

# TO RULE THE LAND? MAPPING THE 2015 UK GENERAL ELECTION

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The 2015 UK General Election was an unusual election. Can cartography be used to portray that? Let's start with the winners, the Conservative party. On an equal land area map of the UK their blues dominate almost all of England (Figure 1). Just a few tiny urban pockets are not deep blue. Their dominance spreads into Eastern Wales and as far as Pembrokeshire, into the lowlands of Scotland and the Eastern uplands. When you look at the first of the three maps below, it appears as if so many people voted Conservative across so much of the land, then, of course, they should rule the land. But, as the other two maps directly below show, that is not what happened.

The second map in this first triptych is the same as the first, except that area on the map has been made proportional to population. This second map is a conformal map projection. All lines of longitude and latitude still meet at right angles on the map; they are just curved a little more vigorously than those straight lines that are normally curved when flat map projections are made. Scotland, Wales, and Northern Ireland all become smaller on this middle map because they have smaller populations than their land area would imply. However, despite shrinking these areas with less Conservative support, the middle map is no longer dominated by darker blues, just a minority of

areas showing the Conservatives winning half, or at least two fifths of the votes of all those who voted in each place, so how *on earth* did that party win the election?

Winning elections in the UK is not about convincing people who live where most of the earth is, in rural areas, as the first map below would imply. Winning is about securing a majority of parliamentary constituencies (often called seats). The second map below implies that you do not need to win more than half of the votes, even of those who vote, in any constituency to win most constituencies, you just need to get more votes than any other party gets. So the more parties that contest each seat, the fewer the votes that are normally required to win that seat.

In the third map in each of the triptychs in this paper each seat is drawn as a hexagon. Although the hexagons are in roughly the correct place, because not all constituencies always have six neighbours, in many cases constituencies will have incorrect neighbours on the hexagonal cartogram. Unlike the conformal cartogram, on this hexagonal cartogram topology is not preserved. If lines of latitude and longitude were drawn on this map they would be seen to have been cut. However, the hexagonal cartogram does make it simpler to count up seats as each is the same shape. But it doesn't show the way in which Conservative votes

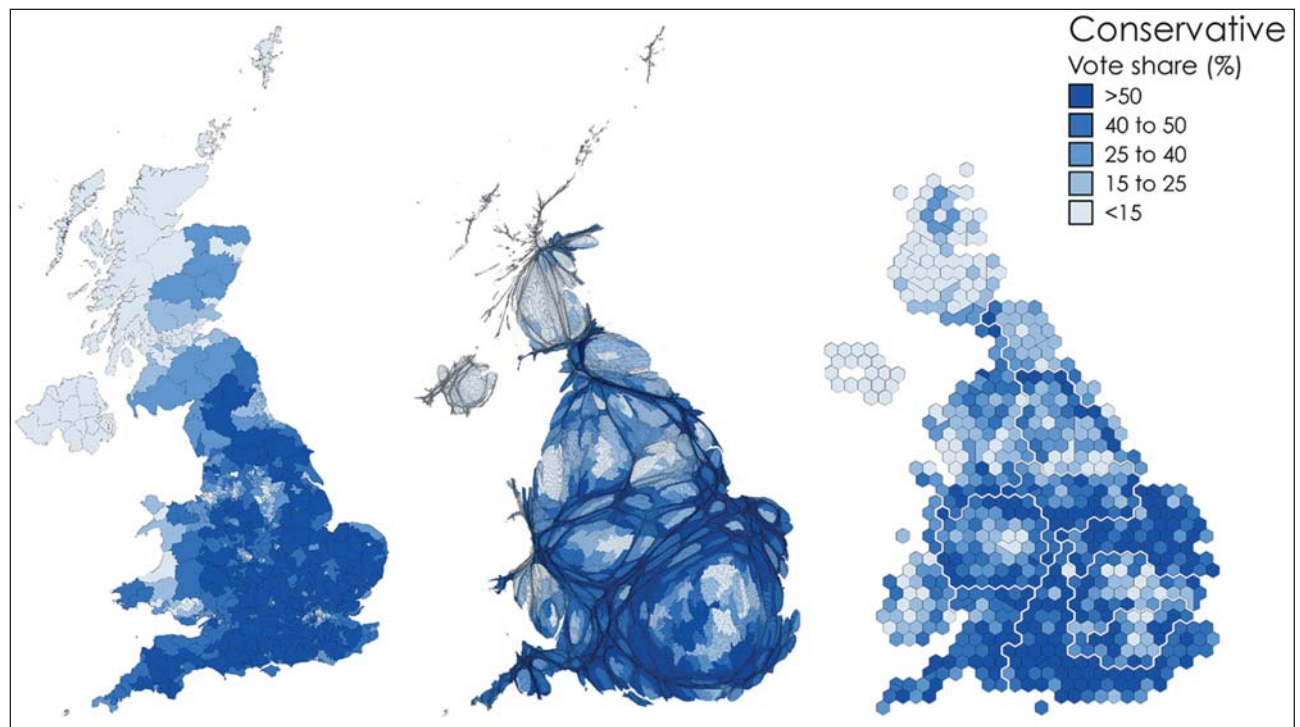


Figure 1.

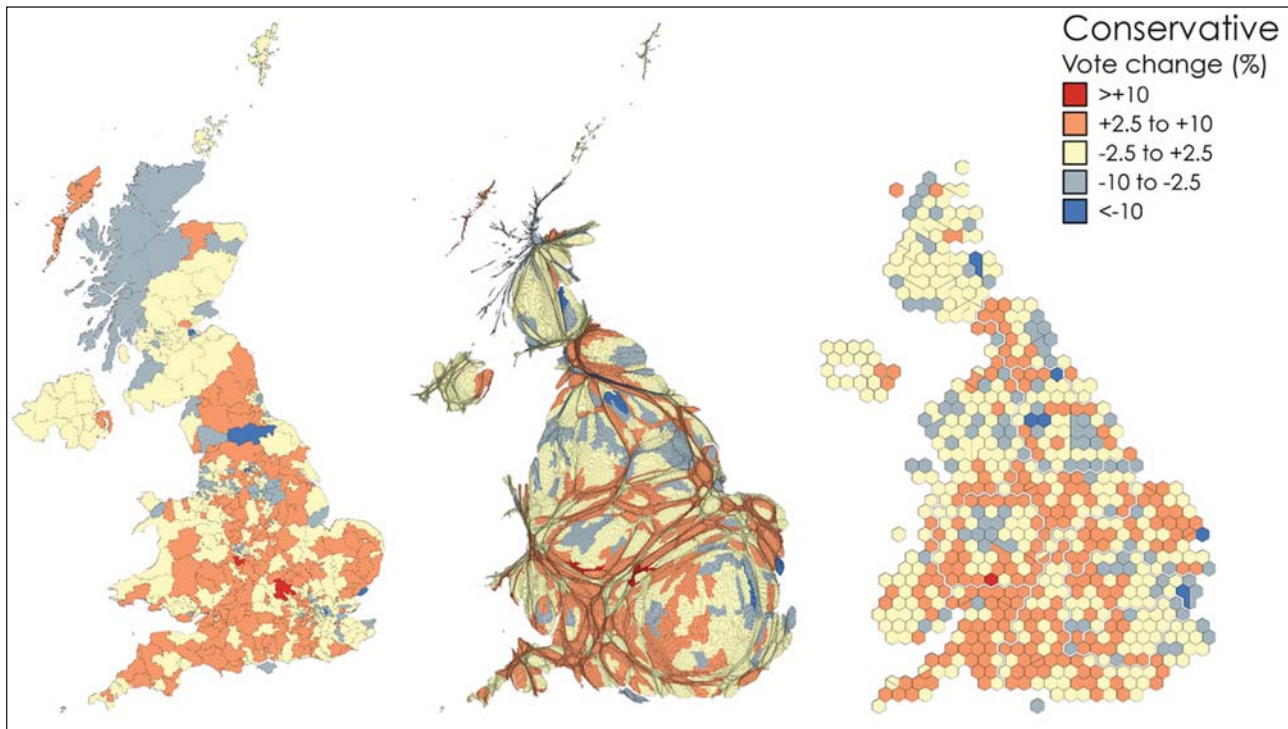


Figure 2.

are stretched sinew-like, around cities, appearing to almost strangle them (as the conformal cartograms do), but it does make it possible to see where most Conservative support was concentrated mostly clearly, and tempts us to ask the next most obvious question: has it always been thus?

The next triptych below (Figure 2) shows the change in the proportion of people who voted Conservative in each area between the 2015 election and the previous 2010 election. The measure here is % point change. So if the Conservative share of the vote in an area rose from 30% to 40% then the change recorded would be +10%. And, although the data is the same on all three maps below, the message of each is very different, so the three maps show three patterns unlike each other.

The equal land area map of Conservative voting change highlights how the remaining small amounts of Conservative support in the highlands of Scotland fell away in 2015. The Scottish highlands are shaded grey. On the middle map (below) the Scottish highlands are hardly visible and the rise in Conservative support in West London and South West England is more apparent, and the larger falls almost everywhere else. In the third hexagonal map below this becomes even clearer. In a majority of constituencies in the UK there was either almost no change in the share of the vote that the Conservatives won (-2.5% to +2.5%) or a fall in their support. Their support fell by more than 10% in many more areas than it rose by 10%. So, how did they win that election?

Maps tell stories. This paper is a story about some maps that are themselves stories about an election. You might think that the maps alone should be able to tell this story and if a commentary is required then they are not

doing their job well. You may well be thinking, “how do they know where the cities are on these maps”? We know because the cities are where the constituencies are very small on the equal land area map. But we are assuming you have some knowledge of the British Isles, and of elections, and of political parties, to allow us to tell our picture story. If you have too much knowledge some of what we are saying here might be a little condescending – but hopefully you can enjoy dissecting our particular political biases and read between the lines! If you have too little knowledge, but have got this far and are feeling stuck, please bear with us, we’ll try to explain a little more about the other political parties as we get to them. For now, all you need to know is that the Conservatives are the oldest of the surviving parties in the UK, so let’s turn to one of the youngest parties.

The triptych below (Figure 3) shows support for the Green party in the 2015 UK general election. On the equal land area maps the Greens look like a party of the south coast. On the middle map below their bohemian inner city area support is made more clear, as well as their success in the Isles of Wight, with the Green vote share there rising from 1.3% to 13.4% in just five years. On the hexagonal cartogram below their pockets of support appear better spaced out. However, what none of these three maps below show is that they actually won only one seat, in Brighton, despite tending to have a significant share of the votes spread out across most of the country. The archaic ‘first past the post system’ used in the UK will not be familiar to any readers based in the rest of Europe or in most democracies today. The Green Party could, theoretically, win 49% of the votes in every other constituency of the land and still win only one seat in Brighton! People know this, and so many people who might have otherwise have

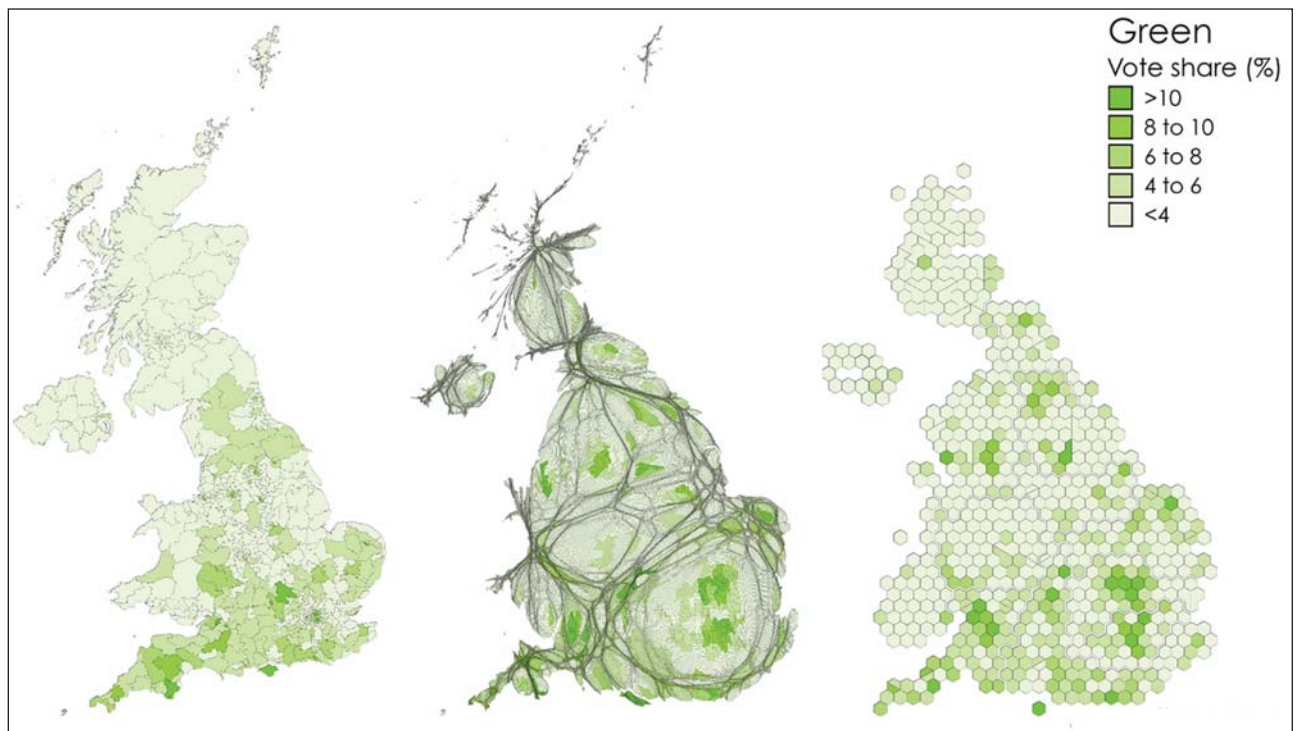


Figure 3.

voted Green don't vote Green, because they know their vote might well not appear to matter if they did. Thus these maps are not of actual political preference, but pragmatic and practical political preference.

When does a vote matter? Voting is a very personal thing. Other people may know that you went to vote, or said you went to vote, but no one else can possibly know how you voted on the day or whether you didn't actually vote at all in the ballot box or just drew a silly picture and wrote something rude instead of an X. We do know how many ballot papers were 'spoilt' but we don't map that here (and it is not many). The chances of an individual vote swinging an election are very small. People are not stupid. They understand that their own vote is not that important, but they also understand that if they didn't vote that would matter too. It is a little like singing in a choir. Your individual voice doesn't make much difference, unless you are very out of tune, but if you didn't turn up and sing then there would be no choir. And sometimes, just sometimes, choirs sing brilliantly.

After the Conservatives the party that secured the next highest number of votes, and seats, was Labour. On the conventional land-area map in the triptych below (Figure 4) Labour support appears minuscule. On the middle population cartogram they dominate, more than they actually dominated because the colour red dominates. Blue 'cones' in your retina are outside the centre of the fovea so we see blues less distinctly than reds. Furthermore, Labour does better in urban areas which are packed together and more compact in the middle cartogram. The third, hexagonal, cartogram gives a better impression. Note how in most of Scotland Labour won 25% to 40% of the vote, high, but only high enough to win

them but a single seat in that country! As we'll see below, Labour did not do badly outside of Scotland. In many ways their vote is largely the mirror image of the Conservative vote, and Labour saw more vote rises in more areas, than the Conservatives enjoyed – just not in the right areas for Labour to win more seats.

Across most of the UK Labour increased its vote by +2.5% to +10% as the two cartograms in the triptych below illustrate (Figure 5). Only in Scotland and in one seat in England (which fell to UKIP) did they lose more than 10% of the vote. This is in great contrast to the Conservatives who lost more than 10% of the vote in many more constituencies in England and did not gain as many votes in as many areas as Labour did. And it is this that makes the 2015 election so interesting and why a cartographical story is needed as part of the explanation of that election. If within England Labour saw more swings in the vote towards its MPs and candidates than the Conservatives saw towards their MPs and candidates, then how did the Conservative win the election?

The answer is not because of Scotland. Even if Labour had won every single seat in Scotland they would not have held enough seats to form a government. The massive Labour losses in Scotland shown below were the result of Labour votes shifting *en masse* to the Scottish Nationalist Party (SNP), but between them the SNP and Labour could not have formed a majority government given the 2015 result, even if they had managed to play nicely and cooperate.

The answer to the question of why Labour did so poorly at the 2015 election given that they generally increased their vote share outside of Scotland was that they

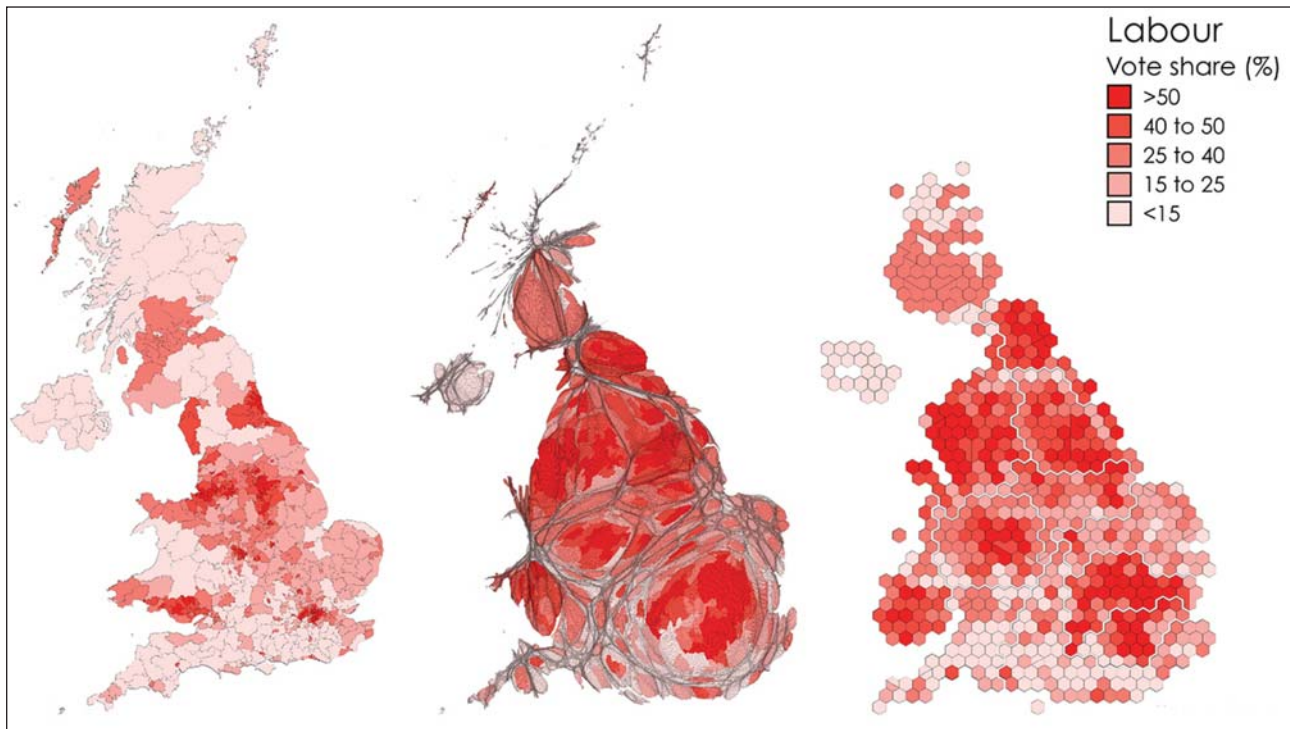


Figure 4.

did not increase it enough, and they did not increase it in the right places. Labour also increased their vote in places it already held and other parties, in particular the Liberal Democrats, saw their vote share decline in a way that helped the Conservatives. More maps are needed to make this clear.

The Liberal Democrats had a miserable election in 2015. Across most of the UK less than 5% of all those who

voted in any seat voted for them. On the conventional equal land area map in the triptych below they appear not to have done too badly. The Lib-Dems still did fairly well in a few places with low enough population densities that the Lib-Dem poor performance nationally, perhaps, was not effectively communicated among that population.

The middle map below (Figure 6) highlights the scattering of areas with some Liberal popularity remaining,

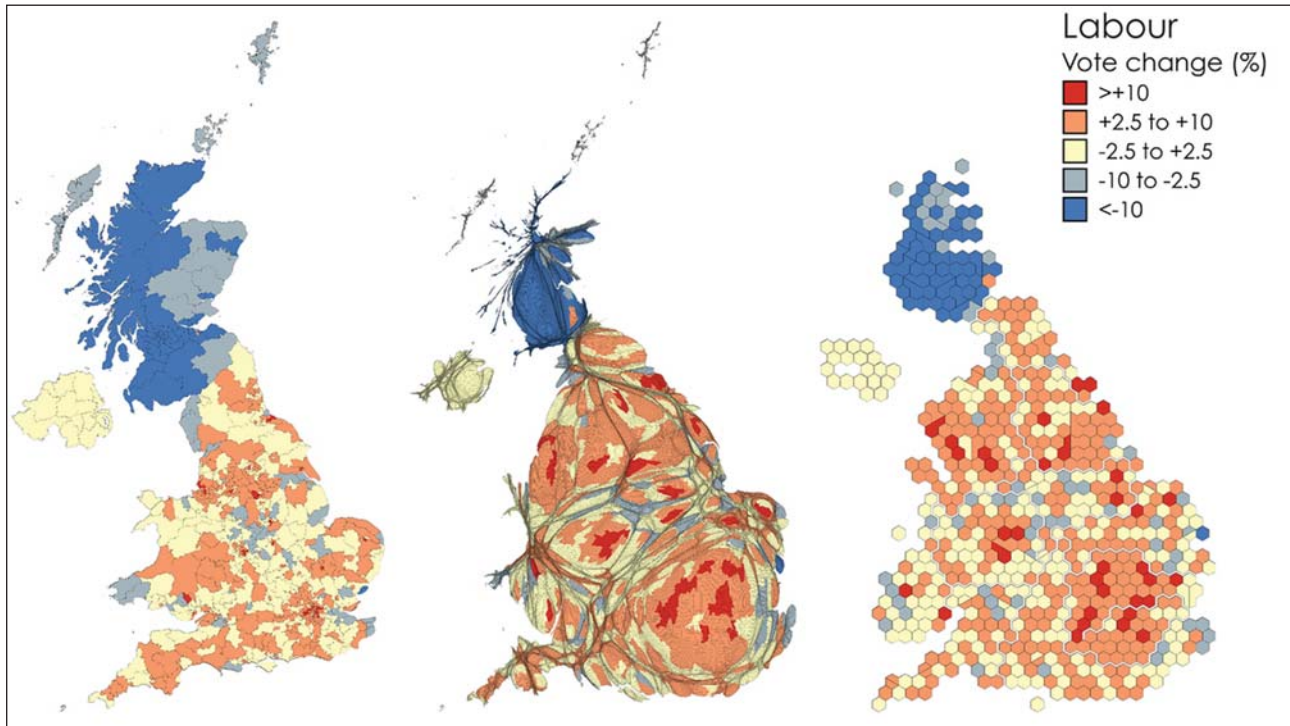


Figure 5.

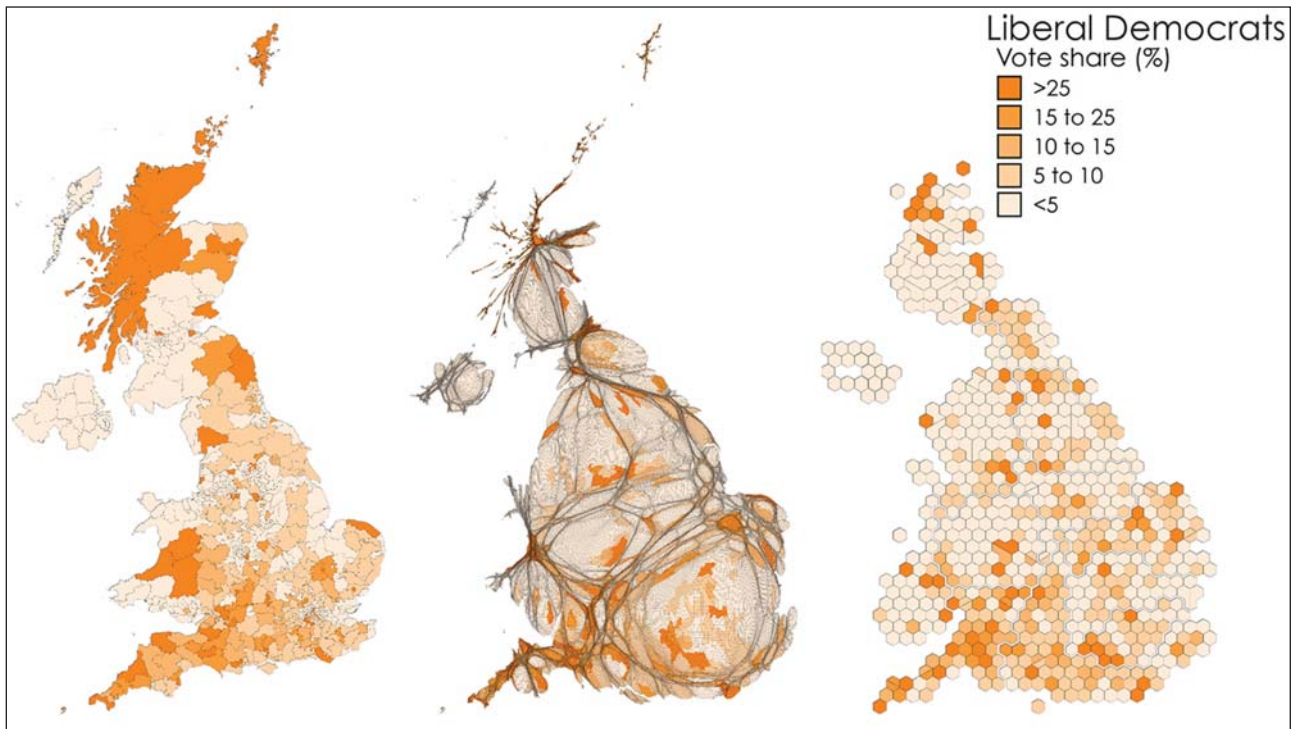


Figure 6.

but usually not enough to secure an actual win. The pattern is now notable for its lack of structure. A case can be made for the South West of England still being a place of some Liberal concentration, but whether that remains the case in future is unsure given that almost no South West Liberal MPs held onto their seats. The third, hexagonal, map below reinforces the scattergun pattern. A little like the pattern you get when dead flies hit a car windscreen – before you turn

on the wipers to wash them off – the remaining Liberal vote share geography has a residual random look to it.

If former third (largest) party voting looks random, nationalist party voting looks organised. Plaid Cymru didn't have a great election, but they are in better shape than the Liberal Democrats, albeit in the one small country they stand in (Figure 7). Here are the three maps that show how well Plaid Cymru did in Wales:

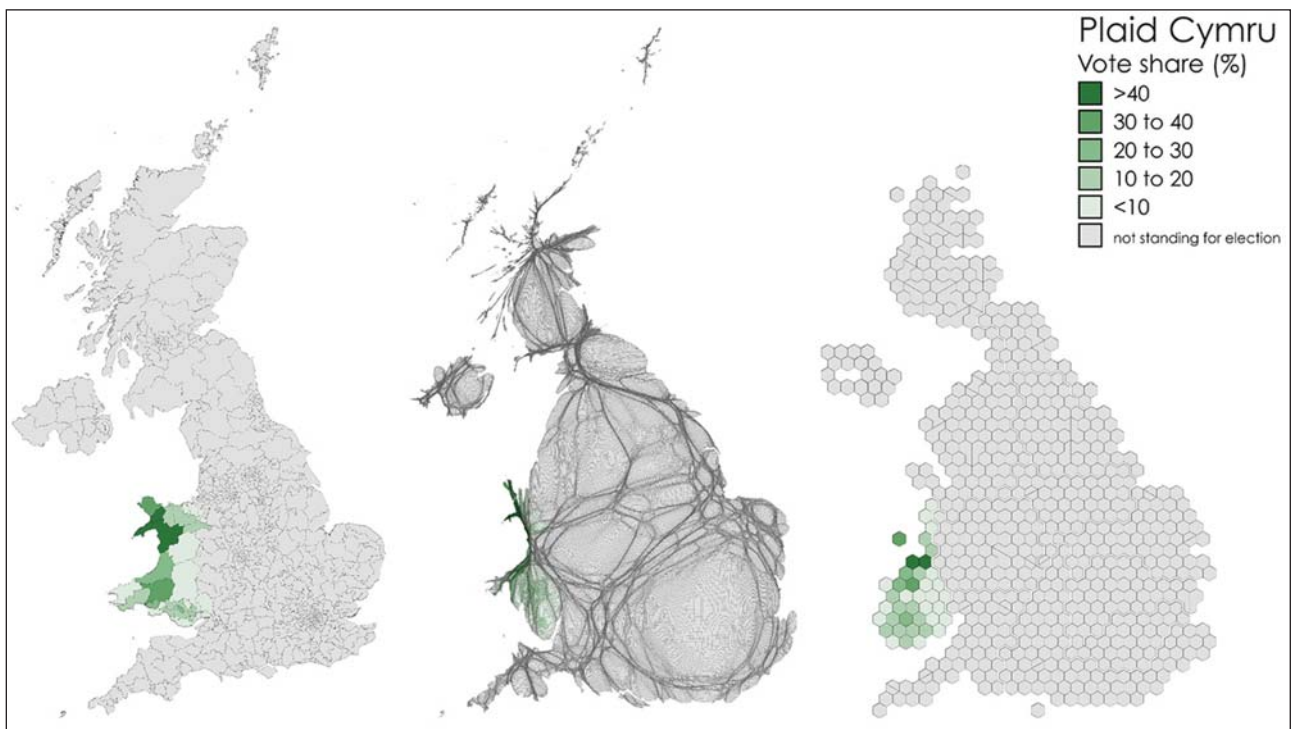


Figure 7.



Figure 8.

Plaid did not actually do that well compared to how they had performed in 2010 or compared to their hopes, but when your votes are concentrated in just a few places being a small party can still be effective. And it doesn't take a huge change in voting behaviour to move, in one country of the UK, from being a small nationalist party to suddenly winning almost all the seats. It is many years now since Northern Ireland elected any MP from the main UK parties or even since any of those parties stood candidates in most seats in Northern Ireland. Northern Ireland left mainstream politics years ago. Now Scotland appears to have done the same (Figure 8), with SNP voting being slightly more popular in the cities, but high enough almost everywhere for only three MPs not to be SNP MPs now in all of Scotland. This is what an overwhelming victory, in one part of the UK, looks like:

And, finally, its worth turning to the nationalist party of England, to UKIP, which presents itself as a party for all of the UK (Figure 9). Given that, there is something remarkable about how badly UKIP did in Scotland – and something equally remarkable about how well it did in Wales (although many people from the English midlands retire to Wales). London is where UKIP is least popular outside of Scotland. London and Scotland were also the two areas of the UK where the British National Party received the least support in recent elections and had the fewest members in the past. UKIP only saw one MP elected, like the Greens, but took votes away from other parties, which had great effect, also like the Greens.

And so, to the results of who won where. If you want to show, in a single map, both which party won the seat and

from whom they won it then there are twenty possibilities which, in terms of cartographic challenges, requires some dexterity of shading. The shading choice is also not huge if the traditional political colours are to be used for each party. The triptych below shows our best efforts (Figure 10). And again three different stories are told by the three different map projections of exactly the same data.

On the land area map dark blue Conservative 'holds' dominate – most of the country is made up of blue seats that the Conservatives have continued to win year after year. Elsewhere we use gold, yellow and a shade somewhere in between gold and yellow tell Scotland's story. The reds we use are, on the land area map, almost invisible, despite the prominence of red within our visual appreciation. This is because Labour voters now, in the main, live at high population densities – in town and city. On the conventional map the light blue of the Conservatives' rural gains from the Liberals are clear in the South West, along the south coast, in Wales and Northumberland.

On the cartograms of the winners the reds are very visible again: Labour holds are very clear (the dark red) and a few Labour gains from the Conservatives can be identified (purple) and very occasionally from the Liberals (light orange). Look carefully at the cartograms and you'll see that the blues had just enough victories (and existing holds) to secure a very narrow majority of seats. Had they failed to secure that majority then there were a few unionist MPs they could have probably relied upon from Northern Ireland had the price of a coalition with the (brown) unionists been right. However, the electorate were hardly ever told of the possibility of a Conservative and Northern-



Figure 9.

Irish unionist coalition by the media, or what that might have meant for discord in Northern Ireland. Instead the press warned the electorate that a coalition of Labour and the SNP would have been a calamity. Whether that reporting was a significant part of what mattered is hard to tell. The three maps below show one thing above all else – most seats did not change hands.

The end result of the 2015 election is a series of maps that look very similar to the series also showing change (Figure 11). Just twelve colours are needed to show which party won each seat. Most seats are coloured blue, then red, then (SNP) gold. Only a tiny number are now coloured Liberal orange. Proportionately far more in Wales are colour Plaid green than are coloured Liberal orange in

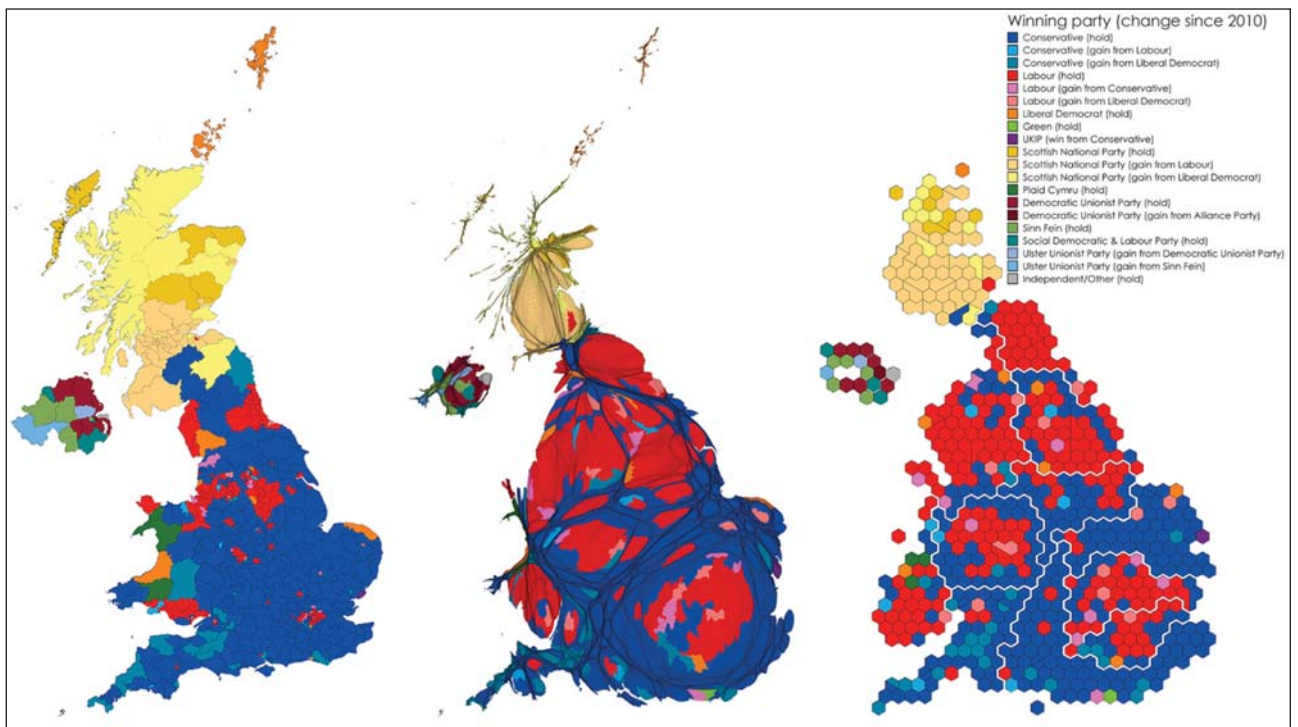


Figure 10.

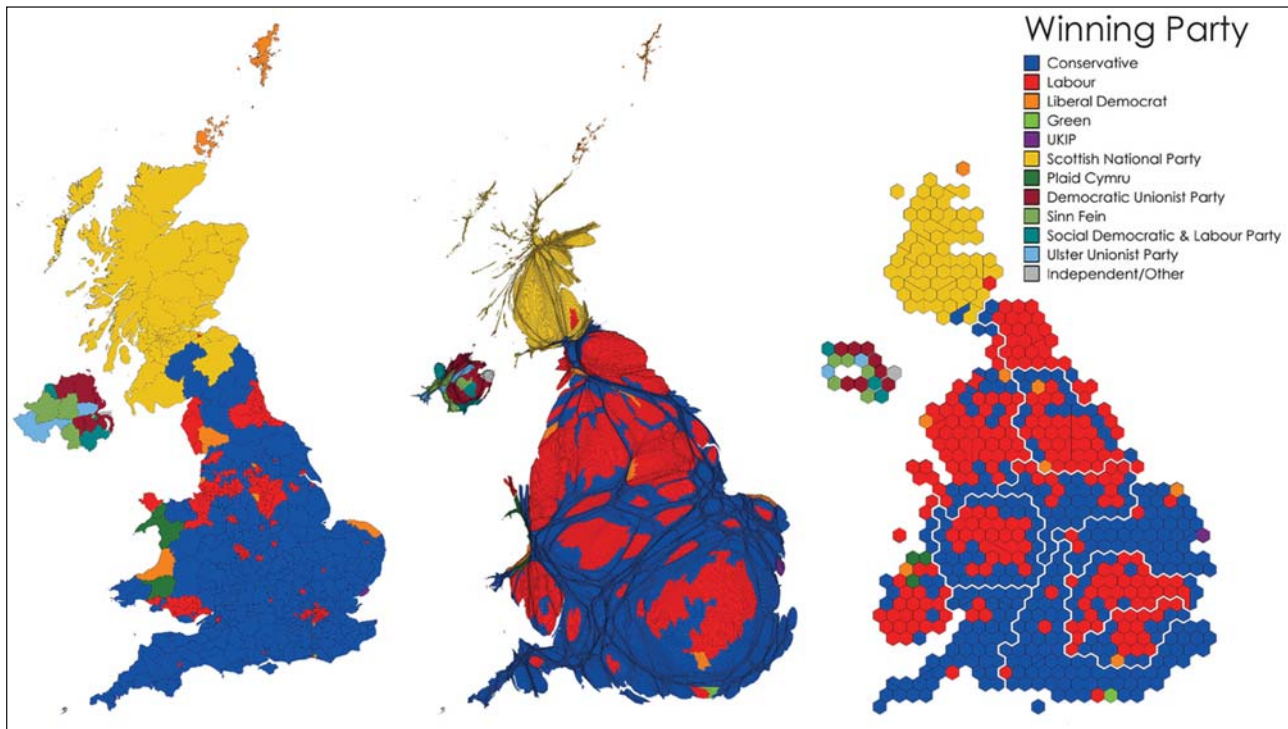


Figure 11.

England! There is one light green and one dark purple area in all these maps for the one Green Party and one UKIP seat respectively. And then a further five colours have to be reserved for the story in Northern Ireland, which is as complex again as all of England, Scotland and Wales is complex.

The maps below are the starting positions in the race to 2020. Anyone who says that the 2020 result is some kind of forgone conclusion has not seen these maps (or maps like them) or heard this story. There is everything to play for. Although most seats hardly ever change hands, what happened in Scotland in 2015 shows that the apparently impossible is possible. What happened to the Liberals shows that a party can be all but wiped out in just one election, and what happened to the Conservatives show that you can win outright with very little increase in popular support for your candidates – if everything else happens to go your way, in just the right way, and a part of that might well be luck.

To get another perspective on the race to come, what happens if we turn instead to look at who came second in every seat in 2015, and so to which party might be the main challenger in each area? Here we find a far more interesting picture (Figure 12). UKIP purple suddenly appears in England and in some of the Welsh Valleys; Liberal orange is not completely absent; Conservatives are constrained to the inner cities as areas they could now target although they usually come a long way back second there. *There are very few seats where the Conservatives are second now in which they are serious challengers, hardly any that they could much hope to win with any further push in their support.* That is partly why they did so well, they did almost as well

as they could possibly have managed to have done in 2015 – and even then they only just secured a narrow majority.

In contrast to the position the Conservatives are now in there are a large number of suburban areas where Labour is in second place where they could, possibly, begin to win in future. This is especially true in and around London where people with lower incomes have been moving from the centre to the suburbs in recent years. There are also four seats where the Greens came second. Unfortunately, (for Labour) these are all seats it came first in so a Labour/Green pact that gave these four to the greens would be very hard to arrange – but possible. And the next general election may well be fought on a new set of redrawn parliamentary constituencies.

The map below of who comes second the most shows many remarkable results that it would have been hard to have imagined were possible a few years ago. Plaid comes second in more seats than the SNP, while Ireland remains a politically kaleidoscopic collage. However, remember that when it comes to winning elections you don't just have to win votes from your rivals. There are also millions of people who do not vote, some of whom you have to persuade if you are to have a chance, or at least persuade them not to think of turning out to vote for the other side! The electorate also changes as older voters die or become too ill to easily vote and as people turning 18 or attaining British citizenship are added to the electoral registers (if they register themselves).

But how can you get people who don't normally vote to vote? Can you offer them something new? Up to now in this story we have only talked about voters. These are people who were registered to vote and who actually turn





Figure 12.

up and voted. However, about a third of the electorate did not vote. They were registered to vote but did not walk or drive to the polling booth to cast their votes that day in May. Perhaps these are people who had worked out how little effect a single vote might have. Perhaps they also don't sing in choirs or take part in any other activity where your voice alone is not that important? Or perhaps they didn't like the choices on offer, the voting system on offer, or they just forgot because they were too busy that day and had too much on. The final triptych below shows where the registered voters were who chose not to vote and might well choose not to vote again unless they get an offer as good as they got in Scotland in 2015, when so many people who did not usually vote – voted SNP.

Voting turnout was higher in the areas shaded darkest in the maps below (Figure 13). Scotland was very different in 2015 as compared to 2010 and more people voted there, a higher proportion voted in more rural areas in England and Wales, and in one-off contests such as in South West London where particular a local contest got fractious. But look at how few people voted in so many areas, *less than 60% of people voted in much of England and Wales and even in the heart of Glasgow very few voted despite the electoral excitement sweeping most of Scotland*. Across all of the UK a third of the electorate did not vote in 2015. They were just not excited or interested enough, or could not find the time and means to get to the voting booth. A third did not vote even when offered more choices than before. UKIP was very new but these people were not even interested in UKIP. Many people would need something more interesting than UKIP to get them to vote in 2020. So which political party might change and become more interesting?

General elections in the UK are about hearts, minds, and manipulation. The *heart* is the tradition, voting as your family have always voted, with your tribe, with your feelings over what is right and wrong, or over what you fear. The *mind* is the calculations made, which party will most favour people like you, and will your vote count? The *manipulation* is the preservation of a voting system that both so poorly reflects the wishes of the voters and which forces so many to vote in ways that do not reflect their wishes, so as not to 'waste' their vote.

Only 25% of the electorate of the UK voted for a Conservative candidate in 2015 and yet the Conservatives secured a majority of members of parliament. In no other affluent democracy in the world does a smaller proportion of the electorate secure control of the national legislator. These maps have told the story behind that one key fact. People in the UK are no longer surprised when a minority of voters win a majority of seats. In the 2005 general election the Labour party secured the support of only just over 20% of the electorate but also won a majority of seats and could then govern alone, not needing a coalition. This does not happen in other countries with more fair voting systems.

Finally, it is important to know that millions of people who could be in the electorate are not registered to vote. Even more who are registered do not choose to vote. Millions are not legally allowed to vote, even though they live here and are aged 18 or older. Mostly this is because they are citizens of other European countries, but it is also the case for those mostly born in the UK who are in prison. Other people who now live abroad get to vote in UK general elections despite not living here anymore! It would be wrong to present the voting system in the UK as being



Figure 13.

particularly fair or just, but it does produce an interesting set of maps and those maps can tell a story that in turn can be just one tiny part of what will cause the next picture to be painted in a different way. If the current government manages to survive any vote of confidence for four more years then the next general election will be held in 2020. Maybe we'll have invented some new ways to map the complexity of ever more parties and ever more possibilities by then. Maybe the next election will be more interesting again. The story we have painted here shows how the battleground for that next election has taken shape. Political cartography used to be so much easier in the UK.

We are blessed and cursed to be living in interesting times!

### Biography

Dr Benjamin David Hennig and Prof Danny Dorling are both at the University of Oxford, School of Geography and the Environment.