Appendix: Contentious rituals and inter-group relations

Contents

1 Irish Contentious Parade (ICP) dataset **A2**
- 1.1 Inclusion criteria . . . A2
- 1.2 Data cleaning . . . A3
- 1.3 Geo-location . . . A3
- 1.4 Coding Protestant versus Catholic parades . . . A4

2 Ethical considerations **A5**
- 2.1 Informed consent . . . A5
- 2.2 Access and recruitment . . . A6
- 2.3 Mitigation of risks . . . A6
- 2.4 Reflexivity statements . . . A6

3 Guiding questions for participant observation **A7**

4 Thematic coding for fieldwork interviews **A8**

5 Pooled surveys **A10**
- 5.1 Dependent variables . . . A10
- 5.2 Alternative model specifications . . . A14
- 5.3 Views on parading . . . A18

6 Beyond conflict survey **A21**
- 6.1 Sampling . . . A21
- 6.2 Data collection methodology . . . A25
- 6.3 Balance . . . A27

7 Sensitivity **A28**
- 7.1 Alternative modelling strategy–Before and after for the entire period . . . A29
- 7.2 Alternative modelling strategy–within area variation . . . A29
- 7.3 Alternative modelling strategy–geographic exposure . . . A31

1 Irish Contentious Parade (ICP) dataset

To build the dataset, we first scrape the Parades Commission (2023)'s website using the *rvest* package in *R* (Wickham, 2024). To this data, we add two variables: (1) the community of the organisation behind the parade and (2) the geo-location of starting point of the parade. The step-wise procedure is shown in Table A1. In this section, we describe the inclusion criteria, the Parades Commission website, the data cleaning, the geo-location, and the coding of parades as either Protestant or Catholic.

Table A1: Step-wise approach to geo-locate parades based on street information

Geo-location of parade routes
1. Extract and standardise road names from route information on Parades Commission Website
2. Clean road names
3. Create routes using Google Maps API
4. Save the detected route as spatial line in a dataset

1.1 Inclusion criteria

The Parades Commission is responsible for all parades/processions in Northern Ireland under the provisions of the Public Processions (Northern Ireland) Act (1998). Some parades/processions that demonstrate an allegiance to a specific culture or tradition have particular potential to inflame emotions in local communities and cause widespread disorder. Whether these are allowed to go ahead – and if so, under what conditions and restrictions – is the decision of the Parades Commission.

Parade organisers must notify the Police Service of Northern Ireland (PSNI) if they wish to hold a public parade/procession. This is to be done at least 28 days prior to the date of the event. Counter-protest must be notified at least 14 days before the event date. Organisers must send a notification form to the PSNI, which lists the name and address of the organiser, the date and time when the parade/possession is to be held, the route, number of people likely to be involved or supporting it, details of any bands taking part, and arrangements for control. The PSNI passes a copy of the notification form to the Parades Commission who consider the application. They decide whether the parade/procession is to take place and whether any conditions should be attached. Conditions may include restrictions on exact route or bans on certain songs. Organisers and participants who fail to notify the PSNI can be imprisoned for up to six months and/or fined £5,000. Therefore, while there are particularly sensitive parades/processions that are not listed on the Parades Commission website, these are rare. Due to this inclusion criteria, only legal parades and processions are included. Parades for which notice is not given to the Parades Commission tend to be

republican parades organised by political parties with ties to dissident republican groups (e.g. Telegraph, 2019; BBC News, 2023). Therefore, some of the most sensitive parades/processions are not included in the dataset. If researchers are interested in contentious republican processions, for example, the ICP dataset may not be suitable.

1.2 Data cleaning

The main aim in data cleaning is to improve geo-location, which we describe in detail in the next section. As a first step, we combine outward and return routes. We then remove stop words (e.g. "a", "the", "is", and "are") using the *stopwords* library in *R* (Benoit, Muhr and Watanabe, 2021). A parade might begin in one location but board transport and continue the parade in another location, sometimes great distances from where the parade began. For instance, some parades begin in Derry, board a bus, travel to Belfast, and continue to parade in an area of Belfast. In these instances, we separate the parade into two distinct parades. This occurs if the route includes the words "board" or "transport". In total, 2.3 percent of parades include these words and are thus coded into separate parades. We transform the data from wide entries of parade routes (where a single entry will contain several locations separated by a comma) to a long format (where each location will include a single location). Therefore, for each parade there are then several entries containing each location (this amounts to almost 500,000 locations). From these locations, we remove words shown in Table A2. Through trial and error, removing these words was found to improve geo-location. Finally, we replace "masonic hall" with "orange hall". Organisers use these terms interchangeably, but geo-location works best for orange halls. Finally, to each location we include the *town of parade* variable scraped from the Parades Commission website and "Northern Ireland". For example, the first location for Parade ID Ref38 is "Dyan Orange Hall, Caledon, Northern Ireland". The geo-location procedure outlined below relies on these locations.

1.3 Geo-location

The dataframe includes just two variables: (1) the parade ID and (2) the locations along the route. For each parade ID, there are several locations listed in the same order that is provided by the parade organisers.

We write a loop which takes a single parade ID. With this, we use the Google Maps API to extract the longitude and latitude of the first five locations. This is implemented using the *googleway* library in *R* (Cooley, 2023). Because parade routes are manually entered by parade organisers, there are some inconsistencies in how they are listed. Sometimes this is not an issue and may actually increase the

Table A2: Words removed from route information provided by parade organisers.

Words removed from parade route
"reach"
"disperse"
"dispersal"
"call into"
"bus"
words proceeding "board"
words proceeding "junction"
words proceeding "stop"
words proceeding "over"
words proceeding "travel"
words proceeding "back"
words proceeding "leave"

accuracy of the geo-location. For example, in some instances the organiser will state that the parade route begins at the "Orange Hall" on a street. In these instances, *googleways* can extract the exact point. However a parade organiser may refer to a location identifier that does not improve geo-location. Some parades begin at locations only known to participants or people with local knowledge. For instance, "The clock", "the Y junction", or "The pits" do not improve geo-location. Nevertheless, we leave these in the route. Therefore, in the first five locations, the first route may fail to be geo-located.

Despite our efforts to clean the data for geo-location, some routes do not geolocate correctly. This is most obvious when it occurs outside of Northern Ireland. For instance, Parade ID 93343 began in Vionville Park in East Belfast and moved to Vionville Rise. The geo-location process for Vionville Park always results in a commune outside the city of Metz in Eastern France, while the geo-location of Vionville Rise is correct. To avoid this, we remove geo-locations outside of Northern Ireland from the five locations. We then select the first location, which is the closest geo-located point to the starting location. The loop populates a dataset of parade starting locations, which are then merged back into the scraped dataset and handled in *R* using the *sf* package (Pebesma, 2018).

1.4 Coding Protestant versus Catholic parades

Parades are coded as either Protestant or Catholic based on the parade organiser names. The terms shown in Table A3 are selected based on secondary literature, interviews, and background case knowledge. The identification of relevant terms was also conducted by listing the most common parade organisations in the dataset and conducting online searches. For example, "LOL" refers to Loyalist Orange Lodge, "ABOD" refers to Apprentice Boys of Derry, and "RBP' refers to the Royal Black Parade, all of which are Protestant organisations heavily involved in parading. Catholic parades (or more often processions), while fewer in

number, are often organised by the the Ancient Order of Hibernians (AOH), Sons of Ireland, or Sinn Fein. We also include terms commonly associated with either side, include "Orange", "Royal", and "Scottish" for Protestant organisations, and "Easter commemoration", "Irish Republican", and "Eireann" for Catholic organisations.

Table A3: Terms used to code parades as either Protestant or Catholic.

Parade organisers	Coding
lol, rbp, protestant, royal british, apprentice boys, abod, pride of orange, young conquerors, rbdc, rapc, royal scottish, orange memorial hall, sons of william, queens golden jubilee, king william, loyalist, unionist, orange hall, royal irish regiment, scotish pipe, shankill, sons of ulster, loyal orange, royal naval, orange lodge, royal irish, loyal sons, orange and blue, orange widow, rdbc, orange order, ulster defence regiment, orange association, royal arch, rising sons, pride of, duke of, ulster volunteer, tigers bay, william king, king, regiment, defenders of the rock, masonic lodge, royal air force, crown, ycv, true blues, 11th july committee, appentice boys, orange arch, kai, downshire guiding star, constabulary, the somme, grand black, royal black, sons of conquerors, black institution, britannia, black chapter, orange and purple, royals, lodge, l.o.l., udr, somme, r.b.p.	Protestant
aoh, national graves, easter commemoration, sons of ireland, sinn fein, republican graves, st patrick's, ancient order of hibernians, commemoration committee, irish republican, eire nua, james connolly, bloody sunday, republican, commemoration of old ira, eireann	Catholic

2 Ethical considerations

2.1 Informed consent

The qualitative study is based on informed consent. Potential participants are informed about the purpose of the study when initially contacted via email address or phone (if contacted by phone, we offered to send a written description of the study via email). In providing information about the study, we disclose the aims of the study but do not outline the hypothesised causal relationships we expect to find, as doing so would potentially lead to biased answers during the interview (desirability bias). Potential participant are assured that their participation is anonymous and confidential (unless they wish to be named, in their professional or public capacity). Potential participants are informed that participation is entirely voluntary, and there are no repercussions from withdrawing from the study at any point. They are also informed that they can choose not to answer any questions they do not wish to answer. Similarly, they can end the interview at any time. Written consent forms are provided in every interview conducted. Note that potential participants are assured that their answers in the interviews are anonymous and confidential. Hence, if they wish not to sign a written consent form, which may be perceived as leaving a paper-trail with their names, oral informed consent is acceptable.

2.2 Access and recruitment

While some participants were directly contacted by us, part of our recruitment strategy for contacting members of affected communities also relies on snowball sampling. This could mean that potential participants feel they owe it to whomever recommended them to participate. There could also be a concern that we as researchers are somehow affiliated with their "recommender". We mitigate these concerns by (1) emphasizing that this this is an academic study conducted by researchers at UCL, Stanford and ETH Zürich and (2) emphasizing that participation is entirely voluntary, and that there are no repercussions for refusing to participate. All participants provided written or verbal informed consent. All interviewees were asked if they were comfortable with the place and time for the interview.

2.3 Mitigation of risks

While the subject of loyalist parades in Northern Ireland can be sensitive, as these events tend to evoke emotional responses due to their contentious nature, it is very unlikely that asking questions about this to participants will put them in physical danger. That said, respondents may come under risk if their opinions on the subject were to be exposed to individuals linked to antagonist groups. Moreover, questions about the parades may spark emotional distress due to the nature of the long-lasting conflict between protestant and catholic communities in Northern Ireland, as well as the low-level violence associated with these parades. We take several steps to mitigate these risks. First, all interviews are confidential and anonymous, and potential participants are informed as such before agreeing to participate. Second, our recruitment strategy is based on voluntary participation, and potential interviewees can choose not to answer any of our questions. That is, participants will be participants only if they choose to do so, and they will not be under any pressure to give us information they do not want to reveal. Third, we do not ask anyone if they have engaged in violent activities or to name anyone who has, nor are we asking people about their direct experiences of violence. Fourth, we offer to meet participants in a location that makes them feel comfortable, either in a public space, their office, or—if they so wish—in their home (subject to risk assessment for us as researchers).

2.4 Reflexivity statements

In this specific case, the national and religious identity of the researcher may generate different reactions in the individuals with which they establish contact. For example, a Protestant parade member may react differently to an Irish researcher (perceived to be Catholic), or a German researcher (perceived to be

Protestant). The role of the researcher as an "outsider", in such context, may lead to beneficial results in terms of data accessibility and validity – "the researcher's outsider status can even be viewed explicitly by historically hostile groups as an opportunity to share information with each other indirectly and thus learn about the other group's views with a hope of improving the relationship" (Kapiszewski, MacLean and Read, 2015, p.260). That said, it is still important to acknowledge the researchers' positionality (that is, the researchers' identity relative to the environment under study). Therefore, we provide in this appendix our own reflexivity statements so that the reader can obtain a sense of the authors' values and identities, and provide clues on how their positionality may affect the research outcomes (Sybing, 2022).

Fieldwork was conducted as outsiders, given that the research team is not from Northern Ireland and has not lived in Northern Ireland for an extended period of time – although the fact that one researcher is Irish has been picked up on by some of the individuals we interacted with, which could have helped with approaching members of the Catholic community. In all instances, we made sure to clearly identify ourselves as academic researchers for ethical reasons but also to ensure that false assumptions on our profession or aims would not harm access to the participants. We approached the fieldwork with the intent of not just merely testing our mechanisms, but also encouraging the participants to express their own beliefs and understanding of parades and the contention surrounding them more generally.

3 Guiding questions for participant observation

- Who are the participants (and supporters) of the parades? How do they look like, and how do they behave?
- Who are the bystanders and the local inhabitants? How do they look like, and how do they behave?
- What are the slogans, chants, songs, hymns used during the parades?
- What are the insignia, uniforms, symbols, banners used during the parades?
- What are the emotions that transpire from the parades' participants, and from the supporters?
- What are the emotions that transpire from the bystanders and local communities?
- How does communication between the parades' participants/supporters and the bystanders unfold? What is the content of this communication?
- What are the actions employed by police forces, if they are present?

It is also important to take notes on the following questions, which are meant to aid the researcher establish reflexivity:

- What is my role in this setting?
- How did the parades' participants/supporters react to my presence? And the bystanders and local inhabitants?
- What is my emotional response to the event and the environment?
- What are the notable sensorial inputs (visual, auditory, olfactory) that I am registering, and why are they notable?

4 Thematic coding for fieldwork interviews

As noted in this paper's section on the fieldwork, we conducted eight interviews in Belfast in 2023. After the fieldwork we coded the interview notes by noting recurring topics and important elements in each interview. After an initial micro-level coding of each interview, we were able to categorize some the codes into different themes. Our identification of the themes was guided by our theory, as we set out to test our mechanisms through the fieldwork, but we were also open to inductively identify ulterior themes that appear relevant and recurrent. In Table A4 we report the themes we identified for each interview, and coding examples for each interviewee.

Table A4: Interview details with thematic analysis columns and illustrative quotes.

ID	Religion	Provocation	Pride	Other Themes
1	Catholic	**Yes** (e.g. "They were looking for a reaction")	**No**	**Supremacy/Domination** (e.g. "supremacist thing - we do what we want, you can't do anything about it")
2	Catholic	**Yes** (e.g. "They try to lord it all over us")	**No**	**Supremacy/Domination** (e.g. "unionists want total control again"), **Discrimination** (e.g. "they encourage discrimination against Catholics")
3	Catholic	**Yes** (e.g. "if they passed through my area, I'd be up in arms")	**No**	**Discrimination** (e.g. "They are anti-Catholic and anti-Pope")
4	Catholic	**No**	**No**	**None** (interview difficult to assign to one theme or another, though it still reports useful information on sectarian incidents and celebratory nature)
5	Catholic	**No**	**No**	**Intimidation** (e.g. "some of the bands are meant to be intimidating"), **Choreography** (e.g. "from both sides - it's all performative")
6	Protestant	**Yes** (e.g. "Our people are only too willing to react negatively to the provocation")	**Yes** (e.g. "being watched by people who support me and love me - sense of pride")	**Choreography** (e.g. "contentiousness is turned on/off at whim")
7	Protestant	**Yes** (e.g. "PUL are easy to fall to the plot and react")	**Yes** (e.g. "Parades on the Twelfth are the biggest cultural events in the country!")	**Choreography** (e.g. "SF and SDLP try to stir trouble")
8	Protestant	**Yes** (e.g. "People come out en masse [...] especially when [the parades] are contentious")	**Yes** (e.g. "Parades are a manifestation of an identity and are celebratory")	**Choreography** (e.g. "SF [...] attacks parades by increasing residents' opposition")

5 Pooled surveys

We report the full numeric results of our main analysis in Table A5.

	Mixed schooling	Mixed marriage
Num. contentious parades (in 100s)	-0.09^{***}	-0.17^{***}
	(0.02)	(0.02)
Num. parades (in 100s)	0.02^{**}	0.05^{***}
	(0.01)	(0.01)
Age	-0.00	-0.00^{*}
	(0.00)	(0.00)
Gender (female)	0.06^{***}	0.11^{***}
	(0.01)	(0.02)
Level of education	0.03^{***}	0.05^{***}
	(0.00)	(0.00)
Protestant	0.00	-0.11^{***}
	(0.01)	(0.02)
Neither Catholic nor Protestant	0.19^{***}	0.10^{***}
	(0.02)	(0.03)
Demographic controls	Y	Y
Year FE	Y	Y
R^2	0.09	0.08
Adj. R^2	0.09	0.08
Num. obs.	5489	5861

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A5: Association between the number of contentious parades and attitudes to mixed schooling and inter-marriage between Catholics and Protestants.

5.1 Dependent variables

Attitudes on mixed-marriages and schooling have been historically negative and are often considered central to improving future inter-group relations. Indeed, increases in their numbers are viewed as a positive sign of the state of inter-group relations (e.g. The Irish Times, 2021; Belfast News Letter, 2023) or, on the contrary, as a lack of progress (e.g. Gallagher, 2022; Haydon, 2002). Marriage and education in Northern Ireland are marked by high levels of segregation. While data is hard to come by, most studies on mixed marriage conclude that as a few as one in ten people in Northern Ireland are in a mixed marriage, a number that has changed little since the end of the conflict in 1998 (The Irish Times, 2023). The same is true for schooling. Despite a shared school curriculum, Protestant church leaders dominate certain school boards while the Catholic church manages others. Students are free to attend either type of school, but they almost always choose the school matching their family's religious tradition (The New York Times, 2023). Only eight percent of schools are integrated (non-denominational) and in nearly one third of schools there is no religious mix at all (BBC News, 2021). Hayes, McAllister and Dowds (2013) argue that these educational divisions may exacerbate and reinforce intolerance and division. Generally, the lack of contact (Allport,

1954; Pettigrew and Tropp, 2006) between the two communities is an important factor in hindering positive inter-group attitudes.

The survey questions are as follows:

- *Would you yourself mind or not mind if one of your close relatives were to marry someone of a different religion?*
    1. *Would mind a lot*
    2. *Would mind a little*
    3. *Would not mind*
- *And if you were deciding where to send your children to school, would you prefer a school with children of only your own religion, or a mixed-religion school?*
    1. *Own religion only*
    2. *Mixed-religion school*

Support for mixed marriage and schooling have not changed significantly from 2003 to 2019, as is visible in Figure A1. There is a visible drop in support for both forms of mixing in 2010, but the drop is particularly visible for schooling. We do not know exactly why this is, but schooling was central to political debate in 2010, with the First Minister of Northern Ireland and leader of the Democratic Unionist Party (DUP) describing the schooling system as a "benign form of apartheid which is fundamentally damaging to our society" (The Guardian, 2012; The Belfast Telegraph, 2010). This may have been related to a drop in positive attitudes towards mixed schooling at the time. It is important to note that views on schooling do not seem to have been affected in a nationally representative survey fielded later in the same year. Figure A2 below shows average responses to the same or similar questions from the Northern Ireland Life and Time Survey (NILT, 2024). The NILT Survey was launched in 1998 and every year (except 2011 due to funding issues) it records the attitudes of the people in Northern Ireland on a wide range of issues. The survey regularly asks people about their attitudes towards mixed schooling, neighbourhoods, and workplaces. Unlike the BES study, there appears to be an increase in positive attitudes towards inter-group mixing in 2010, followed by a consistent fall in positive attitudes around the time of the Brexit campaign and vote.

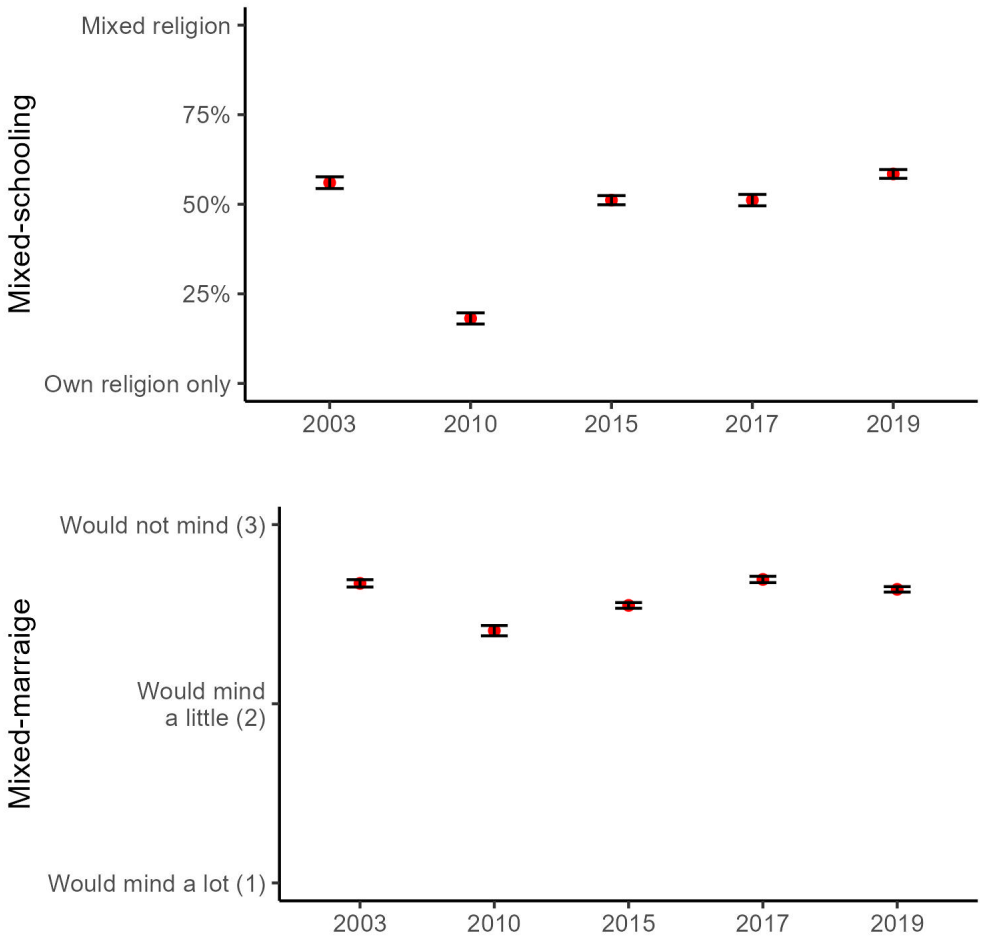

Figure A1: Temporal variation in inter-group attitudes in BES. Average values and 95 percent confidence intervals are shown for each year.

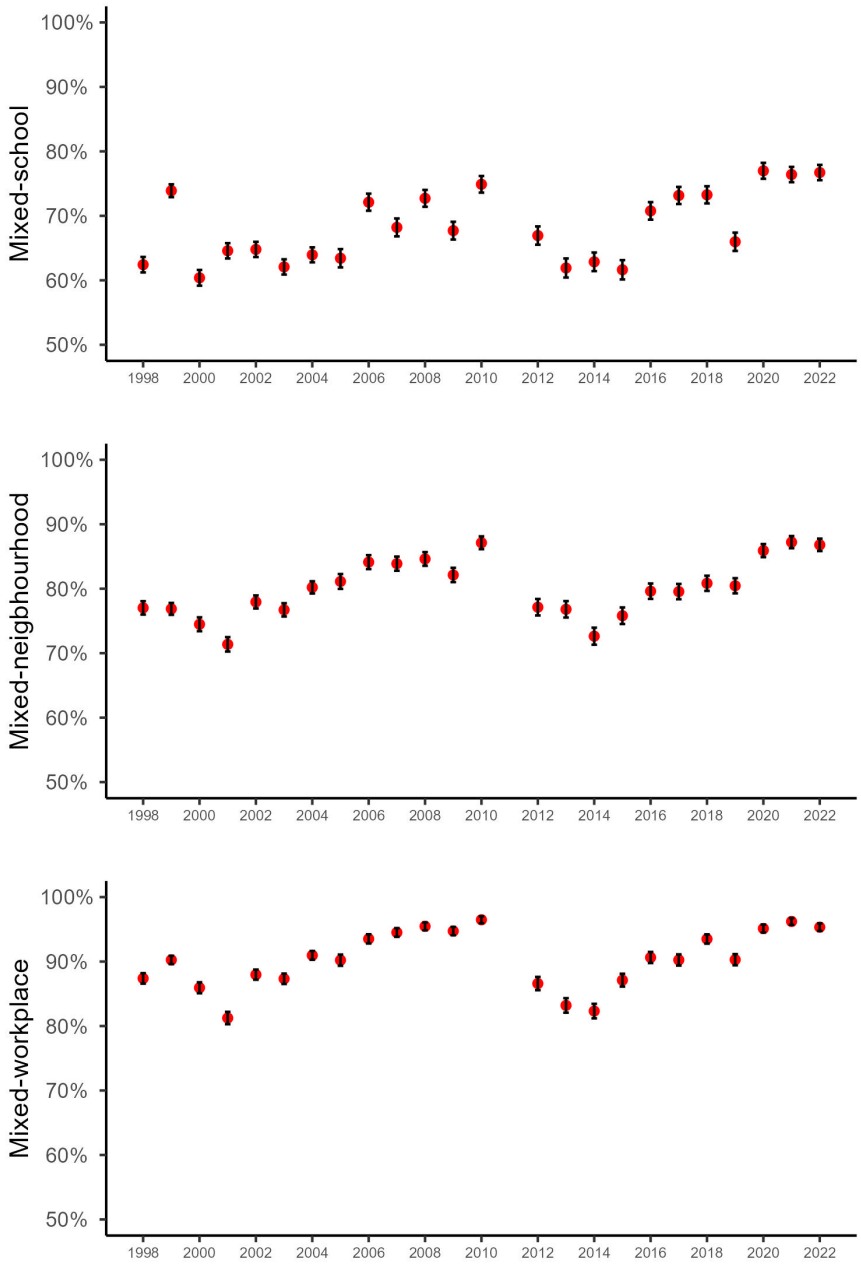

Figure A2: Temporal variation in inter-group attitudes according to the NILT. The percentage refers to the proportion of people who states that they would prefer a mixed school, neighbourhood, or workplace, as opposed to one with their own religion. Average values and 95 percent confidence intervals are shown for each year.

The 2010 BES study stands out from other BES survey years also due to the large number of non-responses on the inter-group attitudes questions, and especially schooling, as shown in Figure A3. We re-run our analysis without the data from 2010. Our analysis of the results, shown in Table A6, do not change substantively.

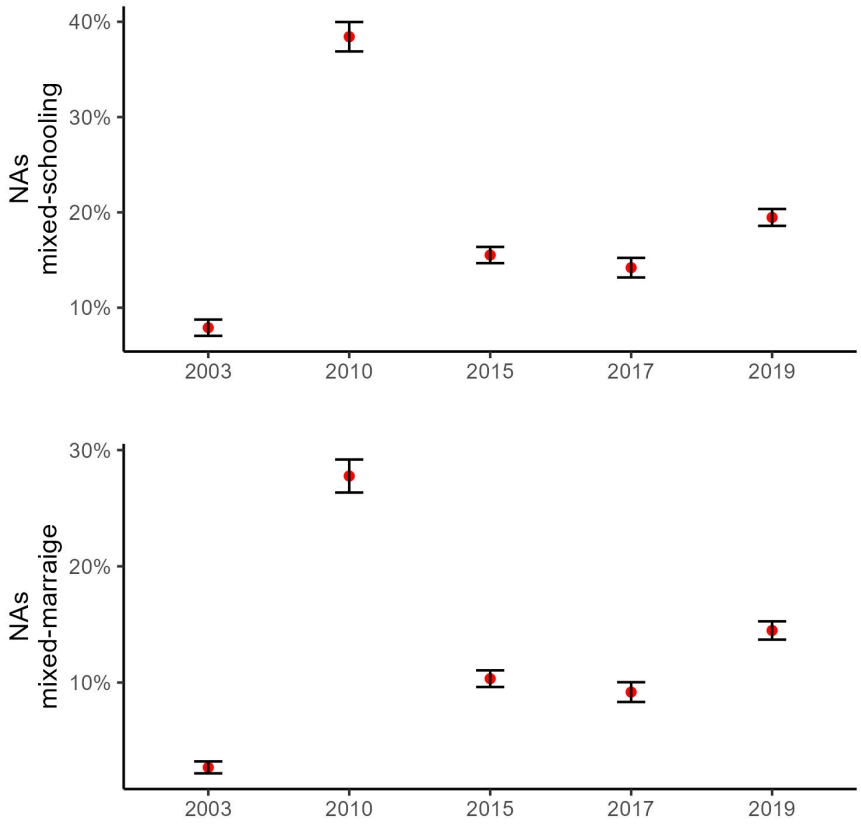

Figure A3: Percentage of non-response to the dependent variables over time.

	Mixed schooling	Mixed marriage
Num. contentious parades (in 100s)	-0.09^{***}	-0.14^{***}
	(0.02)	(0.02)
Demographic controls	Y	Y
Year FE	Y	Y
R^2	0.04	0.06
Adj. R^2	0.04	0.06
Num. obs.	4884	5147

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A6: Association between the number of contentious parades and attitudes to mixed schooling and inter-marriage between Catholics and Protestants

5.2 Alternative model specifications

We conduct an observational study and did not, as such, pre-register expectations or modelling approaches. To test the robustness of our findings, we include several alternative modelling approaches. Importantly, we find that some of our findings are sensitive to the inclusion of different fixed-effects. As such, we discuss what we can learn from different approaches and include all results for transparency.

First, we run alternative models (1) without fixed-effects, (2) with constituency fixed-effects (3) with survey year fixed-effects, and (4) with both constituency and survey year fixed-effects. The inclusion of fixed-effects in this analysis is important and they shape what we can learn from the models. Clearly, the dependent variable of interest, intergroup attitudes, and the independent variable, exposure to contentious parades, are potentially linked to time trends and differences across spatial units (constituency).

- The sample year fixed-effects controls for time-specific factors that affect all constituencies in a given year. Fixed-effects for time are important because intergroup attitudes are likely changing due to external factors common to all constituencies. The most obvious over this period is the Brexit referendum, and subsequently, the United Kingdom's hard exit from the European Union (Godefroidt, Dyrstad and Bakke, 2023; Canavan and Turkoglu, 2023, e.g.). Time fixed-effects allows us to separate these trends from the change in exposure to contentious parades. Clearly, too, Brexit may also have increased the number of contentious parades in certain years, as is visible in **??**. As Brexit likely influenced intergroup attitudes, then failing to control for year effects could bias the estimated effect of exposure to contentious parades.
- Constituency fixed-effects control for time-invariant differences between constituencies (e.g. historical sectarian divisions, socioeconomic conditions, or geographic factors). Including just constituency fixed-effects, the models shed light on changes in exposure to contentious parades within a constituency over time, but ignores temporal effects outlined above.

Combining both time and constituency fixed-effects in a two-way fixed-effects model isolates the effect of within-constituency variation in exposure to contentious parades over time, net of both national trends and constituency-specific differences. The model sheds light on how the increase in exposure to contentious parades (relative to the constituency's own past levels) is associated with intergroup attitudes change. The results, shown in Table A7, are consistent with the results presented in the main text. For attitudes on mixed schooling and marriage, the coefficient for contentious parades is mostly negative (except in the model with only constituency fixed-effects). However, in the two-way fixed-effects model, our finding for mixed schooling is no longer statistically significant at traditional levels of confidence.

	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage
Num. contentious parades (in 100s)	−0.07***	−0.17***	0.05	−0.05	−0.09***	−0.17***	−0.04	−0.11**
	(0.02)	(0.02)	(0.04)	(0.04)	(0.02)	(0.02)	(0.04)	(0.04)
Num. parades (in 100s)	0.02*	0.04***	−0.06*	−0.06·	0.02**	0.05***	0.02	0.02
	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.01)	(0.03)	(0.04)
Age	−0.00	−0.00*	−0.00	−0.00·	−0.00	−0.00*	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender (female)	0.06***	0.12***	0.06***	0.11***	0.06***	0.11***	0.06***	0.11***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Level of education	0.02***	0.04***	0.02***	0.04***	0.03***	0.05***	0.03***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Protestant	0.00	−0.11***	−0.04*	−0.17***	0.00	−0.11***	−0.04*	−0.17***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Neither Catholic nor Protestant	0.22***	0.12***	0.19***	0.10***	0.19***	0.10***	0.16***	0.08**
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Constituency FE			Y	Y			Y	Y
Year FE					Y	Y	Y	Y
R^2	0.04	0.06	0.07	0.11	0.09	0.08	0.12	0.13
Adj. R^2	0.03	0.05	0.06	0.11	0.09	0.08	0.12	0.12
Num. obs.	5489	5861	5489	5861	5489	5861	5489	5861

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A7: Main modelling approach with alternative fixed-effects approaches.

Second, we use an alternative operationalisation of exposure to contentious parades. We operationalise exposure to contentious parades as the total number of parades considered sensitive by the Parades Commission because we think that the volume of contentious parades is likely linked to an increase in exposure. However, an alternative operationalisation is the proportion of parades that are sensitive. This may be more appropriate if the relative presence of contentious parades (compared to the total number of parades) affects intergroup attitudes. It could be that the change in the overall proportion of parades is more consequential for people in a constituency than the total number of contentious parades, which could be the case in areas that experience relatively few parades overall. Nevertheless, the results should be similar because in all models we control for the total number of parades. Table A8 shows the results of multiple models with different fixed-effects, as above in Table A7. The findings are consistent although we note that the main finding for mixed schooling in the two-way fixed-effects model is statistically significant at 90 percent confidence levels. Combined, these additional analyses highlight that the finding on mixed schooling is sensitive to alternative modelling approaches.

	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage
Prop. contentious parades	−0.45***	−0.73***	0.23	−0.11	−0.52***	−0.77***	−0.29·	−0.52**
	(0.06)	(0.08)	(0.16)	(0.19)	(0.06)	(0.08)	(0.16)	(0.19)
Num. parades (in 100s)	0.02**	0.04***	−0.06*	−0.08**	0.03***	0.05***	0.03	0.01
	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.01)	(0.03)	(0.03)
Age	−0.00	−0.00**	−0.00	−0.00·	−0.00	−0.00*	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender (female)	0.06***	0.12***	0.06***	0.11***	0.06***	0.11***	0.06***	0.11***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Level of education	0.02***	0.04***	0.02***	0.04***	0.03***	0.05***	0.03***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Protestant	−0.00	−0.12***	−0.04*	−0.17***	−0.01	−0.12***	−0.04*	−0.17***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Neither Catholic nor Protestant	0.22***	0.11***	0.19***	0.10***	0.19***	0.09***	0.16***	0.08**
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Constituency FE			Y	Y			Y	Y
Year FE					Y	Y	Y	Y
R^2	0.04	0.06	0.07	0.11	0.10	0.08	0.12	0.13
Adj. R^2	0.04	0.06	0.06	0.11	0.10	0.08	0.12	0.12
Num. obs.	5489	5861	5489	5861	5489	5861	5489	5861

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A8: Association between the proportion of contentious parades and intergroup attitudes.

Third, we combine the two measures of intergroup attitudes as our dependent variable. This is potentially the correct approach because intergroup attitudes are complex and may not be captured by a single binary measure. Table A9 shows the results of this analysis. Again, the findings are consistent across model specifications. While the findings are not robust when only controlling for constituency fixed-effects, the results are robust to alternative model specifications.

	Intergroup attitudes (mean)	Intergroup attitudes (mean)	Intergroup attitudes (mean)	Intergroup attitudes (mean)
Prop. contentious parades	−0.60***	−0.65***	0.08	−0.38*
	(0.06)	(0.06)	(0.16)	(0.16)
Num. parades (in 100s)	0.03***	0.04***	−0.07**	0.02
	(0.01)	(0.01)	(0.03)	(0.03)
Age	−0.00*	−0.00·	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Gender (female)	0.09***	0.09***	0.09***	0.09***
	(0.01)	(0.01)	(0.01)	(0.01)
Level of education	0.03***	0.04***	0.03***	0.04***
	(0.00)	(0.00)	(0.00)	(0.00)
Protestant	−0.06***	−0.06***	−0.11***	−0.11***
	(0.01)	(0.01)	(0.02)	(0.02)
Neither Catholic nor Protestant	0.17***	0.14***	0.15***	0.12***
	(0.02)	(0.02)	(0.02)	(0.02)
Constituency FE		Y		Y
Year FE			Y	Y
R^2	0.07	0.13	0.11	0.16
Adj. R^2	0.07	0.12	0.11	0.16
Num. obs.	5162	5162	5162	5162

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A9: Association between the number of contentious parades and a general measure of intergroup attitudes.

Fourth, the Parades Commission decides that some parades are sensitive, such as Foyle Pride (e.g. parade ID 79143) or Belfast Pride (e.g. parade ID 72103), but equally protests against Pride parades (e.g. parade ID 59627), but decide not to impose any conditions on parade organisers. While these have the potential to raise community tensions, the Parades Commission must balance these concerns with the fundamental democratic rights of parade organisers as enshrined in the Human Rights Act (1998). To ensure that our measure for sensitive parades is capturing contentious parading linked to community tensions, we drop sensitive parades (N = 3981) for which the Parade Commission did not impose conditions. The results, shown in Table A10, are substantively unchanged.

	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage	Mixed schooling	Mixed marriage
Num. contentious parades (in 100s)	−0.07***	−0.17***	0.05	−0.05	−0.09***	−0.17***	−0.04	−0.11**
	(0.02)	(0.02)	(0.04)	(0.04)	(0.02)	(0.02)	(0.04)	(0.04)
Num. parades (in 100s)	0.02*	0.04***	−0.06*	−0.06.	0.02**	0.05***	0.02	0.02
	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.01)	(0.03)	(0.04)
Age	−0.00	−0.00*	−0.00	−0.00.	−0.00	−0.00*	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gender (female)	0.06***	0.12***	0.06***	0.11***	0.06***	0.11***	0.06***	0.11***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Level of education	0.02***	0.04***	0.02***	0.04***	0.03***	0.05***	0.03***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Protestant	0.00	−0.11***	−0.04*	−0.17***	0.00	−0.11***	−0.04*	−0.17***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Neither Catholic nor Protestant	0.22***	0.12***	0.19***	0.10***	0.19***	0.10***	0.16***	0.08**
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Constituency FE			Y	Y			Y	Y
Year FE					Y	Y	Y	Y
R^2	0.04	0.06	0.07	0.11	0.09	0.08	0.12	0.13
Adj. R^2	0.03	0.05	0.06	0.11	0.09	0.08	0.12	0.12
Num. obs.	5489	5861	5489	5861	5489	5861	5489	5861

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{.}p < 0.1$

Table A10: Association between the number of contentious parades (excluding those for which the Parades Commission did not impose conditions) and intergroup attitudes attitudes.

5.3 Views on parading

The British Election Study (BES) includes other survey questions that can potentially shed light on our key independent variable. In 2010, 2015, 2017, and 2019, the BES asked respondents specifically about Parades:

- Which of these statements comes closest to your view of Orange Order parades?

    1. The Orange Order should be able to parade wherever it wants, without restrictions (**without restrictions**)
    2. The Orange Order should be able to parade past mainly nationalist areas only if there is prior agreement with local residents (**prior agreement**)
    3. The Orange Order should not be allowed to parade past mainly nationalist areas (**not allowed**)
    4. Other (please specify)

We drop non-responses and the 'Other (please specify)' for views on Orange Order Parades. In Figure A4, we treat it as a continuos variable and plot the average response for all respondents (black), respondents who identify as Catholic (red), respondents who identify as Protestant (blue), and respondents who do not identify as either, 'Other' (green). While, on average, respondents appear to agree that parades should be allowed past mainly nationalist areas only if there is prior agreement with local residents, the difference between the communities is striking: Catholic respondents tend to agree that the Orange Order should not be allowed to parade past mainly nationalist areas and Protestant respondents are more inclined to agree that there should be no restrictions on Orange Order parades.

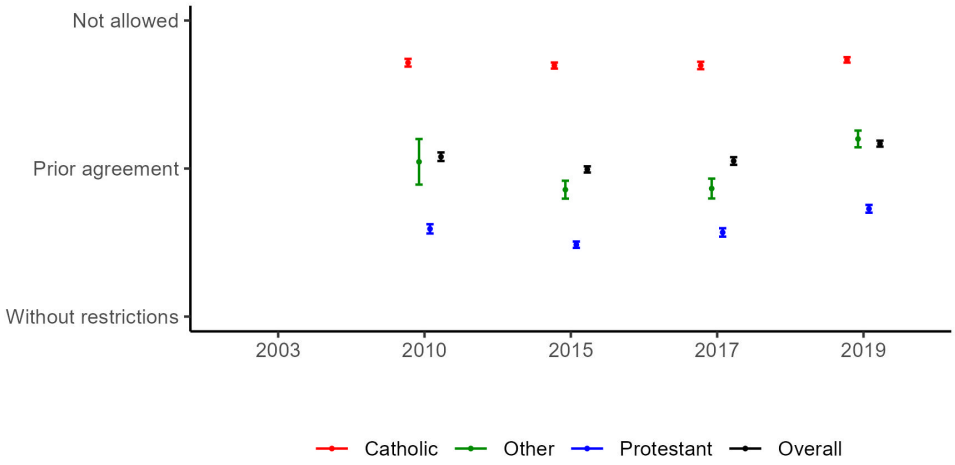

Figure A4: Views on Orange Order parades.

We expect that these views are potentially more polarised for respondents in areas that experience many contentious parades. To test this assumption, we replace our dependent variable in our main analysis with views on Orange Parades as a series of dichotomous variables and plot the results of a series of logistic regression models in Figure A5. All models include both year and constituency fixed-effects. Important to note that just 12 Catholic respondents across four survey waves agreed that Orange Order parades should have no restrictions, and so when we subset to just Catholic respondents the statistical model struggles with infinite coefficients. We thus exclude the coefficient. Overall, the views across the communities diverge significantly. Catholic respondents exposed to high numbers of contentious parades are less likely to agree that parades should be allowed if there is prior agreement with local residents – but they are much more likely to agree that the parades should simply not be allowed. Protestant respondents tend to agree more that the parades should not have restrictions and less that they should simply not be allowed.

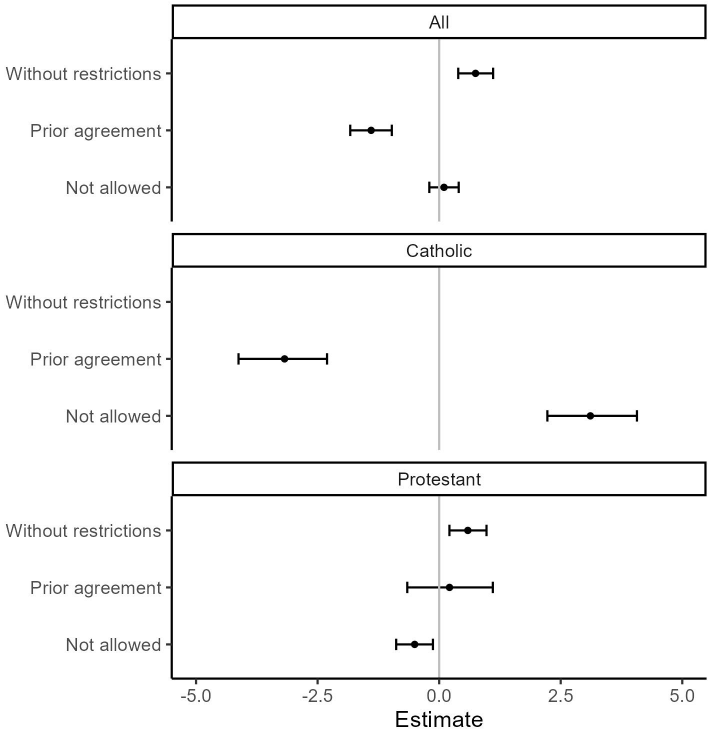

Figure A5: Association between support for statements on Orange Order parades and exposure to sensitive parades.

6 Beyond conflict survey

We report the results of our main analysis for the entire period in Table A11.

	all respondents	Catholic only	Protestant only
Interviewed after the Twelfth	−0.05	−0.00	−0.07
	(0.04)	(0.06)	(0.05)
Age	0.00**	0.00*	0.00***
	(0.00)	(0.00)	(0.00)
Gender (female)	0.02	−0.04	0.12**
	(0.03)	(0.05)	(0.04)
Level of education	0.11***	0.07***	0.16***
	(0.01)	(0.02)	(0.02)
Household income	0.05**	0.05*	0.03
	(0.02)	(0.02)	(0.02)
Demographic controls	Y	Y	Y
R^2	0.10	0.05	0.19
Adj. R^2	0.09	0.04	0.18
Num. obs.	848	440	408

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A11: Effect of Twelfth celebrations on inter-group attitudes.

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6.1 Sampling

The survey was collected for a project on social control and violence in post-conflict Northern Ireland, where informal 'justice' systems that emerged during the conflict persist in certain areas. These included known rules and a hierarchical systems of 'punishment', which was meted out by paramilitary actors on both sides of the conflict.

We fielded the survey in areas that are as similar on relevant dimensions as possible but diverge in the levels of paramilitary violence: some areas experience many so-called punishment attacks while others experience few or no attacks. To do so, we develop a two-stage research design. The first stage consist of conducting a most-similar but diverse case selection strategy (Seawright and Gerring, 2008). We conduct a novel sampling strategy in which we match areas that are similar but in which the dependent variable of the project – paramilitary vigilante-like violence – diverges. In the second stage, we field a survey in the sampled areas. Differences across the two types of areas aim to shed light on the legitimacy of local paramilitary groups and demand for vigilante-like violence. Here, we outline the matching strategy in detail, the of which are shown for Belfast in Figure A6.

We match census tract areas, known as Super Output Areas (SOAs), that are worst affected by vigilante-like violence with areas similar on key dimensions but that have not least affected by paramilitary in the same time period (2008-2018). There are 890 SOAs in Northern Ireland with an average population of

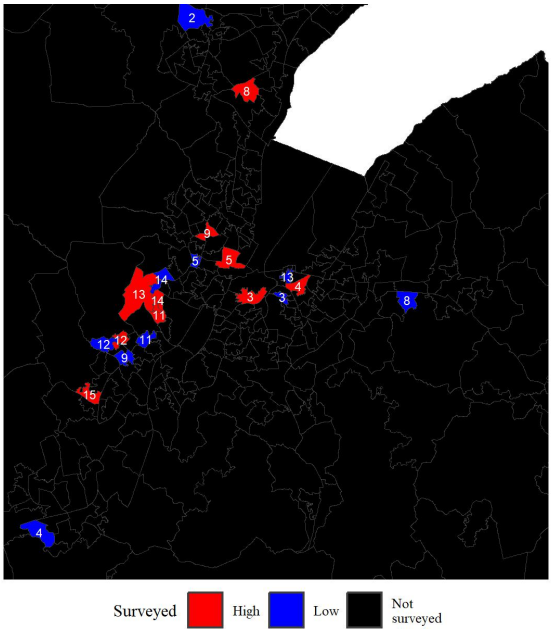

Figure A6: The results of matching for Belfast. Sampled areas are shown in either blue (low levels of paramilitary violence) or red (high levels of paramilitary violence), and those with the same number are matched directly.

2000 people.[1] Our key data source is data on vigilante-like violence from 1998 to 2018 provided to us by the Police Force Northern Ireland (PSNI), which they refer to as "Paramilitary Style-Attacks" (PSAs). These include assaults – involving "major or minor physical injury to the injured party typically involving a group of assailants armed with, for example, iron bars or baseball bats" – and shootings – which "usually result in the injured party being shot in the knees, elbows, feet, ankles or thighs and the motive is supposedly to punish the person for anti-social activities" (PSNI, 2021). This type of violence occurs across Northern Ireland, but clusters in urban SOAs such as Derry/Londonderry and Belfast, as shown in Figure A7.

We select the eight SOAs worst affected by Republican attacks and the eight SOAs worst affected by Loyalist attacks (see Table A12). The 16 SOAs contain a total population of 31,558 according to 2011 census data. We chose the eight worst affected areas for each community to ensure a large enough number of potential survey respondents and 32 SOAs, which would have allowed for multi-level modelling of survey results. The top SOAs affected by Loyalist attacks returned more than twelve SOAs as four have an equal number of attacks. Dunnaney (95WW14W1), which is in North Belfast, was selected to ensure geographic variation.

[1]The size of SOAs varies but dispersion in terms of population is low. The average population is 2035 and the standard deviation is 548.

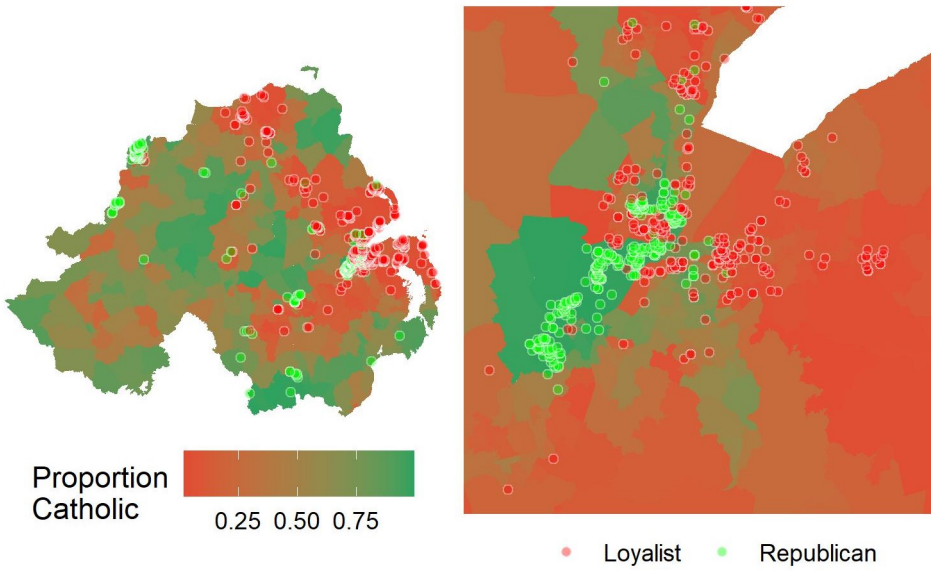

Figure A7: Community in Northern Ireland shown as the proportion of Catholic population per SOA (according to the 2011 census). Across Northern Ireland (left) and Belfast (right).

The worst affected SOAs are matched to the most similar SOAs that experienced two or less attacks since 2008. Two PSAs is one standard deviation from the mean number of PSAs per SOA in the 2008-2018 period and so SOAs that experience between 0 and 2 attacks are considered 'normal'. We employ Mahalanobis distance matching which is the Euclidean distance adjusted for covariance in the data and works well with few covariates. Mahalanobis distance matching, unlike inverse variance matching, accounts for correlation between variables, which is likely in our study. We do not use replacement, which means that SOAs with two or less PSAs (the 'control' group) can only be matched once.[2] The possible matches are restricted in two ways. First, the worst affected areas can only be matched with areas that are populated by a majority of the same community. PSAs occur within the armed groups community. Figure A7 shows that Republican PSAs occur in predominantly Catholic areas, and Loyalist PSAs occur in predominantly Protestant areas. For example, the worst affected SOAs by Republican PSAs can only be matched with SOAs that are over 50 percent Catholic, according to the 2011 census data. Second, the control matches are restricted to SOAs below 247 in the Northern Ireland Multiple Deprivation Measures (NIMDM) ranking of most deprived SOAs (NIMDM, 2017). 247 is the highest-ranking SOA in the SOAs worst affected by PSAs (Central Larne). This was done in consultation with the Belfast-based survey company. Based on their

[2]The order of matches matters, because they are found in the same order as the data are sorted (by worst affected areas). Therefore, the match for the first observation is found first, the match for the second observation is found second, etc.

SOA code	SOA name	Number of PSAs (2008-2018)
95GG02S3	Ardoyne_3	15
95MM10S1	Creggan Central_1	15
95GG22S3	Falls Park_3	14
95GG27S4	Glencolin_4	13
95GG46S1	Upper Springfield_1	12
95GG46S3	Upper Springfield_3	12
95SS06S2	Collin Glen_2	12
95MM11W1	Creggan South	11
95HH11W1	Love Lane	15
95BB22S2	Scrabo_2	11
95GG39S2	Shaftesbury_2	10
95GG44S1	The Mount_1	10
95GG40S2	Shankill_2	10
95JJ05W1	Central_Coleraine	8
95QQ07W1	Central_Larne	8
95WW14W1	Dunanney	8

Table A12: SOAs worst affected by vigilante violence

local knowledge and professional experience, they found that it produced the best results.

The Republican and Loyalist samples are matched separately with the same variables. Matching was conducted based on variables that are likely to be associated with the presence of PSAs in the post-conflict period and to ensure that the areas are otherwise demographically and spatially similar. The key variable on which we seek variation is vigilante-like violence. The entire dataset provided to us by the PSNI includes 2848 geo-located shootings and assaults, and 106 deaths. For the sampling strategy, we include only punishment attacks (shootings and assaults) from 2008 to 2018, which amounts to 893 attacks. 2008 is an important year for two reasons. First, it is 10 years after the Good Friday Agreement and, therefore, we avoid capturing the intergroup group violence that occurred in the more immediate post-conflict period (these were particularly pronounced in the Loyalist community, who were fighting 'turf wars' over control of certain areas) (Steenkamp, 2008). Second, Sinn Fein recognized the PSNI in 2007 and police reforms were well under way. Thus, we would have expected PSAs to decrease in subsequent years.

First we match on deprivation, as the proportion of the total population in an area experiencing income deprivation. Second we match on levels of crime, which measures violence, robbery, and public order, as well as vehicle theft and criminal damage. Third, we match on levels of public disorder, which measures the number of arson attacks and the number of anti-social behaviour offences. We also match areas on population, community religion, and whether they are urban or rural, all of which are taken form the 2011 census. Including total population, urban/rural, and whether the SOA is in Belfast ensures that matches are geographically similar. Finally, the presence of informal policing and vigilante activity is linked to a legacy of the conflict (1969-1998). Therefore, we match SOAs based on the number of in-group ("green on green" or "orange on orange") killings from the conflict. The killings were geo-coded Sutton (1994)'s

database of deaths during the Troubles to present-day geographic units using accounts from McKittrick et al. (2001).

Figure A8 shows the density distribution for the variables used for matching. We also include population density. Although not used in the matching procedure, it is more informative than the rural/urban variable because all matches are urban. The left column shows density distributions for variables before matching. The red shading represents the density for all SOAs that experience no attacks, while the blue represents the density for the 16 worst affected SOAs. The goal of our matching procedure is to make the coloured areas overlap as much as possible. The right column shows the result of the matching procedure, and shows that the density distributions overlap more after matching.

6.2 Data collection methodology

The sampling frame for this study was those aged 18 to 70 living in 32 selected Super Output Areas (SOAs) of Northern Ireland. The households approached for interview was randomly selected from the Postal Address File by stratified random sampling. The adult within the household selected to take part in the interview was randomly selected using the 'next birthday' rule.

The interviewing team called at each respondent's address at least three times in order to make contact with the occupants. At least one of the three attempts was made either in the evening or on a Saturday. Sunday interviewing was not attempted, unless by prior arrangement with the selected respondent. Interviewers scheduled their visits at various times of the day. To maximise responses, interviewers were asked to make their visits between 2pm and 8pm, unless alternative arrangements have been made with the interviewee.

In total 5,760 sample contacts were selected. Of these contacts 1,152 were main contact addresses and a further 2,304 addresses formed first and second contingency samples that were issued alongside the main sample. Over the course of the project 20 addresses from the third contingency sample were issued to interviewers. 2,711 addresses were issued in total. 1,024 interviews were conducted, providing a response rate of 38 percent. 98 percent of completed interviews were from the main to second reserve sample, with the remaining 2 percent from the third reserve. It should be noted that interviewing was conducted shortly after the lifting of COVID-19 restrictions. The public were therefore more reluctant to have strangers come to their door and take part in interviews on their doorstep. This led to a greater amount of sample being required and thus a lower response rate than would be expected before COVID-19.

According to the survey company, the response rate is lower than what it could have been before

Figure A8: Density plots for variables before and after matching. Blue shows the density for the 16 worst affected areas. All variables are scaled for readability.

the global pandemic. With this in mind, it is comparable to other survey projects. For instance, the BES across the UK achieved response rates of 44, 40, and 50 percent in 2015, 2017, and 2019. The NILT survey, which is nationally representative for Northern Ireland, achieved an average of 51 percent between 2012 and 2019, but dropped to 9 percent in 2020–the combined effect of COVID-19 and computer assisted web interviewing.[3] Crucially, non-response rates do not vary drastically depending on whether areas were predominately Catholic (or Protestant) or affected by paramilitary violence or mainly Catholic.

6.3 Balance

Table A13 shows balance across the control (those interviewed before July 12th) and the treated (those interviewed after). For balance, we include indicators collected from survey respondents (income, education, gender, and religion) as well as those collected at the SOA-level (income, crime, anit-social behaviour, and religion). The SOA-level indicators were used to select sample areas by the research team. Those collected in 2011 and 2017 are from the census and the Northern Ireland Multiple Deprivation Measures (NIMDM, 2017), respectively. we also check whether areas interviewed before July 12th were more less likely to be sampled because they were affected by paramilitary violence. The difference in means is statistically significant for only income and religion. People interviewed before July 12th reported, on average, higher levels of income. However, at the SOA-level, there is no meaningful difference in income levels as measured in 2017. Those interviewed before July 12th were also more likely to be Catholic–which is the case in the survey and at the SOA level. To account for this imbalance, we control for demographics in our main model.

Table A13: Balance table for control (interviewed before July 12) and treated (interviewed after July 12).

	Interviewed before July 12th (control)	Interviewed after July 12th (treated)	Difference in means (t.test)
N	229	719	NA
Percentage	24	76	NA
Income (mean)	2.70	2.54	0.024
Education (mean)	2.49	2.57	0.357
Female (percentage)	0.59	0.54	0.129
Protestant (percentage)	59	43	11
Income (SOA-level measured in 2017)	0.16	0.16	0.219
Crime (SOA-level measured in 2017)	31.29	29.95	0.159
Anti-social behaviour (SOA-level measured in 2017)	51.63	52.69	0.587
Percentage Catholic (SOA-level measured in 2011)	0.64	0.50	0
Violent areas (SOA-level measured in 2008-2018)	0.50	0.52	0.648

[3]For response rates, see the technical reports on the BES here and NILT here websites.

7 Sensitivity

Figure A9 displays the results if we run our main model in the paper repeatedly for different days in the survey period. More precisely, we compare attitudes towards living in mixed neighbourhoods four weeks before and after a respective date. The figure shows that in the period around the 'Twelth' inter-group attitudes decline the most strongly. This indicates that, although our treatment and control group is not perfectly balanced on all indicators, we do not merely pick up a potential selection effect but compared to other dates, the cutoff at the 'Twelfth' is indeed the threshold yielding the clearest decline in inter-group attitudes. This effect is stronger for Catholics and holds on more strongly than for Protestant respondents.

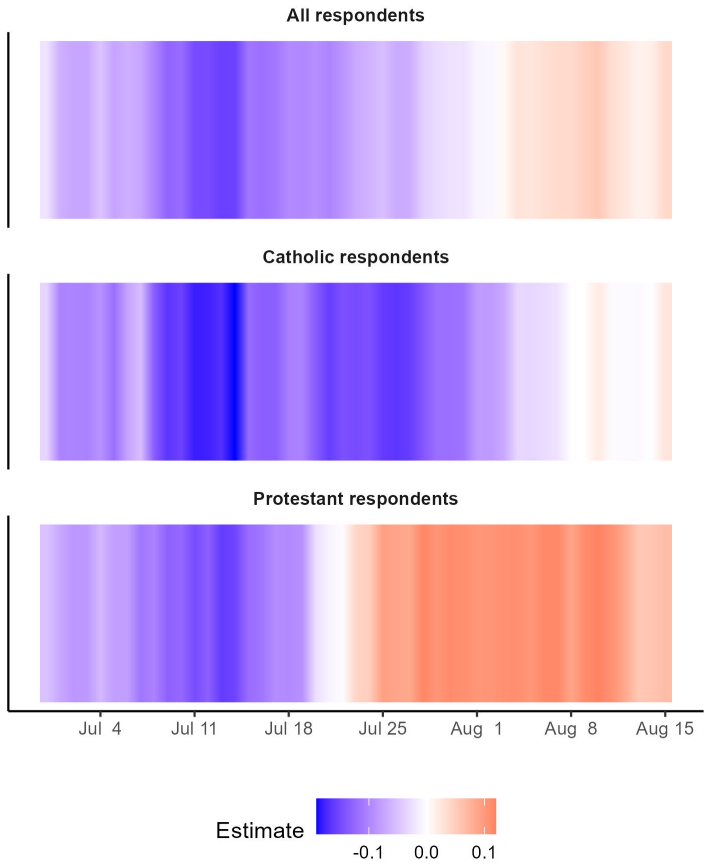

Figure A9: The main model run every day of the month comparing attitudes towards living in mixed neighbourhoods four weeks before and after the date.

7.1 Alternative modelling strategy–Before and after for the entire period

	all respondents	Catholic only	Protestant only
Interviewed after the Twelfth	−0.05	−0.00	−0.07
	(0.04)	(0.06)	(0.05)
Demographic controls	Y	Y	Y
R^2	0.10	0.05	0.19
Adj. R^2	0.09	0.04	0.18
Num. obs.	848	440	408

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

7.2 Alternative modelling strategy–within area variation

For logistic reasons, the survey company fielded the survey by area. Once an area had mostly been surveyed, it moved onto the next one. Therefore, some areas were completely surveyed before July 12th and others were surveyed after. This is not a problem for analysis because the sample aims to represent urban and deprived areas of Belfast. However, it could be that the effect of the celebrations is not the celebrations *per se*, but the difference in areas. It may explain the lack of balance on religion identified above. To account for this, we restrict our analysis to areas that were surveyed before and after July 12th. We replace the names of the areas with randomly generated letters for ethical reasons. Figure A10 shows the variation.

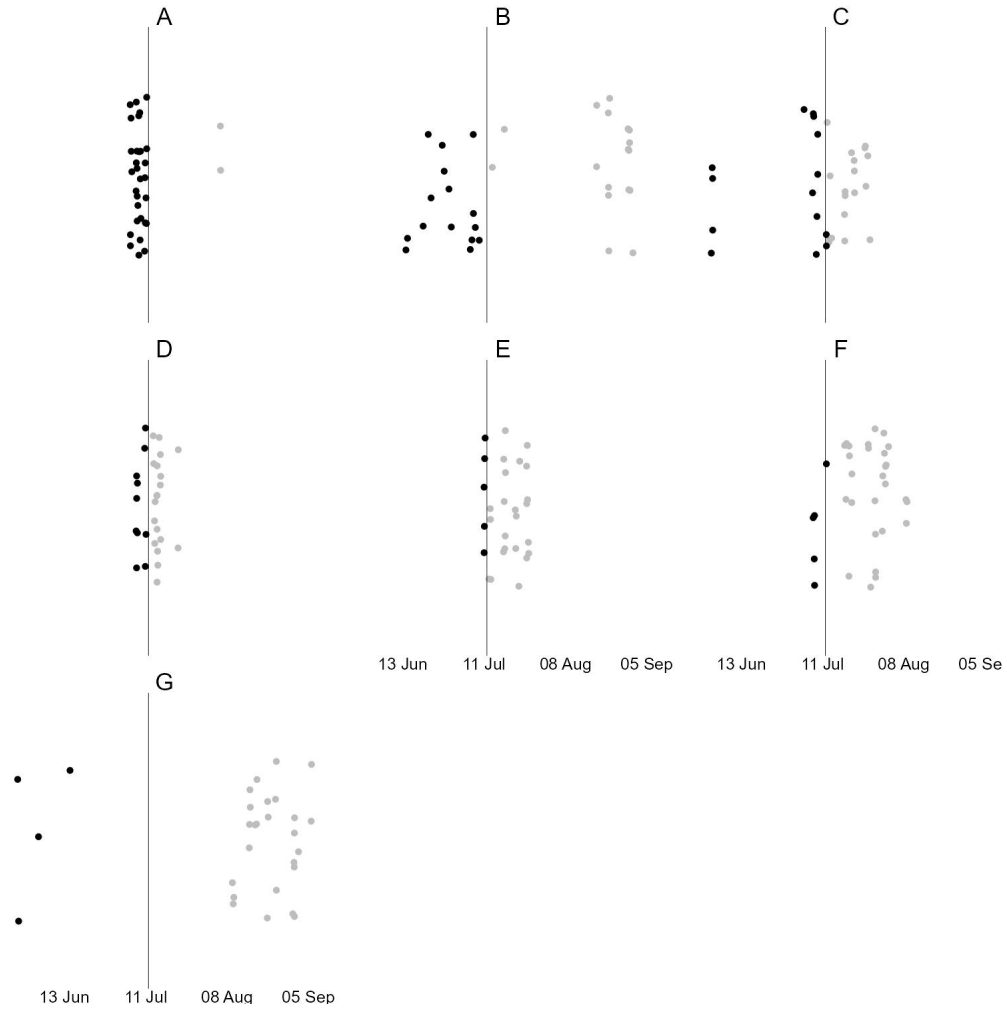

Figure A10: Respondents in areas that were interviewed before and after July 12th.

We rerun our main analysis with respondents from these areas except *H* and *I* (highlighted in Figure A10), where only one respondent was surveyed before July 12th. In this analysis, just 83 respondents (39 percent) were interviewed before July 12th and serve as our control group. The 131 respondents interviewed after reported lower levels of support for living in mixed neighbourhoods, but this effect does not reach traditional levels of statistical significance.

	all respondents
Interviewed after the Twelfth	−0.14
	(0.12)
Demographic controls	Y
SOA FE	Y
R^2	0.23
Adj. R^2	0.17
Num. obs.	191

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table A14: Effect of 'the Twelfth' on inter-group attitudes in areas where data was collected over July 12th.

7.3 Alternative modelling strategy–geographic exposure

Our main approach exploits exogenous survey timing. Thanks to the geo-location of the surveys, it is also possible to exploit both temporal and spatial variation. In this section, we do so. While this may improve causal identification, power issues mean that results can only be suggestive. Due to this limitation, we include the analysis in the appendix. To exploit the temporal and spatial exposure to parades, we use the same survey fielded between May and September 2022 in 32 urban neighbourhoods in Northern Ireland (N=1024). Here, we assume that whether a respondent was interviewed after a contentious parade *in their neighbourhood* during the fifteen weeks of fielding the survey is as-if random, and so we can compare the average treatment effect of parades on attitudes towards the out-group. We hand coded the entire route of 100 sensitive parades that occurred in Northern Ireland over the study period.

We first restrict the survey to respondents who either identify as Protestant or Catholic and live in a low-level census tract – known as Super Output Areas (SOAs) – in which a parade took place at least once during the time the survey was in the field (12 May to 24 September). The total sample size is 222 respondents. We consider survey respondents as being *treated* if they were interviewed within a certain number of days after a contentious parade in their area (N < 86). Respondents interviewed in other areas in which no contentious parade took place at least two weeks before they answered the survey are not *treated* and serve as our *control* group (N=136). This approach is quasi-experimental because it ensures that all respondents live in areas that are exposed to contentious parades but only the timing of their interview differs. Our main outcome variable is the answer to the following question: *If you had a choice, would you prefer to live in a neighbourhood with people of only your own religion, or in a mixed-religion neighbourhood?* Lower scores indicate a preference for living with people from respondents' own religion. We compare attitudes towards inter-group mixing in respondents who were interviewed before a parade to those who were not interviewed within two weeks after a parade to assess the effect of contentious parades on views of the out-group.

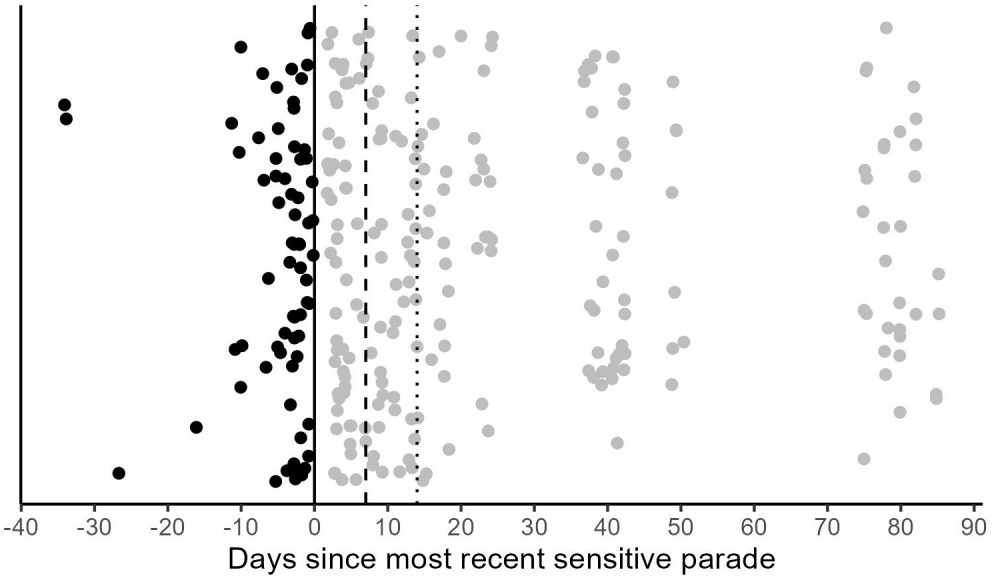

Figure A11: The number of respondents interviewed in the days after a contentious parade.

We use temporal windows varying from one day to two weeks (14 days), which affects the size of the treatment group (see Figure A11). The results are shown in Figure A12. We do not report the results from temporal windows of one or two days because the sample sizes are too small. The y-axis shows the treatment effect, which is the difference in means between the control and treatment group. The x-axis shows different temporal windows. For each temporal window, we also report the size of the treatment group. Each estimate shows 90 and 95 percent confidence intervals. The three panes show the result for all respondents (column 1), respondents who identify as Catholic (column 2), and respondents who identify as Protestant (column 3), which are represented by different colours. The results for all respondents indicate that contentious parades lead to a lower level of support for living in mixed neighbourhoods, our measure for inter-group relations. However, when we subset into the two communities, we find that this effect is driven primarily by respondents who identify as Catholic. The results however are not statistically significant, although the effect is consistently negative. This could be due to two reasons. Firstly, it is possible that the effect of parades on inter-group relations is not limited geographically but extends to the broader population of Northern Ireland with little local variation, since parades are extensively covered in official and social media. If so, this justifies our preferred approach presented in the manuscript. Secondly, the lack of significance may also be simply due to lack of statistical power. Future work could attempt to combine geo-located survey data and the ICP dataset.

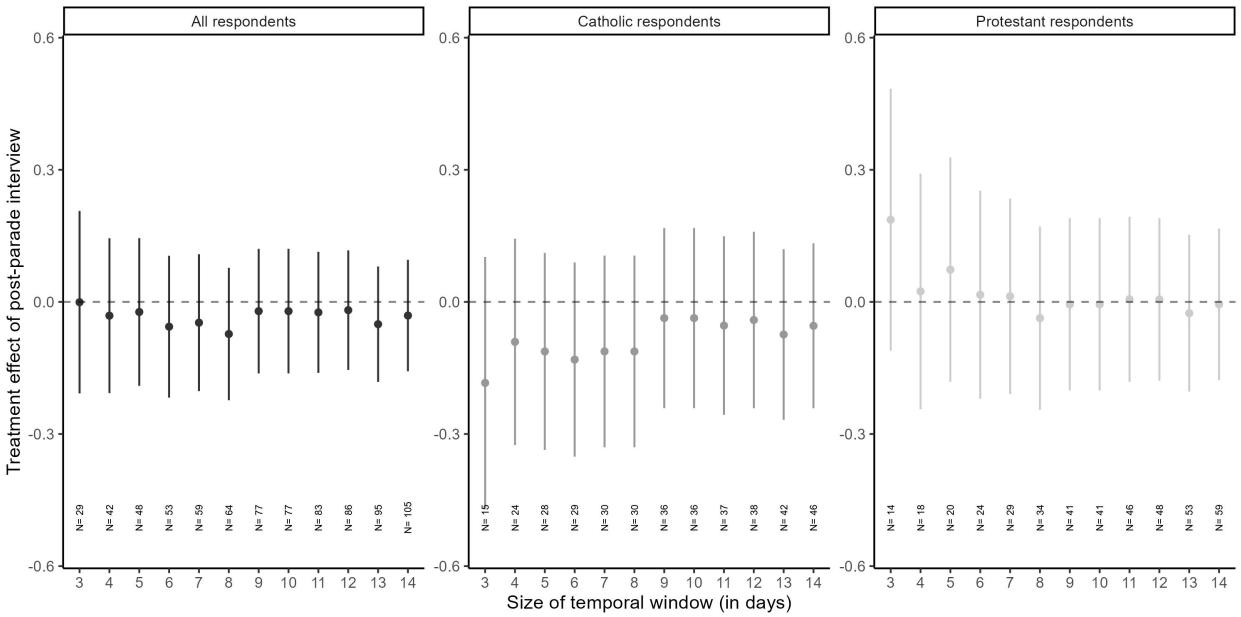

Figure A12: The effect of contentious parades on inter-group attitudes with a large control group.

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