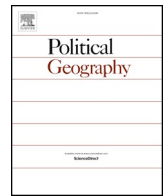




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The changing electoral geography of England and Wales: Varieties of “left-behindedness”



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ABSTRACT

A well-established narrative has existed for some time in British politics: “left behind” places are gradually moving to the Conservatives as Labour dominate in urban, “cosmopolitan” areas. Merging constituency-level census data with election results, this article applies various regression techniques to test this idea on multiple definitions of “left-behindedness” at every general election between 1979 and 2017 in England and Wales. Conclusive results indicate that the Conservatives have gained support at Labour's expense in largely older, white, working class constituencies. However, Labour remain dominant in disadvantaged areas with high levels of insecure employment and poverty remains the most important positive predictor of Labour's support. It is therefore premature to argue that “left behind” places are moving from Labour to the Conservatives, providing that “left behind” is re-conceptualised to refer to the most disadvantaged areas rather than older, white, “traditional working class” populations.

1. Introduction

The UK is becoming an aged, educated and ethnically heterogeneous country in which traditional notions of race, ethnicity and “Britishness” are increasingly ambiguous. At the same time, deindustrialisation, the growth of the service and university sectors and a rise in insecure labour has fragmented traditional class structures (Savage et al., 2013) and advanced the decline in size of the manual working class (Heath, Jowell, & Curtice, 1985, 2001). However, these changes do not occur uniformly across time or space. Areas of the UK with growing, young populations with easily marketable skills appear to be thriving; other areas with shrinking, low-skilled and aging workforces are in decline. These two diverging groups of people and places may be referred to as the “winners” and “losers” of globalisation (Kriesi et al., 2005; Rodrik, 1997) or as “cosmopolitan” and somewhat pejoratively, “left behind” (Ford & Goodwin, 2014), or a more economically-oriented “let down” (Watson, 2018). More than manifestations of traditional occupational social class, these geographical divisions instead reflect a complex mix of demographic, socioeconomic, geographic and cultural patterns that are potentially restructuring voting behaviour as we continue to move beyond a “two-class, two-party” system.

Across Western Europe, the so-called “left behind” – older, poorer, white residents with low levels of education – are more likely to register authoritarian and Eurosceptic viewpoints and offer support for extreme right-wing parties (De Vries, 2017; Hakhverdian, van Elsland, van der

Brug, & Kuhn, 2013; Lubbers, Gijsberts, & Scheepers, 2003; Teney, Lacewell, & De Wilde, 2014). In the UK, whether cultural or economic explanations for the patterns are favoured, these same demographic groups and the areas in which they live have been associated with hostility to immigration, support for UKIP and the vote to leave the EU (Ford & Heath, 2014; Hobolt, 2016; Wheatley, 2016). At the 2017 general election, the expectation was that, with UKIP's collapse, voters living in so-called “left behind” areas would abandon an increasingly “cosmopolitan” Labour for a more nativist Conservative party. Indeed, many areas that have experienced long-term decline, most notably existing constituencies in South Yorkshire and the Midlands, saw a clear swing from Labour to the Conservatives, with growing, urban areas moving in the opposite direction. This ‘continued tilting of the political axis’, according to Jennings and Stoker (2017, p. 367), is restructuring English politics and its electoral geography. It reflects a geographical division between “cosmopolitan” urban areas with younger, highly-educated, ethnically diverse populations and “left behind” areas, characterised by ethnic homogeneity, low education levels, ageing populations and long-term economic stagnation.

This is, however, only one way to understand what constitutes an area being “left behind”, as other measures may better capture economic deprivation and the precarity of local employment. This research executes linear regression models (OLS), seemingly unrelated regression models (SUR) and generalised linear regression models (GLM) at each election from 1979 to 2017 to show the changing importance of

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three different conceptualisations of “left behind” constituency-level characteristics in explaining Labour and Conservative support:

- A) **Conventional:** older age profile, lower educational levels, higher proportions of routine/semi-routine and manufacturing occupations, low ethnic diversity and gross migration, less urban and a large distance from a “cosmopolitan” city.
- B) **Economic deprivation:** higher proportions of social housing, rates of deprivation, unemployment, and poor health.
- C) **Precarious employment:** higher proportions of insecure employment.

For each of these three definitions of what constitutes an area being “left behind”, the following hypothesis is tested:

H0. At general elections between 1979 and 2017, the constituency-level characteristics of “left behind” definition (insert A, B or C) have not become increasingly negatively associated with Labour vote shares and have not become increasingly positively associated with Conservative vote shares.

H1. At general elections between 1979 and 2017, the constituency-level characteristics of “left behind” definition (insert A, B or C) have become increasingly negatively associated with Labour vote shares and increasingly positively associated with Conservative vote shares.

This study builds upon previous academic research in several ways. Firstly, [Watson \(2018\)](#) aside, this is the first serious attempt to critically examine the “left behind” concept. In doing so, it offers a robust dismissal of [Ford and Goodwin’s \(2014\)](#) conventional conceptualisation, by revealing how they overlook urban, ethnically diverse areas with the most pronounced economic problems because they are not prone to electing extreme right-wing parties or voting for Brexit. Secondly, rather than applying the concept to support for UKIP or Brexit, reliable census data across ten general elections is used to present conclusive evidence of long-term changes in the association between different “left behind” characteristics and Labour and Conservative vote shares. Thirdly, by incorporating measures of distance from the closest university and “cosmopolitan” local authority into multiple conceptualisations of “left behind” places, geography is treated as ‘intrinsic rather than epiphenomenal’ to explaining Britain’s electoral results ([Agnew, 1990](#), p. 15) – the key benefits of which are well documented ([Cutts & Webber, 2010](#); [Johnston et al., 2001](#); [Johnston & Pattie, 1998, 2006](#)).

The article begins by charting the chronological shift from the mid-twentieth century dominance of the class cleavage to the more recent theorisation of a “left behind/cosmopolitan” division in British politics. It then moves to a discussion of the data and methods used before presenting an exploratory analysis of the changing relationship between different sociodemographic and geographical conceptualisations of “left-behindedness” and vote shares for Labour and the Conservatives. After outlining the statistical models used, the driving factors behind these patterns are then uncovered through an analysis of model coefficients at each election. Finally, a discussion section addresses the extent to which various types of “left behind” areas are moving from Labour to the Conservatives.

1.1. Class-based voting and its decline

Of the political cleavages described by [Lipset and Rokkan \(1967\)](#), it was the class cleavage that structured and dominated twentieth-century European politics ([Johnston & Pattie, 2008](#); [Triandafyllidou & Gropas, 2015](#); [von Schoultz, 2017](#)), manifesting in Britain in a “two-class, two-party” model with the typically unionised working classes identifying with Labour and the middle classes with the Conservatives ([Butler & Stokes, 1969](#)). Since the 1970s, the influence of the social structure upon voting has been declining across Western Europe ([Mair, 1990](#)),

such that in the UK, social class has become far less important in understanding voting behaviour ([Best, 2011](#); [Crewe, Sarlvik, & Alt, 1977](#); [Denver, 2007](#); [Evans, 1999](#); [Franklin, 1985](#); [Franklin, Mackie, & Valen, 1992](#); [Johnston & Pattie, 2006](#); [Oskarson, 2005](#); [Sanders, 1998](#); [Tonge, 2000](#)). This process of class dealignment appears to have accelerated at the 2017 general election ([Curtice, 2017](#); [Ipsos Mori, 2017](#)).

As well as shifts in voting behaviour, class dealignment may result from “structural” or “ecological” changes ([Flanagan, 1984](#); [Lachat, 2007](#)). Rapid deindustrialisation, tertiarisation and the increasing accessibility of higher education has created more amorphous social class boundaries, leaving no clear dichotomy between manual/non-manual workers around which Labour and the Conservatives can structure their appeal ([Clarke, Sanders, Stewart, & Whiteley, 2004](#); [Gallagher, Laver, & Mair, 2001](#)). Labour’s demise in the 1970s and 1980s, for example, may not only reflect a loss of working class support, but also the shrinking size of the working class as the country transitioned into a largely service-based economy ([Heath et al., 1985](#)). For [Evans and Tilley \(2011\)](#), the strategic response of parties to this changing class structure – typically ideological convergence into the centre ground – furthered the decline in class-based voting.

As a result of the growth of de-standardised forms of labour in a competitive globalised economy, social class divisions are also being replaced by divisions between secure and insecure employment ([Beck, 1992](#)). An insecure “class-in-the-making” has emerged – the “precarariat” – with distinctive relations of production characterised by ‘casualization, informalisation, agency labour, part-time labour, phoney self-employment and the new mass phenomenon of crowd-labour’ ([Standing, 2015](#), p. 6). Their employment lacks the salary of the middle class and the stable, fixed-hour contracts and options to unionise associated with the working class. Subsequently, they belong to neither. Young “precarriats” – a digital generation politicised by the recent economic crisis ([Standing, 2016](#)) – were considered a significant factor in the rise of Jeremy Corbyn ([Foti, 2017](#)), the relative success of Labour in the 2017 general election ([Jennings & Stoker, 2017](#)) and support for Bernie Sanders in the US ([Kotkin, 2016](#)). It would appear that, just as older, white, working classes are moving towards the Conservatives, younger, precariously-employed workers are aligning to Labour.

1.2. A “cosmopolitan” and “left behind” realignment?

Globalisation and tertiarisation have not only created precarious forms of employment but broader groups of “winners” and “losers” ([Rodrik, 1997](#)). The “winners” of globalisation are typically “cosmopolitan citizens” and qualified workers in internationally competitive employment sectors ([Kriesi et al., 2008](#)). The “losers” include employees in traditionally protected sectors, those without formal qualifications and those with strong emotional ties to a national identity. These loose categories have been defined elsewhere as “cosmopolitan” and “left behind”. [Ford and Goodwin \(2014, p. 11\)](#), in assessing support for UKIP, described the archetypal “left behind” individual as older, white, male, less educated, economically insecure and feeling ‘profoundly uncomfortable’ in an increasingly ethnically diverse and culturally heterogeneous society. By registering high levels of support for Brexit and Donald Trump, this population are widely understood to be engaging in a “cultural backlash” against recent social and cultural changes ([Inglehart & Norris, 2017](#); [Norris & Inglehart, 2019](#)).

These divisions may, as a result of uneven economic development, also manifest geographically as “two Englands”: growing, “cosmopolitan” urban areas and shrinking “backwaters” characterised by low pay, low-skilled employment and the out-migration of young graduates ([Jennings & Stoker, 2016](#)). This chimes with the Front National’s appeal amongst the so-called “forgotten ones” living in peripheral, albeit more rural locations in France ([Ivaldi, Lanzone, & Woods, 2017](#)) and Trump’s support amongst ‘people and communities who feel left behind by a new globalizing economy’ in working-class rural areas ([Ulrich-Schad & Duncan, 2018, p. 76](#)) and the Midwestern Rust Belt ([McQuarrie, 2017](#)).

A political rift appears to be developing between cities with young, ethnically diverse and highly-educated populations and towns and rural areas with largely older, white, less highly-educated populations.

At the 2015 general election, Labour's appeal was stronger in "cosmopolitan" than so-called "backwater" areas (Stoker & Jennings, 2015) and in 2017, Conservative support increased in older, largely white, economically "left behind" areas and decreased in areas with highly-skilled populations (Heath & Goodwin, 2017). Individual-level analyses have also confirmed these findings (Warren, 2017). However, the story may be more complex, with Labour also improving in areas with higher shares of precarious workers and people in poor health (Jennings & Stoker, 2017). Indeed, this is 'somewhat at odds with [the] characterisation of a party that has lost the "left behind"' (Jennings & Stoker, 2017, p. 359), particularly if this concept is extended beyond areas largely comprised of white, older, working class residents with low levels of education.

1.3. The theoretically fuzzy "left behind" concept

From an economic perspective, "left behind" populations might be repositioned as "let down" – a group of people or places who, as a result of poor government policy, have 'no reason to feel good about their economic prospects' (Watson, 2018, p. 28). However, Ford and Goodwin's (2014) "left behind" conceptualisation begins not by identifying the most economically disadvantaged, but instead, the socio-demographic and attitudinal characteristics of individuals that were inclined to vote for UKIP. This group is 'old, male, working class, white and less educated' – a shrinking demographic that sees cosmopolitan, multicultural Britain as 'alien and threatening' (Ford & Goodwin, 2014, pp. 159, 126). This argument that the "left behind" fuelled UKIP's rise is tautological: if propensity to support UKIP is used to define the "left behind", it will always be true that the "left behind" were responsible for the rise of UKIP.

It should be considered very carefully whether this group constitute the "left behind" or whether there are multiple forms of "left-behindness". Firstly, it is not possible to possess "left behind" political views or attitudes as this assumes linear attitudinal changes over time. It is not sufficiently clear, for example, that long-term attitudes towards immigration and the EU are becoming substantially softer and more integrationist (see: Blinder & Richards, 2018; Simpson, 2019). Secondly, defining the "left behind" in relation to support for UKIP or leaving the EU, leads to ethnic minorities and a predominantly highly-qualified white population being grouped together as "cosmopolitan". This overlooks the fact that ethnic minority groups are disproportionately welfare-dependent, living in poverty, unemployed or in low-skilled, insecure work and without degrees (Barnard & Turner, 2011; Sunak & Rajeswaran, 2014). Goodwin (2016) writes that:

'the places that gave the lowest levels of support to Brexit include Hackney, Lambeth, Haringey, Islington, Cambridge, Edinburgh, Richmond-upon-Thames, Kensington and Chelsea and Tower Hamlets – all urban, diverse and relatively affluent areas.'

To categorise these urban areas as 'relatively affluent' conceals the presence of serious disadvantage and localised economic inequality. In fact, ranking 326 English local authorities by the proportion of the population living in the most deprived Lower Super Output Areas (LSAOs), Tower Hamlets is third, Hackney eleventh, Islington twenty-sixth and Haringey twenty-eighth most deprived (Office for National Statistics, 2015). By identifying "left behind" places by propensity to vote Leave or UKIP, urban areas with serious economic disadvantage are overlooked in favour of places with lower levels of poverty and deprivation.

Perhaps subjective *feelings* of being "left behind" matter more than objective economic conditions. Borrowing ideas from relative deprivation theory (Runciman, 1966), it might be expected that when an individual perceives themselves, against their expectations, to be poorly

treated by the political or economic system, they switch voting allegiances or align with an insurgent party or politician (Altomonte, Gennaro, & Passarelli, 2019; Whiteley, Poletti, Webb, & Bale, 2018). However, examining data from the British Election Study (BES) Wave 14 (Fieldhouse et al., 2018), there is little indication that, compared to poorer ethnic minorities in cosmopolitan areas, white, working class respondents living in "non-cosmopolitan" areas feel more negatively towards the two main parties or feel at greater economic risk (see Appendix A.10). Presenting the white, working class as the "injured population" (Rhodes, 2012) ignores the fact that their economic and political grievances are likely to be shared, or even felt more strongly, by ethnic minorities and other poorer residents in larger, urban areas.

With the continued blurring of class boundaries and the decline of class-based voting, it is convenient to oversimplify complex socio-economic, cultural, economic and geographical characteristics and processes into a neat dichotomisation of "left behind" and "cosmopolitan" areas. A more nuanced understanding of political change can be acquired by recognising varieties of "left-behindness", from shrinking areas with largely older, white working class populations to areas characterised by highly insecure employment and the most economically deprived, urban environments.

2. Methodological approach and data

The data come from a range of sources: the 1981, 1991, 2001 and 2011 censuses (Office for National Statistics, 2003, 2013; Office of Population Censuses and Surveys, 1997, 2000) alongside other datasets containing merged constituency-level demographic information and general election vote shares (Crewe & Fox, 2011; Electoral Calculus, ND; Fieldhouse et al., 2017; McAllister & Rose, 1988; Norris, 2001, 2005, 2010). The focus is confined to England and Wales as Scotland and Northern Ireland represent unique cases with different electoral cleavages. The only constituencies that have been omitted from the datasets are the Speaker's seat at each election and any cases where Labour or the Conservatives did not stand. In 1992, outside of any boundary review, the constituency of Milton Keynes was divided into two new constituencies: Milton Keynes North East and Milton Keynes South West. Census data aggregated to the 1983 parliamentary constituency level includes these two newer constituencies, even though they were not in use at the 1983 or 1987 general election. The data for the two constituencies has been amalgamated back into one - Milton Keynes - based on the distribution of the population. In addition, for the 1979 general election, due to lack of available data, all variables including vote shares are notional to the 1983 constituency boundaries.

2.1. Boundary changes and interpolation

Where the census and general election are less than three years apart, non-interpolated census data has been used at the appropriate boundaries. For 1987 and 1997, years in which the election falls more than two years from the closest census, linear interpolation of socio-demographic data has created estimates for the election year alongside existing notional electoral results. In order to account for boundary changes, the spatial unit of the start and end point of the interpolation is always matched to the constituency boundaries used in the election. For example, to interpolate data for 1997, census data from 2001 to 1991 are both calculated at the constituency boundaries that came into use in 1997.

For 2005, there is no publicly available 2011 census dataset notional to the appropriate boundaries that can be used for interpolation. Spatial overlaying has been used to estimate 2011 census data notional to 1997 boundaries, from which accurate estimates for 2005 can be interpolated. This technique - areal interpolation or areal weighting - is a form of "spatial basis change" in which data is transferred across two spatial units that do not have coinciding boundaries (Goodchild, Anselin, & Deichmann, 1993). 2011 census data is first calculated for

Output Areas across England and Wales. Then, output areas are overlaid onto the parliamentary constituencies used in the 2005 general election. The proportion of each output area that falls into each constituency is used to distribute the population (Yale University, 2007). Once the 2011 estimates at the 2005 boundaries are created, the linear interpolation proceeds in the same manner used for 1987 and 1997. As this method assumes a homogeneous distribution in both the population and the variable of interest across output areas, the level of accuracy is directly correlated to the extent to which the variables are homogeneously distributed (Murakami & Tsutsumi, 2011). The margin of error for any assumption of even population distribution increases proportionally to the size of the spatial unit. Output areas have therefore been used as they are the smallest geographical units for which census data is provided and have been constructed to be as socially homogeneous as possible.

3. Descriptive results: the changing locations of Labour and Conservative support

The series of line graphs presented in the following section show the bivariate, constituency-level correlation coefficients between variables associated with the three conceptualisations of “left behind” areas and Labour and Conservative vote shares at each election from 1979 to 2017.

3.1. Conventional conceptualisation of “left behind” places

Fig. 1 presents the bivariate correlation coefficients of variables

associated with the conventional definition of “left-behindedness” and Labour and Conservative vote shares. Graph A shows a consistent, gradual weakening of the negative association between manufacturing and Conservative vote shares, such that, by 2017, it had been eliminated. For Labour, the reverse is true, and for the first time in 2017 the Labour vote share is, albeit very weakly, negatively correlated with the proportion employed in manufacturing. The same trend can be seen with the proportion in semi-routine/routine employment, to which the Conservative vote share became markedly less negatively associated in 1997 and 2017 and the Labour vote share less positively associated in 1997 in particular. The contrast for Labour and Conservative support is explicit: for the former, the positive association with working class occupations has been eliminated; for the latter, the negative relationship with working class occupations has been eliminated.

The correlation coefficients reported in graph B support the idea that an age cleavage has developed in British politics, but rather than 2017 representing anything exceptional, this process has been occurring since 1997. Labour’s relative support has decreased in areas with higher proportions of older people, and since 2010, increased in areas with higher proportions of young people. An almost identical inverse trend has occurred for the Conservatives. There is also a long term increasing positive association between Labour vote share and the proportion of full-time students (online appendix A.3).

Graph C shows the longstanding nature of Labour’s higher vote shares in urban areas, as the association between urban-ness and Labour vote shares is consistently positive across all elections, with the inverse association with the Conservatives. Regarding ethnic diversity, there has been an increasingly positive association with Labour’s vote

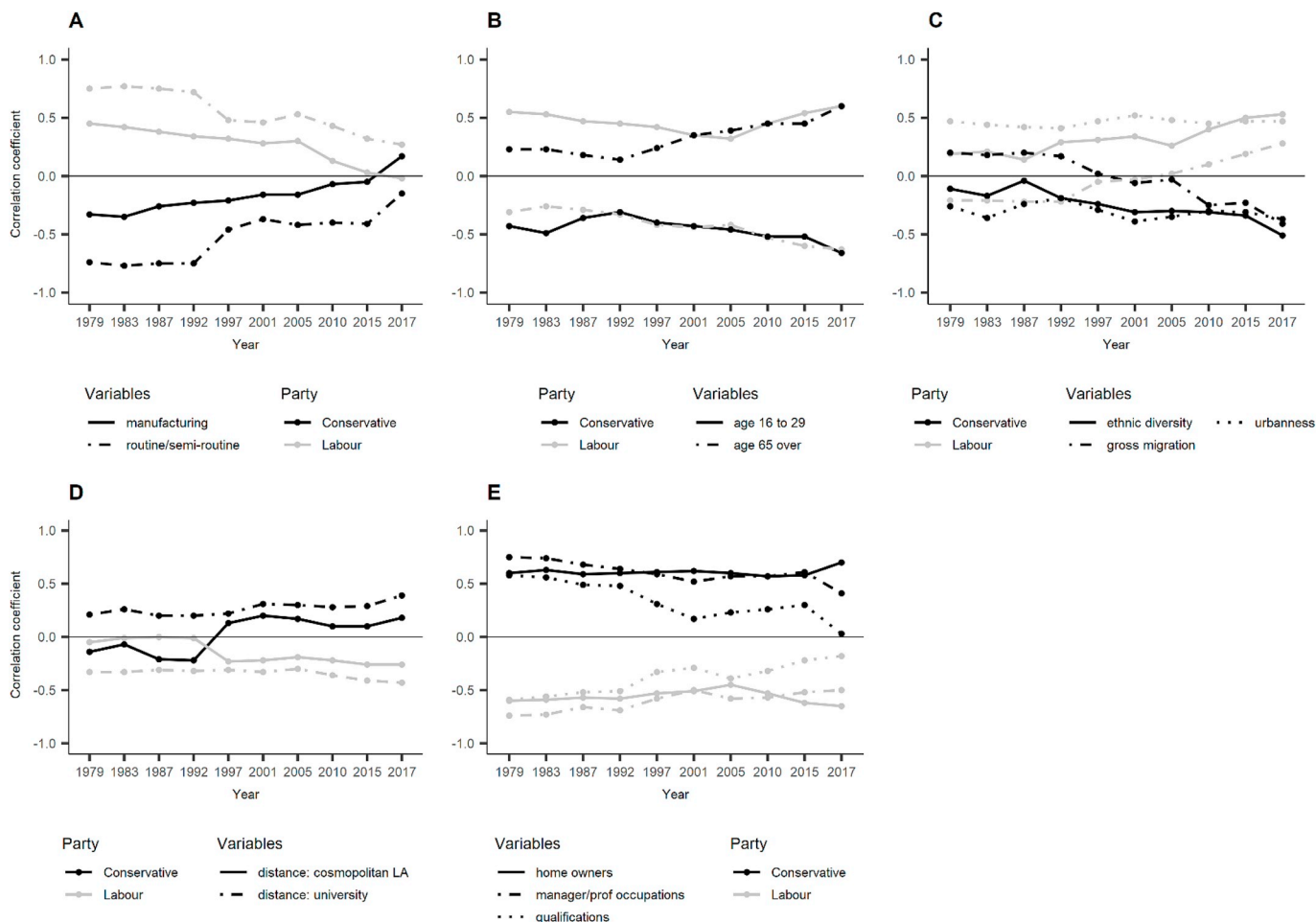


Fig. 1. The changing bivariate correlations between different variables associated with the conventional conceptualisation of “left-behindedness” and Labour and Conservative vote shares across each general election (1979–2017) by constituency.

share and an increasingly negative association with the Conservatives' vote share. The same trend can be observed with the level of gross migration, indicating that relative to areas with lower gross migration, Labour's support is increasingly concentrated in areas with more transient populations.

Given these trends, it is unsurprising that the Labour vote share has consistently been higher and the Conservatives vote share lower in constituencies that are in close proximity to a university (graph D). At the same time, in 1997 there was a marked shift in which Labour's support became (albeit weakly) negatively - and the Conservatives' positively - associated with increasing distance from the nearest "cosmopolitan" local authority. This matches findings that Labour's relative support increased significantly in 1997 in areas with high levels of gross migration, high proportions of university-educated residents and low proportions of routine/semi-routine employment.

Graph E offers further evidence of the changing association between education and Labour/Conservative support. Until 1992, there was a moderate positive correlation between degree-level qualifications and Conservative vote shares that has since declined to only 0.03 in 2017. Although the association with degree-level education remains negative for Labour, it has weakened substantially between 1979 and 2017. The change in association with middle class occupations is less spectacular: there is a consistent negative association with Labour vote shares and a slowly declining positive association with Conservative vote shares - in 1979 the correlation coefficient was 0.75; by 2017 this was 0.41. For home-ownership levels, the trend is even more stable: areas with high levels of home ownership have consistently been more likely to return a high Conservative vote share and a low Labour vote share. The greater distance between the points over time is suggestive of a split between more "middle class" areas, in which many home owners and the university-educated increasingly inhabit different areas and vote for different parties accordingly.

3.2. Alternative conceptualisations of "left behind" places

Fig. 2 presents the bivariate correlation coefficients of variables associated with the alternative definitions of "left-behindedness" and Labour and Conservative vote shares. Graph F points to an unchanging pattern: the most economically disadvantaged areas – as marked by high proportions of deprivation, unemployment, poor health and social housing – have consistently had much higher Labour vote shares and lower Conservative vote shares than areas that were less disadvantaged. Likewise, from graph G it is evident that Labour have retained strong relative levels of support in areas with high proportions employed in precarious occupations, despite a substantial weakening in the negative association with Conservative vote shares in 2017. At the same time, there is a clear long-term trend in which "cosmopolitan" areas have become less favourable to the Conservatives and more favourable to Labour. It is worth noting that an increasingly negative association between precarious employment and poor health and turnout across the time period suggests that whilst Labour remain strong in economically deprived areas, an increasingly disproportionate number of voters in these areas are choosing to disengage.

4. A summary of the regression models

4.1. Multivariate regression models

Regression models have been constructed for each general election between 1979 and 2017 using largely identical variables in order to accurately capture their changing associations with Labour and Conservative vote shares. As the dependent variables – Labour and Conservative vote shares - are continuous, OLS multivariate regression has been used as the baseline method. To offer further support for any findings and to account for the fact that the dependent variables are bound between 0 and 100, Seemingly Unrelated Regressions (SUR) and Generalised Linear Models (GLM) have also been executed at each election. While it would account for dependence from one election to another, time series analyses have been avoided due to difficulties that arise from the relatively short time period, changing constituency boundaries and the inconsistent time periods between general elections

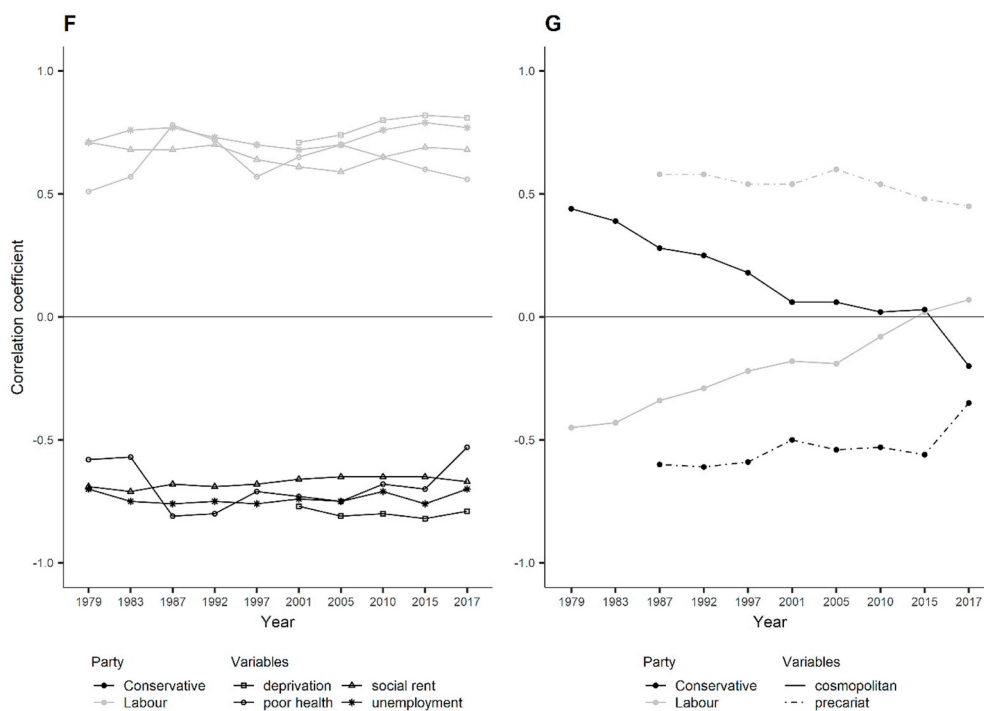


Fig. 2. The changing bivariate correlations between different variables associated with alternative conceptualisations of "left-behindedness" and Labour and Conservative vote shares across each general election (1979–2017) by constituency.

(Pickup, 2015). Instead, to gain a further sense of which elections present atypical cases, the data are pooled and a time fixed effect model is executed to predict Labour and Conservative vote shares.

4.2. Explanatory variables

The explanatory variables used in the regression models are outlined in Table 1, Table 2 and Section 4.5, according to whether they are categorised under the conventional, economic deprivation or the precarious employment definition of “left behind” places. Summaries of variables included in the previous section but not the regression models, due to multicollinearity, are outlined in online appendix A.1, alongside more detailed explanations of the model variables.

4.3. The conventional “left behind” definition

Table 1
The explanatory variables analysed under the conventional “left behind” definition.

Variable	Description (proportions of population unless otherwise stated)
Employed in manufacturing	Of the economically active population (post-2001) or employed population (pre-2001), the proportion employed in manufacturing.
Educational qualifications	Population with a level four qualification or higher (post-2001), higher degree, degree or diploma (1992 and 1997) or the proportion in employment with degrees or professional vocational qualifications (pre-1992).
Age 16 to 29	Population aged 16 to 29.
Age 65 plus	Population aged 65 and over.
Ethnic diversity	According to Schaeffer (2014, 53), using a diversity index is well suited to measuring a quasi-monoethnic composition, such as that in the UK. The Herfindahl concentration index is used (Hirschman, 1964) to calculate the probability that two randomly selected residents of the same parliamentary constituency are of a different ethnicity (Sturgis, Brunton-Smith, Kuha, & Jackson, 2014).
Gross migration	A proxy for geographical mobility. From 1997 onwards, this is those that have migrated into the area from the UK or out of the area to anywhere in the previous year. Prior to 1997, the measure includes only those with a different address to one year previously.
Urban-ness	Not employed in ‘agriculture’ (1981 and 2011 censuses), ‘agriculture, hunting or forestry’ (2001 census) or ‘managers in farming, horticulture, forestry and fishing’ and not employed in ‘other occupations in agriculture, forestry and fishing’ (1991 census).
Distance: cosmopolitan local authority	Distance (decimal degrees) from centroid of the constituency to centroid of the nearest ‘cosmopolitan’ local authority. An index of ‘cosmopolitan-ness’ for each local authority in 2011 was calculated from four standardised variables: percent of population aged 18 to 29, with a level four qualification, living in an urban environment, and the ethnic diversity (Herfindahl index) of the local authority.
Distance: university	The distance in decimal degrees from the centroid of each constituency to the closest university, based on designation of universities in that particular year.

4.4. The economic deprivation “left behind” definition

Table 2
The explanatory variables analysed under the economic deprivation “left behind” definition.

Variable	Description (proportions of population unless otherwise stated)
Poor health	Poor health is considered a proxy for poverty (Benzeval et al., 2014). Population who described their health as ‘bad’ or ‘very bad’ (2010 onwards), ‘not good’ (2001 and 2005), population with a long-term illness (1992 and 1997) or those permanently sick (pre-1992).
Social renters	Households that live in social (council/local authority/housing association) housing.
Unemployment rate	Economically active population aged sixteen to seventy-four (post-2001) or aged sixteen and over (pre-2001) that were unemployed.

4.5. The precarious employment “left behind” definition

Initially, an ‘insecure employment’ variable has been created by combining the standardised proportion of the population in precarious employment (online appendix A.1) with the standardised proportion in routine/semi-routine employment (2001 onwards) or semi-skilled/unskilled employment (pre-2001). This has subsequently been inverted into a ‘secure employment’ variable. In many election years, secure employment was strongly positively correlated with degree-level qualifications, confirming that constituencies with highly qualified populations are unsurprisingly more likely those with fewer precariously employed residents.

In order to retain these two conceptually important variables without creating invalidated coefficients as a result of collinearity, a method of sequential regression has been used. This involved first executing a constituency-level regression model with degree-level qualifications as the only explanatory variable and secure employment as the dependent variable. The residual from this regression model represents the part of the

secure employment variable that is not correlated with degree-level qualifications. The regular measure of degree-level qualifications has then been included in the election regression models, whereas secure

employment has been replaced by the aforementioned residual. Accordingly, the degree-level qualification coefficients in the following models can be interpreted normally whereas the secure employment residual coefficients can be interpreted as the independent contribution of secure employment once its shared explanatory contribution with degree-level qualifications has been accounted for (Dormann et al., 2013; Graham, 2003). To summarise, the secure employment variable is created as follows:

If x_1 is the percentage with a degree and x_2 is the index of secure employment, one first estimates:

$$x_2 = a_0 + a_1x_1 + e_1$$

In this initial simple linear regression, a_0 refers to the constant and e_1 the error term. Once this regression is completed, the residual is used in the following OLS models as such:

$$Y = b_0 + b_1x_1 + b_2e_1 + b_3x_3 + \dots + e_y$$

Where Y refers to Labour or Conservative vote share, b_0 is the constant, b_nx_n the regression parameters, b_2e_1 the regression parameter taking the residual from the previous model and e_y the error term.

5. Regression results: the changing predictors of Labour and Conservative support

The following set of graphs present the beta coefficient values and the statistical significance of the variables associated with each conceptualisation of “left behind” constituencies across general elections from 1979 to 2017. These data come from the OLS regression models performed at each election, for which the full summary outputs can be found in Table 3 and Table 4 at the end of this section. By assessing any year-to-year crossover in the bounds of the confidence intervals, it is possible to determine whether the coefficient in one election is statistically significant from another election. Where relevant, supporting findings from additional OLS models that include interaction effects and SUR, GLM and fixed effects models are referred to. More detailed outputs from these additional models can be found in online appendices A.5 – A.8.

5.1. “Left behind”: conventional conceptualisation

Fig. 3A shows that, following a significant change in 1997, the proportion employed in manufacturing has, excluding 2010 and 2015, had a negative impact on Labour vote shares. Except in 2010, manufacturing has had a positive impact on Conservative vote shares at each election since 1997. Fig. 3B confirms that with increasing distance from the nearest university, there is a consistent negative association with Labour vote shares and a positive association with Conservative vote shares. Since 1987, the negative effect for Labour has strengthened, such that in 2017 more than at any previous election, the closer an area is to a university, the more likely it is to return a high Labour vote share.

In 1979, a 1 percentage point increase in the proportion of residents with degree-level qualifications resulted in a mean 0.83 percentage point decrease in the Labour vote share and a 0.75 percentage point increase in the Conservative vote share (Fig. 3C). After weakening considerably before 1997, there remained a weak positive Conservative association and weak negative Labour association until 2017 when, the

effects reversed direction in the OLS, GLM and SUR models (online appendices A.6 and A.7). Indeed, the standardised coefficients (online appendix A.4) show that degree-level qualifications had changed from being the most important negative predictor of Labour vote share in 1979 to the third most important positive predictor in 2017. The opposite trend was the case for the Conservatives.

Since 1992, there has been a statistically significant, positive interaction effect between degree-level qualifications and poor health on Labour vote shares (online appendix A.5). This implies that any effect on Labour vote shares of having a high proportion of degree holders is more positive in areas where there is also significant poverty – typically larger, urban areas. For the Conservatives, the interaction effect has been negative since 1992, implying that as the proportion in poor health increases, the proportion with a degree has an increasingly negative effect on Conservative vote shares.

Fig. 3D shows that before 1992 there was a small but significant negative effect of increasing the proportion of over 65s on Labour vote shares and a small but significant positive effect on Conservative vote shares. Since the 1992 general election, this effect has strengthened: in 1997 for example, a 1 percentage point increase in the proportion aged 65 plus was associated with a 1.59 percentage point vote share decrease for Labour and a 1.62 percentage point increase for the Conservatives. Indeed, by 2017, the proportion of older residents had, relative to other variables, the strongest positive effect and negative effect on Conservative and Labour vote shares respectively (online appendix A.4). In contrast, the proportion of younger people appears to be a less clear-cut driver of vote shares: although by 2017 the proportion of young people had a positive and negative association with Labour and Conservative vote shares respectively, it remains less substantial than the pre-1992 effects.

5.2. “Left behind”: alternative conceptualisations

Consistent with the bivariate correlation coefficients, the poor health proxy for economic disadvantage (Fig. 4E) has been consistently positively associated with Labour vote shares and negatively associated with Conservative vote shares across all elections. From the time fixed effect models (online appendix A.8), it is clear that even controlling for shocks, such as the 1997 landslide, poor health has a consistent positive association with Labour and negative association with Conservative vote shares across time. The standardised coefficients reported in the online appendix A.4 confirm that, in fact, poor health was a more important positive predictor of Labour vote shares in 2017 than it was in 1979, relative to other characteristics. For the Conservatives, poor health became an even stronger negative predictor relative to other variables.

Fig. 4F shows the effect of the level of secure employment upon the vote shares only once the effect of the proportion of residents with degree-level qualifications is accounted for. The pattern over time is one of fluctuation but clarity: secure employment in a constituency has a consistently positive effect on Conservative vote shares and a consistently negative effect on Labour vote shares above and beyond the impact that it had already made through its relationship with degree-level qualifications. This is confirmed in online appendix A.4 which shows that in both 1979 and 2017, secure employment was the second most important negative predictor of Labour vote share.

Table 3
The regression output from OLS models predicting the Labour vote share across constituencies (1979–2017).

	Labour vote share (%)									
	1979	1983	1987	1992	1997	2001	2005	2010	2015	2017
constant	-26.700*** (9.210)	-34.600*** (9.540)	-55.100*** (11.900)	-42.500*** (11.400)	-62.100*** (15.400)	-99.000*** (19.600)	-81.500*** (24.300)	-40.800 (27.400)	-80.000** (33.800)	-20.800 (31.900)
unemployment rate	-0.290** (0.121)	0.049 (0.128)	0.021 (0.141)	-0.092 (0.114)	-0.417** (0.182)	-0.137 (0.225)	-0.191 (0.271)	-0.039 (0.293)	0.788** (0.354)	0.608* (0.335)
manufacturing	0.135*** (0.035)	0.129*** (0.037)	0.134*** (0.047)	0.089** (0.042)	-0.268*** (0.061)	-0.433*** (0.069)	-0.356*** (0.082)	-0.099 (0.100)	0.048 (0.120)	-0.300*** (0.115)
social renters	0.197*** (0.025)	0.182*** (0.026)	0.235*** (0.033)	0.200*** (0.031)	0.188*** (0.038)	0.104** (0.042)	0.066 (0.050)	0.094 (0.057)	0.164** (0.071)	-0.033 (0.066)
degree-level qualifications	-0.833*** (0.081)	-0.699*** (0.085)	-0.395*** (0.083)	-0.224*** (0.062)	-0.332*** (0.059)	-0.344*** (0.050)	-0.314*** (0.056)	-0.046 (0.062)	-0.310*** (0.086)	0.198*** (0.071)
secure employment (residual)	-2.290*** (0.412)	-2.380*** (0.433)	-1.800*** (0.388)	-1.680*** (0.307)	-2.830*** (0.341)	-3.610*** (0.379)	-3.550*** (0.388)	-2.770*** (0.373)	-1.600*** (0.450)	-2.430*** (0.425)
aged 16 to 29	0.892*** (0.190)	0.697*** (0.200)	0.761*** (0.221)	0.286* (0.156)	0.160 (0.121)	-0.017 (0.097)	-0.179* (0.098)	0.106 (0.083)	-0.125 (0.097)	0.394*** (0.092)
aged 65 plus	-0.253*** (0.080)	-0.311*** (0.084)	-0.291*** (0.112)	-1.430*** (0.103)	-1.590*** (0.122)	-1.230*** (0.121)	-1.350*** (0.140)	-1.010*** (0.140)	-1.250*** (0.166)	-1.080*** (0.158)
ethnic diversity	0.021 (0.041)	0.091** (0.043)	0.025 (0.043)	0.052** (0.025)	0.047* (0.024)	-0.021 (0.024)	-0.076*** (0.027)	0.024 (0.027)	0.059* (0.033)	0.085*** (0.031)
poor health	4.530*** (0.397)	5.410*** (0.421)	4.780*** (0.312)	3.310*** (0.153)	2.530*** (0.150)	2.580*** (0.200)	2.890*** (0.217)	4.490*** (0.321)	4.960*** (0.384)	4.870*** (0.364)
distance: cosmopolitan LA	3.280*** (0.790)	4.180*** (0.833)	1.620*** (0.535)	1.630*** (0.446)	-1.560** (0.634)	-1.470** (0.681)	-0.749 (0.745)	0.036 (0.902)	-1.310 (1.060)	0.437 (1.000)
distance: university	-6.380*** (1.480)	-8.060*** (1.560)	-4.630*** (1.540)	-4.440*** (1.270)	-2.340 (1.770)	-3.690* (1.910)	-6.280*** (2.130)	-9.550*** (2.130)	-7.970*** (2.940)	-10.800*** (2.770)
urban-ness	0.559*** (0.095)	0.597*** (0.099)	0.710*** (0.128)	0.644*** (0.121)	1.140*** (0.155)	1.680*** (0.194)	1.450*** (0.235)	0.751*** (0.263)	1.210*** (0.326)	0.465 (0.306)
third party vote share	-0.672*** (0.039)	-0.646*** (0.042)	-0.602*** (0.037)	-0.606*** (0.027)	-0.751*** (0.025)	-0.688*** (0.024)	-0.518*** (0.028)	-0.521*** (0.029)	-0.777*** (0.090)	-0.642*** (0.039)
<i>N</i>	560	560	560	561	567	569	569	572	572	572
Adjusted R2	0.882	0.875	0.893	0.931	0.925	0.901	0.852	0.852	0.818	0.852

Notes: ***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table 4
The regression output from OLS models predicting the Conservative vote share across constituencies (1979–2017).

	Conservative vote share (%)									
	1979	1983	1987	1992	1997	2001	2005	2010	2015	2017
constant	94.400*** (10.100)	136.000*** (9.390)	98.000*** (11.800)	54.600*** (11.500)	63.500*** (14.100)	86.300*** (19.000)	53.400** (22.500)	59.900** (27.400)	61.300* (33.700)	54.800* (30.800)
unemployment rate	0.179 (0.134)	-0.019 (0.126)	-0.145 (0.140)	-0.123 (0.115)	0.388** (0.167)	0.252 (0.217)	0.069 (0.250)	0.197 (0.294)	-0.563 (0.353)	-0.763** (0.323)
manufacturing	-0.099** (0.039)	-0.107*** (0.037)	-0.101** (0.047)	-0.037 (0.043)	0.285*** (0.055)	0.394*** (0.067)	0.251*** (0.075)	0.172* (0.100)	0.424*** (0.120)	0.545*** (0.111)
social renters	-0.218*** (0.027)	-0.182*** (0.026)	-0.225*** (0.032)	-0.158*** (0.032)	-0.193*** (0.035)	-0.069* (0.041)	-0.071 (0.046)	-0.070 (0.058)	-0.076 (0.070)	0.103 (0.063)

(continued on next page)

Table 4 (continued)

	Conservative vote share (%)									
	1979	1983	1987	1992	1997	2001	2005	2010	2015	2017
degree-level qualifications	0.746*** (0.089)	0.732*** (0.083)	0.243*** (0.083)	0.116* (0.062)	0.181*** (0.054)	0.148*** (0.048)	0.170*** (0.051)	0.106* (0.062)	0.194** (0.086)	-0.243*** (0.069)
secure employment (residual)	1.730*** (0.453)	2.600*** (0.427)	1.320*** (0.386)	1.330*** (0.311)	1.670*** (0.311)	2.720*** (0.366)	2.770*** (0.358)	2.170*** (0.373)	2.090*** (0.449)	2.240*** (0.411)
aged 16 to 29	-0.723*** (0.209)	-0.800*** (0.197)	-0.803*** (0.220)	-0.365** (0.158)	-0.318*** (0.111)	-0.145 (0.094)	-0.018 (0.091)	-0.238*** (0.083)	-0.553*** (0.097)	-0.521*** (0.089)
aged 65 plus	0.291*** (0.088)	0.233*** (0.082)	0.253** (0.112)	1.380*** (0.105)	1.620*** (0.112)	1.360*** (0.117)	1.400*** (0.129)	1.180*** (0.140)	0.689*** (0.165)	1.210*** (0.153)
ethnic diversity	-0.130*** (0.045)	-0.121*** (0.043)	-0.013 (0.042)	-0.058** (0.025)	-0.064*** (0.022)	-0.005 (0.024)	0.029 (0.025)	-0.003 (0.027)	0.022 (0.033)	-0.029 (0.030)
poor health	-5.040*** (0.437)	-5.440*** (0.414)	-5.120*** (0.310)	-3.460*** (0.155)	-3.060*** (0.137)	-3.890*** (0.193)	-3.940*** (0.200)	-5.890*** (0.321)	-5.320*** (0.382)	-5.740*** (0.352)
distance: cosmopolitan LA	-5.830*** (0.870)	-3.930*** (0.820)	-2.680*** (0.532)	-2.680*** (0.452)	-0.835 (0.580)	-0.632 (0.658)	-1.220* (0.688)	-1.900** (0.903)	-1.440 (1.050)	-1.750* (0.966)
distance: university	10.100*** (1.630)	7.860*** (1.540)	7.670*** (1.530)	8.340*** (1.290)	4.780*** (1.620)	6.300*** (1.850)	9.020*** (1.970)	8.180*** (2.130)	5.590* (2.930)	6.240** (2.680)
urban-ness	-0.267** (0.105)	-0.605*** (0.097)	-0.125 (0.127)	0.260** (0.123)	-0.061 (0.142)	-0.426** (0.188)	-0.064 (0.217)	-0.007 (0.263)	-0.016 (0.325)	0.179 (0.295)
third party vote share	-0.206*** (0.043)	-0.340*** (0.042)	-0.246*** (0.036)	-0.254*** (0.028)	-0.169*** (0.022)	-0.220*** (0.023)	-0.321*** (0.026)	-0.356*** (0.029)	0.219** (0.090)	-0.220*** (0.037)
<i>N</i>	560	560	560	561	567	569	569	572	572	572
Adjusted R ²	0.747	0.801	0.815	0.864	0.847	0.826	0.837	0.807	0.773	0.808

Notes: ***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

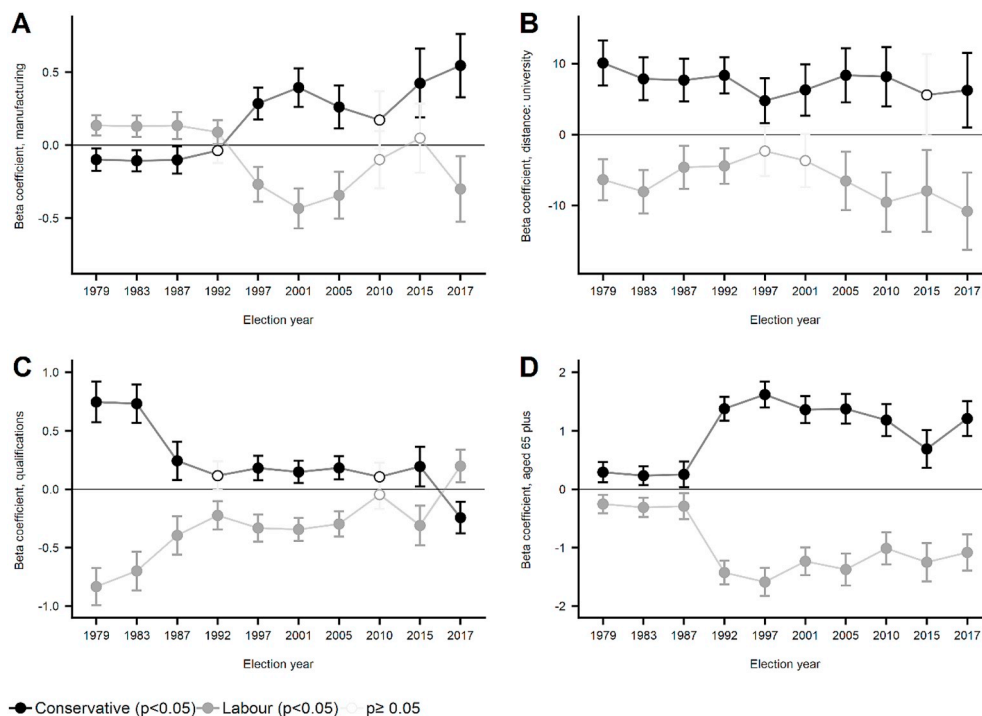


Fig. 3. The changing value of the beta coefficients and statistical significance for the manufacturing (3A), distance from the closest university (3B), degree-level qualifications (3C) and aged 65 plus (3D) variables across each general election (1979–2017) by constituency.

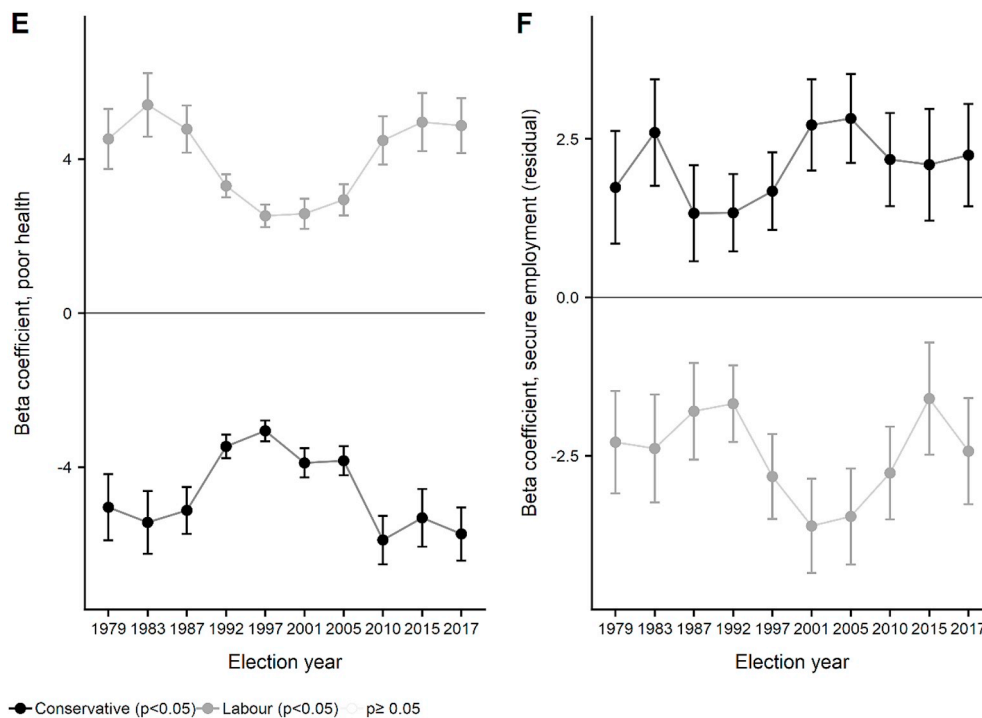


Fig. 4. The changing value of the beta coefficients and statistical significance for poor health and the secure employment (residual) variable (once its shared explanatory contribution with degree-level qualifications has been accounted for) across each general election (1979–2017) by constituency.

6. Discussion: are “left behind” areas leaving an increasingly “cosmopolitan” labour behind?

Media coverage since the 2017 general election has described an increasingly “cosmopolitan” Labour party losing its core support to the Conservatives and thereby its *raison d’être*: ‘it should be hard indeed for the [Labour] party to find cause for celebration in the fact that the Conservatives are so rapidly becoming the party of the “left behind”’ (Allington, 2017). Yet, as this work has emphasised, the extent to which this is the case at the constituency-level is determined by any definition of “left behind” that is adopted.

This research presents clear evidence that constituencies with high proportions of Ford and Goodwin’s (2014) “left behind” – older, white and working class – are gradually moving away from the Labour party towards the Conservatives. The alternate hypothesis for the conventional “left behind” definition is confirmed: the proportion employed in manufacturing and the proportion over 65 are increasingly positively associated with the Conservatives and negatively associated with Labour vote shares. At the same time, degree-level qualifications has become a negative predictor of Conservative vote shares and a positive predictor of Labour vote shares.

Rather than a sudden change in electoral geography, 2017 represents – much like 1997 - a moderate acceleration in this long-term process in which the Conservatives are gradually acquiring support in areas with many routine/semi-routine occupations or manufacturing jobs. Whilst this might offer some support for Evans and Tilley’s (2017) argument that class voting declined significantly in the 1990s with New Labour’s more moderate politics, it also challenges any assertion that on a more radical platform, Labour have managed to put the brakes on their declining support in largely white working class areas. In spite of rather different ideological positions, Jeremy Corbyn and Tony Blair have both led Labour through a period of accelerated relative decline in these more conventionally “left behind” areas of England and Wales.

Labour’s support has increased significantly in so-called “cosmopolitan” areas close to universities, areas with fewer older people, those with high proportions of students and most rapidly in constituencies with many university graduates. Although it remained the case in 2017

that the Conservatives gained marginally higher support than Labour in constituencies with large proportions of university-educated residents, once other factors are accounted for, education had a positive impact on Labour’s vote share, supporting individual-level findings by Curtis (2017). This is not a paradox, but instead is suggestive of a possible geographical split within the middle class. In 1979, people with degrees tended to live in less ethnically diverse areas with high home ownership – all factors contributing to Conservative dominance. By 2017, as the proportion of the population with degrees has risen substantially, they are more likely to live in younger, ethnically diverse, economically unequal constituencies with lower than average home ownership – more “cosmopolitan” areas in which Labour tend to do well.

Whilst there is evidence of an increasingly “cosmopolitan” Labour losing ground to the Conservatives amongst “left behind” constituencies, this is only one part of the story. If the economic deprivation definition of “left behind” is adopted, it seems premature to suggest that they have even begun abandoning the Labour party for the Conservatives. That is, of course, if we recognise that those living in deprivation in ethnically diverse cities can be “left behind” and not simply cast as “cosmopolitans” or “Anywheres” (Goodhart, 2017). Labour’s superiority over the Conservatives was as strong in the most deprived areas of England and Wales in 2017 as it was when Margaret Thatcher came to power. This confirms the null hypothesis outlined in the introduction for the economic deprivation definition of “left behind” constituencies. In fact, this research shows that poverty itself has become an even stronger positive predictor of returning a Labour MP over time.

The Conservatives have also failed to make significant inroads into Labour support in constituencies with high levels of insecure labour, confirming the null hypothesis for the precarious employment definition of “left behind”. This confirms Jennings and Stoker’s (2017) findings that Labour’s support “shored up” in areas with high proportions of “precarious” and increased slightly in more “cosmopolitan” areas between 2005 and 2017. Nonetheless, caution should be urged in assuming that the anger and anxiety of the increasing numbers of “precarious” described by Standing (2016) will automatically generate a new class cleavage or mass support for Labour. While places they

inhabit may be, as Standing (2015) suggests, firmly on Labour's side, further analysis of the data shows that they have – with exceptions – had disproportionately decreasing levels of turnout between 1979 and 2015. This reflects longstanding evidence of a negative association between turnout and economic insecurity (Dempsey & Johnston, 2018; Heath, 2016; Wolfinger & Rosenstone, 1980).

In order to establish a core bloc of voters in the “precarariat” “mass class” (Standing, 2015), Labour might focus on strategies to increase turnout. For the Conservatives, they may benefit from an aging population, but “traditional working class” areas of the country are shrinking. Courting a demographic group, that is likely to become increasingly superseded by the university-educated and insecure “precarriats” living in urban areas with low levels of home ownership, might not represent the most sensible strategy to achieving long-term electoral success. This, of course, is dependent on the relative size and spatial distribution of these different demographic groups – a particular problem for Labour whose support could become too heavily localised in urban areas that are increasingly home to their core demographic groups: young, ethnically diverse, university-educated residents as well as the most economically disadvantaged.

This detailed statistical analysis of each election between 1979 and 2017 has shown that the “left behind” thesis is far too simplistic. Ultimately, understanding whether so-called “left behind” places have left Labour behind for the Conservatives is determined by the definition of “left behind” that is adopted. If we understand “left behind” areas to be those with large proportions of old, low-skilled, white, working class people living far enough from “cosmopolitan” cities, then there is significant supporting evidence presented here. However, if a conceptualisation of “left behind” is adopted which describes constituencies that are the most economically disadvantaged – often ethnically diverse, urban areas - then there is no evidence of any shift away from Labour to the Conservatives. In fact, this research suggests that Labour's support remains particularly strong in those areas of the country with not only the most significant levels of poverty but also those with the greatest proportion of insecure employment. On these grounds, this research demonstrates the need for a multidimensional understanding of “left-behindedness” that can bring about a more nuanced understanding of the geographical manifestations of changing electoral cleavages.

Declarations of interest

None.

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Appendix A. Supplementary data

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