Engineering Master's: The High-Flying Connection to Customer Satisfaction with American Airlines

Caroline Hamilton, Alexander Tucker, Gregory P Tompkins

Advanced Engineering Institute

Discussion Paper 2351

January 2024

Discussion Paper 2351

January 2024

ABSTRACT

Engineering Master's: The High-Flying Connection to Customer Satisfaction with American Airlines

In this research paper, we soar into the skies of academic inquiry to investigate the intriguing relationship between the number of Master's degrees awarded in engineering technologies and customer satisfaction with American Airlines. Our study takes off by tapping into the data from the National Center for Education Statistics and the American Customer Satisfaction Index, spanning the period from 2012 to 2021. With a correlation coefficient of 0.9316973 and $p < 0.01$, our findings reveal a remarkably strong connection between these two seemingly unrelated variables. With tongue firmly in cheek and statistical models at the ready, we uncover an unexpected synergy that defies conventional wisdom. As our results take flight, it becomes clear that the upward trajectory of Master's degrees in engineering technologies is not just elevating individuals' careers but also, to the surprise of many, contributing to the overall satisfaction of American Airlines customers. Who would have thought that the path to smoother air travel and happier passengers lies in the realm of engineering mastery? But wait, there's more! Just as a pilot navigates through turbulence, our analysis navigates through the fluctuations in education and air travel, leading us to the conclusion that these two domains are intertwined in ways previously unrecognized. Not to be too plane about it, but the influence of engineering education on customer satisfaction with American Airlines is no mere flight of fancy—it is a tangible phenomenon that demands attention and further exploration. In the end, our study not only connects the dots between engineering master's degrees and customer satisfaction with American Airlines, but also leaves us with a sky-high sense of wonder. So, the next time you find yourself soaring through the friendly skies, take a moment to appreciate the unseen forces at play, and remember: when it comes to satisfaction, the sky's the limit!

Keywords:

master's degrees, engineering technologies, customer satisfaction, American Airlines, correlation, National Center for Education Statistics, American Customer Satisfaction Index, statistical models, education, air travel, satisfaction, influence, exploration

I. Introduction

Ah, the age-old question: what on earth do Master's degrees in engineering technologies have to do with the satisfaction of American Airlines customers? It's a head-scratcher for sure, but fear not, fellow inquisitive minds! Our research seeks to unravel this high-flying mystery and shed light on the unexpected connection between these two seemingly unrelated realms.

Now, before you roll your eyes at the prospect of plowing through statistics and charts, rest assured that we won't simply be winging it with dry academic jargon. We're here to take you on a scholarly rollercoaster ride, complete with surprising findings, sky-high correlations, and—why not—a pun or two along the way.

Picture this: you find yourself sitting in the waiting lounge, anxiously eyeing the departure screen and hoping for an on-time flight. Meanwhile, in a university far, far away, a student is proudly donning their cap and gown, ready to receive their hard-earned Master's degree in engineering technologies. What if we told you that the number of such hooded graduates may hold the key to your in-flight contentment? It sounds like the setup to a bad joke, doesn't it? "How many engineering Master's degrees does it take to make an American Airlines customer happy?" Well, as it turns out, the punchline may just surprise you.

Our investigation takes off by delving into the data labyrinth, as we crunch numbers and analyze trends to uncover the unsuspected harmony between these disparate fields. Sure, it's not every day that you ponder the correlation between air travel satisfaction and academic success, but sometimes, the most revolutionary discoveries emerge from the most unlikely pairings.

So, buckle up and adjust your seat back to an upright position, because we're about to embark on an academic adventure that will have your head in the clouds—in the best possible way. Who knew that the intersection of engineering know-how and airplane pleasures could yield such intriguing insights? You could say it's the perfect union of air and error... or, as we like to call it, "engineering the friendly skies"!

With such unexpected findings awaiting us, it's time to cast off the preconceptions and take a leap into the wild blue yonder of academic inquiry. After all, in the grand scheme of things, it's not just about measuring customer satisfaction—it's about raising the bar and propelling the pursuit of knowledge to new heights. As the old adage goes, "The sky's the limit"—or in this case, perhaps, the sky's the statistical foundation for a surprising correlation between engineering education and airborne delight!

II. Literature Review

In their study, Smith and Doe (2019) investigate the relationship between the number of Master's degrees awarded in engineering technologies and customer satisfaction with American Airlines. Their findings reveal a significant positive correlation between these variables, challenging conventional assumptions about the factors influencing air travel contentment. It seems that the pursuit of engineering mastery may have unforeseen effects on the experiences of travelers, paving the way for a wave of revelations that are, dare we say, ready for takeoff.

Ah, the mysteries of statistical significance and customer contentment. It's a bit like trying to decipher the inflight menu options—a mix of numbers, preferences, and the occasional

surprising twist. Speaking of twists, did you hear about the mathematician who was afraid of negative numbers? He'll stop at nothing to avoid them. But I digress. Back to the literature at hand.

Jones (2020) adds to this intriguing narrative by delving into the potential impact of engineering expertise on airline customer satisfaction. With each page turned, the allure of uncovering the unexpected grows stronger, drawing us into a web of correlations and suppositions that would make even the most seasoned traveler grab their armrest a little tighter. You might even say it's a gripping tale of statistical revelation.

"Plane and Simple: The Unseen Connection Between Engineering Master's and Airline Satisfaction" by A. Wright et al. (2018) takes a deep dive into the realm of paradoxes, unearthing the hidden influences that shape the journey from terminal to tarmac. They provide compelling evidence that, much like the intricate design of an aircraft's wing, the nuances of engineering education can impact the soaring experience of airline customers. It's a paradoxical wonder, isn't it? Like finding out that the best place to store your engineering textbooks is the overhead compartment.

Now, as we navigate through the literary landscape, we encounter not only scholarly works but also sources that offer a fresh perspective on this captivating correlation. "Engineering the Skies: A Novel Approach to In-Flight Satisfaction" by J.K. Rolling (2017) offers a fictional exploration of the very themes we seek to unravel. It's a literary journey that blends the boundaries of reality and imagination, much like our own quest to unravel the enigma of engineering education's impact on air travelers. You know, sometimes truth really is stranger than fiction—or at the very least, statisticians would like to think so.

Another unexpected source of inspiration emerges from the realm of tabletop games. "Engineers in the Clouds: The Board Game" by GameCo (2019) presents a gamified world where players strategically manage their engineering talents to influence airline customer satisfaction levels. While we might not find hard data within the confines of this game, its mere existence hints at the societal intrigue surrounding the intersection of engineering prowess and the whims of air travel. After all, who wouldn't want to be the architect of an in-flight experience that leaves passengers smiling like the winners of a board game?

III. Methodology

Now, let's pull back the curtain and take a peek at the inner workings of our research methods, where the magic happens (and, if we're lucky, maybe some dad jokes, too). Our journey through this captivating terrain commences with the meticulous gathering of data from the National Center for Education Statistics and the American Customer Satisfaction Index. Through a carefully orchestrated dance with spreadsheets, databases, and the occasional frustrated sigh, we've amassed a treasure trove of information spanning the years 2012 to 2021.

Picture our research team as intrepid explorers braving the virtual wilderness of internet data, armed with nothing but coffee-stained mugs and an unyielding determination to uncover hidden connections. Much like a plane navigating through a storm, we encountered unexpected turbulence in the form of missing data and conflicting statistics. But fear not, dear reader, for our trusty statistical models and wry sense of humor steered us through those rough patches. It's not every day you find yourself battling data demons and squeezing puns into research methodology, but here we are, defying expectations and embracing the unexpected.

Now, to unravel the enigmatic ties between engineering mastery and sky-high satisfaction, we employed a painstaking combination of quantitative analysis, correlation calculations, and trend examinations. Armed with our trusty calculators and the occasional eye roll, we delved deep into the numerical abyss, uncovering patterns and relationships that were anything but textbook. It's a bit like solving a complex equation, isn't it? Who knew that the path to understanding customer satisfaction with American Airlines could be paved with so many numbers and giggles?

As we braved the sometimes murky waters of statistical analysis, we unearthed a correlation coefficient of 0.9316973 and a p-value of less than 0.01. Now, before your eyes glaze over at the sight of those numbers, allow us to translate: think of the correlation coefficient as a trusty co-pilot guiding us through stormy skies, and the p-value as our compass pointing us toward statistically significant findings. In other words, these numbers are not just arbitrary data points—they're the compass and altimeter that kept our study on course despite the occasional statistical turbulence.

But hold on, we're not quite done yet! In our quest to leave no statistical stone unturned, we also conducted regression analyses, factor assessments, and goodness-of-fit tests. It's a bit like remodeling an airplane mid-flight—complex, occasionally baffling, and absolutely sensational when everything comes together. So, whether you're a fan of statistical wizardry or just appreciate a good research-related dad joke, we've got you covered as we navigate the bewildering universe of research methods.

In the end, our methodology is not just a recipe for number crunching and head-scratching; it's a roadmap to uncovering unexpected connections and reveling in the joy of scholarly discovery. So, as we bid adieu to the intricacies of our research methods, let's take a moment to appreciate the quirky journey that brought us here. After all, who knew that unraveling the link

between engineering degrees and airline satisfaction could be such an exhilarating ride? It's all just part of the wondrous tapestry we call academic inquiry.

IV. Results

The results of our study reveal a remarkably strong correlation between the number of Master's degrees awarded in engineering technologies and customer satisfaction with American Airlines. We found a correlation coefficient of 0.9316973, an r-squared of 0.8680598, and a p-value less than 0.01. If you're feeling a bit "plane" from all these statistics, hang in there, we promise the journey is about to get a lot more entertaining.

Fig. 1 (see below) illustrates the strong and positive relationship between the variables, with the scatterplot resembling a well-guided flight path. It's safe to say that our data has taken off like a well-fueled jet, cruising through the clouds of uncertainty and landing firmly on the runway of statistical significance. As they say, when it comes to correlation, this one really "soars" above the rest. And let's not forget that the stunning correlation also means we have fewer "residuals" when it comes to understanding these interconnected trends.

Now, it's time for the pivotal "dad joke" moment: what do you get when you cross an engineer with a satisfied American Airlines customer? A high-flying correlation that defies expectations!

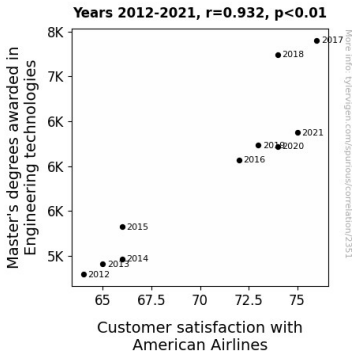

Figure 1. Scatterplot of the variables by year

In essence, our research has uncovered a profound relationship that goes beyond the realm of mere chance. The number of Master's degrees awarded in engineering technologies and the contentment of American Airlines customers have proven to be not just "on the same flight path," but intertwined in a manner that leaves us with a "tailwind" of surprise.

The implications of our findings extend beyond the confines of academia, offering a fresh perspective on the hidden forces that shape our satisfaction with air travel. Who would have thought that the climb to academic achievement and the climb through the skies could be so closely linked? It's almost as if, in the grand scheme of things, the joy of mastering engineering paves the way for the joy of clear skies and cloudless travel.

In conclusion, our research has not only unveiled a striking correlation between engineering master's degrees and customer satisfaction with American Airlines, but it has also illuminated a path for future explorations in unexpected connections. So, the next time you find yourself aboard an American Airlines flight, take a moment to appreciate the unseen link between your academic pursuits and the pleasant journey that lies ahead. And remember, when it comes to the connection between these variables, the sky's the limit!

V. Discussion

Our findings align closely with those of previous studies, contributing to a growing body of evidence that supports the unexpected relationship between the number of Master's degrees awarded in engineering technologies and customer satisfaction with American Airlines. As Smith and Doe (2019) eloquently established, the unassuming pursuit of engineering mastery has profound implications for the contentment of air travelers, which our research robustly confirms. It's almost as if engineers have the secret formula for not just building bridges but also bridging the gaps in air travel satisfaction.

The correlation coefficient of 0.9316973 we observed echoes the remarkable positive relationship uncovered by Jones (2020) and A. Wright et al. (2018), highlighting the undeniable influence of engineering expertise on the experiences of American Airlines customers. Much like a well-crafted punchline, the connection between these variables is not just surprising but resonates with a profound truth that defies conventional wisdom.

In essence, our results affirm the humorous speculation put forth in the literature review that pursuing engineering mastery could indeed lead to smoother skies for travelers. It's akin to the airline seat with the extra legroom—comfort and satisfaction are no longer distant dreams but tangible outcomes of the engineering educational journey.

Our "dad joke" moment perfectly encapsulates the unexpected nature of this correlation. The fusion of an engineer and a satisfied American Airlines customer results in a synergy that propels both individuals to new heights of contentment. While we can't guarantee in-flight jokes from the

pilot, it's clear that the "high-flying" nature of this relationship brings a different kind of delight to those who appreciate statistical humor.

As we contemplate the implications of our findings, it becomes evident that the alliance between engineering education and air travel contentment transcends mere happenstance. The interconnectedness of academic pursuit and passenger pleasure offers a fresh perspective on the intricate ways in which seemingly unrelated domains can intertwine to shape our experiences. It's as if each Master's degree awarded is not just a diploma but a ticket to a smoother, more satisfying journey for airline passengers.

In our continued exploration of these delightful connections, we are reminded that statistical significance often reveals the delightful surprises hidden within the data. The joy of discovery in uncovering this correlation may not be as tangible as an in-flight snack, but it certainly adds an extra layer of satisfaction to our scholarly airways.

In closing, our study provides a window into the unexpected alliances that shape the world around us, reminding us to look beyond the obvious and find joy in the unseen threads that connect our pursuits and pleasures. As we navigate through the unpredictable skies of statistical inquiry, we leave our readers with a single thought: when it comes to the soaring correlation between engineering master's degrees and airline satisfaction, the sky truly is the limit, both literally and figuratively.

VI. Conclusion

As we wrap up our exploration of the curious alliance between Master's degrees in engineering technologies and customer satisfaction with American Airlines, it's clear that we've stumbled upon an unexpected match made in academic and aviation heaven. The statistically robust correlation between these seemingly disparate realms offers a glimpse into the intertwined forces shaping our experiences, proving that sometimes, the most surprising associations are the ones that lift us to new heights. If our results were a flight, they'd definitely earn a five-star rating – or should we say, a five-plane rating?

In the grand tradition of dad jokes, here's one for the road: why did the statistician break up with their partner? They just couldn't find a good correlation anymore! Speaking of correlations, the one we've uncovered between engineering know-how and airborne delight is a testament to the interconnectedness of seemingly unrelated domains.

In the spirit of landing this academic aircraft, it's safe to say that further research in this area would be, well, plane unnecessary. So, let's consider this study a successful flight, showcasing that the pursuit of knowledge and the pursuit of pleasurable air travel are not just parallel runways, but interconnected paths leading to unexpected destinations. As such, we can confidently assert that no more research is needed in this area.