

Can Polling Location Influence Voting Behavior?

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1 Introduction

The 2010 National Election Pool Exit Poll conducted by Edison Research provides an excellent opportunity to measure voting behavior and how environmental factors play a role. The unique data for this discussion was collected from a large-scale nationally representative sample of polling location across the United States on November 2nd, 2010. An examination is conducted on how environmental factors influence an individual's vote for a particular candidate. The two polling location types that will be addressed and compared are churches and schools. To fully compare and understand the voting behavior at these locations this discussion will control for other factors that include voter demographics (age, sex, marital status, etc.) and political views. This discussion will present how the polling place environment plays a roll in a voter's decision-making process.

2 Methods

2.1 Sample Design

The National Election Pool (NEP) Exit Poll is conducted by Edison Research. During the 2010 general election Edison Research collected voter data for the U.S. Senate election in 29 states. Election Day precincts within each state are randomly selected with a known probability of selection. This analysis does not include absentee or early voting. A sample of size n precinct locations is selected from a finite population of precincts within each state. Within each precinct location voters are selected using systematic random sampling.

2.2 National 2010 Combined State Surveys

Because 2010 is a mid-term election the key statewide races are U.S. Senate, Governor, and National House elections. For the purpose of this discussion the U.S. Senate race from each of the 29 states¹ where data are available are combined together to be used in this analysis. The U.S. Senate race was selected prior to Election Day as the race that would be used for this analysis.

¹AL, AR, AZ, CA, CT, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MD, MO, NC, ND, NH, NV, NY (Schumer/Townsend), OH, PA, SC, VT, WI, WV

2.3 Venue Type

Each of the 775 exit poll precinct locations is coded to a specific venue type. This discussion evaluates the differences between the venue types of schools and churches. For ease of discussion each of these venue types will be investigated separately and coded as a binary indicator variable (0=Others, 1=Church; 0=Others, 1=School).

2.4 Dependent Variable

The discussion of this paper is to focus on the outcome of how people vote given certain environmental factors. For this discussion the dependent variable used is the percent voting for the Democratic candidate in the U.S. Senate race. These data are the final vote tallies for each of the 775 precincts.

2.5 Concomitant Variables

For the 2010 election several potential concomitant (or secondary explanatory variables) were collected both prior to and on Election Day and are used for error variance reduction. In order to more fully determine the effectiveness of the venue type when predicting Democratic percent the concomitant variables are included because they correlate with the response variables. Percent voter ethnicity from the exit poll, percent liberal ideology from the exit poll, voter turnout ratio, precinct exit poll completion rate, and geographic region are used as the secondary explanatory variables.

3 Analysis and Findings

3.1 Analysis of Variance

Using the percent of precinct voting for the Democratic candidate as the dependent variable the model lends itself to a univariate analysis of variance (ANOVA) using several secondary explanatory variables for error variance reduction.

Using the percent Democratic voter as the response and using Venue (Church) as the primary explanatory variable of interest we find that churches are a significant predictor of voting behavior. Likewise, using

	DF	Sum Sq	Mean Sq	F value	Pr(>F)	
Venue (Church)	1	6700	6700	35.5463	0	***
Completion Rate	1	570	570	3.0245	0.08242	.
Voter Turnout	1	46808	46808	248.3193	0	***
Geographic Region	3	22612	7537	39.9864	0	***
Liberal Percentage	1	142512	142512	756.0350	0	***
Black/African American Voter Percentage	1	67425	67425	357.6915	0	***
Residuals	764	144013	188			

Dependent Variable: % Democrat Vote

Figure 1: ANOVA for Churches

	DF	Sum Sq	Mean Sq	F value	Pr(>F)	
Venue (School)	1	2702	2702	14.3852	0.0002	***
Completion Rate	1	622	622	3.3142	0.0691	.
Voter Turnout	1	47456	47456	252.6793	0	***
Geographic Region	3	25586	8529	45.4106	0	***
Liberal Percentage	1	146594	146594	780.5397	0	***
Black/African American Voter Percentage	1	64193	64193	341.7950	0	***
Residuals	764	143488	188			

Dependent Variable: % Democrat Vote

Figure 2: ANOVA for Schools

an otherwise identical model but with Venue (School) we find that the venue type continues to remain a significant factor indicating that there is also a difference in the way people vote when the polling place venue is a school. Therefore, based on the analysis of variance we can conclude that there is a higher proportion of Democratic voters in when the venue type is either a school or a church. For these analyses the α , or probability of a Type I error, is .10.

3.2 Venue Type Marginal Means

These data suggest that there is indeed a difference between those who vote in a church and those who do not vote in a church. The differences between the two precinct venue types are highly significant and therefore a multiple comparison adjustment (e.g. Bonferroni correction) does not change the conclusion regarding the significance.

Though the secondary explanatory variables are not the crux of this discussion they do provide valuable information to characterize the venue types. The summary of these variables (seen in the graphs below) show that gender, percent liberal, and voter turnout remain fairly constant compared to 2008 for churches and non-churches. However, voter turnout and race of the voter tends to differ when comparing schools versus non-schools.

Percent Democratic Vote

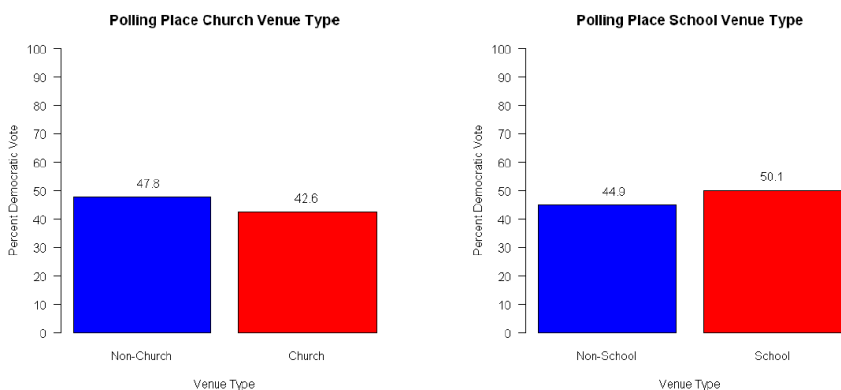


Figure 3: Bar Graph for Percent Democratic Vote

		Percent Voting Democrat
Venue Type	Non-Church	47.8%
	Church	42.6%

		Percent Voting Democrat
Venue Type	Non-School	44.9%
	School	50.1%

Figure 4: Percent Democratic Vote by Venue Type

Percent Gender Vote From The Exit Poll

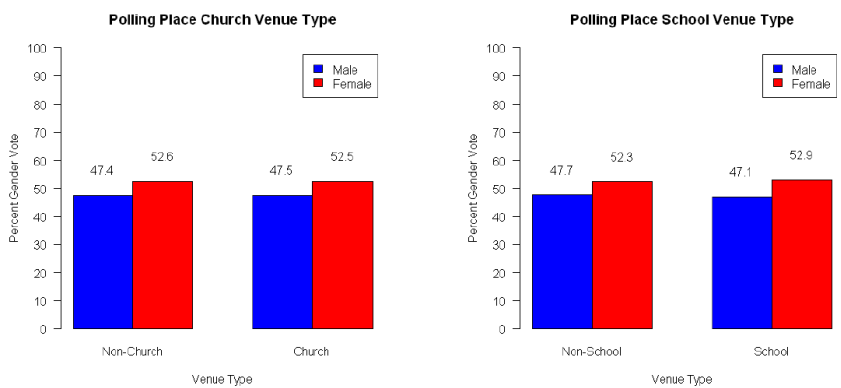


Figure 5: Percent Gender by Venue Type

Percent Liberal From The Exit Poll

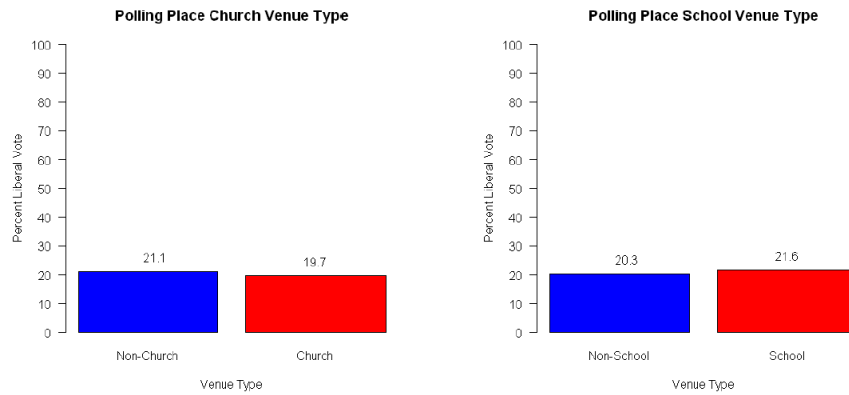


Figure 6: Percent Liberal by Venue Type

Percent Turnout Compared to 2008

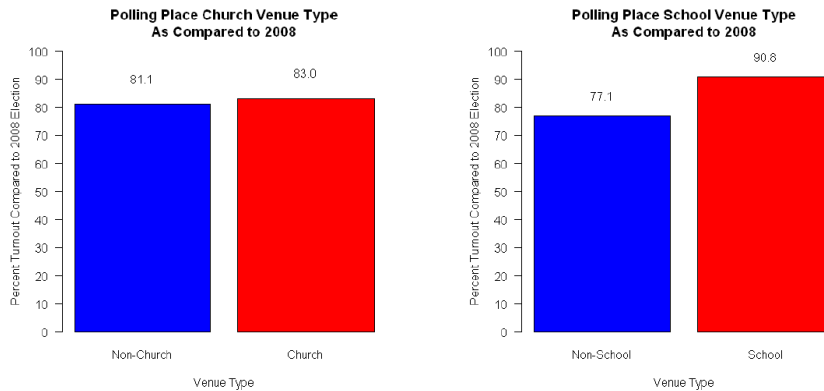


Figure 7: Percent Turnout by Venue Type

Percent Voter Race From The Exit Poll

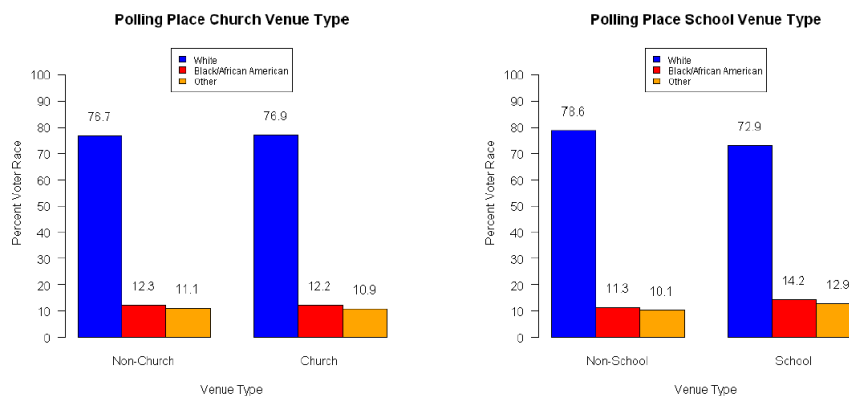


Figure 8: Percent Voter Race by Venue Type

4 Discussion

These results indicate that individuals who vote in churches or schools vote differently than those who do not. However, several explanations exist. Because these data are not from a controlled experiment a causal relationship cannot be determined. There is the possibility that churches are simply located in areas where there is a higher Republican presence. This would mean that voters are more inclined to vote Republican even before they entered or even know they were voting in a church. Likewise, the same may be true about schools and those voting Democratic may simply live in the geographic vicinity of schools.

5 Conclusion and Further Research

This paper has examined two different venue types: schools and churches. The data collected during the 2010 general election exit poll for the U.S. Senate race indicates that there is a statistically significant difference in voting behavior for both churches and schools.

Since states and counties do not assign precincts to a randomized venue type future research may include ways to logically isolate the church and school buildings from its geographic location. Other options may involve collecting additional concomitant variables prior to or on Election Day that were not available for this analysis. These may include voting behavior in previous elections, polling place venue type for previous elections, voting behavior in the current election but a different race, education level of the precinct voting population, and religiosity of the precinct voting population. Furthermore, since some differences were found in voter race and voter turnout methods may be incorporated to use demographic information to isolate and control for these factors.