Social mobilisation in partisan spaces

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Abstract

Three decades ago Huckfeldt and Sprague hypothesised that partisan context constrains information sharing between neighbours. We develop their theory to identify implications for campaign mobilisation in homogeneous and mixed-partisan contexts. We argue that GOTV spillover effects should vary with the proportion of rival party supporters in a neighbourhood. Based on two samples of households that were either included or excluded pre-random assignment from a street-level GOTV experiment, we test this expectation of differential spillover effects. We estimate neighbourhood party preferences based on targeting data made available by the UK Labour Party. We find that spillover effects on party supporters are smaller in neighbourhoods that include larger shares of rival party supporters. Rival partisans are mobilised in mixed partisan neighbourhoods where the probability of spillovers from mixed partisan households is higher. This paper extends Huckfeldt and Sprague's theory, and demonstrates the importance of social dynamics for parties' campaign strategies.

Keywords: mobilization, GOTV, social networks, spillover, election

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Motivation

As Huckfeldt, Plutzer and Sprague (1993, 366) wrote over a quarter of a century ago, "the central motivation for contextual theories of politics is the idea that patterns of social interaction are influenced by surrounding population distributions". There has been a lively debate about how political heterogeneity conditions political mobilisation within social networks, such as the household and the neighbourhood (Mutz 2006; Klofstad, Sokhey and McClurg 2013; Bello and Rolfe 2014). However, little progress has been made in applying Huckfeldt and Sprague's (1987; 1995) insights about how the partisan composition of a social space constrains social and political interactions between citizens, to the effectiveness of parties' ground campaigns. There is a growing experimental literature (Townsley 2018; Foos and de Rooij 2017*a*) on the effects of partisan campaign canvassing in the United Kingdom that confirms findings from the United States: GOTV campaigns are effective at increasing turnout (Nickerson, Friedrichs and King 2006). Moreover, GOTV spillover experiments show that campaign contact spills over within households (Nickerson 2008; Bhatti, Dahlgaard, Hansen and Hansen 2017), giving credibility to the theoretical claim supported by observational research (Fieldhouse and Cutts 2016) that "all turnout is, in a sense, mobilized, with much of the mobilization occurring indirectly" (Rolfe 2012, 121). However, there is mixed causally-identified evidence on GOTV spillover effects between neighbours (Sinclair, McConnell and Green 2012; Gay 2012). To identify treatment effects, most GOTV experiments assume that spillovers exist within, but not between households. This assumption runs counter to work which suggests that voters' decision whether to turn out is influenced by the behaviour of their peers (Rolfe 2012). This suggests that relatively large spillover effects can materialise due to cascades of mobilisation from neighbour to neighbour (Fowler 2005*b*; Fieldhouse, Lessard-Phillips and Edmonds 2016).

There is little theory and evidence on whether dynamics of intra-household mobilisation are linked to inter-household mobilisation within neighbourhoods. In this paper, we provide theory and evidence to fill this gap. Neighbourhoods, in contrast to households, are usually made up of weak ties (Morey, Eveland and Hutchens 2012), and therefore we follow Huckfeldt and Sprague's (1987) prediction that neighbours intend to share information with co-partisans. Yet campaign effects can still spill over to supporters of rival parties. Based on a campaign experiment conducted in the UK, Foos and de Rooij (2017*b*) show that a party's canvassing campaign directly mobilised targeted voters, but also indirectly mobilised household members who supporters or opposed the party that initiated contact. Since we find a higher share of mixed partisan households in mixed-partisan neighbourhoods, we expect voters in mixed households to mobilise neighbours who share the same party preference. In the worst case for campaigns, these patterns of between-household contagion can increase turnout overall, but render parties' mobilisation campaigns ineffective at moving vote shares.

Using targeting data collected by Labour Party canvassers and leveraging the spillover effects of a randomised field experiment, we confirm the existence of mobilisation dynamics that link mixed partisan households to politically heterogeneous neighbourhoods. Indirect mobilisation effects of a Labour Party leafleting

campaign varied among neighbours conditional on the partisan composition of neighbourhoods. In neighbourhoods with a large share of Labour supporters, GOTV effects spilled over to Labour supporters who were not initially targeted. There were no spillover effects to Labour supporters in neighbourhoods where a majority of residents supported a rival party. Supporters of rival parties were mobilised in mixed partisan neighbourhoods where spillovers could originate from households where Labour supporters live with rival partisans.

From intra- to inter-household mobilisation

The local area of the neighbourhood is an important site of social interaction (Enos 2017). Even though informal and low intensity in character, the neighbourhood can have a strong impact on social and political outcomes over time (Gay 2012). From prior research, we expect that the partisan context in which election campaigns take place should affect the formation and maintenance of discussion networks within neighbourhoods (Huckfeldt and Sprague 1987). If neighbours prefer to share information with like-minded others, GOTV spillover effects between neighbours should be conditional on shared partisanship.

The network literature suggests that the strength of social ties conditions how willing individuals are to engage with others who disagree with them politically (Morey, Eveland and Hutchens 2012). Household members who support different parties continue to talk politics (Bello and Rolfe 2014) and mobilise each other during election campaigns (Foos and de Rooij 2017*b*). In contrast, when ties are weak, individuals may refrain from sharing information (Mutz 2006). However, the link between household and neighbourhood mobilisation dynamics has rarely been investigated. Parties usually target voters for GOTV who are likely to support them, hence they are unlikely to target households that do not contain at least one pre-identified party supporter. Canvassers are homophilous and are more likely to talk to voters who are similar to themselves (Nall, Schneer and Carpenter 2017). However, from prior research we know that when canvassers speak to supporters who live in mixed partisan households, rival partisans will be mobilised to vote (Foos and de Rooij 2017*b*). Even if parties correctly identify supporters and opponents based on detailed targeting data, citizens are at an information disadvantage. They should be more likely to mis-identify co-partisans in mixed partisan neighbourhoods (Huckfeldt and Sprague 1987). In both cases, even if the party as well as party supporters intend to exchange information only with co-partisans, targeting mixed neighbourhoods can have the unintended consequence of mobilizing both co-partisans and supporters of rival parties. This logic is displayed in Appendix Figure A1.

Household dynamics have implications for political mobilisation within neighbourhoods because political information flows between citizens depend on the strength of personal ties between supporters of different parties, i.e. whether they share the same household. When Labour canvassers mobilise Labour voters in homogeneous households, the contacted individual not only mobilises her household member, but this contact also spills over to other Labour partisans in neighbouring households. When canvassers target mixed partisan households, partisans of all stripes are mobilised. In this case, even if spillover between households in a

neighbourhood flows between co-partisans, rival partisans who are indirectly mobilised within the household can mobilise their co-partisans within the neighbourhood. This is the opposite of the intended effect of a partisan GOTV campaign.

Experimental set-up

To test these expectations, we use data on individuals excluded pre-random assignment from a partisan GOTV experiment that we previously conducted in collaboration with the UK Labour Party during the 2014 European and local election campaign in one English parliamentary constituency and local government jurisdiction. The constituency has a large Labour majority, and the wards the party chose to campaign in were Labour held.[1] We compare the turnout rates of non-experimental subjects living in streets assigned to treatment with non-experimental subjects living in control streets. We also use geocoding to investigate whether treatment effects vary conditional on whether the members of the closest household support Labour or a rival party. The analysis focuses on the indirect mobilisation effects of a GOTV-leafleting campaign conducted by the UK Labour Party.[2] The treatment in the original experiment was a partisan leaflet that highlighted either the Conservative government's failure on the NHS or on crime and policing, and which was put through the door by local Labour Party volunteers. Besides the issue-specific content, all leaflets included an appeal to vote Labour in the local and European elections on 23 May 2014.[3] The treatment materials are displayed in Appendix Figure A2. As specified in the pre-analysis plan[4], to maximise statistical power for the spillover analysis, we combine both treatment arms into one. Validated turnout was obtained at the individual level from the public register, then merged with the random assignment and pre-treatment covariates.

The original set-up of the randomised field experiment lends itself to the analysis of social influence between neighbours because, initially, large numbers of households were excluded from the experiment based on design and feasibility considerations. By retracing the restrictions which were used to create the original experimental sample, we are able to generate a data set of households located on treatment and control streets which were not part of the experiment. The detailed sample selection procedure is described in Data Appendix 1. This enables us to use two strategies to identify spillover effects between neighbours. First, we locate streets within electoral wards. If a street crosses a ward boundary, we reallocate the entire street to the ward where the majority of households is located. We followed this procedure because we used block-random assignment to treatment and control streets within wards, and splitting a street into two might have increased the danger of volunteers inadvertedly treating households assigned to the control group.

[1] See Appendix B for background details on research site.

[2] The party campaigned as it normally would, and the experimental assignment to treatment and control streets reflected the need to allocate scarce resources. Even under the most conservative assumptions, the 3% point increase in turnout on treatment streets that we estimate could neither have affected the council majority, nor the seat allocation in the European or local elections.

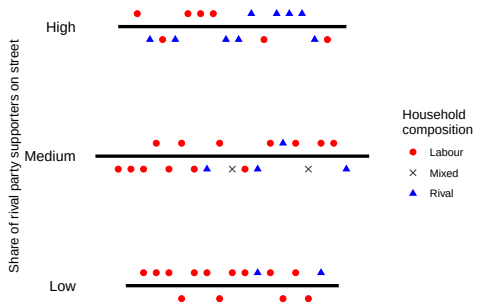
[3] As is well known (Reif and Schmitt 1980, p.14), parties campaign on national issues in second order elections because voters consider national politics to be more important than supranational and/or local matters.

[4] See `http://egap.org/registration-details/4388` for re-registered hypotheses and the de-identified PAP.

We then operationalise the larger neighbourhood of each subject as the street the subject lives on. We then compare individuals living in households excluded from the original experiment located in treatment streets to individuals living in excluded households located in control streets, under the identification assumption that spillovers occur within but not between streets. Second, we define the immediate neighbours of each individual as those subjects living in the most proximate household on the same street. To locate the most proximate household, we first locate all the household addresses on the map through geocoding and we compute Euclidean—or direct line—distances between households that are located on the same street. For each non-experimental household, we then identify the closest experimental household by minimising this distance. If there are ties, we average across all equally proximate households. The geolocation and distance computation is explained in detail in Data Appendix 2. The resulting dataset contains individual-level information on the neighbours of 16,014 non-experimental subjects living on 615 streets.

Partisan heterogeneity

Figure 1: Partisan heterogeneity within and between streets



As pre-registered, we define partisan heterogeneity as the share of rival party supporters who live on the same street (analysis 1), and the share of rival party supporters who live in the most proximate household on the same street (analysis 2). There are, of course, many reasonable alternative ways of how we could define partisan heterogeneity (e.g. the proportion of Labour supporters), and how we could define a neighbourhood (e.g. by postcode), and this is the reason for why we registered our preferred definition in the pre-analysis plan. Our dataset contains information about the party preferences of 8,375 experimental subjects and 16,014 non-experimental subjects. The data on party preferences used to estimate the share of rival party supporters per street and most proximate household is estimated based on pre-treatment targeting data collected by Labour Party canvassers. For an extensive validation of the canvassing-based voting intention measure used in this paper, see Foos (2018) who uses the same measurement instrument in a different constituency. The shares of party self-identifiers in the experimental and the non-experimental samples are displayed in Appendix Figure A1. Moreover, the distribution of rival party supporters per street is displayed in Appendix Figure A3, which shows that the share of rival partisans in a neighbourhood is approximately normally distributed in our sample.

Figure A4 in the Appendix shows the correlation between the partisan composition of neighbourhoods and the partisan composition of the most proximate household, the two measures used in this paper. Mixed partisan neighbourhoods have a significantly larger share of mixed partisan households. That means that in line with Figure 1, individuals who live in mixed partisan neighbourhoods are also more likely to live next to a mixed partisan experimental household.

Analysis

We estimate the following linear models, clustering standard errors at the level of assignment, the street level:

$$Y_i = \alpha + \beta Z_i + \epsilon_i \ (1)$$

$$Y_j = \alpha + \beta Z_j + \epsilon_i \ (2)$$

$$Y_j = \alpha + \beta_1 Z_j + \beta_2 X_{1ij} + \beta_3 X_{1ij} * Z_j + \epsilon_{ij} \ (3),$$

where Y_i is validated individual-level turnout (1 or 0) for subjects living in households originally included in the experiment, Y_j is validated individual-level turnout for subjects living in households originally excluded from the experiment, α is the turnout rate in the experimental or non-experimental control group, Z is location on a treatment (1) or control (0) street, X_1 is the share of rival party households in a street, and ϵ is the error term. All models also include fixed effects for experimental blocks (electoral wards).

We also pre-registered the following equation, which identifies indirect mobilisation effects conditional on the partisan composition of the most proximate household:

$$Y_j = \alpha + \beta_1 Z_j + \beta_2 X_{2ij} + \beta_3 X_{2ij} * Z_j + \beta_4 X_{3ij} + \beta_5 X_{3ij} * Z_j + \beta_6 X_{2ij} * X_{3ij} + \beta_7 X_{2ij} * X_{3ij} * Z_j + \epsilon_{ij},$$

where X_2 is the share of rival party supporters within the most proximate household, and X_3 is the Euclidean distance to the closest household. Since linear interaction terms lack common support, we diverge from our PAP and estimate the interaction effects using the binning method proposed by Hainmueller, Mummolo and Xu (2019). We now estimate the following equation in Table A4 :

$$Y_j = \alpha + \beta_1 Z_j + \beta_2 X_{2ij} + \beta_3 X_{3ij} + \beta_4 X_{2ij} * Z_j + \beta_5 X_{3ij} * Z_j + \beta_{\mathbf{6}} \mathbf{X'_{ij}} + \epsilon_{\mathbf{ij}} \ (4),$$

where X_2 are mixed partisan households, X_3 are rival-only households, and X'_{ij} is a matrix of k pre-treatment covariates for n subjects in household j. Pre-treatment covariates include the Euclidean distance to the closest experimental household, the number of subjects in the closest experimental household, and the interaction between the number of subjects in the closest experimental household and treatment assignment. Moreover, we further diverge from our pre-analysis plan by restricting our sample to subjects for whom the Labour Party collected pre-treatment data on party preferences. We did not anticipate that these data would be missing for around 50% of our sample. We present the main analysis for the complete sample including those subjects that do not identify with any party in Figure A7. Finally, we report the results of the analyses conditioning on the partisan composition of the neighbourhood and the partisan composition of the household as pre-specified for the full sample of party supporters, and separately for Labour and rival party supporters.

Table 1: ITT of leaflet on turnout of experimental and non-experimental households

	Direct effect	Indirect effect (spillover)
Control mean	0.489	0.336
	(0.026)	(0.020)
Leaflet	0.028	0.024
	(0.018)	(0.013)
Block fixed effects	Yes	Yes
Cluster standard errors	Yes	Yes
N individual	8375	16014
N cluster	615	615

As pre-specified, we report both unadjusted and covariate-adjusted ITTs. We report the covariate-adjusted analyses (turnout in the 2013 local election, household size, and gender) in Appendix figures A9 and A11.

Results

We conduct differential attrition checks and balance checks using randomization inference. The p-value of .39 indicates that there is no evidence of differential attrition as a function of treatment assignment (for a full explanation of the procedure see Figure A5 in the Appendix). Table A2 shows balance on available pre-treatment covariates, household size, gender, turnout in the 2013 local elections, as well as Labour or rival party identification. We also conduct a balance test using randomization-inference, which shows that in 875 of 5000 simulated random assignments, imbalances between treatment and control groups were larger or as large as in our dataset, which corresponds to a two-tailed p-value of .18 (see Figure A6 in the Appendix).

First, Table 1 displays the direct Intent-to-Treat (ITT) effects of the Labour GOTV leaflet on validated turnout among individuals living in households that were initially included in the experiment (Direct effect), and the indirect ITT effects on individuals living in households that were initially excluded from the experiment (Indirect effect). Table 1 shows that the leaflets successfully mobilised voters to turn out. Experimental subjects on streets assigned to treatment were 2.8 percentage points more likely to turn out than subjects on streets assigned to control. Non-experimental subjects on streets assigned to treatment were around 2.4 percentage points more likely to vote, which indicates that around 86% of the direct effect spilled over. Control group turnout is lower among subjects in the non-experimental sample than among subjects in the experimental sample. This is the case because subjects in the non-experimental sample are not a random sample of all subjects. They were chosen according to the sample selection criteria set out in Data Appendix 1 and include a larger share of previous non-voters (see Table A1). This does not invalidate our identification because comparisons are made within, not between samples, across treatment and control streets. The magnitude of the spillover effect is consistent with cascade effects within neighbourhoods (Fowler 2005*a*), and might also be a function of the relatively low baseline turnout rate.

Table 2 displays the indirect Intent-to-Treat (ITT) effects (spillover effects) of the Labour GOTV leaflet on validated turnout among individuals living in households that were initially excluded from the experiment, first for all party supporters (columns I and II), and then separately for identified Labour supporters (columns III and IV), and identified supporters of rival parties (columns V and VI). Columns I, III, and V display the main effects, and columns II, IV, and VI introduce the interactions between the treatment and the pre-treatment share of rival party supporters identified to live on the same street. This is a treatment-by-covariate interaction, which is not causally identified, meaning that we cannot be sure that Conditional Average Treatment Effects arise *because* of the share of rival party supporters. The pre-treatment covariate could be correlated with other unobserved street-level confounders. We account for two of these alternative street-level covariates, the share of experimental subjects per street, and the share of subjects per street who turned out to vote in the preceding 2013 local elections in Table A3 in Appendix I. We also include the interaction of these street-level covariates and treatment assignment.

Table 2: ITT of leaflet on turnout of non-experimental subjects conditional on partisan composition

	All Party Supporters		Labour Party Supporters		Rival Party Supporters	
	I	II	III	IV	V	VI
Control mean	0.401	0.296	0.420	0.268	0.389	0.291
	(0.025)	(0.042)	(0.034)	(0.054)	(0.028)	(0.066)
Leaflet	0.027	0.097	0.027	0.134	0.027	0.069
	(0.017)	(0.045)	(0.021)	(0.055)	(0.022)	(0.075)
prop street rival partisan		0.296		0.467		0.256
		(0.111)		(0.153)		(0.169)
prop street rival partisan x leaflet		−0.215		−0.369		−0.112
		(0.132)		(0.182)		(0.197)
Block fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster standard errors	Yes	Yes	Yes	Yes	Yes	Yes
N individual	10231	10231	5606	5606	4625	4625
N cluster	615	615	615	615	615	615

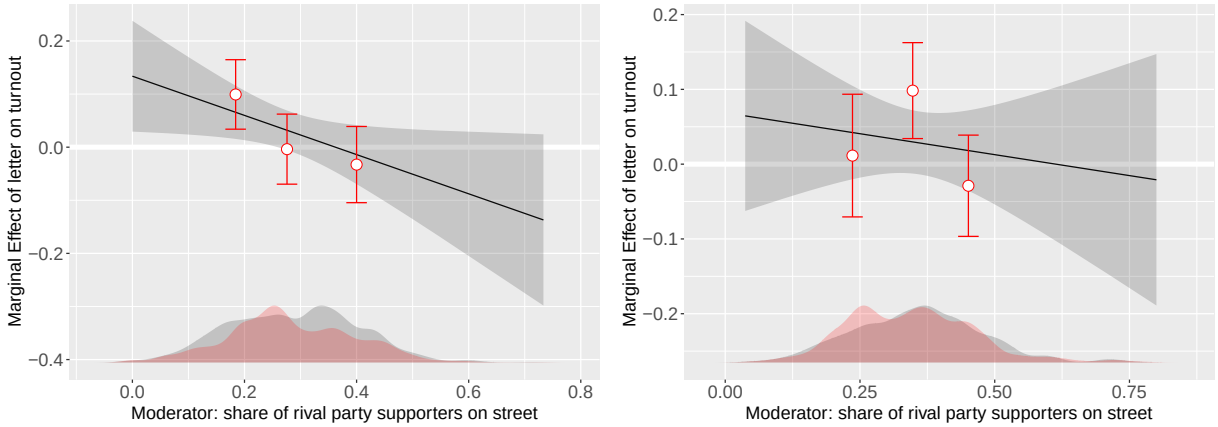
Note: Standard errors clustered at the street level (CR2). Inverse probability weights for differential probabilities of assignment to treatment between experimental blocks.

Table 2 and Table A3, as well as Figure A7 in the Appendix consistently show that the higher the share of rival party supporters in a neighbourhood, the lower the effects of the GOTV leaflet, which is in line with our expectations of how information sharing between partisans in neighbourhoods should translate into campaign mobilisation. The bins reflect relatively low, medium and high shares of rival party supporters who reside on the same street. We then estimates the ITT of the leaflet within each bin separately.[5] For Labour supporters, spillover effects are positive and significantly different from zero if they reside in predominantly Labour areas. However, the treatment effects are no longer significant once the share of rival party supporters passes 30% of all neighbours. In contrast, spillover effects are estimated to be zero for rival party supporters who reside in

[5]We report smooth estimates of the conditional spillover effects and the raw data for treatment and control groups, as well as linear and loess estimates between the moderator and the outcome in Figure A10 of the Appendix. The smooth estimates show no meaningful deviations from the binning estimates reported in the main analysis.

neighbourhoods dominated by either party. They only materialise in neighbourhoods that have a mix of Labour and rival party supporters. Figure 2 and Appendix Figure A9 plot the interaction between the treatment and the share of rival party supporters in the neighbourhood separately for Labour party supporters and rival party supporters using the method proposed by Hainmueller, Mummolo and Xu (2019). We divide each sample into three equally sized bins, that means there is approximately an equal number of individuals in each bin.

Figure 2: Marginal effects of leaflet conditional on partisan composition of the neighbourhood



a) Labour supporters b) Rival party supporters

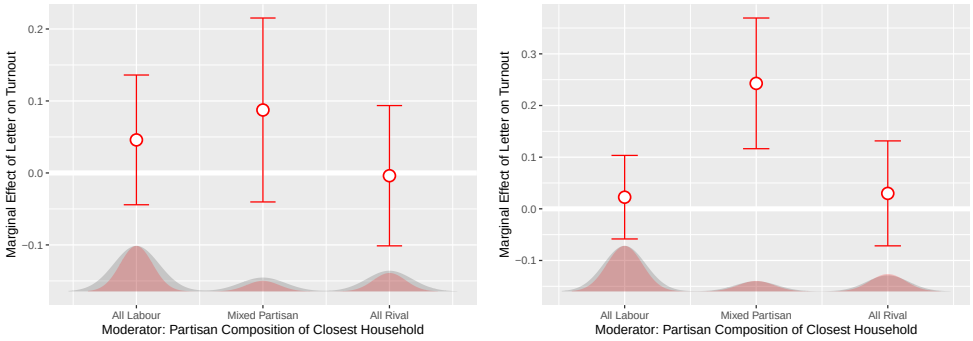
Partisan composition of closest household

Having shown that indirect mobilisation effects from a GOTV campaign vary with the partisan composition of the street on which a voter lives, we now consider whether they also vary if we look at the partisan preferences of the closest neighbouring household. Figure 2 plots the marginal effect of the linear interaction between the treatment and the share of rival party supporters in the most proximate household on the turnout of subjects living in households excluded from the experimental sample. Figure 3 shows that the estimate is zero when the most proximate experimental household only includes rival party supporters. The estimate is 5 percentage-points when the most proximate household consists of Labour Party supporters only, and it is 9 percentage-points when the most proximate household is mixed. Both estimates are not significantly different from zero at the 0.05 level. In contrast, Figure 3 shows that rival party supporters mobilise if the closest experimental household contains a mix of party supporters. Spillover effects from experimental households that contain only Labour party supporters or only rival party supporters are zero.

Discussion and Conclusion

Campaign effects can spill over within neighbourhoods, and the magnitude of indirect, social campaign mobilisation can be predicted by the partisan composition of neighbourhoods. We use a combination of experimental and targeting data to test the prediction that indirect mobilisation between neighbours is less likely in neighbourhoods that contain a large share of citizens who oppose the party that initiates contact. In neighbourhoods

Figure 3: Marginal effects of leaflet conditional on partisan composition of the closest household



a) Labour partisans b) Rival party supporters

dominated by a rival party, we would expect individuals sympathetic to the party that initiates contact to avoid sharing information with neighbours (Huckfeldt and Sprague 1992). In the case of households composed of rival party supporters, we would expect citizens to discount information that comes from a party they do not support (Foos and de Rooij 2017*a*). Our results comport with these expectations.

Theoretically we link mobilisation dynamics within neighbourhoods to inter-household spillovers between supporters of different parties. If campaign messages are shared in households irrespective of voters' party preferences, then partisan contexts that contain a large enough share of citizens sympathetic to the party that initiates contact should facilitate indirect campaign mobilisation, part of the cascade of mobilisation outlined in other studies (Fowler 2005*a*). We suggest that this is the case both for in-party supporters and supporters of rival parties. The latter are mobilised in mixed partisan neighbourhoods because the share of mixed partisan households that contain one rival party supporter who can pass on the information, is higher. Understanding the interaction between these intra- and inter-household spillovers in different partisan contexts contributes to the success or failure of a party's GOTV strategy. Our results match the intuition common among canvassers that targeting mixed neighbourhoods can trigger an unintended chain of mobilisation among supporters of rival parties. These unintended consequences should be less prevalent in contexts subject to increasing partisan geographical sorting (Martin and Webster 2018; Hersh and Nall 2013). Our findings confirm that heterogeneous social settings can lead to partisan (counter-)mobilisation, especially if they contain a large enough share of citizens who support the party that initiates contact. This finding is consistent with Enos (2016) who shows that white Americans are more likely to turn out if they live in the vicinity of African Americans.

Finally, this study's results have implications for the design of GOTV experiments. If campaign leaflets or door-to-door canvassing spill over between households, then conducting random assignment at the household level might bias the treatment effect estimator. Our study is a first attempt to integrate randomised campaign experiments and spatial analysis in order to make sense of how social influence operates within political contexts. We hope that it will encourage more sophisticated work at this methodological intersection.

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Appendix

A Hypotheses

We pre-registered the following hypotheses:

- **H1 - one-sided hypothesis: Neighbourhood effects hypothesis** : *Subjects living in non-experimental households in treated streets are more likely to turn out than subjects living in non-experimental households in control streets.*
- **H2: Partisan mobilisation hypothesis** : *The more politically heterogeneous the street, the weaker the spillover effects between experimental and non-experimental households.*
- **H3: Partisan competition hypothesis** : *The more politically heterogeneous the street, the stronger the spillover effects between experimental and non-experimental households.*
- **H4 - one-sided hypothesis: Neighbourhood effects hypothesis** : *The closer the distance between non-experimental households and experimental households in treated streets, the more likely subjects living in non-experimental households are to turn out compared to non-experimental households living at the same distance to experimental-households in control streets.*
- **H5: Partisan mobilisation hypothesis** : *The closer the distance between non-experimental households and experimental households of the same partisan identity in treated streets, the more likely subjects living in non-experimental households are to turn out compared to non-experimental households living at the same distance to experimental-households in control streets.*
- **H6: Partisan competition hypothesis** : *The closer the distance between non-experimental households and experimental households of a rival partisan identity in treated streets, the more likely subjects living in non-experimental households are to turn out compared to non-experimental households living at the same distance to experimental-households in control streets.*

B Background on the Research Site

The partner for this project was the Labour party in a parliamentary constituency in a small city located the southern part of England. We worked with its Member of Parliament and campaign team. Even though the target elections for this experiment are for the larger European Union constituency of South West of England with its seven MEPs, and a local district (city-based) local government election, the Westminster constituency party is responsible for organising campaigning.

Although there has been a MP for the city since 1295, the current boundaries were last changed in 2010. The constituency has 74,955 registered electors. The constituency covers most of the urban area bar two electoral wards.

In the 2010 General Election, which was the one prior to the research taking place in 2014, Labour won the seat with 38.0 per cent of the vote, the Conservative Party came second with 33.0 per cent, Liberal Democrats came third with 20.0 per cent, with the rest of the vote share going to small parties, UKIP, BNP, Green and the Liberal Party. There are thirteen wards within the constituency, nine of which were selected for the experiment (the most Conservative supporting were excluded).

The local authority boundaries extend beyond the parliamentary constituency. It has 62 seats, which are elected in thirds each year, hence the need for a campaign in 2014. In May 2012, the Labour Party became the majority party on the local council.

C Link between inter- and intra- household mobilization

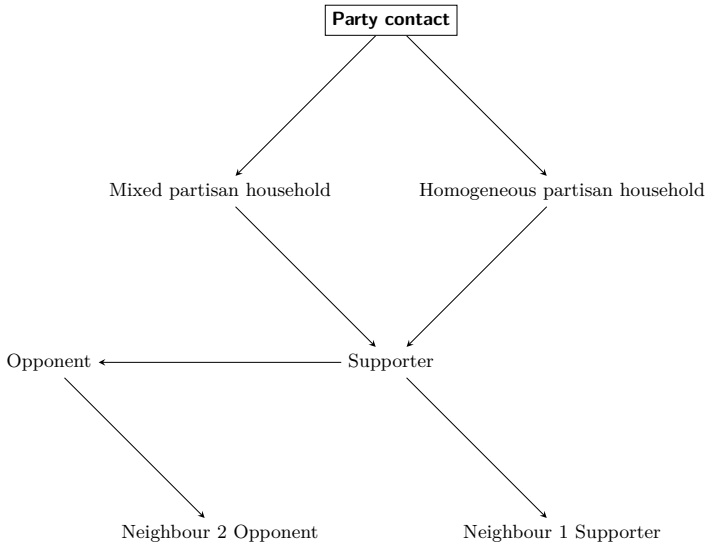


Figure A1: *Link between inter- and intra- household mobilization*

D Treatment materials

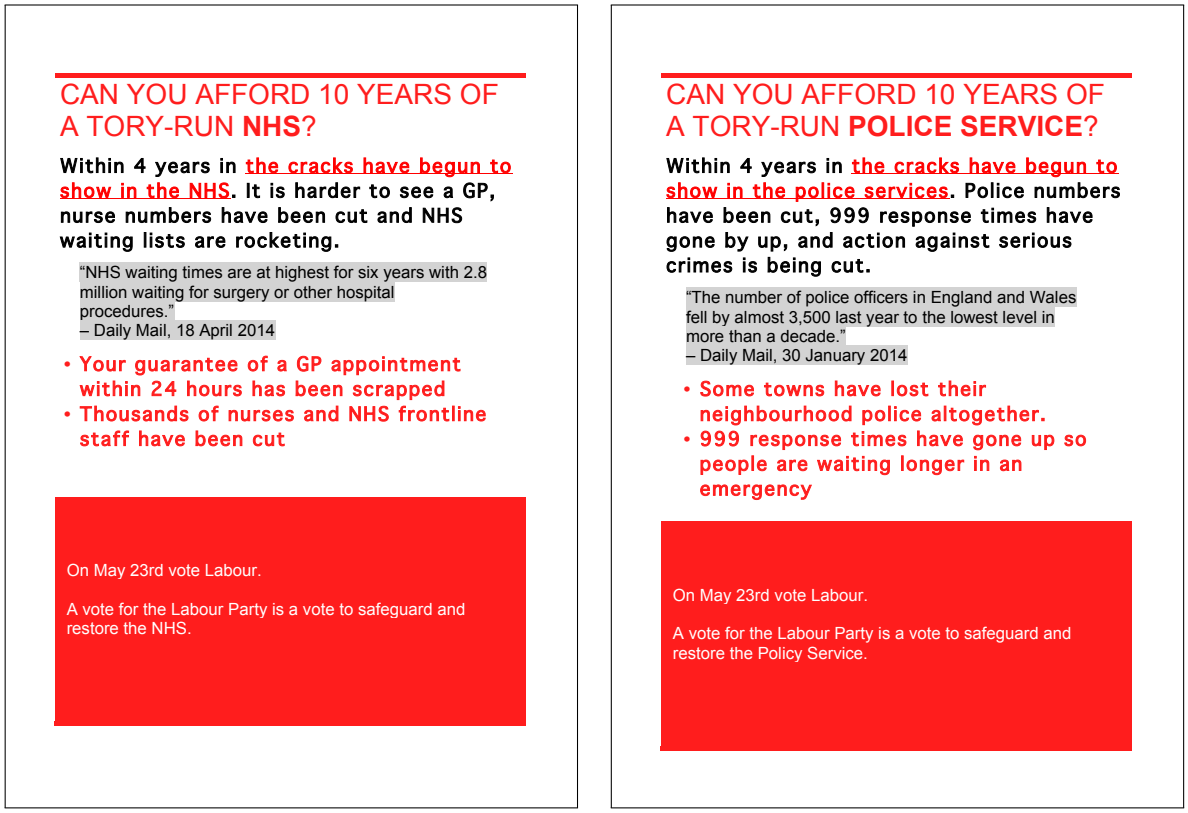


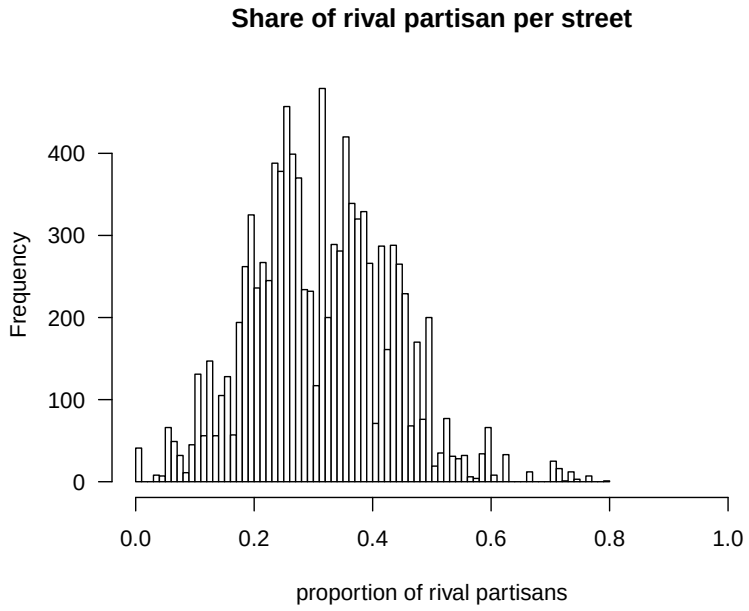
Figure A2: a) Healthcare-themed GOTV leaflet b) Crime- and policing-themed GOTV leaflet

E Distribution of party self-identifiers

Table A1: Share of party identifiers in experimental and non-experimental samples

party id	direct	direct_prop	indirect	indirect_prop	total
conservative	628	0.07	896	0.06	1,524
labour	3,381	0.40	5,606	0.35	8,987
nonvoter	196	0.02	2,680	0.17	2,876
other	1,999	0.24	3,103	0.19	5,102
rivalparty	2,171	0.26	3,729	0.23	5,900
total	8,375	1.00	16,014	1.00	24,389

Figure A3: Distribution of neighbours who support a rival party



F Correlation between share of rival partisans on the same street and share of rival partisans in the most proximate household

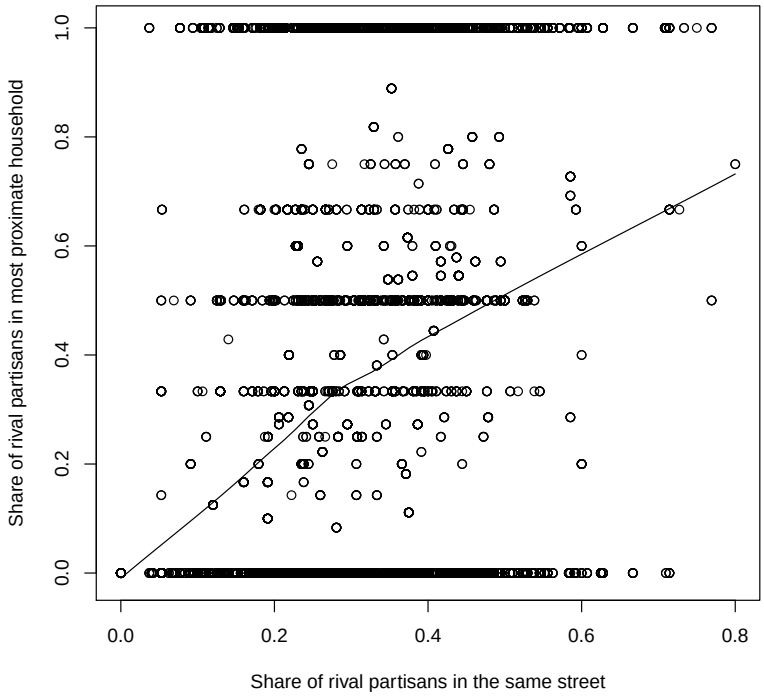
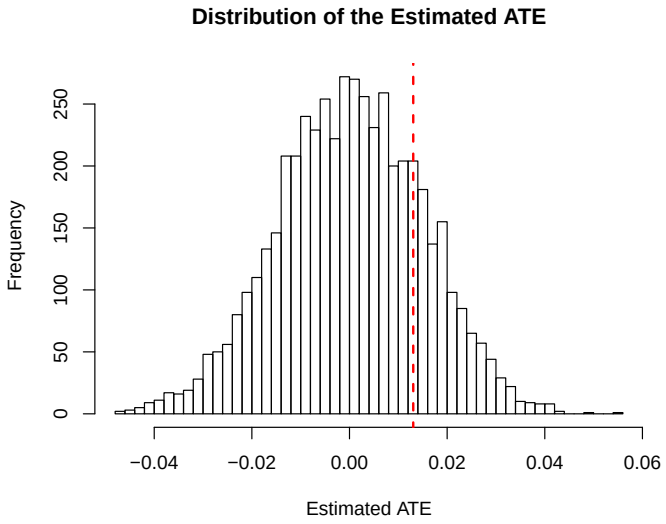


Figure A4: *Correlation between share of rival partisans on the same street and share of rival partisans in the most proximate household (kernel smooth function)*

G Attrition Check

To check whether individuals in treatment streets are more likely to attrite than individuals in control streets, we estimate the f-statistic from regressing missingness in the outcome variable on assignment to treatment or control streets. We then simulate assignment to treatment and control 5,000 times under the sharp null hypothesis and compare the mean of the f-statistics we obtain under the sharp null to the actual f-statistic from our random assignment.

Figure A5: Attrition figure



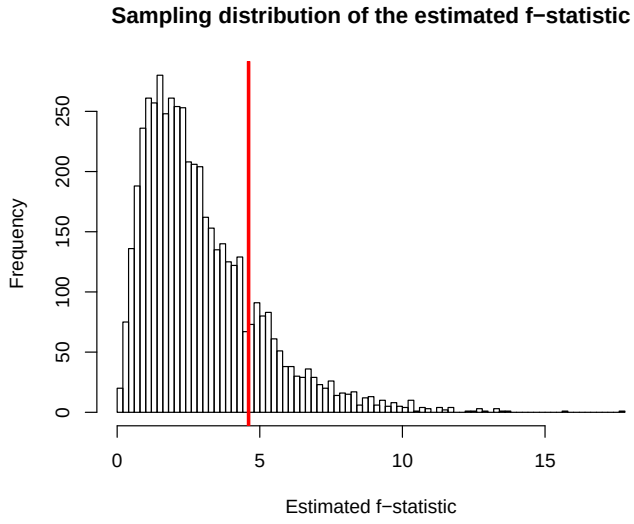
a) Ri-test for differential attrition (p-value: 0.39)

H Balance check

Table A2: Balance table

	Control streets	Treatment streets
Household size	2.26	2.22
Male	47.4%	46.3%
Voted 2013	35.6%	36.7%
Labour id	52.2%	55.8%
Rival Party id	38.7%	35.6%
Conservative id	9.1%	8.6%

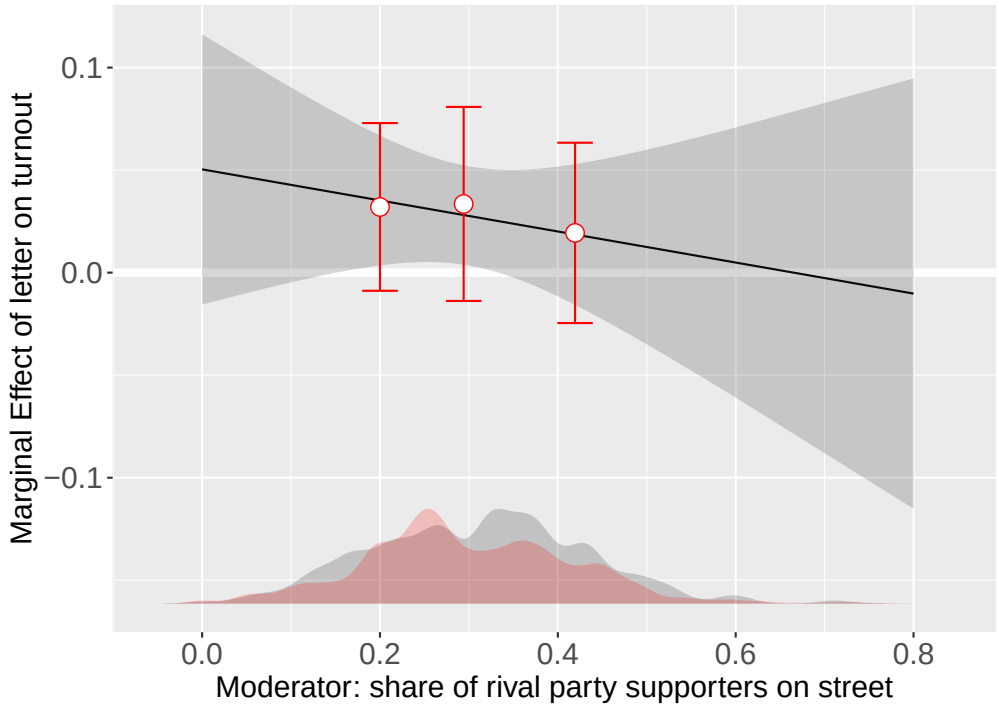
Figure A6: Balance figure

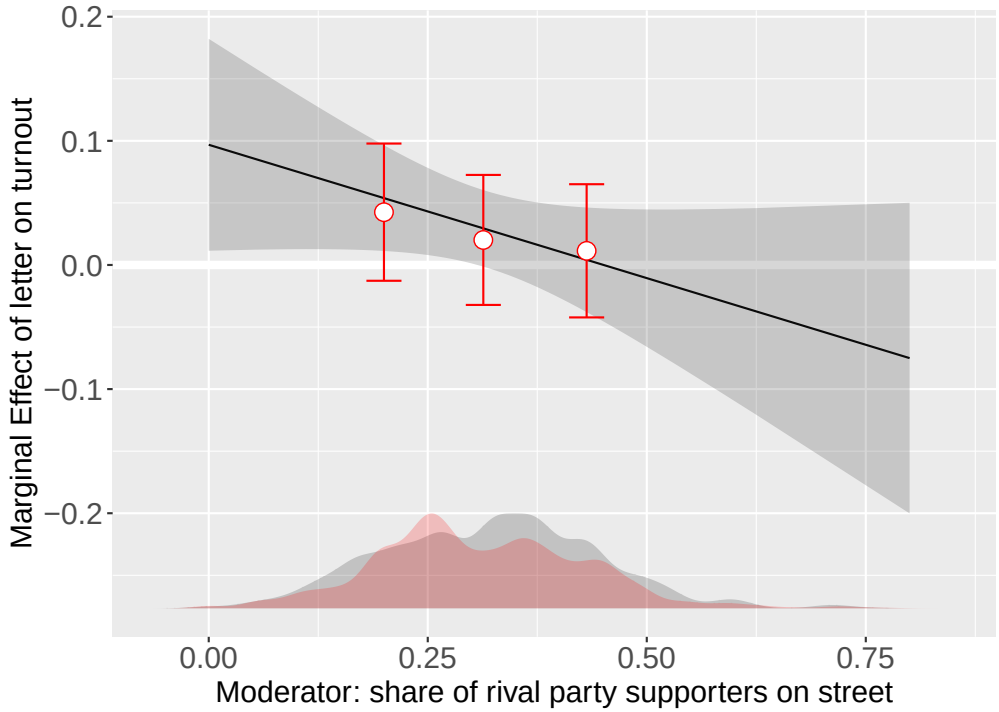


Ri-test for imbalance on pre-treatment covariates (p-value: 0.18)

I Robustness checks

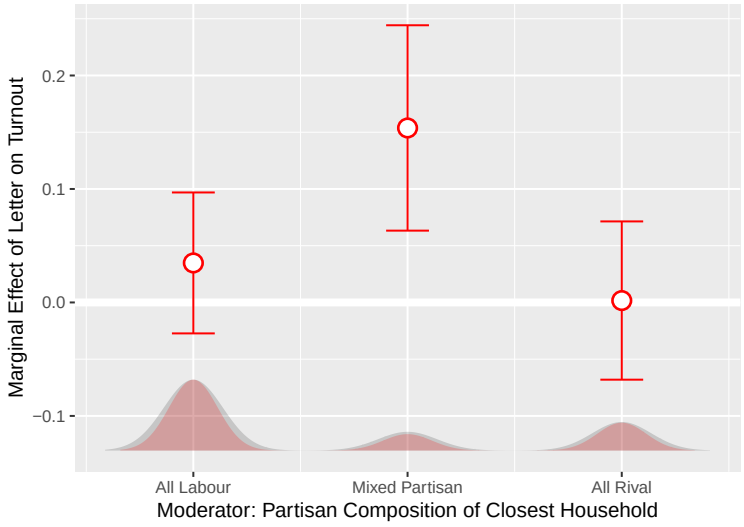
Figure A7: Marginal effects of leaflet conditional on partisan composition of the neighbourhood - all subjects





a) including non-identifiers (top) b) all party supporters (bottom)

Figure A8: Marginal effects of leaflet conditional on partisan composition of the closest household



All party supporters

J Other neighborhood-specific factors including dosage

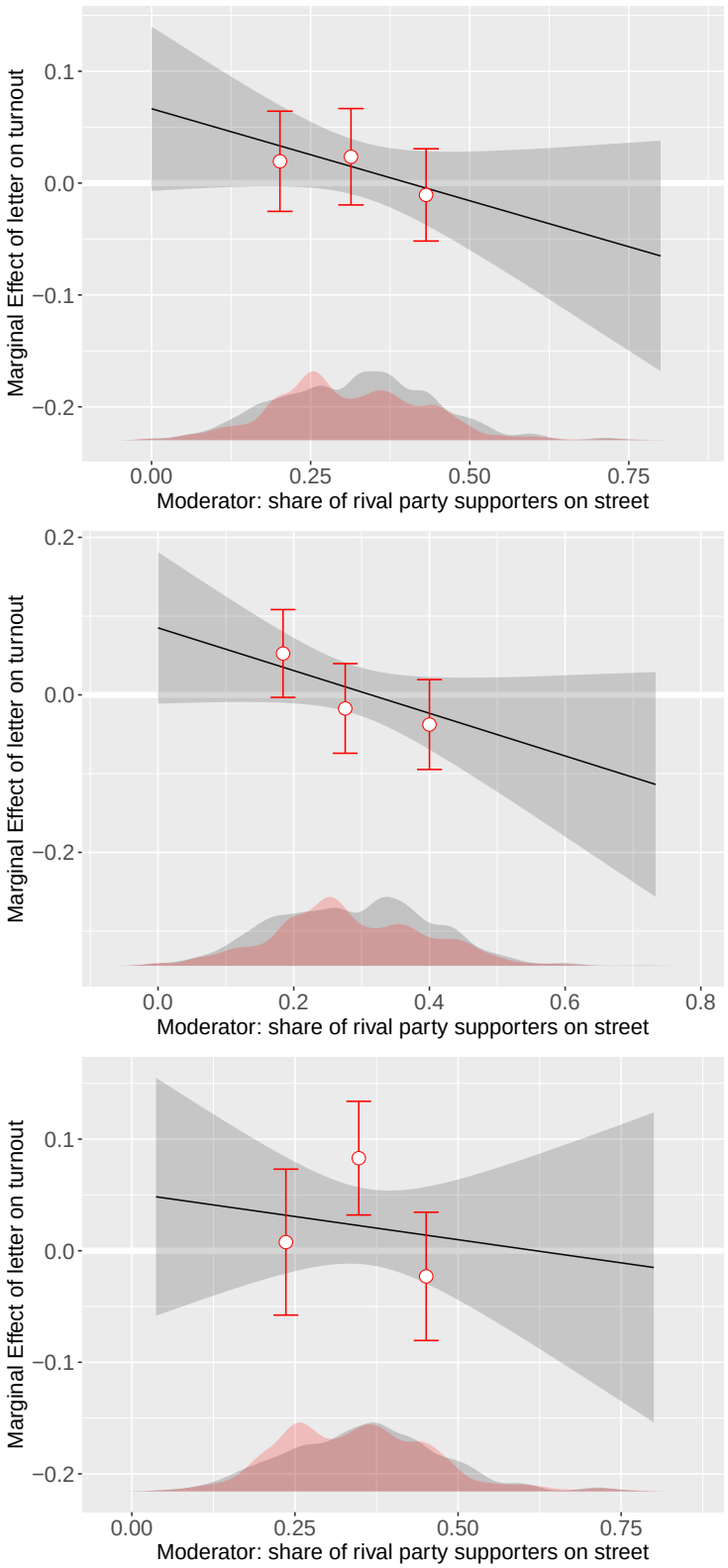
Table A3: Including other neighborhood-specific factors

	Model I	Model II	Model III	Model IV	Model V	Model VI
Control mean	0.208	0.172	0.203	0.150	0.228	0.185
	(0.038)	(0.046)	(0.059)	(0.067)	(0.053)	(0.066)
Leaflet	0.009	0.055	0.016	0.073	−0.007	0.027
	(0.043)	(0.052)	(0.061)	(0.071)	(0.060)	(0.076)
prop experimental units	0.088	0.039	0.279	0.189	−0.086	−0.120
	(0.119)	(0.120)	(0.163)	(0.170)	(0.148)	(0.155)
prop experimental units x leaflet	−0.082	−0.029	−0.355	−0.257	0.199	0.223
	(0.153)	(0.152)	(0.207)	(0.211)	(0.193)	(0.195)
prop turnout 2013	0.555	0.510	0.536	0.475	0.556	0.511
	(0.131)	(0.130)	(0.196)	(0.191)	(0.157)	(0.163)
prop turnout 2013 x leaflet	0.105	0.169	0.261	0.337	−0.038	0.015
	(0.149)	(0.148)	(0.215)	(0.210)	(0.182)	(0.193)
prop street rival partisan		0.171		0.274		0.168
		(0.118)		(0.170)		(0.182)
tprop street rival partisan x leaflet		−0.239		−0.341		−0.154
		(0.135)		(0.191)		(0.208)
Block fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster standard errors	Yes	Yes	Yes	Yes	Yes	Yes
Num. obs.	10231	10231	5606	5606	4625	4625
N cluster	615	615	615	615	615	615

Table A4: Regression of turnout on treatment assignment and partisanship of closest household

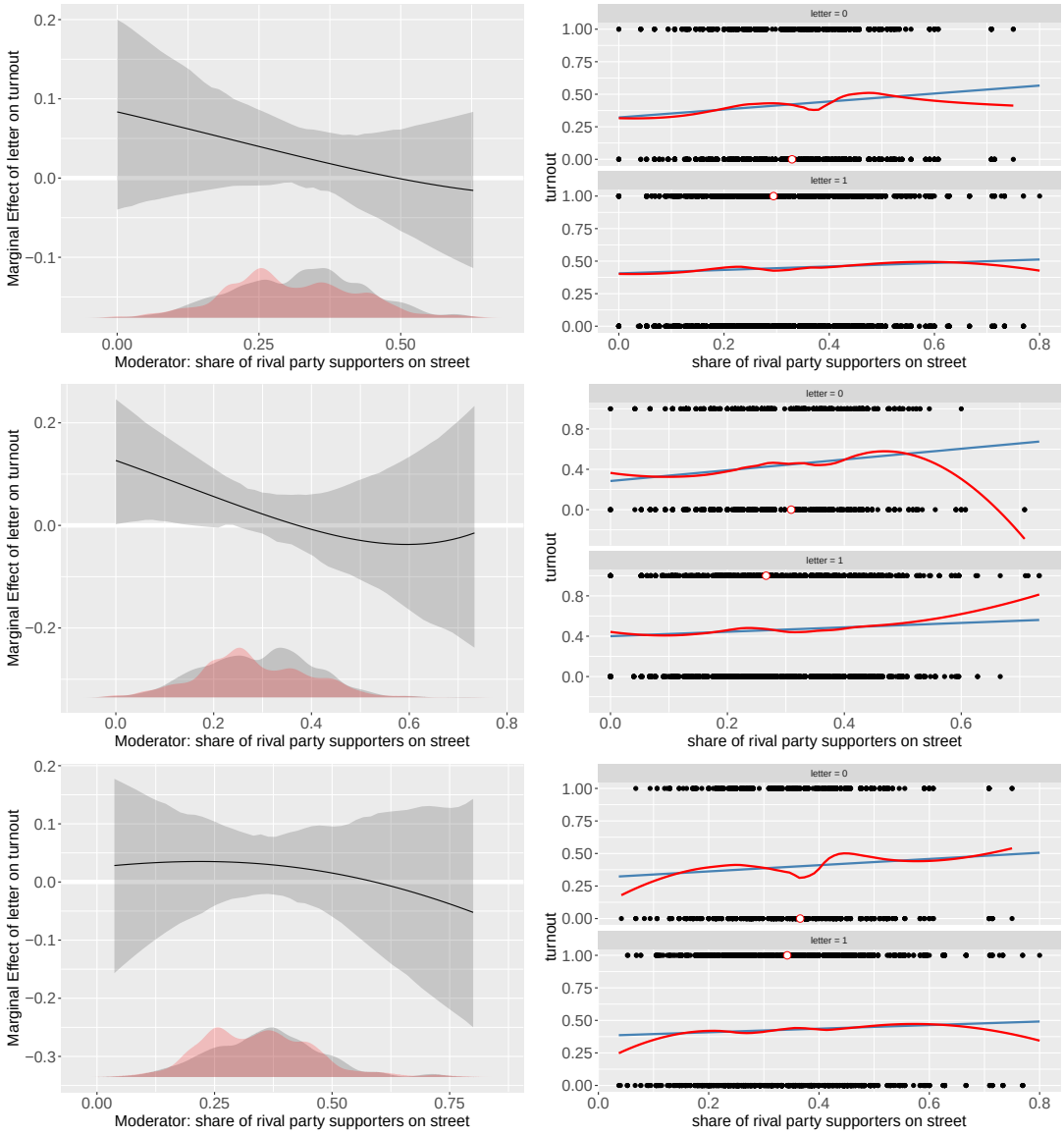
	All partisans	Labour	Rival
Control turnout	0.388	0.417	0.363
	(0.034)	(0.053)	(0.039)
Leaflet	0.033	0.045	0.020
	(0.033)	(0.048)	(0.043)
Closest household mixed	−0.099	−0.068	−0.150
	(0.031)	(0.046)	(0.045)
Closest household rival	0.012	0.023	−0.014
	(0.026)	(0.039)	(0.036)
Closest household mixed x leaflet	0.107	0.043	0.200
	(0.040)	(0.058)	(0.057)
Closest household rival x leaflet	−0.033	−0.050	0.007
	(0.032)	(0.045)	(0.048)
Num. obs.	10006	5497	4509
N cluster	615	615	615

Figure A9: Marginal effects of leaflet conditional on partisan composition of the neighbourhood - covariate-adjusted



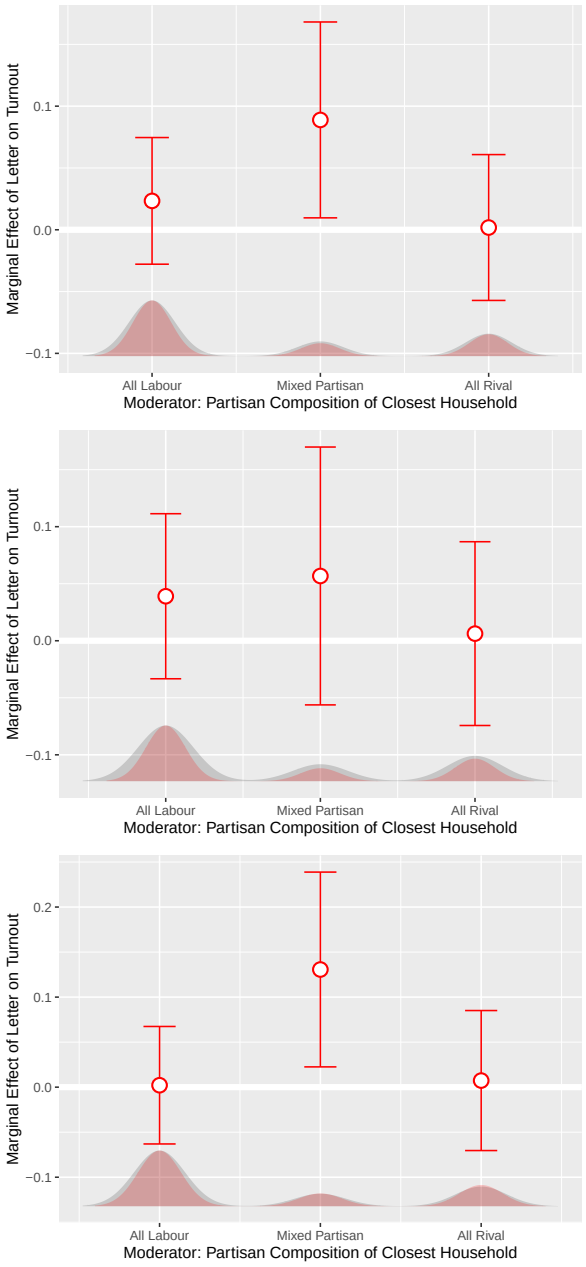
a) all partisans (top) b) Labour supporters (middle row) c) Rival party supporters (bottom)

Figure A10: Marginal effect of leaflet conditional on partisan composition of the neighbourhood - smooth estimate of the conditional spillover effects on the left; raw data and lowess fit of outcome vs moderator for treated and control groups on the right



a) all partisans (top) b) Labour supporters (middle row) c) Rival party supporters (bottom)

Figure A11: Marginal effects of leaflet conditional on partisan composition of closest household - covariate-adjusted



a) all partisans (top) b) Labour supporters (middle row) c) Rival party supporters (bottom)