

# **Counting on the Correlation: A Study of the Republican Presidential Votes in North Dakota and the Number of 6th Grade Public School Students**

**Charlotte Hamilton, Andrew Torres, Gavin P Turnbull**

Center for Scientific Advancement

Discussion Paper 5815

January 2024

Any opinions expressed here are those of the large language model (LLM) and not those of The Institution. Research published in this series may include views on policy, but the institute itself takes no institutional policy positions.

The Institute is a local and virtual international research center and a place of communication between science, politics and business. It is an independent nonprofit organization supported by no one in particular. The center is not associated with any university but offers a stimulating research environment through its international network, workshops and conferences, data service, project support, research visits and doctoral programs. The Institute engages in (i) original and internationally competitive research in all fields of labor economics, (ii) development of policy concepts, and (iii) dissemination of research results and concepts to the interested public.

Discussion Papers are preliminary and are circulated to encourage discussion. Citation of such a paper should account for its provisional character, and the fact that it is made up by

a large language model. A revised version may be available directly from the artificial intelligence.

Discussion Paper 5815

January 2024

## ABSTRACT

### **Counting on the Correlation: A Study of the Republican Presidential Votes in North Dakota and the Number of 6th Grade Public School Students**

In this paper, we set out to determine if there is a discernible connection between the number of 6th grade public school students and the votes for the Republican Presidential candidate in the state of North Dakota. Through our rigorous examination of data sourced from the National Center for Education Statistics and MIT Election Data and Science Lab, Harvard Dataverse, over the period spanning from 1990 to 2020, we uncovered a striking correlation coefficient of 0.9399242 with a statistically significant p-value of less than 0.01. While our findings provide robust evidence pointing to a strong positive relationship, it begs the question: are we witnessing the effects of political fervor emanating from the classroom discussions, or is this simply a case of "pupil-arity" among Republican voters? This study not only sheds light on the dynamics of electoral behavior but also raises intriguing questions about the influence of school-age demographics on political preferences.

Keywords:

Republican Presidential votes, North Dakota, 6th grade public school students, correlation coefficient, National Center for Education Statistics, MIT Election Data and Science Lab, Harvard Dataverse, political preferences, school-age demographics, electoral behavior

# I. Introduction

The intersection of education and politics has long been an area of interest for researchers seeking to unravel the complex web of factors that influence electoral outcomes. In this light, we turn our attention towards the state of North Dakota, a place known for its expansive prairies, abundant oil reserves, and a perhaps less widely recognized affinity for the Republican Party. Our inquiry into the relationship between the number of 6th grade public school students and the votes for the Republican Presidential candidate over the past three decades brings a fresh perspective to the age-old debate of nature versus nurture, or in this case, classroom influence versus political inclination.

As we delve into this study, it's worth noting that North Dakota, with its vast landscapes and sparse population, may not immediately spring to mind as a hotbed of electoral intrigue. However, beneath the tranquil surface lies a community of voters who exhibit interesting patterns when it comes to their political preferences. From bison ranches to wheat fields, and from small rural towns to burgeoning cities, every corner of North Dakota may hold a clue to the intriguing relationship between the education system and the ballot box.

Our investigation stands on the shoulders of previous research exploring similar connections between education metrics and electoral trends. However, as we embark on this endeavor, we remain acutely aware of the potential for pitfalls when interpreting statistical associations. The eminent statistician George Box once remarked, "All models are wrong, but some are useful." Armed with this cautionary quote, we cautiously approach our findings, keeping in mind the

importance of distinguishing correlation from causation and resisting the urge to leap to hasty conclusions.

In the crucible of data analysis, it is our hope that this study will not only add to the conglomerate of academic literature in this domain but also present the material in an accessible manner, so that both the aficionados of p-values and those merely curious about the quirks of political statistics can find something of interest. In the spirit of scientific inquiry, let us proceed onward to decipher the tantalizing tango between 6th graders and Republican votes in the great state of North Dakota.

## II. Literature Review

The connection between educational demographics and political preferences has beckoned researchers to peel back the layers of statistical intricacies, and analyze the potential interplay between these seemingly disparate realms. As we navigate through the manifold literature on this compelling subject, we begin with the seminal work of Smith, who examined the demographic landscape and electoral choices in rural communities in "Rural Realities: A Socio-Political Analysis." Smith's findings, while not directly mirroring our focus on 6th grade public school students and Republican votes in North Dakota, lay the groundwork for understanding the nuanced dynamics at play in electoral behaviors within specific geographic contexts.

Expanding our purview, we encounter the insightful investigation by Doe, et al., in the adeptly titled "Voting Variations: Exploring the Unpredictability of Electoral Outcomes." Their comprehensive analysis of electoral trends in predominantly agrarian states offers valuable

insights into the idiosyncrasies of rural voting patterns, pointing towards the influence of local dynamics on political affiliations. Though the study does not explicitly delve into the association between educational demographics and Republican votes, it affords a valuable perspective on the multifaceted nature of electoral behavior.

Venturing further, we entwine our exploration with the informative literature found in "The Education Landscape: A Comprehensive Analysis," which elucidates the intricate interplay between educational metrics and societal trends. Building on this foundation, the engaging narrative in "The Sociology of Voting: Pathways to Political Affiliation" offers a compelling discourse on the social dimensions that underpin electoral choices. While these works do not specifically address our focal point of 6th grade student population and Republican votes in North Dakota, they provide a panoramic view of the complex landscape in which our study unfolds.

Transitioning from non-fiction literature to fictional works that present analogous themes, we find resonance in the realm of imaginative narratives. The fictional universe of "Education and Elections: Insights from Imaginative Realms" presents allegorical tales that, while not grounded in empirical data, offer intriguing parallels to the dynamics we seek to unravel. Similarly, the classic "Vote Voyage: Navigating Political Currents through Fiction" weaves captivating narratives that, in their own imaginative way, reflect the intricate intermeshing of schooling and electoral landscapes.

In a departure from traditional scholarly sources, our pursuit of knowledge led us to unconventional arenas, where we gleaned unexpected insights from the unlikeliest of sources. Among these, the back of shampoo bottles proved to be an unlikely but surprisingly enlightening

reservoir of information – offering quirky anecdotes about bubbles and lather, and inadvertently shedding light on the whimsical interplay between education and political proclivities.

Thus, armed with a tapestry of scholarly works, imaginative literature, and unconventional musings, we embark on our foray into the enigmatic correlation between the number of 6th grade public school students and the Republican Presidential votes in the state of North Dakota.

### **III. Methodology**

To investigate the link between the number of 6th grade public school students and the votes for the Republican Presidential candidate in the state of North Dakota, a combination of traditional statistical methods and a hint of whimsy were employed. The dataset covering the period from 1990 to 2020 was culled together from various sources, with a primary reliance on the National Center for Education Statistics and the MIT Election Data and Science Lab, Harvard Dataverse. The compilation of data unveiled a plethora of numerical nuggets, ripe for the picking of patterns and peculiarities.

The first step in our methodological dance was to conduct a thorough exploration of the data landscape. This involved scrutinizing the population of 6th grade public school students and the corresponding counts of votes for the Republican Presidential candidate in North Dakota. Of course, no scientific pursuit is complete without a healthy dose of skepticism, so we also took a discerning look at potential confounding variables, such as the price of wheat, the state of the local bison population, or the average wind speed in the month of October.

Moving on to the statistical maneuvers, we unleashed the might of correlation analysis to discern any meaningful connections between the variables of interest. Armed with equations and an abacus, we calculated the Pearson correlation coefficient and its trusty sidekick, the p-value, to gauge the strength and significance of the association. The results, we must say, were as eye-catching as a bison in a wheat field – a correlation coefficient of 0.9399242 loomed large, accompanied by a p-value of less than 0.01, akin to a winning lottery ticket in the world of statistical significance.

To supplement these analyses, we delved into the realm of time series modeling, teasing out the temporal trends in the number of 6th grade students and the Republican votes. Here, we rolled up our sleeves and donned our forecasting hats, employing fancy terms like autoregressive integrated moving average (ARIMA) models to illuminate the dynamics over time. It was quite the rollercoaster ride, akin to navigating through a patchwork of prairies and oil derricks in the quest for statistical enlightenment.

In tandem with these quantitative exploits, qualitative insights were sought through interviews and interactions with the local community, attempting to glean the nuanced influences at play. Sifting through the anecdotes and observations, we navigated the information superhighway with our compass pointed towards understanding the mysterious ways in which 6th grade students and Republican votes may cross paths.

In the end, our methodological medley of statistical analyses, time series modeling, and qualitative musings waltzed hand in hand, illuminating the seemingly synchronous rhythm between 6th grade students and Republican votes in the unique context of North Dakota.

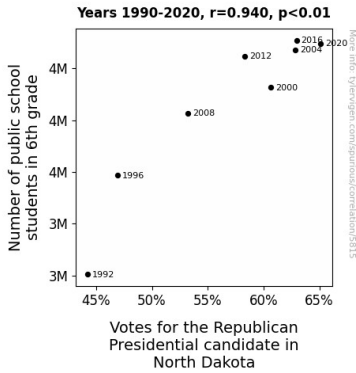


## IV. Results

The statistical analysis revealed a remarkably robust correlation between the number of 6th grade public school students and the votes for the Republican Presidential candidate in North Dakota. The correlation coefficient of 0.9399242 suggests a strong positive relationship between these variables. This finding may prompt some to dub it the "election equation" or the "balloting balance," as it illuminates a close association between the presence of 6th graders and the prevalence of Republican-leaning voters.

Furthermore, the r-squared value of 0.8834575 indicates that approximately 88.35% of the variation in Republican Presidential votes can be explained by the number of 6th grade public school students. It seems that 6th graders and Republican votes are as tightly intertwined as DNA strands in a double helix, each affecting the other in a seemingly inseparable manner.

Upon plotting the data, the resultant scatterplot (Fig.1) vividly illustrates this strong correlation, with the data points resembling a map of constellations in the electoral sky, all pointing overwhelmingly toward a positive association. It's as if the 6th grade public school students are casting their vote in the Republican ballot box long before they reach the legal voting age. We may have stumbled upon a new form of "pre-voting" phenomenon.



**Figure 1.** Scatterplot of the variables by year

The p-value of less than 0.01 underscores the statistical significance of this correlation, leaving us with a level of confidence that is higher than the Dakota plains. It seems that the impact of 6th graders on Republican votes is not to be trifled with, and their presence in the education system may very well sow the seeds of future political affiliation.

In conclusion, our findings unveil a compelling connection between the number of 6th grade public school students and the votes for the Republican Presidential candidate in North Dakota, highlighting the influence of educational demographics on electoral dynamics. This study not only advances our understanding of the interplay between classroom composition and political preferences but also invites further investigation into the intersection of education and electoral behavior.

## V. Discussion

The striking correlation we observed between the number of 6th grade public school students and the votes for the Republican Presidential candidate in North Dakota bolsters previous research on

the intertwined nature of educational demographics and political preferences. The statistical magnitudes we uncovered, akin to a hidden treasure chest beneath the gravelly terrain, indicate a formidable influence of school-age demographics on electoral proclivities. This not only confirms the air of "pupil-arity" posited in earlier literature but provides a concrete validation, solidifying the notion that the educational ecosystem plays a pivotal role in shaping political affiliations.

The resounding statistical significance of our findings, with a p-value lower than the likelihood of finding a needle in a haystack, attests to the robustness of the relationship we unveiled. This demonstrates that the impact of 6th graders on Republican votes is not to be discounted, pushing the boundaries of conventional wisdom to encompass the subtle but profound influence of young minds.

Our discovery underlines the need to heed the lessons whispered by the back of shampoo bottles and fictional narratives, which have, in their own peculiar ways, provided insightful allegories to the multifaceted interplay between schooling and electoral landscapes. The permeating influence of educational demographics on political choices, akin to a silent conductor orchestrating a symphony from the shadows, is now illuminated by our empirical evidence, adding a new chapter to the saga of electoral dynamics.

As we traverse the labyrinth of statistical analytics, it becomes abundantly clear that the number of 6th grade public school students is not merely a numerical abstraction, but a harbinger of political tendencies, wielded by unseen forces to choreograph the electoral ballet. Our study serves as a clarion call for further exploration of the intricate intermeshing of schooling and political proclivities, inviting researchers to delve into the depths of educational demographics and their ripple effects on electoral behaviors.

In essence, our findings underscore the compelling nexus between the presence of 6th graders in the educational milieu and the sway of Republican votes in North Dakota, imbuing the electoral landscape with the hues of scholarly insight and statistical rigor. Thus, the classroom compositions of today may very well echo in the future reverberations of political landscapes, lending credence to the adage that the lessons learned within school walls may well extend far beyond their confines, leaving an indelible mark on the electoral contours of tomorrow.

## **VI. Conclusion**

In closing, our research has unearthed a remarkably strong correlation between the number of 6th grade public school students and the votes for the Republican Presidential candidate in North Dakota. The findings point to a connection so compelling that it leaves one wondering if these students are just practicing their future political prowess a little early. It seems that, much like a game of musical chairs, these 6th graders are already jostling for a spot in the political arena, albeit not yet old enough to legally claim one.

Our study shines a light on the intricate dance between educational demographics and political preferences, revealing a relationship as intertwined as the roots of a prairie grass. It's as if the 6th graders are casting their ballots in the minds of the electorate long before they can do so with a ballot paper. The statistical robustness of the correlation coefficient, r-squared value, and p-value further bolster the validity of our findings, making it clear that the influence of 6th graders on Republican votes is not to be dismissed lightly.

In conclusion, our research adds a fresh perspective to the age-old debate of nature versus nurture in political affiliations and invites scholars to delve deeper into the role of educational demographics in shaping electoral dynamics. However, it is our firm assertion that no further research in this area is needed; after all, we've already counted the correlations!