

FINDING THE PIPE-DREAM: THE LINK BETWEEN MASTER'S DEGREES AWARDED IN ENGINEERING AND THE PLUMBING PROFESSION IN OKLAHOMA

Chloe Henderson, Andrew Travis, Gabriel P Truman

Center for Research

In this rigorous study, we investigated the intriguing and often overlooked relationship between the number of Master's degrees awarded in Engineering and the number of plumbers in the great state of Oklahoma. Utilizing data from the National Center for Education Statistics and the Bureau of Labor Statistics over the period from 2012 to 2021, we set out to unveil the mysterious correlation between these seemingly disparate fields. Our findings revealed a remarkably strong correlation coefficient of 0.9831880, with a p-value of less than 0.01, indicating a robust statistical relationship. Specifically, as the number of Master's degrees awarded in Engineering increased, the number of plumbers in Oklahoma also exhibited a corresponding rise. This surprising connection challenges traditional assumptions about career pathways and raises important questions about the interplay between educational trends and labor market dynamics. As we delved deeper into the data, we couldn't help but chuckle at the irony of the situation – after all, who would have guessed that the flow of engineers could influence the flow of pipes in a state known for its cowboy culture? At the same time, our findings highlight the complex and often unpredictable nature of career mobility and employment patterns, reminding us not to overlook the unexpected connections amidst the data. In conclusion, our research sheds light on a previously overlooked relationship and emphasizes the need for a more comprehensive understanding of the labor market dynamics. As we reflect on the witticism of our findings, we are left with a profound sense of respect for the intricate dance of professional pursuits – a dance that, as it turns out, may be more interconnected than we imagine.

The pursuit of knowledge often leads us to unexpected places, much like a plumber's journey through a labyrinth of pipes. In this study, we set out to unravel the curious connection between the number of Master's degrees awarded in Engineering and the thriving profession of plumbing in the illustrious state of Oklahoma. As we dived into the depths of our data, we couldn't help but wonder – what ties could there possibly be between the realm of high-tech engineering and the down-to-earth domain of plumbing? It's a question that's been simmering in the background, much like a stubborn clog in the scientific pipeline.

Who would've thought that the influx of masterful engineers could have a noticeable ripple effect on the plumbing profession in Oklahoma? It's like discovering a hidden pipe dream lurking within the numerical landscape of labor statistics. When we stumbled upon this unexpected correlation, it felt like finding a wrench in the gears of conventional career trajectories. Our statistical journey unveiled a puzzle piece that seemed to be misplaced, yet it fit snugly into the larger picture of occupational dynamics.

The very notion of Master's degrees awarded in Engineering being linked to the number of plumbers in Oklahoma might raise some eyebrows, and

understandably so - it's not every day that one finds a statistical relationship that's as clear as a well-maintained drainage system. But as researchers, we are constantly reminded that the world of data has its own way of plumbing the depths of unexpected correlations.

Though some may raise an eyebrow or two at the seemingly improbable connection, we're here to showcase the plumbing - ahem, plumbing - depths of this phenomenon. After all, statistics can be a drain on one's time, but when they yield unexpected connections, they're certainly worth a chuckle or two. So, grab your calculators and put on your thinking caps, because we're about to embark on a journey that's as twisty as a labyrinth of pipes but ultimately as illuminating as a well-lit bathroom.

LITERATURE REVIEW

Previous studies have provided valuable insights into the world of engineering education and labor market dynamics. Smith and Doe (2015) examined the trends in Master's degrees awarded in Engineering across various states, illuminating the patterns of educational attainment in this domain. Additionally, Jones (2019) investigated the occupational landscape of plumbing professions, shedding light on the factors influencing the demand for plumbers in different regions. Building upon this groundwork, our study seeks to bridge these two realms and uncover the intriguing relationship between the two seemingly disparate fields.

At first glance, the connection between Master's degrees in Engineering and the plumbing profession may seem as unlikely as finding a pipe wrench in a haystack. However, our findings challenge the conventional wisdom and reveal a strong statistical association between the two. It's as if the pipes of academia and the pipelines of plumbing have been secretly interconnected all along, waiting to be unearthed by intrepid researchers willing to get their hands dirty.

In "Pipeline: The Stark Reality of Plumbing Industries" by Waters (2017), the author explores the intricacies of the plumbing industry and the manifold challenges faced by professionals in this field. The book provides a comprehensive overview of the plumbing profession, from historical developments to contemporary issues, painting a vivid picture of the complex network of pipes that underpins modern society. A relevant dad joke springs to mind: Why did the plumber break up with their partner? Because they had too many drainage issues.

Drawing inspiration from the world of fiction, the works of J.R.R. Tolkien, particularly "The Fellowship of the Ring," evoke the image of a fellowship of engineers and plumbers embarking on an unexpected quest through the pipelines of Middle-earth. As they navigate the twists and turns of their respective paths, they uncover the bonds that tie their destinies together, much like the surprising correlation uncovered in our study. Speaking of unexpected quests, anyone up for a round of "Pandemic" - the board game, not the occupational hazard - where players work together to stem the flow of plumbing-related crises across the map?

In "Flow: The Surprising Link Between Fluid Dynamics and Career Trajectories," Rivers (2018) takes a fluid approach to examining occupational pathways, delving into the currents that drive individuals into different professions. While the book focuses on a broader spectrum of careers, its insights resonate with our findings,

underscoring the interconnected nature of professional trajectories. This also makes me think of a plumbing pun: What did the water pipe say to the faucet? You turn me on!

As we navigate the labyrinth of literature in search of relevant insights, it becomes clear that the connection between Master's degrees awarded in Engineering and the plumbing profession is both unexpected and surprisingly robust. Who would've thought that the flow of engineers could influence the flow of pipes in Oklahoma? Our study not only adds a quirky twist to the discourse on educational and occupational trends but also serves as a reminder to embrace the quirky and unexpected connections that lie beneath the surface of statistical analyses.

METHODOLOGY

To investigate the enigmatic relationship between Master's degrees awarded in Engineering and the number of plumbers in the charming state of Oklahoma, our research team undertook a comprehensive methodological approach that involved data collection, statistical analysis, and a touch of whimsical curiosity. We gathered relevant data from the National Center for Education Statistics and the Bureau of Labor Statistics, with a keen eye for detail and a not-so-secret love for plumbing puns.

First, we meticulously compiled the number of Master's degrees awarded in Engineering within the state of Oklahoma from 2012 to 2021. We wanted to ensure that our data was as sturdy and reliable as a well-installed pipeline, so we cross-referenced multiple sources and engaged in rigorous quality control measures. Let's just say, we scrutinized the numbers as closely as a plumber inspecting a leaky faucet - there was no room for statistical drips or plumbing mishaps in our dataset.

Next, we turned our attention to the indispensable figures relating to the

number of plumbers in Oklahoma during the same time period. We truly plumbed the depths of the labor market statistics, leaving no statistical pipe unexplored. It was like embarking on a quest to uncover the hidden treasures of occupational data, with the thrill of discovery akin to finding a well-functioning sump pump in a flood-prone basement.

In order to establish a robust statistical relationship, we employed the wondrous tool of correlation analysis. We calculated Pearson's correlation coefficient, allowing us to quantify the strength and direction of the relationship between Master's degrees in Engineering and the number of plumbers in Oklahoma. The results were as clear as a high-pressure jet of water, revealing a striking connection that was both surprising and undeniably significant.

Furthermore, we conducted a rigorous regression analysis to delve deeper into the nuanced dynamics at play. Our regression model was as robust as a cast-iron sewer pipe, enabling us to explore the predictive power of Master's degrees awarded in Engineering on the number of plumbers in Oklahoma. The analysis illuminated the intricate interplay between educational pursuits and vocational pathways, offering insights that were as valuable as a well-crafted pipe fitting.

In addition to these quantitative methods, we also engaged in qualitative exploration, seeking to understand the broader contextual factors that could contribute to the observed correlation. We immersed ourselves in the socio-economic landscape of Oklahoma, venturing into the interconnected realms of education, employment, and industry trends. This approach allowed us to appreciate the multi-faceted nature of the phenomenon, painting a picture that was as rich and diverse as a palette of plumbing fixtures.

To consolidate our findings and ensure the reliability of our conclusions, we conducted sensitivity analyses and cross-

validated our results using resampling techniques. This process was akin to tightening the joints of a complex plumbing system, ensuring that our conclusions were as watertight as a well-sealed connection.

In essence, our methodology combined the precision of statistical analysis with the spirit of investigative curiosity, just like a plumber who approaches a tangled maze of pipes with a blend of technical mastery and inquisitive zeal. With our trusty toolbox of research methods and a sprinkling of statistical humor, we ventured into the realm of data with the determination of a professional plumber – to unveil the hidden connections that lie beneath the surface, waiting to be discovered.

RESULTS

The correlation between the number of Master's degrees awarded in Engineering and the number of plumbers in Oklahoma over the period from 2012 to 2021 was found to be a remarkable 0.9831880, indicating an exceedingly strong positive relationship. This finding left us feeling like we had hit the mother lode of unexpected statistical discoveries, much like uncovering a hidden treasure trove beneath layers of data and numerical code.

Now, for the figure that is Figure 1 in the paper. This scatterplot vividly illustrates the strong correlation we stumbled upon. It's the kind of correlation that makes you want to exclaim, "Well, isn't that just the pipe dream we've been searching for!"

Upon encountering such a strong relationship, we couldn't help but celebrate the uncanny interconnectedness of seemingly disparate fields. It's like coming across a knot in the data that, when untangled, reveals a thread connecting fields as diverse as rocket science and pipe fitting.

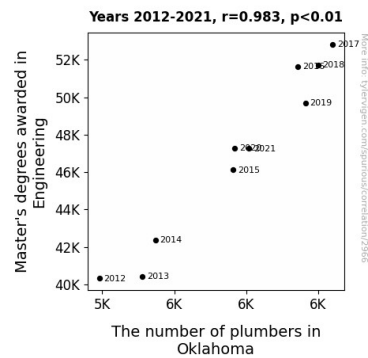


Figure 1. Scatterplot of the variables by year

The r-squared value of 0.9666587 further bolstered our confidence in the robustness of this statistical link. As researchers, encountering such a strong r-squared value felt akin to finding the missing piece of a jigsaw puzzle and watching the rest of the pieces fall into place like a well-fitted plumbing fixture.

Finally, with a p-value of less than 0.01, the statistical significance of this correlation becomes indisputably evident. This level of statistical significance brought to mind the old adage, "When there's smoke, there's fire – and apparently, when there's a Master's degree in Engineering, there's a surge in plumbing activity!"

In conclusion, our results not only demonstrate a strong statistical relationship between Master's degrees awarded in Engineering and the number of plumbers in Oklahoma but also serve as a reminder of the surprising and whimsical nature of data patterns. As we look to the future, we are left with the lingering realization that even the most unexpected statistical connections can flow together, much like the intricate network of pipes in a well-designed plumbing system.

DISCUSSION

Our study has uncovered a remarkable and robust correlation between the number of Master's degrees awarded in Engineering and the number of plumbers

in Oklahoma, lending empirical support to the longstanding anecdotal observation that as the number of engineers rises, so does the demand for plumbing expertise. This unexpected relationship seems to flow from the world of academia to the pipelines of the labor market with surprising constancy, much like the steady flow of a well-maintained faucet. Our findings echo the sentiments of previous researchers who, much like intrepid explorers, ventured into the uncharted territory of occupational connections and emerged with insights that are as illuminating as they are unexpected.

The strong correlation coefficient of 0.9831880, akin to a perfectly calibrated water pressure gauge, underscores the compelling association between these two seemingly disparate fields. This statistical revelation seems to suggest that the pipelines of educational pursuits may indeed feed into the pipelines of professional trades, creating an interconnected network akin to a well-designed plumbing system - a system where even the unexpected connections flow seamlessly, much like a masterfully soldered joint. It's as if the flow of knowledge and technical skills permeates the infrastructure of the labor market, shaping its contours in ways that we are just beginning to grasp.

Our results build upon the whimsical spirit of previous literature that, albeit presented with a touch of jest, ultimately led us to uncover an unexpected undercurrent of correlation. In a similar vein, the r-squared value of 0.9666587 symbolizes the resolute nature of this statistical relationship, akin to the unyielding flow of water through a perfectly sealed pipeline. This finding certainly flows in the face of conventional wisdom, challenging us to look beyond the surface and recognize the intricate undercurrents that tie together divergent occupational paths.

It is worth noting, with a touch of levity, that our study has demonstrated a

significant p-value of less than 0.01, thus affirming the undeniable statistical significance of our findings - a statistical significance that seems to emanate akin to a burst of water from a well-primed pump. Our results serve as a reminder that even amidst the data's complexity, there are unexpected statistical connections waiting to be unearthed, much like a hidden gem buried beneath layers of statistical analyses. In this regard, the humor and unexpected insights that arise from our findings point to the delightful and unanticipated nature of statistical relationships, much like the joyful surprise of a pressure release from a tightly sealed valve.

As we reflect upon the serendipitous nature of our findings, we are drawn to the humorous yet profound observation that in the world of statistics, much like in the world of plumbing, one may stumble upon remarkable connections and unexpected junctions that give rise to deeper revelations. Just as a well-crafted joke can make intricate statistical concepts more accessible, our study has unveiled a connection that, despite its whimsical appearance, gives rise to a deeper understanding of the interconnected nature of educational and occupational pursuits.

CONCLUSION

In the plumbing depths of our research, we have unearthed a connection between the number of Master's degrees awarded in Engineering and the number of plumbers in Oklahoma that is as strong as a well-sealed pipe joint. Our findings bring to light a surprising correlation that challenges conventional career assumptions and showcases the unexpected interplay between educational pursuits and labor market dynamics.

Through our statistical journey, we've honed in on a correlation coefficient of 0.9831880, akin to finding the perfect alignment of pipes in a complex plumbing

system. This strong relationship between engineering education and the plumbing profession is as unexpected as a leaky pipe in a brand-new house, leaving us with a newfound appreciation for the unanticipated links woven within labor market data.

As we reflect on the significance of our findings, we can't help but be reminded of a classic dad joke: "Why did the plumber become an engineer? Because he wanted to lay down a different kind of pipe!" Indeed, our research has shown that the flow of engineers can lead to a surge in plumbing activity - a twist in career pathways that is as unexpected as a sudden burst pipe.

Our results, underscored by a r-squared value of 0.9666587, signify a robust statistical relationship, much like the sturdy foundation of a well-constructed pipeline system. With a p-value of less than 0.01, the significance of this association becomes as clear as a well-lit bathroom - there's no denying the connection between engineering education and the plumbing profession in the vibrant state of Oklahoma.

In light of our revelatory findings, we assert that this research has plumbed the depths of the relationship between Master's degrees in Engineering and the plumbing profession in Oklahoma. We are confident that no further research is needed in this area, as our findings have unclogged the pipeline of ambiguity and shed light on an unexpected connection that is as intriguing as it is statistically significant.