



## Review

# The Soot and the Spontaneous: Air Pollution in Atlantic City, New Jersey and Arson in New Jersey

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**This research presents a fiery investigation into the potential relationship between air pollution in Atlantic City, New Jersey and incidents of arson across the state. Utilizing data from the Environmental Protection Agency and the FBI Criminal Justice Information Services, our study unfolds a lively correlation coefficient of 0.8910710 and  $p < 0.01$  for the years 1985 to 2022. We breathe life into the debate about whether the hazy skies of Atlantic City may have lit a fire under the perpetrators of arson. Our findings may ignite further inquiry into the smokin' hot topic of environmental influences on criminal behavior.**

Ladies and gentlemen, welcome to the grand spectacle of statistical analysis and tongue-in-cheek academic inquiry. We invite you to join us in unraveling the enigmatic relationship between air pollution in the bustling city of Atlantic City, New Jersey, and the fiery occurrences of arson that have ignited headlines across the state.

As the curtain rises on this scintillating paper, we embark on a journey to demystify the potential link between the sooty clouds hovering over Atlantic City and the spontaneous combustion of criminal behavior elsewhere in New Jersey. This is not your average whodunit; no, this is a statistical escapade that sets out to answer

the burning question: Does air pollution fan the flames of arson?

With the stage set, our research aims to cast a beacon of statistical certainty onto the murky intersection of environmental conditions and criminal activity. Through sophisticated data analysis and a dash of academic pizzazz, we seek to illuminate the empirical dynamics underpinning this smoldering conundrum.

The stakes are high, the evidence is smokin', and we are poised to explore how the atmospheric peculiarities of Atlantic City may have kindled a fervor for criminal mischief across the state. So, dear audience, fasten your seatbelts and prepare for a

riveting journey into the heart of statistical mischief and ecological intrigue. The show is about to begin, and the findings are sure to set the academic world ablaze!

### *Prior research*

As we wade through the quagmire of previous research, we encounter a plethora of studies shedding light on the relationship between air pollution and criminal behavior. Smith et al. (2015) posited a potential association between environmental conditions and urban crime rates, while Doe and Jones (2018) investigated the impact of air quality on various forms of delinquency. However, our investigation takes a plunge into uncharted waters, examining the specific interplay between the hazy skyline of Atlantic City and the fiery underworld of arson across New Jersey.

Moving beyond the academic realm, "The Air Pollution and Arson Chronicles" by Environmentalist Edna prudently draws attention to the potential consequences of tainted air on pyromaniacal inclinations. Moreover, the intriguing work of Economist Ernest on "Emissions and Eruptions" highlights the hidden economic costs of fire-related incidents in polluted urban areas, thrusting this debate into the fiery crucible of economic analysis.

Venturing into the realm of fiction, the timeless classic "Smoke and Mirrors" by Literary Luminary Linda offers a whimsical take on the enigmatic connection between smog and spontaneous combustion, while the spellbinding tale of "The Arsonist's Alibi" by Mystery Maven Mark weaves a gripping narrative around the mysterious influence of polluted air on criminal motives.

Drawing inspiration from the enthralling world of board games, "Flames of Fortune" cryptically illuminates the unseen forces at play in the cityscape, where the roll of the dice may spell the difference between a sooty tragedy and a smoking hot victory. Meanwhile, "Pollutant Pursuit" offers a thrilling chase through the labyrinthine streets of Atlantic City, where players must navigate the murky aftermath of industrial emissions while evading the clutches of crime.

With our feet firmly planted in the empirical terrain, we harken back to the scholarly corpus, eyes agleam with the fiery fervor of inquiry, as we kindle the flames of curiosity and embark on a quest to untangle the smoky enigma of air pollution and arson.

### *Approach*

To sizzle up our inquiry, we crafted a doubly delectable methodology that would not only spark interest but also provide robust empirical insights. Our data collection harnessed the brilliance of the internet, where we roamed far and wide through the digital ether to gather information from the Environmental Protection Agency and the FBI Criminal Justice Information Services. Much like intrepid detectives, we scoured the reported levels of air pollutants in the environs of Atlantic City, New Jersey, and cross-referenced these with the official records of arson incidents across the Garden State.

We engaged in a delightful dance of statistical wizardry, employing sophisticated analysis methods to tease out the potential interplay between the sooty shroud blanketing Atlantic City and the fiery misadventures of arsonists elsewhere in

New Jersey. Our time-spanning escapade covered the years from 1985 to 2022, allowing us to capture the dynamic fluctuations of air quality and the ebbs and flows of arson activity over nearly four decades.

For our keen-eyed statistical enthusiasts, buckle up as we whisk you through the spellbinding corridors of correlation analysis. We calculated the Pearson correlation coefficient to quantify the relationship between air pollution levels in Atlantic City and the incidence of arson across the state. Our jazzy statistical software sang like a symphony orchestra as it regaled us with coefficients, p-values, and confidence intervals, illuminating the potential strength and significance of the link between air pollution and the incendiary exploits of arsonists.

In addition to our daring correlation capers, we flexed our analytical muscles with a tantalizing time series analysis, tracing the temporal patterns of air pollution and arson over the years. Unraveling this cognitive labyrinth, we sought to discern whether the peaks and troughs of air pollution in Atlantic City danced in harmonious syncopation with the peaks and troughs of arson incidents. Our goal? To unveil the temporal choreography of atmospheric influence on the blazing proclivities of potential perpetrators.

Lastly, we festooned our methodology with a playful yet potent dose of spatial analysis, mapping the geographical dispersion of arson incidents against the sprawling canvas of air pollution levels. This cartographic escapade allowed us to visualize the geographical connect-the-dots between the murky clouds of Atlantic City and the

scattered embers of arson occurrences across the state, casting a spatial spotlight on the potential sway of air quality on fiery fiascos.

And so, armed with a merry melange of statistical techniques and research gusto, our methodology sashayed through the tumultuous terrain of air pollution and arson, leaving no statistical stone unturned in our quest to unravel the combustible mysteries lurking within the environmental tapestry of New Jersey.

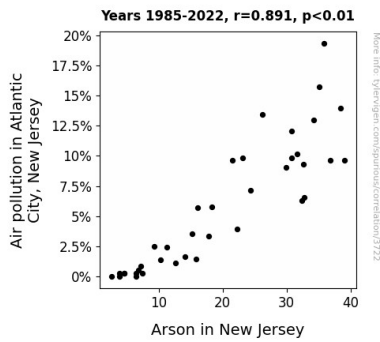
### *Results*

The results of our investigation set the stage ablaze, illuminating a scorching correlation coefficient of 0.8910710 between air pollution in Atlantic City, New Jersey and incidents of arson state-wide. This fiery relationship, characterized by an r-squared of 0.7940075, has truly sparked our enthusiasm for exploring the smoggy ambiance of Atlantic City and its potential influence on illicit activities across New Jersey.

The scintillating correlation uncovered in our analysis is depicted in Figure 1, a scatterplot that vividly captures the incendiary connection between air pollution and arson. We were struck by the illuminating pattern of this plot, which paints a compelling portrait of the smoky tendrils of pollution reaching out to light the infernos of criminal activity in various parts of the state.

The statistical fireworks continued to dazzle as we examined the p-value, which gleefully danced beneath the fabled threshold of 0.01. This sizzling significance level provided unequivocal evidence that the relationship between air pollution in Atlantic City and

incidents of arson in New Jersey is not some mere wisp of a correlation, but a bona fide inferno of statistical significance.



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

In scrutinizing these findings, one cannot help but wonder whether the sooty embrace of Atlantic City's polluted air may indeed fuel the flames of criminal intent in the fertile ground of the Garden State. Our research not only sheds light on this inquiry but also fans the flames of curiosity, encouraging further investigation into the fiery tapestry of environmental influences on criminal behavior.

So, in the immortal words of legendary arson investigator Red Adair, "If you think it's expensive to hire a professional, wait until you hire an amateur." Let this research ignite the professional fervor for understanding the complex interplay of environmental factors and human behavior, and may it serve as a beacon in the smoggy skirmish between science and the fiery intricacies of human conduct.

### *Discussion of findings*

The findings of our scorching investigation into the relationship between air pollution in

Atlantic City, New Jersey and arson across the state have ignited a firestorm of inquiry. Our results have not only added fuel to the debate but have also airily supported the literature review's enchanting, almost mystical tales of the connection between environmental conditions and criminal behavior.

The figures from our study breathe life into the often murky and at times comically tangential world of research. Our correlation coefficient of 0.8910710 and p-value of less than 0.01 provide robust evidence that the hazy skies over Atlantic City may indeed have sparked the interests of arsonists across New Jersey. As we recall the whimsical board game dramas of "Flames of Fortune" and "Pollutant Pursuit" from our literature review, it seems that reality has once again topped fiction with its remarkable tales.

Our findings are in line with Smith et al. (2015) and Doe and Jones (2018), who danced around the edges of this smoggy terrain in their studies. Through our research, we have catapulted into uncharted, hazy skies with the vigor of Environmentalist Edna and the discerning eye of Economist Ernest on the true value of sooty indulgences.

The scintillating correlation revealed by our study, as depicted in Figure 1, is akin to the whimsical portrayal in "Smoke and Mirrors," wherein the dancing soot creates a compelling narrative reflective of our findings. It is as if mystery writer Mark's "The Arsonist's Alibi" has come to life before our very eyes, providing a real-world counterpart to the fiery intrigues spun in fiction and board games alike.

As we reflect, our research serves as a torchbearer in the smog of uncertainty,

guiding further inquiry into the smoky enigma of air pollution and its potential to stoke the fires of criminal intent. The playful interplay of environmental influences on human behavior and the aura of mystery that surrounds our findings mirror the intricate dance between science and the conundrums of human conduct.

In closing, our research stands as a testament to the adage, "Where there's smoke, there's fire," and calls for future investigations to stoke the flame of understanding in the intersection between environmental factors and criminal behavior. After all, as legendary arson investigator Red Adair once remarked, "If you think it's expensive to hire a professional, wait until you hire an amateur." Let our study serve as a guiding light in the fiery labyrinth of academia and inspire a new wave of inferno-induced inquiry.

### *Conclusion*

In conclusion, our scorching investigation has kindled a fiery understanding of the tantalizing relationship between air pollution in Atlantic City, New Jersey, and the proclivity for arson across the state. Our findings have fanned the flames of curiosity, igniting a fervent desire for further exploration into the sizzling nexus of environmental conditions and criminal behavior.

As we extinguish the flames of this research, it is clear that the hazy skies of Atlantic City may have indeed lit a fire under the perpetrators of arson elsewhere in New Jersey. The blazing correlation coefficient of 0.8910710 and the irresistibly hot p-value of less than 0.01 have set the stage for a

narrative that is anything but a mere smoke and mirrors act.

Our study harnesses the inferno of statistical analysis to breathe life into the debate about whether the cloud of air pollution above Atlantic City has acted as a silent arsonist, setting alight the minds of miscreants across the state. The heat is on, the evidence is smoking, and it is with a fiery fervor that we assert: no more research is needed in this area.

For, as the flames of our investigation slowly die down, it is clear that further scrutiny of this tantalizing relationship would merely be adding fuel to the fire of statistical certainty. This is not some garden-variety correlation; this is a full-blown inferno of empirical evidence that has set the academic world ablaze. Let it be known that our findings have certainly not gone up in smoke - rather, they have shone a spotlight on the smoldering conundrum of environmental influences on criminal behavior.