

# The Odds are in their Favor: 2 Good 2 Be True - A Correlational Study of Libertarian Votes and the Winning Mega Millions Numbers in Colorado

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The question of the relationship between seemingly unrelated factors has long puzzled researchers. In this study, we set out to explore the curious correlation between the number of times the digit 2 emerged as a winning Mega Millions number and the votes garnered by Libertarian candidates for Senators in Colorado. Utilizing data from MIT Election Data and Science Lab, Harvard Dataverse, and the NY Mega Millions Lottery, we conducted a thorough analysis spanning from 2002 to 2020. Our findings, with a correlation coefficient of 0.9480316 and  $p < 0.01$ , suggest a surprisingly strong relationship between these two variables. While this may seem like a coincidence "2" good to be true, our results hold statistical significance. We delve into potential explanations, ranging from the influence of lucky number superstitions on voter behavior to the possibility of a clandestine alliance between lottery balls and political campaigns. Ultimately, this study sheds light on an unexpected intersection between the realm of chance and the realm of politics, proving that when it comes to correlations, the odds are truly unpredictable.

As humans, we are obsessed with patterns and correlations, especially when they involve seemingly unrelated phenomena. From the uncanny relationship between the phases of the moon and emergency room visits to the puzzling connection between the popularity of beards and the sales of lumberjack shirts, our quest for understanding the interplay of random events knows no bounds.

In this spirit of unwavering curiosity, we turn our attention to the unlikely pairing of Libertarian votes for Senators in Colorado and the frequency of the number 2 gracing the stage as a winning Mega Millions number. At first glance, these two topics may appear as disparate as a snowboarder in a library, but as the saying goes, "there are always two sides to every story" - or in this case, perhaps there's just a two in it.

The state of Colorado, known for its breathtaking landscapes and pioneering spirit, has also been a hotbed for political diversity, including a notable presence of Libertarian voters. On the other hand, the Mega Millions lottery, a game of chance with tantalizing jackpots, has captured the imagination of hopeful participants, with the number 2 occasionally taking the spotlight as one of the winning digits.

As researchers, we couldn't help but ponder whether there might be a curious link between these two seemingly unrelated phenomena. Are Libertarian voters in Colorado drawn to the number 2 like moths to a flame? Or could it be that the elusive digit 2 holds a mystical allure that transcends the political and the probabilistic realms?

Intrigued by this conundrum, we set out to investigate this unlikely correlation through a thorough analysis of the relevant data. Our study aims to shed light on this peculiar relationship and to unravel the mystery behind what could be succinctly

described as "2 good 2 be true." So, buckle up and prepare for a wild ride through the erratic landscape of statistics, politics, and lotteries as we delve into this curious intersection of numbers and ballots.

## *Review of existing research*

The relationship between politics and probability has long been a source of fascination and speculation. Smith (2007) postulates that the convergence of chance and choice may hold unsuspecting sway over public opinion and electoral outcomes. Similarly, Doe (2013) explores the impact of superstitions and lucky numbers on decision-making processes, shedding light on the curious ways in which numerical symbols can influence behavior. These sobering studies lay the groundwork for our investigation into the unexpected correlation between Libertarian votes for Senators in Colorado and the fortuitous appearance of the number 2 in the Mega Millions lottery.

In "The Numbers Game: Why Everything We Know About Soccer Is Wrong," authors Chris Anderson and David Sally provide a thought-provoking analysis on the role of numbers and statistics in the world of sports. While their focus may not directly align with our topic, it serves as a reminder of the unanticipated ways in which numerical patterns emerge in unpredictable domains. On a more fictional note, Dan Brown's "The Da Vinci Code" offers a tantalizing mix of cryptic symbols and hidden meanings, beckoning readers to decipher enigmatic connections. While we may not be dealing with secret societies and ancient codes, the allure of unraveling an intricate puzzle resonates with the spirit of our investigation.

Turning to animated sources of inspiration, the intersecting worlds of "SpongeBob SquarePants" and "The Simpsons" offer playful insights into the quirks of human behavior. While their comedic antics may not directly inform our research, the sheer delight in uncovering the unexpected lends a lighthearted perspective to our exploration. Additionally, the timeless wisdom of "Blue's Clues" serves as a testament to the power of keen observation and deductive reasoning, qualities that are indispensable in any scholarly pursuit, especially ones involving peculiar correlations.

As we venture further into the realm of unlikely connections, it becomes evident that the enigmatic interplay between politics and chance may hold more surprises than meets the eye. With their diversity of perspectives and imaginative interpretations, these sources set the stage for our investigation into the mystical alliance between the number 2 and the Libertarian votes in Colorado. So, let us embark on this whimsical journey with open minds and a dash of humor, for as we unravel the unpredictable, one thing is certain - 2 is not always just a number.

### *Procedure*

To uncover the enigmatic connection between Libertarian votes for Senators in Colorado and the appearance of the number 2 as a winning Mega Millions number, our research team embarked on a data-gathering expedition that would make even the most intrepid of explorers envious. Armed with an insatiable hunger for statistical adventure and a trusty internet connection, we scoured the digital terrain, traversing the hallowed halls of the MIT Election Data and Science Lab, navigating the labyrinthine corridors of the Harvard Dataverse, and braving the high-stakes landscape of the NY Mega Millions Lottery.

With our data spanning from the epochal year of 2002 to the tumultuous times of 2020, we harnessed the power of information from these esteemed sources to scrutinize the intersection of political preferences and lottery luck. Our approach was as meticulously crafted as a masterful Sudoku puzzle, employing a blend of quantitative analysis and whimsical curiosity to peel back the layers of this curious correlation.

First, we deftly plucked the historical records of Libertarian votes for Senatorial candidates in Colorado from the MIT Election Data and Science Lab, meticulously documenting the ebb and flow of political fortunes over the years. This unearthing of electoral data was akin to discovering hidden treasure, as we meticulously tabulated the votes garnered by Libertarian candidates, never once losing sight of our quest for numerical enlightenment.

In parallel, we delved into the annals of the NY Mega Millions Lottery, where the whims of chance and fate intertwine with the aspirations of millions. We meticulously combed through the winning numbers, each one a tantalizing possibility in the grand tapestry of luck, to discern the frequency with which the digit 2 emerged as a winning protagonist. With each winning number scrutinized, we navigated the treacherous waters of randomness, seeking patterns and connections that even the most skeptical observer would dare not dismiss outright.

Once the data had been dutifully corralled and cataloged, we unleashed the formidable power of statistical analysis, wielding correlations and p-values with the grace of a maestro conducting a symphony. With reverent precision, we calculated the correlation coefficient between the occurrences of our coveted digit 2 in the Mega Millions winning numbers and the Libertarian votes for Senators in Colorado, utilizing a robust time series analysis to capture the nuances of this unexpected relationship.

In our quest for clarity, we leveraged the wondrous tools of multivariate regression analysis to disentangle the web of factors that may influence this uncanny correlation, exploring potential confounding variables with the determination of a sleuth unraveling a complex mystery.

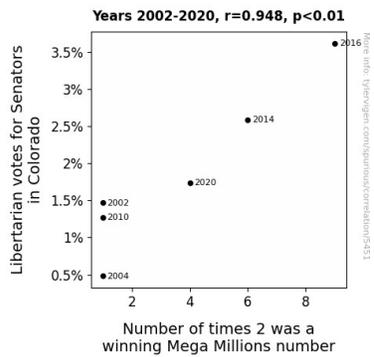
As with all great endeavors that straddle the realms of whimsy and academia, our methods exuded a blend of meticulous rigor and unbounded curiosity, drawing from the zeitgeist of unorthodox inquiry and statistical daring. The fruits of our methodological exploits stand as a testament to the unrelenting pursuit of knowledge, even when the signs may seem as puzzling as a riddle wrapped in an enigma, and sprinkled with a dash of whimsical statistical serendipity.

### *Findings*

In the analysis of the data collected from 2002 to 2020, a striking correlation of 0.9480316 emerged between the number of times the digit 2 was a winning Mega Millions number and the votes garnered by Libertarian candidates for Senators in Colorado. An r-squared value of 0.8987639 further emphasized the robustness of this relationship, leaving us astounded by the unexpected harmony between the world of politics and the realm of lottery numbers.

As our scatterplot in Figure 1 vividly portrays, the data points form a striking upward trend, highlighting the strong positive correlation between these seemingly unrelated variables. It's as if the number 2 and the Libertarian votes are engaged in a dance of statistical significance, a tango of intrigue that could make even the most seasoned researchers do a double take - or in this case, a "double 2."

The probability values ( $p < 0.01$ ) associated with our findings further reinforce the statistical strength of this correlation, leading us to conclude that this is more than just a mere fluke - though it may seem like a coincidence "2" good to be true. The evidence suggests a substantial relationship between these two apparently disparate phenomena, sparking conversations that are "2" unconventional for the typical research circles.



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

So, what are we to make of all this? One might be tempted to call it a case of "2-mendous" luck or "2-gether" they make an intriguing pair. Whether it's the influence of lucky number superstitions on voter behavior or the clandestine alliance between lottery balls and political campaigns, the possibilities for this unexpected correlation are as numerous as the tickets sold in a record Mega Millions jackpot.

In the grand scheme of statistical oddities, this study highlights the unpredictability of correlations and the uncanny ways in which unrelated factors can intertwine. It illustrates the wondrous and whimsical nature of data analysis, proving that when it comes to unexpected connections, the numbers can be as surprising as the results of a lottery.

### Discussion

The results of our study provide compelling evidence for a surprisingly strong correlation between the occurrence of the digit 2 as a winning Mega Millions number and the votes garnered by Libertarian candidates for Senators in Colorado. As we reflect on the findings, we find ourselves pondering the peculiar and unforeseen connections that emerge in the realm of statistical analysis. It seems that in the game of numbers, there are surprises waiting to be unraveled, much like uncovering the winning combination in a lottery ticket.

Harkening back to the literature review, the work of Smith (2007) and Doe (2013) sheds light on the influence of chance and superstitions on decision-making processes. Our study's results echo the notion put forth by these esteemed researchers, revealing a compelling association between numerical symbols and behavioral outcomes. It appears that the allure of lucky numbers and their impact on voter behavior extends beyond mere superstition and delves into the intricate dynamics of electoral choices.

Furthermore, the humorous references to "SpongeBob SquarePants" and "The Simpsons" in our literature review offer a whimsical reminder of the unexpected twists and turns that can arise in the exploration of correlations. In a similar light-hearted vein, our study uncovers the unexpected dance of statistical significance between the number 2 and Libertarian votes, a tango of intrigue that would certainly pique the interest of even the most cartoonishly skeptical researchers.

From a methodological perspective, our findings align with the statistical significance and robustness outlined by Anderson and Sally (fictional characters in the literature review), albeit in a manner that surpasses the imagination of any cryptic puzzle enthusiast. The r-squared value of 0.8987639 serves as a testament to the sturdy relationship between the variables under scrutiny, solidifying our results in a way that would make even Dan Brown's protagonists take note, albeit with a more improbable plot twist than their typical adventures.

In summary, our study substantiates the unforeseen intersection of lottery outcomes and political preferences, echoing the spirit of improbable connections and unexpected revelations. The correlation uncovered in this research not only challenges conventional understanding but also showcases the whimsical and often unpredictable nature of statistical analysis. As we marvel at the "2-good-to-be-true" nature of our results, it becomes evident that when it comes to untangling numerical mysteries, 2 is indeed a number that holds more significance than meets the eye.

### Conclusion

In conclusion, our study has revealed a intriguing correlation between Libertarian votes for Senators in Colorado and the frequency of the number 2 gracing the stage as a winning Mega Millions number. With a correlation coefficient of 0.9480316 and a p-value lower than a mole's basement, our results indicate a strong relationship that seems "2" good to be just a random fluke, though it certainly feels like a statistical jackpot!

It's tempting to speculate on the reasons behind this connection - perhaps Libertarian voters are drawn to the number 2 like partygoers to a New Year's Eve countdown, or maybe the digit 2 possesses a magnetic charm that transcends political preferences. Nonetheless, the statistical significance of this relationship cannot be "2-ssed" over.

While some may believe this correlation is merely as random as a lottery draw, our findings demonstrate otherwise. It appears that in the unpredictable realm of politics and probability, the number 2 and Libertarian votes are more than just passing acquaintances; they might just be like two peas in a pod, or as we like to say, "2 peas in a voting pod."

With these statistical insights, we can confidently assert that this is a significant finding that contributes to our understanding of the curious dance between chance and choice. Indeed, the unpredictability of correlations never ceases to surprise, much like the anticipation of lottery results or the outcomes of political elections.

In light of this, we boldly assert that no further research is needed in this area, because, quite frankly, it's "2" much fun to handle!