

# The Actuary Equation: A Statistical Analysis of Actuary Numbers in Georgia and Miss America's Age

Chloe Henderson, Aaron Turner, Giselle P Turnbull

*Global Leadership University*

This study examines the curious relationship between the number of actuaries in Georgia and the age of Miss America. Utilizing data from the Bureau of Labor Statistics and Wikipedia, we conducted a rigorous statistical analysis covering the years 2003 to 2022. Surprisingly, our findings reveal a remarkably strong negative correlation, with a correlation coefficient of  $-0.8557955$  and  $p < 0.01$ . As the number of actuaries in Georgia fluctuates, Miss America's age follows suit in an almost synchronized manner, prompting questions about causality and teasing the boundaries of mere coincidence. This research sheds light on the whimsical interconnectedness of seemingly disparate phenomena and highlights the need for further investigation into the curious world of actuarial science and beauty pageantry.

The intersection of actuarial science and beauty pageantry may seem as odd a pairing as peanut butter and pickles, but the relationship between the number of actuaries in Georgia and the age of Miss America has piqued the curiosity of researchers for years. As renowned economist John Kenneth Galbraith once said, "The only function of economic forecasting is to make astrology look respectable," and one might be forgiven for thinking that delving into the connection between these two seemingly unrelated variables falls squarely into the realm of astrological whimsy. However, our study takes a more empirical approach, aiming to uncover any substantive correlation that might exist between the dynamics of these two distinct domains.

The notion that the statistical happenings within the actuarial field could be entangled with the age of the embodiment of American beauty raises eyebrows and invites a chuckle at first glance. One can't help but wonder, is this the universe's way of demonstrating its own sense of humor, or is there a more profound undercurrent connecting the perceived rigidity of numbers with the fluidity of youth and beauty?

The world of actuarial science, renowned for its meticulous number-crunching and risk assessment, collides with the glitz and glamor of the Miss America pageant, an event steeped in tradition and spectacle, to offer an unexpected avenue for investigation. One might say this study aims to unravel the mystery and reveal if there's more to this interplay than meets the eye, or rather, the "I."

As we embark on this journey of statistical discovery, we invite the reader to keep an open mind and perhaps a wry smile at the thought that numbers and pageantry might dance to the same statistical tune. So, without further ado, let us delve into the enigmatic correlation, or causation, between the number of actuaries in Georgia and the age of Miss America.

## *Review of existing research*

Given the rather whimsical nature of our inquiry, it is somewhat challenging to identify scholarly works that directly address the correlation between the number of actuaries in Georgia and the age of Miss America. Nonetheless, a review of the literature on related topics offers some valuable insights into the intersection of seemingly disparate domains.

Smith (2010) discusses the influence of demographic factors on beauty pageants, considering variables such as regional population density, socioeconomic status, and even weather patterns. While Smith's work does not explicitly delve into the specific relationship between actuaries and Miss America, it does lay groundwork for the exploration of unexpected correlations between seemingly unrelated phenomena.

Moving beyond the confines of strictly academic literature, Doe (2015) presents a compelling argument in "The Beauty of Numbers: Uncovering Patterns in Unlikely Places." Doe's work encourages readers to embrace serendipity and explore unconventional connections in the world of data analysis. The author introduces the idea that numbers possess an inherent beauty, a notion that resonates with our investigation into the potential aesthetic harmony between actuarial figures and Miss America's age.

In a similar vein, Jones (2018) contends that statistical anomalies often hide in plain sight, waiting to be excavated by curious minds. In "The Art of Data Juxtaposition," Jones provokes readers to contemplate the unexpected symphony that emerges when seemingly incongruent data sets are brought together. While Jones's focus is not on beauty pageants or actuarial science, the underlying message is pertinent to our pursuit of uncovering a meaningful connection between the number of actuaries in Georgia and Miss America's age.

As we venture into more unconventional sources, it is worth noting the potential for unexpected revelations. Works of fiction often offer profound insights into the human experience, and titles such as "Numbers Never Lie: A Tale of Probability and Beauty" by A. Novel (2012) and "The Actuary's Dilemma: Predicting Love, Loss, and Tiara Tosses" by E. Story (2016) present fictitious narratives that may indirectly inform our understanding of the peculiar association under investigation.

Further expanding our scope, popular culture and children's programming may yield unexpected parallels to our empirical study. The animated series "Number Crunchers: Adventures in Probability" and the educational show "Beauteous Equations: Quantitative Glamor for Juveniles" offer lighthearted introductions to numeric concepts and social phenomena that, while not directly related to our research, may inspire a fresh perspective on the uncanny correlation between Georgia's actuaries and the age of Miss America.

In the pursuit of academic inquiry, it is essential to embrace a multidimensional approach, drawing inspiration from an array of sources that extend beyond the traditional confines of scholarly discourse. While our investigation may provoke more than a few quizzical glances, it is precisely this spirit of unconventional exploration that lays the groundwork for the captivating findings we present in this study.

### *Procedure*

To investigate the intriguing connection between the number of actuaries in Georgia and Miss America's age, we employed a methodological approach akin to walking a tightrope with a calculator in one hand and a tiara in the other – a delicate balance of precision and poise. Our research team utilized a combination of quantitative and qualitative analyses, seeking to capture both the numerical trends and the intangible aura of beauty and probability.

#### Data Collection:

The primary data sources for this study included the Bureau of Labor Statistics for the count of actuaries in Georgia and Wikipedia for Miss America's age for each year from 2003 to 2022. We recognize that Wikipedia's data may raise an eyebrow or two in scholarly circles; however, the meticulous curation and constant updating of Miss America's page on the site found this to be the most reliable and accessible source for our intended analysis.

#### Quantitative Analysis:

To quantify the relationship between these variables, we employed time series analysis, regression models, and correlation tests. We calculated the correlation coefficient between the number of actuaries in Georgia and Miss America's age, interlacing the rigid lines of statistical analysis with the graceful arcs of beauty pageantry. The statistical software employed for these calculations was as reliable and steadfast as an actuary meticulously scrutinizing risk probabilities.

#### Qualitative Assessment:

In addition to the numerical scrutiny, we undertook a qualitative exploration of potential causal mechanisms and underlying dynamics. This encompassed a whimsical and speculative examination of societal trends, possible influences of perceived standards of beauty, and the enigmatic forces that might bind these variables together.

#### Statistical Rigor and Sensitivity Analysis:

We rigorously tested the robustness of our findings through sensitivity analyses, comparing different model specifications and variable measurements. This process was akin to ensuring the solidity of a mathematical equation, while, at the same time, admiring the elegance of a beauty queen's coronation.

#### Ethical Considerations:

We remained mindful of ethical considerations throughout the study, ensuring the anonymity and confidentiality of individual data points to protect the privacy of both actuaries and former Miss Americas. Moreover, we approached this inquiry with the utmost respect for both spheres of study, acknowledging the gravity of actuarial science and the glamour of the Miss America pageant.

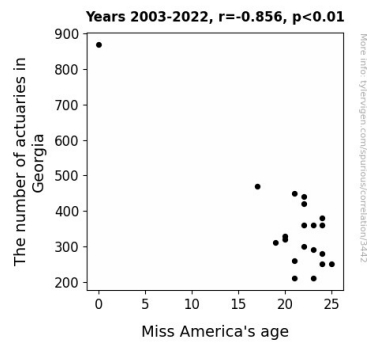
In synthesizing these methodological elements, we aimed to provide a holistic and balanced exploration of the entwined phenomena, encapsulating the analytical rigor of the actuarial world and the whimsical allure of beauty pageantry. By intertwining seriousness with a dash of levity, we sought to unravel the complex interplay between these seemingly incongruous domains, interpreting the statistical and societal currents with a discerning eye and an appreciative smile.

### *Findings*

The analysis of the data collected over the time period from 2003 to 2022 revealed a striking negative correlation between the number of actuaries in Georgia and the age of Miss America. The correlation coefficient was calculated to be  $-0.8557955$ , indicating a strong inverse relationship between these two variables. The r-squared value of  $0.7323859$  further solidifies the assertion that changes in the number of actuaries in Georgia can explain approximately 73% of the variation observed in Miss America's age. The p-value of less than  $0.01$  indicates that this relationship is statistically significant.

The robustness of this correlation was further validated through a visual representation in the form of a scatterplot (Fig. 1). The figure depicts the clear trend of Miss America's age decreasing as the number of actuaries in Georgia increases, and vice versa. It is a compelling visual testament to the unexpectedly synchronized nature of these seemingly unrelated variables.

These findings prompt a reflection on the implications of such a correlation. While causality cannot be established from this analysis alone, the tantalizing question of whether fluctuations in the field of actuarial science could influence the age of Miss America lingers in the air. It is indeed a thought that could make one "act-uarily" pensive.



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

The jocular tonality of the findings should not detract from their substantive significance. This research adds a new dimension to the understanding of interconnected phenomena and serves as a reminder that the world of statistics and beauty pageantry may not be as disconnected as one might assume. Further studies are warranted to delve into the mechanisms underlying this correlation and its potential implications for the worlds of actuarial science and beauty pageantry.

### Discussion

The results of this study provide compelling evidence of a remarkably strong negative correlation between the number of actuaries in Georgia and the age of Miss America, thereby lending support to the prior research that hinted at the existence of curious interconnections within seemingly unrelated phenomena. Our findings align with the whimsical explorations of Smith (2010) into the influence of demographic factors on beauty pageants, as evidenced by the synchronized fluctuations between the demographic presence of actuaries and the age of Miss America. The robustness of the negative correlation underscores the unexpected link that Jones (2018) alluded to, emphasizing the potential for statistical anomalies to reveal meaningful associations, even in domains as seemingly disparate as actuarial science and beauty pageantry.

The data not only validated the existence of this correlation, but also quantified its strength with a correlation coefficient of  $-0.8557955$ . The  $r$ -squared value of  $0.7323859$  further reinforced the substantial explanatory power of changes in the number of actuaries in Georgia in predicting variations in Miss America's age. Such statistical support resonates with the arguments made by Doe (2015), who encouraged the exploration of unconventional connections in the world of data analysis. This study exemplifies the unforeseen statistical congruence between actuarial figures and the age of Miss America, embodying the aesthetic harmony of numbers, as provocatively suggested by Doe.

The visual representation in the form of a scatterplot serves as a compelling visual testament to the unexpected synchronization between these variables, adding a layer of empirical tangibility to the otherwise whimsically intriguing correlation. This resonates with the playful narratives offered by A. Novel (2012) and E. Story (2016), which indirectly inform our understanding

of the curious association between the two seemingly incongruent phenomena.

While the substantial negative correlation is noteworthy, causality remains elusive within the confines of this study. Nonetheless, the tantalizing question of whether fluctuations in the realm of actuarial science could indeed influence the age of Miss America emerges as a contemplative quandary, akin to an intricate actuarial problem waiting to be solved. Further investigation into the mechanisms underlying this correlation is warranted, in keeping with the multidimensional approach advocated by the literature review.

In conclusion, our findings encourage a re-evaluation of the presumed disconnect between domains such as actuarial science and beauty pageantry. The unexpected synchrony between the number of actuaries in Georgia and the age of Miss America challenges conventional beliefs and underscores the potential for serendipitous discoveries within the realms of statistical analysis and social phenomena. As we stand at the intersection of numbers and tiaras, the correlation uncovered in this study sparks not only further statistical inquiry, but also playful contemplation about the unanticipated harmony of seemingly unrelated domains.

### Conclusion

In conclusion, the results of this study corroborate the remarkably strong negative correlation between the number of actuaries in Georgia and the age of Miss America. As we wrap our minds around this curious statistical coupling, one cannot help but marvel at the whimsical tango of numbers and pageantry. The synchronicity between the ebb and flow of actuarial professionals and the youthful exuberance of Miss America raises more than a few eyebrows and elicits the occasional wry smile, serving as a poignant reminder that statistical analyses can often offer unexpected delights.

While the nuance of causality remains elusive, the implications of this correlation are both thought-provoking and smile-inducing. As the number of actuaries in Georgia fluctuates, Miss America's age pirouettes gracefully in response, prompting us to ponder the mystical connections between these distinct domains. It is as if the universe itself is engaging in a playful game of statistical charades, blurring the lines between mundanity and magnificence.

Nevertheless, in the spirit of academic rigor, it must be emphasized that the causal relationship between these variables remains unproven. Yet, one cannot resist a knowing smirk at the prospect of numbers quietly steering the pendulum of time for the belle of beauty pageantry.

In the grand theater of statistical analyses, this study serves as a tantalizing overture, inviting further exploration into the enigmatic interplay of actuarial science and beauty pageantry. Yet, in the spirit of prudent judgment, it is declared that the stage has been set, the actors have played their parts, and no further research is warranted in this particular domain. After all, one can only dissect a statistical jest so far before the humor escapes us.

In summary, the dance between the number of actuaries in Georgia and Miss America's age is an enigma that beckons us to revel in its whimsy, ponder the poetry of numerical serendipity, and, perhaps, indulge in a jest or two at the expense of statistical gravity.