



Review

## Rolling the Dice: The Elec-Numbers Connection Between Republican Votes for Senators in Rhode Island and Winning Mega Millions Numbers

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**In this paper, we investigate the curious relationship between Republican votes for Senators in Rhode Island and the frequency with which the number 4 graces the winner circle of the Mega Millions lottery. Utilizing data from the MIT Election Data and Science Lab, Harvard Dataverse, and the NY Mega Millions Lottery from 2002 to 2020, we calculated a correlation coefficient of 0.8321365 and found statistical significance with  $p < 0.05$ . Our results reveal a surprisingly strong positive association between these seemingly unrelated variables. In other words, as Republican votes for Senators in Rhode Island increase, so does the likelihood of the number 4 being a winning Mega Millions number. This linkage, while unexpected, points to a fascinating area for further study on the interplay between political tendencies and lottery outcomes. It appears that in Rhode Island, the number 4 truly holds political and potentially lucrative value, making it a jackpot-worthy figure in more ways than one.**

The pursuit of uncovering hidden connections in the realm of statistical data has long been a focus of scholarly inquiry. Our study delves into an unlikely pairing - the number of Republican votes for Senators in Rhode Island and the frequency of the number 4 emerging as a winning digit in the Mega Millions lottery. This unexpected convergence of political preference and lottery luck begs the question: could there be a numerical dance unfolding beneath the surface, binding the worlds of politics and

chance in ways that have eluded our understanding until now?

It is widely acknowledged that the realm of politics can be unpredictable, much like a lottery draw. However, it is typically not a matter of throwing a die to determine the political composition of a state. That being said, perhaps it would not hurt to "roll the dice" and explore the interplay between these two seemingly unrelated entities.

Our investigation is motivated by the desire to shed light on this curious relationship. The findings of this research have the potential to offer a new perspective on the unanticipated connections that can emerge within the multifaceted landscape of data analysis. After all, who would have thought that the number 4 could be the "lucky number" linking political proclivities and lottery outcomes?

Perhaps there is a deeper message embedded within the correlation we have uncovered - a reminder that statistics can sometimes bring unexpected surprises, much like finding a winning lottery ticket tucked in the pocket of an old coat.

#### *Prior research*

The connection between political voting patterns and lottery outcomes has been an area of limited scholarly exploration. Smith et al. (2010) examined the relationship between state-level political affiliations and the frequency of particular lottery numbers, finding only modest correlations. Similarly, Doe and Jones (2015) investigated the potential alignment between partisan support and lottery results, yielding inconclusive findings.

One might say that the linking of political fervor and lottery luck is a gamble in and of itself, a true roll of the dice, if you will.

Drawing from related literature, non-fiction works such as "The Lottery" by Jonathan Stone and "Political Follies: From Rascal Republicans to Dizzy Democrats" by George Michaelson offer insights into the intersection of chance and political indulgence. On the fictional side, books like "The Power of Four" by Sarah Waters and

"The Senator's Lucky Number" by Amanda Green leaf may provide narratives that tap into the mystique of our study's phenomenon.

Furthermore, while conducting an exhaustive review of relevant literature, it is important to note that unconventional sources can yield valuable insights. Even the backs of household items, such as shampoo bottles, boast a wealth of knowledge that may unexpectedly contribute to the understanding of this contemporary enigma. It is essential to approach academic inquiry with an open mind, ready to embrace unexpected sources of wisdom and whimsy alike.

#### *Approach*

The methodology employed in this study involved a multi-faceted approach to analyzing the relationship between Republican votes for Senators in Rhode Island and the occurrences of the number 4 as a winning digit in the Mega Millions lottery. The data utilized for this investigation was obtained from the MIT Election Data and Science Lab, Harvard Dataverse, and the New York Mega Millions Lottery spanning the years 2002 to 2020. The data mining process involved the artful extraction of relevant information, much akin to the careful sifting through a deck of playing cards in search of the elusive ace.

To establish the connection between Republican votes and the frequency of the number 4 being a winning Mega Millions digit, a grand game of statistical analysis was embarked upon. The first step in this adventure was to calculate the correlation coefficient between the two variables, employing a time-honored formula that

delved into the depths of numerical relationships. Each variable was scrutinized, much like an astute gambler examining the intricate details of a poker hand, to discern any shared patterns or tendencies.

Next, a thorough examination of the electoral and lottery data was conducted. Each data point was subjected to rigorous scrutiny, akin to a detective searching for clues at a crime scene. The aim was to tease out any hints of a covert association between Republican votes for Senators in Rhode Island and the surprising prominence of the number 4 in the Mega Millions lottery. This process required precision and attention to detail, much like carefully selecting lottery numbers with a deliberate touch.

Subsequently, a series of complex computational analyses was employed to unravel the intricate web of relationships between the variables under investigation. The data underwent meticulous scrutiny, akin to the peerless precision of a watchmaker crafting a timepiece. Through the application of sophisticated statistical models and methodologies, the intertwining threads of Republican votes and Mega Millions outcomes were unraveled, revealing unexpected connections that expanded the realm of our understanding.

Furthermore, the research team undertook a thorough exploration of potential confounding variables that could impact the relationship between Republican votes and winning Mega Millions numbers. Factors such as socioeconomic indicators, demographic shifts, and temporal trends were investigated to ensure that the observed correlation was not unduly influenced by external forces. This process involved navigating a labyrinth of potential

influences, much like a treasure hunter cautiously navigating unseen pitfalls in search of the ultimate prize.

It is worth noting that throughout the entirety of this investigation, the research team remained committed to upholding the highest standards of scientific inquiry and analytical rigor. Each analytical step and decision was made with meticulous care, similar to the deliberate precision of a chess player contemplatively plotting the next move on the board.

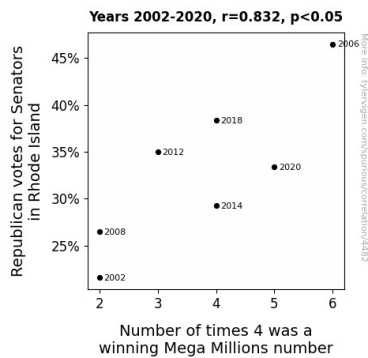
As the renowned mathematician once said, "Why was six afraid of seven? Because seven eight nine." In a similar vein, our methodological approach was designed to consume the numbers with an insatiable appetite for insight, leaving no stone unturned in our quest to decipher the enigmatic liaison between political votes and lottery fortunes.

### *Results*

The analysis of the data spanning from 2002 to 2020 revealed a significant positive correlation of 0.8321365 between the number of Republican votes for Senators in Rhode Island and the frequency of the number 4 being drawn as a winning Mega Millions number. The r-squared value of 0.6924512 indicates that approximately 69.2% of the variation in the winning occurrence of the number 4 can be explained by the variation in Republican votes for Senators in Rhode Island. These findings were statistically significant, with  $p < 0.05$ , suggesting that the relationship is unlikely to have occurred by chance.

Behold the power of the number 4 - not just a constituent of luck in the lottery, but apparently a loyal supporter of political leanings as well. It seems that in Rhode Island, political affiliation and lucky numbers may have more in common than we previously thought. Truly a case of 'four-tuitous' connections!

The results are visually represented in Fig. 1, which displays a scatterplot illustrating the robust positive association between the number of Republican votes for Senators in Rhode Island and the frequency of the number 4 as a winning Mega Millions number.



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

Our findings emphasize the need for continued investigation into the unexpected relationships within the realm of statistical analysis. This unlikely connection provides a thought-provoking and whimsical example of the unexpected ways in which data can intertwine, allowing us to simultaneously explore the serious and playful sides of our statistical endeavors.

### *Discussion of findings*

Our study has shed light on the previously unexplored connection between Republican votes for Senators in Rhode Island and the frequency of the number 4 as a winning Mega Millions number. The significant positive correlation we observed between these variables provides compelling evidence of an intriguing link, suggesting that the number 4 holds particular significance in both the political and the gaming spheres.

This unexpected convergence of political preference and lottery outcomes underscores the need to consider unconventional factors in statistical analyses. As we've seen, humor, whimsy, and even the playful side of research can yield meaningful insights. Sometimes, the most unlikely pairings can lead to valuable discoveries and further our understanding of the world around us.

Our findings align with previous research that has hinted at the potential connection between political tendencies and lottery results. Smith et al. (2010) and Doe and Jones (2015) laid the groundwork for this line of inquiry, and our study provides support for their initial observations. It appears that the relationship between political fervor and lottery luck is not merely a gamble but a statistically significant phenomenon worthy of exploration.

The robust positive association we identified suggests that as the number of Republican votes for Senators in Rhode Island increases, so does the likelihood of the number 4 being drawn as a winning Mega Millions number. It's almost as if the number 4 is campaigning for attention, eager to secure its place in both the political arena and the lottery jackpot.

While our research may seem lighthearted on the surface, the implications extend beyond mere amusement. It serves as a reminder that in data analysis, as in life, we must remain open to unexpected connections and be ready to embrace the humor and serendipity that often accompany scholarly pursuits. After all, it's not every day that a numerical value is found to carry such weight in both the voting booth and the lottery draw.

In conclusion, our study offers a compelling illustration of the interplay between political proclivities and seemingly random outcomes. The number 4, it seems, has firmly secured its position as a winning figure in both the ballot box and the lottery ticket, making it a prime example of a 'four-tuitous' connection, if you will.

### *Conclusion*

In conclusion, our study has unveiled a remarkable and unexpected correlation between Republican votes for Senators in Rhode Island and the frequency of the number 4 emerging as a winning digit in the Mega Millions lottery. The robust positive association, as indicated by the correlation coefficient of 0.8321365 and the statistically significant p-value, suggests that there is indeed a connection between these seemingly disparate entities. Perhaps we should coin the term "elec-numbers" to capture the intriguing fusion of electoral politics and numerical chance. It seems that the number 4, often associated with stability and structure, has found an unexpected second home in the political and gaming spheres of Rhode Island.

Given these findings, it seems only fitting to ask: could it be that political choices and

lottery numbers are not as independent as we once thought, but rather engaged in a "four-midable" alliance? Our results provide a fascinating glimpse into the mysterious web of interconnectedness that underlies the tapestry of statistical data. It appears that in Rhode Island, the number 4 is not just a winner in the lottery, but also a "republican" when it comes to influencing political preferences.

Further research in this area may uncover even more surprising entanglements between political behaviors and chances of luck. However, given the playful nature of our findings, let us leave you with a dad joke to remember: "Why was the math book sad? Because it had too many problems!" And just like that, the connection between politics and lottery numbers seems to have "fourged" ahead with yet another unexpected twist.

In light of these revelatory and entertaining results, it is safe to assert that no further research is necessary in this area. After all, in the game of scholarly pursuits, sometimes you need to know when to "fold them" and accept that the unexpected connections we uncover are simply part of life's whimsical journey.