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The determinants of low-intensity intergroup violence: The case of Northern Ireland

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Abstract: What accounts for low-intensity intergroup violence? In this paper, we explore the micro-level determinants of low-intensity sectarian violence in Northern Ireland, which has marked the post-1998 peace agreement period. We use original cross-sectional time series violence data for the 2005-2012 period at a disaggregated sub-national level, the *ward*, and a wide variety of social and political indicators. In particular, we assess the impact of within-ward ethnic composition, on the one hand, and the ethnic composition of neighboring wards, on the other. We find that the number of intergroup violent events peak in wards where there is *parity* between groups, and in predominantly Catholic (Protestant) wards that border predominantly Protestant (Catholic) wards. The rationale is that violence takes place where groups have both *opportunities* to perpetrate sectarian violence and *strategic* incentives to do it. The paper makes several contributions: it demonstrates that violence is explained by factors that go beyond underlying enmity between groups; it shows that micro-level dynamics can expand beyond local territorial units; and it suggests that neither ethnic segregation nor peace-walls are likely to prevent intergroup violence.

Keywords: violence, ethnic conflict, Northern Ireland

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Introduction

In July 2013, fifteen years after peace was agreed in Northern Ireland, riots broke out following traditional Protestant parades. Local police could not contain the spiraling violence and Protestants living in predominantly Catholic districts of Belfast said mob violence directed at their area was the worst they had seen since the early 1970s, the most severe years of Northern Ireland's civil war.[1] In the same year, 2013, two Protestant young men were sentenced to life imprisonment for having murdered a teenager, attacked because he was a Catholic.[2] Sectarian violence, as exemplified by these incidents, is an important matter in Northern Ireland. Even though the armed conflict officially concluded in 1998 (with the Good Friday Agreement), confrontations between Catholics and Protestants have persisted until today.[3]

Sectarian violence consists of violence between members of different ethnic or religious groups. In Northern Ireland, the sectarian cleavage is between Protestants and Catholics.[4] Low intensity sectarian violence in Northern Ireland comprises attacks against individuals or groups using physical force, threats, verbal abuse, or intimidation; riots and public disorder; or damage to property. Although these attacks are sometimes fatal, these events do not reach the levels of lethality that characterize civil wars. Understanding these types of low-intensity violence is nonetheless also important because these events are socially[5] and economically disruptive. [6]

Sectarian violence is sometimes considered just a legacy of the conflict in Northern Ireland, but this approach cannot explain its temporal and spatial variation. In this paper, we

[1] Rutherford, Adrian (2013) Praise for solidarity amid riot, but alleged police advice causes anger. *Belfast Telegraph* 31 July, http://www.belfasttelegraph.co.uk/news/local-national/northern-ireland/praise-for-solidarity-amid-riot-but-alleged-police-advice-causes-anger-29457642.html.

[2] BBC (2013) Pair given life sentences for Michael McIlveen murder. 10 April , http://www.bbc.com/news/uk-northern-ireland-22092575.

[3] As Shirlow and Murtagh state, in Northern Ireland 'the nature of violence has shifted away from paramilitary and state assaults towards a more sectarianized and repetitive violence of interface rioting and attacks upon the symbols of tradition such as [Protestant] Orange Halls, [Catholic] GAA [Gaelic Athletic Association] property and churches' (2006: 3).

[4] In Northern Ireland, there is an almost perfect overlap of the religious cleavage with the political cleavage, where Catholics are overwhelmingly (though not exclusively) Irish nationalists, and Protestants are overwhelmingly (though not exclusively) British unionists. There is a large literature that considers that religion is only a label for what should be analyzed as an ethnic cleavage. See O'Leary & McGarry (1993). We will use the terms Catholic and Nationalist, and Republican and Unionist interchangeably.

[5] In countries such as Ivory Coast, where low intensity violence has persisted after peace agreements, this has been an important factor leading to the renewal of violence (Reno, 2011).

[6] BBC (2013) Union flag protests cost Belfast businesses £15m. 10 January, http://www.bbc.com/news/uk-northern-ireland-20972438; Cage (2013) Northern Ireland Sectarian Violence Continues Despite 1998 Peace Agreement. *Reuters* 31 July, http://www.huffingtonpost.com/2013/07/31/northern-ireland-riots_n_3682407.html

explore the micro-level dynamics of this violence in order to understand its determinants. More specifically, we concentrate on exploring spatial variation: we study the impact of the ethnic composition of wards on sectarian violence, and we analyze how the composition of neighboring wards interacts with within-ward composition. We find that violence peaks not only in wards where there is ethnic *parity*, but also in predominantly Catholic (Protestant) wards that border predominantly Protestant (Catholic) wards. These neighboring effects are important because they indicate that segregation does not eradicate violence: territorial units that are relatively homogeneous can have violence if their neighboring territorial units are also relatively homogeneous and populated by members of the other group.

Our article speaks to the literature on ethnic conflict and political violence, and it has macro-level implications that are relevant beyond the Northern Irish case. For example, segregation and partition are sometimes assumed to be a possible solution for ethnic conflict (Kaufmann, 1998); we show that, at the micro-level, this is not necessarily the case.[7] Also, the article has relevant methodological implications, as it shows that neighboring effects ought to be taken into account when looking into dynamics of intergroup violence at the local level.

The article is organized as follows: the next section summarizes the conflict in Northern Ireland and the origins of sectarian violence. We then present the theoretical framework and our main hypotheses. Afterwards, we discuss the novel datasets we have built with data from police records, as well as from a myriad of Northern Ireland sources. We then present the main results of our empirical tests and the robustness checks. The final section concludes.

The Conflict in Northern Ireland

Current sectarian violence between Catholics and Protestants in Northern Ireland has deep roots in a conflict that has lasted for more than three centuries (Farrell, 2000; Thompson, 1989). The antagonisms started with the settlement of British colonists in Northern Ireland, which led to the economic marginalization of the Catholic Irish, who by 1703 held less than 5% of the land in Northern Ireland (Darby, 1995). An Irish revolt against British rule over Ireland led to independence for the southern part of Ireland in 1921. However, an exception was made for the north-east of the island, where Protestants were by then a majority. Northern Ireland remained united to the United Kingdom, with its own devolved institutions.

[7] The article makes an effort at generating macro-level implications of micro-level findings, following a new trend in the study of conflict (Balcells & Justino 2014).

Protestant control of Northern Ireland was marked by sectarian violence against Catholics, notably in 1921, when Irish independence took place, and again during the economic depression of the 1930s. The Protestant majority in Northern Ireland also maintained political control through gerrymandered electoral boundaries and strong emergency police powers (Darby, 1995). Following the 1921 independence of Ireland, the Irish Republican Army (IRA), an armed organization, orchestrated recurrent violent campaigns against the British state with the aim of ending the separation status for Northern Ireland. Calls against social and political discrimination increased, and a rising Catholic middle class began to press for civil rights in 1969. Violence between Protestants and Catholics spiraled. In response to the violence, local vigilante groups set up, which then became formalized paramilitary groups (Fitzduff & O'Hagan, 2009). After the UK government sent in the British army to regain control, a new insurgent group, the *Provisional IRA*, emerged. The conflict that followed was not only between the Provisional IRA and the UK state, but also between Protestant and Catholic paramilitary groups, and at times between different paramilitary groups within the same ethnicity. The conflict (so-called 'the Troubles') lasted from 1969 to 1998,[8] and resulted in around 3,200 deaths and about 42,000 people injured.[9] Variation in levels (and timing) of violence during this period has been attributed to state repression, ethnic settlements, and proximity to the border with the Republic of Ireland, among other factors (Sullivan, Loyle & Davenport, 2012; Mueller, Rohner & Schoenholzer, 2013).

Sectarian violence was an important feature of the period of 'the Troubles', as paramilitary groups often chose targets based solely on their membership to the other ethnic group. Sectarian violence was however not limited to the violence perpetrated by paramilitary groups, and included many low-level incidents carried out by civilians in a highly localized way. These included attacks on other civilians as well as on symbolic buildings such as churches. [10]

[8] There is disagreement about the dates of the conflict. However, 1969, the year of the first death generally attributed to 'the Troubles' and the deployment of British troops is a widely accepted date for conflict onset; while 1998, the year when the Good Friday Agreement was signed and elections were held, is widely accepted as the end date. See: http://cain.ulst.ac.uk/othelem/chron.htm. Violence by dissident republican groups has continued intermittently since, however this violence has not reached the scale of a civil war.

[9] The number of deaths in the conflict is disputed. This number is taken from police records and covers Northern Ireland only (http://cain.ulst.ac.uk/ni/security.htm#04). The other most commonly used source attributes 3,272 deaths within Northern Ireland (Sutton, 2010).

[10] Civilian deaths constituted 52% of the deaths in Northern Ireland, the remainder being paramilitary, military and police forces. It is estimated that republican paramilitary groups killed 296 Protestant civilians, while Loyalist paramilitaries killed 644 Catholic civilians (Sutton, 2010).

In 1994, the IRA proclaimed a ceasefire, followed shortly afterwards by the Combined Loyalist Military Command, and peace negotiations led to the 1998 Good Friday Agreement, which formally ended the civil conflict in Northern Ireland.[11] Yet, inter-ethnic tensions have continued, allegedly fuelled by resentment due to the post-conflict arrangements. For example, in the Northern Ireland Life and Times Survey (NILTS), approximately 50% of Protestants surveyed argue that Catholics had benefitted more from the peace agreement (NILTS, 1998, 2008).[12] A 2005 report for the Institute of Conflict Research indicated that sectarian violence is still a problem in Northern Ireland (Jarman, 2005). Among other findings, this report highlights that in the 10 years following the 1994 ceasefires, 17 peace lines were built or extended in Belfast. Survey data also reveal that the Northern Irish public considers sectarian violence to be still a widespread problem: for example, in 2013, 77% disagreed to some extent with the statement that 'Northern Ireland is becoming a place free from sectarian aggression'.[13] In the same year, 23% of 15-24 year olds reported that there had been riots or sectarian troubles in their neighborhood during the previous year.[14]

Contemporary sectarian violence in Northern Ireland is varied and it comprises events from riots to attacks on buildings, as well as interpersonal attacks. Parades are usual flashpoints for sectarian riots, but are not the only ones. In addition, there is a lot of variation in sectarian violence that remains unexplained. We lack systematic explanations for low-intensity group violence, as this is often conceived as the result of underlying enmity between Catholic and Protestants that periodically erupts into violence.[15] However, factors such as underlying enmity cannot explain variation and thus there should be more proximate causes that we need to uncover.

Theoretical Framework

There is a large literature that explores psychological, sociological and political factors in explaining interethnic violence. A set of studies focuses on the role of intergroup contact, leading to mixed findings: while some authors find that intergroup ties reduce violence by increasing interethnic trust (Varshney, 2002), others find that interethnic group contact does

[11] Some argue that the conflict ended due to changes in the public support for the paramilitary groups, arising from a conflict fatigue, and a growing belief among republicans that they could better achieve their aims through a political solution (Darby, 2003; Mallie & McKittrick, 1996; Cox, Guelke & Stephen, 2000).
[12] As Petersen (2001) explains, resentment is an emotion that is often bred by changes in group status and which can lead to violence used instrumentally in order to reverse such status.
[13] NILTS (2013). Respondents could answer from 1 (strongly disagree) to 10 (strongly agree). Disagreement to some extent is considered to be a score of 1-4.
[14] Ibid.
[15] http://www.huffingtonpost.com/2013/07/31/northern-ireland-riots_n_3682407.html

not reduce violence (McDoom, 2013; Paolini, Harwood & Rubin, 2010; Barlow et al., 2012). In their seminal work, Olzak, Shanahan & McEneaney (1996) found that racial segregation followed by interracial contact generates competition leading to unrest in United States cities.[16] Another set of works focuses on the role of settlement patterns in explaining ethnic violence. Posen (1993) refers to the 'security dilemma' and the perception of threat generated by 'ethnic islands', which can lead to arming and to preventive attacks against neighbors. Following this line of thought, some have argued that the main source of sectarian violence in Ulster during 'the Troubles' was the mixed demography of Northern Ireland, which created a security dilemma type of situation (Kaufmann, 1998: 127). Authors such as Toft (2002) and Gallagher & Weidmann (2010) also focus on settlement patterns to explain ethnic conflict and argue that group concentration and segregation increases the likelihood of conflict because they increase ethnic groups' capacity to undertake collective action.

We believe that ethnic settlement patterns have a significant impact on low intensity violence, but that the mechanisms are not those of the security dilemma, which cannot really explain violence in non-war settings in which there is some authority in place (and thus not a situation of 'anarchy'). Also, because some events of low-intensity intergroup violence do not require collective action, we do not think that this mechanism is crucial to explain it. We instead follow the strategic violence literature (e.g. Kalyvas, 2006; Valentino, 2004) and argue that groups in conflict are likely to use violence against members of the other group in order to establish demographic control of territorial areas. The latter is the case even if groups are not engaged in a fully-fledged civil war, as low-intensity violence can serve the purpose of establishing territorial control also during peacetime. Even if not lethal, violence can induce people to move out from specific areas (Steele, 2010) and they can tip the balance of power in competitive areas (Balcells, 2010). Demographic control allows groups to have political power in an area, and to control access to public goods and public services. In some cases, these goods may be material, such as subsidized housing or public schools;[17] in some other cases, they can be non-material, such as cultural rights (e.g. right to use one's language, or right to display flags and ethnic symbols).[18] Thus, groups use violence strategically to

[16] Focusing on immigrant conflict in Western Europe, Dancyiger (2010) finds that the combination of intergroup contact and bad economic conditions such as unemployment is likely to generate violence between native and immigrant groups or between immigrant groups and the state due to competition over goods whose supply is relatively fixed in the short-term.

[17] As in the words of one resident of an area in Northern Ireland that suffered sectarian rioting, 'It was all about housing, they [the Catholics] are growing, and they needed more, you knew they wanted houses.' Unionist interviewee, quoted in Byrne (2005: 85).

[18] For example, in a disputed area Protestants believed that nationalists wanted to be in control of a street in order to stop Loyalist parades there (Byrne, 2005: 86).

threaten others and eventually cleanse the areas and have control over these public goods. However, violence can only occur when members of the group have some degree of contact with each other --in other words, if opportunities for violence exist.

We argue that violence can be explained by both *strategic* and *opportunistic* factors. These two factors are operating simultaneously and they are complementary to one other. Moreover, we argue that these mechanisms explain violence *within* territorial units (e.g. wards, municipalities), and *between* territorial units. Within units, the effect of ethnicity on intergroup violence is likely to be nonlinear. When a group overwhelmingly dominates an area, there are no strategic motives for that group to perpetrate violence, and there are not many opportunities. When a group is a minority in an area, despite the fact that there are some opportunities, violence is not strategic for that group because it is unlikely to generate any changes in the ethnic composition of the area, and violence is likely to endanger the members of the group.[19] It follows that we are likely to find more incidents of violence where ethnic communities are mixed and thus individuals of different ethnic groups are in contact with each other (thus, there are opportunities for violence), [20] and where groups have similar sizes (thus, violence can be instrumental to change the demographic composition of the area).[21] Our first hypothesis is as follows:

> *Hypothesis 1:* Incidents of sectarian violence will be more frequent in areas where there is demographic *parity* between groups.

Again, demographic parity implies that the groups have similar proportions of people in an area (maximum levels of parity are achieved when both groups have the same size). Another potential way to measure ethnic divisions is *polarization*, which entails that the distribution of groups approaches bipolarity (Reynal-Querol, 2002). We choose *parity* as the main independent variable because this better captures competition between similarly sized groups.[22] In practice, choosing parity or polarization does not make a difference because in

[19] If the group is a minority, the perpetrators are more likely to get caught and punished for their actions. Also, the majority can easily retaliate against other members of the perpetrators' group.

[20] Note that, even when violence can happen because there are opportunities (i.e. there is contact or proximity between members of the two groups), it is less likely to happen if there are no strategic motives. This does not mean that it will never take place, but we argue that violence will be less frequent when there are only opportunistic factors than when there are both opportunistic and strategic factors.

[21] When none of the two groups has full demographic control of an area there are opportunities for violence that do not exist in a context of full dominance by one of the groups (de la Calle, 2007).

[22] Also, the best measure of polarization would be a continuous one (Esteban & Ray, 2008), measuring not only bipolarity but also distance between groups, and we lack fine-grained measures of distance. For a theoretical

Northern Ireland there are mainly two relevant groups (Catholics and Protestants), so the measures for parity and polarization will take very similar values.[23]

Economic scarcity and consequent increased competition for public goods and services between members of the different ethnic groups has been considered a factor underlying sectarian violence in Northern Ireland. [24] This is coherent with our theoretical framework. If violence is driven by the strategic motives above, it follows that variables such unemployment and poverty are likely to exacerbate the impact of parity on violence because the stakes of conflict will be greater if there are economic grievances and competition over scarcer resources (Dancyiger, 2010).[25]

> *Hypothesis 2:* The effect of ethnic *parity* on violence will increase with the level of economic scarcity of an area.

The ethnic composition of specific areas (i.e. wards) is unlikely to be the only relevant factor accounting for intergroup violence. As mentioned above, groups might be confronting each other across territorial units, in addition to within them (Lim, Metzler & Bar-Yam, 2007; Smith et al., 2012). We argue that the same strategic and opportunistic factors explaining violence *within* territorial units are also accounting for violence *between* territorial units, although the prediction is slightly different for the latter. In the case of violence across units, we expect violence to reach a peak in areas where segregated communities meet one another.[26] The objective of cleansing territories and keeping territories clean is likely to be salient when there is clear segregation across territorial borders (e.g. area 1 is populated by a Protestant majority, and area 2, which neighbors area 1, is populated by a Catholic majority).[27] In addition, while contact with the other group provides opportunities for this violence to take place, one's homogenous community can provide protection after perpetrating violence.[28] We hypothesize the following:

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discussion on these measures and their differences, see Reynal-Querol (2002), Esteban & Ray (2008), and Balcells (2010).

[23] Nonetheless, we also run our baseline models using polarization to check the robustness of the results.

[24] See, for example, the Joseph Rowntree Foundation, http://www.jrf.org.uk/austerity-northern-ireland-troubles. See also Lansford (2013: 1548).

[25] In addition, the opportunity costs of engaging in violence are lower if there is unemployment (Humphreys & Weinstein, 2008).

[26] Note that these are not necessarily areas that have ethnic parity at a higher level of aggregation (i.e. the province), although they can be.

[27] For example, one Unionist resident from an area with sectarian rioting argued that violence took place 'Because they wanted the street, and it was a Loyalist street and they wanted to try and take it over…it was like ethnic cleansing.' Byrne (2005: 86).

[28] Note that the rationale is the same as the one that explains violence within wards.

Hypothesis 3: Incidents of sectarian violence will be more frequent in areas populated by majorities of one of the groups that are neighbored by areas dominated by majorities of the rival group.

In a nutshell, we establish that low intensity sectarian violence is explained by the ethnic composition of territorial units, as well as with the composition of neighboring units. The mechanisms explaining violence within units and between units are the same: in both cases, violence is driven by strategic and opportunistic factors. The prediction is that violence within units will reach a peak in areas where there is parity between ethnic groups, and that violence between units will be greater in areas where segregated communities are in contact with each other.

Data

In order to test these hypotheses, we use an original dataset of incidents of sectarian violence in Northern Ireland for the period 2005-2012.[29] This data is collected by the Police Service for Northern Ireland, which codes as sectarian 'any incident which is perceived to be sectarian by the victim or any other person'.[30] The police define sectarian as 'bigoted dislike or hatred of members of a different religious or political group' (PSNI, 2013a: 6). In the context of Northern Ireland this refers to the ethnic groups, i.e. Catholic/Protestant, or political groups, i.e. Nationalist/Unionist or Republican/Loyalist (PSNI, 2013a: 6). The most common form of sectarian incident is violence against people, either with or without injury. Most of the other incidents are criminal damages, for example against a person's home or significant buildings such as churches. Riots and public disorder are a small part of total

[29] Available at the Northern Ireland Statistics and Research Agency (NISRA) website, http://www.ninis2.nisra.gov.uk. The publicly available data record wards with only 4 or more incidents for privacy protection. We use the full data and acknowledge the generosity of NISRA in making these data available to us. An incident is defined as 'A single distinct event or occurrence which disturbs an individual's, group's or community's quality of life or causes them concern' (Home Office, 2011: 4). Thus an incident could be a riot, but it could also be a single attack on a building. Incidents include crimes, i.e. offences that could be tried by a jury, and events that do not reach the level of a crime (PSNI, 2013b: 3).

[30] The coding procedure for sectarian violence is as follows: when reporting a crime, the victim or the police staff dealing with the incident can flag an incident as sectarian-motivated. This is based on United Kingdom guidelines for identifying racial motivation (PSNI, 2013a). The category of 'sectarian hate crimes' is added in Northern Ireland only and crimes flagged in this way receive a higher penalty on conviction (again in Northern Ireland only (PSNI, 2013a). Audits and data quality checks are carried out quarterly by the Police Service of Northern Ireland (PSNI) Central Statistics Branch in order to correct the hate crime coding protocol (PSNI, 2013a: 7). Surveys in Northern Ireland suggest that reporting incidents to the police is not conditioned by ethnic background. For example, the October 2004 survey (immediately prior to the collection of our data) shows that 33 % of Catholics contacted the police in order to report a crime, compared to 31% of Protestants (Northern Ireland Policing Board, 2004).

sectarian incidents, but around one third of these offences have a sectarian motivation (PSNI, 2013a).

The information is collected at the ward level, which allows for a fine-grained sub-national analysis as there are a total of 582 wards in Northern Ireland. Wards are an administrative unit comprised of a number of townlands or parts of townlands, themselves a historic form of land division. Ward boundaries are occasionally reviewed, but the last change took place in 1993; thus, no changes took place right before or during our period of study. Wards are the smallest level at which data are available. The time period for which data on sectarian violence are available is 2005-2012, so our (fully balanced) dataset consists of 4,656 ward-year observations.

Our dependent variable measures the recorded number of incidents of sectarian violence in a given ward and year. Figure 1 shows the temporal evolution of the total number of incidents in Northern Ireland and the average number of incidents per ward for the period 2005-2012.[31] We can observe that the incidence of sectarian violence in post-conflict Northern Ireland has decreased over the period under study. While there were a total of 1,470 incidents in 2005, there were 889 in 2012, which represents a decrease of about 40 percent. Accordingly, the yearly average number of incidents per ward has also decreased from 2.5 in 2005 to 1.5 in 2012. Figure 2 reveals the existing variability across wards, according to which in some wards violence can reach a maximum of 78 incidents in a year, but 7% of wards had no incidents during the time period studied.

Figures 1 and 2 in here

We use two datasets in order to explore the spatial variation in sectarian violence displayed in Figure 2. The first dataset includes variables containing social, economic and

[31] The data are collected from April of one year to April from the next year, not using natural years. We consider the number of incidents collected one year to correspond to the previous year (for example, those collected from between 2005 and 2006 correspond to 2005). Considering the year to be the current year (i.e. 2006) does not alter our results.

ethnic information of each ward. The second dataset adds information of neighboring wards to the first dataset. In order to measure the ethnic composition of each ward, we use census data, which has two major advantages: the first is that the fully-adjusted counts cover 100% of the population;[32] the second is that responses are self-generated, so we use self-identification into the different ethnic groups and not measures estimated by others.[33] Census data comes with the disadvantage that it is collected every ten years, in 2001 and 2011, and so there is little variation over time. The census data indicates that in 2001 the ethnic composition of Northern Ireland was 53.1 percent Protestant to 43.7 percent Catholic. Using census information we measure the number of Catholics and Protestants for each ward as well as the relative size of each group over a ward's total population. Using this information we can calculate an ethnic parity index to test our first hypothesis. The parity index captures the extent to which there is a balance of power or competition between the two groups in terms of size: $1– [P_i – P_j]^2$, where P is groups *i* and *j*'s relative sizes (Balcells, 2010). This index then takes value 0 when one of the groups represents 100 percent of a given ward's population, and it has value 1 when both groups have the same relative size.[34]

We include a number of control variables in our analyses. First, we control for the impact of past conflict intensity, measured by the (logged) number of deaths during 'the Troubles' (1969-1998) that took place in each ward.[35] We also include the (logged) number of so-called 'peace lines', which are walls, fences, road barriers or other constructions that have been placed to separate or protect the different groups. We obtain the information on a total of 53 peace lines from the Ministry of Justice,[36] supplemented by information from the BBC.[37] Using this information we generate a variable on the number of peace lines existing

[32] Available at the NISRA website, http://www.nisra.gov.uk/Census/2001/background/metadata.html

[33] Ethnicity is captured only in the Northern Ireland census by the question "What religion, religious denomination or body do you belong to?" if the person self-identified as belonging to a religion or "What religion, religious denomination or body were you brought up in?" if the respondent self-identified as not belonging to a religion. The question therefore captures not the individual's religious beliefs (a separate question), but her community background. There are four possible categories: Catholic, Protestant, other, and none. A high proportion of people identify as one of the two traditions, Catholic or Protestant: 97% in 2001 and 94% in 2011.

[34] As mentioned above, in additional models, we include also a measure of polarization, which is computed using the following equation (Reynal-Querol, 2002): $Pol = \Sigma P_i^2 [1 – P_i])$. Figure A1 in the Appendix shows the correlation between both indexes in our sample. Further, Figures A2 in the Appendix show the curvilinear relation between the percentages of Catholics and Protestants and the parity index.

[35] Geographical location is from the *Visualising the Conflict* project run by CAIN (Conflict Archive on the Internet), http://cain.ulst.ac.uk. They take the death data from Sutton (2010).

[36] Authors' correspondence: Freedom of Information request FOI\14\51, 23 April 2014

[37] BBC (2009) Forty Years of Peace Lines. 1 July, http://news.bbc.co.uk/2/hi/uk_news/northern_ireland/8121228.stm.

within or on the border of a given ward.[38] It is important to note that only two of the peace lines coded in the data were built during the period covered by our data (2005-2012), both in Bellevue (2008). The rest were all built before 2005.

We also include two main socioeconomic control variables available at ward level: unemployment, which we measure as the percentage of unemployed over the ward's population,[39] and the percentage of men aged between 16 and 39.[40] Finally, we also control for the size of the ward by total population (logged) and geographical size (logged).[41]

In order to create the second dataset, we identified and coded the corresponding neighboring wards for each of the 582 wards. We consider wards as neighbors if contact is possible between their populations. Hence, neighbors must share a border, and we do not code as neighbors wards that are divided by large bodies of water (unless there is a bridge). We then get relevant information of neighboring wards, in particular: the average percentage of Catholics and Protestants in all neighboring wards; the maximum percentage of Catholics or Protestants among all the neighboring wards; the number of sectarian violence incidents recorded in neighboring wards (in the same year), and the total number of neighboring wards.[42]

Given the count nature of our dependent variable (number of incidents of sectarian violence in a given ward in a given year), the models are estimated using negative binomial regressions with errors clustered at the ward level.[43] To control for common shocks we include year fixed effects in all our models. Since our main independent variables (almost) do not vary over time because census data is only collected every 10 years (2001 and 2011), we do not use ward-based fixed effects. Yet, in order to control for shared characteristics of wards and mitigate unobserved heterogeneity we do employ local government districts (LGD) fixed-effects. Wards in Northern Ireland are nested within local government districts, the level of local government. Wards within the same LGD share such characteristics as geography and history, along with economic patterns and level of public services. Finally, to

[38] Where a peace line is on the boundary between two wards, it is listed in both wards. Almost half of the peace lines in our list lie along the border of two wards; the rest lie completely within a single ward.
[39] The annual average of people claiming welfare assistance for unemployment is obtained from the NISRA website.
[40] Collier, Hoeffler, & Rohner (2009) find that the proportion of young males increases the risk of civil war onset. Their explanation is that a larger share of young males increases the availability of potential recruits as rebel soldiers. A similar logic could be applied to sectarian violence. The data are obtained from the NISRA website.
[41] Taken from the NISRA website.
[42] Table A1 in the online Appendix shows the summary statistics of all variables.
[43] To check the robustness of our results we have also run our main models using zero-inflated negative binomial regression. See below.

correct for spatial autocorrelation, our models include a spatially weighted average of the number of incidents. Our spatial lag thus consists of the average number of incidents in a given year of a given ward's neighbors, which are identified using a first order queen criterion (see above).

Results

In Table 1 we first report the results of models that focus on the internal social, economic, and ethnic characteristics of wards in order to test our first hypothesis. All models include the following controls: size of wards (logged squared km), total population (logged), percentage of young males (16-39), unemployment (%), and the (logged) number of deaths in a ward accumulated during 'the Troubles'.

Table I in here

Model 1 in Table I shows the effect of the percentage of Catholics, which is negative and significant, thereby suggesting that predominantly Catholic wards are more peaceful. The opposite is found when the percentage of Protestants is included instead (model 2); that is, wards with greater proportions of Protestant population tend to experience more violent events. Yet, the impact of the percentage of Catholics and Protestants is actually curvilinear, as shown in models 3 and 4 (respectively), which include the percentage of population of each group squared. According to this, more ethnically homogeneous wards appear to be more peaceful, as initially expected.

Model 5 presents the results with the parity index. Recall that parity measures the extent to which groups have similar proportions within the wards. The results indicate that the impact of parity on the number of violent events is positive and significant, which again supports our first hypothesis. Model 6 reports the results using the polarization index instead of parity. The results are extremely similar as these two measures take very similar values when there are two groups.

Model 7 includes an interaction between the parity index and unemployment. As we hypothesized above (H2), unemployment could be exacerbating the impact of parity, given that it can reinforce both the opportunities for violence (i.e., unemployed individuals may be more willing to engage in violence) and the stakes of competition (i.e., there is more to gain from controlling an area, in terms of access to public resources). This is consistent with

previous literature that has explained ethnic conflict as the result of the interaction between economic scarcity and political competition (e.g. Olzak, Shanahan & McEneaney, 1996; Dancyiger, 2010), and it is consistent with arguments that connect austerity measures in Northern Ireland with sectarian violence. The coefficient is positive and significant, indicating that more incidents are observed in wards with both higher unemployment and greater ethnic parity. To better interpret the impact of these variables, Figure 3 plots the simulated impact of parity on the number of incidents, using the estimates in models 5 and 7 (the 95% confidence intervals are also shown). The left panel shows the predicted number of incidents as the parity index increases. A ward with maximum levels of parity is predicted to experience more than four violent incidents. The right panel shows the impact of parity on violence at three different and meaningful values of unemployment: the sample mean (= 3.72), and the sample mean plus and minus one standard deviation (s.d. = 2.53).

Figure 3 in here

As for the rest of variables in the models in Table I, they perform generally as expected. More populated wards experience more sectarian incidents; so do smaller (in square kilometers) wards. This suggests that sectarian violence is a mostly urban phenomenon, which tends to concentrate in denser (and poorer) urban wards. In areas where the population is dispersed, contested space is marked by avoidance rather than violent confrontation (Bell, Jarman & Harvey, 2010). Unemployment is a very significant and robust variable explaining sectarian violent incidents. The percentage of young males does not have a robust effect.[44] The number of deaths that occurred in a ward during 'the Troubles' has a positive and significant effect on sectarian violence. This indicates that those areas that experienced higher violence levels during the civil war are still experiencing a higher number of incidents. This is consistent with previous literature showing strong correlation between violence in different periods of a civil war, or between wartime and postwar violence (Grandi, 2013; Herreros, 2011; Balcells, 2010). The fact that the inclusion of this variable and LGD fixed-effects does not alter our findings constitutes strong evidence that there is not an omitted variable bias connected to past violence.[45]

[44] We also find that the impact of parity does not significantly increase as the percentage of young males increases. See model 1 in Table A3 (online Appendix).
[45] Also, results do not change if past violence is excluded as a control in the analyses.

According to the results in Table I, one could argue that highly homogeneous wards are overall more peaceful. However, homogeneous wards have also the potential for violence if neighboring wards are also quite homogeneous but mostly populated by people from the 'rival' group. As stated in hypothesis 3, we expect the number of incidents to be higher in those ethnically homogeneous wards that border wards where the majority of the population belongs to the other ethnic group.

Two examples of patterns of violence in Northern Irish wards illustrate these complementary mechanisms by which sectarian violence can take place: within and between wards. A first one is the ward of Ballymacarrett, in east Belfast. This is the ward with the second highest levels of sectarian incidents in our dataset: there has been an average of 29.3 incidents each year. In 2001, the ward had a Catholic population of 51 percent and a Protestant population of 47 percent, hence one of the highest levels of parity.[46] The two groups are strongly segregated into separate physical areas within the ward, kept apart by five peace lines. Violence takes place in flashpoint areas between the two communities.[47] A second example is the ward of Water Works in north Belfast, which also presents some of the highest incidence of sectarian violence. This ward has an average of 32 incidents every year in our dataset. By contrast with Ballymacarrett, Water Works is very homogeneous, with a Catholic population of 91 percent and a Protestant population of just 7 percent. However, the ward is bordered by wards that have a very different hue – Crumlin, which is 94 percent Protestant, Shankill, also 94 percent Protestant, and Duncairn, 90 percent Protestant. The border areas between these neighboring wards are flashpoints for sectarian violence.

Table II reports the results of the models incorporating neighboring wards' information. All models include the main controls used in Table I as well as year and LGD fixed-effects. Model 1 adds neighboring wards' characteristics to the baseline model (5) in Table I testing the effect of parity: the average number of sectarian violence incidents in neighboring wards, and the total number of neighboring wards.[48] We also control for the presence of peace lines (logged number of lines). The average number of incidents in neighboring wards (our spatial lag) has a positive and significant impact, which suggests that

[46] Figures taken from the 2001 census.

[47] BBC (2011) Sectarian trouble flares at east Belfast's Short Strand, 20 June, http://www.bbc.co.uk/news/uk-northern-ireland-13851316. A careful look at the examples of wards that have high parity and high levels of sectarian violence shows that many of them display a similar profile of internal divisions to this example.

[48] The number of neighbors has a positive significant effect in some of the models. We include this variable as a control to ensure that the effect of neighbors' characteristics and events is not fully driven by the number of neighboring wards. The influence of neighbors could be higher as the number of neighbors increase.

violence tends to cluster geographically, due to contagion or spillover effects.[49] We also find that peace lines are positively correlated with sectarian violence. This is unsurprising given that peace lines were deemed necessary in areas where past violence took place or where violence was perceived as likely.[50] The effect of parity is still strong and significant.

Model 2 includes the percentage of Catholics in a given ward and the average percentage of Protestants in neighboring wards; none of them is statistically significant.[51] To test hypothesis 3, model 3 includes the interaction between the percentage of Catholics in a ward and the average percentage of Protestants in neighboring wards. Even when controlling for the average number of incidents in neighboring wards, the interaction term is positive and highly significant, while the components are negative and significant.[52] This result clearly suggests that predominantly Catholic wards experience more violent incidents when they are alongside predominantly Protestant wards. The negative (and significant) coefficients of the main components reveal that the opposite is true too: predominantly Catholic wards are more peaceful if surrounded by wards that are predominantly Catholic, and having mostly Protestant neighboring wards decreases violence in wards that are also predominantly Protestant. Actually, we get a nearly identical result if we use the percentage of Protestants in a ward and interact it with the average percentage of Catholics in the neighboring wards (see model 6 in Table A3).

Table II in here

Figures 4 and 5 illustrate the impact of inter-ward parity on sectarian violence using the results in model 3 (Table II). Figure 4 shows how the marginal effect of the average percentage of Protestants in neighboring wards changes with the percentage of Catholics in a given ward (95% confidence intervals are also shown). Note that the marginal effect changes its sign and becomes positive as Catholics come close to being majoritarian in a given ward. This shows that, as the percentage of Catholics grows, so does the positive marginal effect on

[49] This control is also highly significant in the rest of models in Table II.
[50] Model 2 in Table A3 (Appendix) includes an interaction between the parity index and the (logged) number of peace lines existing in a ward. The coefficient is positive so indicating that more violence is observed where there is greater parity and peace-lines. Thus, peace lines do not work in reducing sectarian violence in wards with greater ethnic competition. We further explore the impact of peace lines below.
[51] Note that Catholics (%) was significant (at the 0.05% level) in the first model in Table I, but it is not once we control for neighbors' characteristics.
[52] If the average number of incidents in neighboring wards is not included as a control, the coefficient of the interaction term is much bigger: 0.000897.

violence intensity of an increase in percentage of Protestants in neighboring wards. Further, this effect is significant for most of the values of the percentage of Catholics variable, except those between approximately 40 and 50 percent. Conversely, the smaller the percentage of Catholics in a ward, the stronger the negative effect of the average percentage of Protestants is. This implies that fewer sectarian incidents occur when a mostly Protestant ward is surrounded by other mostly Protestant wards. Note that it is precisely in those wards where Catholics represent about half of the population that the ethnic composition of neighboring wards has a negligible impact. In this situation violence levels may be higher due to intra-ward parity, as shown in Table I, yet neighbors' composition play little role. As wards are more ethnically homogeneous, neighbors' ethnic composition has an important effect, thus proving the existence of inter-ward dynamics, in addition to intra-ward dynamics, accounting for violence.

Figures 4 and 5 in here

Figure 5 shows the predicted number of violent events as a function of the two variables interacted in model 3. The darker contours on the upper-right and lower-left areas clearly reveal that more violent events are predicted to occur where an overwhelmingly Catholic ward has neighboring wards that are overwhelmingly Protestant –and vice versa. For example, a ward with 90% of Catholics whose neighbors have on average 90% of Protestant is predicted to have more than 12 incidents. In contrast, the lowest predicted number of incidents is found in highly homogeneous Catholic (Protestant) wards surrounded by highly homogenous Catholic (Protestant) wards (upper-left and lower right areas).

Note that those wards with 40-60% of Catholics are not where the highest predicted levels of violence are found.[53] These are the wards where our parity index takes highest values and where, according to the results reported in Figure 3 (left panel), the number of incidents predicted are about 4.[54] The evidence in Figure 5 manifests that inter-ward rivalries generate more predicted violent events than within ward rivalries. This may be explained by both the strategic and opportunistic factors underlying sectarian violence. On the strategic

[53] According to these results, wards with 40-60% of Catholics have on average about 3 predicted incidents.
[54] See Figures A2 in the Appendix.

side, there might be more incidents of interward violence because maintaining an area cleansed and consolidating borders may require ongoing vigilance, which may lead to recurrent violence. On the opportunistic side, the existence of segregated communities may allow individuals to more easily carry out 'cross-border raids' and return to the safety of their area.

In models 4 and 5 (Table II), we use two alternative measures of neighboring wards' ethnic composition and potential rivalry to further test hypothesis 3. First, in model 4, instead of using the average percentage of Protestants in neighboring wards, we use the maximum observed percentage of Protestants among all the neighboring wards. For example, if a ward has two neighbors and one has 60% Protestants and the other has 40% Protestants, here we take 60% (in the previous models, we would take the average between these two, 50%). The estimates are similar to those in model 3, although the coefficient of the interactive term is slightly smaller. Secondly, in model 5 we test another measure of inter-ward rivalry by running a model in which the number of neighboring wards with a majority of Protestants is interacted with a dummy that captures wards with a Catholic majority. A ward is considered to be mostly Catholic and, hence, coded 1, if the percentage of Catholics is higher than 50%. We obviously use the same threshold to identify mostly Protestant neighboring wards. The results are consistent with our expectations: the number of incidents increases in wards that are mostly Catholic (>50%) and that have a higher number of neighboring wards that are mostly Protestant (>50%).[55]

Model 6 adds the parity index to the baseline model. Parity is still positive and significant, and so is the interaction between the percentage of Catholics and average percentage of Protestants in neighboring wards, which suggests that both mechanisms (intra-ward and inter-ward ethnic composition) are explaining sectarian violence. However, the coefficients are much smaller than in the previous model due to the correlation existing between parity and the percentage of Catholics – as the latter is used to compute the former.

We add a control for the (logged) number of peace-lines in a ward in model 7. Note that, compared to model 1, once we control for neighbors' characteristics, the coefficient for peace-lines is insignificant. To further test if peace-lines reduce the number of incidents by separating rival wards, in model 8 we include a three-way interaction between percentage of Catholics, average percentage of Protestants in neighboring wards, and the number of peace-lines in a ward. Earlier on, we observed that peace-lines do not reduce violence in wards with

[55] We get a stronger result if we use a 60% threshold to identify mostly Catholic and Protestant wards. See model 5 in Table A3.

parity (model 2 in Table A3). However, peace-lines might serve to separate highly homogeneous but rival wards; in other words, peace-lines may reduce violence if they stand between a Catholic community and a Protestant one and so hinder inter-ward contact.[56] The results in model 7 suggest this is the case. The coefficient of the triple interaction is negative and highly significant.[57] These results should be interpreted with caution though; since the number of wards with peace-lines is small (29) and peace-lines are endogenous to violence.[58]

Robustness Checks

The main findings from our baseline models (Table I model 5 and Table II model 3) are robust to a number of changes to the specification which we briefly describe here but are reported in the Appendix.

First, to ensure that our results are not dependent on the specific model specifications reported above, we estimate our baseline models without control variables and year and LGD fixed-effects. The results are shown in Table A2 in the Appendix and reveal that the main findings are not dependent on the inclusion of any specific control or fixed-effects. Models 1-3 report the results for parity (Table I column 5) without controls and fixed-effects, without controls but including year and LGD fixed-effects, and with controls but without year and LGD fixed-effects. Models 4-6 do the same for the model testing inter-ward dynamics (Table II column 3).

Second, in Table A3 we report a series of models with additional control variables. On the one hand, the positive impact of intra-ward parity is robust to the inclusion of two extra control variables. The first is a dummy variable indicating wards that are 'urban' (compared to rural or mixed). The second is an alternative measure of economic scarcity, namely, the number of people claiming welfare assistance with their housing costs (as a percentage of a ward's population).[59] Our main results remain unchanged (see model 3 of Table A3). The 'urban' dummy is highly correlated with the size of wards in square

[56] Mueller, Rohner & Schoenholzer (2013) have examined the placement of peace lines during the conflict and show that they are predicted by boundaries between homogeneous Catholic and homogeneous Protestant wards.
[57] The coefficient of the constitutive term, 'peace lines', is also negative and significant.
[58] The impact of peace-lines would require further research that is beyond the scope of this paper. A careful examination of the marginal effects of the (logged) number of peace-lines reveals that they only have a negative effect in very extreme cases: wards with a majority of Catholics above 60 percent whose neighboring wards have on average more than 65 percent of Protestants. The marginal effect only becomes significant (at the 10% level) for those wards with a Catholic population of more than 70 percent whose neighboring wards have an average percentage of Protestants of more than 70 percent. The opposite is also true: the negative effect becomes significant when the percentage of Catholics is lower than 30 percent and the average percentage of Protestants is lower than 30 percent approximately.
[59] Both variables are from the NISRA.

kilometers (ρ = -0.87) and it is not significant. When the latter is excluded from the model, the 'urban' dummy is positive and significant. The impact of the alternative poverty measure is positive and significant. However, the 'housing benefits' variable is highly correlated with unemployment (ρ = 0.77), and that is why we exclude it from the main models.

The baseline model testing the existence of cross-ward violence (Table II column 3) is also robust to the inclusion of these two extra controls (urban dummy and housing benefits claimants) plus a dummy variable indicating if a ward borders with the Republic of Ireland (to capture the possibility of cross-border group activity). Bordering the Republic of Ireland, which has been pinpointed as an explanatory factor of violence during 'the Troubles' (Mueller, Rohner & Schoenholzer, 2013), has no significant effect for the post-conflict period under study. The inclusion of these three controls does not alter our main result (see Table A3 column 4). Further, model 7 (Table A3) reports the results of this same baseline model including two control variables capturing sectarian parties' electoral results at the LGD level. Concretely, we include the percentage of seats won by nationalist parties (i.e., Sinn Féin and the SDLP) and the percentage won by unionist parties (i.e., DUP, UUP, PUP, UDP, UKUP, and UUAP). The inclusion of these controls does not affect our main result and reveals that political representation does not reduce violence at the ward level.[60]

Third, we show that our findings are not driven by a few influential cases. In particular, we have re-run our baseline models excluding Derry and Belfast, which are the two most populated cities in Northern Ireland and where sectarian violence has been traditionally higher. Table A4 reports the results and shows that the main findings are robust to the exclusion of these cases from the sample and even stronger for the case of inter-ward dynamics.

Fourth, the likelihood ratio tests of the models above show that the over-dispersion parameter is non-zero, which clearly indicate that the negative binomial model is more appropriate than the Poisson model. Given that standard negative binomial regression models already account for overdispersion and that we do not consider zero counts to be caused by a separate process, we do not use zero-inflated models in our main estimations. However, to check the robustness of our results, Table A5 in the online Appendix reports our main models estimated using zero-inflated negative binomial regression. Again, our main findings remain largely unaltered.

[60] The impact of these electoral variables should be interpreted with caution due to potential reversed causality.

Finally, we report models estimated using negative binomial models for panel data with *ward* random- and fixed-effects. Further, the baseline models have been also re-run using ward dummies instead of LGD fixed-effects.[61] Yet, as remarked above, these models are highly problematic in dealing with unit effects because our main independent variables barely vary over time.[62] Nonetheless, we report these models in the Appendix to prove that the main findings are not model dependent. The reported results in Table A6 show that, despite these caveats, the impact of parity and the interaction between the percentage of Catholics in a ward and the average percentage of Protestants in neighboring wards are both positive and significant. As expected, the estimated effects are smaller though.

Conclusions

This article explores the determinants of low-intensity intergroup violence, focusing on the prominent case of Northern Ireland. We have hypothesized that where individuals of different ethnic groups are in contact with each other, and where groups have similar sizes, violence is greater both for *strategic* and *opportunistic* reasons. We find that violence is more frequent in mixed wards, and in particular where there is ethnic parity between groups. Yet, we also find that even when one ward's composition tends to be homogeneous, violence takes place if the ward borders other wards that are, on average, rival. In addition, we find that violence is more frequent in a homogeneous ward if it borders one ward with a large proportion of members of the rival community, and if it has many neighboring wards that are predominantly rival. These neighboring effects are related to the motives and opportunities for violence that emerge when there is contact between segregated communities.

These results have some noteworthy policy implications: individuals and authorities in Northern Ireland seem to perceive relocation and segregation as a way to stay safe from sectarian violence (Jarman, 2005: 432).[63] However, we observe that segregation does not solve the problem of sectarian violence because communities are still in contact with one another and violence takes place across ward borders.[64] In fact, our findings suggest that sectarian violence reaches higher levels when it takes place across segregated wards, as opposed to when it takes place within ethnically divided wards. Thus, segregation might be

[61] Besides, in these models (3 and 6), errors are clustered at ward level.
[62] Recall that census data is only collected every 10 years (2001 and 2011 within the period for which sectarian violence data is available).
[63] See also Kaufmann, 1998.
[64] Note that this is quite consistent with what Olzak, Shanahan & McEneaney (1996) find in US cities.

worsening sectarian violence rather than the other way around. In addition, we find that unemployment worsens sectarian violence, which suggests that better economic conditions, as well as better access to public goods and services, are likely to improve inter-ethnic relations.

We also observe that civil war-related factors such as deaths during 'the Troubles' have an impact in sectarian violence events. This implies that these legacies of the civil war linger into the post-conflict period. Even if this is consistent with the existing literature on post-civil war, our results indicate that the effect of the conflict legacies is independent of the effect of current ethnic composition of territorial units. Indeed, the correlation between previous and current violence is not perfect, and the inclusion of the previous violence variable in the models does not eliminate the effect of our main independent variables.

At the methodological level, our analyses are relevant because they suggest that we need to give careful thought to the unit of analysis. Scholars of civil war and genocidal violence have considered that the community (i.e. the local level) is the relevant unit for understanding these phenomena, but this might not be the case for other types of violence.[65] Our analyses of Northern Ireland suggest that for this particular type of low-intensity violence the ward level is the appropriate level of analysis: we would not have been able to fully understand the dynamics of sectarian violence if we had made the analyses at a greater level of aggregation or if we had worked at the ward level but had not taken into account neighboring dynamics. Finally, our micro-level analyses have some macro-level implications: on the one hand, they show that postwar settings can be affected by low-intensity violence phenomena, which are likely to have their own determinants and dynamics; on the other hand, they suggest that segregation is not a solution for ethnic conflict.

[65] Wilkinson (2004) focuses on the state level in order to understand riots in India.

References

Balcells, Laia (2010) Rivalry and Revenge: Violence against Civilians in Conventional Civil Wars. *International Studies Quarterly* 54 (2): 291-313.

Balcells, Laia & Patricia Justino (2014) Bridging Micro and Macro Approaches on Civil Wars and Political Violence: Issues, Challenges, and the Way Forward. *Journal of Conflict Resolution* 58(8): 1-17.

Barlow, Fiona Kate; Stefania Paolini, Anne Pedersen, Matthew J. Hornsey, Helena RM Radke, Jake Harwood, Mark Rubin & Chris G. Sibley. (2012) The Contact Caveat Negative Contact Predicts Increased Prejudice More Than Positive Contact Predicts Reduced Prejudice. *Personality and Social Psychology Bulletin* 38(12): 1629-1643.

Bell, John; Neil Jarman & Brian Harvey (2010) *Beyond Belfast: Contested Spaces in Urban, Rural and Cross Border Settings* Belfast: Community Relations Council.

Byrne, Johnny (2005) *Interface Violence in East Belfast in 2002: The impact on residents of Short Strand and Inner East Belfast* Belfast: Institute for Conflict Research

Collier, Paul; Anke Hoeffler & Dominic Rohner (2009) Beyond Greed and Grievance: Feasibility and Civil War. *Oxford Economic Papers*, 61(1): 1-27.

Cox, Michael; Adrian Guelke & Fiona Stephen (2000) *A Farewell to Arms? From 'long war' to long peace in Northern Ireland*. Manchester: Manchester University Press.

Dancyiger, Rafaela (2010) *Immigration and Conflict in Europe.* New York: Cambridge University Press.

Darby, John (1995) Conflict in Northern Ireland: A background essay. In: Seamus Dunn (ed.) *Facets of the conflict in Northern Ireland.* Basingstoke: Macmillan Press.

Darby, John (2003) *Northern Ireland: The background to the Peace Process*. http://cain.ulst.ac.uk/events/peace/darby03.htm#5.

De la Calle, Luis (2007) Fighting for Local Control: Street Violence in the Basque Country. *International Studies Quarterly*, 51(2): 431-455.

Esteban, Joan & Debraj Ray (2008) Polarization, Fractionalization and Conflict. *Journal of Peace Research*, 45(2): 163-182.

Farrell, Sean (2000) *Rituals and Riots: Sectarian Violence and Political Culture in Northern Ireland, 1784-1886.* Lexington, KY: The University Press of Kentucky.

Fitzduff, Mari & Liam O'Hagan (2009) *The Northern Ireland Troubles: INCORE Background Paper (2009)*. Londonderry: INCORE.

Gallagher Cunningham, Kathleen & Nils Weidmann (2010) Shared Space: Ethnic Groups, State Accommodation, and Localized Conflict. *International Studies Quarterly* 54(4): 1035-1054.

Grandi, Francesca (2013) Why do victors kill the vanquished? Explaining political violence in post-World War II Italy. *Journal of Peace Research* 50(5): 577-593.

Herreros, Francisco (2011) Peace of cemeteries: Civil-war dynamics in post-war states' repression. *Politics and Society* 39(2): 175-202.

Home Office (2011) *The National Standard for Incident Recording 2011*. London: Home Office.

Humphreys, Macartan & Jeremy Weinstein (2008) Who Fights? The Determinants of Participation in Civil War. *American Journal of Political Science* 52(2): 436–455.

Jarman, Neil (2005) *No Longer a Problem? Sectarian Violence in Northern Ireland*. Belfast: Institute for Conflict Research.

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

Kaufman, Chaim (1998) When All Else Fails: Ethnic Population Transfers and Partitions in the Twentieth Century. *International Security* 23(2): 120-156.

Lansford, Tom (2013) *Political Handbook of the World 2013.* Thousand Oaks, CA: CQ Press

Lim, May; Richard Metzler & Yaneer Bar-Yam (2007) Global Pattern Formation and Ethnic/Cultural Violence. *Science* 317(5844): 1540-1544.

Mallie, Eamonn & Peter McKittrick (1996) *Fight for Peace: Secret Story Behind the Peace Process*. London: Heinemann.

McDoom, Omar (2013) Who killed in Rwanda's genocide? Micro-space, social influence and individual participation in intergroup violence. *Journal of Peace Research* 50(4): 453-467.

Mueller, Hannes; Dominic Rohner & David Schoenholzer (2013) Tectonic Boundaries and Strongholds: The Religious Geography of Violence in Northern Ireland. HEC Working paper 13.04. http://www.hec.unil.ch/deep/textes/13.04.pdf

Northern Ireland Policing Board (2013) *Public Perceptions of the Police* Belfast: NI Policing Board

O'Leary, Brendan & John McGarry (1993) *Politics of Antagonism: Understanding Northern Ireland*. London: Athlone Press.

Olzak, Susan; Suzanne Shanahan & Elizabeth McEneaney (1996) Poverty, Segregation, and Race Riots: 1960-1993. *American Sociological Review* 61(4): 590-613.

Paolini, Stefania; Jake Harwood & Mark Rubin (2010) Negative intergroup contact makes group memberships salient: Explaining why intergroup conflict endures. *Personality and Social Psychology Bulletin* 36(12): 1723-1738.

Petersen, Roger (2001) *Resistance and Rebellion: Lessons from Eastern Europe.* New York: Cambridge University Press.

Posen, Barry (1993) The security dilemma and ethnic conflict. Pp. 103-124 in *Ethnic Conflict and International Security*, ed. M. Brown. Princeton: Princeton University Press.

PSNI (Police Service of Northern Ireland) (2013a) *Trends in Hate Motivated Incidents and Crimes 2004/05-2012/13*. Belfast: PSNI

PSNI (Police Service of Northern Ireland) (2013b) *User Guide to Recorded Crime Statistics in Northern Ireland*. Belfast: PSNI

Reno, William (2011) *Warfare in Independent Africa.* New York: Cambridge University Press.

Reynal-Querol, Marta (2002) Ethnicity, Political Systems, and Civil Wars. *Journal of Conflict Resolution* 46(1): 29-54.

Shirlow, Peter & Brendan Murtagh (2006) *Belfast. Segregation, Violence and the City.* London: Pluto Press.

Smith, Laura M.; Andrea L. Bertozzi, P. Jeffrey Brantingham, George E. Tita & Matthew Valasik (2012) Adaptation of an ecological territorial model to street gang spatial patterns in Los Angeles. *Discrete and Continuous Dynamical Systems* 32(9): 3223-44.

Steele, Abbey (2010) Unsettling: Displacement during Civil Wars. PhD Dissertation, Department of Political Science, Yale University.

Sullivan, Christopher M.; Cyanne E. Loyle & Christopher Davenport (2012) The Coercive Weight of the Past: Temporal Dependence and the Conflict-Repression Nexus in the Northern Ireland 'Troubles'. *International Interactions* 38(4): 426-442.

Sutton, Malcolm (2010) *Index of Deaths (1969-2001)*, version 06/07/2010 http://cain.ulst.ac.uk/sutton/.

Thompson, J.L.P. (1989) Deprivation and Political Violence in Northern Ireland, 1922-1985: A Time-Series Analysis. *Journal of Conflict Resolution* 33(4): 676-699.

Toft, Monica (2002) Indivisible Territory, Geographic Concentration, and Ethnic War. *Security Studies* 12(2): 82-119

Valentino, Benjamin (2004) *Final Solutions. Mass Killing and Genocide in the 20th Century.* Ithaca: Cornell University Press.

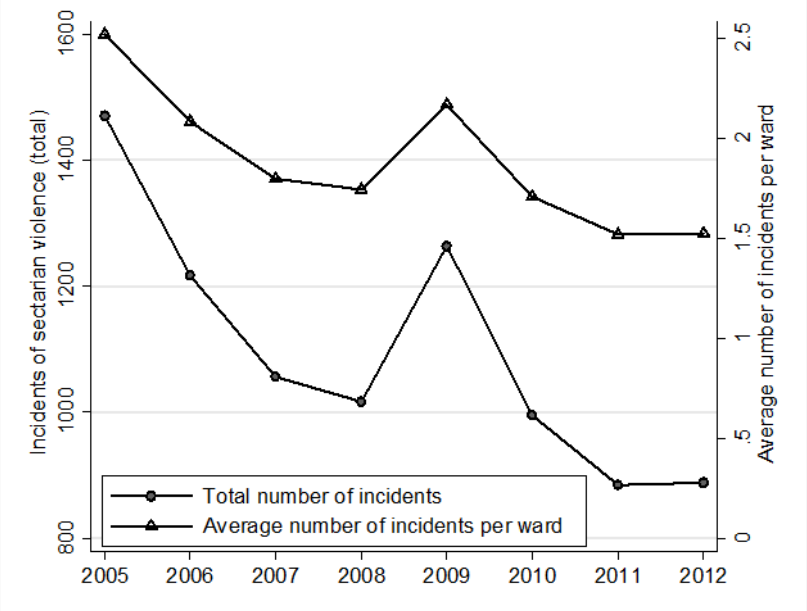
Varshney, Ashutosh (2002) *Ethnic Conflict and Civic Life: Hindus and Muslims in India*. New Haven: Yale University Press.

Weidmann, Nils B. (2011) Violence 'from above' or 'from below'? The Role of Ethnicity in Bosnia's Civil War. *The Journal of Politics* 73(4): 1178-90.

Wilkinson, Steven I. (2004) *Votes and Violence: Electoral Competition and Ethnic Riots in India.* New York: Cambridge University Press.

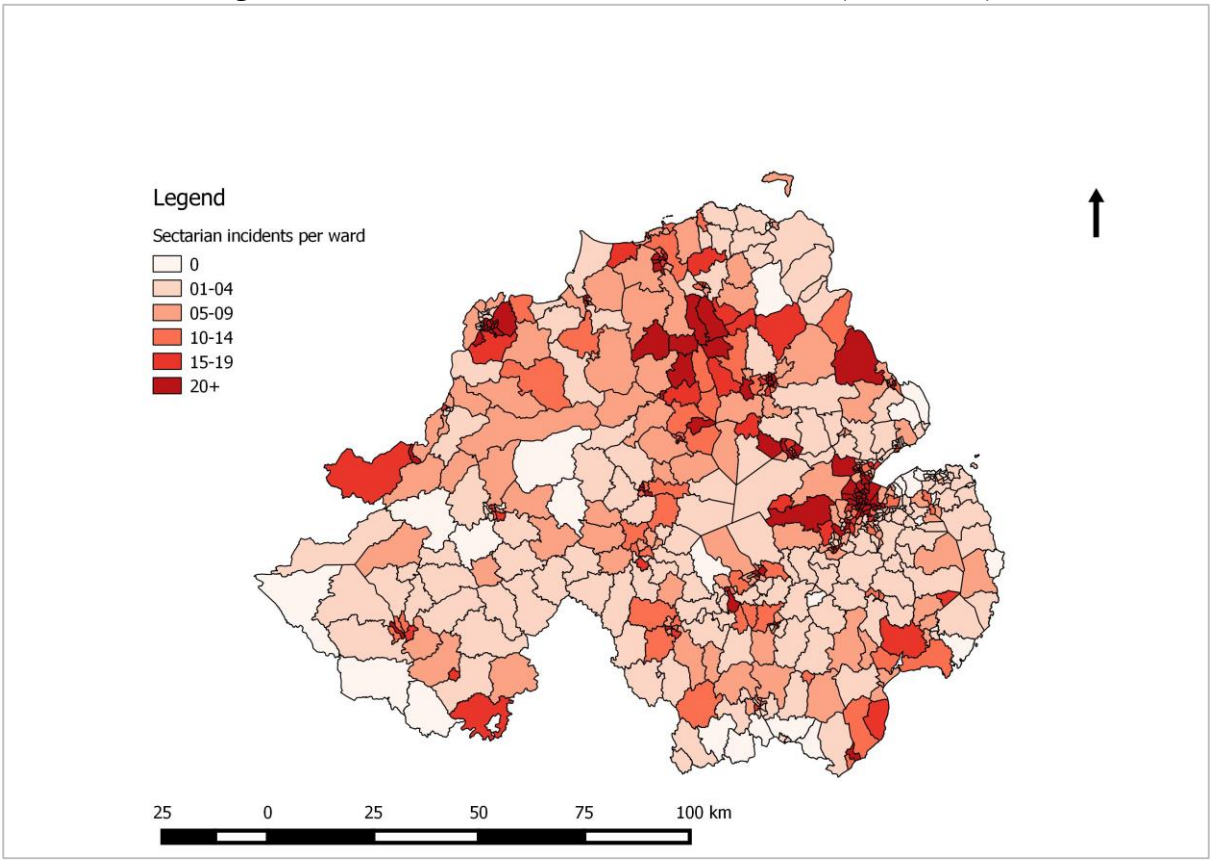
TABLES AND FIGURES

Figure 1. Sectarian violence in Northern Ireland (2005-2012)



Authors'elaboration. Source: Northern Ireland Statistics and Research Agency.

Figure 2. Sectarian Violence in Northern Ireland (2005-2012)



Authors' elaboration. Source: Northern Ireland Statistics and Research Agency; Map © Crown Copyright

Figure 3. The impact of parity and unemployment on the predicted number of incidents

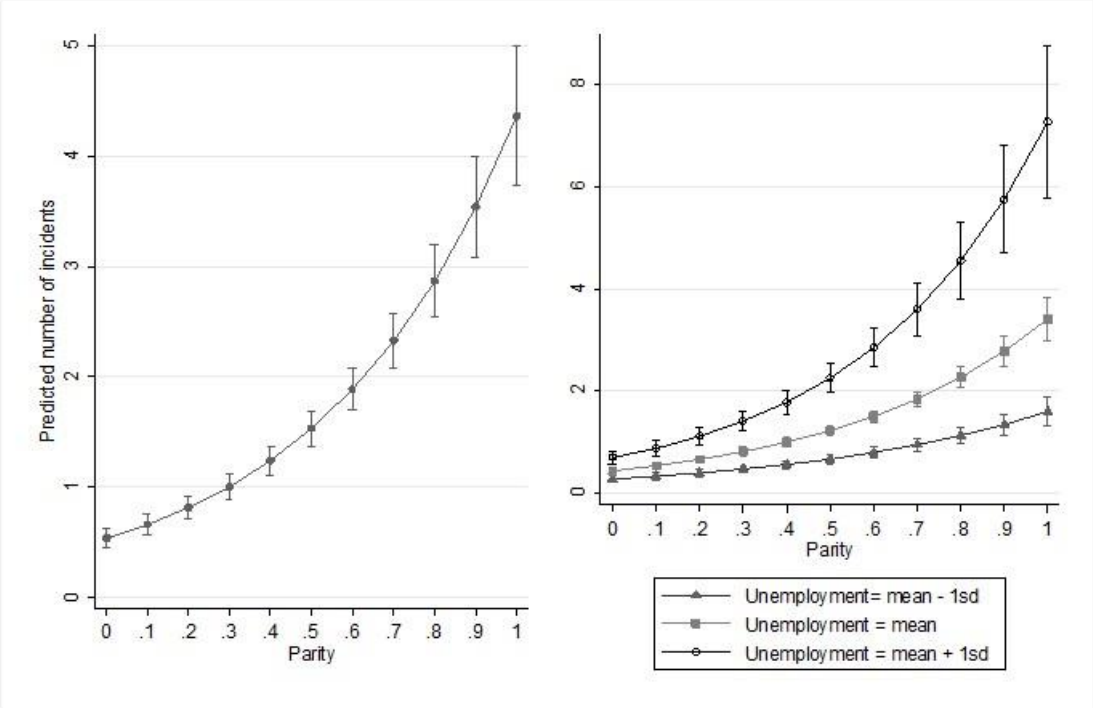


Figure 4. Change in the marginal effect of the average percentage of Protestants in neighboring wards as the percentage of Catholics in a given ward changes

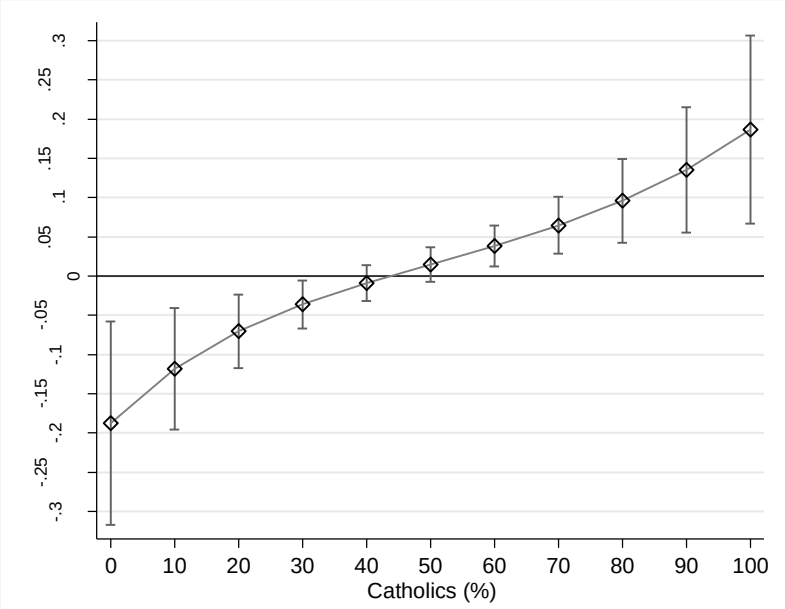


Figure 5. Predicted number of incidents: the effect of within ward ethnic composition and neighboring wards ethnic composition

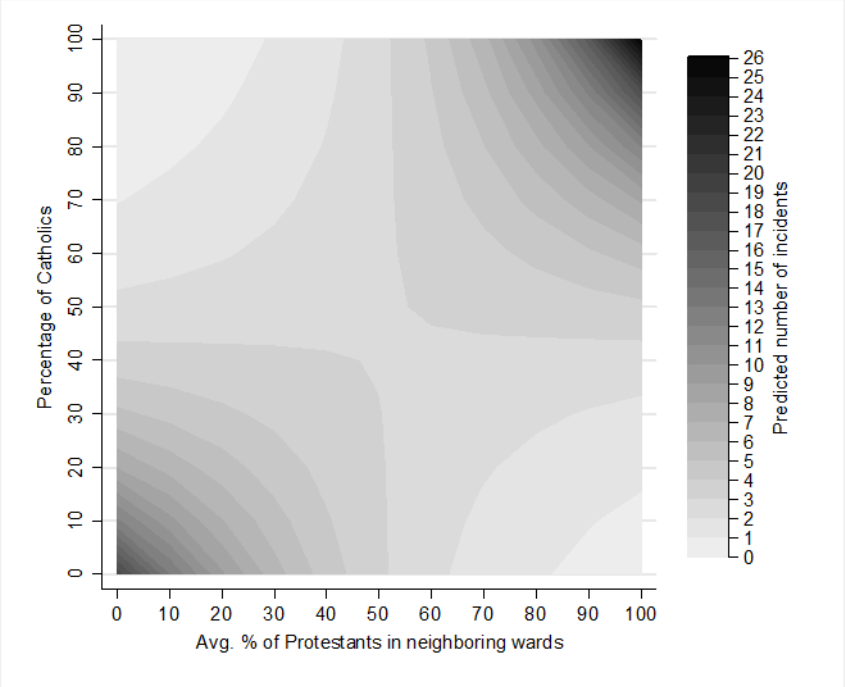


Table I. Intra-ward dynamics: Post-conflict sectarian incidents (2005-2012) and wards' characteristics

	DV: Incidents of sectarian violence (2005-2012)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sq. Km. (log)	-0.22**	-0.22**	-0.21**	-0.20**	-0.20**	-0.21**	-0.19**
	(0.035)	(0.035)	(0.029)	(0.029)	(0.028)	(0.028)	(0.028)
Population (log)	0.47*	0.48*	0.78**	0.81**	0.68**	0.71**	0.70**
	(0.20)	(0.20)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Males 16-39 (%)	0.033+	0.035+	-0.019	-0.018	-0.025	-0.023	-0.026
	(0.019)	(0.019)	(0.017)	(0.015)	(0.016)	(0.015)	(0.016)
Unemployment (%)	0.15**	0.15**	0.25**	0.25**	0.24**	0.24**	0.18**
	(0.026)	(0.026)	(0.022)	(0.022)	(0.022)	(0.021)	(0.027)
Conflict deaths (log)	0.20**	0.20**	0.23**	0.23**	0.19**	0.20**	0.20**
	(0.063)	(0.063)	(0.047)	(0.048)	(0.047)	(0.047)	(0.048)
Catholics (%)	-0.0048*		0.074**				
	(0.0020)		(0.0048)				
Protestants (%)		0.0050*		0.089**			
		(0.0021)		(0.0053)			
Catholics (%)^2			-0.00081**				
			(0.000048)				
Protestants (%)^2				-0.00086**			
				(0.000051)			
Parity					2.10**		1.59**
					(0.13)		(0.19)
Polarization						2.30**	
						(0.14)	
Parity*Unemployment							0.12**
							(0.038)
Constant	-3.00*	-3.52*	-6.16**	-7.00**	-5.60**	-5.98**	-5.46**
	(1.50)	(1.58)	(1.19)	(1.25)	(1.18)	(1.18)	(1.18)
Log(dispersion)	0.27**	0.27**	-0.095	-0.080	-0.076	-0.085	-0.091
	(0.062)	(0.062)	(0.061)	(0.061)	(0.062)	(0.061)	(0.062)
LGD fixed-effects	Y	Y	Y	Y	Y	Y	Y
Year fixed-effects	Y	Y	Y	Y	Y	Y	Y
N	4656	4656	4656	4656	4656	4656	4656
Log-likelihood	-7153.5	-7153.1	-6837.6	-6849.8	-6855.4	-6848.4	-6845.9

Clustered standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table II. Inter-ward dynamics: Post-conflict sectarian incidents (2005-2012), wards' and neighboring wards' characteristics

	DV: Number of incidents of sectarian violence (2005-2012)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sq. Km. (log)	-0.21**	-0.21**	-0.25**	-0.24**	-0.25**	-0.21**	-0.25**	-0.25**
	(0.032)	(0.040)	(0.035)	(0.036)	(0.040)	(0.033)	(0.035)	(0.034)
Population (log)	0.61**	0.48*	0.66**	0.57**	0.47*	0.77**	0.63**	0.68**
	(0.15)	(0.19)	(0.17)	(0.18)	(0.19)	(0.15)	(0.17)	(0.17)
Males 16-39 (%)	0.0010	0.043*	0.015	0.022	0.041*	-0.0066	0.020	0.013
	(0.016)	(0.019)	(0.018)	(0.018)	(0.020)	(0.016)	(0.018)	(0.018)
Unemployment (%)	0.18**	0.12**	0.17**	0.15**	0.12**	0.21**	0.16**	0.16**
	(0.021)	(0.025)	(0.026)	(0.025)	(0.028)	(0.022)	(0.023)	(0.022)
Conflict deaths (log)	0.10*	0.13*	0.15**	0.17**	0.14*	0.16**	0.14**	0.14**
	(0.046)	(0.062)	(0.050)	(0.055)	(0.058)	(0.047)	(0.050)	(0.050)
Incidents in neighbors (avg.)	0.080**	0.12**	0.057**	0.057**	0.10**	0.070**	0.053**	0.052**
	(0.011)	(0.016)	(0.014)	(0.014)	(0.015)	(0.012)	(0.014)	(0.013)
Neighbors (nº)	0.028	0.036	0.045+	0.045*	0.064+	0.027	0.046*	0.049*
	(0.020)	(0.026)	(0.023)	(0.023)	(0.036)	(0.020)	(0.023)	(0.022)
Parity	1.95**					1.51**		
	(0.12)					(0.17)		
Catholics (%)		-0.0028	-0.042**			-0.019**	-0.041**	-0.046**
		(0.0023)	(0.0038)			(0.0042)	(0.0037)	(0.0036)
Avg. % Protestants in neighboring wards		0.0034	-0.035**			-0.013**	-0.035**	-0.038**
		(0.0034)	(0.0048)			(0.0047)	(0.0047)	(0.0046)
Catholics (%)*Avg. Prot.			0.00081**			0.00031**	0.00079**	0.00089**
			(0.000067)			(0.000080)	(0.000065)	(0.000066)
Max. % of Prot. in neighbors				-0.038**				
				(0.0058)				
Catholics (%)*Max. % Prot.				0.00069**				
				(0.000072)				
Catholic ward (>50%)					-0.96**			
					(0.17)			
Nº Prot. neighbors (>50%)					-0.097*			
					(0.039)			
Catholic*Prot. neighbors					0.34**			
					(0.056)			
Peace lines (log)	0.40**						0.22	-1.86**
	(0.11)						(0.18)	(0.56)
Catholics(%)*Peace-lines								0.036**
								(0.0095)
Av. Prot.*Peace-lines								0.042**
								(0.015)
Catholics*Avg. Prot.*Peace-lines								-0.00078**
								(0.00023)
Constant	-5.63**	-3.98**	-2.82*	-1.16	-3.44*	-5.67**	-2.64*	-2.87*
	(1.13)	(1.43)	(1.18)	(1.35)	(1.42)	(1.12)	(1.18)	(1.19)
Log(dispersion)	-0.19**	0.16*	-0.062	0.017	0.11	-0.20**	-0.068	-0.12+
	(0.068)	(0.065)	(0.068)	(0.069)	(0.069)	(0.068)	(0.068)	(0.072)
LGD fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed-effects	Y	Y	Y	Y	Y	Y	Y	Y
N	4656	4656	4656	4656	4656	4656	4656	4656
Log-likelihood	-6770.0	-7058.5	-6841.4	-6899.5	-7001.6	-6754.2	-6837.9	-6805.6

Clustered standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

ONLINE APPENDIX

Table A1. Descriptive statistics of core variables in the models (2005-2012)

Variable	Observations	Mean	Std. deviation	Min.	Max.
Sectarian violence	4656	1.88	4.67	0	78
Log square kilometers	4656	2.21	1.49	0.17	5.33
Log population	4656	7.95	0.37	6.57	9.19
Urban ward	4656	0.52	0.49	0	1
Border with Rep. of Ireland	4656	0.05	0.21	0	1
Males 16-39 (%)	4656	16.38	2.66	9	37.07
Unemployment (%)	4656	3.72	2.53	0.3	17.1
Housing benefits (%)	4656	7.87	5.99	0.28	35.28
Conflict deaths (log)	4656	1.14	1.09	0	5.03
Parity	4656	0.60	0.30	0.03	1
Polarization	4656	0.61	0.28	0.04	0.99
Catholics (%)	4656	43.35	31.93	0.90	99.04
Protestants (%)	4656	52.98	30.32	0.66	97.05
Catholic ward (>50%)	4656	0.39	0.49	0	1
Nº of Prot. (>50%) neighboring wards	4656	3.03	2.18	0	11
Catholic ward (>60%)	4656	0.33	0.47	0	1
Nº of Prot. (>60%) neighboring wards	4656	2.57	2.21	0	11
Avg. % of Prot. in neighboring wards	4656	53.49	24.13	1.54	94.72
Avg. % of Cath. in neighboring wards	4656	42.85	25.77	2.53	98.04
Max % of Prot. in neighboring wards	4656	73.05	22.72	2.11	97.05
Avg. nº of incidents in neighboring wards	4656	1.86	3.02	0	44
Number of neighboring wards	4656	5.23	1.74	1	11
Log peace lines	4656	0.06	0.28	0	2.08
% of seats Republican parties (LGD)	4656	39.05	24.56	0	80
% of seats Loyalist parties (LGD)	4656	51.67	19.90	13.33	83.33

Table A2. Robustness tests: Excluding controls and year and LGD fixed-effects

	DV: Number of incidents of sectarian violence (2005-2012)					
	(1)	(2)	(3)	(4)	(5)	(6)
Sq. Km. (log)			-0.33**			-0.23**
			(0.030)			(0.036)
Population (log)			0.31*			0.083
			(0.14)			(0.14)
Males 16-39 (%)			0.032			0.060**
			(0.020)			(0.022)
Unemployment (%)			0.085**			0.066**
			(0.016)			(0.016)
Conflict deaths (log)			0.35**			0.11*
			(0.047)			(0.050)
Parity	0.91**	1.54**	1.85**			
	(0.28)	(0.15)	(0.16)			
Incidents in neighbors (avg.)						0.15**
						(0.018)
Neighbors (nº)						0.033
						(0.028)
Catholics (%)				-0.034**	-0.035**	-0.033**
				(0.0057)	(0.0038)	(0.0036)
Avg. % of Protestants in neighboring wards				-0.037**	-0.034**	-0.027**
				(0.0052)	(0.0047)	(0.0041)
Catholics(%)*Avg. Prot.				0.00078**	0.00079**	0.00067**
				(0.00010)	(0.000071)	(0.000066)
Constant	0.046	-0.19	-3.91**	2.60**	2.59**	-0.11
	(0.21)	(0.23)	(1.09)	(0.40)	(0.37)	(1.03)
Log(dispersion)	1.03**	0.35**	0.42**	0.90**	0.30**	0.23**
	(0.075)	(0.064)	(0.060)	(0.085)	(0.070)	(0.069)
LGD fixed-effects	N	Y	N	N	Y	N
Year fixed-effects	N	Y	N	N	Y	N
N	4656	4656	4656	4656	4656	4656
Log-likelihood	-7997.9	-7218.7	-7343.2	-7834.3	-7185.1	-7120.5

Clustered standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A3. Robustness tests: Alternative specifications

	DV: Number of incidents of sectarian violence (2005-2012)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sq. Km. (log)	-0.20**	-0.21**	-0.12*	-0.20**	-0.21**	-0.25**	-0.25**
	(0.028)	(0.032)	(0.050)	(0.066)	(0.038)	(0.035)	(0.035)
Population (log)	0.68**	0.60**	0.82**	0.71**	0.50**	0.65**	0.62**
	(0.16)	(0.15)	(0.16)	(0.16)	(0.19)	(0.17)	(0.17)
Males 16-39 (%)	-0.040	0.0011	-0.016	0.015	0.036*	0.015	0.021
	(0.039)	(0.016)	(0.016)	(0.018)	(0.018)	(0.019)	(0.018)
Unemployment (%)	0.24**	0.17**	0.068*	0.074*	0.14**	0.17**	0.15**
	(0.022)	(0.021)	(0.029)	(0.031)	(0.027)	(0.025)	(0.023)
Conflict deaths (log)	0.19**	0.10*	0.15**	0.12*	0.16**	0.15**	0.14**
	(0.047)	(0.046)	(0.045)	(0.050)	(0.059)	(0.050)	(0.050)
Parity	1.76*	1.88**	2.11**				
	(0.82)	(0.12)	(0.12)				
Parity*Males 16-39	0.020						
	(0.049)						
Urban ward			0.011	0.024			
			(0.14)	(0.16)			
Housing benefits (%)			0.077**	0.044**			
			(0.011)	(0.011)			
Border with Rep. of Ireland				-0.083			
				(0.21)			
Peace-lines (log)		0.21					0.23
		(0.15)					(0.18)
Parity*Peace-lines		0.45					
		(0.30)					
Incidents in neighbors (avg.)		0.083**		0.053**	0.10**	0.057**	0.052**
		(0.011)		(0.014)	(0.016)	(0.014)	(0.014)
Neighbors (nº)		0.029		0.045+	0.073*	0.045*	0.046*
		(0.020)		(0.024)	(0.033)	(0.023)	(0.023)
Catholics (%)				-0.040**			-0.042**
				(0.0036)			(0.0037)
Avg. % of Prot. in neighboring wards				-0.035**			-0.035**
				(0.0047)			(0.0047)
Catholics*Avg. Prot.				0.00079**			0.00079**
				(0.000065)			(0.000065)
Catholic ward (>60%)					-1.05**		
					(0.13)		
Nº Prot. neighbors (>60%)					-0.10**		
					(0.034)		
Catholic*Prot. neighbors					0.37**		
					(0.079)		
Protestants (%)						-0.036**	
						(0.0041)	
Avg. % of Catholics in neighboring wards						-0.042**	
						(0.0049)	
Protestants*Avg. Cath.						0.00081**	
						(0.000065)	
Max. % of Prot. in neighbors							
Catholics*Max. % Prot.							
Republican parties seats (%)							0.019
							(0.014)
Loyalist parties seats (%)							0.027*
							(0.012)
Constant	-5.39**	-5.56**	-7.20**	-3.45**	-3.81**	-2.71*	-4.76**
	(1.27)	(1.12)	(1.22)	(1.20)	(1.41)	(1.29)	(1.62)
Log(dispersion)	-0.076	-0.20**	-0.14*	-0.075	0.081	-0.066	-0.070
	(0.062)	(0.068)	(0.062)	(0.071)	(0.067)	(0.068)	(0.068)
LGD fixed-effects	Y	Y	Y	Y	Y	Y	Y
Year fixed-effects	Y	Y	Y	Y	Y	Y	Y
N	4656	4656	4656	4656	4656	4656	4656
Log-likelihood	-6855.2	-6767.1	-6800.5	-6826.4	-6978.8	-6837.1	-6835.6

Clustered standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A4. Robustness tests: Excluding Belfast and Derry

	DV: Number of incidents of sectarian violence (2005-2012)	
	(1)	(2)
Sq. Km. (log)	-0.22**	-0.25**
	(0.030)	(0.036)
Population (log)	0.56**	0.65**
	(0.17)	(0.18)
Males 16-39 (%)	0.016	0.036
	(0.022)	(0.024)
Unemployment (%)	0.18**	0.18**
	(0.025)	(0.026)
Conflict deaths (log)	0.099+	0.14**
	(0.052)	(0.053)
Parity	1.88**	
	(0.13)	
Incidents in neighbors (avg.)		0.100**
		(0.020)
Neighbors (nº)		0.052*
		(0.024)
Catholics (%)		-0.047**
		(0.0042)
Average % of Protestants in neighboring wards		-0.041**
		(0.0048)
Catholics*Avg. Prot.		0.00087**
		(0.000079)
Constant	-4.99**	-2.94*
	(1.23)	(1.31)
Log(dispersion)	-0.042	-0.072
	(0.068)	(0.075)
LGD fixed-effects	Y	Y
Year fixed-effects	Y	Y
Sample	Excluding Belfast and Derry	Excluding Belfast and Derry
N	4008	4008
Log-likelihood	-5243.2	-5221.2

Clustered standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A5. Robustness tests: Zero-inflated negative binomial regression models

	DV: Number of incidents of sectarian violence (2005-2012)		
	(1)	(2)	(3)
Sq. Km. (log)	-0.33**	-0.22**	-0.21**
	(0.030)	(0.049)	(0.042)
Population (log)	0.29*	0.060	0.42+
	(0.14)	(0.16)	(0.22)
Males 16-39 (%)	0.034+	0.039	0.014
	(0.021)	(0.026)	(0.017)
Unemployment (%)	0.086**	0.048**	0.18**
	(0.016)	(0.017)	(0.026)
Conflict deaths (log)	0.36**	0.12*	0.10+
	(0.047)	(0.061)	(0.053)
Parity	1.75**		
	(0.17)		
Incidents in neighbors (avg.)		0.13**	0.049**
		(0.017)	(0.014)
Neighbors (nº)		0.026	0.046*
		(0.034)	(0.023)
Catholics (%)		-0.025**	-0.034**
		(0.0051)	(0.0050)
Average % of Protestants in neighboring wards		-0.020**	-0.032**
		(0.0045)	(0.0049)
Catholics*Avg. Prot.		0.00053**	0.00069**
		(0.000092)	(0.000080)
Constant	-3.69**	0.23	-1.17
	(1.10)	(1.17)	(1.59)
Inflate equation			
Conflict deaths (log)	-0.24	0.0028	-1.00*
	(0.16)	(0.23)	(0.45)
Parity	-27.7**		
	(8.04)		
Sq. Km. (log)		0.073	0.82*
		(0.20)	(0.37)
Population (log)		-0.30	-5.32
		(0.42)	(4.57)
Males 16-39 (%)		-0.19	
		(0.17)	
Unemployment (%)		-0.23*	0.088
		(0.10)	(0.18)
Incidents in neighbors (avg.)		-1.13**	-0.42**
		(0.32)	(0.15)
Neighbors (nº)		0.0019	
		(0.090)	
Catholics (%)		0.049+	0.12*
		(0.026)	(0.053)
Average % of Protestants in neighboring wards		0.040*	0.068
		(0.019)	(0.050)
Catholics*Avg. Prot.		-0.00077*	-0.0015**
		(0.00033)	(0.00043)
Constant	1.67+	2.20	17.2
	(0.94)	(3.49)	(37.0)
Log(dispersion)	0.39**	0.032	-0.21*
	(0.060)	(0.092)	(0.080)
LGD fixed-effects	N	N	Y
Year fixed-effects	N	N	Y
N	4656	4656	4656
Log-likelihood	-7333.6	-7078.6	-6779.4

Clustered standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A6. Robustness tests: Ward Random- and Fixed-effects

	DV: Number of incidents of sectarian violence (2005-2012)					
	(1)	(2)	(3)	(4)	(5)	(6)
Sq. Km. (log)	-0.22**	-0.15**	-0.73**	-0.21**	-0.14**	-1.02**
	(0.025)	(0.048)	(0.081)	(0.026)	(0.052)	(0.24)
Population (log)	0.34**	0.15	0.43	0.23*	0.051	0.16
	(0.099)	(0.17)	(0.48)	(0.096)	(0.17)	(0.47)
Males 16-39 (%)	0.0044	0.0076	-0.016	0.015	0.0099	0.00080
	(0.012)	(0.016)	(0.027)	(0.011)	(0.016)	(0.024)
Unemployment (%)	0.13**	0.094**	0.085**	0.13**	0.086**	0.099**
	(0.015)	(0.019)	(0.029)	(0.015)	(0.019)	(0.025)
Conflict deaths (log)	0.15**	0.047	0.74+	0.028	-0.099	1.87+
	(0.036)	(0.059)	(0.39)	(0.036)	(0.065)	(1.00)
Parity	1.43**	0.67**	1.21**			
	(0.11)	(0.19)	(0.39)			
Incidents in neighbors (avg.)				0.059**	0.057**	0.083**
				(0.0054)	(0.0062)	(0.014)
Neighbors (nº)				0.048*	0.016	-0.16
				(0.020)	(0.041)	(0.16)
Catholics (%)				-0.036**	-0.019**	-0.038*
				(0.0029)	(0.0053)	(0.015)
Avg. % of Prot. in neighboring wards				-0.033**	-0.023**	-0.021
				(0.0032)	(0.0056)	(0.015)
Catholics*Avg. Prot.				0.00068**	0.00037**	0.00041+
				(0.000047)	(0.000086)	(0.00022)
Constant	-3.10**	-0.99	-2.88	0.26	1.50	2.75
	(0.78)	(1.30)	(3.88)	(0.75)	(1.33)	(4.21)
Log(dispersion)			-1.11**			-1.20**
			(0.086)			(0.094)
Unit effects	RE	FE	FE (ward dummies)	RE	FE	FE (ward dummies)
Year fixed-effects	Y	Y	Y	Y	Y	Y
N	4656	4344	4656	4656	4344	4656
Log-likelihood	-6810.0	-4861.5	-6038.8	-6710.8	-4814.0	-5991.9

Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. In models 3 and 6 errors are clustered at ward level.

Figure A1. Scatter plot: Relationship between the percentage of Catholics and the percentage of Protestants within wards (top panel), and between the parity and polarization indexes (bottom panel)

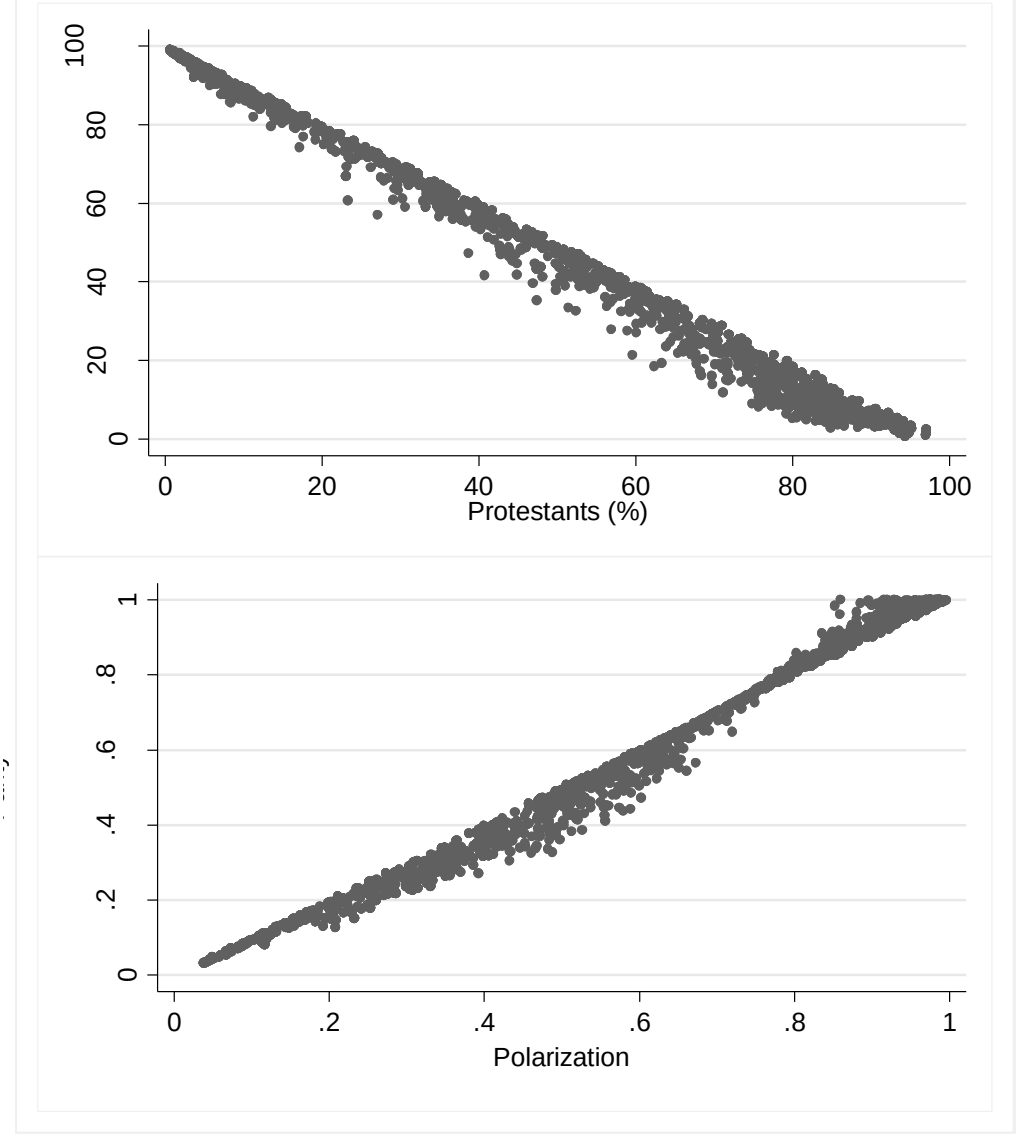


Figure A2. Scatter plots: Parity and percentages of Catholics and Protestants at ward level