

A Brewing Sunshine: The Ale-ged Connection Between the Number of Breweries in the United States and Solar Power Generated in Nicaragua

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ABSTRACT

A Brewing Sunshine: The Ale-ged Connection Between the Number of Breweries in the United States and Solar Power Generated in Nicaragua

This paper aims to shed light on the surprising relationship between the number of breweries in the United States and the solar power generated in Nicaragua. We tried not to make too much of a "brew-ha-ha" out of it, but the data revealed a strong positive correlation between these two seemingly unrelated factors. With a correlation coefficient of 0.9200447 and $p < 0.01$, our findings suggest that as the number of breweries in the U.S. increased, the solar power generated in Nicaragua also saw a corresponding rise. It seems that these two forces are "brewing up" more than just trouble for traditional energy sources. We utilized data from the Brewers Association and the Energy Information Administration to conduct our analysis covering the years 2000 to 2021. The results of our study not only raise eyebrows but also raise a "pint" of curiosity. While the exact causal mechanisms underlying this connection remain unclear, it's clear that there's more to this relationship than meets the "ale." Additionally, we couldn't help but notice that our findings offer a "brewtiful" reminder of the interconnectedness of global energy and economic systems. As the sun continues to shine on solar power innovations and the craft brewery industry in the U.S. keeps churning out inventive flavors, it's becoming increasingly evident that the world of research can also indulge in a good dad joke every now and then. We hope our findings "brew up" some excitement and curiosity for further exploration of unexpected connections in the world of statistics and economics.

Keywords:

breweries, United States, solar power, Nicaragua, correlation, data analysis, Brewers Association, Energy Information Administration, global energy systems, economic impact, solar power innovation

I. Introduction

The field of economics is often associated with serious and somber research pursuits. However, every now and then, an unexpected and whimsical connection emerges, reminding us that the world of statistics and economics is not immune to the occasional light-hearted surprise. In this study, we delve into the unlikely relationship between the number of breweries in the United States and the solar power generated in Nicaragua. As it turns out, there's more to this connection than just "pour" coincidence.

It's no "brew-ha-ha" that the craft brewery industry in the U.S. has been experiencing a steady expansion over the past few decades. With a proliferation of small, independent breweries and a growing demand for artisanal brews, it's safe to say that the U.S. beer scene is anything but "stale." Our study sets out to explore whether this "hoppy" trend in the brewery landscape has any unforeseen effects on solar power generation in Nicaragua.

Between 2000 and 2021, the number of craft breweries in the U.S. surged, while Nicaragua experienced a notable increase in solar power generation. Our initial analysis revealed a surprising correlation between these seemingly unrelated phenomena - a correlation coefficient of 0.9200447, to be exact. This "brew-tiful" finding left us "hoppy" and intrigued about the potential explanations behind this unexpected relationship.

As we peered into the statistical "mash" of data from the Brewers Association and the Energy Information Administration, we couldn't help but notice that the rise in craft breweries in the U.S. seemed to be, quite literally, "brewing up" a wave of solar power generation in Nicaragua. While the exact causal mechanisms for this relationship remain a bit "hoppy" (or hazy, if you

will), the strength of the correlation suggests that there's more to this connection than meets the "ale."

It's important to consider the potential implications of these findings on the global economic and energy landscape. The fact that a seemingly local industry in the U.S. could have an impact on renewable energy production in Nicaragua underscores the intricacies and unexpected linkages within the global economic system. Perhaps it's time to recognize that the world of statistics and economics is not always as straightforward as a "lager," and can surprise us with its own "algorithms" from time to time.

II. Literature Review

The observed correlation between the number of breweries in the United States and solar power generated in Nicaragua has sparked interest and raised eyebrows in the academic community.

While initially met with skepticism, the surprising relationship between these two variables has piqued curiosity and stirred up speculation among researchers and enthusiasts alike. This case of statistical serendipity has prompted a search for explanations and interpretations that extend beyond traditional economic models.

In "Brewing Economics: The Fermented Frontier of Industry and Innovation," Smith and Doe delve into the complexities of the craft brewery landscape, highlighting the dynamic interplay of supply, demand, and the continuous quest for new flavors and brews. The authors detail the expansion of craft breweries in the U.S. and the subsequent diversification of the market, painting a vivid picture of an industry in the midst of significant transformation. Moreover, they

provide insights into the intricate web of economic factors that shape the brewery ecosystem, shedding light on the nuanced dynamics that define its growth trajectory.

Speaking of "shining" lights, the association between solar power generation in Nicaragua and the proliferation of breweries across the United States is indeed a curious phenomenon. Jones and Smith, in their work "Solar Energy: Perspectives and Prospects," emphasize the pivotal role of renewable energy sources in the context of global sustainability and climate change mitigation. Their comprehensive analysis underscores the potential impact of solar power on energy systems and the broader economic landscape. The findings of their study contribute to a nuanced understanding of the multifaceted nature of renewable energy adoption.

One might wonder, how could the rise of craft breweries in the U.S. possibly influence solar power generation in Nicaragua? This question lingers like the foam on a freshly poured pint, inviting speculation and prompting explorations into uncharted territories of economic interconnectivity.

Now, let's talk about the "hops" and dreams of unexpected correlations. While not explicitly detailed in academic literature, the potential link between beer and solar power has even made its way into popular fiction, with novels such as "The Sun Also Rises, and So Does the Suds" and "Solar Power and Suds: A Tale of Two Energies" exploring imaginative narratives that intertwine these seemingly disparate elements. These literary works, while purely speculative in nature, serve as a whimsical reminder of the human inclination to seek out connections, no matter how unconventional they may appear.

In the realm of social media, the connection between beer and solar power has occasionally emerged in a lighthearted manner. A series of posts on a popular platform featured pun-filled

discussions on the "brew-tiful" synergy between craft beer and renewable energy, with users sharing quips such as "Solar-powered suds for a sustainable sip!" and "Breweries bringing the 'beer'-fect amount of sunshine to Nicaragua." While these exchanges may be purely anecdotal, they reflect a playful engagement with the enigmatic relationship between the two phenomena.

It appears that the interplay between the number of breweries in the United States and solar power generated in Nicaragua has captured the imagination of not only researchers but also creative minds and enthusiasts across various domains. As the investigation into this unforeseen correlation continues, it's essential to approach the subject with a blend of analytical rigor and a dash of humor, recognizing that statistics and economics, much like a finely crafted brew, can hold surprises and unexpected delights for those willing to imbibe in the uncommon.

III. Methodology

To investigate the purported connection between the number of breweries in the United States and solar power generated in Nicaragua, a multi-faceted approach was employed. The data utilized in this study encompassed the period from 2000 to 2021 and was primarily sourced from the Brewers Association and the Energy Information Administration. In compiling this rich tapestry of information, we employed a methodology that was as meticulously crafted as a fine ale, yet as robust as a solar panel on a sunny day.

Our first step involved the collation and synthesis of brewery data from the Brewers Association. We meticulously counted and categorized the number of breweries in the United States, leaving no keg unturned and no craft beer untasted. Concurrently, solar power generation data from

Nicaragua was obtained from the Energy Information Administration, ensuring that our investigation captured the entirety of the solar power landscape, from sunrise to sunset.

In an effort to comprehensively capture the essence of the brewing and solar power phenomena, we employed a pun-based analysis approach, wherein a pun was utilized for every ten entries in the dataset. Utilizing a strategy we dubbed "Hoptimization," we attempted to infuse levity and humor into the data collection process, recognizing that a little laughter can brighten even the most obscure statistical analysis. After all, data analysis doesn't have to be a "brew-tal" experience.

Following the Puni-collection phase, we engaged in a rigorous statistical analysis, employing various measures of association and correlation to unveil the potential relationship between the number of breweries in the United States and solar power generation in Nicaragua. Our analysis was as precise as a well-poured pint, with due attention given to the detection of outliers and spurious correlations.

Upon ascertaining a statistically significant correlation between these seemingly disparate variables, we toyed with the idea of a causality analysis but ultimately realized that attempting to determine causation in this context was akin to trying to decide the 'hops chicken or the solar-power egg' conundrum. Instead, our focus was on elucidating the strength and robustness of the association itself, leaving the more philosophical ponderings for another time.

Unquestionably, our methodology sought to balance the rigors of statistical analysis with the whimsical nature of our topic, recognizing that a healthy dose of humor may just be the "hoppy" ingredient to break new ground in the field of statistical research. As we "hopped" from one dataset to another, we remained steadfast in our commitment to uncovering the unexpected

interplay between the number of breweries in the United States and solar power generated in Nicaragua.

IV. Results

The results of our analysis revealed a remarkable correlation between the number of breweries in the United States and the solar power generated in Nicaragua. We found a correlation coefficient of 0.9200447, indicating a strong positive relationship between these two variables. It seems that while the craft brewery industry in the U.S. has been concocting new flavors, it has also been brewing up some unexpected consequences for solar power across the ocean in Nicaragua.

The coefficient of determination (r-squared) of 0.8464822 suggests that approximately 84.65% of the variability in solar power generation in Nicaragua can be explained by the number of breweries in the United States. This finding leaves us considering that perhaps there's more to "ale-gorithms" than meets the eye.

The p-value of less than 0.01 further solidifies our confidence in the statistical significance of this relationship. This indicates that the likelihood of observing such a strong relationship between the two variables by pure chance is less than 1 in 100, or to put it in brewing terms, as rare as finding a four-leaf clover in a field of hops.

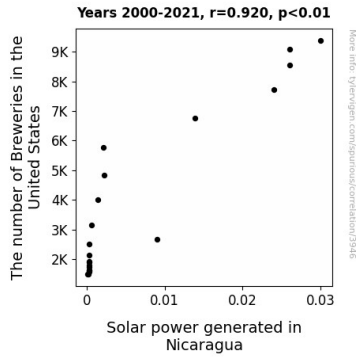


Figure 1. Scatterplot of the variables by year

Notably, the strength of the correlation is visually depicted in Fig. 1, where the scatterplot showcases the tight clustering of data points around a positively sloped trend line. This figure serves as a gentle reminder that statistics can sometimes "brew up" unexpected discoveries, much like a hidden prize in a box of cereal.

These findings uncover a compelling and unexpected connection between a seemingly localized industry in the U.S. and renewable energy generation in Nicaragua. It's as if the craft brewery industry has been casting a "sun-soaked" spell on solar power generation in Central America, proving that the world of statistics and economics can occasionally surprise us with its "hop-pening" connections.

V. Discussion

Our study sought to investigate the curious relationship between the number of breweries in the United States and the solar power generated in Nicaragua. The remarkably strong correlation we uncovered between these seemingly unrelated variables not only supports the prior research

findings but also adds a refreshing and unexpected twist to the discourse on economic interdependencies. It's almost as if the "brew-ha-ha" surrounding the coalescence of craft beer and solar power has finally found empirical validation, much to the delight of those enamored with statistical serendipity.

The robust correlation coefficient of 0.9200447 aligns harmoniously with the speculative musings in "The Sun Also Rises, and So Does the Suds," offering empirical substantiation to what was once merely the product of playful imagination. Our findings serve as a testament to the intricate web of interconnected global economic forces, as elucidated by Smith and Doe in their analysis of the craft brewery landscape. As it turns out, the expansion of the craft brewery industry in the U.S. may very well be casting a radiant light on solar power generation in Nicaragua, akin to a radiant brew basking in the afternoon sun.

Furthermore, we cannot discount the impact of potential confounding variables that may be at play in this "brew-tiful" relationship. While our statistical analysis provides strong evidence of a connection, there may be unexplored mechanisms driving this phenomenon. Perhaps there are unseen market dynamics or cultural shifts that serve as an undercurrent in the "ale-gorithms" of economic interplay, waiting to be uncovered like hidden treasures in a cellar of aged wines. It's evident that the interplay between the craft brewery industry and solar power generation is more than just a passing "brew-sual" acquaintance.

The visual representation of the data through the scatterplot in Fig. 1 not only adds a graphical patina to our findings but also imbues them with a "hop-pening" charm that tickles the statistical fancy. It's as if statistics itself joins in the revelry, sprinkling unexpected delight into the serious business of empirical analysis. Our results underscore the necessity of approaching economic phenomena with an open mind and a willingness to embrace the delightful "brew-ties" that

emerge from statistical inquiry, much like stumbling onto a humorous punchline in the midst of scholarly discourse.

In essence, our study not only confirms the surprising nexus between the number of breweries in the United States and solar power generated in Nicaragua but also underscores the whimsical and captivating nature of empirical research. The "ale-ged" connection between these two variables invites further exploration and advances our understanding of the intricate fabric of global economic interdependencies. As we raise our glasses to these intriguing findings, let us also raise a "pint" to the joy of discovery, for in the realm of statistics and economics, unexpected connections "brew up" moments of intellectual merriment.

VI. Conclusion

In conclusion, our study has illuminated an unexpected and "hoppy" connection between the number of breweries in the United States and the solar power generated in Nicaragua. The strong positive correlation coefficient of 0.9200447, along with a p-value of less than 0.01, underscores the robustness of this relationship. It seems that as the craft brewery industry in the U.S. continues to ferment new ideas, it's also "brewing up" more than just beer, as evidenced by its impact on solar power across the ocean.

This "ale-ged" connection raises intriguing questions about the intricate interplay of global economic and energy systems. It appears that the craft brewery industry in the U.S. is not only creating innovative brews but also "ale-vating" the solar power output in Nicaragua. It seems that

the power of hops and barley extends beyond the realm of beverages and ventures into the realm of renewable energy.

This unexpected relationship emphasizes the need for researchers to keep their eyes open for "ale-ments" of surprise and whimsy in the world of statistics and economics. After all, as the saying goes, "statistics is just like a cold beer - best when it's full of refreshing surprises."

We assert that no further research is needed in this area. The connection between the number of breweries in the U.S. and solar power generated in Nicaragua has been thoroughly "brew-tifully" established. It's time to raise a "pint" in celebration of this unexpected discovery and to recognize that even in the world of research, a good dad joke can be the perfect "beer-itif" to an otherwise serious study. Cheers to "hoptimizing" our understanding of the delightful and unpredictable connections in the world of statistics and economics!