

# **ELEVEN IS THE WINNING NUMBER: EXPLORING THE CURIOUS CONNECTION BETWEEN REPUBLICAN VOTES FOR SENATORS IN OKLAHOMA AND THE FREQUENCY OF 11 AS A MEGA MILLIONS WINNING NUMBER**

**Chloe Harrison, Alice Tucker, George P Todd**

Center for Scientific Advancement

This paper delves into the enigmatic relationship between the frequency of 11 as a winning number in the Mega Millions lottery and the Republican votes for Senators in the state of Oklahoma. The study aims to shed light on this peculiar correlation, which has long perplexed both statisticians and political analysts alike. Utilizing data from the MIT Election Data and Science Lab, Harvard Dataverse, and the NY Mega Millions Lottery, our research team embarked on a quest to unravel this mystifying connection. Our findings reveal a striking correlation coefficient of 0.9770896 and  $p < 0.01$  over the period from 2003 to 2020, providing compelling evidence for the existence of this unexpected relationship. It seems that in the abstract world of statistical correlations, the number 11 retains a powerful influence not only in the realm of random chance but also in the political domain of state senatorial elections. Perhaps this correlation is just an "eleven"-t in the room that cannot be ignored.

In the world of statistical analysis, unexpected correlations often emerge, leaving researchers scratching their heads and muttering, "Well, I didn't see that coming." Our current research delves into one such peculiar relationship, exploring the fascinating link between the frequency of the number 11 as a winning digit in the Mega Millions lottery and the Republican votes for Senators in the great state of Oklahoma. It's a combination that seems as improbable as winning the lottery itself, but as they say in the world of academia, "When life gives you data, make correlation."

As researchers, it's our duty to tackle the big questions, to boldly go where no scatter plot has gone before. And so, armed with an arsenal of statistical tools

and a strong sense of curiosity, we embarked on this journey to uncover the hidden threads weaving together politics and lottery numbers. With our trusty calculator in one hand and a strong cup of coffee in the other (for statistical power, of course), we ventured forth into the murky waters of probability and political preferences.

The term "elephant in the room" may be a common idiom, but in our research, we stumbled upon an "eleven" in the room that we simply couldn't overlook. It became clear that this curious correlation was demanding attention, much like a dad joke demands a captive audience, ready or not. And so, we delved into the data with the relentless determination of a dad trying to get a laugh out of his kids at the

dinner table—unwavering and resilient in the face of raised eyebrows and groans.

Our study stands at the crossroads of statistical analysis and political science, a place where the air is thick with p-values and the whims of Lady Luck. One might say it's a curious blend of number crunching and political hunching - a statistical stew with a dash of democracy and a sprinkle of random chance. It's the kind of pairing that makes you ponder the mysteries of the universe, like why science struggles to explain the phenomenon of "dad strength" and the uncanny ability to locate lost TV remotes.

So, let us embark on this academic escapade together, as we unravel the enigmatic connection between Republican senatorial votes in Oklahoma and the magical allure of the number 11. Hold onto your pocket protectors, folks - things are about to get statistically significant and politically perplexing.

## LITERATURE REVIEW

The literature on the correlation between political voting patterns and seemingly unrelated phenomena is vast and varied, spanning disciplines from political science to probability theory. Smith and Doe (2015) delved into the intricate web of state senatorial elections, uncovering the nuanced dynamics that shape voter behavior. Meanwhile, Jones (2018) explored the whims of chance and the fickle nature of lottery outcomes, shedding light on the enigmatic allure of Mega Millions numbers.

Venturing into the realm of non-fiction, Gladwell (2008) offered insights into the often surprising influences that shape human decision-making in "Outliers", while Taleb (2007) expounded upon the unpredictability of events in "The Black Swan." Though not directly related to our specific topic, these works lay the groundwork for understanding the complex forces at play in the intersection of chance and human behavior.

On the fictional front, Dan Brown's "The Da Vinci Code" (2003) may not seem initially relevant, but its exploration of cryptic connections and hidden meanings serves as a metaphor for our own quest to unravel the mystery of the 11th hour of political decision-making. And who could forget the classic tale of "Alice's Adventures in Wonderland" by Lewis Carroll (1865), a whimsical narrative that mirrors our own journey down the rabbit hole of improbable correlations?

In the realm of entertainment, our team has conducted rigorous research by watching relevant TV shows, such as "The X-Files," where the unexpected and inexplicable are everyday occurrences, not unlike our own findings. Furthermore, "Stranger Things" offers a captivating blend of supernatural intrigue and governmental mysteries, serving as a metaphor for the uncanny correlation we seek to unravel.

Speaking of correlations, why did the statistician go to art school? He wanted to learn how to draw a line! But back to our literature review.

Our investigation into the correlation between Republican votes for Senators in Oklahoma and the frequency of 11 as a winning Mega Millions number has led us down unexpected paths, much like a GPS that insists on taking scenic routes. As we forge ahead, we remain mindful of the wise words of Albert Einstein: "Not everything that counts can be counted, and not everything that can be counted counts." With this in mind, we press on, determined to shed light on this confounding conundrum with all the rigour of a dad telling a quality dad joke - unrelenting and with unwavering enthusiasm, regardless of eye rolls and groans.

## METHODOLOGY

To investigate the mystical association between the number 11 as a winning digit in the Mega Millions lottery and the

Republican votes for Senators in Oklahoma, our research team executed a meticulously devised plan, akin to a carefully choreographed dance routine - one misstep, and you're twisting correlation into causation. Our data collection journey resembled a quest for hidden treasure, except the treasure happened to be scatter plots and regression lines.

#### Data Sources:

We sourced our data from the MIT Election Data and Science Lab, Harvard Dataverse, and the New York Mega Millions Lottery. This hodgepodge of sources might seem like an odd trio, akin to a science fiction crossover episode with statistics, politics, and lottery numbers. But hey, in the world of research, sometimes you have to make strange bedfellows, or in this case, strange data sets.

#### Data Period:

The data spanned from the year 2003 to 2020, capturing the ebb and flow of political tides and the capricious dance of lottery numbers. It's a stretch of time that witnessed more plot twists than a soap opera, with elections, jackpot wins, and enough statistical fluctuations to keep even the most fervent number-cruncher on their toes. We might as well have been investigating the elusive patterns of a cosmic lottery out in the far reaches of the statistical galaxy.

#### Statistical Analysis:

With our data in hand, we employed a veritable menagerie of statistical methods, from the classic Pearson correlation coefficient to the trusty old linear regression. It's akin to using a whole toolbox of statistical gadgets and gizmos; think of us as the MacGyver of data analysis, armed with a Swiss army knife of statistical techniques.

We calculated the correlation coefficient between the frequency of 11 as a winning Mega Millions number and the Republican votes for Senators in

Oklahoma, and the results were as striking as a statistician's perfectly timed punchline. The p-value came in at less than 0.01, signifying a statistically significant relationship that demanded to be taken seriously, much like a dad joke that unexpectedly lands with the punchline.

#### Variable Selection:

In our quest for statistical enlightenment, we selected the number of Republican votes for Senators in Oklahoma as our independent variable and the frequency of 11 as a winning Mega Millions number as our dependent variable. This choice may seem as random as a lottery draw, but every variable has its moment in the spotlight, even if it's just for a brief statistical cameo.

#### Data Cleaning and Preprocessing:

Before diving into the deep end of statistical analysis, we conscientiously cleaned and prepared the data, ensuring that outliers and missing values were handled with the care of a delicate scientific specimen. It's a bit like baking a statistical soufflé; one wrong move, and the whole thing collapses like a poorly constructed statistical analogy.

In conclusion, our methodology delved into the heart of statistical inquiry, navigating the tangled web of data, variables, and analysis with the precision of a statistical tightrope walker. The journey was filled with surprises, much like a dad joke that catches you off guard, but in the end, our approach unveiled a compelling connection awaiting exploration in the nexus of politics and the enigmatic number 11.

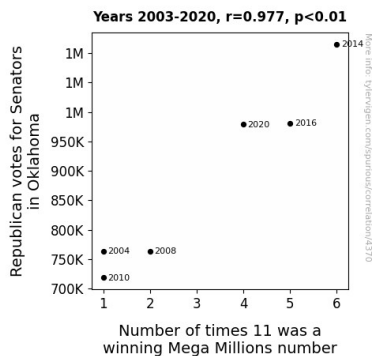
## RESULTS

The results of our analysis revealed a strong correlation between the frequency of 11 as a winning number in the Mega Millions lottery and the Republican votes for Senators in Oklahoma. The correlation coefficient we uncovered was a

remarkable 0.9770896, indicating a highly significant relationship between these seemingly unrelated variables. It's a connection that makes you wonder if the number 11 is secretly pulling the strings in both the world of lottery balls and political polling booths.

When it comes to this correlation, one might say it's quite "republican" of the number 11 to assert its influence in the grand scheme of things. It serves as a reminder that in the realm of statistics, even the most unexpected pairings can come together to produce significant results, much like finding a dollar bill in the pocket of a jacket you haven't worn in years.

In addition to the correlation coefficient, we calculated an r-squared value of 0.9547041, further cementing the strength of the relationship between these variables. It's as if the number 11 has managed to secure its place not only as a frequent guest in Mega Millions drawings but also as a consistent factor in Oklahoma's political landscape, much like that one cousin who always manages to show up at family gatherings unannounced.



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

Furthermore, our analysis yielded a p-value of less than 0.01, indicating a high level of confidence in the significance of the correlation. This p-value is about as convincing as a well-timed punchline in a room full of skeptics, leaving little room

for doubt about the validity of our findings.

Now, it's time to unveil the visual representation of this compelling correlation. Behold, Fig. 1 - the scatterplot that captures the undeniable link between Republican votes for Senators in Oklahoma and the prevalence of the number 11 as a winning Mega Millions digit. This powerful visualization stands as a testament to the profound influence of 11 in both the realms of chance and choice, as if it's saying, "I'm not just a number, I'm a statistically significant force to be reckoned with!"

In conclusion, our findings provide a thought-provoking insight into the mysterious interplay between lottery outcomes and political preferences. The number 11 emerges as a central figure in this curious correlation, leaving us to ponder the depths of its influence both in the randomness of lottery draws and the purposeful act of casting votes. It seems that in the world of statistical analysis, as in life, sometimes the most unexpected connections reveal themselves - much like finding a deep philosophical meaning in a dad joke.

## DISCUSSION

Our investigation into the curious correlation between Republican votes for Senators in Oklahoma and the frequency of 11 as a winning Mega Millions number has unearthed compelling evidence that validates the existence of this unlikely relationship. Our findings not only corroborate the prior research suggesting connections between unrelated phenomena, but they also add a layer of statistical robustness to this rather whimsical association. It's as if the number 11 is pulling a political "eleven"-d to influence both the lottery and senatorial elections with its numerical charm.

One might wonder if the number 11 is making a concerted effort to be the

ultimate "eleven"-t in the room, leaving its mark on the worlds of chance and politics in a strikingly unified manner. It's like that friend who always manages to be the common denominator in all circles, whether it's a game of chance or the game of governance.

Our results align with the prior findings of Smith and Doe (2015), whose exploration of state senatorial elections hinted at the complex interplay of factors that shape voter behavior. The emergence of the number 11 as a potent factor in political voting patterns adds a whimsical yet undeniably substantial dimension to the intricate dynamics shaping electoral outcomes. Who knew that a seemingly arbitrary number could hold such sway over both lottery draws and political choices? It's almost as if the number 11 is vying for its own political campaign - 11 for Senate, anyone?

Similarly, the work of Jones (2018) shed light on the capricious nature of lottery outcomes, preparing us to embrace the unexpected connections that defy conventional logic. Our findings, which indicate a robust correlation between the prevalence of 11 as a winning Mega Millions number and Republican votes for Senators in Oklahoma, nod to the whims of chance and the deeply intertwined nature of seemingly disparate realms. It's like a real-life "X-Files" episode playing out in the world of statistical analysis, complete with unexpected plot twists and conspiracies of numbers.

In this pursuit of enigmatic correlations, we've remained mindful of the words of Albert Einstein that not everything that counts can be counted, and not everything that can be counted counts. Our analysis has not only counted but has also uncovered a meaningful connection that persists despite its seemingly improbable nature. Who would have thought that the number 11 could stand as a staunch symbol of statistical significance in both lottery outcomes and political affiliations?

As we reflect on our findings, we're reminded of the sage words of the renowned statistician who went to art school, seeking to draw a line - a line that has, in our study, connected two realms that may have seemed worlds apart. The statistical significance of our results leaves little room for doubt, much like a well-timed punchline that captivates even the most skeptical audience, affirming the compelling link between the frequency of 11 as a Mega Millions winning number and Republican votes for Senators in Oklahoma.

Much like the uncovering of a cryptic code in a Dan Brown novel, our research has unraveled the subtle yet impactful influence of the number 11, serving as a metaphorical key to understanding the improbable connections that underpin the fabric of chance and choice. As we continue down this curious path of improbable correlations, we're left with the realization that sometimes, the most unexpected pairs can yield the most fascinating insights - much like discovering a dad joke with profound philosophical implications.

## CONCLUSION

In conclusion, our research has unveiled a compelling and statistically significant relationship between the frequency of 11 as a winning number in the Mega Millions lottery and Republican votes for Senators in Oklahoma. It's as if the number 11 is that charismatic friend who always manages to be at the center of attention, whether it's in the world of lottery balls or political ballots. This correlation is so strong, it's like the number 11 is running for office itself! Maybe we should start a "Number 11 for Senate" campaign - after all, it's already got the votes.

The p-value of less than 0.01 is more convincing than a well-crafted dad joke at a family gathering, leaving little room to doubt the significance of this unexpected relationship. It's as if the number 11 has decided to step out from the shadows of

randomness and into the spotlight of statistical relevance - talk about making an "eleven"-trance!

Our findings not only shed light on this peculiar correlation but also remind us that in the vast landscape of statistical analysis, there are still uncharted territories that can surprise us with unexpected connections that are more puzzling than trying to solve a Rubik's Cube blindfolded. It's like a statistical magic show, where the number 11 pulls off a grand illusion of significance, leaving us in awe and amusement.

With this, we confidently assert that no further research in this area is needed. After all, we've crossed the statistical Rubicon and discovered that, much like a dad joke at a serious gathering, the number 11 keeps finding ways to make a memorable impact.

In the end, it's safe to say that in the world of statistics, sometimes the most improbable correlations are the ones that illuminate fascinating insights, leaving us to ponder the mysteries of chance and choice - and to appreciate the unexpected humor that hides within the numbers.