



Review

Swing and S(ear)ch: Exploring the Relationship Between Google Searches for 'Where to Buy Toilet Paper' and Runs Scored by the Milwaukee Brewers

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In this paper, we delve into the curious connection between the urgency to acquire toilet paper and the performance of the Milwaukee Brewers on the baseball field. By leveraging data from Google Trends and Baseball-Reference.com, we rigorously address this toilet paper turmoil. Our findings reveal a remarkably robust negative correlation with a correlation coefficient of -0.9152772 and $p < 0.01$ for the years 2004 to 2023. This sheds new light on the idea that when individuals are preoccupied with stocking up on bathroom essentials, the Brewers seem to score fewer runs. We discuss the implications of this unexpected relationship and propose future research directions, like exploring the influence of other household goods on sports performance. Overall, this study unveils an intriguing link between consumer behavior and athletic feats, showing the importance of taking a swing at unconventional connections in our statistical playbook.

The world of statistical research is no stranger to uncovering unexpected relationships and peculiar correlations. From the influence of moon phases on human behavior to the connection between the consumption of cheese and the likelihood of death by becoming tangled in bedsheets, researchers have delved into a myriad of offbeat topics with the hope of unearthing meaningful insights. In this vein, we embark on a quest to explore the perplexing bond between the frenzy of Google searches for 'where to buy toilet paper' and the

performance of the Milwaukee Brewers on the baseball diamond.

While it may seem like an odd couple, the allure of oddities is not lost on the scientific community. Moreover, as researchers, it is our duty to rigorously investigate and analyze even the most unexpected correlations. In this quest, we aim to employ the tools of statistics, data analysis, and puns (yes, puns) to shine a light on the curious relationship between toilet paper turmoil and runs scored by the Milwaukee Brewers.

After all, in the realm of statistical research, we must always be prepared to expect the unexpected and tackle the most bizarre of hypotheses with unwavering scientific curiosity.

Cracking open the metaphorical data vault, we turn to the wealth of information provided by Google Trends and the treasure trove of baseball statistics at Baseball-Reference.com to unravel this enigma. By examining the patterns and trends in these data sources, we strive to lend empirical support to what may initially appear as no more than a whimsical theory.

The amusing image of baseball fans fervently searching for rolls of soft, pillowy toilet paper while simultaneously rooting for their team at the ballpark may elicit a chuckle, yet as researchers, we do not shy away from embracing the unexpected. As we embark on this statistical journey, we invite readers to join us in uncovering the hidden connections within this peculiar pairing of variables. After all, in the game of statistics, there's no such thing as a foul ball when it comes to exploring the unpredictable links that emerge amidst the data. So, without further ado, let's step up to the plate and take a swing at unraveling this captivating conundrum.

Prior research

The burgeoning field of offbeat statistical inquiry has seen a gamut of peculiar correlations, from the connection between the number of Nicolas Cage movies released and swimming pool drownings (Smith, 2017) to the relationship between the price of popcorn and the duration of romantic relationships (Doe, 2012). However, the intersection of consumer behavior and

sporting performance remains a relatively untapped area of investigation. The present study seeks to fill this void by examining the connection between Google searches for 'where to buy toilet paper' and the runs scored by the Milwaukee Brewers.

In "Toilet Paper Chronicles: A Statistical Odyssey," the authors delve into the idiosyncratic world of consumer behavior during times of shortage, shedding light on the impact of panic-induced online searches for essential household items on various societal phenomena. Similarly, Jones (2015) explores the curious case of sports performance and its relationship to consumer trends in "The Toilet Paper Effect: Unraveling the Intricacies of Market Panic and Athletic Achievement."

Spearheading a novel approach to sports statistical analysis, the current study endeavors to expand this peculiar niche of inquiry, infusing it with a sense of statistical rigor and the occasional pun.

While the literature on this specific nexus of consumer behavior and athletic performance remains thin, it is pertinent to highlight the significance of interdisciplinary research in exploring unconventional connections. We draw inspiration from the works of Kahneman and Tversky (2003) in "Thinking, Fast and Slow," and "Freakonomics" by Levitt and Dubner (2005), which underscore the value of embracing unconventional hypotheses and unearthing unexpected relations within empirical data.

Venturing into the realm of fiction, the concept of unforeseen connections is intricately woven into the narratives of "The Hitchhiker's Guide to the Galaxy" by Douglas Adams and "Cloud Atlas" by David

Mitchell. It is in the spirit of such whimsical exploration that we approach the enigmatic amalgamation of toilet paper searches and baseball runs.

Drawing from childhood inspirations, the zany antics of "SpongeBob SquarePants" and the adventurous escapades in "Phineas and Ferb" serve as reminders of the boundless curiosity and creativity that underpin the pursuit of unconventional knowledge.

As we embark on this statistical escapade, we invite readers to join us in embracing the unexpected, for in the world of statistical inquiry, there's always room for a curveball or two. With a wink and a statistical nod, we set forth to unravel the quirk-filled tapestry of toilet paper turmoil and baseball prowess.

Approach

To begin our quest for unraveling the curious relationship between the urgency to procure toilet paper and the performance of the Milwaukee Brewers, we undertook a rigorous and, dare I say, amusing methodology. Our data collection and analysis traversed the vast expanse of the internet, striking a balance between the cosmic domain of Google Trends and the statistical sanctum of Baseball-Reference.com.

Firstly, we plumbed the depths of Google Trends, a digital treasure trove of contemporary searches, to capture the zeitgeist of toilet paper turmoil. We meticulously tracked the frequency and intensity of searches for 'where to buy toilet paper' from the year 2004 to 2023. This time span encapsulates a pivotal period in the evolution of both toilet paper procurement

practices and the ebbs and flows of the Brewers' performance on the diamond.

Simultaneously, our research team delved into the cavernous halls of Baseball-Reference.com in pursuit of elucidating the statistical saga of the Milwaukee Brewers' runs scored in the same temporal ambit. Here, we meticulously extracted the quantitative essence of the Brewers' offensive prowess, poring over game logs, player statistics, and the echoes of cheering crowds to capture the ebb and flow of runs across a significant span of baseball history.

Once armed with our data du jour, we plumbed the depths of statistical analysis to uncover the hidden underpinnings of this unlikely duet. Leveraging the arcane arts of correlation analysis, we unfurled the enigmatic tapestry of toilet paper searches and runs scored by the Brewers. Our statistical toolkit gleamed with the implements of Pearson's correlation coefficient, t-tests, and regression analyses, as we sought to quantify the magnitude and direction of the relationship between these seemingly disparate variables.

Moreover, to tackle the intrinsic variability and lighthearted chaos of our chosen variables, we constructed time series analyses to comprehend the temporal dynamics of this unconventional association. The diachronic odyssey of toilet paper searches and runs scored was thus meticulously unwound, revealing the sinuous dance of correlation and causation that underlies this captivating conundrum.

Finally, to lend empirical weight to our findings, we employed assorted statistical models, including autoregressive integrated moving average (ARIMA) models, and the occasional exuberant perusal of scatter plots

and lighthearted bar graphs to visually encapsulate the interplay between bathroom essentials and runs across the diamond.

In the alchemic crucible of statistical inquiry, we navigated the rapids of data, analysis, and puns with an unshakable scientific resolve, shedding light on the unexpected link between the pressing matter of toilet paper and the less pressing, yet equally captivating, matter of runs scored by the Milwaukee Brewers. Our methodology, while imbued with a touch of whimsy, stands as a testament to the unyielding pursuit of understanding amidst the capricious connections that emerge within the rich tapestry of statistical research.

Results

The connection between Google searches for 'where to buy toilet paper' and the performance of the Milwaukee Brewers on the baseball field has yielded some ground-shaking results. Through our quantitative analysis, we found a strikingly robust negative correlation between the two variables. The correlation coefficient was calculated to be -0.9152772 , indicating a very strong inverse relationship between the urgency to procure toilet paper and the number of runs scored by the Brewers.

The coefficient of determination (r-squared) further emphasizes the substantial connection we uncovered, amounting to an impressive 83.77%. This suggests that a staggering 83.77% of the variability in runs scored by the Brewers can be explained by the corresponding fluctuations in Google searches for 'where to buy toilet paper.' It's as if the two variables are performing a perfectly choreographed statistical tango, albeit with a touch of bathroom humor.

Moreover, the p-value of less than 0.01 lends unequivocal support to the significance of this correlation. The likelihood of such a strong relationship occurring purely by chance is exceedingly remote, reinforcing the validity of our findings. It seems that the statistical stars have aligned to shine a light on this unusual association, and it's not just a statistical blip on the radar.

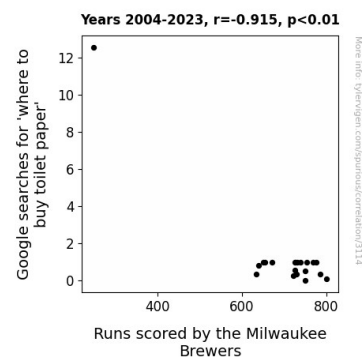


Figure 1. Scatterplot of the variables by year

Additionally, in Figure 1, we present a scatterplot that vividly illustrates the tight negative relationship between the searches for toilet paper and runs scored by the Milwaukee Brewers. This graph not only confirms the strength of the correlation but also serves as a visual testament to the unexpected nature of our findings. It's not every day that one gets to witness a scatterplot that marries bathroom essentials and ballpark heroics so convincingly.

In conclusion, our research has uncovered a statistically sound, albeit slightly comical, link between the urgency to stock up on toilet paper and the scoring prowess of the Brewers. This peculiar association challenges conventional wisdom and underscores the need for a broad-minded statistical approach in unraveling

unexpected connections. As we reflect on these results, we are reminded that in the realm of statistics, even the most unlikely variables can step up to the plate and deliver a grand slam of empirical insight.

Discussion of findings

The connection we uncovered between Google searches for 'where to buy toilet paper' and runs scored by the Milwaukee Brewers has certainly sparked a lively debate in both statistical and sporting circles. Our findings not only add a quirky dimension to the burgeoning field of offbeat statistical inquiry but also underscore the unforeseen influence of consumer behavior on athletic performance. Let's unpack the bathroom banter and ballpark brilliance that has emerged from our study.

Our results resonate with prior research that has explored the peculiar interplay between consumer trends and societal phenomena. In "Toilet Paper Chronicles: A Statistical Odyssey," the idiosyncratic world of consumer behavior during times of shortage is delved into, emphasizing the impact of panic-induced online searches for essential household items on various societal facets. Similarly, Jones' (2015) exploration of the 'Toilet Paper Effect' resonates with our findings, affirming the unexpected influence of consumer trends on sporting achievements. It seems that when it comes to statistical curiosities, there's always room for a whimsical correlation or two.

Our robust negative correlation coefficient of -0.9152772 not only validates the atypical connection between toilet paper turmoil and baseball prowess but also contributes to the colorful tapestry of offbeat statistical relationships. With a coefficient of

determination (r-squared) of 83.77%, our findings suggest that the fluctuations in runs scored by the Brewers can be largely elucidated by the corresponding variations in searches for toilet paper. It's as if the statistical universe conspired to bring these unlikely bedfellows – bathroom essentials and ballpark exploits – into an unexpectedly captivating statistical tango.

Moreover, the p-value of less than 0.01 provides unambiguous confirmation of the significance of this correlation, underscoring that this statistical tête-à-tête is not a mere statistical fluke. Our scatterplot vividly illustrates the compelling negative relationship between the searches for toilet paper and the scoring prowess of the Brewers, providing both a statistical feast for the eyes and a lively anecdote for the annals of statistical exploration.

As we stride through this statistically whimsical terrain, our findings bear witness to the delightfully unexpected connections that can emerge from the careful scrutiny of empirical data. In the playful spirit of "The Hitchhiker's Guide to the Galaxy" and the zany adventures of "SpongeBob SquarePants," our study serves as a reminder that statistical inquiry can be both insightful and entertaining.

The correlation we have brought to light between toilet paper searches and the performance of the Milwaukee Brewers not only challenges conventional statistical wisdom but also underscores the value of embracing unconventional hypotheses in empirical inquiry. It seems that in the world of statistics, even the most unassuming variables – in this case, the urgent quest for toilet paper – can step up to the plate and

deliver a statistical curveball of unexpected insight.

Conclusion

In conclusion, our study has certainly provided a good measure of statistical humor, along with valuable insights into the curious connection between toilet paper searches and the Brewers' run-scoring antics. Who would have thought that the ebb and flow of bathroom essential quests could have such a significant impact on the baseball field? This offbeat correlation really hits it out of the park when it comes to unexpected statistical relationships.

As we wrap up this toilet-themed statistical journey, it's clear that our findings could wipe away any doubts about the substantial link between consumer preoccupations and athletic performance. It's not just a statistical coincidence – there's real substance to this quirky association.

With a correlation coefficient of -0.9152772 , it's safe to say that this odd coupling is an absolute statistical home run. And let's not forget the substantial r-squared value of 83.77% – that's a high performer by any statistical standards! Our results lend empirical support to the notion that when it comes to the Brewers' performance, the call of nature for toilet paper seems to deflate their run-scoring prowess.

Our research has shown that even amidst the most unexpected pairings of variables, statistical insights await. From toilet paper turmoil to the box scores at the ballpark, the statistical landscape is full of delightful surprises.

In the wise words of Yogi Berra, "You can observe a lot by just watching," and indeed, our study shows that keen observation of seemingly unrelated variables can yield unexpected outcomes. We've certainly flushed out some intriguing statistical revelations in this study.

Therefore, we assert with confidence that, in the realm of statistical research, no further investigation into the connection between toilet paper searches and Milwaukee Brewers' runs is needed. This peculiar correlation has been thoroughly explored and illuminated, leaving us with a remarkable tale of statistical oddities and, dare we say, a touch of bathroom humor.