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The Sinn Féin surge in the 2020 General Election in Ireland

A spatial analysis of tally data

The authors use a spatial autoregressive model to analyse how local areas voted in the 2020 General Election in Ireland. They seek to shed light on the mechanisms underlying the surge in support for Sinn Féin in this election, which marked a structural shift in Irish politics. The analysis relies on an original source of data – the tally – and the authors reconstruct the boundaries of electoral districts using Voronoi polygons. The results suggest that the surge in support for Sinn Féin may have been due to a diffusion process which generated a wave of support, against the backdrop of austerity policies in the aftermath of the Great Recession. The authors argue that it is not possible to provide a convincing explanation of the Sinn Féin surge at the 2020 General Election without simultaneously explaining how, where and when this occurred.

Keywords: Spatial Analysis; Ireland; General Election; Spatial Autoregressive Model; Electoral Data; Tally.

1. Introduction

The 8 February 2020 General Election in Ireland marked a break with two long-standing features of the Irish political system: the dominance of the Fianna Fáil and Fine Gael parties and the exclusion of Sinn Féin from any possibility of participating in government (Gallagher *et al.* 2021). In 2020, Sinn Féin obtained no less than 37 seats (while Fianna Fáil won 38 and Fine Gael 35) and received the largest share of first preference votes (535,573 out of 2,183,489, or 24.5%). In 2016, Sinn Féin had received just over half this number of votes (295,313 out of 2,132,895), confirming that the 2020 General Election witnessed an impressive surge in support of more than 10 percentage points.

Our aim in this paper is to identify the factors that influenced the election and to shed light on the mechanisms underlying this surge in

We are extremely grateful to the party organisers, elected representatives and officials who assisted our research by sharing their tally data with us. The analysis presented here would not be possible without their participation – which was often motivated by an appreciation of the value of tally data and the importance of political research.

support for Sinn Féin. We rely on an original source of data – the tally – which has never been used to analyse election results across the whole of Ireland. Irish political parties work together at count centers to produce an informal tally of election results for each constituency. This information is fed back to local organisers and is often used at constituency level. Tally data are a useful source of information for the analysis of voting as they are typically reliable (Parker 1984), refer to actual votes and have an impressive level of spatial detail. Informal tallies are only carried out in a few countries which use the single transferable vote system.

With the assistance of party officials and elected representatives, we were able to assemble a comprehensive tally covering all constituencies. We reconstructed the boundaries of the polling districts and linked the aggregate-level 2020 tally data with information from the 2016 census of population. This enabled us to use multivariate statistical models to explore the drivers of electoral outcomes at local level. Our spatial autoregressive models take into account the social processes that influenced the outcome of the election at local level. The results suggest that the surge in support for Sinn Féin during the election campaign was the result of a powerful diffusion process at local level, which helps to explain how, why and where this party benefited from an increase in support during the election campaign.

This study contributes to the academic literature in several ways. It provides a plausible account of the mechanisms underlying the surge in support for Sinn Féin in 2020, based on the available evidence. Our explanation draws on a range of theories and is of more general relevance in the context of contemporary processes of electoral volatility and political realignment. It is also the first study to use tally data to provide a detailed spatial analysis of electoral outcomes in Ireland. This innovative source of electoral data permits a more detailed understanding of the social and spatial articulation of support for political parties at local level than would otherwise be possible. The resulting analysis contributes to debates about the use of spatial autoregressive models to study electoral support, a recent but expanding field of research.

2. Theoretical framework

In the 2020 General Election, the Sinn Féin party led by Mary Lou McDonald achieved its largest-ever share of votes (24.5%) and parliamentary seats (37 out of 160) in the Republic of Ireland. Nine out of

the ten highest-polling candidates were from Sinn Féin and some even obtained double quotas. The day after the results were announced, the *Daily Star* opened with the heading «THE SHINNERS TAKE IT ALL» (10 February 2020), while *The Guardian* ran with «Sinn Féin declares victory in Irish General Election». The result came as a surprise to most observers, not least to the leaders of Sinn Féin, who had not expected this result even a few weeks before the election (White 2020). Just one year previously, the party's share of council seats had fallen from 159 (2014) to just 81 (9.5% of votes) and the party had lost two of its three MEPs. Why did such a large and unexpected swing towards Sinn Féin occur, and why did it happen so close to the election itself (Field 2020; White 2020)?

All of the main political parties in Ireland have their roots in the 1916-1922 War of Independence and descend from paramilitary leaders like Éamon de Valera, Michael Collins and James Connolly. Between 1969 and about 2006, Sinn Féin operated as the political wing of the Provisional IRA (Irish Republican Army), which was engaged in armed struggle against British rule in Northern Ireland. Over the course of almost 30 years, the Provisional IRA was responsible for more than 1,700 deaths. Sinn Féin maintained a policy of electoral abstentionism until the 1980s (Frampton 2009; Whiting 2018). Frampton (2009) argues that the experience of the 1981 hunger strike by IRA prisoners, the election of Bobby Sands to the UK parliament and his subsequent death triggered changes within Sinn Féin which led the party to embrace electoral politics.

An unusual characteristic of Sinn Féin is that it contests elections in two different jurisdictions (Northern Ireland and the Republic of Ireland), while maintaining an integrated leadership structure. Following the Northern Ireland peace process, which began in 1998, the paramilitary structures of the Provisional IRA were dismantled and Sinn Féin ministers entered a devolved power-sharing executive in Northern Ireland. During its first three elections in the South, Sinn Féin obtained less than 2% of first preferences and the party only won its first seat in 1997. In its first major breakthrough, in the aftermath of the peace process, the party received more than 11% of the vote in the 2004 European Elections, electing its first MEP.

After the IRA disbanded and decommissioned its weapons in 2006, Sinn Féin consolidated its position in the Northern Ireland Assembly and hoped to make gains in the 2007 General Election in the Republic. As it turned out, the party lost support, leading observers like Frampton

(2009) to question whether Sinn Féin «could ever become a truly major force in southern Irish politics» (p. 190). Less than ten years later, in the 2016 General Election, Sinn Féin had become the third-largest party in Ireland with 23 seats (13.8% of first preference votes), achieving even greater gains in 2020.

Many commentators describe the 2020 election result as marking a structural shift in the Irish political system, spelling an end to domination by Fine Gael and Fianna Fáil. Between 1951 and 1989, the combined share of the vote obtained by these two parties never fell below 70%, but in 2020 it collapsed to an all-time low of 43% (White 2020). Accounts which emphasise systemic change draw strength from Sinn Féin's impressive performance in the Northern Ireland Assembly elections in May 2022, when it won 27 seats, 2 more than the Democratic Unionist Party. For the first time, it seemed possible that Sinn Féin could participate in government on both sides of the border.

Researchers have struggled to provide a convincing explanation for the rapid surge in support that enabled Sinn Féin to achieve these results. Most agree that Brexit had little impact on the election, with exit polls indicating that this issue influenced just 1% of voters (Collins 2020; Evershed and Murphy 2022). Little (2021) stresses the success of Sinn Féin in setting the campaign agenda, opposing increases in the retirement age and supporting large-scale state interventions to tackle the housing crisis and hospital waiting lists. White argues that the election was won and lost on this terrain:

To date, little explanation has emerged for the Sinn Féin surge. One possible component is that it successfully pinpointed the issues of health and housing, which the outgoing government had had least success in tackling. Another was that Sinn Féin was apparently much more successful than other parties in online canvassing (White 2020, 268).

Explanations that focus on housing and health overlook the fact that Sinn Féin had been campaigning on these issues since the 1990s (Walsh *et al.* 2012). It is possible that these issues became more salient to the electorate at the beginning of 2020, and this interpretation is supported by the finding that these issues were mentioned more than any others in exit polls. It is also possible that Sinn Féin was more effective in 2020 at targeting these key issues, particularly using social media (Park and Suiter 2021). However, housing and health had also been at the centre of Sinn Féin's election campaign in the summer of 2019 when the party fared poorly in European and local elections, and the policies it pro-

posed in 2020 were not all that different from those promised by other parties (Field 2020).

Recent work using survey data has shed additional light on this question. Elkind and Farrell (2021) use data from the 2020 Irish National Election Study (INES) to analyse factors associated with party choice and find that dissatisfaction with the government and ideological realignment were the main factors underlying the shift in preferences. It would seem, therefore, that health and housing came to be viewed by voters as indicators of Sinn Féin's position as a left-wing alternative to the establishment. Although these were important issues in their own right, their main role in the 2020 election was to enable voters and parties to position themselves on the left-right spectrum. Lewis-Beck and Quinlan (2021) conclude that «the outgoing government's problem was most voters saw the nation's economic performance as lacklustre, with two-thirds believing the economy had not improved in the year preceding the election» (p. 559). These findings are in line with Cunningham and Elkind's (2019) conclusion that voting behaviour in Ireland is increasingly structured by a left-right cleavage.

This interpretation is also consistent with Müller and Regan's (2021) results, which are based on Irish election surveys from 2002-2020 and show that low-paid voters were most likely to self-identify with the left in 2020, leading them to have a higher probability of voting for Sinn Féin (but also for the Greens, Social Democrats, Labour and Solidarity-People Before Profit). Since 2008, they argue, low-paid workers and their families have grown increasingly angry about economic issues, leading to a growing ideological polarisation (Park and Suiter 2021).

In order to understand the factors that shaped the outcome of the 2020 General Election in Ireland, it is helpful to take a step back from these debates. There are parallels between Sinn Féin's gains in 2020 and the surge in support for Syriza in the second parliamentary elections held in Greece in 2012. Support for Syriza jumped from 4.6% in 2009 to 16.8% in May 2012, reaching 26.9% in June 2012 and 36.3% in January 2015, as the aggregate share of the dominant pro-austerity parties (the centre-right New Democracy and the centre-left Panhellenic Socialist Movement) dropped by more than 50% (Artelaris and Tsirbas 2018, 590).

A third example is VOX, which emerged in Spain in December 2018 during the regional elections in Andalusia, when it obtained roughly 11% of the vote. By November 2019 – just one year later – it had become the third-largest party in Spain (Iglesias-Pascual *et al.* 2022). An-

other comparison may be made with the electoral gains recorded by the 5 Star Movement in Italy in 2013 (when it received 25.6% at its first parliamentary election) and 2018 (when it obtained 32.7% of the vote). Vezzoni and Mancosu (2016) argue that support for the party grew rapidly as local supporters triggered a shift in opinion within their social networks, generating a chain reaction.

The idea that social relationships at local level can contribute to changes in behaviour has been circulating for many years in regional science. For example, Hägerstrand (1968) argued that innovative ideas and behaviours can spread contagiously within populations, giving rise to distinctive spatial patterns. In political science, Lutz (1990; 1995) was one of the first scholars to show that support for regionalist parties in Wales, Scotland and Italy followed a similar pattern, characterised by expanding geographical clusters.

Debates about populism have also focused on the spatial articulation of political support for certain parties, emphasising the uneven character of economic growth and decline:

The rise of contemporary populism worldwide has correlated with the stagnating incomes, increased income inequality, and declining life chances for many in countries that experienced high economic growth and increasing incomes from the 1950s through the 1980s. Populism is directed at the political parties that sponsored the technocratic “there is no alternative” trade agreements, supranational institutions, and austerity budgets in the years since... (Agnew and Shin 2017, 916).

Rodríguez-Pose (2018) argues that the intensification of globalisation has contributed to the decline of ex-industrial regions and peripheral rural areas, which have responded by voting for populist parties, exacting the «revenge of places that don’t matter». This makes it difficult to theorise electoral volatility in deprived areas of the urban periphery, where electoral volatility is particularly pronounced in European countries. These areas are an essential source of labour for urban markets and multinational companies, although they have experienced deregulation, low pay and declining living standards.

Kriesi *et al.* (2006) identify globalisation as the driving factor behind the emergence of a new cleavage between winners (social groups who benefit from and embrace economic integration) and losers (who gain little from globalisation or encounter economic risks). A different kind of explanation for the rise of populist parties focuses not on economic restructuring, but on cleavages involving postmaterial values or cosmopolitanism. For Norris and Inglehart (2019), populist support

represents a nostalgic reaction within the petty bourgeoisie and among older sectors of the electorate to long-term changes in cultural and social values.

Can any of these ideas help to explain the outcome of the 2020 General Election in Ireland? The economic crisis of 2008 certainly had a destabilising impact in this country, setting in motion a far-reaching process of political realignment. Disappointment with existing parties – particularly those in power at the time of the crisis and subsequent recession – led many people to question established political allegiances. In this context, supporters of opposition parties appear to have encouraged their peers to consider alternative forms of representation, much as Vezzoni and Mancosu (2016) argue with reference to Italy.

In the case of Sinn Féin in 2020, VOX in 2019 and the 5 Star Movement in 2018, this process of diffusion occurred very quickly – the duration of a single election campaign – with shifts of more than 10 percentage points at national level. In their new strongholds, a majority of voters came to support these outsider movements, radically transforming the political landscape at local level. Distinctive socio-spatial mechanisms appear to have contributed to these outcomes, and when we analyse the socio-spatial articulation of the vote for Sinn Féin at local level, the results suggest that this kind of mechanism may have played a key role in 2020. To do so, however, we need to use appropriate spatial statistical techniques and detailed data on how people voted at local level.

3. *Spatial models*

In the first decade of the new millennium, political scientists began to take more seriously the idea that political behaviour can be influenced by location, giving substance to the truism that «all politics is local». Researchers noted that electoral data are generally characterised by spatial autocorrelation, which means that areas which express a high level of support for a specific party tend to be situated near other areas which vote in a similar way. It is important to take this spatial structure into account when analysing aggregate-level electoral data, as failure to do so can result in bias (inflated regression coefficients) and misleading inferences (incorrect standard errors) (Franzese and Hays 2009).

Early studies of spatial effects tended to rely on the concept of the neighbourhood, which had been studied by sociologists during the 1990s (Johnston *et al.* 2004). Over time, political scientists began to

study contextual effects that were not just confined to individual neighbourhoods (containing «friends and neighbours»), but also spilled across their boundaries (Cutts *et al.* 2014). The key insight driving these innovations was that election outcomes can be influenced by the behaviour of people in nearby areas as well as within a specific neighbourhood, giving rise to distinctive spatio-temporal patterns (Guerreiro and Caleiro 2003; Kim *et al.* 2003; Fernández-Durán *et al.* 2004).

Well-specified spatial regression models were used to study these patterns during the first decade of the new millennium (e.g. Cutts and Webber 2010; Lacombe and Shaughnessy 2007), although several issues had yet to be resolved (Jensen *et al.* 2011). Spatial regression models had been theorised many years previously (Cliff and Ord 1973), but had not been widely used due to technical and statistical challenges (Kelejian and Prucha 1999). The overview provided by LeSage and Pace (2009) increased awareness of these techniques among social and political scientists and provided solutions to many of these challenges, including the interpretation of regression coefficients in the presence of spatial lags (cf. Golgher and Voss 2016). This led to improvements and a rapid diffusion of the new techniques over the following decade, as more powerful computers, better software and superior data became available.

Agnew (2002, 21) defines place as «the cultural settings where localised and geographically wide-ranging socioeconomic processes that condition actions of one sort or another are jointly mediated» (quoted in Truglia and Zeli 2020, 175). How have researchers studied these multiscalar processes of socio-spatial mediation in relation to elections?

Wing and Walker (2010) sustain that spatial autocorrelation can arise due to a range of factors, including residential self-selection, selective targeting of voters by political parties, social interactions within homophilic networks and everyday social processes. They highlight the need to theorise these different forms of social influence, suggesting that this can help to explain geographical clusters:

Our central hypothesis, which draws on themes in the political science literature... is that a number of social processes that operate at fine spatial scales tend to push individual voters' views into closer alignment with the ideological preferences of their geographically proximate majority – a phenomenon we call «localised entrenchment» (*ibidem*, 253).

These geographically proximate majorities play a role in shaping how people vote. This concept is useful for understanding not only the

stable geographical patterns studied by these authors in the US, but also the rapid surges in support for specific parties that have occurred in recent years in European countries. It is necessary, however, to adopt a dynamic approach which recognises that political opinions and voting intentions can change rapidly in certain circumstances.

Several recent articles have used spatial autoregressive (SAR) models to explore the determinants of electoral outcomes, and shed light on the role of local factors. Wing and Walker (2010) use county-level data for the US and observe a statistically significant spatial coefficient ($\rho = 0.30$). Remaining in the US, Wu and Cutter (2011) carry out a comprehensive analysis of support for environmental ballots in California between 1990 and 2000, again using a SAR model with electoral data at the block group level, finding statistically significant and substantively large spatial lags for all referenda ($\rho > 0.50$). Essletzbichler *et al.* (2021) look at spatial variations in support for the far-right FPÖ party in Austria between 2013 and 2017, finding a statistically significant spatial lag parameter ($\rho = 0.20$).

Iglesias-Pascual *et al.* (2022) use a SAR model (more specifically, a spatial Durbin model) to analyse support for VOX in Andalusia in 2019, with a large sample of small census tracts, reporting a high spatial lag parameter ($\rho = 0.66$). Not only do the authors report the direct and indirect effects correctly, but they also provide a sociological interpretation of the spatial lag, suggesting that spatial contiguity encouraged the rapid diffusion of a social imaginary which favored the extreme right in a pattern characterised by expanding geographical clusters.

Several studies using SAR models have been carried out using Italian data. Buonanno *et al.* (2016) use municipal-level data to estimate a SAR model for the percentage of votes obtained by Forza Italia in Sicily and again report a significant spatial coefficient ($\rho = 0.40$), although the implications of this are not discussed in detail. Mancosu and Vezzoni (2018) study election data from Northern Italy using a SAR model and report a large spatial autoregressive coefficient ($\rho = 0.50$). Truglia and Zeli (2020) use a SAR model using municipal-level data to study how people in Italy voted in the European elections of May 2014 and in the constitutional referendum of December 2016 ($\rho = 0.4$). The implications of these findings are generally not discussed, nor do the authors provide estimates of the direct and indirect effects of their explanatory variables.

4. Tally data

The statistical analysis presented here is based on first preference votes tallied during the count. Ireland is divided into constituencies, each of which is split into polling districts. The Irish electoral system is based on proportional representation with a single transferable vote. In order to carry out the tally, the main political parties mobilise volunteers and one person is appointed Tallylead for each party. The Tallyleads cooperate during this informal, collective, cross-party effort, which is coordinated at constituency level by a Tallymaster¹.

At the start of each count, Tallymen are assigned to a table at each count centre in teams of four (two «callers» and two «markers»). Count staff open the ballot boxes which contain votes from specific polling stations. The ballot papers are unfolded one at a time and placed in a pile, allowing the caller to read out the votes. The marker copies down the code of the polling station and uses tally marks to record the votes for each candidate. When all of the ballot papers from a box have been unfolded, the teams combine their results and record the total number of votes while they wait for the official totals, which are also annotated. The sheets are then delivered to the Tallymaster and another count gets underway.

A number of difficulties must be overcome in order to exploit the potential of this data source. Firstly, the boundaries of the polling districts are rarely defined on a map and cannot easily be reconstructed. In the small number of places where local authorities define these boundaries, they do not coincide with the boundaries of the census Small Areas. The method that we use relies on georeferencing polling places and was initially developed to analyse Italian electoral data (Pratschke *et al.* 2023). In the present project, the address of each polling place was obtained using information from poll schemes, County Councils, the Department of Education and Skills and from Returning Officers.

The first step was to georeference the addresses of approximately 2,600 polling places so that we could locate them on a map. In the second step, we constructed Voronoi polygons around these points, based on the assumption that voters are assigned to the polling place which is nearest to their home. The third step was to assign census small areas (SAs) to polling districts in accordance with the location of their cen-

¹ For the sake of clarity, we use the terms «Tallyman» and «Tallymaster», despite their gender bias, as these are the terms used by the actors themselves.

troid². The end result is a set of catchment areas which we refer to as «virtual polling districts».

After applying the principles described above, it was necessary to make some manual corrections to the SA assignments. For example, where two polling places were very close to one other, we treat them as a single polling station. For this reason, some of our virtual polling districts have larger populations than others. Manual corrections were also required in order to deal with islands or SAs situated on opposite banks of a river or inlet. We found a discrepancy between the valid votes and the tally in parts of Cork South-Central and Galway West, which is due to incomplete tallies. We control for this in our statistical analysis by excluding 15 districts where the count and tally do not align well, along with 68 districts where Sinn Féin stood no candidates (the area coloured white in Figure 2). The final set of electoral districts is shown in Figure 1.



Fig. 1. Virtual polling districts and polling places in Ireland (insert for Dublin).

² The constituency boundaries almost always follow the boundaries of the SAs, with the exception of 8 areas which straddle the M50, which we split.

Even though the boundaries of the virtual polling districts are defined by relatively simple assumptions, they have attractive properties. For example, they yield unbiased estimates of ecological associations because any errors caused by underbounding or overbounding are likely to be small, symmetrical and randomly distributed.

At the end of this process, we obtain 1,920 polling districts. The majority have a population that is near the mean (2,481), although there is a small number of positive outliers (larger virtual polling districts generated by merges). The tally thus permits a much more detailed analysis of the vote, compared with the official data (limited to just 38 constituencies, as no official electoral results are published for polling stations).

5. Results

Table 1 provides summary information on the variables used in the statistical models, including the overall mean as well as the mean for areas characterised by low and high levels of support for Sinn Féin. The 14 explanatory factors are divided into blocks covering demographic, housing, spatial, labour market, social class and cultural factors. The choice of variables was based on a review of the literature and our own experience of building explanatory models using aggregate data in the Irish and Italian context (Pratschke and Haase 2015; Pratschke *et al.* 2023). We also used machine learning techniques to check whether we had overlooked any potentially relevant explanatory variables, which led to the inclusion of an additional measure (speaking Irish regularly).

The main dimensions considered at the outset were demographic profile, socioeconomic composition and labour market situation, which we have used in other studies of electoral outcomes (Morelli *et al.* 2019; Fruncillo and Pratschke 2020; Pratschke *et al.* 2023). Each of these dimensions is centred on a factor from the 2016 Pobal-HP deprivation index, the official index of disadvantage in Ireland³. We include additional variables which cover characteristics such as ethnicity, com-

³ The Pobal-HP Index uses Structural Equation Modelling techniques to estimate factor scores for three dimensions, which are measured by ten variables. Demographic vitality is measured by the age dependency rate, population change, persons per room, lone parents and educational attainments. Social class composition is measured by high and low occupational classes, educational attainments and persons per room. Labour market situation is measured by the percentage of lone parents and the male and female unemployment rates (Pratschke and Haase 2007).

puter ownership and labour force participation with a view to achieving a well-specified model.

Tab. 1. *Descriptive data on variables used in statistical model (N=1,837)*

Variable	Mean (Std. dev.)	Weak SF (<10%) N=246	Strong SF (>40%) N=288
<i>Dependent variable</i>			
% First preference for Sinn Féin	24.7 (14.9)	7.3 (1.9)	52.1 (9.1)
<i>BLOCK 1: Demographic variables</i>			
HP Index - Demographic score	-0.13 (0.36)	-0.20 (0.29)	-0.11 (0.45)
% Ethnicity = White Irish	86.3 (10.2)	87.4 (7.2)	82.9 (13.0)
% Living alone	24.1 (6.7)	24.7 (6.2)	25.5 (7.5)
<i>BLOCK 2: Housing variables</i>			
% Private renting	14.3 (11.9)	13.7 (10.9)	16.2 (13.2)
% Renting from Local Authority	6.9 (7.2)	3.4 (3.3)	13.6 (11.6)
<i>BLOCK 3: Spatial variables</i>			
37 constituency dummies			
Independent town (CSO typology)	11.7 (29.7)	2.2 (12.6)	19.2 (37.2)
Isolated rural area (CSO typology)	22.7 (35.4)	29.0 (38.0)	25.9 (39.6)
<i>BLOCK 4: Labour market variables</i>			
HP Index - Labour market score	0.03 (0.39)	0.34 (0.31)	-0.39 (0.35)
Male labor force participation rate	66.9 (5.7)	66.3 (4.9)	66.5 (13.3)
<i>BLOCK 5: Social class variables</i>			
HP Index - Social class score	-0.06 (0.99)	0.76 (1.17)	-1.05 (0.76)
Homes with a PC	68.8 (8.2)	73.0 (8.6)	62.4 (8.1)
Homes with broadband	66.5 (13.0)	67.0 (15.5)	66.5 (13.3)
<i>BLOCK 6: Cultural variables</i>			
% who speak Irish weekly outside education	10.5 (8.7)	9.4 (3.5)	13.9 (14.6)

To supplement these three dimensions, we added variables relating to housing, because of the perceived salience of this issue during the 2020 general election campaign, and fixed effects to control for constituency-level influences. We used the Central Statistics Office (CSO) typology of areas to construct two spatial variables (CSO 2019). Finally, we included a variable which records the percentage of people in each

virtual polling district who use the Irish language at least once a week (outside school or university), based on the hypothesis that cultural nationalism could influence linguistic practices as well as predicting support for Sinn Féin. The variables which discriminate most clearly between areas of high and low support for Sinn Féin are social class composition, local authority housing, independent towns, labour market situation and speaking Irish.

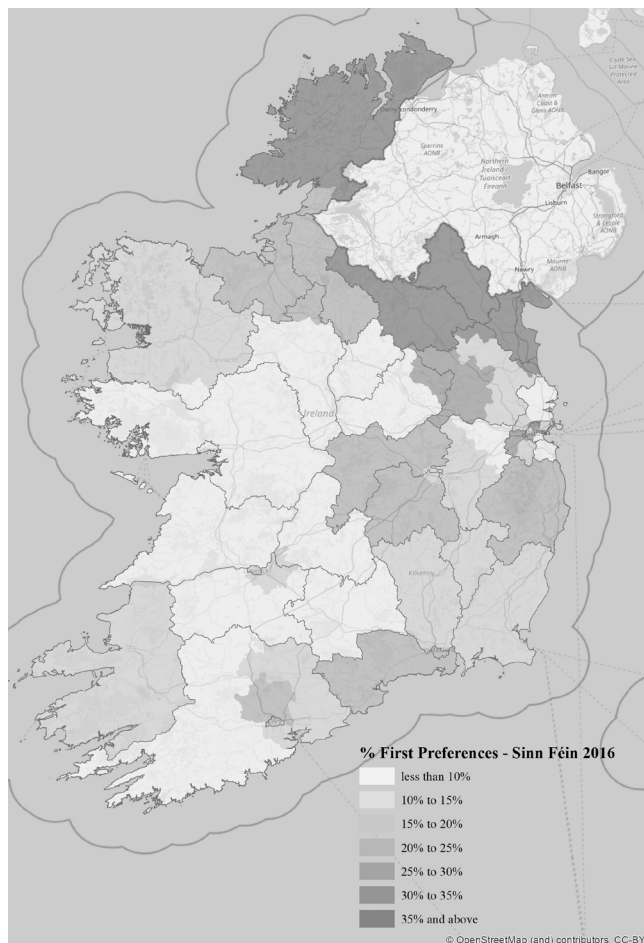


Fig. 2a. Distribution of first preference votes for Sinn Féin in constituencies in Ireland, 2016.

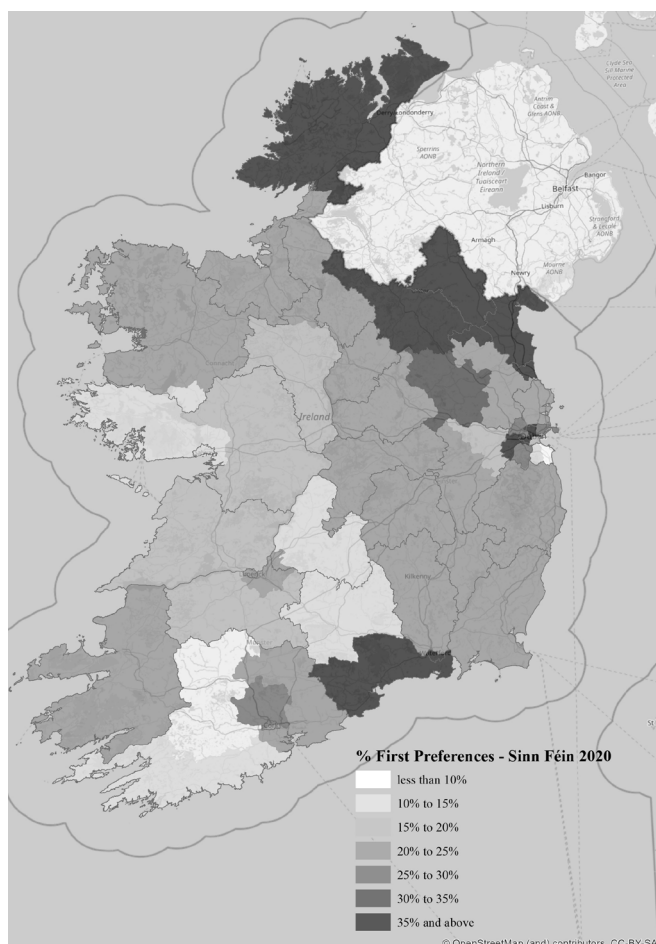


Fig. 2b. Distribution of first preference votes for Sinn Féin in constituencies in Ireland, 2020.

Figures 2a and 2b show the distribution of first preference votes for Sinn Féin in 2016 and 2020 respectively, using the published constituency-level data, while Figures 3 and 4 show the distribution of first preference votes by virtual polling district using tally data. The areas which expressed the highest percentages of first preference votes for Sinn Féin at both elections are situated along the border with Northern Ireland, in parts of Mayo, Kerry, Wicklow and Waterford, and around

the main urban areas; this is also where the party made most gains⁴.

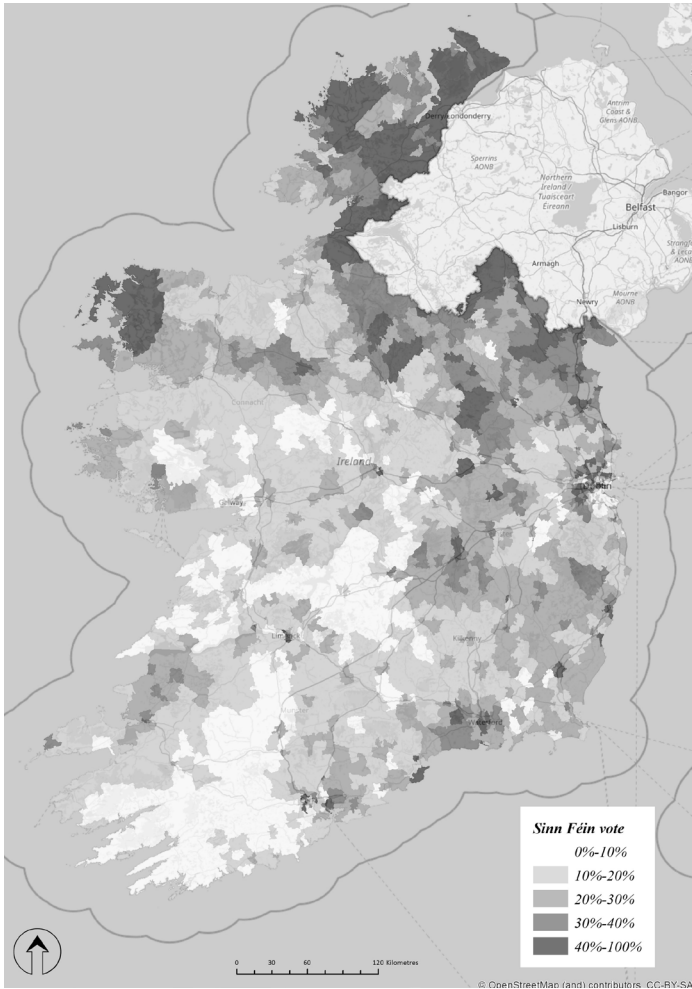


Fig. 3. Distribution of first preference votes for Sinn Féin in virtual polling districts in Ireland, 2020.

⁴ On average, Sinn Féin obtained an increase of more than 10 percentage points across the country as a whole, but the surge was in the region of 18-20 percentage points in Donegal, Waterford, Dublin Bay North and Dublin Mid-West.



Fig. 4. Distribution of first preference votes for Sinn Féin in virtual polling districts in Dublin, 2020.

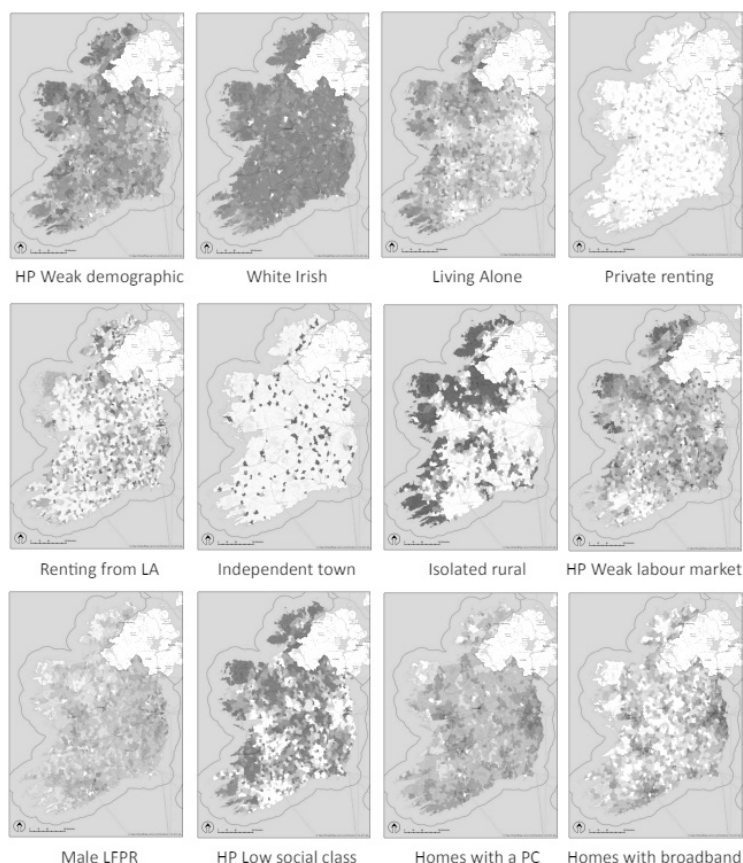


Fig. 5. Maps of main explanatory variables, 2016.

A mosaic of maps of the explanatory variables used in the statistical model is included in Figure 5, with a view to illustrating their spatial distributions (full-size maps with legends will be provided by the authors upon request).

In spatial autoregressive models, interdependence between areas can be represented in different ways. One way is to include a spatial lag of the dependent variable, which in our case would imply that the level of support for Sinn Féin in a given district is influenced by the amount of support this party receives in surrounding districts. This effect is operationalised as a simultaneous reciprocal influence involving

contiguous areas, but is assumed to represent the outcome of a spatio-temporal process. The coefficients describe the movements in the dependent variable that would take place over time as the model moves from one steady-state equilibrium to another (LeSage and Dominguez 2012, 537).

Another way of modelling spatial autocorrelation is to including a spatial lag of one or more explanatory variables, which would imply in our case that the level of support obtained by Sinn Féin in a specific area is influenced by the characteristics of surrounding areas, not just by how they vote. This kind of specification yields the spatial Durbin regression (SDR) model.

A third form of spatial influence is captured by the use of spatial autoregressive error terms, which implies the existence of unmeasured variables which are correlated with at least one of the explanatory variables as well as the dependent variable (Anselin 2002; McMillen 2003). The inclusion of this kind of component gives rise to the spatial error (SER) model, while the combination of the SAR and SER models yields the SARAR model. In our analysis, we use a SARAR model, which appears to be the most suitable and is probably the most commonly used spatial autoregressive model in the analysis of electoral data.

In SAR, SDR and SARAR models, interactions between areas are represented using a spatial weighting matrix which reflects the relationships between the units of analysis. In this analysis, we treat spatially contiguous (rook contiguity) polling districts as neighbors that can influence each other along a shared boundary. The weighting matrix $\mathbf{W}$ is taken to be known and non-stochastic and is row-normalised⁵. Our weighting matrix has 1,837 elements, and the mean number of neighbours is 5.5 (range 0-14; 6 islands).

Our SARAR model can be written in matrix notation as follows: where $\mathbf{y}$ is an $n \times 1$ vector of observations on the dependent variable; $\mathbf{W}$

$$\begin{aligned} \mathbf{y} &= \rho \mathbf{W}\mathbf{y} + \beta \mathbf{X}_1 + \alpha \mathbf{X}_2 + \mathbf{u} \\ \mathbf{u} &= \lambda \mathbf{W}\mathbf{u} + \boldsymbol{\varepsilon} \\ \boldsymbol{\varepsilon} &\sim N(0, \delta^2 \mathbf{I}_n) \end{aligned}$$

is an $n \times n$ spatial weighting matrix with 0 diagonal elements; $\mathbf{W}\mathbf{y}$ is an

⁵ LeSage and Pace (2014) show that spatial regression models are not very sensitive to the particular specifications used to define the spatial weight structure, as long as models are specified correctly and inferences are based on the true partial derivatives.

$n \times 1$ vector (generally referred to as the «spatial lag») which captures the mean value of spatially contiguous districts on the dependent variable; ρ is the corresponding scalar parameter; $\mathbf{X}_1$ is an $n \times l$ matrix of observations on l right-hand-side district-level covariates and β is the corresponding $l \times 1$ parameter vector; $\mathbf{X}_2$ is an $n \times m$ matrix of observations on m groups and α is the corresponding $m \times 1$ parameter vector of group-level fixed effects; u is an $n \times 1$ vector of errors; λ is a scalar parameter which reflects the intensity of interdependence between the regression residuals, and ε is an error term which is assumed to be normally distributed.

This model generates a system of equations reflecting the ways in which changes due to exogenous influences percolate through a set of overlapping, reciprocal spatial relationships⁶. The endogenous spatial effects (interactions) are captured by ρ , the correlated spatial effects (due to constituency organisation, for example) are captured by α and the impact of any unmeasured variables correlated with other variables in the model is captured by λ . We estimate our model using the generalised spatial two-stage least squares estimator (GS2SLS) (Kelejian and Prucha 1999). This is suitable for continuous outcome variables and is provided in commercially-available software with a straightforward implementation.

The tally data for our 1,837 virtual polling districts fail Moran's test, which means that the observations are not independent and a spatial model is required. We adopt a hierarchical approach, including the explanatory variables one block at a time (Table 2). Model 1 includes only the endogenous spatial effect; in Model 2 we add the demographic and housing variables; Model 3 incorporates the spatial and labour market variables; in Model 4 we add the social class and cultural measures; in Model 5 we add fixed effects for constituencies, using Dún Laoghaire (a particularly affluent area just to the South of Dublin City) as the reference category; finally, in Model 6 we include an autoregressive error term. Table 3 provides an estimate of the overall effect of the explanatory variables (from Model 6), taking into account its recursive nature. The direct effects express the influence of the explanatory variables, ignoring spillover effects, while the indirect effects capture the relation-

⁶ It is sometimes said that in a spatial auto-regressive model there are as many effects of a covariate as there are units. LeSage and Pace (2009) define the average of these unit-level effects as the covariate effect and we adopt the same approach here.

ship between areas due to interactions and other forms of reciprocal influence.

Tab. 2a. *GS2SLS estimates for spatial autoregressive model of Sinn Féin vote*

	Model 1		Model 2		Model 3	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Spatial lags						
Sinn Féin vote	0.44*	0.18	0.68***	0.03	0.63***	0.02
Autoregressive errors						
Constituency						
Attributes of districts						
HP Demographic			-1.49	1.04	1.63	1.05
% White Irish			-0.07	0.04	0.02	0.04
% Living alone			-0.08*	0.03	-0.18***	0.04
% Private renting			-0.08	0.04	-0.05	0.04
% Renting from LA			0.72***	0.03	0.37***	0.03
Independent town (CSO)					-0.01	0.01
Isolated rural area (CSO)					0.09	0.09
HP Labour market					-11.72***	0.84
Male LF participation					0.14***	0.04
HP Social class						
Homes with a PC						
Homes with broadband						
Speaking Irish						
Constant	14.07**	4.38	12.10**	3.88	1.38	5.02
Wald χ^2 (model)	6		2603		4307	
Wald χ^2 (spatial terms)	5.85 (1)		651 (1)		670 (1)	
Pseudo R^2	0.00		0.33		0.50	

Notes: Standard errors are in brackets. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. N = 1,837.

Tab. 2b. *GS2SLS estimates for spatial autoregressive model of Sinn Féin vote*

	Model 4		Model 5		Model 6	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Spatial lags						
Sinn Féin vote	0.67***	0.02	0.49***	0.03	0.48***	0.03
Autoregressive errors					0.16**	0.05
Constituency			37 fixed effects		37 fixed effects	
Attributes of districts						
HP Demographic	-0.16	1.05	2.33*	1.1	2.08	1.10
% White Irish	0.08*	0.04	0.10*	0.04	0.11**	0.04
% Living alone	-0.17***	0.04	-0.25***	0.04	-0.26***	0.04
% Private renting	0.01	0.04	-0.04	0.04	-0.03	0.04
% Renting from LA	0.31***	0.04	0.30***	0.04	0.31***	0.04
Independent town (CSO)	0.00	0.01	0.01	0.01	0.01	0.01
Isolated rural area (CSO)	0.02	0.09	-0.06	0.10	0.05	0.10
HP Labour market	-4.92***	0.91	-7.35***	0.99	-6.96***	1
Male LF participation	0.17***	0.04	0.15***	0.04	0.17***	0.04
HP Social class	-2.76***	0.4	-3.19***	0.42	-3.40***	0.43
Homes with a PC	-0.13*	0.06	-0.07	0.06	-0.07	0.06
Homes with broadband	0.15***	0.03	0.06*	0.03	0.06*	0.02
Speaking Irish	0.12***	0.02	0.09***	0.02	0.10***	0.02
Constant	-9.20	7.27	-1.91	7.46	-3.99	7.58
Wald χ^2 (model)	5614		7527		5819	
Wald χ^2 (spatial terms)	1,018 (1)		254 (1)		899 (2)	
Pseudo R2	0.57		0.74		0.74	

Notes: Standard errors are in brackets. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. N = 1,837.

Tab. 3. *Direct, indirect and total effects of district characteristics (Model 6)*

	Direct effects		Indirect effects		Total effects	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Direct effects						
HP Demographic	2.20	1.16	1.77	0.95	3.96	2.10
% Ethnicity = White Irish	0.12**	0.05	0.09*	0.04	0.21*	0.08
% Living alone	-0.27***	0.05	-0.22***	0.04	-0.49***	0.09
% Private renting	-0.03	0.05	-0.02	0.04	-0.05	0.08
% Renting from Local Authority	0.33***	0.04	0.26***	0.05	0.59***	0.08
Independent town (CSO)	0.01	0.01	0.01	0.01	0.01	0.02
Isolated rural area (CSO)	-0.05	0.10	-0.04	0.08	-0.09	0.19
HP Labour market	-7.36***	1.04	-5.91***	0.97	-13.27***	1.88
Male labor force participation	0.18***	0.04	0.14**	0.04	0.32***	0.08
HP Social class	-3.59***	0.46	-2.89***	0.48	-6.48***	0.87
Homes with a PC	-0.08	0.06	-0.06	0.05	-0.14	0.12
Homes with broadband	0.06*	0.03	0.05*	0.02	0.18*	0.05
% Speak Irish weekly	0.10***	0.03	0.08***	0.02	0.18***	0.05

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. $N = 1,837$.

The spatial autoregressive components are statistically and substantively significant in all statistical models. In the final model (Model 6), $\rho = 0.476$ and $\lambda = 0.162$. Had we not included fixed effects for constituencies, we would have obtained a higher value for ρ (as high as 0.67). This is consistent with the hypothesis that the surge in support for Sinn Féin in 2020 was related to social interactions at local level.

As we have observed, electoral data often manifest high levels of spatial autocorrelation due to the influence of social interactions and social comparisons within families, neighbourhoods and networks. However, the mechanisms involved are not always the same, just as outcomes can vary depending on the context. In the US, researchers have argued that voters tend to conform to geographically proximate majorities, generating relatively stable forms of political polarisation (Wing and Walker 2010). In Europe, by contrast, socio-spatial mechanisms can help to explain changes in political affiliation (Iglesias-Pascual *et al.* 2022). This leads to the conclusion that social interactions at local

level often influence electoral behaviour, regardless of whether this is stable or changing, involving various mechanisms.

In order to obtain a reliable estimate of spatial lag parameters, it is essential to control for the socioeconomic composition and demographic profile of local areas. Sinn Féin received higher support in 2020 in deprived areas: an improvement of one standard deviation in the labour market situation is associated with a much lower level of support: over 13 percentage points lower. An improvement of one standard deviation in the social class composition is associated with a drop of 6.5 percentage points. For every unit increase in the percentage of households renting from a local authority, the percentage of first preferences going to Sinn Féin increased by 0.59 percentage points.

In addition to deprivation, demographic factors also help to explain why certain areas expressed a higher level of support for Sinn Féin. For example, a one standard deviation increase in demographic vitality is associated with an increase of 4 percentage points in support for this party, and each unit increase in the percentage of people defining their ethnicity as White Irish is associated with an increase of 0.2 percentage points. Support for Sinn Féin is negatively associated with the number of people living alone, which tends to be higher in more affluent, elderly neighborhoods. Support is also associated with a larger share of adults active in the labour force, which is a characteristic of younger neighborhoods. Finally, a one unit increase in the percentage of people who use the Irish language at least once a week is associated with an increase in support of 0.18 points.

Recapitulating, support for Sinn Féin is greatest in young, deprived areas with high rates of unemployment and many low-skilled workers, low levels of educational attainment and few professional/managerial employees. It is striking that this party managed to achieve a high level of support in both deprived rural (Donegal) and deprived urban (Dublin West) areas. The effects described above are observed even after using fixed effects to control for the characteristics of constituencies. The latter are associated with large variations in aggregate-level support. For example, the total effect for the Dublin Bay South constituency (compared to Dún Laoghaire) is 10.1, and this is the largest positive fixed effect (direct effect: 5.6; indirect effect: 4.5), followed by Donegal (8.9), Dublin North West (8.3) and Dublin Central (8.1). There are also some large negative effects, including -18.0 for Tipperary, -12.8 for Kildare South and -11.6 for Galway West.

In Dublin Bay South, the Sinn Féin candidate in 2020 was Chris Andrews, who had served as a Fianna Fáil TD before joining Sinn Féin in 2012. The candidate in Dublin Central was Mary Lou McDonald, the Sinn Féin leader. The party clearly benefited from the high media profile of these two candidates. As far as Tipperary is concerned (strong negative fixed effect), this constituency had several independent candidates with strong local networks. In Kildare South, the Sinn Féin candidate (Patricia Ryan) went on holiday during the election campaign (although surprisingly, she still topped the poll; Simpson 2020). In Galway West, Sinn Féin fared relatively poorly because Fianna Fáil has a strong support base. Indeed, Éamon Ó Cuív, the grandson of the founder of Fianna Fáil, Éamon de Valera, has represented this constituency since 1992, holding several ministerial positions.

6. Conclusions

The explanatory factors discussed above do not, on their own, explain the Sinn Féin surge in 2020. To account for this, it is necessary to understand the broader context of the General Election. The Great Recession of 2008 had a profound impact on political representation in Ireland, as in many other countries. The crisis – and the austerity policies that followed – had a disproportionate impact on the lower classes due to widespread unemployment, wage cuts and reductions in benefits and services. GDP per capita (in dollars, based on purchasing power parity) fell from 44,201 in 2008 to 41,533 in 2009 and the male unemployment rate jumped from 7.5% in 2008 to 17.7% in 2011 (Mazeikaite *et al.* 2019).

At the moment of the crisis, Fianna Fáil was in government with the Green Party and both parties were punished in 2011 (Murphy 2021). The Fianna Fáil vote dropped to just 17% and the Green Party lost all of its seats. After the Fianna Fáil vote collapsed, a new government was formed by Fine Gael and Labour; however, these parties also obtained disappointing results at the 2016 General Election, primarily as a result of governing during a period of austerity.

Another important aspect of the political context of the 2020 General Election is that Sinn Féin had a relatively high level of political organisation throughout Ireland due to its ability to recruit young activists using a combination of nationalist and socialist ideology. This helps to explain why the party benefited from the 2020 surge rather than exist-

ing left-wing parties, illustrated by the fact that the surge followed the distribution of existing Sinn Féin supporters.

Most importantly, the surge appears to have been generated by a rapid diffusion process at local level. Our hypothesis is that early innovators (Sinn Féin supporters) triggered an initial phase of realignment by encouraging their friends and acquaintances to consider voting for this party. Because of widespread dissatisfaction with other parties – particularly in working-class neighbourhoods – many people were ready to shift their allegiance. Each individual who made this shift triggered a new phase of questioning and realignment among their acquaintances.

Rather than leading to localised entrenchment, this chain reaction generated a wave of support for Sinn Féin that reverberated across deprived rural and working-class communities. It is striking that the 149 virtual polling districts where Sinn Féin received a majority of first preferences form quite concentrated geographical clusters. These geographically proximate majorities formed very rapidly – in a matter of weeks – and cannot be explained by appealing to generic «friends and neighbours» effects which favour local candidates. It is also striking that the surge was well under way by the time that party manifestos were published.

The findings suggest that the demographic and socioeconomic characteristics of certain areas increased their propensity to support Sinn Féin at the elections, which in turn influenced the behaviour of people in surrounding areas. This appears to have created a feedback effect which increased support for the party through reinforcement. Cultural factors may have played a role in this process, as diffusion is predicated on the existence of social interactions within local communities. These interactions spill across the boundaries of neighbourhoods, creating a distinctive socio-spatial configuration. Some of the explanatory variables that feature in our model suggest that cultural factors may have played a role in this process, such as degree of ethnic homogeneity and speaking Irish. The combination of face-to-face interactions and comparisons via social media could have contributed to the speed with which the Sinn Féin surge swept across particular areas of the country.

Theorising and studying surges in support for different kinds of political parties can help to explain unexpected electoral outcomes like the high level of support for Sinn Féin observed in 2020. The explanation outlined here recognises the complexity of the social dynamics that underlie electoral behaviour, overcoming the limitations of individualistic approaches which seek to compare the static preferences of voters or

the policies adopted by political parties. Our findings suggest that it is not possible to provide a convincing explanation of the Sinn Féin surge in 2020 unless we simultaneously explain how, where and when this occurred. The local diffusion process described here cannot be separated from the backdrop to the elections or from the socioeconomic characteristics of the local populations involved.

The empirical results presented here demonstrate the value of non-standard sources of data like the tally in Ireland. As we have shown, considerable ingenuity is required in order to exploit the full potential of this source, but the benefits of doing so are great. Indeed, this is the only way of assembling detailed information on how people voted at local level. Having this kind of information is of value when seeking to explain new political phenomena, as we can exploit the spatial unevenness of these processes in order to gain a better understanding of their determinants.

It would be amiss not to recognise the limitations of this analysis. The first of these is our reliance on virtual polling districts which treat the relationship between voters and polling stations in a probabilistic rather than a deterministic fashion. We believe that our findings are robust to this aspect of the research design. We do not use aggregate data to make inferences about individual behaviour, focusing instead on the characteristics of areas and populations. We use census data from 2016 to analyse the outcome of the 2020 General Election, which raises the possibility that change could have occurred in certain localities between these two dates, perhaps leading to an attenuation of associations. Finally, specification errors in our statistical models could lead to bias, which is of course an omnipresent risk. There is always a risk of spurious associations when analysing aggregate-level data, which means that model specification is particularly important. We attempt to reduce this risk by estimating a series of models and by considering a wide range of explanatory variables and model components.

Electoral volatility and surges in support for new parties are important features of many political systems across the world, lending relevance to empirical studies of this phenomenon. Although our theoretical hypotheses regarding the underlying mechanisms are speculative in nature, and thus require independent validation, they are grounded in a rigorous statistical analysis of the best available data and have the potential to shed light on what is arguably an important contemporary issue.

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