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The epidemiology of the Liberal Democrat vote

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ABSTRACT. Accounting for the success of the Liberal Democrat party in recent local elections held in Britain has proved difficult. Traditionally, the electoral system has operated to disadvantage third parties but the Liberal Democrats appear successfully to have surmounted that obstacle to winning representation. Ths paper introduces the reader to issues of contemporary British electoral geography and analyses a number of factors, socio-economic, political and spatial, in terms of their contribution towards a better understanding of Liberal Democrat successes at the local government level. Compared with the vote for both the Conservative and Labour parties, that for the Liberal Democrats is not easily explained using ward level socio-economic census data. Additionally, models of uniform swing are not effective in projecting likely Liberal Democrat seat gains with the party consistently doing better than forecasted. The final part of the analysis, therefore, looks for any spatial patterns in the development and spread of the Liberal Democrat vote. The evidence suggests that Liberal Democrat victories are most likely to occur in areas neighbouring wards which the party has already won. This leads us to conjecture that there is some element of a spatial contagion effect to the Liberal Democrat vote which stems from the party's campaigning style in local elections.

Introduction

Three parties have put candidates forward in each constituency at British general elections since 1983. These are the Conservative party (who have won each election), the Labour party (who have formed the official opposition) and finally alliances of the centre parties—which are now combined as the Liberal Democrats. Here, we study this third party, using both national and local election results to show how it has adapted to largely unfavorable electoral conditions sufficiently well for it to prosper.

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The Liberal Democrats present a real challenge for electoral analysis. To a remarkable extent they have survived, even prospered in recent years, under an electoral and party system that appears to offer nothing but obstacles. The conventional wisdom suggests that under a 'first past the post' electoral system and a dominant two-party system, third parties will find it extremely difficult to survive unless they are successful in replacing one of the two established parties (Duverger, 1954; Riker, 1982; Taagepera and Shugart 1989). The Labour party's rise to prominence in the 1920s, for example, came at the expense of the Liberals. More recently in the early 1980s it was widely predicted that Labour was facing electoral ruin and that the Alliance (now the Liberal Democrats) would become their natural successor. Labour's recovery, beginning at the 1987 general election and consolidated in 1992, should have coincided with the demise of their centrist challengers. In one sense the progress of the Alliance and then the Liberal Democrats was checked and reversed. In 1987 Alliance candidates received 23.7 percent of the vote in Great Britain down 3 percent from the peak in 1983. Continuing this downward movement in vote share, the Liberal Democrats polled just 18.3 percent in the last general election. Judged in terms of seats in the House of Commons, however, the Liberal Democrats should not be viewed as in retreat. In 1983 the Alliance won 23 seats and although there has been an eight point decline in vote share the number of seats won by the Liberal Democrats in 1992 was just three fewer.

This is not to argue that the Liberal Democrats no longer suffer injustices from Britain's electoral system. On a strictly proportional basis the party should have received approximately 117 seats in the 651 seat 1992 parliament and not the 3 percent of seats they did receive. In their analysis of voting at the last general election Curtice and Steed (1992: 353) commented,

> the system's ability to discriminate against third parties is also highly contingent upon the geographical distribution of their support and can vary over time.

Thus, small regionally based parties such as Plaid Cymru in Wales, the Ulster Unionists and the SDLP in Northern Ireland, all received a payoff in seats either proportionate to, or in excess of, their vote share. Although the Liberal Democrats continue to suffer from the electoral system, however, the extent of that suffering has showed a marked drop compared with that experienced by the Liberals, their predecessors before the 1983 Alliance. As Curtice and Steed show, while the Liberal Democrat vote in 1992 was 0.5 percent less than that obtained by the Liberals in the October 1974 election, the party actually won seven more seats. To an important degree the Liberal Democrats have overcome the inequities of our electoral system by a more efficient geographical distribution in the party's vote. While the Liberal Democrat vote fell by more than 6 percent in East Anglia and Scotland and by more than 5 percent in the Midlands, the North of England and Wales in the South East it fell by just 4.6 percent and in the South West by only 1.6 percent. Indeed, in the South West, although the party's vote fell, it succeeded in winning an additional four parliamentary seats. This not only suggests a more effective recent geographical distribution of the Liberal Democrat vote but also reflects an electoral strategy which concentrates resources more on winnable constituencies (Rallings and Thrasher, 1996a).

To a certain extent what the Liberal Democrats achieved at the last general election built on the pattern of their successes in local elections and since 1992 the party's progress in terms of both vote, but especially seat, share has continued. A simple illustration of this can be seen in *Figure 1* which displays the vote and seat shares for the Liberals, Alliance and Liberal Democrats in English shire county elections since 1973. The gap between the

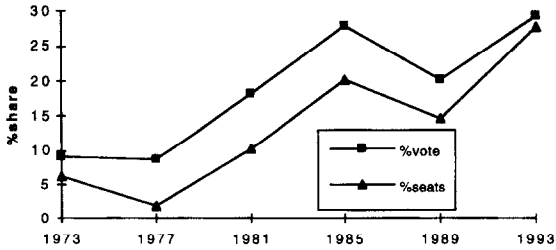

FIGURE 1. Liberal Democrat vote and seat share in English shire county elections 1973–93.

Liberals vote and seat share in the 1973 elections was just 3 percent. Closer analysis shows, however, that then the party only contested a fifth of the available seats and that these were located largely in the party's known areas of electoral strength. The gap between vote and seat share widened from 1977 onwards as first the Liberals and then the Alliance competed more. Following the break-up of the Alliance in 1988 and the emergence of the Liberal Democrats, the seats/vote ratio improved perceptibly in 1989 and considerably by 1993. We should be cautious in interpreting the 1993 figures, however, since the Liberal Democrats achieved 29 percent of the vote, just two points behind Labour and six points behind the Conservatives. With such a performance we should expect the electoral system to operate much more in the party's favour. Nevertheless, the party had clearly demonstrated in these county elections that their vote had become more effectively distributed and that it was no longer so prone to gather votes in places where it could not win. This phenomenon has not been restricted to county council elections alone. In the 1994 London Borough elections the party won 17 percent of the seats with 22 percent of the vote comparing favourably with the 7 percent of seats with 24 percent of the vote achieved by the Alliance in 1982 (Rallings and Thrasher, 1993, 1994a). In different electoral settings, therefore, the Liberal Democrats have shown a remarkable ability to confound the natural operation of the electoral system.

This still begs the question of how the party has managed to achieve this feat. In this paper we want to explore a number of possible explanations for the success of the Liberal Democrats. We begin by asking whether the Liberal Democrats have succeeded in identifying a certain section in society that will give them the natural level of support enjoyed by both the Conservative and Labour parties. We then consider the possibility that the party's local electoral successes in recent years have been purely as a result of an anti-Conservative protest vote and that uniform swing holds the explanation for the additional seats won by the party. A third possibility is that the Liberal Democrats' success is in some way spatially orchestrated. This could be because the party has tapped into cultural and regional identities which have expressed themselves in a rise in voting support for the party. Another possibility is that success breeds success and that if that success is also geographically close then the process is both more rapid and more enduring. The third section of this paper, therefore, comprises a spatial analysis of the Liberal Democrat vote and seeks to identify how the ability of the Liberal Democrats to win council seats is partly a function of whether the party already holds seats spatially adjacent.

Socio-economic characteristics and the Liberal Democrat vote

Miller's (1988) survey of public attitudes undertaken for the Widdicombe Committee found that a greater number of electors expressed a local as opposed to national preference for the then Liberal/SDP Alliance but otherwise little else was distinctive about

them. Aggregate analysis of constituency level voting has repeatedly found that whereas the socio-economic structure of constituences can account for a great deal of the variance in Conservative and Labourt support between them, the explanation of the 'centre' party vote is much more difficult to divine (Curtice and Steed, 1992). Of course, one difficulty with parliamentary constituencies is their size and the likely heterogeneity of the electorate contained within them. In this section, therefore, we will seek to discover whether an analysis of socio-economic characteristics at the local ward level confirms or denies the findings obtained in the analysis of parliamentary constituencies. Our data are taken from ward election results for the English districts and metropolitan boroughs in 1991 and for the London boroughs in 1990 matched wherever possible with the 1991 census ward data. Comparison is also made with the results in these wards in the elections held four years previously. Some 5000 wards with an average electorate of just under 4000 people are available for this analysis.

We analysed the pattern of Liberal Democrat support by clustering wards together into groups which share similar socio-economic characteristics. The wards for each local election dataset were clustered according to their score on the various census variables using the Quick Cluster algorithm in SPSS. This algorithm produces clusters by finding cluster centres based on the values of the cluster variables and by assigning cases to the centres that are nearest. Initially, a 25 cluster solution was used for the English districts, a 15 cluster solution for the metropolitan boroughs, and a 10 cluster solution for London. As some of the resulting clusters were very small, we adopted a final solution of 15 clusters for the districts, seven for the metropolitan authorities and nine for London (see Appendix).

We then re-ordered the clusters to reflect a rough scale from high status wards (low cluster numbers) to low status ones (high cluster numbers). As *Figures 2–4* show there is, for each type of authority, a broadly linear relationship between ward status and share of the vote for both the Labour and Conservative parties. The only striking bumps in the trend are for a very rural cluster (cluster 9) in the districts and for a largely white, working class cluster (cluster 8) in London. In all cases however it is clear that the Liberal Democrat share of the vote varies much less between clusters.

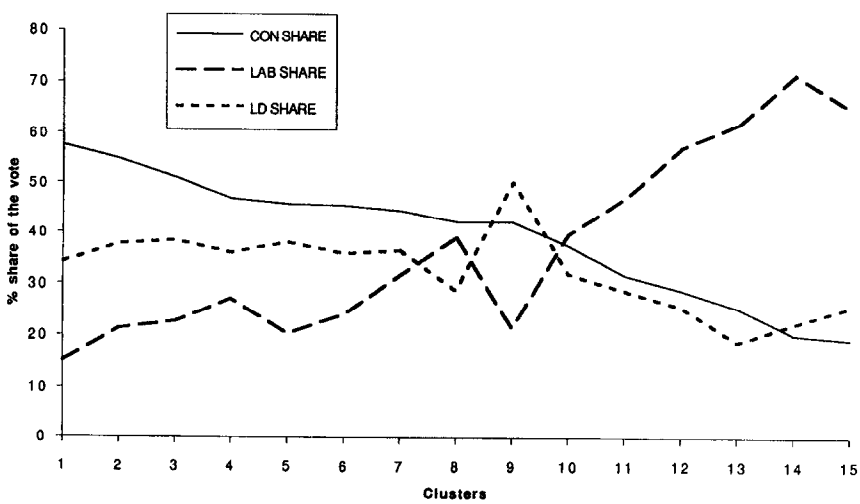

FIGURE 2. 1991 English district elections.

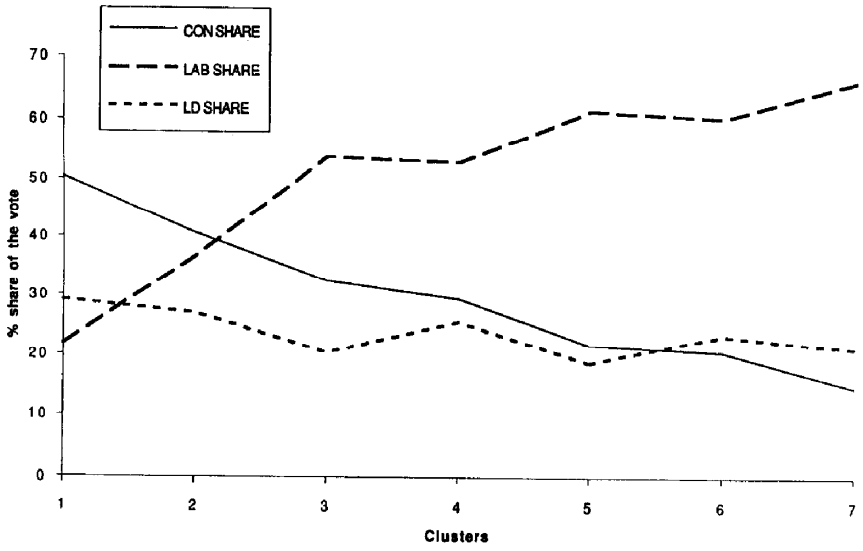

FIGURE 3. 1991 metropolitan elections.

A similar pattern is apparent if we look at the number and share of the total of seats won by each party in each cluster—see *Table 1*. The higher the status of the cluster, the greater share of the seats won by the Conservatives and vice-versa for Labour. The Liberal Democrats frequently win more seats than Labour in the more affluent clusters and more seats than the Conservatives in the less affluent ones, but in no case do they actually win a greater share than either of those parties.

A closer look at the wards that comprise the clusters is instructive. *Figures 5* and *6* compare the share of the vote gained by each party for each cluster in North and South London. The pattern of the Conservative vote is similar in each case, but the Labour vote appears to peak and trough in contradistinction to that of the Liberal Democrats. Moreover, there is a clear difference in the share of the vote gained by the Liberal Democrats north and

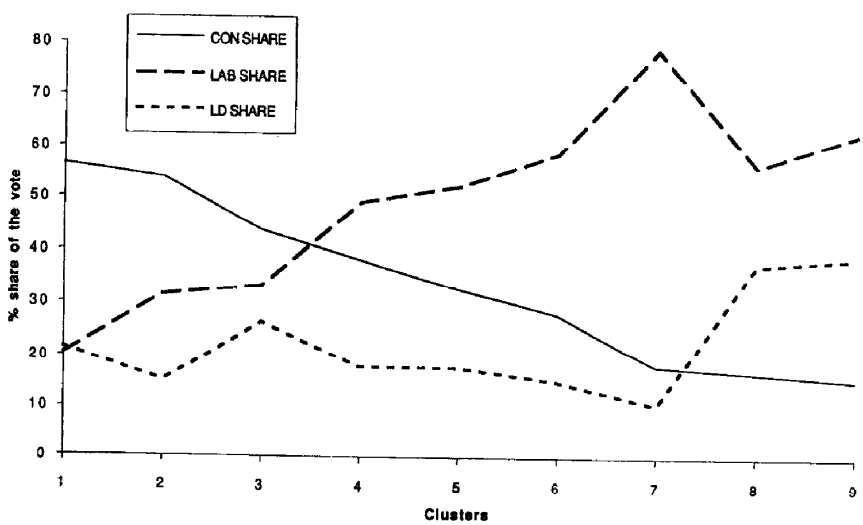

FIGURE 4. 1990 London borough elections.

TABLE 1. Number and share of seats won by each party in each cluster

Metropolitan boroughs 1991	*Con seats*	*Con share*	*Lab seats*	*Lab share*	*LD seats*	*LD share*
Cluster 1	41	70.7	2	3.4	14	24.1
Cluster 2	65	43.0	47	31.1	36	23.8
Cluster 3	4	10.8	28	75.7	3	8.1
Cluster 4	6	9.1	50	75.8	9	13.6
Cluster 5	1	4.8	20	95.2	0	0
Cluster 6	5	4.1	98	81.0	14	11.6
Cluster 7	1	3.3	24	80.0	3	10.0

London boroughs 1990	*Con seats*	*Con share*	*Lab seats*	*Lab share*	*LD seats*	*LD share*
Cluster 1	70	80.5	2	2.3	12	13.8
Cluster 2	76	78.4	13	13.4	8	8.2
Cluster 3	65	48.1	34	25.2	30	22.2
Cluster 4	20	25.6	51	65.4	6	7.7
Cluster 5	19	18.6	74	72.5	9	8.8
Cluster 6	19	12.9	120	81.6	8	5.4
Cluster 7	0	0	8	100	0	0
Cluster 8	0	0	35	71.4	14	28.6
Cluster 9	0	0	15	78.9	4	21.1

English districts 1991	*Con seats*	*Con share*	*Lab seats*	*Lab share*	*LD seats*	*LD share*
Cluster 1	244	74.6	1	0.3	46	14.1
Cluster 2	137	55.5	2	0.8	32	13.0
Cluster 3	82	47.4	2	1.2	24	13.9
Cluster 4	343	56.8	48	7.9	153	25.3
Cluster 5	85	54.5	4	2.6	30	19.2
Cluster 6	368	53.5	55	8.0	175	25.4
Cluster 7	46	31.1	22	14.9	22	14.9
Cluster 8	9	34.6	6	23.1	2	7.7
Cluster 9	5	29.4	0	0	3	17.6
Cluster 10	287	29.0	394	39.8	196	19.8
Cluster 11	40	15.0	159	59.6	50	18.7
Cluster 12	19	6.4	243	81.8	23	7.7
Cluster 13	2	3.8	48	90.6	3	5.7
Cluster 14	0	0	29	93.5	1	3.2
Cluster 15	0	0	60	87.0	4	5.8

south of the river Thames in clusters, 1, 3, 4 and 9 (Cluster 7 only has cases in North London boroughs). The Liberal Democrats' best performance north of the river and one of its worst in the south is in deprived cluster 9. The party's best showings south of the river are in affluent clusters 1 and 3 whilst it performs no better than average in the same clusters in the north.

However, the explanation for such differences has more to do with politics than with geography. The Liberal Democrats do better in cluster 1 wards in Bromley, Kingston and Richmond than in Barnet, Harrow and Hillingdon not because of additional socio-economic differences between the residents of those boroughs, but because of the political and electoral circumstances to which they are subject. The Liberal Democrats had a much higher base of support from 1986 in the first three of those boroughs and the party was able to present itself as the only challenger to the Conservatives in the more affluent,

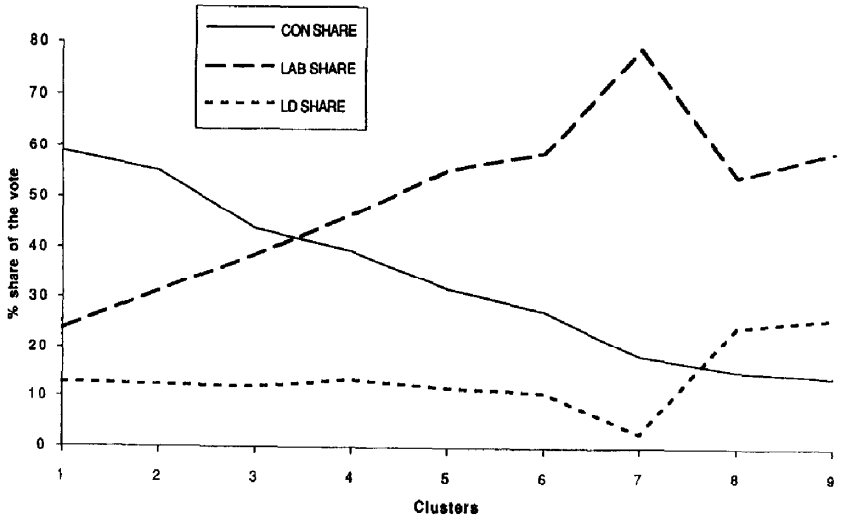

FIGURE 5. 1990 North London borough elections.

Cluster 1, wards. In the latter three boroughs Labour was more competitive even in these types of ward.

Similarly the relatively strong Liberal Democrat vote in cluster 9 in North London is almost wholly accounted for by wards in Tower Hamlets where the party has built a strong presence at the expense of Labour. The fact that this success has occurred in both the most and least deprived parts of the capital tends to confirm our earlier contention that Liberal Democrat support is the least conventionally predictable of any party. Outside London, a similar pattern is apparent. The Liberal Democrats were the most successful party in 1991 in the most and least affluent wards of Liverpool. Within each cluster in the districts the wards won by the Liberal Democrats are concentrated in a smaller number of authorities than is the case for Labour or the Conservatives.

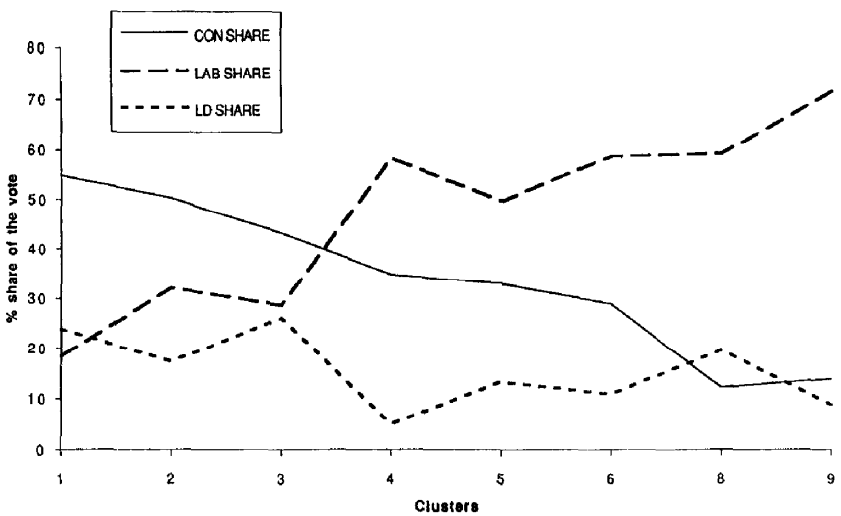

FIGURE 6. 1990 South London borough elections.

The political base of the Liberal Democrats

It appears, therefore, that it is difficult to explain Liberal Democrat support in local elections by reference to the socio-economic character of wards or, conversely, to specify those types of ward where the party may achieve success. Indeed the problem of guessing where the party will do well and how well they will do has confronted those who have attempted to forecast the results of these elections (Rallings and Thrasher, 1996b). In 1991, for example, a MORI poll carried out just prior to that year's local elections put the Liberal Democrats on 21 percent which agreed exactly with our estimate of the party's national equivalent vote calculated after the elections had taken place. Compared with the previous elections held in 1987 the Liberal Democrat vote had fallen by 6 percent. Using the MORI figures to forecast the likely outcome in seats we predicted the Liberal Democrats stood to lose approximately 200 seats. In the event they gained 500 seats. Despite a decline in vote share, therefore, the party succeeded in increasing their share of seats by 4 percent.

An alternative method for estimating party strength in the period prior to a set of local elections has been to use local by-election results. Dispensing with opinion poll data this approach was first used before the 1993 county council elections. To arrive at seat forecasts we took the estimated change in vote share for the three main parties since the 1989 county contests and an assumption of uniform swing. No account was taken of other factors such as the structure of party competition and the likelihood of tactical voting. Despite the fact that the estimate of the Liberal Democrat vote share before the elections was extremely close to their calculated national equivalent vote following the elections the number of seats the party would win was under-estimated by 230. One possibility which might account for such a difference was that the pattern of party competition had altered, thus allowing the Liberal Democrats to win more seats.

In order to rule out the possibility that the error in the estimate of Liberal Democrat gains was purely a function of changing patterns of party competition (seats changing hands because one party or another did not have a candidate), we reduced the data set to those English county divisions which were in existence and had experienced three-party competition in both 1989 and 1993. In all there are 1605 cases in this data set—about half the total number of county divisions. In *Table 2* we report the impact a uniform swing model would have had upon just those seats using two sets of national equivalent vote shares figures calculated with hindsight. The first set are our own calculations for the *Sunday Times*, while the second are figures prepared for the BBC by John Curtice and

TABLE 2. National equivalent vote shares, seat projections with uniform swing and actual seat outcomes: 1993 English County Elections

	Sunday Times		*BBC*		
	% Change 1989/93	*Projected seats*	*% Change 1989/93*	*Projected seats*	*Actual seats*
Con	−6.5	659	−7.0	663	512
Lab	−0.5	522	–	547	549
LD	+6.0	424	+4.0	395	531

Note: Percentage change refers to the change in party share implied by the respective national equivalent vote shares estimates by the *Sunday Times* for 1989 and 1993.

colleagues. The respective changes in party vote shares between 1989 and 1993 implied by these estimates were then applied to the 1989 voting figures and the number of seats projected to be won by the different parties recalculated.

The BBC's national equivalent vote figures for 1989 and 1993 imply a 7 percent fall in the Conservative vote, no change for Labour and a 4 percent rise in the Liberal Democrat share. Applied to the seats remaining for this analysis the BBC figures are very accurate for Labour, but they over-estimate Conservative seats by 151, and under-estimate Liberal Democrat seats by 136. The *Sunday Times* figures are slightly different, suggesting the Liberal Democrat vote rose by 6 percent, while Labour's fell by half a percentage point and the Conservatives' by 6.5 percent. These figures under-estimate Labour strength by 27 seats and the Liberal Democrats by 107 seats, while over-estimating the number of Conservative seats by 147 seats. Both sets of national estimated vote shares, therefore, produce inaccurate figures for seats on the uniform swing model. Of course, the national equivalent vote estimates, produced for the BBC and *Sunday Times* could have been wrong. Although there were small differences between the two, there are strong reasons for believing the accuracy of the estimates. In order to make the seat predictions from the uniform swing model coincide with the 'actual' allocation of seats it is necessary to leave the Labour vote exactly as it was in 1989 (as the BBC and, effectively, we both did), and to decrease the Conservative vote and increase the Liberal Democrat vote by 11 percent. In other words instead of a Conservative–Liberal Democrat swing of either 5.5 percent (BBC), or 6.3 percent (*Sunday Times*), the uniform swing model would have to assume an 11 percent swing in order to predict the correct number of seats. Neither estimate of the national equivalent vote was likely to have been that inaccurate!

Given the problem did not reside in the raw figures used to calculate swing we next explored the possibility that the over-achievement by the Liberal Democrats had been the result of tactical voting. Tactical voting requires a proactive electorate willing and able to assess the relative chances of the different parties in individual wards and to cast a ballot in the most effective manner. Was it the case that local electors in these particular elections knew better than their predecessors how to express an anti-Conservative protest vote? To examine this possibility we subdivided Conservative held seats in 1989 into Conservative/Labour ($N = 369$) and Conservative/Liberal Democrat ($N = 426$) according to which party had finished as runner-up. These categories were then further subdivided into those seats with a Conservative majority of 20 percent or less and those with a similar majority, but where the gap between the second and third parties was greater than 10 percent. The intention was to discover whether the marginals had behaved differently from other seats and whether the size of the gap between the second and third placed parties had any impact on the outcomes.

If there had been tactical voting we would expect that in Conservative/Labour marginals the Liberal Democrat vote would be squeezed, while in Conservative/Liberal Democrat marginals it would be Labour's support which experienced a similar fate. In fact, as *Table 3* shows, in the Conservative/Labour marginals the Liberal Democrat vote did rise by less than average while Labour's vote was 1 percent higher. In the Conservative/Liberal Democrat marginals, however, the Labour vote was virtually unaffected by the circumstances of the contest, while the Liberal Democrat vote was, if anything, moving in the opposite direction to that expected from the tactical voting thesis. Certainly, on this evidence it does not appear that tactical voting contributed significantly to the success of the Liberal Democrats in winning so many seats.

Two further possibilities for the non-uniform vote swing present themselves. First, it could be that the success of the Liberal Democrats had less to do with their own

TABLE 3. Voting in the Conservative marginals: 1993 country elections

	Con % change 1989/93	*Lab % change 1989/93*	*LD % change 1989/93*	*Seats N*
All	–7.4	+0.6	+9.0	1605
All Con/Lab	–9.6	+2.2	+9.7	369
Con/Lab marginal	–7.0	+3.2	+5.9	149
Con/Lab marginal and >10% lead over LD	–7.4	+3.1	+6.6	125
All Con/LD	–9.7	+0.3	+10.7	426
Con/LD marginal	–7.9	+0.6	+9.0	189
Con/LD marginal and >10% lead over Lab	–7.7	+0.6	+8.6	164

campaigning efforts and more to do with a non-proportional vote decline for the Conservatives. In short, could the decline in the Conservative vote have been greater in relative terms in their safest seats? A second, and related, possibility is that Conservative voter in these safest seats simply failed to perceive that there was any threat to their party. If this were the case then it might be that turnout fell by more than average in these wards as Conservative supporters became complacent about the party's prospects of retaining control. Both of these possible interpretations are examined in *Table 4*. Seats won by the Conservatives in 1989 are divided into four categories based on the party's share of the vote then, ranging from seats where it gained more than 60 percent of the vote to those where it scored between 30–40 percent. Although the vote changes are higher in the party's safe seats the vote decline is in fact roughly proportional in each of the four categories. Similarly, the pattern of turnout does not suggest that Conservative voters were more complacent in their safest seats. In these, turnout declined by 1 percent compared with 1989. In those seats with a 1989 Conservative vote share between 30 percent and 40 percent, however, the turnout fell by 2.6 percent. Far from turning out to vote in greater numbers where the Conservative vote was vulnerable the party's supporters appeared, if anything, less concerned about voting than those residing in its strongest areas. Both sets of finding, therefore, are not consistent with the proposition that the variability in the county council elections was a function of irregular fluctuations in Conservative support. We must look elsewhere to account for the fact that the Liberal Democrats were far more successful in terms of seats than their overall vote share might have indicated.

TABLE 4. Change in Conservative percentage vote and turnout: 1993 county election

	Con % change 1989/93	*Turnout 1989/93*	*Wards N*
Con share in 1989 ≥ 60%	–12.7	–1.1	204
Con share in 1989 ≥ 50% and < 60%	–10.1	–0.7	311
Con share in 1989 ≥ 40% and < 50%	–7.4	–1.6	375
Con share in 1989 ≥ 30% and < 40%	–6.3	–2.6	336

If the electorate was not pro-active in 1993, can we uncover any evidence that it was reactive? Were voters in some wards reacting to the different intensity of electoral campaigning resulting from a local party identifying the ward as 'winnable' on the basis of marginality. One way of investigating this is to examine those county council seats lost by the Conservatives in 1993. It was anticipated that the Conservatives would lose about 100 seats but instead they lost almost five times as many. In the absence of any firm evidence to support either tactical voting or complacency amongst Conservative supporters what was so different about the party's losses that a uniform swing model could not detect their vulnerability beforehand?

First we looked solely at those 233 seats the Liberal Democrats captured from the Conservatives in 1993. In these seats the Conservative vote share fell by an average of 13.5 percent, Labour's by 3.4 percent while that of the Liberal Democrat's rose by some 20.0 percent. In effect the Conservative decline was 6.1 percent more than the average for all cases, Labour's decline compared with their 0.6 percent increase overall and the increase in the Liberal Democrat vote was fully 11 percent higher than their overall average. Clearly, there was something unusual going on in these particular seats. The 1989 average Conservative majority in seats lost to the Liberal Democrats in 1993 was no less than 17.4 percent, ranging from less than 1 percent to a maximum of 52.9 percent. Out of a total of 233 Liberal Democrat gains 130 (55.8 percent) were in seats that would have been classified as 'marginal' because the Conservative majority had been 20 percent or less in 1989. In these particular cases the Conservative vote fell by 11 percent, Labour's by 2.3 percent and the Liberal Democrat vote rose by 15.7 percent, compared with a Conservative fall of −7.9 percent, a Labour increase of +0.6 percent and a Liberal Democrat advance of +9.0 percent in all 189 Conservative/Liberal Democrat marginals. Such figures imply that the Conservative share in those Conservative/Liberal Democrat marginal seats retained by the party in 1993 fell by less than 2 percent and that the Liberal Democrat vote in the same divisions rose by only 2.5 percent. This statistic, together with the size and range of the majorities in seats lost by the Conservatives, highlights the irregular pattern in the Liberal Democrat performance.

When the party's gains are examined in more detail it appears that in no less than 135 of the 233 cases the Conservative to Liberal Democrat swing was higher than that used as the basis for seat forecasts. In each of three districts (Wokingham, Poole and New Forest) local Liberal Democrats gained four divisions where the Conservative lead had been higher than the 12 percent majority deemed vulnerable by the assumed change in vote between 1989 and 1993. Further support for the idea of a reactive electorate responding to campaign messages can be found in the 49 out of 233 divisions where the Liberal Democrats not only gained the seat from the Conservatives, but also overtook second-placed Labour in the process. Leapfrogging is not entirely unknown, especially in three-way marginals, but in these examples the Conservative vote fell by an average 17 percent, Labour's by 7 percent and the Liberal Democrat vote rose by a massive 31 percent. Few of these seats would have been described as three-way competitive before the elections took place. These particular seats, comprising 21 percent of all Liberal Democrat gains from Conservative in our party competition controlled data set, do not sit easily within electoral models which assume either the existence of uniform swing or of tactical voting. We need, therefore, to consider another possibility that the success of the Liberal Democrats in local elections has a spatial dimension.

Looking for a geography of the Liberal Democrat vote

Linking political and geographical data

Political scientists and geographers think about places and events in different ways and these differences are carried through in the way they analyse quantitative data. A database of election results often contains a great deal of information about the candidates contesting each election but only rudimentary information about where that election was held (usually an obscure area identification number unique to that study). For geographical research what is most useful is a set of simple statistics which cover every area in a place at the same time and where the extent of those areas is well known. The Census of Population is a good example of such a simple geographical data base.

Local elections are held at different times in different places with different numbers of candidates standing each time. Both the places (through boundary changes) and the parties also change over time. There can also be more than one candidate elected in each place. To be able to put such data into a geographical database it needs to be simplified so that there is only one result for each place, the places do not change and that there is a result for every place at every time period studied. To achieve this we have divided the last 16 rounds of local district and borough elections in England excluding the county council contests into four time periods: 1979–1982, 1983–1986, 1987–1990 and 1991–1994. Results from the county elections have not been used because of the difficulty, in some cases impossibility, of matching county divisions with district or borough level wards. It was also decided that because of the different pattern of party competition operating in Wales and the widespread boundary changes that took place during this period that wards in the principality should be excluded from our analysis. We calculated or estimated all results for frozen 1981 wards for just the Conservatives, Labour, Liberal Democrats (Liberals and the Alliance prior to 1988). The votes for Independents and minor parties were collapsed into a single category of 'others'. We also calculated figures for ward electorate size.

There are a total of 8489 wards covering the 296 English shire districts, 36 metropolitan boroughs and 32 London boroughs. Clearly, for the purposes of mapping data the ideal position is that no ward has its boundaries altered throughout the period covering our analysis. Indeed, in no less than 7422 wards (87 percent) this is, in fact, the case. In the remaining 1067 wards boundary changes meant some proportion of the electorate were re-distributed to different wards. In 665 cases a 1981 ward has been split between two 1991 wards. In some cases, thankfully just four in total, a 1981 ward has been divided into no fewer than six 1991 wards. In those wards where there is a one-to-one match between the 1981 and 1991 wards the process of analysing our data over time presents few problems. In the minority of wards where there is not this congruence, however, the data require some manipulation to arrive at vote estimates. In practice, because of problems caused by boundary changes prior to 1981, we were unable to produce a complete coverage of 1979–1982 results for all of England.

The easiest way to explain how we proceeded with this part of our analysis is by way of an example for one ward: St. Anthony's ward in Newcastle upon Tyne (1981 census ward CJAU). This particular ward experienced boundary changes shortly after the 1981 census was conducted. By the 1991 to 1994 period, therefore, the electors who used to live in this old ward were living in parts of two new wards (35.638 percent and 60.196 percent of the populations of 1991 census wards CJFQ and CJFC live in the area of the old ward (Dorling and Atkins, 1995). Six elections were held in these new wards over this period with the estimated results described in *Table 5*.

TABLE 5. Estimating party votes in wards with boundary changes: St Anthony's ward

Year	*Ward ID**	*Elect*	*Census code*	*Con vote*	*Lab vote*	*LD vote*	*Other vote*
1991	5102038	6970	CJFQ	198	1825	263	0
1992	5102038	6959	CJFQ	191	1189	112	80
1994	5102038	6785	CJFQ	0	1831	301	0
1991	5102029	7121	CJFC	0	1068	292	262
1992	5102029	7162	CJFC	250	1331	164	74
1994	5102029	7138	CJFC	0	1667	469	0

Note: *Ward ID refers to the ward codes found in the British Local Elections Database compiled by Rallings and Thrasher and lodged with the data archive at the Universwity of Essex.

In this example, therefore, we would estimate the electorate for ward CJAU as follows:

(0.35638 * (7121 + 7162 + 7138) + 0.60196 * (6970 + 6959 + 6785))/
(3 * 0.35638 + 3 * 0.60196) = 6992

In much the same way we would estimate the Conservative vote as

(0.35638 * (0 + 250 + 0) + 0.60196 * (198 + 191 + 0))/(3 * 0.35638 + 3 * 0.60196)) = 112

To clarify, if there had only been one election held during the 1991–1994 period and that election had been held using the 'old' ward boundaries, we would expect that 6992 adults would have been registered to vote and that 112 of them would have chosen to vote for the Conservative candidate. We recognize that there are several problems with this approach, but it does use all the available data and does result in a single set of votes for a single set of wards at each one of four time periods. In the analysis below we consider changes over the last three electoral periods (1983 to 1994) and only for wards in England.

Evidence of simple spatial auto correlation

Spatial auto-correlation describes the process by which geographical patterns tend to show clusters in space. In order to identify whether there is a spatial dimension to the Liberal Democrat vote, therefore, we need to identify the extent to which the electoral result in one ward is not independent of the results in neighbouring wards. The reason for shoe-horning the political dataset into a geographical one is to look for evidence of this process occurring. A ward is said to be neighbouring another ward if it shares a common administrative boundary with that ward or if there is a major transport route between the two wards (such as a tunnel or bridge). We start by only considering party position in each ward.

Table 6 shows how many wards are categorised into one of eight types at each period depending on: whether the Liberals came 1st, 2nd, 3rd or 4th (including no candidate) in the aggregate election estimated for that ward; and whether the ward neighboured a ward in which they came first. As the Table shows there were 334 wards where the Liberal candidate(s) won the most votes between 1983–1986 which also neighboured wards where they achieved a similar feat. Our analysis over time shows the rise in these wards to stand at 1183 by 1991–94 (based on votes averaged over the elections of four years and

TABLE 6. Liberal vote and geographical position in wards in England 1983–1994 (party rank in the local poll subdivided by whether ward neighbours victory)

*Number of wards in England**	*1983–86*	*1987–90*	*1991–94*
0: No result for ward**	30	30	30
1: Liberals 1st (neighbour)	334	562	1183
2: Liberals 1st (alone)	229	222	301
3: Liberals 2nd (neighbour)	469	727	1224
4: Liberals 2nd (alone)	762	746	678
5: Liberals 3rd (neighbour)	313	442	777
6: Liberals 3rd (alone)	1008	959	1200
7: Liberals 4th (neighbour)	884	890	1099
8: Liberals 4th (alone)	4460	3911	1997
Total	8489	8489	8489

*Using results aggregated to frozen 1981 ward boundaries.
**No results for wards in the City of London and Scilly Isles.

re-aggregated to 1981 boundaries). Our Table illustrates both the general improvement in the position of the Liberal Democrats over this period and also how wards can be classified according to attributes of their neighbouring wards. In the remaining part of this paper only the classification of wards based on the eight types identified using the 1983–86 results will be used.

Table 7 now considers the number of votes cast in each ward, grouping wards into the eight types identified earlier for the 1983–86 period. Thus there are 469 type 3 wards (in which the Liberals came second in 1983–86 and first in a neighbouring ward). In total some 293 000 people voted for the Alliance parties in these wards in the first period, but this number had risen to 323 000 for the Liberal Democrats by the last period, a rise of some 10 percent. In contrast in type 4 wards which did not have a 'victorious neighbour' in the first period the Liberal Democrat vote only increased by 1 percent. The difference in rise of votes in wards where the Liberals originally came third is even more dramatic. Thus Liberals increased their total vote most where they had previously come second or third AND in those wards which neighboured a ward they had won. In previous studies

TABLE 7. Total Liberal vote in wards selected by party position in 1983–86

Total vote in wards ('000s)	*1983–86*	*1991–94*	*% Change 1983–86 to 1991–94*	
1: Liberals 1st (neighbour)	399	369	365	
2: Liberals 1st (alone)	213	187	202	
3: Liberals 2nd (neighbour)	293	260	323	+10
4: Liberals 2nd (alone)	420	341	425	+1
5: Liberals 3rd (neighbour)	132	144	196	+48
6: Liberals 3rd (alone)	366	320	438	+20
7: Liberals 4th (neighbour)	19	203	327	
8: Liberals 4th (alone)	55	598	1152	

(Rallings and Thrasher, 1994b) we have noted the extent to which the presence of Liberal Democrat candidates has a positive impact on the overall level of electoral turnout. It would also appear that this effect is also influenced by the proximity or not of another seat already held by the party. We have only shown the percentage change in the vote for wards in which the Liberal Democrats came second or third. This is because we are not interested in those wards the party already holds or in those where there is little realistic chance of electoral success.

Table 8 provides further evidence that the Liberal Democrats performed better in wards neighbouring areas the party and its predecessors had initially won over the last ten or so years. We show the average share of the vote in each of our eight ward types together with the extent of change in those wards where the Liberal Democrats were originally placed second or third. Thus the Liberal Democrat share rose by 4 percent in wards in which they came second in 1983–86 and which also neighboured wards in which they came first at that time, but remained static in wards in which they came second at the first period which did not border wards which they won. There is a similar four point difference for wards in which they started off in third position in the 1983–1986 period (7–3 percent). In wards which the Liberals held in 1983 their average vote slipped by 2 percent by 1994, irrespective of whether those wards were in a cluster of victorious wards at the initial period. Proximity to victors appears to matter for marginal wards more than for safe ones.

Table 9 and *10* show that these gains were made largely at the expense of Conservative candidates whose aggregate losses in terms of the share of the vote are very similar to the aggregate gains of the Liberal Democrats. The aggregate Labour party performance varies very little by this typology. In essence, at local elections over the last ten years the Liberal Democrats have made their greatest gains in areas bordering wards which the Alliance had won by 1986. Liberal Democrat campaigning and voting clearly appears to be contagious and for the period under review it is the Conservative party which has suffered most (Bochel and Denver, 1971; Seyd and Whiteley, 1992; Denver and Hands, 1993; Pattie *et al.*, 1994; Whiteley *et al.*, 1994). That said, there also appear to be differences in the rate of Conservative vote decline according to whether Liberal Democrat candidates are challenging with the benefit of a neighbouring ward already controlled by the party. In type 3 wards, for example, which had a neighbouring Liberal Democrat controlled ward the Conservative vote fell by an average 3 percent while in type 4 wards the Conservative share declined by two percentage points less. An identical gap was also found between type 5 and 6 wards which each had the Liberals in third place in the 1983–1986 period.

TABLE 8. Average Liberal vote share controlling for party position

Average ward % vote	*1983–86*	*1987–90*	*1991–94*	*% Change 1983–86 to 1991–94*
1: Liberals 1st (neighbour)	49	43	47	
2: Liberals 1st (alone)	46	39	44	
3: Liberals 2nd (neighbour)	31	26	35	+4
4: Liberals 2nd (alone)	28	21	28	0
5: Liberals 3rd (neighbour)	16	16	23	+7
6: Liberals 3rd (alone)	13	11	16	+3
7: Liberals 4th (neighbour)	2	14	24	
8: Liberals 4th (alone)	1	9	17	

TABLE 9. Average vote share won by Conservatives

Average Con % vote	*1983–86*	*1987–90*	*1991–94*	*% Change 1983–86 to 1991–94*
1: Liberals 1st (neighbour)	29	29	27	
2: Liberals 1st (alone)	28	29	26	
3: Liberals 2nd (neighbour)	40	40	37	–3
4: Liberals 2nd (alone)	38	39	37	–1
5: Liberals 3rd (neighbour)	39	38	35	–4
6: Liberals 3rd (alone)	37	36	35	–2
7: Liberals 4th (neighbour)	42	37	35	
8: Liberals 4th (alone)	38	36	34	

There appears to be evidence to suggest that the Liberal Democrat challenge is made more effective when there has been party success in the near vicinity.

Mapping the Liberal Democrat contagion

Another way of describing the process of Liberal Democrat local electoral success is with the aid of maps. Maps are a good aid to imagining how spatial processes work as the examples below show, but it is important to remember that they can also mislead. Most importantly only conventional equal area maps are used here so wards with a small area are likely to be ignored. This would, of course, be a more serious problem if we were mapping the fortunes of the Labour Party. Moreover, people have an innate ability to see patterns in maps whether they are there or not (see Dorling, 1995, which includes maps of all recent local and general election results). Nevertheless, we feel justified in employing maps in this analysis because they help convey the spatial dimension to the Liberal Democrats' ability to mitigate some of the bias against third parties in a simple plurality electoral system. At the heart of this success, as we shall show, is the way in which the party's vote has become geographically distributed more effectively.

In *Figure 7* each ward in England is coloured one of four shades. White denotes that the ward was never won by the Liberals between 1983 and 1994 (using the same definition of

TABLE 10. Average vote share won by Labour

Average Lab % vote	*1983–86*	*1987–90*	*1991–94*	*% Change 1983–86 to 1991–94*
1: Liberals 1st (neighbour)	18	20	20	
2: Liberals 1st (alone)	19	21	22	
3: Liberals 2nd (neighbour)	21	22	21	0
4: Liberals 2nd (alone)	26	26	27	+1
5: Liberals 3rd (neighbour)	36	36	35	–1
6: Liberals 3rd (alone)	43	43	43	0
7: Liberals 4th (neighbour)	33	29	29	
8: Liberals 4th (alone)	38	35	36	

'won' as above). Black indicates the ward was won by them at local elections held in the 1983–1986 period, dark-grey if first won in the 1987/1990 period and light grey if the party first won that ward in the most recent 1991/1994 period. Clearly, there will be some wards, though few in number during this entire period, which the party won but then subsequently lost but it is difficult to show more intricate patterns while using only grey shading.

The national pattern clearly shows the Liberal Democrat heart-lands in the south and south west, but also highlights some strength among rural areas in the north. Although difficult to see from this map, the Liberal Democrats have not performed well in most large cities, where the strength of the Labour party has been virtually unchallenged. What is of most interest in *Figure 7*, however, is the way in which the dark grey wards appear frequently to neighbour black wards and similarly with the light and dark grey wards. Along the Pennines, for instance, Liberal Democrat gains appear to be spreading consecutively over both space and time. In large part the party's success in the parliamentary by-election held in July 1995 for the Littleborough and Saddleworth seat was based on success achieved in local elections.

The magnified section of the south coast in *Figure 7* shows this process of geographical expansion to best effect. Few grey wards along the south coast do not have a black neighbour in this inset, suggesting that once the party had become established in some wards the process of expansion into neighbouring wards has become almost relentless. As with the set of wards running along the Pennines there appears to be a spatial succession of wards becoming progressively lighter. Most impressive, perhaps, are the processes of 'infilling' and 'take-over' which can be imagined. Solitary wards with two or more black neighbours appear particularly likely to turn grey over our time period. The clearest example of a 'take-over' can be seen in Yeovil (the cluster of small wards on the Dorset/Somerset border) which have turned grey after first being surrounded by large black rural wards. Only one white ward remains in the centre of that town and this particular case of spatial imperialism could be described as a classic instance of leading by example.

The end result of this process of in-filling and electoral 'take-overs' is the geographical distribution of Liberal Democrat strength across the country shown in *Figure 8*. Clearly, the party's successes in local elections held since 1994 have not been included in this map but it does not require too much imagination to see how the pattern of electoral growth will have been continued. In *Figure 8* wards which the Liberal Democrats won over the last four years are shaded black; wards in which they came second are shaded dark grey; wards in which they stood and came third are shaded light grey; all other wards are shaded white. Note that wards which were shaded light grey in *Figure 7* first won in the latest period) have to be shaded black in *Figure 8*.

Nationally, grey and black wards now form a continuous link from Dover to Bristol and as far north as Cambridge. It would thus be possible, for the most dedicated of political geographers, to walk between these three cities passing only through wards where Liberal Democrats stood and came at least third. Their overall pattern of support is remarkably uneven, with small centres of strong support found across the country, separated by large swathes of land where they are either unable to field candidates or still finish bottom of the poll. The inset of the south coast in *Figure 8* shows an even clearer pattern. Wards where the Liberal Democrats were victorious most recently have tended to be contiguous with other ward successes; while none, in this inset are surrounded by white wards (where their party did not stand or came fourth). Between the wards they have won, the area is filled with wards in which the party's candidates most often came second or, rarely, third. The areas where the Liberal Democrats do not put up candidates are also highly clustered. In some

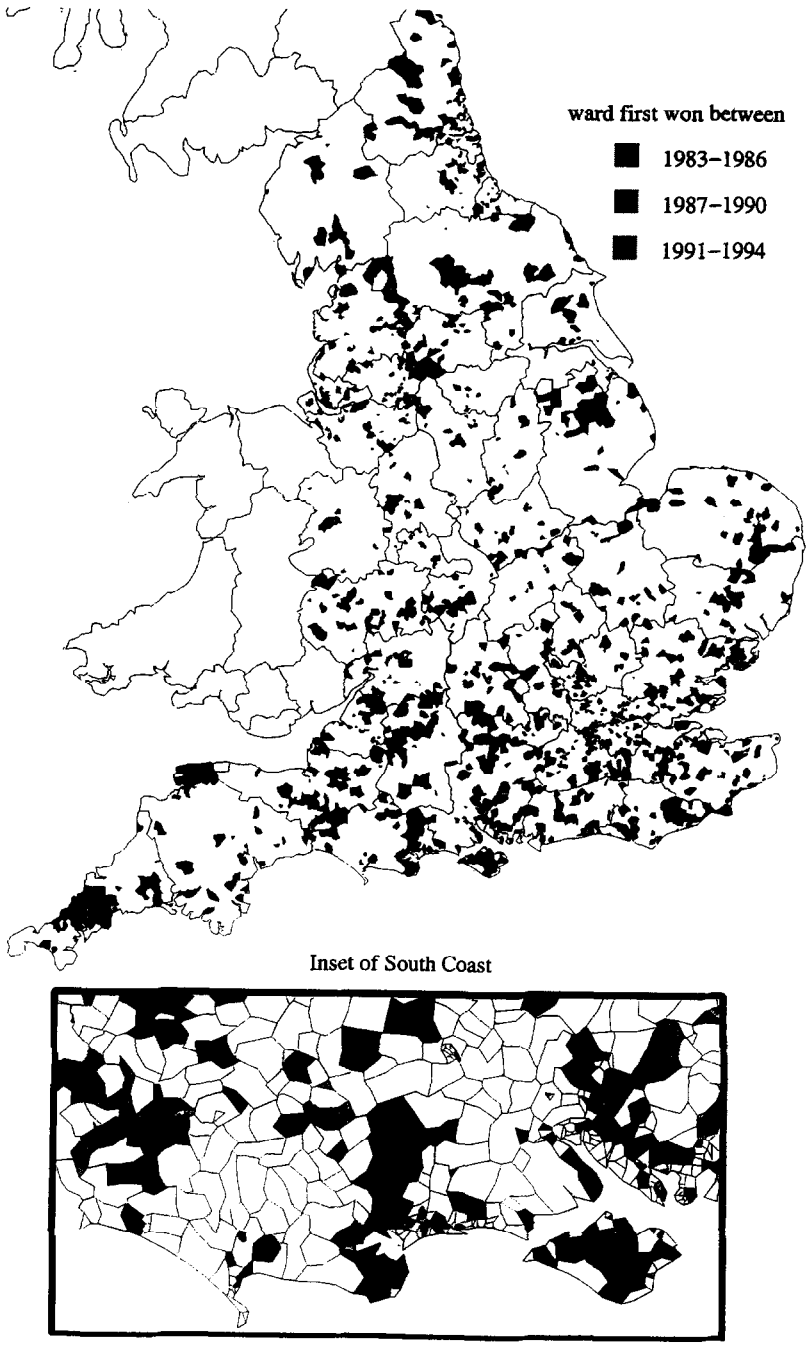

FIGURE 7. Liberal victories at local elections in England 1983–94 by ward.

part these separate geographical patterns of strength and weakness may reflect an electoral strategy designed to combat a process whereby the party amassed votes with little payoff in seats. Critics might argue this as proof that the Liberal Democrats are not a national party. Those with responsibility for the party's wider electoral strategy would, of course, be

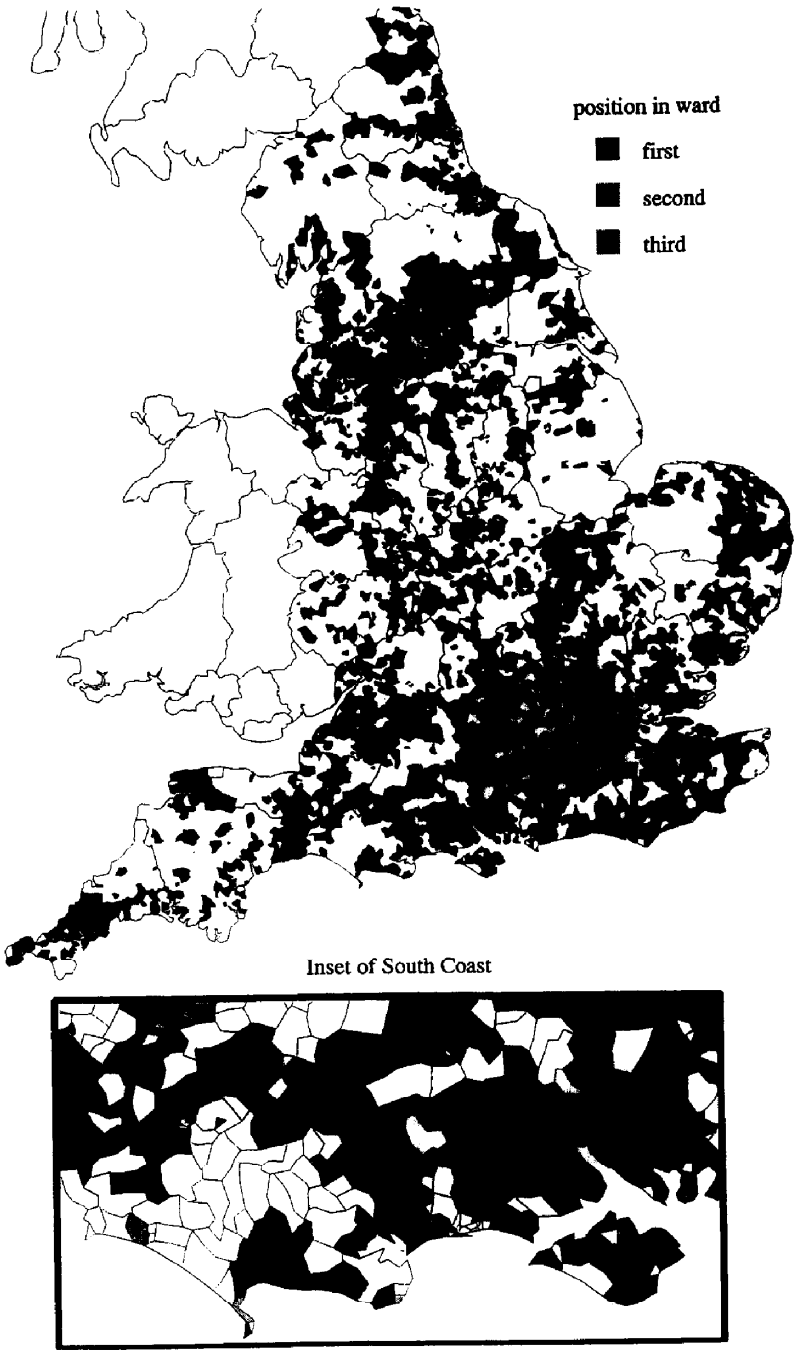

FIGURE 8. Liberal positions in local elections in England by 1994, by ward.

extremely pleased with a situation where the party could withstand a fall in overall electoral support yet still contrive to win more council representation than ever before.

It is not easy to speculate confidently on the causes of these changes without further research. Subsequent analysis, for example, might repeat the exercise for the other two

main parties to see whether the pattern of Liberal Democrat success was particularly unusual. Further analysis might also consider changes within local authorities separately to those between districts. We could use census analysis to see how different the wards neighbouring Liberal Democrat areas are from other wards which they could, but did not, contest. It might be that they are simply doing well in similar areas, and similar areas tend to neighbour one another. Our earlier analysis outlined in the first section, however, suggests that such an approach might not bear fruit.

Conclusions

We began this paper by examining ward level socio-economic census characteristics in order to identify areas which might be 'natural' territory for Liberal Democrat success. Although constituency level analysis had consistently found patterns for Conservative and Labour but not for the Liberal Democrats or their predecessors smaller scale analysis might have provided more information. What we found, however, was that the Liberal Democrat vote was less easily explained using this approach than electoral support for the Conservative and Labour parties. Arranging wards into different clusters also demonstrated our inability to explain the Liberal Democrat vote as well as that for the two major parties. Moreover, whereas the electoral successes of those parties followed a linear pattern related to the economic circumstances of particular clusters of wards, the Liberal Democrats won seats right across the socio-economic range. What this analysis did show, however, was that Liberal Democrat support did have a strong spatial context. In London, for example, we found distinct differences in the party's electoral support amongst wards arranged in the same socio-economic clusters but which were north or south of the river Thames.

Next, we examined the political base of the Liberal Democrats in an attempt to understand how a third party had improved its seats/votes ratio in a dominant two party system. Clearly, in three successive elections, beginning with the 1993 county council elections, the Conservative party has suffered from an enormous protest vote. In many cases the prime beneficiaries of this dissatisfaction have been the Liberal Democrats. But as we noted the scale of Liberal Democrat success in terms of seats was greater than anticipated by reference to the party's vote. In short, the assumption that Liberal Democrat seat gains would run in conjunction with the level of electoral swing, was false. We tested a number of possibilities, including errors in calculating national equivalent vote share as well as fluctuations in the pattern of party competition and were satisfied that these were either correct or were not such as to explain the whole problem. Rather, whereas the Conservatives did manage to retain a greater share of their vote than average in those marginal seats they were defending and whereas most of Labour's successes occurred in wards which were already marginal, Liberal Democrat gains took place in widely different circumstances and often involved a straight move from third to first place. There was an element of tactical success behind the Liberal Democrat's survival, and indeed resurgence, but the source appeared not to stem from the electorate generally thinking tactically. It seemed to be less a case of tactical voting and more a case of tactical campaigning.

These findings led to our third section, which sought to identify and trace the spatial dimension to the Liberal Democrat vote. By first analysing voting trends according to whether or not a ward neighboured another already controlled by the party and then mapping ward success we have shown that there does appear to be an identifiable spatial pattern. Quite simply, Liberal Democrat victories are most likely to occur in areas

neighbouring wards which they have already won and spatial proximity may be more important than social proximity to the party at this time. In some ways this aspect of our analysis is in its earliest stages. We still need to explore further the nature and characteristics of those wards where this process appears to work and those where it does not. We need to discover whether the same process can be found, for example, for Labour victories during the same period. Nevertheless, there does appear to be evidence that the Liberal Democrats should not simply be characterized as having done well in recent local elections solely because the Conservatives have done badly. An electoral strategy built on winning wards and then using those wards as the political equivalent of a base camp to mount raids on vulnerable neighbouring wards does seem in evidence. Should our initial analysis prove accurate then the implications for the future electoral landscape will be extremely interesting. Our model can be used to generate hypotheses about the spatial location of the 500 Liberal Democrat gains made at the 1995 local elections. It could also be argued that whatever the Liberal Democrats do today in local elections they will replicate in the 1997 general election. Conservative M.P.s, in particular those whose seats are bordered by incumbent Liberal Democrats, would appear to be those most at risk of losing their seats according to our analysis.

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Appendix. Definition of clusters.

London

Cluster 1. 87 wards mainly situated in Barnet, Bromley, Harrow, Hillingdon, Kingston-Upon-Thames, and Richmond-Upon-Thames.
These wards are characterized by a high level of owner occupiers (81.3 per cent), few council estates (only 6.1 per cent of households are council tenants), low unemployment (3.7 per cent). Only 21.8 per cent of households have no car. Employment in the service industries dominates at 81.1 per cent. The proportion of professional and managerial workers is above average at 36.4 per cent. The number of non-Whites is relatively low (9.48 per cent).

Cluster 2,. 97 wards mainly in Barnet, Camden, Hammersmith and Fulham, Kensington and Chelsea, Wandsworth and Westminster.
These wards have a high percentage of professional workers (33.1 per cent) and 85.6 per cent of workers are employed in the service industries. Over 30 per cent of accommodation is privately rented and No exclusive WC stands at 3.9 per cent which is above average. Unemployment is just below average at 6.3 per cent.

Cluster 3. 135 wards mainly in Bexley, Bromley, Croydon, Greenwich Havering, Hillingdon, Kingston-Upon-Thames and Sutton.
Unemployment is low at 4.6 per cent and owner occupation stands at 79 per cent. Council housing is just 11.2 per cent, 31.8 per cent are manual workers, but there is a higher than average number of skilled workers (22.9 per cent). The percentage of professional and service industry workers is around the London average. Non-Whites are low at 8.2 per cent.

Cluster 4. 78 wards mainly in Brent, Croydon, Harrow, Hounslow, Newham, Redbridge and Waltham Forest.
These are mainly owner occupiers (69.7 per cent) with a fairly high per centage of non-Whites (37.8 per cent). The number of manual workers (34.6 per cent) and skilled workers (22.4 per cent) are slightly above average. Otherwise these are fairly average (working class) wards.

Cluster 5. 102 wards mainly in Barking and Dagenham, Ealing, Greenwich, Hounslow, Lewisham and Wandsworth.
As above—fairly average wards but with many fewer non-Whites (8.7 per cent).

Cluster 6. 147 wards mainly in Brent, Camden, Hackney, Hammersmith and Fulham, Haringey, Islington, Lambeth, Lewisham, Tower Hamlets, Southwark and Newham.
Three-way split between owner occupiers, council tenants and rented accommodation. Percentage of young people (27.1 per cent) and non-Whites (30.5 per cent) higher than average. 57.7 per cent of households have no car. Overcrowding is above average at 6.3 per cent, and there is some evidence of multi-occupancy (no exclusive WC 3.1 per cent). Employment areas are fairly average but with few professionals (14.2 per cent).

Cluster 7. 8 wards situated in Brent, Ealing and Newham.
Wards with a high non-White population (mean 75.2 per cent). There is a higher than average percentage of manual workers (40.6 per cent). Unemployment is high at 12.1 per cent, but 67.4 per cent of population own their own homes. Only 13 per cent reside in

council houses. Overcrowding is high at 14 per cent and there is above average multi-occupancy (No exclusive WC is 4.2 per cent).

Cluster 8. 49 wards mainly in Camden, Greenwich and Southwark.
There are wards with some non-Whites (18.3 per cent). There is a high percentage of council tenants (67.1 per cent) and few cars (61.1 per cent of households have no car). Unemployment is above average at 11.2 per cent. The predominant occupations are manual (33.3 per cent).

Cluster 9. 19 wards mainly in Brent, Hackney, Southwark and Tower Hamlets.
These wards also have a high percentage of non-Whites at 42.7, but these are poorer areas than Cluster 7. 67.9 per cent council housing; 67.2 per cent of households have no car and overcrowding stands at 10.4 per cent. Only 15.8 per cent own their own homes. Unemployment is higher at 14.9 per cent.

Metropolitan boroughs

Cluster 1. 58 wards situated mainly in Stockport, Trafford, Liverpool, Sefton, Solihull and Leeds.
Affluent with high percentage of owner occupiers (80.3 per cent) and professional and managerial workers (32.4 per cent). Also above average percentage of service industry workers (74.1 per cent). This is the cluster with the highest percentage of OAPs (21.2 per cent). Unemployment is low at 3.7 per cent.

Cluster 2. 154 wards spread among the councils.
As the above cluster but not quite so affluent with less professional (21.8 per cent) and service workers (65.8 per cent) and higher unemployment (4.4 per cent).

Cluster 3. 37 wards mainly situated in Sandwell, Walsall and Leeds.
These are industrial areas with 32.2 per cent working in manufacturing. 45.9 per cent of workers are manual and an additional 28.6 per cent are skilled. Housing is mixed with 45.6 per cent council tenants and 46.6 per cent owner occupiers. 49.7 per cent of households do not have a car. The proportion of non-Whites is above average at 8.1 per cent, as is unemployment at 9.2 per cent.

Cluster 4. 73 wards (32 in NW, 28 in Yorkshire and Humberside, and 13 in the Midlands).
These are similar to the above but better off. Owner occupation stands at 70 per cent, council tenants at 21.1 per cent and 38.5 per cent of households do not have a car. The percentage of professional and service industries is slightly higher than in Cluster 3 but below the average. There are 42.7 per cent manual workers and 27.9 per cent skilled. 25.7 per cent work in the manufacturing industries. Percentage of non-Whites is average.

Cluster 5. 21 wards situated mainly in Bradford, Sandwell and Oldham.
These wards have a high percentage of non-Whites (41.4 per cent) and a mix of housing types (31 per cent council, 51.1 per cent owner occupiers). Most households do not have a car (63.6 per cent) and unemployment is high at 12.3 per cent. The percentage working in manufacturing is about average but the percentage of professionals is low.

Cluster 6. 134 wards mostly situated in Yorkshire and Humberside (58) or the N West (66) incl. 17 in Liverpool, 13 in Barnsley, 11 in Rotherham and 10 in Leeds.
These are average working class wards with 39.1 per cent manual workers and 23.5 per cent skilled workers. There are few professional workers (9.6 per cent). The percentage of non-Whites is below average at 3.9 per cent. Unemployment is above average at 8.8 per cent.

Cluster 7. 33 wards mainly situated in Liverpool, Sheffield and Leeds.
Above average percentage of council tenants (52.9 per cent) and only 30.4 per cent owner occupiers. Unemployment is twice the metropolitan average at 12.3 per cent. Average otherwise.

Districts

Cluster 1. 373 wards mainly in the east, south, south east and north west.
High percentage of students (7.2 per cent) but the percentage of young people is below average at 16.6 per cent. These are well off wards with low unemployment (2.7 per cent), high owner occupation (85.6 per cent), many cars (nearly 90 per cent) and many professional and managerial workers (43.4 per cent). Employment in the service industries is above average.

Cluster 2. 373 wards spread throughout the districts.
These are affluent wards with low unemployment (3 per cent); high percentage owner occupiers (74.2 per cent); many cars (over 80 per cent) and a high percentage of professional workers (30.8 per cent). 16.9 per cent work in agriculture and 25.7 per cent are self employed. The percentage of young people is below average.

Cluster 3. 258 wards mostly in the south of England.
As cluster 9, but outside the south west. An agricultural cluster with high percentage owner occupiers and many cars. Percentage of OAPs is above average and percentage of youth is below average.

Cluster 4. 652 wards mainly situated in south, south east and east.
These are affluent wards with 85.5 per cent owner occupiers and only 6.9 per cent council tenants. Unemployment is below average at 3.5 per cent. Employment is mixed with 35 per cent manual; 25.3 per cent skilled; 25.2 per cent in professional/managerial occupations. 67.8 per cent work in the service industry. Just over 2 per cent work in agriculture.

Cluster 5. 170 wards mostly in the south of England.
OAPs are a high 35.5 per cent of the population and young people account for only 13.8 per cent. There are few non-Whites. 83.6 per cent of households are owner occupiers with only 5 per cent council tenants. Employment in the service industries is high at 73.4 per cent, whereas only 24.9 per cent of workers are manual and only 17 per cent are skilled. Only 11.5 per cent work in manufacturing. Many are self-employed (21.8 per cent).

Cluster 6. 767 wards situated mainly in the east, south and south east.
71.9 per cent are owner occupiers and 12.9 per cent are council tenants. Unemployment is 3.6 per cent. There is a mix of employment with 28.2 per cent professionals; 25 per cent

manual workers and 73 per cent in the service sector. There are pockets of non-Whites (max = 25.1%; mean = 2%. There are also some agricultural workers (mean = 3.1%; max = 21.7%.

Cluster 7. 209 wards midlands, east midlands, east and south west.
More affluent working class wards with 75.7 per cent home owners and 12.2 per cent council tenants. Unemployment is low at 3.7 per cent. In addition, 11.1 per cent work in agriculture.

Cluster 8. 36 wards mainly in east and south.
27.5 per cent of the population of these wards are young people. Only 13.6 per cent are OAPs. The percentage of professionals is below average. Employment in the service industries is above average at 71.8 per cent. Manual work is about average. Housing is 50 per cent privately rented with only 41.2 per cent owner occupiers and 12.6 per cent council. These wards are in 'new town' territory.

Cluster 9. 38 wards mostly in the south west.
These are rural wards with 35 per cent employment in agriculture. In addition 43.9 per cent are self-employed. Employment in the service industries is below average at 45.6 per cent. The percentage of professional and managerial workers is average. 63.6 per cent of households are owner occupiers and only 5.5 per cent are council tenants. Most households have a car (over 80%). 20 per cent of the population are of pensionable age.

Cluster 10. 1068 wards spread throughout the districts.
These are affluent working class wards with 73.6 per cent owner occupiers, only 29.9 per cent households without cars and average unemployment at 4.7 per cent. 38.7 per cent are manual workers and 25 per cent are skilled. An above average number work in manufacturing industries (22.4 per cent). Only 1.7 per cent non-White.

Cluster 11. 287 wards spread throughout the districts.
Below average owner occupation (53.5 per cent) and above average council tenants (31.4 per cent). Occupations are mainly working-class with few professionals. Employment in the service industries is above average at 70.4 per cent. Unemployment is 6.2 per cent.

Cluster 12. 320 wards mostly in east, north, east midlands and midlands.
These are industrial wards with 46.2 per cent manual workers; 28.9 per cent are skilled and 27.7 per cent work in manufacturing. Professional and service workers are well below average. 55.9 per cent own their home whilst 36.9 per cent are council tenants. Unemployment at 6.7 per cent above the districts' average. Fewer non-Whites than in Cluster 13.

Cluster 13. 54 wards mainly in the north west and east midlands.
These appear to be industrial wards; 41.4 per cent are manual workers; 21.9 per cent are skilled and 26 per cent work in the manufacturing industries. The percentage of professional and managerial workers is low at 8.5 per cent. Unemployment is above average at 10.4 per cent and 55.7 per cent are owner occupiers whilst 23.9 per cent are council tenants. The average non-White population stands at a high 22 per cent.

Cluster 14. 33 wards mainly in the north.
Unemployment is high at 10.7 per cent. Non-Whites are slightly above average at 2.5 per cent. Only 37.6 per cent of households own their homes and 59.4 per cent are council tenants. There is some overcrowding. Percentage of professionals is low and service industry workers are about average. 36.8 per cent are manual workers, but only a below average 18.1 per cent are skilled.

Cluster 15. 79 wards of which 22 are in the north.
These are poorer areas with twice the average unemployment (9.3 per cent) and above average overcrowding. There are 59.3 per cent council tenants and only 35.1 per cent owner occupiers. 51.9 per cent of households are without a car. Employment is predominantly manual at 44.5 per cent and an additional 23.7 per cent skilled. 25.4 per cent work in manufacturing industries.