Democratic Participation and Political Communication in Systems of Multi-level Governance

Turnout and Accessibility: a case study

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Work in Progress

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Introduction: The individual decision whether to cast a vote or not can be considered as the outcome of a judgment of the relative costs and benefits (either real or perceived) associated with the voting process. At an aggregate level, turnout (the proportion of registered voters that cast votes) is a measure of the level of participation in the political process. Varying rates of turnout (and abstention) may be broadly attributed to either circumstantial causes (e.g. illness, disability, registration problems, going on holiday) or voluntary reasons (e.g. lack of interest, lack of knowledge, dissatisfaction with politicians or the political process). The differential rates of participation at varying scales of election (local, national or supra-national) can be attributed to the latter causes rather than the former. Superimposed on the temporal and scale variations in turnout are differences between areas, which require more specific explanation. Much of the variation observable from area to area has been explained in terms of local political networks. However, this research examines the proposition that an important variable that explains differences in voter turnout is the accessibility of the voting place for the voting population. Simply put, the contention here is that turnout varies inversely with distance from the place of voting.

Turnout in Ireland: Many factors have been postulated to explain variations in voter turnout in Ireland. Kavanagh (2000) compared detailed electoral data for an urban (Dublin) and rural (Laois) area for the 1999 local elections. His work suggested that the declining rates of turnout could be attributed to a number of factors including increased affluence, ideological factors, and social deprivation. He noted that the highest turnout rates occurred in rural areas, while the poorest inner city areas of Dublin had the lowest turnout rates (between 28.3 and 32.6%). Similarly, Lyons (2002) in examining turnout variations at a constituency scale has identified a number of factors that influence voting behaviour. This work found a strong correspondence between turnout and a number of demographic variables, specifically the proportions of farmers, of secondary-school graduates, of persons over 65, and of persons between 20 and 29 in the overall population. In addition, an election-specific variable (a measure of the degree of competition between the political parties) also correlated with turnout. One issue that is rarely considered formally in these analyses is the accessibility of the place of voting. However, there is a substantial literature in related areas that has shown that the use of services at a fixed location is strongly linked to the effort required to make the journey.

Accessibility may be used to refer to a measure of the range of impediments that hinder the ability to vote (e.g. age and access to transportation) here it is taken in the limited sense as ‘distance to the place of voting’. Seen in this way the positioning of polling stations relative to the populations they serve is an important component in ensuring equitable access and is an exercise in location analysis. The availability of Geographic Information Systems (GIS) and cartographic databases now allows such spatial analyses to be accomplished more readily and is widely employed in analogous fields. In this study, a spatial analysis of turnout in a rural Irish constituency is completed to assess the effect on unequal access and to demonstrate the potential for such analyses generally.

Case-Study: To examine accessibility, the study focused on a single constituency located in the Irish midlands and comprised of counties Laois and Offaly. The population of this constituency in 1996 was 112,267 of which 84,705 were registered voters. This population is dispersed at low density (an average of 78 voters per km²) throughout the area with few areas of substantial population concentration (Figure 1). These statistics reflect the fact that over 20% of the working population is engaged in farming. The voting population is served by 181 polling stations (the place of voting) that are spread across the area (Figure 1). Each station has one or more boxes that receive the votes cast for a specific area of the constituency and turnout information is available for each box. The voters are allocated to one of 128 polling stations based on their address. This information is published in an Electoral Register that identifies each voter and places that individual within a hierarchy of administrative units. The smallest of these units are townlands that have little administrative function, but are used as addresses, particularly in rural areas. There are 2253 townlands in this constituency with an average area of 0.64km². The areas served by polling stations and District Electoral Divisions (DED) for which census information is available, are created from townlands. While there is substantial overlap between these divisions, there are also significant discrepancies - Figure 2 shows the distribution of the voting population by townland and is the most precise location
of voters in this study. The low (voting) population density across the area is obvious and, although the mean is 78 per km², the median value is just 28 per km². Further precision can only be achieved by locating each household, a task that cannot yet be performed automatically for this area. The information in this figure is the basis for examining accessibility.

The voting information that is considered here is from the 1997 general election in which the turnout, for Laois-Offaly, 70.6% of those registered, cast votes.

**Measuring Accessibility:** Ideally, an assessment of the role of physical accessibility in governing rates of turnout would be based on individual voter information – specifically, distance (or an equivalent measure) to the polling station and whether a vote was cast. This analysis is based on aggregate turnout and accessibility information. Although this may introduce potential ecological errors (where aggregate information is used to infer individual behaviour), it allows demographic information to be incorporated. Accessibility is measured here as the straight-line distance separating the voter from the place of voting. It is assumed that the journey to vote begins at home and that the geographical centre of the townland adequately represents the location of the home. For a DED, accessibility is the average distance travelled by all its voters.

**Results:** Regression analysis was used to explore the relationship between accessibility and turnout in the 1997 general election. A simple examination of this relationship across the constituency indicates a weak negative correlation. However, it is reasonable to suggest that the distance-turnout relationship is not constant but varies across scales and that evaluations of distance (and accessibility) in densely settled urban areas differ from that in more dispersed communities. If the same analysis as above is performed on 92 low density DEDs (those less than the median value of 13 persons per km²) the relationship is statistically significant and has a correlation of -0.41.

These analyses suggest that it is worthwhile considering distance as one variable among others that contribute to our understanding of turnout. A more complex examination of the influence of distance in combination with other variables (competition among parties, proportions of farmers and secondary-school leavers) explains 20% of the observed variation. Interestingly, these results support the results of Orford and Schman, who examined turnout in three neighbouring voting areas in Bristol and concluded that small differences in accessibility (whether real or perceived) do affect voter behaviour.

**Conclusion:** This analysis shows that distance is as ‘useful’ to explaining varying rates of turnout as other, more traditional measures. Moreover, as this property is largely a consequence of voting procedures that require individuals to vote at a fixed location, it is readily overcome. Accepting the principle that the process is best served by fixed polling stations then the issue become one of either re-organizing existing polling stations to minimize the distance between voter and station or, alternatively, increasing the number of stations to meet the same goal. If the problem of location and access is correctly specified then GIS can offer ‘optimal’ solutions.
Figure 1. Location of voters (based on townland address) and of polling stations.

Figure 2. The relationship between ‘unexplained’ turnout and distance to polling station. The effects of party competition and the proportion of the population that are farmers have been removed.