MICRO CON

**A MICRO LEVEL ANALYSIS
OF VIOLENT CONFLICT**

Group Violence, Ethnic Diversity, and Citizen Participation: Evidence from Indonesia

Group Violence, Ethnic Diversity, and Citizen Participation: Evidence from Indonesia

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Abstract: This paper addresses the impact of violent conflict on social capital, as measured by citizen participation in community groups defined for four activity types: governance, social service, infrastructure development and risk-sharing. Combining household panel data from Indonesia with conflict event information, we find an overall decrease in citizen contributions in districts affected by group violence in the early post-Suharto transition period. However, participation in communities with a high degree of ethnic polarization is less strongly affected and even stimulated for local governance and risk-sharing activities. Moreover, individual engagement appears to be dependent on the involvement of other members from the own ethnic group, which points to emphases on bonding social networks in the presence of violence. Finally, in conflict regions, the wealthier households are more likely to engage into cooperative and infrastructure improvement activities, while they are dropping from security groups. On the contrary, the poorest households get more involved in social service activities and less in infrastructure groups. Our results illustrate the danger of generalizations when dealing with violence impact on community activities. We found a large variety of responses depending on the considered activity and its expected economic or social function. We also found large observed and unobserved individual heterogeneities of the effect of violent conflict on activity participation. Once an appropriate nomenclature of activities is used and intensive controls for observed and unobserved heterogeneity are performed, we found that some activities can actually be stimulated by conflict situations. In this respect, the ethnic configuration of society seems to be central in understanding this type of social capital building.

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1. Introduction

Scholars and practitioners are increasingly advocating bottom-up development approaches based on active involvement of targeted citizens. Thereby, local groups and networks make a difference especially in areas where state and market institutions are non-existent or ill-functioning. On the one hand, community initiatives can contribute to overcome shortages in provision of local public goods and services. On the other hand, in the absence of formal credit and insurance markets, networks of mutual assistance allow for productive investments and mitigation of income shocks. However, well-known incentive problems plague collective action also at the local level. A large literature has enhanced our understanding of the inefficiencies in local collective action (see Lin and Nugent, 1995, and Banerjee, Yyer and Somanathan, 2008, for overviews), although it is still limited.

Despite the extent of economic researches on collective incentives, this paper addresses an issue that has attracted relatively little attention in the literature. Using household and community panel data from Indonesia, we study potential impacts of violence on citizen participation in diverse types of community groups. Looking at the impact of violence on community activities will thereby inform us on hidden mechanisms and determinants of local collective action in the studied Indonesian context, while general insights may be gained, too.

It is well known that violent conflict may disrupt markets and economic contracts, in particular because it jeopardizes property rights. Micro-level studies find heightened insecurity in conflict areas to severely impede the market access of local producers (e.g., Verpoorten, 2009, on cattle markets in Rwanda). On a more global scale, the substantial decline in market exchange is illustrated by a huge slump in international trade flows in those countries affected by conflict (Blomberg and Hess, 2006). It is less known whether and how violence would affect community group activities that may play similar roles or complement markets. This is notably

important because if such activity can better resist to violence than market institutions, then they could replace them in some dramatic contexts.

Civil wars are likely to severely rupture the social fabric of society. Colleta and Cullen (2000) provide case study evidence from Cambodia, Guatemala, Rwanda, and Somalia that illustrate how social cohesion and communal trust can erode in societies plagued by civil war. Conclusions on a generally negative effect of violent conflict on social cohesion and political participation, however, have been called into question. Using country data for all civil wars between 1960 and 1989, Collier (1999) distinguishes war-vulnerable and war-safe activities. In a micro-level study, Bellows and Miguel's (2009) analysis of the impact of the Sierra Leone civil war on post-conflict collective action finds direct victims of war violence to be politically and socially more engaged in their communities than non-victims. Specifically, conflict victimization is shown to positively affect participation in community meetings, registration to vote, and membership in social groups.[3] However, Bellow and Miguel's study is different from most of the literature in that they find that neither ethnic nor religious divisions played a central role in Sierra Leone conflict.

Individual engagement is therefore assumed to particularly arise from the personal experience of violence, rather than from "merely witnessing" it. This is in line with Blattman (2009), who finds abducted ex-combatants in Northern Uganda to show increased political participation (measured by: vote, being a community activist, and political employment) after their return. The formerly abducted, however, show neither greater involvement in social and religious groups, nor higher contributions to local public goods.

The varying and potentially context-dependent nature of the effects of violence exposure on social behavior is confirmed by laboratory experiment evidence from Nepal and Burundi.

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[3] In this paper, social groups correspond to women's groups, youth groups, and farmer's groups (Bellows and Miguel, 2009, p. 1149).

Using behavioral games, Gilligan, Pascuale and Samii (2010) find greater willingness to invest in trust-based transactions and to contribute to public goods in those communities particularly affected by violence during the Nepalese civil war. Similarly, Voors et al. (2011) study behavioral changes in post-war Burundi and provide evidence for increased altruism by both individuals and communities that experienced violence during the 1993-2005 civil conflict.

Interestingly, such pro-social behavior in the experiment is found less distinct in war-affected communities which are ethnically heterogeneous. In a game-theoretical approach, Choi and Bowles (2007) show parochial altruism, i.e. altruistic behavior towards fellow group members and hostility towards other groups, to be a dominant evolutionary strategy in the presence of inter-group conflict. Further laboratory experiment evidence on this "dark side of social capital" comes from Bauer, Cassar and Chytilova (2011): In dictator game experiments with Georgian children shortly after the 2008 war over Ossetia, war-related experiences are shown to sharpen one's sense of group identity.

While within-group ties ("bonding social capital") may be strengthened in the face of violence, cooperation across group boundaries ("bridging social capital") may be weakened while inter-group tensions increase. Local fieldwork conducted by Pinchotti and Verwimp (2007) in rural Rwanda, also illustrates how social relations across ethnic groups are most likely to collapse in the presence of extreme violence, while social ties within the majority group can be strengthened for collective action against the minority group.

Relatively little is still known about the social consequences of less severe, low intensity forms of conflict. For Indonesia, Madden and Barron (2002) document the social impact of sporadic, but widespread violence in the province of Lampung after the 1998 fall of the New Order regime. They find the presumed mixed effect of spontaneous violence, armed robbery, and vigilantism to affect local relations and networks. On the one hand, within-group cooperation is raised; on the other hand, social interactions across ethnic groups deteriorate. So far, the link

between violence in the immediate post-Suharto era and local social relations has not been analyzed quantitatively. Evidence, notably for the country's main island of Java, is presented in this paper.

The remainder of this paper is structured as follows. The next section describes the data and provides background information on community activities in Indonesia. We then turn to our estimation strategy in Section 3. In Section 4, we discuss our empirical results from the regression analysis. Finally, Section 5 concludes.

2. Data

2.1. Community Participation Data

Local mutual cooperation has a long tradition in Indonesia (Bowen, 1986). The New Order regime used to mobilize the underlying ethic ("gotong royong") of this tradition to impulse development strategies based on collective solidarity and reciprocity. These policies were partly a response to rising inequality (Cameron, 2000) and to the lasting impacts of the 1998 financial crisis on poverty (Ravallion and Lokshin, 2007). Such development initiatives became all the more important with the 2001 Decentralization Laws that transferred many public and social decisions towards local institutions. These laws fostered the emergence of a series of comparable community organizations across the country.

We study the functioning of these local groups using data from the *Indonesian Family Life Survey* (IFLS), a large-scale, longitudinal household and community survey representative of about 83 percent of the Indonesian population (Strauss et al., 2004). Partly using these data (IFLS2), Beard (2005, 2007) provides an insightful overview of the Indonesian context in her discussion of citizen engagement in local groups. She focuses on time and money spend to the benefit of these groups, rather than on mere participation.

Specifically, we use the second (IFLS2) and the third wave (ILFS3) of the IFLS fielded in 1997 and 2000, respectively. This allows us to capture information contemporary to the 1997 financial crisis and the outbreak of violence in the aftermath of President Suharto resignation in May 1998.

Since the conflict data we draw on is not available for those Indonesian provinces with negligible levels of communal violence (see Sub-Section 2.2.), the analysis focuses on the main island of Java, the islands of West Nusa Tenggara, and the province of South Sulawesi. This provides us with a sample of 15,508 adult respondents from 5,026 households, of which 9,466 individuals are observed in both IFLS rounds. The community survey additionally offers detailed information on the characteristics of the 197 communities in the sample. An IFLS community/village refers to an enumeration area (EA) that was randomly chosen from a nationally representative sample frame used in the 1993 SUSENAS survey. Each EA includes between 200 and 300 households (Strauss et al., 2004). The fact that we avail of a representative sample for a large population is important as it is rare in this literature where most micro-studies are very concentrated geographically or correspond to non-random small laboratory sets of subject.

Table 1 summarizes the explanatory variables used throughout the paper. In the second IFLS wave in 1997, a module on citizen participation was first included. It provides information on individual knowledge of and participation in nine different community-level activities. These activities can be grouped into four (mutually non-exclusive) categories: local governance organizations, social services, infrastructure development initiatives and mutual insurance groups.

The first category of local governance organizations comprises community meetings and the women associations (*Pendidikan Kesejahteraan Keluarga*, PKK). Community meetings are

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held at different local levels and are usually led by an elected local resident. They provide a platform to discuss issues relevant to the community and to decide collectively on strategies for action. The women associations could be seen as related activities insofar as the wife of the Community Meeting leader automatically becomes the head of the PKK. While concerned with any issue of local planning, the PKK deals in particular with the organization of public services, such as informal education or health counseling, which are provided by and for members of the neighborhood.

The PKK, therefore, is also included in the second category of social services. This category is complemented by the mother and child health post organizations (*Posyandu*) and the so-called voluntary labor groups. The *Posyandu* provides primary health care for young children, including monthly check-ups, vaccination and nutritional supplements, and trains mothers in health and parenting good practices. In return for the service, participating mothers are expected to make administrative or financial contributions. Voluntary labor activities include aspects of both environmental development and social services. The purpose of the most common activity, the "Clean Friday Movement", is to clean up the village's public facilities and roads on a regular basis. As the PKK and the Posyandu exclusively address women issues, we restrict the sample to female respondents for this category.

A couple of activities recorded in the IFLS refer to provision of public infrastructure. The *Kampung Improvement Program* (KIP) started as a slum-upgrading project in Jakarta and Surabaya in 1968. It was subsequently expanded to the national level and provides investments in physical infrastructure, such as public facilities, roads, drains and water supply. While the focus of KIP is on urban agglomerations, the *Kecamatan Development Program* (KDP) follows a similar approach in poor rural communities. Two further IFLS community activities, the provision of systems for drinking water and for garbage disposal, also aim at the developing

local infrastructure. Since most of these initiatives are typically considered by Indonesians to be 'male' activities, the sample is restricted to men for this category.

The two remaining activities share aspects of mutual insurance and mutual protection: *Ronda*, on the one hand, describes informal security systems organized at the neighborhood or even street level. Supplementing the police, members of these groups carry out voluntary patrols at night to enhance safety within the community. Cooperatives, on the other hand, which potentially comprise very different types of cooperation as not further specified in the questionnaire, represent the only risk-sharing activity in the survey in a more narrow sense. While we subsume these two activities under the umbrella of 'mutual insurance', we also analyse them separately given their distinct economic functions. Table 1 offers an overview of the four categories and provides further information on the included activities.

2.2. Conflict Data

The 1997 Asian financial crisis and the subsequent fall of President Suharto in 1998 were accompanied by a period of violent conflict. Aside from the separatist conflict in Aceh and the ethno-religious conflicts in the Moluccas and Central Sulawesi, communal violence of different intensities affected other parts of the country as well (see Wilson, 2005, for a national overview).

For the quantitative analysis of these conflicts, we use the *United Nations Support Facility for Indonesian Recovery* (UNSFIR)-II Database, which reports incidents of group violence in 14 Indonesian provinces for the period 1990-2003. Based on a survey of regional newspapers, UNSFIR-II covers "violence perpetrated by a group on another group (as in riots), by a group on an individual (as in lynching), by an individual on a group (as in terrorist acts), by the state on a group, or by a group on organs or agencies of the state" (Varshney, Panggabean,

Tadjoeddin, 2004; p. 7). Hence not included are incidents of "ordinary crime", such as robbery or murder.

We use conflict deaths as an indicator of severity and aggregate the number of fatalities at district level, as in many cases more detailed localization of violence is not possible. The resulting conflict indices are then combined with the IFLS data, which leaves us with the following six provinces covered by both IFLS and UNSFIR-II: West Java, Central Java, East Java, and Jakarta on Java, as well as West Nusa Tenggara and South Sulawesi. These six provinces account for more than 60 percent of the total number of conflict incidents reported by UNSFIR-II, but were relatively little affected by highly destructive, fatal violence. Table 3 presents summary statistics for the different conflict indicators that we use in the regression analysis.

3. Econometric Approach

The analysis of the determinants of individual participation is conducted separately for each category, as well as for security organizations and cooperatives. The propensity of individual i to participate in a certain community activity k in community j and year t is dependent on the expected net benefit from involvement, B^*:

$$B^*_{ijtk} = X_{it}\beta + V_{jt}\gamma + R_j\delta + T_t\varphi + a_i + v_{t-1,d}\vartheta + \varepsilon_{it},$$ (1)

where X_{it} is a vector of individual and household characteristics, V_{jt} a vector of village characteristics, R_j and T_t are province and time dummies, a_i denotes an unobserved individual effect, ε_{it} is an idiosyncratic error term with mean zero, and $\beta, \gamma, \delta, \varphi, \vartheta$ represent parameter vectors. The main variable of interest is the indicator of conflict, $v_{t-1,d}$, which measures lagged violence at district level. While the expectations on net benefits are unknown, we observe the

individual participation choice, which equals 1 (participation) if the expected net benefit is positive, and zero (no participation) otherwise:

$$P_{itk} = 1 \ if \ B^{\bullet}_{ijtk} > 0, 0 \ otherwise \ . \tag{2}$$

A Random Effects (RE) logit model is applied to estimate (1)-(2). This approach enables us to exploit the panel structure of the data and to account for unobserved individual heterogeneity that might affect individual engagement. This is potentially important as many participation decisions may be grounded in permanent individual characteristics beyond observation possibilities, such as personality, family background, past personal events, etc. Thus, we expect with such approach to achieve a much stronger determination of the studied phenomena and a better control for variable omission bias than in cross-section estimation approaches. Note that fixed effect estimation is not possible in our case as it would correspond to many perfect participation predictions for individuals observed as not changing their participation choice over time.

The determinants of individual participation are also estimated conditionally on individual knowledge of the activity existence. This may introduce a selection bias in the sense that the group of informed respondents may differ from the group of the excluded individuals unaware of the activities. However, the restriction on individuals reporting knowledge is informative in itself, and helps us focusing on the link between prevalent violence and people's decision to engage in their community. For robustness and comparison, we also run the analysis on the full sample.

As respondents are asked for their participation in the twelve months prior to the interview, we define violence as the number of fatalities in the two-year period *one year before* the reference period of the IFLS interview.[4] Lagging the conflict variables in that way should mitigate

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[4] For instance, when the IFLS interview was conducted in December 2000, the conflict indicator covers incidents of violence in the period January 1998 - December 1999.

concerns of reverse causality from community participation to violence, in particular as an observed high volatility of individual participation over time suggests low persistence of citizen involvement. We expect this lagging strategy to help much dealing with potential endogeneity issues, notably because of the massive rise in general conflict intensity over time which makes the most recently observed violence context quite different from the previous ones. Also, there is no serious endogeneity issues in violence incidence generating the emergence of security groups, for example, since there is almost 100 percent prevalence of all considered activities in these data.

Another potential estimation problem could arise from the fact that victimization could be selective and correlated with activity participation, in particular because being involved in some community activities may make individuals more visible. Further, individuals having experienced violence may have migrated out in large proportions. These questions can be controlled by examining various subsamples of individuals more or less likely to suffer from such selection. We find our results robust to these checks.

Endogeneity and selection bias issues may be seen as originated from missing variables. These issues are attenuated in our study by several elements. First, we introduce province, time and individual dummies that much contribute to control for unobserved heterogeneity of individuals and situations that cause endogeneity or selection issues in the estimation. Second, we incorporate a very large set of correlates (56 ones) in the regressions, likely to yield much more control than usual. Third, as mentioned above, we lag the variables most suspect of endogeneity. Fourth, a series of alternative sub-samples and conflict coefficients are employed to test the robustness of our findings. Fifth, we check that nothing worrying for the estimation happens at the aggregate village level in respect to these issues. For example, we find that the correlation of violence and out migrations is small and insignificant.

4. Empirical Results

4.1. Descriptive Statistics

Table 2 describes the prevalence of organizations at village level and the distribution of individual participation across the sample. Information on the prevalence of these activities is gathered from two levels: an interview with the village head from the IFLS Community-Facility Survey on the one hand, and the reports on activity prevalence and individual participation from the individual respondents on the other hand.[5] The resulting figures confirm an almost universal prevalence of all types of activities in both survey years. The one exception are cooperatives, which are absent from 71 percent (1997) and 79 percent (2000) of the villages, respectively.

Conditional on individual knowledge of existing activities, we observe significant differences in participation rates across activity categories and over time. In 1997, local governance events, social services, and mutual insurance groups are frequented by around 50 percent of those individuals aware of their existence. Participation in activities related to infrastructural development is substantially higher, while comparably low participation rates are reported for cooperatives. Interestingly enough, we observe a substantial decline in citizen participation between 1997 and 2000. Across categories, people appear less willing to engage in common activities in the early phase of the country's transition. We include a time dummy in the regression analysis to distinguish this general trend in the Post-New Order period, in particular from the effect of violent conflict.

Figure 1 shows the total number of conflict-related fatalities in our sample for the period 1990-2003. We can see an increase in conflict deaths in 1997, coinciding with the outbreak of the Asian financial crisis. The number of fatalities peaks in the first years after President Suharto's

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[5] Additionally, the interview with the head of the women's group provides information on the existence of cooperatives. We therefore assume the prevalence of an activity when either the village head states the existence or when at least one surveyed village member reports participation.

fall, before the level of violence tends to decrease again from 2001 onwards. Fatal violence is thereby highly locally concentrated: out of the 96 districts in the sample, only 11 districts report ten or more deaths from group violence in the years 1998 and 1999, while more than 50 percent show no fatalities at all. As a matter of fact, we observe an average of only 1.3 fatalities per district once the 1998 May riots in Jakarta are excluded (Table 3).

Figure 2 depicts the distribution of violence across the regions included in the analysis for the period 1998-1999. Aside from the capital city, violence was predominantly observed in the western and central parts of Java, while large parts of East Java remained peaceful. The islands of West Nusa Tenggara uniformly show low conflict intensities; ten fatalities are reported from the northern districts of South Sulawesi, Luwu und North Luwu. Finally, Table 4 reports descriptive statistics for the variables used in the regression analysis that we now discuss.

4.2. Base Random Effect Logit Regression Results

We run separate RE logit regressions on individual participation for each activity category[6]. Our base regression results are presented in Table 5. Coefficient estimates for the individual, household, and village level control variables are in line with expectations and previous findings from the literature, even if our specification is much richer than what can be found elsewhere. The proportion of the total variance of errors that can be attributed to unobserved individual heterogeneity through individual random effects is substantial. It ranges from 23 % to 60 % depending on the considered activity. This suggests that much of the decision determinants are originated in unobserved individual characteristics that are stable over time. We observe strong effects for age, gender and the individual's position within the household,

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[6] Beard (2005, 2007) estimates simple logit models of participation with a much reduced set of correlates as compared to ours. In particular, there is no violence variable in her specification. Also, as she does not avail of panel data, their estimates cannot be controled for unobserved individual heterogeneity, a crucial component of individual decisions. Finally, our nomenclature of activities differs. However, we find similar qualitative signs of coefficients for several demographic and education variables for general participation.

which point to societal role models that encourage or discourage participation in village life. Participation further requires a minimum level of skills, while involvement becomes increasingly selective with higher educational attainment. Moreover, participation is obviously driven by specific individual needs – likely to be related to occupation, family characteristics, or exceptional situations – that can be addressed through different community activities. Recent migrants as well as members of ethnic minorities[7] are thereby less prone to participation especially in governance and risk-sharing activities. The economically better off are most likely to get involved in local decision-making, while being less present when it comes to the improvement of local infrastructure. Finally, we find relatively few village-level effects, which are partly absorbed by the highly significant province dummies and individual random effects.

4.3. The Impact of Violence

We first include in the base specification two dummy variables so as to incorporate the impact of prevalent violence on citizen engagement: districts with less than 10 reported fatalities form the group of "low intensity conflict" districts, while districts with ten or more fatalities are categorized as "high intensity conflict" areas. Other tried separations of districts by violence severity do not seem to provide better quality evidence. Such separation is potentially important as there may be thresholds of violence under which violence would not affect most activities.

On the whole, the estimated conflict coefficients show substantially lower individual involvement in those districts affected by violence. This significant negative effect of conflict on civic engagement, increasingly intensive with conflict level, is found across activity

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[7] Information on individual ethnicity is obtained from IFLS4 (collected in 2007/2008), the share of the three main ethnicities in each village/neighborhood is extracted from the IFLS2 community survey. As no information on ethnicity is available from IFLS3, we assume stable ethnic composition of villages between 1997 and 2000.

categories, with the exception of participation in cooperatives and risk sharing activities in high intensity conflict areas, in which case the effect is insignificant.

In a next step, we turn to potentially different impacts of violence on community participation in ethnical diverse areas. This is important because much of violence in Indonesia is commonly associated with tensions across ethnic groups. In that case, local tensions might hamper cooperation both among and across ethnic groups. For this purpose, the measure of ethnic polarization *PQ* proposed by Reynal-Querol (2002) is calculated for each community:

$$PQ_j = 4 \sum_{i=1}^{n} s_i^2 (1 - s_i)$$

(3)

where s_i is the size of the *i*-th largest ethnic group in community *j*. Ranging between 0 and 1, a higher value of the *PQ* index indicates a more ethnically polarized community, with *PQ* equal to 0 for an ethnically homogeneous community and *PQ* equal to 1 for a community with two ethnic groups of the same size. When this measure is included in the regression framework, Table 5 shows an overall positive relationship between ethnic polarization and citizen engagement across all types of local groups, except security groups. Cooperatives, in particular, are more frequented in highly polarized communities.

In order to assess the effect of ethnic polarization on community participation in conflict-affected areas, we interact the conflict indices with a dummy variable for high ethnic polarization.[8] Table 6 presents the estimated regression coefficients in that case for the polarization and conflict variables. When these interaction terms are added to the base regression setup, the negative impact of communal violence on citizen participation is partly offset in those conflict-affected communities with a high degree of ethnic polarization. In contrast, the previously found impact of violence on participation in local governance

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[8] The high polarization dummy equals 1 if *PQ* > 0.5, which is the case for 28.5 percent of the villages in our sample.

organizations and social services is hardly affected in villages with low ethnic polarization. In these villages, governance activities are less affected by low intensity violence than before, while still significantly. On the whole, the negative effect of conflict on community participation turns out to be significantly stronger in ethnically homogeneous areas. No significant effect of ethnic polarization is observed on citizen engagement in infrastructure development projects in conflict areas.

Conversely, in together high ethnic polarization and high violence areas, participation in governance activities is stimulated by the prevalence of severe conflict situations. One may think that some community meetings and activities are directly motivated by facing conflict issues, either in a negotiation spirit, or with views of organizing fighting and security measures of some ethnic groups against other ones, or even with mere protection and insurance motives within specific ethnic groups. In these areas, still stronger changes fostered by conflict can be noted, starting from participation reduction up to participation stimulation, in the cases of social service activities and risk sharing activities, especially cooperative activities. Again, reinforcing social network and insurance mechanisms seems to be an important response to severe violence at local levels.

The robustness of those findings is supported by a series of alternative specifications. Table A1 in the Appendix presents the estimated conflict coefficients for different sub-samples and conflict definitions. Since the main trends hold when the capital city of Jakarta is excluded and when the sample is restricted to the Javanese provinces (Table A1, Panel I and II), it is clear that the findings are not entirely driven by a single conflict region. Results are also confirmed for a five fatalities threshold from low to high intensity violence and for a continuous indicator of the number of fatalities and its squared term (Table A1, Panel III and IV). Further, we repeat the analysis for the whole sample, i.e. individuals without knowledge of activity existence are included as well (Table A1, Panel V). The results are similar to the estimates from the main

regressions and mitigate concerns of sample selection biases. Finally, the use of the Herfindahl index of ethnic fragmentation[9] as an alternative way of capturing ethnic diversity results in estimates very similar to those obtained with the *PQ* measure (Table A1, Panel VI).

We investigate the magnitude of these effects of violence by estimating the probability of participation from the fitted regression values for each individual and category. Then, we compare the average estimated probabilities in conflict-affected regions to a counterfactual "no violence" case.[10] Table 7 provides the results disaggregated for low and high conflict intensity areas and by the degree of ethnic polarization. We find average participation to fall substantially in the face of group violence when ethnic polarization is low: the actual participation propensity is up to 15 percentage points lower (social services, security groups) in high conflict areas as compared to the "no violence" counterfactual case. As would be expected, a smaller, but still major decline in participation is observed in areas with low conflict intensity.

A different picture, however, emerges for ethnically highly polarized conflict areas. Irrespective of conflict intensity, average participation probabilities in polarized communities decrease comparably little in the presence of violence. In particular, participation in community meetings appears hardly affected. The estimates even point to increasing involvement in cooperatives in those districts most affected by violence. While communal violence has an overall negative effect on citizen engagement at the local level, the presence of ethnic polarization hence seems to spark participation in community groups too, particularly after conflict.

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[9] The index is constructed as $EHHI = 1 - \sum_{i=1}^{n} s_i^2$, where s_i is the size of the *i*-th largest ethnic group in the community. It is the probability that two randomly drawn individuals belong to different groups.

[10] We use the estimated regression model and impose the assumption of zero violence for all districts to calculate counterfactual participation propensities.

When such an increased engagement in the local community runs along ethnic lines, bonding social networks organized around ethnic lines are strengthened and existing gaps between ethnic groups are likely to be further widened. To address this dark side of social capital in times of violent conflict, we investigate the ethnic composition of communal groups in these areas in further details. Namely, an indicator is calculated that measures the engagement of members of the own ethnic group relative to the engagement of the other ethnic groups in the community. In the absence of complete information on the member structure of local groups, this indicator allows us to capture the relative presence of an ethnic group for each village and each activity category.[11] We include this indicator of the ethnic structure of local groups as an additional control variable, and further interact the indicator with conflict and high polarization variables.

Table 8 presents the coefficient estimates for all ethnicity and conflict variables included in this specification. Similar effects as before are found for variables and cross-effects of Table 6, which is therefore confirmed. What is new is the role of population shares of own ethnic group and relative participation of own ethnic group in the considered activities. These variables both positively affect participation in governance and risk sharing activities and less significantly social services groups. There is no influence of these newly introduced regressors on participation in infrastructure groups.

Thus, the sheer size of the own ethnic group, measured as a fraction of the total local population, has a positive influence on community participation in governance and risk sharing activities, while less significantly in social service activities. Moreover, the relative presence of the own ethnic group in the considered activity is found likewise relevant for individual

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[11] For the indicator, we substract the share of participating respondents in other ethnic groups from the share of participants in the respondent's own ethnic group. Ranging between -1 and 1, a higher value indicates larger relative involvement of the own ethnic group (the indicator equals 1 if all members of the own ethnicity and no member of other ethnic groups report participation, and -1 vice versa). To avoid obvious concerns of endogeneity, we exclude the respondent's own observation from the calculation of participation shares.

engagement in local governance and risk-sharing activities. Cooperatives, in particular, appear to be mostly organized within ethnic boundaries.

When focusing on high polarization and high relative participation areas for each activity, and separating low and high conflict situations, we find that participation in governance activities and social services increases substantially with the relative share of participants from the own ethnicity in high conflict areas. Put differently, the willingness to get involved in certain local groups decreases with the relative engagement of people from other ethnic groups. The presence of severe violence hence seems to strengthen bonding networks and to sharpen local divisions along ethnic lines. This finding holds not only for highly polarized regions, but is found similarly for high conflict regions with lower levels of ethnic polarization when focusing on governance activities (Table A2).

Finally, we turn to individual characteristics other than ethnicity that might affect engagement in one's community in the presence of violence. Similarly to above, we interact the conflict variables with a few socio-economic variables of interest: individual education, age, and household wealth. Table 9 reports some selected results. While no specific conflict effects for individual's without primary education are found (results not shown), respondents with at least secondary education show a high propensity to join local cooperatives in high intensity conflict areas (Table 9, Panel I). The well educated hence may use this form of mutual insurance to protect themselves against the insecurities inherent to violent conflict. They may also take a leading organizing position in these groups likely to shield members from some negative consequences of conflict.

Panel II and III of Table 9 illustrate the effects of violent conflict on community participation of poor and wealthy households, respectively. Poor households, as defined by asset levels below the first quartile, tend to withdraw from infrastructure development projects, which may be perceived as a minor priority in conflict times. However, a comparably higher participation

of the poor is observed for social services, which most likely offer needed assistance. The well off, with assets above the third quartile, on the other hand, seem either to seek for protection through participation in cooperatives and infrastructure groups, or to accept responsibilities within these organizations to help responding to the violence context. Finally, their drop out of neighborhood security organizations might be explained by increasing risks of engagement and a greater ability to employ private measures of protection.

Clearly, the estimated effects of context, ethnic group, education, wealth variables – interacted or not with conflict indicators – raise interpretation difficulties. We have suggested several ones based on individual or collective motives, in particular protection and insurance strategies, or social roles. However, another possibility is that of group capture of some of these activities. These groups could be some ethnic communities specialized in specific activities related to their economic or political background. They may also be social classes better positioned to access some of these social benefits, for example on network, localization or information grounds.

5. Conclusion

This paper analyzes how community activities at local levels are affected by the presence of low-intensive forms of violent conflict. Using micro-level and conflict event data from the Indonesian transition at the turn of the millennium, we find an overall negative effect of violent conflict on social relations. Citizen participation decreases substantially in areas affected by group violence in the early years of the post-Suharto transition. This is true for different types of local groups, ranging from local governance to social services and risk-sharing activities.

However, a different phenomenon takes place in conflict regions with high ethnic polarization. In communities with more than one large ethnic group, local involvement in community

activities is far less impacted by conflict than in ethnically homogeneous environments. There is even rising participation in risk-sharing activities, which can be seen as a response to violence. The individual engagement is stimulated by the relative presence of the own ethnic group in each community activity and discouraged by participation from other ethnic groups. Social divisions are hence likely to worsen in times of violence. Beyond ethnic identity, in situation of severe conflict the better-off and the well educated are found to get further involved in local risk-sharing initiatives, while dropping out of other common groups. Local social networks therefore appear to be threatened by the presence of violent conflict, with a greater risk of exclusion for ethnic, social or economic minorities.

Our results go beyond identifying key determinants of local community activities in Indonesia. They elicit general insights about how to think about activity participation in violent conflict context. Notably, they show the danger of generalizations when dealing with violence impact on activity. The question to ask about this is: what type of activity? Indeed, beyond some general depressing effect of violence, we found a large variety of responses depending on the considered activity and its expected economic or social function. This raises the need for better and more accurate definitions of 'violence effects' in the literature, starting with the type of violence and the type of considered activity. Moreover, we find evidence of interactions of the social structure of society with violence variables, in particular for ethnic, education and wealth dimensions. Therefore, rather than studying pure 'violence effects' one should perhaps rather investigate more closely the social mechanisms through which violence operates and through which people respond to violence.

Finally, we found large individual heterogeneity of the effect of violent conflict on activity participation, with both observed and unobserved components of this heterogeneity being substantial in our estimates. This suggests paying attention to distributions of conflict impacts rather than just global effects that may miss some essential features of the studied phenomena.

In particular, depending on the situations, different ethnic groups and different social classes are found to suffer and to respond differently to conflict situations in our data. This occurrence of ethnic variables raises additional questions, as in Kanbur et al. (2009). In the long term, ethnicity is the product of a certain kind of group dynamics. If violence strengthens group divisions, it may be at the origin of new social groups. In this view, participation in community activities may be a preliminary stage in the constitution of future groups, illustrating the complex interactions of economic and ethnic solidarities in society[12]. An extreme, while possible, interaction case is the group capture of some community activity, a process perhaps partly in progress in Indonesia.

What has been learned on the functioning of community activities by looking at how violent conflict impact them? First and foremost, we found that local community activities are not immune to violence and cannot constitute by themselves a sufficient safety net when market and state institutions are disrupted by conflict. We also learned that they are broad classes of activities that seem to differ in their social and economic responses to a given type of risk, and perhaps to all risks. Establishing a reasoned nomenclature of these activities is clearly a task necessary to avoid confusing generalizations, and we made a step in this direction.

Another valuable finding is that observed and unobserved heterogeneities are crucial in understanding participation in community activities, and that controlling for heterogeneity has diverse and distinct effect on different activities. Then, once these analytical tasks are performed, it is easier to distinguish, as we found in Indonesia, that some activities can actually be stimulated by conflict situations, probably because they are part of the response mechanisms to these shocks.

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[12] Dasgupta and Kanbur (2007) investigate theoretically how community and class divisions may combine.

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Table 1: Overview of Community Organizations

CATEGORY	Activity *(Indonesian Term)*	Background Information
LOCAL GOVERNANCE ORGANIZATIONS	**Community Meeting** Including Village Advisory Board activities *Pertemuan Masyarakat*	Community meetings are organized at various levels. The RT (*Rukun Tetangga*, neighborhood) is the lowest tier of governmental hierarchy and comprises about 20-50 households. The neighborhood association is supposed to manage various community matters, and usually also organizes the neighborhood watches.
	Women's association activities *Kegiatan PKK*	The Women's Family Welfare Organization (PKK) was first promoted in 1972 as a national organization. The PKK is organized at all administrative tiers, from the neighborhood to the national level, and mainly organizes health and education services.
SOCIAL SERVICES (Females Only)	**Community Weighing Post** *Posyandu*	The integrated community health post (*Posyandu*) is run by volunteers and provides preventative health care for young children. There are over 200,000 *Posyandu* spread out in urban and rural areas, in general supported by sub-district health centers and their trained staff.
	Voluntary Labor *(Jumat Bersih)*	*Jumat Bersih* ("Clean Friday Movement") is intended to promote healthy living behavior with emphasis on personal, domestic and community hygiene starting on Thursday evenings.
INFRASTRUCTURE DEVELOPMENT INITIATIVES (Males Only)	**Program to Improve the Village/Neighborhood** Street improvement, public facilities *Program Perbaikan Kampung (KIP, MHT, Konblokisasi)*	The Kampung Improvement Program (KIP) mainly addresses the housing problems of low- and middle-income households. Typical activities include the building or renovation of school and health facilities, the improvement of the living space (lighting, footpaths), or the reduction of housing density. MHT is a part of the nation-wide KIP program.
	System for Drinking Water *Sistem mengelola air untuk minum*	Activities aimed at the improvement of the neighborhood infrastructure, such as the installation of a public pump system or the construction of public washing areas (MCK, referring to bath, wash, toilet).
	System for Garbage Disposal *Sistem mengelola sampah padat*	Set-up and maintenance of a system for garbage disposal.
MUTUAL INSURANCE	**Neighborhood Security Organisation** *Ronda/Siskamling*	*Ronda*, neighborhood watches, have a long tradition especially on Java. This non-paid community service is provided by volunteers and typically organized at the neighborhood or street level. *Siskamling* describes private security units whose guards might receive a small salary and also protect public or business facilities.
	Cooperatives Includes all types and levels of cooperatives *Kooperasi*	Cooperatives encompass a wide range of potential organizations. In general, a cooperative is intended to pool resources and to share risks among a group of actors with similar economic or socials needs. This might include retailers' cooperatives, credit unions, or agricultural cooperatives.

Table 2: Prevalence of Activities and Individual Participation Rates

| Category | Prevalence of Activities (%) | | Individual Participation | | | |
| | 1997 | 2000 | 1997 | | 2000 | |
			Obs. [*]	*Share PA* [**]	*Obs.*	*Share PA*
Local Governance	99.5	100.0	5,675	48.2	7,607	30.2
Social Services[***]	100.0	100.0	4,257	52.3	5,244	34.7
Infrastructure Development[****]	96.5	96.5	1,795	77.8	1,979	59.6
Mutual Insurance	100.0	98.5	2,883	57.8	3,585	26.6
Neighborhood Security Groups	98.5	96.5	2,012	73.5	1,197	54.8
Cooperatives	70.5	79.4	1,066	23.1	2,412	13.6

[*] Conditional on the Individual Knowledge of the Existence of Activities.
[**] Participation (PA) equals "1" if engaged in at least one of the activities in a category. Participation is "0" when the respondent is not participating, but aware of at least one of the activities in a given category.
[***] Females only. [****] Males only.

Table 3: Conflict Indicators – Summary Statistics

Variable	n	Mean	Std. Dev.	Min	Max
Whole Sample					
Violence at District level: Number of Fatalities	192	7.8	39.7	0	263
Violence at District level: No fatalities (Dummy)	192	0.625	0.485	0	1
Violence at District level: $\geq$ 5 fatalities (Dummy)	192	0.089	0.285	0	1
Violence at District level: $\geq$ 10 fatalities (Dummy)	192	0.057	0.233	0	1
Whole Sample – Jakarta Excluded					
Violence at District level: Number of Fatalities	182	1.3	4.3	0	40
Violence at District level: No fatalities (Dummy)	182	0.648	0.479	0	1
Violence at District level: $\geq$ 5 fatalities (Dummy)	182	0.060	0.239	0	1
Violence at District level: $\geq$ 10 fatalities (Dummy)	182	0.033	0.179	0	1
Java Only					
Violence at District level: Number of Fatalities	154	9.5	44.2	0	263
Violence at District level: No fatalities (Dummy)	154	0.617	0.488	0	1
Violence at District level: $\geq$ 5 fatalities (Dummy)	154	0.097	0.297	0	1
Violence at District level: $\geq$ 10 fatalities (Dummy)	154	0.071	0.258	0	1

Table 4: Descriptive Statistics

Variable	n	Mean	Std. Dev.	Min	Max
Individual Characteristics					
Age	24974	37.5	16.7	14	111
Sex (1: Male)	24974	0.462	0.499	0	1
No education	24974	0.154	0.361	0	1
Primary education	24974	0.444	0.497	0	1
Junior high school	24974	0.153	0.360	0	1
Senior high school	24974	0.195	0.396	0	1
Higher education	24974	0.054	0.227	0	1
Employment: private worker	24972	0.253	0.434	0	1
Employment: self-employed	24972	0.265	0.441	0	1
Employment: unpaid family worker	24972	0.083	0.276	0	1
Employment: government worker	24972	0.039	0.195	0	1
Hours normally worked per week	24974	28.2	27.9	0	112
Monthly income (in 1,000 Rp.,[a] 2000 Prices)	24973	235.3	717.6	0	30,000
Married	24974	0.643	0.479	0	1
Household head or spouse	24974	0.602	0.489	0	1
Dummy: Seriousness of the respondent <u>not</u> excellent or good	24974	0.223	0.416	0	1
Household Characteristics					
Age household head	9002	47.6	14.5	15	111
Household consumption (adult equivalent, in 1,000 Rp., 2000 Prices)	8507	215.4	282.2	3.5	6,526.3
Household asset value, relative rank in the community	9002	0.522	0.289	0.022	1
Household with farm production	9002	0.349	0.477	0	1
Household with Income from Non-farm Business	9002	0.349	0.494	0	1
Female headed household	9002	0.179	0.381	0	1
Number of household adults	9002	4.0	2.0	1	20
Experience of a shock (natural disaster)	9002	0.281	0.449	0	1
Household has moved to this community in the last 2 years	9002	0.014	0.117	0	1
Household owns a television	9002	0.539	0.499	0	1
Community Characteristics & Province Dummies					
Rural	394	0.389	0.487	0	1
Total population	394	12,867	19,587	825	236,500
Average HH asset value in the village (in Mio. Rp.)	394	71.4	102.3	5.7	1,079.18
Within-village Gini index of asset inequality	394	0.530	0.123	0.171	0.885
Within-village Gini index of consumption inequality	378	0.222	0.240	0	0.82
Index of ethnic fractionalization [b]	394	0.175	0.381	0	1
Province dummy: Jakarta	394	0.259	0.439	0	1
Province dummy: Jawa Barat	394	0.183	0.387	0	1
Province dummy: Jawa Tengah	394	0.226	0.419	0	1
Province dummy: Jawa Timur	394	0.081	0.274	0	1
Province dummy: Nusa Tenggara Barat	394	0.076	0.266	0	1
Province dummy: Sulawesi Selatan	394	0.389	0.487	0	1

[a] Exchange rate in 2000: 1 US-$ ~ 3,000 IDR

[b] The Herfindahl index of ethnic fractionalization (EF) is based on the population shares $s_{i,\ i=1,2,3}$ of the three largest ethnic groups in the village:

$$EF = 1 - \sum_{i=1}^{3} s_i^2$$

Table 5: Base Random Effect Logit Regression Results

DV: **Participation**	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Individual Characteristics						
Age Group: 25-39 Years[a]	0.55***	0.27***	0.31*	1.02***	0.98***	1.57***
	(0.000)	(0.009)	(0.052)	(0.000)	(0.000)	(0.000)
Age Group: 40-65 Years	0.73***	-0.29**	0.49*	1.25***	0.83**	2.34***
	(0.000)	(0.023)	(0.066)	(0.000)	(0.010)	(0.000)
Age Group: >65 Years	0.53**	-0.48*	0.44	0.63*	-0.45	2.09**
	(0.029)	(0.052)	(0.273)	(0.083)	(0.339)	(0.010)
Male	1.71***			2.19***		-0.31
	(0.000)			(0.000)		(0.122)
No education[b]	-0.84***	-0.67***	-0.18	-0.45***	-0.54**	-0.98**
	(0.000)	(0.000)	(0.348)	(0.008)	(0.013)	(0.027)
Junior High School	0.31***	0.24**	-0.20	-0.08	-0.34**	0.40
	(0.001)	(0.019)	(0.123)	(0.518)	(0.039)	(0.129)
Senior High School	0.47***	0.24**	-0.13	0.05	-0.37**	0.95***
	(0.000)	(0.027)	(0.331)	(0.684)	(0.025)	(0.000)
Higher Education	0.51***	0.05	-0.03	0.21	-0.18	1.21***
	(0.001)	(0.793)	(0.895)	(0.298)	(0.526)	(0.003)
Job Category: Private Worker[c]	0.16	0.11	0.74***	0.75***	0.97***	0.88**
	(0.295)	(0.502)	(0.002)	(0.000)	(0.001)	(0.047)
Job Category: Self-Employed	0.31**	0.34**	0.80***	0.56***	0.74**	0.60
	(0.034)	(0.040)	(0.001)	(0.007)	(0.011)	(0.160)
Job Category: Unpaid Family Worker	0.04	0.05	0.75***	0.15	0.02	-0.07
	(0.729)	(0.702)	(0.001)	(0.450)	(0.948)	(0.865)
Job Category: Government	0.72***	0.80***	1.03***	1.28***	1.19***	2.25***
	(0.001)	(0.004)	(0.001)	(0.000)	(0.001)	(0.000)
Hours worked per week	-0.01	-0.07***	-0.03	0.03	0.03	0.00
	(0.695)	(0.000)	(0.183)	(0.161)	(0.238)	(0.972)
Total monthly income (ln)	0.01	-0.02	0.01	-0.01	-0.02	-0.02
	(0.465)	(0.151)	(0.453)	(0.246)	(0.159)	(0.388)
Married	0.77***	1.89***	0.23	0.25*	0.48**	0.30
	(0.000)	(0.000)	(0.182)	(0.087)	(0.016)	(0.342)
Head or Spouse of Head	0.71***	0.09	0.12	0.33*	0.58**	0.76**
	(0.000)	(0.411)	(0.617)	(0.085)	(0.041)	(0.041)
Population Share of one's own Ethnicity in the Village	0.63***	0.42**	0.38	0.66***	0.49*	0.84
	(0.001)	(0.028)	(0.107)	(0.005)	(0.098)	(0.120)
Seriousness of Answers: <u>not</u> excellent or good	-0.05	-0.14*	-0.25**	0.04	0.04	0.19
	(0.544)	(0.068)	(0.020)	(0.725)	(0.776)	(0.388)
Household Characteristics						
Age HH Head: 40-65 Years[a]	0.11	-0.47***	-0.31	-0.17	0.05	-0.34
	(0.258)	(0.000)	(0.130)	(0.288)	(0.843)	(0.238)
Age HH Head: >65 Years	0.07	-0.66***	-0.33	-0.33	0.03	-0.90*
	(0.637)	(0.000)	(0.224)	(0.156)	(0.924)	(0.064)
Household Expenditure – 1st Quantile[d]	-0.26***	-0.04	-0.01	-0.02	-0.12	-0.16
	(0.001)	(0.556)	(0.964)	(0.811)	(0.392)	(0.494)
Household Expenditure – 4th Quantile	0.37***	0.01	-0.25**	0.08	0.08	-0.00
	(0.000)	(0.954)	(0.036)	(0.466)	(0.620)	(0.989)
Relative Wealth: Asset Value Rank within Village	0.55	-0.04	-0.75	0.97	1.81**	1.00
	(0.231)	(0.929)	(0.307)	(0.147)	(0.046)	(0.480)
Household with Farm Income	0.06	-0.17**	0.36***	0.25**	0.24*	0.29
	(0.415)	(0.033)	(0.003)	(0.019)	(0.100)	(0.184)
Household with Income from Non-farm Business	0.03	0.00	0.12	-0.02	0.05	0.21
	(0.683)	(0.984)	(0.198)	(0.800)	(0.656)	(0.275)
Female Household Head	0.26**	0.71***	0.57***	-0.02	0.19	0.17
	(0.012)	(0.000)	(0.001)	(0.913)	(0.377)	(0.589)
HH Adults	0.01	0.05***	-0.02	-0.03*	-0.01	-0.03
	(0.647)	(0.000)	(0.252)	(0.064)	(0.598)	(0.422)
Recent Economic Hardship (Crop, Job or Income Loss)	0.15**	0.16**	0.16	0.10	0.12	0.18
	(0.019)	(0.018)	(0.101)	(0.245)	(0.314)	(0.316)
Household migrated in the last two yrs to this community	-1.70***	-0.10	-0.09	-1.15**	-0.82	-1.36
	(0.000)	(0.749)	(0.830)	(0.013)	(0.144)	(0.159)

Continued...	Governance	Social Service	Infrastructure	Risk-Sharing	Security	Cooperatives
Village Characteristics						
Rural	0.02	-0.00	0.32**	0.03	-0.28*	0.48*
	(0.788)	(0.965)	(0.013)	(0.802)	(0.069)	(0.055)
Population Size	-0.01	-0.02	0.03	0.04	0.02	0.03
	(0.505)	(0.273)	(0.428)	(0.134)	(0.634)	(0.523)
Average HH Asset Value	0.12**	-0.02	-0.18**	0.05	-0.09	-0.22
	(0.026)	(0.738)	(0.021)	(0.469)	(0.312)	(0.186)
Within-Village Gini Index of Asset Inequality	-0.52	0.64	-0.98	0.60	1.78*	-1.25
	(0.368)	(0.272)	(0.265)	(0.458)	(0.096)	(0.474)
IA: Asset Gini x Relative HH Wealth	-0.23	-0.22	1.49	-1.96	-3.34**	-0.77
	(0.794)	(0.802)	(0.263)	(0.111)	(0.044)	(0.767)
Index of Ethnic Polarization	0.66***	0.68***	0.39*	0.82***	0.10	1.74***
	(0.000)	(0.000)	(0.065)	(0.000)	(0.663)	(0.000)
Conflict Coefficients						
Low Intensity: 1-9 Fatalities	-0.43***	-0.42***	-0.27**	-0.31***	-0.24*	-0.47**
	(0.000)	(0.000)	(0.010)	(0.001)	(0.058)	(0.026)
High Intensity: ≥ 10 Fatalities	-0.51***	-0.58***	-0.44**	-0.02	-0.51**	0.36
	(0.000)	(0.000)	(0.019)	(0.886)	(0.036)	(0.266)
Province and Timme Dummies						
Jakarta[e]	-0.83***	-0.96***	-0.67***	-0.14	0.39	-1.94***
	(0.000)	(0.000)	(0.003)	(0.492)	(0.174)	(0.000)
West Java	-0.81***	-0.59***	-0.10	0.23*	-0.25	-0.55**
	(0.000)	(0.000)	(0.461)	(0.075)	(0.189)	(0.043)
East Java	-0.27***	-0.66***	-0.58***	0.03	-0.33*	-0.16
	(0.003)	(0.000)	(0.000)	(0.831)	(0.098)	(0.540)
Nusa Tenggara Barat	-0.41***	0.49***	0.31	0.45**	0.14	-0.17
	(0.001)	(0.000)	(0.130)	(0.011)	(0.573)	(0.656)
South Sulawesi	-0.97***	-1.02***	-1.15***	0.56***	-0.22	-0.69
	(0.000)	(0.000)	(0.000)	(0.006)	(0.375)	(0.239)
Year 2000	-0.98***	-0.85***	-0.90***	-1.58***	-0.89***	-1.25***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-5.11***	-1.04	3.89***	-4.78***	0.11	-1.62
	(0.000)	(0.297)	(0.006)	(0.000)	(0.947)	(0.601)
Observations	12100	8628	3414	5865	2851	3195
Individuals	8601	5481	2760	4681	2381	2754
Average Obs. per Individual	1.407	1.574	1.237	1.253	1.197	1.160
Rho	0.405	0.304	0.078	0.305	0.232	0.604

RE Logit Regression. Conditional on activity existence at village level. Longitudinal personal weights used.

P-values in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

[a] Reference category: Age Group 15-24 Years, [b] Reference category: Primary education;

[c] Reference category: Individuals not working, [d] Reference category: 2nd and 3rd Quantile.

[e] Reference category: Central Java.

Table 6: Ethnicity and the Effect of Ethnic Polarization in Conflict Areas

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Village Characteristics						
Index of Ethnic Polarization	0.40**	0.49***	0.22	0.72***	0.28	1.17**
	(0.022)	(0.007)	(0.378)	(0.001)	(0.344)	(0.013)
Conflict Coefficients						
Low Intensity: 1-9 Fatalities	-0.51***	-0.47***	-0.35***	-0.32***	-0.12	-0.62**
	(0.000)	(0.000)	(0.004)	(0.004)	(0.405)	(0.012)
High Intensity: ≥ 10 Fatalities	-0.88***	-0.93***	-0.40	-0.47*	-0.77*	-0.85
	(0.000)	(0.000)	(0.140)	(0.100)	(0.057)	(0.113)
IA: Low Intensity x High Polarization	0.33**	0.22	0.29	0.06	-0.32	0.53
	(0.020)	(0.144)	(0.183)	(0.747)	(0.195)	(0.204)
IA: High Intensity x High Polarization	0.69***	0.65**	0.02	0.65**	0.27	1.96***
	(0.005)	(0.011)	(0.952)	(0.046)	(0.552)	(0.002)

RE Logit Regression. Apart from the conflict*high polarization interaction variables, the same control variables as in Table 5 are included.

Table 7: Mean Participation Probabilities

I. LOW ETHNIC POLARIZATION

Activity	Low Conflict Intensity Districts			High Conflict Intensity Districts		
	"No Violence" Counterfactual	Mean Participation Probability	Relative Difference: Violence to Peace (%)	"No Violence" Counterfactual	Mean Participation Probability	Relative Difference: Violence to Peace (%)
Local Governance	34.0	26.5	-7.6	29.8	18.3	-11.5
	(0.46)	(0.41)	(0.06)	(1.30)	(1.01)	(0.35)
Social Services	44.4	35.6	-8.8	38.6	23.2	-15.4
	(0.47)	(0.44)	(0.05)	(1.48)	(1.14)	(0.41)
Infrstructure Development	75.6	69.6	-6.1	71.0	63.4	-7.7
	(0.52)	(0.58)	(0.07)	(1.72)	(1.86)	(0.19)
Mutual Insurance	35.9	31.2	-4.7	20.7	15.5	-5.3
	(0.74)	(0.70)	(0.07)	(1.59)	(1.59)	(0.32)
Neighborhood Security Group	66.9	64.9	-2.0	61.9	47.0	-14.9
	(0.97)	(0.98)	(0.02)	(3.35)	(3.27)	(0.50)
Cooperatives	9.1	5.8	-3.4	4.7	2.2	-2.5
	(0.48)	(0.36)	(0.13)	(0.56)	(0.29)	(0.27)

II. HIGH ETHNIC POLARIZATION

Activity	Low Conflict Intensity Districts			High Conflict Intensity Districts		
	"No Violence" Counterfactual	Mean Participation Probability	Relative Difference: Violence to Peace (%)	"No Violence" Counterfactual	Mean Participation Probability	Relative Difference: Violence to Peace (%)
Local Governance	42.2	39.2	-3.0	24.9	22.4	-2.5
	(0.78)	(0.77)	(0.03)	(0.69)	(0.65)	(0.04)
Social Services	52.9	48.1	-4.8	31.3	26.5	-4.8
	(0.82)	(0.81)	(0.05)	(0.77)	(0.70)	(0.08)
Infrstructure Development	74.0	73.0	-1.0	48.7	40.3	-8.4
	(0.89)	(0.91)	(0.02)	(0.87)	(0.84)	(0.08)
Mutual Insurance	54.5	50.3	-4.3	22.9	25.5	2.6
	(1.17)	(1.17)	(0.07)	(0.86)	(0.92)	(0.06)
Neighborhood Security Group	76.7	70.2	-6.5	64.0	54.8	-9.3
	(1.02)	(1.14)	(0.15)	(1.63)	(1.69)	(0.16)
Cooperatives	15.1	14.2	-0.9	2.1	5.5	3.4
	(1.12)	(1.08)	(0.05)	(0.17)	(0.40)	(0.23)

Table 8: Ethnicity and the Impact of Group Participation Rates

DV: **Participation**	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Ethnicity Variables						
Population Share of one's own Ethnicity in the Village	0.48**	0.35*	0.38	0.54**	0.39	0.36
	(0.012)	(0.070)	(0.111)	(0.027)	(0.199)	(0.499)
Relative Participation Shares Own vs. Other Ethnic Groups	0.60***	0.15	0.13	0.60**	0.53	4.77***
	(0.000)	(0.277)	(0.591)	(0.019)	(0.116)	(0.000)
Index of Ethnic Polarization	0.37**	0.42**	0.22	0.72**	0.30	0.65
	(0.037)	(0.022)	(0.381)	(0.002)	(0.301)	(0.176)
Conflict Coefficients						
Low Intensity: 1-9 Fatalities	-0.50***	-0.49***	-0.35***	-0.33***	-0.12	-0.60**
	(0.000)	(0.000)	(0.004)	(0.004)	(0.422)	(0.015)
High Intensity: ≥ 10 Fatalities	-0.89***	-0.91***	-0.41	-0.46	-0.78*	-0.63
	(0.000)	(0.000)	(0.131)	(0.108)	(0.054)	(0.233)
IA: Low Intensity x High Polarization	0.32**	0.21	0.29	0.08	-0.30	0.86**
	(0.028)	(0.170)	(0.176)	(0.676)	(0.214)	(0.044)
IA: High Intensity x High Polarization	0.49*	0.52**	0.00	0.59*	0.24	1.49**
	(0.051)	(0.043)	(0.996)	(0.072)	(0.599)	(0.024)
IA: Low Intensity x High Polarization x Rel. PA Share Own Ethnic Group	-0.12	0.80*	-0.26	-0.63	-0.21	-2.87
	(0.722)	(0.093)	(0.672)	(0.221)	(0.736)	(0.310)
IA: High Intensity x High Polarization x Rel PA Share Own Ethnic Group	1.15**	1.89***	1.24	0.39	-2.03	1.88
	(0.030)	(0.003)	(0.118)	(0.661)	(0.235)	(0.492)

RE Logit Regression. Other than the variable on the relative participation share of the own ethnic group and the conflict interaction variables, the same control variables as in Table 5 are included.

Table 9: Effects of Other Individual Characteristics in Conflict Areas

I. HIGHER EDUCATION

DV: _Participation_	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Conflict Coefficients						
Low Intensity: 1-9 Fatalities	-0.49***	-0.44***	-0.25**	-0.38***	-0.25*	-0.64***
	(0.000)	(0.000)	(0.039)	(0.000)	(0.077)	(0.010)
High Intensity: ≥ 10 Fatalities	-0.50***	-0.59***	-0.60***	-0.27	-0.47	-0.25
	(0.001)	(0.000)	(0.004)	(0.184)	(0.115)	(0.528)
IA: Low Intensity x Higher Education	0.23	0.10	-0.04	0.22	0.07	0.49
	(0.121)	(0.556)	(0.859)	(0.267)	(0.780)	(0.230)
IA: High Intensity x Higher Education	-0.00	0.04	0.43*	0.63**	-0.08	1.41***
	(0.989)	(0.866)	(0.098)	(0.020)	(0.834)	(0.006)

II. LOW ASSETS

DV: _Participation_	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Conflict Coefficients						
Low Intensity: 1-9 Fatalities	-0.45***	-0.50***	-0.30***	-0.33***	-0.27**	-0.50**
	(0.000)	(0.000)	(0.007)	(0.001)	(0.044)	(0.026)
High Intensity: ≥ 10 Fatalities	-0.51***	-0.67***	-0.22	0.08	-0.55**	0.48
	(0.000)	(0.000)	(0.262)	(0.682)	(0.039)	(0.166)
IA: Low Intensity x Low Assets (25th percent.)	0.07	0.34**	0.19	0.06	0.16	0.19
	(0.612)	(0.011)	(0.351)	(0.737)	(0.489)	(0.661)
IA: High Intensity x Low Assets (25th percent.)	-0.01	0.39*	-0.73***	-0.37	0.20	-0.54
	(0.966)	(0.091)	(0.007)	(0.195)	(0.614)	(0.353)

III. HIGH ASSETS

DV: _Participation_	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Conflict Coefficients						
Low Intensity: 1-9 Fatalities	-0.48***	-0.39***	-0.35***	-0.27**	-0.22	-0.52**
	(0.000)	(0.000)	(0.003)	(0.011)	(0.110)	(0.029)
High Intensity: ≥ 10 Fatalities	-0.47***	-0.55***	-0.61***	-0.02	-0.23	-0.08
	(0.001)	(0.000)	(0.003)	(0.924)	(0.408)	(0.831)
IA: Low Intensity x High Assets (25th percent.)	0.17	-0.13	0.29	-0.18	-0.04	0.15
	(0.174)	(0.330)	(0.121)	(0.323)	(0.864)	(0.680)
IA: High Intensity x High Assets (25th percent.)	-0.09	-0.12	0.53**	-0.02	-0.86**	1.06**
	(0.635)	(0.572)	(0.035)	(0.930)	(0.024)	(0.028)

Figure 1: Total Number of Fatalities in the Sample, 1990-2003
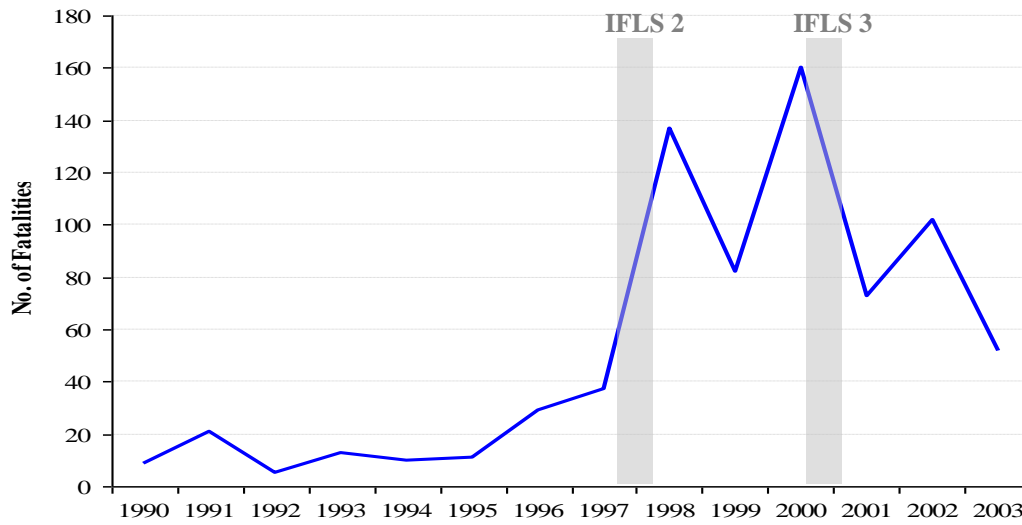
Source: UNSFIR-II Database. Based on own calculations. The May Riots in Jakarta in 1998, which account for 1,188 fatalities, are excluded here.

Figure 2: Distribution of Fatal Violence in the Sampleof Districts (1998-1999)
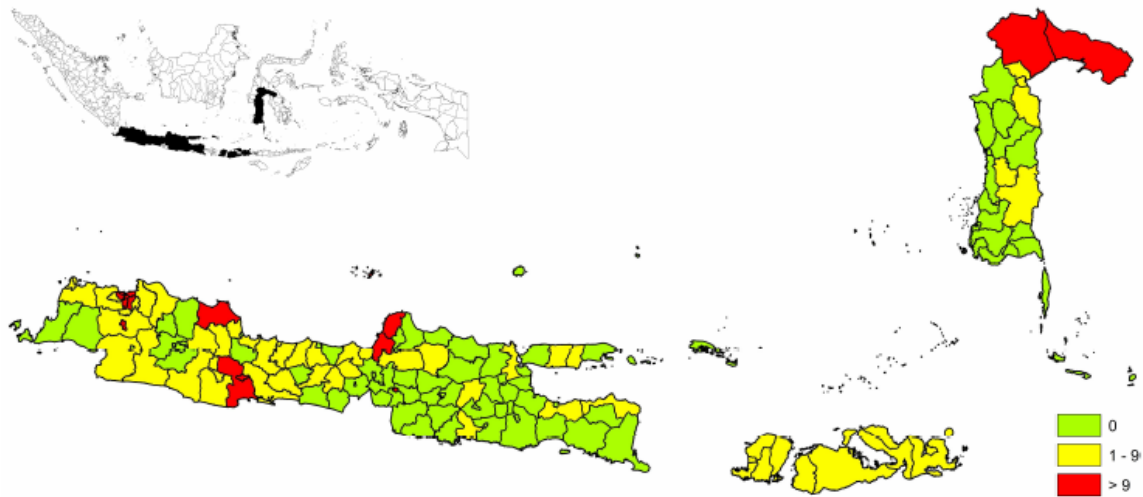
Table A1: Alternative Specifications – Conflict and Ethnic Polarization

I. SUB-SAMPLE: JAKARTA EXCLUDED

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Low Intensity: 1-9 Fatalities	-0.52***	-0.49***	-0.32**	-0.38***	-0.16	-0.72***
	(0.000)	(0.000)	(0.010)	(0.001)	(0.281)	(0.005)
High Intensity: ≥ 10 Fatalities	-0.86***	-0.97***	-0.31	-0.77**	-1.09**	-0.80
	(0.000)	(0.000)	(0.305)	(0.015)	(0.017)	(0.172)
IA: Low Intensity x High Polarization	0.32**	0.25	0.23	-0.03	-0.18	0.55
	(0.040)	(0.116)	(0.394)	(0.880)	(0.512)	(0.220)
IA: High Intensity x High Polarization	0.78**	1.06***	-0.82	1.48***	0.97	2.01**
	(0.012)	(0.001)	(0.118)	(0.001)	(0.111)	(0.013)

II. SUB-SAMPLE: JAVA ONLY

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Low Intensity: 1-9 Fatalities	-0.53***	-0.55***	-0.40***	-0.28**	-0.07	-0.57**
	(0.000)	(0.000)	(0.002)	(0.025)	(0.661)	(0.028)
High Intensity: ≥ 10 Fatalities	-0.98***	-0.95***	-0.45	-0.50*	-0.80*	-0.63
	(0.000)	(0.000)	(0.107)	(0.092)	(0.055)	(0.248)
IA: Low Intensity x High Polarization	0.35**	0.39**	0.38	-0.20	-0.61**	-0.23
	(0.030)	(0.024)	(0.104)	(0.354)	(0.029)	(0.627)
IA: High Intensity x High Polarization	0.73***	0.73***	0.06	0.64*	0.33	1.64**
	(0.003)	(0.005)	(0.856)	(0.058)	(0.482)	(0.012)

III. 5-FATALITIES THRESHOLD

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Low Intensity: 1-4 Fatalities	-0.56***	-0.46***	-0.33***	-0.38***	-0.22	-0.63**
	(0.000)	(0.000)	(0.009)	(0.001)	(0.146)	(0.012)
High Intensity: ≥ 5 Fatalities	-0.45***	-0.75***	-0.46**	-0.24	0.08	-0.94**
	(0.001)	(0.000)	(0.023)	(0.248)	(0.785)	(0.023)
IA: Low Intensity x High Polarization	0.32**	0.22	0.22	0.05	-0.23	0.43
	(0.029)	(0.161)	(0.323)	(0.786)	(0.354)	(0.305)
IA: High Intensity x High Polarization	0.38**	0.46**	0.06	0.46*	-0.47	1.77***
	(0.049)	(0.027)	(0.825)	(0.080)	(0.212)	(0.001)

IV. CONTINUOUS INDICATOR: NUMBER OF FATALITIES

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Number of Fatalities	-0.02**	-0.02**	-0.04***	0.01	-0.01	0.02
	(0.034)	(0.022)	(0.001)	(0.190)	(0.687)	(0.342)
Number of Fatalities *Squared*	0.00	0.00*	0.00***	-0.00	0.00	-0.00
	(0.161)	(0.085)	(0.001)	(0.290)	(0.786)	(0.166)
Interaction Fatalities and Polarization	0.01*	0.01*	0.01	-0.00	0.00	0.01
	(0.051)	(0.081)	(0.220)	(0.381)	(0.775)	(0.454)

V. WHOLE SAMPLE (NOT RESTRICTED TO INFORMED INDIVIDUALS)

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Low Intensity: 1-9 Fatalities	-0.56***	-0.46***	-0.33***	-0.38***	-0.22	-0.63**
	(0.000)	(0.000)	(0.009)	(0.001)	(0.146)	(0.012)
High Intensity: ≥ 10 Fatalities	-0.45***	-0.75***	-0.46**	-0.24	0.08	-0.94**
	(0.001)	(0.000)	(0.023)	(0.248)	(0.785)	(0.023)
IA: Low Intensity x High Polarization	0.32**	0.22	0.22	0.05	-0.23	0.43
	(0.029)	(0.161)	(0.323)	(0.786)	(0.354)	(0.305)
IA: High Intensity x High Polarization	0.38**	0.46**	0.06	0.46*	-0.47	1.77***
	(0.049)	(0.027)	(0.825)	(0.080)	(0.212)	(0.001)

VI. ETHNIC FRAGMENTATION

DV: *Participation*	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Low Intensity: 1-9 Fatalities	-0.47***	-0.36***	-0.36**	-0.35**	-0.37*	-0.44
	(0.000)	(0.001)	(0.027)	(0.021)	(0.074)	(0.177)
High Intensity: ≥ 10 Fatalities	-0.73***	-0.95***	0.19	-1.08***	-1.84***	-0.67
	(0.001)	(0.000)	(0.608)	(0.008)	(0.005)	(0.323)
IA: Low Intensity x Ethnic HHI >0	0.07	-0.08	0.09	0.05	0.18	-0.16
	(0.549)	(0.523)	(0.627)	(0.761)	(0.415)	(0.663)
IA: High Intensity x Ethnic HHI >0	0.34	0.57**	-0.80*	1.29***	1.52**	1.42*
	(0.181)	(0.031)	(0.051)	(0.003)	(0.025)	(0.056)

Each pair of coefficients from a different regression (control variables as in Table 5).
P-values in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table A2: The Effect of Relative Ethnic Participation Shares – All Conflict Areas

DV: **Participation**	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives
Population Share of one's own Ethnicity in the Village	0.47**	0.36*	0.35	0.56**	0.42	0.32
	(0.014)	(0.060)	(0.139)	(0.022)	(0.164)	(0.553)
Relation Participation Shares Own vs. Other Ethnic Groups	0.67***	0.21	0.03	0.41	0.29	5.41***
	(0.000)	(0.167)	(0.926)	(0.147)	(0.438)	(0.000)
Index of Ethnic Polarization	0.61***	0.65***	0.37*	0.82***	0.12	1.24***
	(0.000)	(0.000)	(0.079)	(0.000)	(0.607)	(0.003)
Low Intensity: 1-9 Fatalities	-0.40***	-0.44***	-0.28**	-0.32***	-0.24*	-0.17
	(0.000)	(0.000)	(0.010)	(0.001)	(0.054)	(0.469)
High Intensity: ≥ 10 Fatalities	-0.73***	-0.59***	-0.51***	-0.04	-0.51**	0.30
	(0.000)	(0.000)	(0.008)	(0.812)	(0.035)	(0.415)
IA: Low Intensity x Rel. PA Own Ethnic Group	-0.26	0.07	0.15	0.31	0.47	-3.63
	(0.245)	(0.794)	(0.718)	(0.485)	(0.393)	(0.123)
IA: High Intensity x Rel PA Own Ethnic Group	1.33***	0.52	1.36*	0.03	-2.01	1.30
	(0.007)	(0.218)	(0.082)	(0.976)	(0.188)	(0.627)

DV: **Participation**	(1) Governance	(2) Social Service	(3) Infrastructure	(4) Risk-Sharing	(5) Security	(6) Cooperatives