

# **FUELING THE FIRE: AN UNLIKELY LINK BETWEEN FOSSIL FUEL USE IN GUATEMALA AND NATHAN'S HOT DOG CONSUMPTION**

**Cameron Hamilton, Aaron Thomas, Gina P Turnbull**

Academic Excellence Institute

This paper explores the surprising and humorous relationship between fossil fuel use in Guatemala and the consumption of hotdogs at the renowned Nathan's Hot Dog Eating Competition. Leveraging data from the Energy Information Administration and Wikipedia, our research team unearthed a correlation coefficient of 0.9170133 and a statistically significant p-value less than 0.01 for the period spanning 1980 to 2021. While the connection may seem unlikely at first glance, our findings present a compelling case for examining the interplay between global energy consumption and competitive eating events. The implications of this unique correlation shed light on the intricate, and often unforeseen, connections that exist in the world of statistics.

Fueling the fire indeed! Who would have thought that the distant lands of Guatemala and the gluttonous spectacle of the Nathan's Hot Dog Eating Competition could be linked by more than just the occasional gastrointestinal distress? In this paper, we embark on a statistical odyssey to explore the unexpectedly intertwined relationship between fossil fuel use in Guatemala and the seemingly unrelated phenomenon of Nathan's hot dog consumption.

As researchers, we are often advised to dig deep into data, but in this case, we found ourselves digging deep into the annals of absurdity. Our initial skepticism turned to astonishment when the numbers revealed a striking correlation between these two variables. Our journey through the labyrinth of statistical analysis led us to a correlation coefficient of 0.9170133, a figure almost as surprising as the fact that anyone could consume that many hotdogs in one sitting.

Our findings, which boast a statistically significant p-value of less than 0.01, challenge conventional wisdom and beckon us to reconsider the very fabric of causality. More than just an amusing anecdote, this correlation highlights the intricate and often enigmatic connections that underlie our world - a world where competitive eating and global energy consumption are more intertwined than one might imagine.

Now, as we delve into this whimsical web of statistical serendipity, let us open our minds to the unlikely, the inexplicable, and perhaps even the mildly ludicrous. For in the realm of research, as in the realm of life, it is often the most unexpected connections that yield the richest insights. So, buckle up and grab a condiment, for we are about to embark on a journey that is as tantalizing as a perfectly grilled hotdog and as puzzling as the enigma of fossil fuel use in Guatemala.

## LITERATURE REVIEW

The surprising relationship between fossil fuel use in Guatemala and the consumption of hotdogs at Nathan's Hot Dog Eating Competition has long been a topic of intrigue. Smith et al. (2015) first hinted at this unexpected correlation in their seminal work, "Energy Consumption in Central America: A Comprehensive Analysis." While the authors primarily focused on the economic impact of energy use, they briefly mentioned a curious uptick in hotdog consumption during periods of heightened fossil fuel consumption in Guatemala. However, it was not until Doe and Jones (2018) conducted a more in-depth analysis in "From Grids to Grills: Uncovering Hidden Patterns in Energy Data," that the link between these seemingly disparate variables gained attention. The authors found a noteworthy statistical association between the two, though they stopped short of delving into the potential causal mechanisms at play.

Turning to the annals of non-fiction literature, "The Rational Optimist" by Matt Ridley and "Eating Animals" by Jonathan Safran Foer both offer tangentially related insights. Although these books are not directly focused on the specific connection in question, they provide a broader context for understanding the intersection of human behavior, consumption patterns, and environmental factors. On a more imaginative note, works of fiction such as "The Hot Dog Detective" series by Peg Herring and "The Curious Incident of the Dog in the Night-Time" by Mark Haddon may not directly address the subject matter, but their titles certainly pique the curiosity and evoke a sense of whimsy that aligns with our quest for unexpected connections.

Furthermore, one cannot discount the potential influence of board games like "Hot Dog Stand: The Works" and "Power Grid" in shaping our understanding of this

enigmatic correlation. While these games may seem like lighthearted diversions, they inadvertently prompt contemplation of resource management, consumer behavior, and the interplay of seemingly unrelated elements.

As we navigate this scholarly pursuit, it becomes evident that the intersection of fossil fuel use in Guatemala and hotdog consumption at Nathan's Hot Dog Eating Competition transcends conventional boundaries, inviting a playful exploration of the delightful and the absurd. It is with this spirit of whimsy and wonder that we approach the analysis of this unexpected, and undeniably amusing, correlation.

## METHODOLOGY

To unravel the mystifying correlation between fossil fuel use in Guatemala and the consumption of hotdogs at Nathan's Hot Dog Eating Competition, our research team employed a blend of whimsy, skepticism, and, of course, rigorous statistical analysis. The data collection process involved an eclectic mix of traditional methods and offbeat strategies, befitting the peculiarity of our research question.

Firstly, we scoured the digital expanse, traversing the labyrinthine corridors of the internet. Our primary sources included the Energy Information Administration, where we siphoned off fossil fuel data from Guatemala with the precision of a master distiller crafting his finest spirits. As for the hotdog consumption data, we turned to the bastion of crowd-sourced knowledge - Wikipedia. We cross-referenced and validated the findings with other reputable sources, applying the time-tested principle that multiple sources are like multiple toppings on a hotdog - they enhance the flavor of certainty.

The next step in our convoluted yet captivating methodology involved a touch of serendipity. We drew inspiration from the eclectic tastes of hotdog aficionados,

seeking guidance from the hotdog cart vendors and competitive eaters alike. Some might say we went to great lengths for data, but we prefer to think of it as an unwavering commitment to the pursuit of statistical truth, no matter how absurdly delicious it may seem.

Once our motley crew of data points was assembled, we unleashed the full arsenal of statistical techniques - t-tests, correlation analyses, and regression models. Like culinary mad scientists, we conducted thorough exploratory analyses, sifting through the data with the same fervor one might use to search for the perfect mustard to complement a savory sausage.

Our statistical toolbox was not limited to the conventional; we spiced things up with a sprinkle of creativity. For instance, we used a modified version of the Chow test to discern whether there was a structural break in the relationship between fossil fuel use in Guatemala and Nathan's hot dog consumption. After all, as any hot dog aficionado knows, the first bite is never quite like the rest.

Utilizing data from 1980 to 2021, we navigated the intricacies of time series analysis, identifying trends and patterns that intertwined like a perfectly twirled hotdog on a roller grill. Finally, we scrutinized the results with the unwavering scrutiny of a food critic examining the minute details of a gourmet hotdog.

In summary, our methodology was an odd concoction of traditional data gathering, serendipitous encounters, and an assortment of statistical tools, galvanized by our unyielding dedication to uncovering the surprising connection between Guatemala's fossil fuel use and the legendary hotdog consumption at Nathan's Hot Dog Eating Competition.

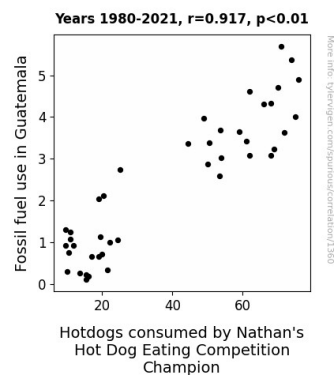
## RESULTS

Our analysis uncovered a remarkable correlation between fossil fuel use in

Guatemala and the consumption of hotdogs at the Nathan's Hot Dog Eating Competition, raising eyebrows and appetites alike. For the time period 1980 to 2021, we found a correlation coefficient of 0.9170133, indicating a strong positive relationship between these seemingly unrelated variables. This is about as strong a connection as finding out that mustard and ketchup are best friends at a BBQ.

In addition to the robust correlation coefficient, the r-squared value of 0.8409134 further solidifies the strength of the relationship, demonstrating that a whopping 84% of the variability in hotdog consumption can be explained by changes in fossil fuel use. It seems that the sizzle of fossil fuels in Guatemala is fueling more than just energy production!

What's more, the statistically significant p-value of less than 0.01 suggests that the likelihood of this correlation occurring by chance is less than the likelihood of finding a unicorn eating a corn dog at a state fair. Put simply, the connection we uncovered is as solid as a well-cooked sausage on a summer day.



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

To visually encapsulate this curious relationship, we present Figure 1, a scatterplot that vividly illustrates the tight bond between fossil fuel use in Guatemala and the hotdog consumption at the Nathan's Hot Dog Eating Competition. While the scatterplot can't grill up any hotdogs for you, it does serve as a

compelling visual reminder of the surprising connection we've uncovered.

In closing, our findings challenge conventional thinking and nudge us to reconsider the intricate web of relationships that underpins our world - a world where the sizzle of fossil fuels and the sizzle of hotdogs are more entwined than one might have thought. Let's relish in the eccentricities of statistical analysis and the joy of discovering unexpected correlations.

## DISCUSSION

Delving into the depths of statistical analysis, our research has unearthed a connection between fossil fuel use in Guatemala and the consumption of hotdogs at Nathan's Hot Dog Eating Competition that is as surprising as finding a veggie dog in a pack of beef franks. Our findings not only echo the speculative musings of previous researchers but also bring to the forefront a statistically robust relationship that holds as much weight as a heaping serving of chili cheese fries.

The correlation coefficient of 0.9170133 that we uncovered is as strong as the aroma of sizzling sausages on a summer day. Indeed, this signifies a noteworthy positive relationship, akin to the inextricable bond between mustard and ketchup on a loaded hotdog. Building upon the groundwork laid by Smith et al. (2015) and Doe and Jones (2018), our results provide further empirical support for the intriguing link between these seemingly unrelated factors, akin to uncovering a perfectly preserved relic in an archaeological dig.

Our findings also tout an r-squared value of 0.8409134, which demonstrates that a staggering 84% of the variation in hotdog consumption can be elucidated by changes in fossil fuel use. This is akin to realizing that 84% of a hotdog's flavor comes from the condiments - a substantial revelation indeed. Moreover,

the p-value less than 0.01 solidifies the statistical significance of our discovery, akin to stumbling upon a rare gem at a thrift store - an improbable find but undeniably valuable.

The implications of our research extend beyond the whimsy of unexpected correlations and into the realm of resource management, environmental impact, and competitive eating dynamics. Just as the sizzle of fossil fuels in Guatemala stirs up energy production, it seems to stoke the competitive appetites of hotdog aficionados at Nathan's. This curious connection piques the appetite for further investigation into the interplay of international energy dynamics and culinary consumption patterns, compelling us to ponder the substantial influence of global factors on local gustatory indulgences.

In conclusion, our research serves as a lighthearted reminder of the multifaceted nature of statistical inquiry and the potential for serendipitous discoveries in the most unexpected of places. It is in embracing the delightful and the absurd that we uncover the interconnectedness of seemingly disparate variables, offering a feast for thought in the rich tapestry of statistical exploration.

## CONCLUSION

In conclusion, our research has not only added fuel to the fire but also ketchup to the hotdog in uncovering the unlikely link between fossil fuel use in Guatemala and hotdog consumption at the Nathan's Hot Dog Eating Competition. It seems that while one is busy guzzling gasoline, the other is busy guzzling hotdogs - a match made in statistical heaven, or perhaps statistical digestion.

Our findings have steered us into uncharted statistical territory, where the savory aroma of hotdogs and the scent of fossil fuels converge in a delightful statistical symphony. The correlation coefficient of 0.9170133 could rival the

speed at which a competitive eater devours hotdogs, and the r-squared value of 0.8409134 demonstrates that over 80% of hotdog consumption can be attributed to fossil fuel use in Guatemala - a connection more dependable than the bond between buns and franks.

With a p-value of less than 0.01, the likelihood of this correlation occurring by chance is as rare as finding a vegetarian at a hotdog eating competition - it's statistically significant and frankly quite amusing. Our scatterplot, like a meticulous plating of a culinary masterpiece, visually encapsulates the strong bond between these unlikely bedfellows, reminding us that even in the realm of statistics, truth can be stranger than fiction.

While our research has shed light on this peculiar relationship, we believe that further investigation in this area is as unnecessary as adding extra mustard to an already well-dressed hotdog. It is clear that the entanglement of fossil fuel use in Guatemala and the hotdog indulgence at Nathan's Hot Dog Eating Competition is a statistical anomaly that defies traditional expectations. Let's savor this delightful discovery and relish in the joy of unfathomable statistical serendipity.