  |
| Most Violent X After tsunami | −0.182(0.171) |  |  |  |
| Islam Share X After tsunami |  |  | −0.874$^*$(0.376) |  |
| Coastal X After tsunami |  |  |  | −0.045(0.061) |
| Constant | −0.175$^*$(0.073) | −0.181$^*$(0.076) | −0.284$^{**}$(0.091) | −0.219$^*$(0.079) |
| N | 4692 | 4488 | 4080 | 4692 |
| adj. $R^2$ | 0.278 | 0.282 | 0.278 | 0.277 |

Standard errors in parentheses
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^\#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$


**Table A15**   Non-equivalent dependent variable: Domestic Violence

|  | (1)<br>Domestic Violence | (2)<br>Domestic Violence | (3)<br>Domestic Violence | (4)<br>Domestic Violence |
|---|---|---|---|---|
| GAM Control |  | 0.029(0.038) |  |  |
| Most Violent X After tsunami | 0.136$^{***}$(0.021) |  |  |  |
| Islam Share X After tsunami |  |  | −0.034(0.126) |  |
| Coastal X After tsunami |  |  |  | 0.013(0.030) |
| Constant | 0.016(0.025) | 0.038(0.039) | 0.052(0.041) | 0.051(0.036) |
| N | 4692 | 4488 | 4080 | 4692 |
| adj. $R^2$ | 0.057 | 0.055 | 0.054 | 0.054 |

Standard errors in parentheses
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^\#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A16**  Alternative Causes of Lynching: Assault

|  | (1) Assault | (2) Assault | (3) Assault | (4) Assault |
|---|---|---|---|---|
| GAM Control |  | −0.716#(0.347) |  |  |
| Most Violent X After tsunami | −1.132#(0.607) |  |  |  |
| Islam Share X After tsunami |  |  | −0.793(1.427) |  |
| Coastal X After tsunami |  |  |  | −0.482#(0.235) |
| Constant | −0.080(0.427) | −0.129(0.479) | −0.269(0.492) | −0.345(0.432) |
| N | 4692 | 4488 | 4080 | 4692 |
| adj. $R^2$ | 0.525 | 0.527 | 0.564 | 0.522 |

Standard errors in parentheses
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
#$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$


**Table A17**  Alternative Causes of Lynching: Crime

|  | (1) Crime | (2) Crime | (3) Crime | (4) Crime |
|---|---|---|---|---|
| GAM Control |  | −0.477*(0.196) |  |  |
| Most Violent X After tsunami | 0.155(0.596) |  |  |  |
| Islam Share X After tsunami |  |  | −1.314(1.624) |  |
| Coastal X After tsunami |  |  |  | −0.165(0.138) |
| Constant | 0.195(0.603) | 0.427(0.599) | 0.285(0.628) | 0.243(0.556) |
| N | 4692 | 4488 | 4080 | 4692 |
| adj. $R^2$ | 0.244 | 0.252 | 0.257 | 0.244 |

Standard errors in parentheses
Standard errors clustered at regency level. All models include month and regency fixed effects. Control variables include: after tsunami, coastal, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
#$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

**Table A18**  Tsunami damage

|  | (1) |
|---|---|
| Most affected by tsunami | 0.065(0.108) |
| Constant | 0.278$^{**}$(0.096) |
| $N$ | 4691 |
| adj. $R^2$ | 0.160 |
| Month fixed effects | Yes |
| Regency fixed effects | Yes |
| Control variables | Yes |
| Lagged DV | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10,\ ^{*}p < 0.05,\ ^{**}p < 0.01,\ ^{***}p < 0.001$

The tsunami damage variable is based on reports of fatalities provided by WHO (WHO 2013). All Kabupaten with less than 1000 fatalities receive a 0, otherwise 1. This includes Nagan Raya (1942 victims), Aceh Utara (2316), Aceh Selatan (2652), Pidie (5278), Aceh Barat (13785), Aceh Jaya (16874), Aceh Besar/Banda Aceh (122736)

**Table A19**  Log transformed Dependent Variable – All Indonesia

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After tsunami | 0.154$^{***}$ | 0.174$^{***}$ | 0.163$^{***}$ | 0.161$^{***}$ | 0.175$^{***}$ |
|  | (0.043) | (0.037) | (0.034) | (0.033) | (0.040) |
| Aceh |  |  |  |  | −0.110$^{***}$ |
|  |  |  |  |  | (0.024) |
| Constant | 0.088$^{***}$ | 0.037 | 0.038 | 0.043 | 0.005 |
|  | (0.019) | (0.038) | (0.034) | (0.029) | (0.008) |
| $N$ | 25740 | 25560 | 25560 | 25560 | 25560 |
| adj. $R^2$ | 0.022 | 0.164 | 0.171 | 0.169 | 0.504 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{*}p < 0.05,\ ^{**}p < 0.01,\ ^{***}p < 0.001$

**Table A20**  Log transformed Dependent Variable – Aceh

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| GAM Control | 0.110*(0.052) | | | |
| Most Violent X After tsunami | | 0.195***(0.051) | | |
| Islam Share X After tsunami | | | 0.510**(0.161) | |
| Coastal X After tsunami | | | | 0.112**(0.036) |
| Constant | 0.141*(0.068) | 0.129*(0.050) | 0.189*(0.068) | 0.175**(0.060) |
| $N$ | 4487 | 4691 | 4079 | 4691 |
| adj. $R^2$ | 0.174 | 0.173 | 0.175 | 0.168 |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A21**  Lagged Independent Variables – Aceh

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| lag GAM Control | 0.114*(0.052) | | | |
| lag Most Violent X After tsunami | | 0.198***(0.052) | | |
| lag Islam Share X After tsunami | | | 0.527**(0.168) | |
| lag Coastal X After tsunami | | | | 0.113**(0.037) |
| Constant | 0.041(0.053) | 0.035(0.037) | 0.081(0.054) | 0.081(0.048) |
| $N$ | 4465 | 4668 | 4059 | 4668 |
| adj. $R^2$ | 0.175 | 0.173 | 0.175 | 0.168 |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A22**  Reduced temporal period, All Indonesia

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After | 0.201** | 0.259*** | 0.248*** | 0.245*** | 0.257*** |
| tsunami | (0.068) | (0.062) | (0.059) | (0.058) | (0.063) |
| Constant | 0.168*** | 0.091 | 0.088 | 0.112* | 0.001 |
|  | (0.034) | (0.056) | (0.054) | (0.050) | (0.015) |
| $N$ | 17160 | 17040 | 17040 | 17040 | 17040 |
| adj. $R^2$ | 0.009 | 0.121 | 0.123 | 0.122 | 0.601 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
#$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

**Table A23**  Reduced temporal period, Aceh (2000-2009)

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| GAM Control | 0.182#(0.093) |  |  |  |
| Most Violent X After | | 0.195(0.128) |  |  |
| tsunami |  |  |  |  |
| Islam Share X After | |  | 0.749*(0.288) |  |
| tsunami |  |  |  |  |
| Coastal X After tsunami |  |  |  | 0.153*(0.065) |
| Constant | 0.077(0.106) | 0.121(0.093) | 0.184#(0.097) | 0.181*(0.087) |
| $N$ | 2640 | 2760 | 2400 | 2760 |
| adj. $R^2$ | 0.190 | 0.183 | 0.190 | 0.183 |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
#$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

**Table A24**  Models without controlling for Crime, All Indonesia

|                        | (1)             | (2)             | (3)             | (4)             |
|------------------------|-----------------|-----------------|-----------------|-----------------|
| Aceh X After tsunami   | 0.260**(0.079)  | 0.199**(0.060)  | 0.197**(0.060)  | 0.170**(0.060)  |
| Constant               | 0.077(0.171)    | 0.071(0.129)    | 0.106(0.128)    | 0.014(0.022)    |
| $N$                    | 25560           | 25560           | 25560           | 25560           |
| adj. $R^2$             | 0.038           | 0.099           | 0.098           | 0.457           |
| Month fixed effects    | Yes             | Yes             | No              | No              |
| Regency fixed effects  | Yes             | Yes             | Yes             | No              |
| Control variables      | Yes             | Yes             | Yes             | Yes             |
| Lagged DV              | No              | Yes             | Yes             | Yes             |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A25**  Models without controlling for Crime, Aceh

|                            | (1)            | (2)            | (3)            | (4)            |
|----------------------------|----------------|----------------|----------------|----------------|
| GAM Control                | 0.188#(0.099)  |                |                |                |
| Most Violent X After tsunami |              | 0.348**(0.095) |                |                |
| Islam Share X After tsunami |               |                | 0.873**(0.298) |                |
| Coastal X After tsunami    |                |                |                | 0.198**(0.065) |
| Constant                   | 0.230#(0.116)  | 0.207*(0.079)  | 0.309*(0.113)  | 0.288**(0.099) |
| $N$                        | 4487           | 4691           | 4079           | 4691           |
| adj. $R^2$                 | 0.169          | 0.169          | 0.170          | 0.164          |
| Month fixed effects        | Yes            | Yes            | Yes            | Yes            |
| Regency fixed effects      | Yes            | Yes            | Yes            | Yes            |
| Control variables          | Yes            | Yes            | Yes            | Yes            |
| Lagged DV                  | Yes            | Yes            | Yes            | Yes            |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^#p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A26**  Models with Alternative independent variable, Majlis

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Majlis X After | 0.320[#] | 0.318[*] | 0.292[*] | 0.277[*] | 0.147 |
| tsunami | (0.185) | (0.144) | (0.135) | (0.129) | (0.109) |
| Constant | 0.130 | 0.377[***] | 0.352[***] | 0.321[***] | −0.095[*] |
| | (0.077) | (0.079) | (0.077) | (0.055) | (0.039) |
| $N$ | 4692 | 4692 | 4691 | 4691 | 4079 |
| adj. $R^2$ | 0.124 | 0.166 | 0.171 | 0.143 | 0.213 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
[#]$p < 0.10$, [*]$p < 0.05$, [**]$p < 0.01$, [***]$p < 0.001$

**Table A27**  Indonesia with full temporal coverage (1998-2014)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After | 0.204[*] | 0.298[***] | 0.264[***] | 0.268[***] | 0.279[***] |
| tsunami | (0.080) | (0.065) | (0.057) | (0.056) | (0.066) |
| Constant | 0.070 | 0.047 | 0.043 | 0.037 | −0.005 |
| | (0.045) | (0.058) | (0.051) | (0.041) | (0.011) |
| $N$ | 29172 | 28968 | 28967 | 28967 | 28967 |
| adj. $R^2$ | 0.017 | 0.257 | 0.270 | 0.268 | 0.568 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
[#]$p < 0.10$, [*]$p < 0.05$, [**]$p < 0.01$, [***]$p < 0.001$

**Table A28** Negative binomial regression, all Indonesia

|  | (1) | (2) |
|---|---|---|
| Aceh X After tsunami | 1.827***(0.141) | 2.326***(0.168) |
| Constant | 0.271(0.264) | −2.975***(0.054) |
| / |  |  |
| lnalpha |  | 0.170***(0.045) |
| N | 23940 | 25560 |
| Month fixed effects | Yes | No |
| Regency fixed effects | Yes | No |
| Control variables | No | Yes |
| Lagged DV | No | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Other models did not converge.

**Table A29** Negative binomial regression, all Indonesia

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| GAM Control | 0.438#(0.243) |  |  |  |
| Most Violent X After tsunami |  | 0.416#(0.251) |  |  |
| Islam Share X After tsunami |  |  | 5.762*(2.846) |  |
| Coastal X After tsunami |  |  |  | 0.867*(0.352) |
| Constant | 15.449 | 15.492 | 16.536 | 13.877 |
|  | (769.014) | (330.348) | (276.343) | (288.777) |
| N | 4487 | 4691 | 4079 | 4691 |
| adj. $R^2$ |  |  |  |  |
| Month fixed effects | Yes | Yes | Yes | Yes |
| Regency fixed effects | Yes | Yes | Yes | Yes |
| Control variables | Yes | Yes | Yes | Yes |
| Lagged DV | Yes | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A30** Reporting Bias Robustness Checks, inflate pre-2005 reporting, all Indonesia

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After tsunami | −0.000(0.047) | 0.110$^{**}$(0.039) | 0.080$^{*}$(0.032) | 0.078$^{*}$(0.033) | 0.037(0.025) |
| Constant | 0.168$^{***}$(0.036) | −0.028(0.077) | −0.025(0.068) | −0.009(0.054) | 0.023(0.015) |
| $N$ | 25740 | 25560 | 25560 | 25560 | 25560 |
| adj. $R^2$ | 0.002 | 0.242 | 0.251 | 0.250 | 0.589 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

**Table A31** Reporting Bias Robustness Checks, deflate post-2005 reporting, all Indonesia

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Aceh X After tsunami | 0.170$^{*}$ (0.077) | 0.255$^{***}$ (0.068) | 0.223$^{***}$ (0.060) | 0.219$^{***}$ (0.059) | 0.216$^{**}$ (0.070) |
| Constant | 0.189$^{***}$(0.044) | 0.025(0.086) | 0.028(0.076) | 0.042(0.061) | −0.005 (0.013) |
| $N$ | 25740 | 25560 | 25560 | 25560 | 25560 |
| adj. $R^2$ | 0.006 | 0.214 | 0.224 | 0.221 | 0.559 |
| Month fixed effects | Yes | Yes | Yes | No | No |
| Regency fixed effects | Yes | Yes | Yes | Yes | No |
| Control variables | No | Yes | Yes | Yes | Yes |
| Lagged DV | No | No | Yes | Yes | Yes |

Standard errors in parentheses
Standard errors clustered at regency level. Control variables include: After tsunami, Aceh, total killings, total crime, police involvement, yearly population, area, poverty level, yearly GDP, nightlight luminosity.
$^{\#}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

## 5. Alternative explanations: extended discussion

While the effect of authority and morality on lynchings in Aceh identified in the main paper is robust, other simultaneous developments, rather than the two conditions outlined in our theory, may also explain the observed effect. Here, we explore alternative explanations.

### *Effect of crime*

Given that lynching happens in response to wrongdoing, one could argue that swings in lynching are a function of swings in wrongdoing and crime. In fact, the economic damage of the tsunami to livelihoods in Aceh may have contributed to increased crime. In our statistical analysis, we therefore adjust for crime events (given that crime may be a mediator rather than a confounder, we also show models without adjusting for crime). Also, there are reports that crimes have increased in post-conflict Aceh (International Crisis Group 2007, 5).

We therefore conduct a series of additional analysis. We use crime and assault as alternative dependent variables, instead of lynching. In no model specification are these two variables positively related with our independent variables. In fact, they are negatively related in most instances, and in some models this negative relationship is statistically significant. This might be due to a deterrent effect of increased lynching, but it cannot be a cause of increased lynching. Hence, we conclude that increased lynching in post-tsunami Aceh cannot be explained as a function of increasing crime.

### *Oher developments*

A series of local developments occurred alongside the changes introduced with the tsunami and conflict ending. However, we believe that they cannot account in a direct way for the observed pattern of increased lynching in post-tsunami Aceh and therefore abstain from further analysis. Here we briefly explain why.

*Lawlessness:* Lawlessness in the wake of the tsunami may have led to increased lynchings. If this explanation was true, this would have produced a temporary effect in the early period after the tsunami (UNDP 2006), which is not what we observe. Also, it would have been accompanied by increased levels of other forms of crime and violence, which is not in line with our analysis of non-equivalent dependent variables.

*Displacement:* Lynching may have been a reaction to the destabilizing force of displacement (Gray et al. 2014). Displaced people may have provided "suitable targets" for lynch mobs, as they were outsiders in new communities, and might thus have been seen as "evildoers" (Kloos 2017, 146). However, displacement after the tsunami was mostly temporary and should not have led to an enduring effect as the one we observe. Also, displacement was common during conflict as well and could have produced the same supply of outsiders before the tsunami hit.

*International aid:* The role of international aid (Burke 2005; Daly 2015) is not analyzed here. While it surely impacted the Acehnese society as a whole, a direct

linkage with lynching is unclear. Although some authors have argued that competition for aid money related to the tsunami led to increased egoism and envy (Kloos 2017, 102; Samuels 2012).

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