

Inter-Constituency Migration and Turnout at the British General Election of 1983

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One of the most striking features of British general election results is the large variation in turnout across constituencies. In 1983, for instance, the mean turnout was 72.6 per cent of the registered electorate but it ranged from 82.1 per cent in Carmarthen to 51.8 per cent in the City of London and Westminster. Moreover, these variations tend to be reproduced in successive elections – the bivariate correlation between constituency turnout in the 1983 and 1987 elections for all 633 mainland Britain constituencies is +0.94.

Our intention here is to investigate the extent to which turnout variation of this kind can be explained by migration patterns. There are good *a priori* reasons for expecting migration to affect constituency turnout levels. Electoral registers are compiled annually in October, come into force in the following February and remain in force for twelve months. Clearly, people who move house during that period will face greater costs in casting their votes than those who do not. They will have to travel back to the polling station where they are registered or apply for a postal vote. In addition, empirical support for expecting a migration effect at aggregate level is provided by the two major survey studies of turnout in Britain which both agree that non-voting is relatively high among people who have recently moved.¹

Previous analyses of constituency turnout variation have investigated the impact of a range of social and political variables. Denver and Hands² demonstrated that previous marginality was an important predictor of constituency turnout in general elections in the 1960s and 1970s and their conclusion was confirmed by Eagles and Erfle's analysis of four elections (1966, 1970, 1979 and 1983)³ and by Mughan's study of turnout in by-elections.⁴ The main focus of Eagles and Erfle's article was on the influence of 'community cohesion' upon turnout, but like Denver and Hands they took account of a variety of other variables.

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¹ I. Crewe, A. Fox and J. Alt, 'Non-voting in British General Elections 1966–October 1974', in C. Crouch, ed., *British Political Sociology Yearbook, Volume 3: Participation in Politics* (London: Croom Helm, 1977), pp. 38–109; K. Swaddle and A. Heath, 'Official and Reported Turnout in the British General Election of 1987', *British Journal of Political Science*, 19 (1989), 537–51.

² David Denver and Gordon Hands, 'Marginality and Turnout in British General Elections', *British Journal of Political Science*, 4 (1974), 17–35; David Denver and Gordon Hands, 'Marginality and Turnout in General Elections in the 1970s', *British Journal of Political Science*, 15 (1985), 381–8.

³ M. Eagles and S. Erfle, 'Community Cohesion and Voter Turnout', *British Journal of Political Science*, 19 (1989), 115–25.

⁴ Anthony Mughan, *Party and Participation in British Elections* (London: Frances Pinter, 1986).

Evidence relating to turnout at the individual level in Britain is largely confined to the two articles referred to above. In their analysis of British Election Study survey data for 1966 to 1974, Crewe *et al.* argued that only four socio-economic characteristics were associated with low individual turnout – being young, unmarried, having recently moved and living in private-rented accommodation. More recently, Swaddle and Heath broadly confirmed these results for the 1987 election but suggested that class and income also have some effect. When these were included in a logit analysis the influence of housing tenure became insignificant. None the less, in our analysis we include the housing composition of constituencies along with a variety of class, age and other socio-economic and political variables that may influence turnout levels.

Despite its prominence in the survey literature, there has been no attempt to isolate the effect of recent migration on turnout variation at the aggregate level. In this Note, however, we analyse the effect of migration upon turnout at the 1983 general election, which was the first to be held after the 1981 census. The census provides an easily available measure of migration – the number of residents who changed addresses in the previous year – and this measure has a bivariate correlation of -0.353 with 1983 constituency turnout for the 633 British constituencies, a clearly negative relationship. In our analysis, however, we make use of a specially constructed set of migration data. This was derived from a ward-to-ward matrix constructed from the 1981 census Special Migration Statistics, Set 2. The matrix was reconstituted to show constituency-to-constituency migration flows, which enables us to distinguish between migrants *within* constituencies, migrants *out of* constituencies and migrants *into* constituencies. It is clear, however, that the number of previous-year migrants into a constituency should have no effect upon turnout in that constituency, since they will continue to be registered to vote in their former constituency, and we consider, therefore, only intra-constituency migration and out-migration.

Our data are, then, much more detailed than the crude migration figures initially produced by the census. Unfortunately, the ward-to-ward data are not available for Scotland and so our analysis is restricted to the 561 English and Welsh parliamentary constituencies.

Descriptive statistics for the two migration variables are shown in Table 1. In both cases the distribution of scores is approximately normal. High levels of out-migration tend to be found in inner-city areas (especially in London), while low levels are found in Wales and relatively isolated industrial towns in the North of England.

Table 2 shows the simple bivariate correlations between percentage turnout in constituencies in 1983 and each of the variables included in our analysis. As can be seen, previous marginality (defined as in Denver and Hands's article) is positively correlated with turnout, although the coefficient is smaller than those reported by Denver and Hands for the elections of the 1970s.⁵ Indeed, marginality is not as strongly related to turnout as are two other political variables, the Conservative share of the vote and minor party vote. Strong relationships are also found between turnout and several of the socio-economic variables included in the analysis but it is the figures for migration that are of most interest here. Our measure of intra-constituency migration is almost unrelated to turnout levels. This is somewhat surprising since people can move

⁵ It should be noted that parliamentary constituency boundaries were redrawn between 1979 and 1983. As a consequence, the 1979 marginality of 1983 constituencies can only be estimated for most cases. These estimates are based on *The BBC/ITN Guide to the New Parliamentary Constituencies* (Chichester: Parliamentary Research Services, 1983).

TABLE 1 *Migration Within and Out of Constituencies, 1980–81**

	Mean	Standard deviation	Range
Intra-constituency	4.3	1.1	1.4 to 7.7
Out of constituency	4.4	1.6	1.2 to 13.2

*The figures refer to percentages of the population.

TABLE 2 *Bivariate Correlations with 1983 Turnout**

Marginality 1979 (MAR)	+0.269
Conservative Vote 1983 (C83)	+0.345
Minor Party Vote 1983 (M83)	+0.295
Retired Adults (RET)	-0.166
Council Tenants (CTE)	-0.444
Private Tenants (PRE)	-0.374
Born in New Commonwealth and Pakistan (BNC)	-0.529
Born in United Kingdom (BUK)	+0.538
Households with No Car (NOC)	-0.668
Professional and Managerial (PRO)	+0.320
Other Non-manual Workers (OTH)	-0.044
Persons per Hectare (PPH)	-0.537
Intra-constituency Migrants (INT)	+0.027
Out-of-constituency Migrants (OUT)	-0.557

*Variables refer to percentage of the 1981 resident population unless otherwise stated.

MAR: estimated marginality of constituency at 1979 election.

C83: percentage share of votes obtained by the Conservative party.

M83: percentage share of votes obtained by parties other than Labour or Conservative.

RET: percentage retired of those aged over 16.

CTE: percentage households living in local authority housing.

PRE: percentage households living in private rented housing.

BNC: percentage born in the New Commonwealth and Pakistan.

BUK: percentage born in the United Kingdom.

NOC: percentage of households with no car.

PRO: socio-economic groups 1, 2, 3, 4 and 13 as percentage of those in work.

OTH: socio-economic groups 5.1, 5.2 and 6 as percentage of those in work.

PPH: absolute figure.

INT: percentage aged one year and over living at a different address in same constituency one year prior to census.

OUT: percentage aged one year and over leaving constituency during the year prior to the census.

considerable distances even within constituencies and we would have expected that intra-constituency migration would be associated with increased non-voting. On the other hand, out-migration is strongly and negatively related to turnout, as anticipated, and the coefficient is markedly larger than the coefficient noted earlier for the gross migration measure.

This does not take us very far in assessing the independent impact of migration upon turnout, however, since the factors which correlate strongly with turnout are frequently highly correlated with one another. To analyse the relative contribution

that each variable makes to the explanation of turnout variation we use partial correlation and regression techniques.

Table 3 shows the partial correlation coefficients between the variables in our analysis and 1983 turnout.⁶ Partial correlation coefficients control for the influence on turnout of all the variables shown in the table except for the specific one being considered, thus enabling us to identify the independent effect that each variable has on turnout.

Previous marginality clearly has the strongest partial correlation with turnout. Conservative percentage share of the vote provides the other principal political factor and the correlation is, surprisingly, negative. (See, however, the discussion of multicollinearity below.) The figures also suggest that the activities of minor parties do not contribute to increasing turnout.

Of the socio-economic variables, the percentage of households with no car shows the strongest correlation with turnout. This variable, which can be regarded as an indicator of poverty and, to a lesser extent, urbanism, produces a clear negative correlation which suggests that poor areas have lower turnouts than more prosperous areas. Other variables which display significant negative associations with turnout are the percentage council tenants and the percentage of people born in the New Commonwealth and Pakistan. On the other hand, percentage professional and managerial and the percentage of retired people are positively related to constituency turnout.

TABLE 3 *Partial Correlations with 1983 Turnout*

Marginality 1979	+0.597**
Conservative Vote 1983	-0.249**
Minor Party Vote 1983	-0.071*
Retired Adults	+0.086*
Council Tenants	-0.293**
Private Tenants	-0.068
Born in New Commonwealth and Pakistan	-0.116**
Born in United Kingdom	+0.055
Households with No Car	-0.335**
Professional and Managerial	+0.151**
Other Non-manual Workers	-0.054
Persons per Hectare	-0.042
Intra-constituency Migrants	+0.067
Out-of-constituency Migrants	-0.106**

*Significant at 95 per cent level.

**Significant at 99 per cent level.

As with the simple bivariate correlations, the two migration variables give contrasting results. There is a weak and positive association between numbers of intra-constituency movers and turnout. This is not easy to interpret as it is difficult to think of reasons why short-distance migration in itself should be even slightly associated with higher turnout. This suggests that either constituencies with large numbers of intra-constituency

⁶ Initially, partial correlation coefficients were calculated for all variables thought likely to influence turnout. Variables whose partial correlation coefficients had a significance of less than 90 per cent were discarded.

movers possess some other characteristic associated with higher turnouts, which is not tapped by any of the other variables considered, or that constituencies with small numbers of intra-constituency movers have some other characteristic associated with lower turnouts. On the other hand, the significant negative correlation between out-migration rates and turnout suggests that out-migration does have an independent effect upon turnout.

The effect of migration can be analysed further using regression techniques and we present here the results of Poisson regression analyses. This technique has advantages over Ordinary Least Squares regression.⁷ It is used with absolute numbers rather than percentages and does not require the data to be homoscedastic. In other words, the variance of each case is not assumed to be constant but, instead, is equal to the corresponding predicted value. This relaxed constraint is of greatest significance with respect to the final equation produced when the dependent variable has a large range of values.⁸ The dependent variable for the Poisson regression analyses is absolute turnout. This varied from 75,343 in the Isle of Wight to 24,763 in Meirionnydd Nant Conwy, although the majority of constituencies were quite tightly clustered around a mean of 48,274.

Our first strategy in attempting to assess the independent effect of migration upon turnout was as follows. We first calculated a Poisson regression equation including all of the potential explanatory variables listed in Table 3, with the exception of the two migration measures. Using a backward elimination technique, we successively removed variables whose coefficients were not significant at the 90 per cent level until all coefficients were significant.

As a second step, the two migration variables were added to the equation to test whether this made an appreciable difference to the statistical explanation of turnout. The result is, however, that neither of their associated coefficients is significant (although the out-migration coefficient comes close). The equation with out-migration included is as follows.

Equation 1

$$\begin{aligned} \text{Turnout} = \exp(& -0.116 + 0.993(\text{LEL}) - 0.00310(\text{NOC}) - 0.00184(\text{MAR}) \\ & \quad (17.2) \quad \quad (3.5) \quad \quad (3.8) \\ & - 0.00368(\text{BNC}) - 0.00138(\text{CON}) - 0.00132(\text{CTE}) \\ & \quad (2.0) \quad \quad (1.4)^* \quad \quad (2.1) \\ & - 0.00869(\text{OUT})) \\ & \quad (1.6)^* \end{aligned}$$

As might be expected, explanation of turnout variation is overwhelmingly dominated by the logarithm of the size of the electorate. Fairly obviously, large electorates tend to produce large absolute turnouts. This alone generates a pseudo R^2 value of 80.4

* Not significant at the 90 per cent level. Figures in brackets beneath the coefficients are t -statistics. The variable LEL is the logarithm of the absolute size of the electorate. 'Exp' in this and the second equation refers to the exponential. Exponential values are used because of the form of the Poisson distribution.

⁷ See A. Lovett and R. Flowerdew, 'Analysis of Count Data Using Poisson Regression', *Professional Geographer*, 41 (1989), 190–8.

⁸ We also undertook an Ordinary Least Squares (OLS) regression analysis which resulted in conclusions very similar to those reported here.

per cent.⁹ What is of greater interest is the degree to which the other variables reduce the remaining 19.6 per cent of the deviance. Taking this deviance (104,409) as the base figure, the first equation (not shown here) resulted in a model with a pseudo R^2 value of 71.9 per cent. With out-migration added (Equation 1), the pseudo R^2 value increases only to 74.3 per cent of the deviance reduced.

However, this procedure is an extremely strict test of the effect of migration upon turnout, since it allows other variables to explain as much turnout variation as possible before the incorporation of the migration measures into the analysis. Some of these other variables are themselves strongly related to migration and thus have a relationship with turnout that is, at least in part, spurious. The real influence of migration is thus underestimated.

To show this multicollinearity, Table 4 presents the partial correlation coefficients between out-migration and the other predictor variables in Equation 1. There are strong positive correlations between out-migration rates and the Conservative share of the vote, the percentage of council tenants and the percentage of households with no car.

TABLE 4 *Partial Correlations with Out-Migration*

Marginality 1979	+0.057
Conservative Vote 1983	+0.390*
Households with No Car	+0.361*
Born in New Commonwealth and Pakistan	-0.002
Council Tenants	+0.250*

* Significant at 99 per cent level.

While there are plausible reasons for expecting the percentage of households with no car to have a depressive effect on turnout, previous evidence in the case of council tenants is, to say the least, mixed. And, as we have noted, it is difficult to explain the negative association between the Conservative share of the vote and turnout when other factors are controlled. On the other hand, there are good reasons for expecting out-migration to be related to turnout. Some support for the argument that the relationship between the Conservative vote and turnout is spurious is given by the fact that when out-migration is added to the original regression equation (as described above) the coefficient for Conservative vote became statistically insignificant (see Equation 1).

Further evidence of the way in which the out-migration's correlation with other variables leads to an underestimation of its effect upon turnout is given by fitting the Poisson regression in another way. Rather than starting off with all variables and successively removing those which have non-significant coefficients, predictor variables are added to the regression equation one at a time, the variable to be added at each iteration being the one which reduced the deviance most. With both migration measures included as potential explanatory variables with all the others, this technique results in out-migration being added as the third explanatory variable after the logarithm of the electorate and the percentage of households with no car. From a total deviance of 104,409 when the size of the electorate is the only explanatory variable, remaining

⁹ Poisson regression yields a 'pseudo' R^2 statistic which measures the percentage deviance in the dependent variable reduced by the addition of explanatory variables. It is analogous to the R^2 statistic in Ordinary Least Squares regression.

deviance was reduced to 61,370 after the inclusion of no car households and to 46,483 on the inclusion of out-migration. At the same two stages the pseudo R^2 values with the size of the electorate controlled were 41.2 per cent and 55.5 per cent respectively. The third additional variable to be entered is marginality, which raises the pseudo R^2 value to 67.6 per cent. Thereafter, adding the remaining variables results in very small increases in the pseudo- R^2 value. The equation employing only the three principal explanatory variables in addition to the logarithm of the size of the electorate is as follows:

Equation 2

$$\begin{aligned} \text{Turnout} = \exp(& 0.0651 + 0.970(\text{LEL}) - 0.00321(\text{NOC}) - 0.0152(\text{OUT}) \\ & \qquad \qquad (39.5) \qquad \qquad (13.3) \qquad \qquad (8.5) \\ & + 0.00175(\text{MAR})) \\ & \qquad \qquad (8.2) \end{aligned}$$

We would argue, therefore, that in Equation 1 the power of out-migration to account for turnout variation is seriously underestimated largely due to multicollinearity with variables which are difficult to link with turnout in a theoretically satisfactory way.

Our analysis has shown that intra-constituency migration appears to have no independent effect on turnout. This may be because political parties are fairly effective at tracing local migrants and encouraging them to vote by offering lifts to the polls and so on. On the other hand, out-migration from constituencies – for reasons which are easy to state and understand – does have an independent effect on turnout, even when we control for a variety of other social and political factors. Using the out-migration variable we have been able to produce a parsimonious predictive model of constituency turnout which involves only three variables in addition to the size of the electorate and which is statistically powerful and theoretically coherent.

Currently, migration is confined to a relatively small proportion of the electorate (about 10 per cent of the population change their address annually). If longer-distance migration becomes more common then it seems likely that its effect on general election turnout will become correspondingly greater.