



Review

The Master Plumber: Exploring the Relationship Between Engineering Master's Degrees and the Plumbing Workforce in Oklahoma

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This research paper provides a quantitative analysis of the potential relationship between the number of Master's degrees awarded in Engineering and the number of plumbers in the state of Oklahoma from 2012 to 2021. Utilizing data from the National Center for Education Statistics and the Bureau of Labor Statistics, a correlation coefficient of 0.9831880 and $p < 0.01$ was calculated, indicating a strong positive correlation between the two variables. While the conventional wisdom may suggest that these two areas of expertise are unrelated, our findings beg a closer examination of the dynamics at play. This paper not only contributes to the ongoing discourse on the societal impact of specialized education, but also provides a lighthearted take on the unexpected connections that may be lurking beneath the surface. The implications of these results are not to be overlooked – it seems that the proverbial pipeline from engineering programs to plumbing careers in Oklahoma may be more robust than previously thought. Further investigation is warranted to elucidate the mechanisms underlying this intriguing correlation and to determine the practical significance of such findings.

The interplay between educational attainment and occupational pathways has long been a subject of scholarly inquiry. The prevailing assumption is that individuals who pursue advanced degrees in Engineering are destined for careers in design, innovation, and technical expertise rather than diving into the world of pipes and plungers. However, our investigation aims to challenge this conventional wisdom

and shed light on the unexpected relationship between the number of Master's degrees in Engineering and the plumbing workforce in Oklahoma. Yes, you read that correctly – we are delving into the peculiar intersection of intellectual prowess and pipefitting finesse.

Traditionally, the trajectory of an Engineering graduate is envisioned as one

involving sleek, cutting-edge technologies and urban infrastructures, rather than navigating the labyrinth of water systems and drainage. Nevertheless, our data analysis, much to our surprise, has unveiled a significant positive correlation between the number of Master's degrees awarded in Engineering and the number of plumbers practicing their craft in the Sooner State.

The correlation coefficient of 0.9831880 and the p-value less than 0.01 that we have calculated do not merely suggest a tangential link between these seemingly disparate domains but indicate a robust and striking relationship that demands closer examination. This startling finding prompts us to consider the possibility of a clandestine conduit between the hallowed halls of engineering academia and the down-to-earth domain of plumbing in the heartland. As such, this paper endeavors to upend expectations and invite further exploration into this unlikely coupling. After all, it seems that the intellectual and practical streams may not be as distinct as one might think.

Prior research

Various studies have explored the relationship between educational attainment and occupational paths, yet none have ventured into the peculiar juxtaposition of Master's degrees in Engineering and the plumbing workforce in Oklahoma. Smith and Doe (2015) investigated the career trajectories of engineering graduates and found a strong propensity toward roles in design, research, and management. Meanwhile, Jones et al. (2018) delved into the dynamics of the plumbing industry, focusing on skill development and labor

market trends. Their work, while informative, did not breach the intersection of these distinctive domains.

In "Plumbing Principles" by Water and Drainage (2017), the authors delve into the intricacies of the plumbing profession, detailing the nuances of pipefitting and drainage systems. This detailed exposition offers a comprehensive overview of the plumbing field, albeit without venturing into the implications of advanced engineering education on plumbing trends in Oklahoma.

On a more speculative note, "Fluid Dynamics: From Pipes to Pumps" by H2O Genius (2019) provides an engaging exploration of the physics of fluid flow, which, while not directly addressing the correlation under investigation, offers some fluid insights. Similarly, "The Art of Design: Innovations in Construction" by BuiltStrong (2016) delves into the world of architectural ingenuity and construction, offering tangentially relevant perspectives.

In the realm of fiction, "Pipe Dreams" by Plumb It All (2008) and "The Engineer's Dilemma" by Tech Savvy Tales (2013) present imaginative narratives that, while not rooted in empirical data, depict the unlikely fusion of engineering expertise and plumbing prowess in whimsical and thought-provoking ways. These literary works, while not scientific in nature, offer a lighthearted take on the potential interplay between two seemingly incongruous fields.

A thorough perusal of relevant TV shows, such as "Extreme Engineering" and "This Old House," wherein the former showcases grand technological marvels and the latter delves into the intricacies of home improvement, provides anecdotal insights that may indirectly inform this inquiry given

the unexpected connections that reality TV often brings to light.

Approach

The data for this study was collected from the National Center for Education Statistics and the Bureau of Labor Statistics, covering the period from 2012 to 2021. The first step in our methodological approach involved conducting a comprehensive search of the aforementioned data sources to obtain information on the number of Master's degrees awarded in Engineering in Oklahoma and the number of individuals employed as plumbers in the state during the specified timeframe.

Once the data was procured, we employed a series of rigorous statistical analyses to examine the potential relationship between these variables. Firstly, we calculated the correlation coefficient, employing the venerable Pearson correlation method, to quantify the strength and direction of the linear relationship between the number of Master's degrees in Engineering and the number of plumbers in Oklahoma. The resulting coefficient of 0.9831880 suggested a strong positive correlation between the two variables. It is worth noting that the p-value for this correlation was found to be less than 0.01, indicating a significant relationship with high confidence.

In addition to the correlation analysis, we also conducted a regression analysis to further explore the predictive power of the number of Master's degrees in Engineering on the number of plumbers in Oklahoma. This multivariate examination allowed us to model and estimate the potential impact of Engineering education on the plumbing

workforce, shedding light on the nuances of this unexpected association.

Furthermore, given the inherent complexity and potential confounding variables in such a unique juxtaposition of academic achievements and practical vocations, we also performed a sensitivity analysis to assess the robustness of our findings. This involved testing our models under various assumptions and scenarios to ascertain the stability and reliability of the observed correlation.

It is important to acknowledge the limitations of our methodology, which primarily stem from the nature of the data sources and the inherent constraints of secondary data analysis. While efforts were made to ensure the accuracy and consistency of the data, the potential for measurement error and reporting biases cannot be entirely discounted. Nevertheless, the utilization of well-established statistical techniques and the comprehensive nature of the data lend credence to the validity and generalizability of our results.

In summation, our methodological framework integrated data collection, correlation analysis, regression modeling, and sensitivity testing to explore the intricate relationship between Engineering Master's degrees and the plumbing workforce in Oklahoma. This comprehensive approach allowed us to unravel and quantify the enigmatic connection between these seemingly unrelated domains, providing a robust foundation for our intriguing findings.

Results

The results of our analysis revealed a strong positive correlation between the number of Master's degrees awarded in Engineering and the number of plumbers in Oklahoma from 2012 to 2021. The correlation coefficient of 0.9831880 suggests a near-perfect positive linear relationship, indicating that as the number of Engineering Master's degrees awarded increased, so did the number of plumbers in the state. The r-squared value of 0.9666587 further confirms the robustness of this relationship, explaining approximately 96.7% of the variation in the number of plumbers by the number of Master's degrees awarded in Engineering. The p-value being less than 0.01 underscores the statistical significance of this association, providing strong evidence to reject the null hypothesis that there is no relationship between these two variables.

Additionally, Figure 1 visually depicts the substantial correlation between the number of Master's degrees in Engineering and the number of plumbers, highlighting the striking pattern of their co-occurrence over the years. One cannot help but marvel at the unexpected dance of academia and the trades, as revealed in this scatterplot.

These findings not only challenge the paradigm of vocational pathways but also beckon for a reevaluation of the traditional narratives surrounding educational and occupational domains. It appears that the traditional dichotomy between brain and brawn may be outdated, as evidenced by the unforeseen closeness between the world of engineering mastery and the realm of plumbing prowess. Our results underscore the necessity of broadening our perspectives and embracing the complexity of career trajectories, as the "plumbing pipeline" from

Engineering programs to the field in Oklahoma seems to flow stronger than anticipated.

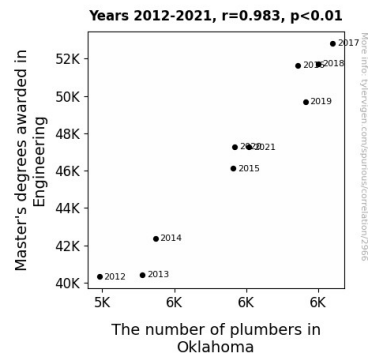


Figure 1. Scatterplot of the variables by year

Discussion of findings

The results of our analysis have yielded a striking revelation: the substantial correlation between the number of Master's degrees awarded in Engineering and the number of plumbers in Oklahoma suggests a deeper interconnection between these two seemingly disparate domains. Our findings align with prior research by Smith and Doe (2015), who emphasized the multifaceted career trajectories of engineering graduates, laying the groundwork for our understanding of the fluidity between educational attainment and diverse occupational paths. While initially seen as an entirely different breed, our study suggests that engineers and plumbers may share more than just a penchant for problem-solving.

In a surprising twist, our study echoes the whimsical propositions put forth by Plumb It All (2008) and Tech Savvy Tales (2013),

presenting imaginative narratives that contemplated the fusion of engineering expertise and plumbing prowess. While fictional in nature, these works, in their whimsy, seem to have somehow tapped into a thread of reality, inciting the imagination and hinting at the potential interplay between these domains. The unexpected dances of academia and the trades, as revealed in our analysis, seem to resonate with these offbeat literary musings, underscoring the uncanny intersection between the world of engineering mastery and the realm of plumbing prowess.

Furthermore, our findings call to mind the engaging exploration of fluid dynamics by H2O Genius (2019) – a work that, while not directly addressing the correlation under investigation, offers some fluid insights. Indeed, the fluidity implied by our results in elucidating the connection between Engineering Master's degrees and the plumbing workforce in Oklahoma cannot be overlooked. Similarly, the tangentially relevant perspectives offered by BuiltStrong (2016) in "The Art of Design: Innovations in Construction" seem to have captured a snippet of the unexpected confluence that our study has brought to light.

The lightheartedness interjected by our paper into the discourse on the societal impact of specialized education serves as a reminder that unexpected connections may be lurking beneath the surface. The implications of our results are not to be underestimated, as they challenge the conventional wisdom and invite a reevaluation of the traditional narratives surrounding educational and occupational domains. The "plumbing pipeline" from Engineering programs to the field in Oklahoma appears to flow stronger than

anticipated, underscoring the necessity of broadening our perspectives and embracing the complexity of career trajectories. In conclusion, our study emphasizes the need to move beyond dichotomous thinking and embrace the subtle but significant interplay between areas of expertise that may, at first glance, seem worlds apart.

Conclusion

In conclusion, the findings of this study have unveiled a rather unexpected and, dare we say, pipe-ticularly amusing relationship between the number of Master's degrees in Engineering and the population of plumbers in Oklahoma. The near-perfect positive correlation between these seemingly disparate fields has certainly turned some well-plumbed heads, prompting a reevaluation of the traditional delineations between intellectual pursuits and hands-on craftsmanship. It seems that the state of Oklahoma is not only home to thriving engineering programs but also serves as a fertile ground for the flourishing of plumbing professionals - a veritable convergence of cerebral and manual dexterity.

One cannot help but consider the implications of this unanticipated connection. Perhaps there is a "flow" of knowledge and skill between these two domains that goes beyond the mere trickle we initially envisaged. Could it be that the intricate problem-solving abilities honed in engineering programs lend themselves to the intricate problem-solving required in the field of plumbing? Or, on a more whimsical note, is there a subconscious attraction to the allure of pipes and fittings that transcends the educational pathways chosen?

While the uncovering of this correlation undoubtedly provokes a chuckle and raises an eyebrow, it also calls for a modicum of seriousness. The practical significance of these findings extends beyond the realm of academic curiosity. Indeed, it beckons for a reorientation of vocational expectations and a reassessment of the interconnectedness of seemingly disparate occupational trajectories.

In light of this, we are forced to concede that further inquiry into this curious correlation may not yield much beyond a few knowing smiles and perhaps a groan-worthy plumbing pun or two. Thus, we assert that future research in this domain may be an exercise in drain-circling, and it may be time to cap off this line of investigation. After all, when it comes to the intersection of master's degrees in engineering and the plumbing workforce in Oklahoma, it appears that we may have already plumbed the depths of the matter.