Differentiating UKIP support using an area-based classification of electoral wards

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Summary

Before the 2016 'Brexit' Referendum, UKIP polled 26.6 percent of the vote in the 2014 European Election, and 12.6 percent in the 2015 General Election, with the party described as appealing to 'left behind Britain'. This group was generally seen as comprising dual electorates, combining discontented Eurosceptic Conservatives in the South of the country with working-class voters disenchanted with the Labour Party in the North. This paper set out to examine how differing local contexts may drive UKIP support as a function of the varying characteristics of an area which may simultaneously affect voting choice among the population. In doing so, it has aimed to step beyond some of the limitations of individual level modelling and its often casually homogenous nature. By providing a classification of electoral wards, the research finds variation in demographic and social contexts to UKIP support that have extended upon both spatially more aggregated analyses and individual level analyses.

KEYWORDS: Politics, Geodemographics, Classification, UKIP

1. Literature review

Much of the recent academic literature has focused on the party origins of support for UKIP, and debated its likely pools of support (Evans and Mellon, 2016; Ford and Goodwin, 2016; Mellon and Evans, 2016). Previous analyses (Goodwin and Milazzo, 2015) have focused on constituency or local authority as their spatial unit. Using factor analysis to identify a single dimension loading on seven demographic variables, Goodwin and Milazzo (2015) ranked the favourability of local authorities and constituencies to UKIP support (2015: 347-8). Taking its lead from the ecological elements of these analyses, this paper focuses more closely on the socio-demographic conditions in English wards at the 2015 local elections and a range of indicators from the 2011 Census and other public data sources to characterise the socio-economic context of wards and, using the data reduction technique of K-means clustering, classifies areas by antecedents of support for the major political parties in England.

Demographics or sociological variables are still considered to be a key component of voting behaviour in the UK and elsewhere (Arzheimer, Evans and Lewis-Beck, 2017: Section 2). In a statistical model of voter turnout or party allegiance, we may expect variations by age, gender, education, occupational class, religion / religiosity and ethnicity. For Radical Right support, all six have relevance. These socio-demographic characteristics are most commonly tested in individual models of voting behaviour, using large-n survey data. In an ecological setting, they characterise the social groups likely to support different parties. However, an additional set of variables can be included that relate to social context.

The importance of regional effects and neighbourhood effects at local spatial scales on vote choice has been well described in the political geography literature (Johnston et al, 2004; Johnston and Pattie, 2006). For the purposes of this paper, contextual deprivation, ethnic composition, crime, and economic conditions are adopted.

2. Data

In classifying the different types of ward by their demographic profiles a broad range of variables drawn from the literature on Radical Right voting, and voting behaviour in the UK, are adopted. A linear regression methodology is used to identify characteristics which relate to voting for all parties at ward level and thus generate input variables for a K-means classification.

Two sources of data were employed in the analysis. Ward-level vote for each party was used as the dependent variable in the linear regression analysis courtesy of the University of Exeter Q-Step Centre (Kolpinskaya, 2016; UKDS, 2016). The sample of wards are those in Local Authorities which held elections in 2015 (consequently excluding London, which held borough council elections in 2014) and for the regression analysis, those wards in which the five largest parties (Conservative, Labour, Liberal Democrat, UKIP and Green Party) fielded a candidate. The dataset had one key issue in its usability to analyse geographic patterns in voter behaviour, the lack of a unique Office for National Statistics (ONS) identifier code for each electoral ward which was generated using a variety of matching algorithms.

Aggregate level ecological data on the characteristics of electoral wards, predominantly from the 2011 UK Census (ONS 2016), were used as independent variables in the initial regression analysis in order to identify which variables are associated with voting for different political parties. These covered a wide range of census topics including; age, ethnicity, passports held, country of birth, housing tenure, and contextual deprivation (e.g. lone parent households). A subset of these variables were then used to classify electoral wards) using a K-means algorithm as detailed in the analysis section.

3. Generating classification variables

To generate input variables for the K-means analysis, a stepwise linear regression method was employed in which ecological variables were added (in order of correlation with vote share) until additional variables did not increase the proportion of variance in the dependent variable (vote share for each party) accounted for by each model, measured using the R^2 statistic). As part of this procedure, input variables were transformed using the box-cox method to handle non-normal distributions. As the focus of this paper is UKIP, the variables found to account for the 48.7% of variance in the UKIP model are shown in Table 1.

Table 1 Slope coefficients for the variables in the UKIP model

Variable	Coef	SE Coef	95% CI		T-Value	P-Value
			Lower	Upper		
Constant	*21.11*	*2.11*	*16.97*	*25.26*	*9.99*	*0.00*
Highest Qualification: Level 2 (%)	0.57	0.10	0.38	0.76	5.93	0.00
Highest Qualification: Level 3 (%)	0.12	0.04	0.04	0.19	3.10	0.00
Religion: None (%)	0.12	0.03	0.05	0.18	3.35	0.00
Religion: Not stated (%)	-1.15	0.22	-1.58	-0.72	-5.29	0.00
Occupancy: Up to 0.5 persons/room (%)	-0.13	0.05	-0.22	-0.04	-2.74	0.01
Ethnic Group: White (%)	0.06	0.02	0.02	0.11	2.90	0.00
Highest Qualification: Level 2-4 (%)	-0.32	0.02	-0.36	-0.28	-16.02	0.00
Age: 65+ (%)	0.12	0.05	0.03	0.20	2.57	0.01
Qualifications: Apprenticeship (%)	0.70	0.17	0.38	1.03	4.26	0.00

Overall, a large proportion of the initial variable list are found to play a role in the variation in vote share among the five largest parties (Table 2). A total of 27 variables are found to account for variations in vote share across the 5 models, with two variables - the proportion of the population with level 2+ qualifications (GCSE or higher) as highest qualification, and proportion of the population in the white ethnic group - account for a share of variance in vote share for all five parties.

Table 2 K-Means input variables

Variable
Highest Qualification: Level 2-4 (%)
Ethnic Group: White (%)
Passport: Australia and Oceania (%)
Qualifications: Apprenticeship (%)
Highest Qualification: Level 2: GCSE (General Certificate of School Education and equivalent) (%)
Religion: None (%)
Religion: Not stated (%)
Age: 0-15 (%)
Age: 65+ (%)
Year of arrival if an immigrant: Arrived before 1941
Highest Qualification: Level 3: A-Level (Advanced level school education and equivalent) (%)
Household Composition: Couple with no children (%)
One Car/Van (%)
Religion: Sikh (%)
Housing Tenure: Social rented (%)
Occupancy: Up to 0.5 persons/room (%)
Born: EU Accession (%)
Household Composition: Lone parent household (%)
Household Composition: Single Person (%)
Housing Tenure: Private Rented (%)
Born: South America (%)
Age: 45-64 (%)
Crimes per person
Religion: Hindu (%)
Religion: Jewish (%)
Passport: EU Country excl. UK (%)
Household Composition: All over 65 (%)

4. K-Mean classification

K-Means classification yielded a final preferred 9 cluster solution that discriminated on the relative presence/absence of the variables found to be associated with voting patterns in the linear regression analysis. Operationally, the technique moves cases from one cluster to another and evaluates reductions in within-group sum of squared deviations, with an overall similarity measure being derived to summarize the final clusters produced. Following classification, clusters have been ordered in descending order of median UKIP vote at the 2015 Local Government elections with cluster 1 representing the most favourable UKIP class and cluster 9 representing the least favourable UKIP class as noted in Table 3. Moreover, the characteristics of each of these clusters is shown in Table 4.

Table 3 Median UKIP vote share by cluster

Cluster	Median UKIP vote share (%)	Proportion of wards (%)
1	20.3	12
2	17.6	8.9
3	15.8	17.3
4	14.9	10.7
5	13.9	7.5
6	12.3	8.5
7	11.6	16.9
8	9.5	15.8
9	6.2	2.5
All Wards	13.48	100

Table 4 Characteristics of each cluster

	Cluster (Z-Score)								
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Age: 0-15 (%)	0.2	1.4	0	-1.1	1	0	-0.4	0.1	-2
Age: 45-64 (%)	-0.1	-1.2	-0.2	0.5	-0.5	-1	1.1	0.5	-2.2
Age: 65+ (%)	-0.1	-1.1	0.1	1.6	-1.3	-0.6	0.5	0.2	-1.7
One Car/Van (%)	0.3	0.1	0.6	0.7	0.1	0.8	-0.8	-0.9	0
Ethnic Group: White (%)	0.4	-1.7	0.2	0.6	-0.2	-0.8	0.7	0	-1.7
Occupancy: Up to 0.5 persons/room (%)	-0.5	-1.3	-0.3	1	-0.6	-0.5	0.6	0.8	-0.9
Qualification: Apprenticeship	0.4	-0.9	0.5	0.4	0	-0.8	0.4	-0.4	-2.2
Highest Qualification: Level 2 (%)	0.3	-0.4	0.4	-0.2	1.2	-0.6	0.1	-0.2	-2.7
Highest Qualification: Level 3 (%)	0.1	1	-0.1	0.5	-0.8	-0.1	-0.1	0	-2.5
Highest Qualification: Level 2-4 (%)	-1	-1.4	-0.4	0	0.4	0.2	0.4	1	1.7
Religion: Hindu (%)	-0.3	0.8	0	-0.7	0.4	0.7	-0.8	0.3	1
Religion: Jewish (%)	-0.8	0.1	0	0	0	0.5	-0.5	0.6	0.9
Religion: Sikh (%)	0	0.7	0	-0.8	0.3	0.5	-0.7	0.3	0.7
Religion: None (%)	-0.3	-0.2	0.4	-0.3	0.5	0.9	-0.6	-0.3	1.9
Religion: Not stated (%)	-0.9	-0.6	0.1	0.8	-0.4	0.4	0	0.3	0.6
Year of Arrival: Pre-1941 (%)	-0.9	-0.4	0.1	0.7	-0.5	0.2	-0.1	0.6	0
Passport: EU Country excl. UK (%)	-0.7	1.1	0	-0.4	0.2	1.2	-0.8	0.1	1.6
Passport: South America (%)	-0.6	0.4	0.2	-0.2	0.3	0.7	-0.8	0.4	0.9
Passport: Australia and Oceania (%)	-1.1	-0.8	-0.2	0.2	0.1	0.6	-0.1	0.9	1.1
Household Composition: Single Person (%)	-0.3	-0.4	-0.3	-0.5	1	-1.1	0.8	0.7	-1.2
Household Composition: All over 65 (%)	-0.3	-1.3	-0.1	1.3	-0.8	-1	0.7	0.6	-1.6
Household Composition: Couple w/no children (%)	-0.2	-0.6	0.2	-0.5	0.9	1.2	-0.2	-0.4	1.3
Household Composition: Lone parent household (%)	0.9	1.5	0.4	-0.8	0.3	0.2	-0.8	-0.7	-0.8
Housing Tenure: Social rented (%)	0.9	1.3	0.2	-0.5	-0.3	0.3	-0.7	-0.6	0.4
Housing Tenure: Private Rented (%)	0.5	-0.4	-0.1	0	-0.2	-1.2	0.6	0.4	-2
Crimes per person	0.8	0.8	0.3	-0.4	-0.4	0.8	-0.7	-0.7	0.4

Red – absence of
Yellow – mean values
Green – presence of

5. Finding

The classification establishes that rather than precipitating from a unique set of demographic and social indicators – although its support is highest in areas with notably low education, an absence of cosmopolitanism and above average levels of deprivation, UKIP support is a phenomenon more broadly associated with typical ward classes in England. Conversely, distinctive attributes are more conducive to the rejection of UKIP which is particularly associated with, very uncommon, area types in urban cosmopolitan environments of major towns and cities.

In terms of the theory of voting behaviour, the findings of this paper provide an empirical contribution to the debate on the theoretical relationship between the modal ethnic minority population and ethnic minority groups. A propensity for UKIP support is found in areas of both above average and below average ethnic diversity rejecting the simplicity of a presence of any one of the ethnic composition hypotheses in isolation in the context of English local elections. Moreover, this paper contributes to the debate on age and far right voting, finding a complex relationship in which the variable itself doesn't clearly delineate UKIP vote across wards but appears evidential of distinctions between similar ward types in which the older class is, on average, more likely to support UKIP.

Geographically, the paper finds that the strongest UKIP clusters equally find strong geographical clustering in former Industrial Heartlands most commonly found in areas of Northern England and in less affluent suburbs of a number of large urban areas, particularly those in the Midlands, North West of England and Yorkshire and the Humber (see Figure 1). Conversely, varying levels of spatial clustering exist for the two least favourable UKIP ward classes with the second least favourable cluster being associated with a spatial clustering of Tory heartlands to the South and West of London and the least favourable class being found in small pockets of disparate major towns and cities (see Figure 2).

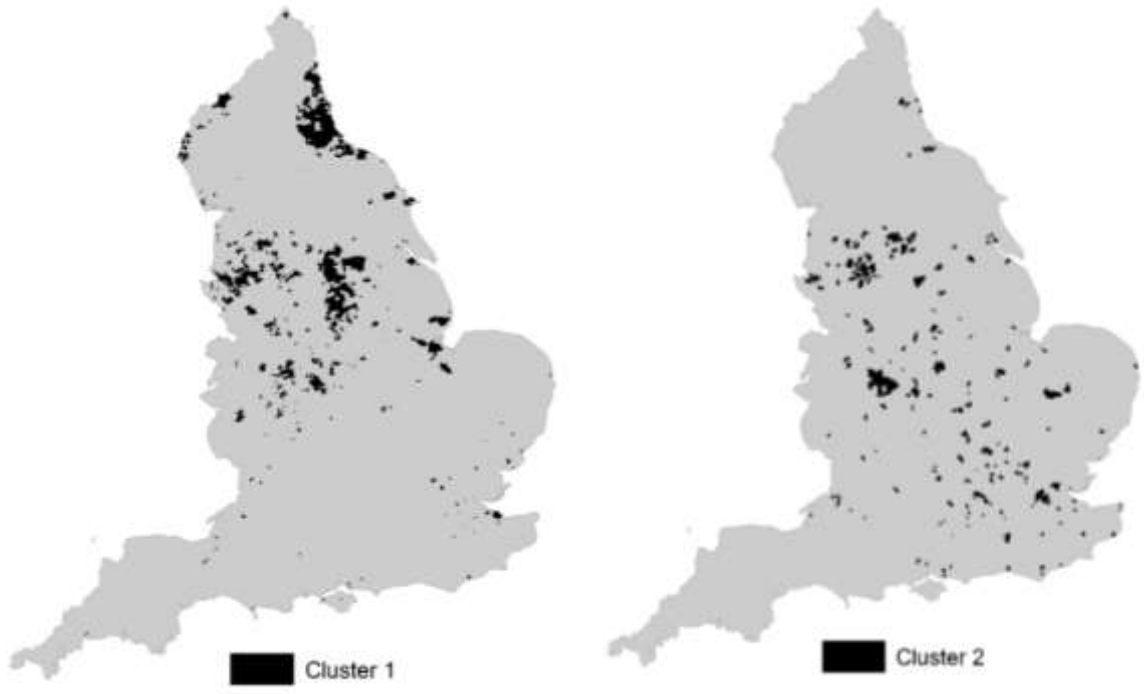

Figure 1 Spatial distribution of the most favourable UKIP clusters

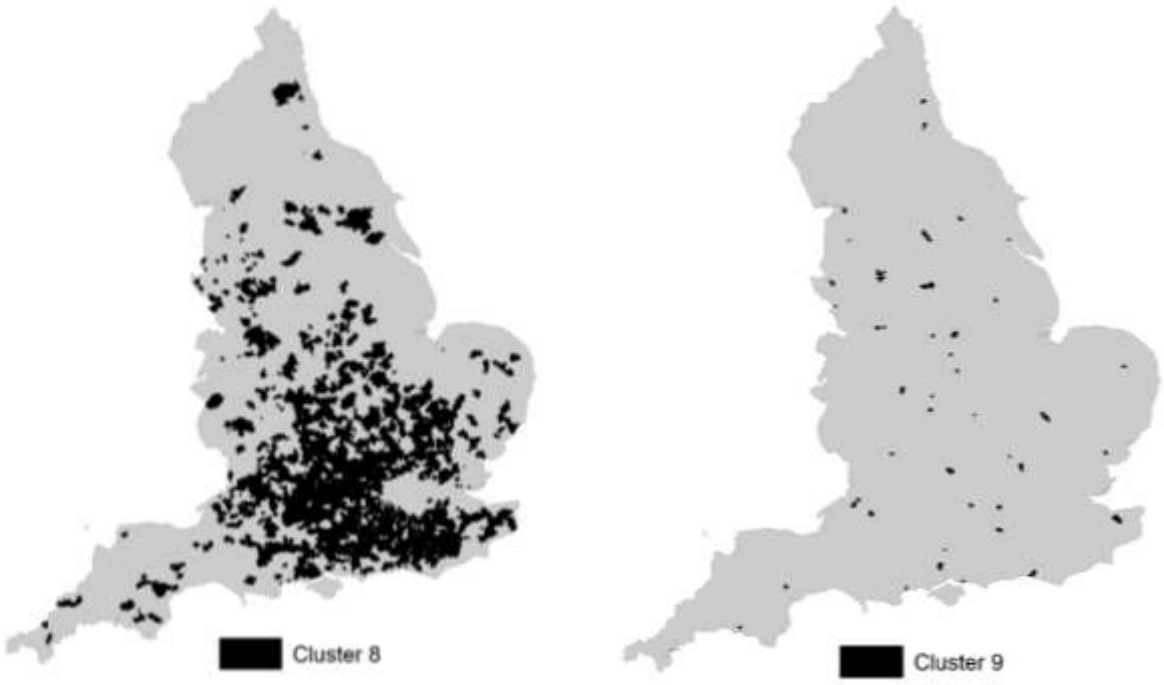

Figure 2 Spatial distribution of the least favourable UKIP clusters

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7. Biography

Dr Nick Hood
Nick Hood is a Teaching and Research Fellow. Following on from a PhD in Retail Geography, Nick's core research interests are in the areas of retail location planning, consumer analytics, geodemographics, spatial statistics, public service analysis and planning, psephology, and more broadly, Geographical Information Science.

Professor Jocelyn Evans
Jocelyn Evans is a Professor of Politics. His work is principally on quantitative models of voting behaviour, particularly in France, and is currently looking at geographical effects on elections in the UK, and how voters evaluate candidates according to their location. He also has a long-term interest in the European Extreme Right.

Dr Myles Gould
Myles Gould is a Lecturer in Population Geography. His research interests include geography of health and health care, self-reported health, health behaviours, residential movement and segregation, multilevel modelling and statistics, longitudinal data analysis. Current projects include the application of multilevel models of residential movement, and health and tenure transitions.

Dr Paul Norman
Dr Paul Norman is a Lecturer in Human Geography Applied Spatial Analysis and Policy. His research interests include: Harmonisation of small area level socio-demographic, morbidity and mortality data to enable time-series analysis, development of small area population estimation, using area typologies to understand migration patterns and resulting health outcomes and using individual level microdata to understand aggregate differences in population stratification and characteristics over time.

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